Indian River County Purchasing Division
purchasing@ircgov.com

ADDENDUM NO. 3

Issue Date: September 25, 2019

Project Name: Hobart Park Baseball Field Project

Bid Number: 2020005

Bid Opening Date: **October 4, 2019 - UPDATED**

This addendum is being released to: answer questions received to date, update the bid specifications, bid form, and plans, and to extend the deadline for bids until **2:00 p.m. on October 4, 2019**.

Please note: No additional questions will be considered after this Addendum as the deadline for questions has passed.

The information and documents contained in this addendum are hereby incorporated in the invitation to bid. **This addendum must be acknowledged where indicated on the bid form, or the bid will be declared non-responsive.**

Attachments:
Updated Bid Form – Addendum 3 (redline)
Updated Bid Form – Addendum 3 (changes accepted)
New Specifications:
- Section 07411 – Metal Roof Panels
- Section 08111 – Standard Steel Doors and Frames
- Section 08411 – Aluminum-Framed Storefronts
- Section 08710 – Finish Hardware
- Section 09310 – Ceramic Tile
- Section 09911 – Exterior Paint
- Section 09912 – Interior Paint
- Section 10155 – Toilet Compartments
- Section 10801 – Toilet and Bath Accessories
- Specs for Big Roll Sod

New Plans:
- Hurricane Roof up Door Plans

Revised Civil Plans:
- Sheet 04 – Existing Conditions, Demo, & Clearing Plan
- Sheet 05 – Site Plan A

Addendum 3

Questions and Answers

1. LIVE OAK SPEC: It calls for 2" Caliper which is typically 10-12' Ht. with 4' Spread, however the Ht. Listed is 18-20' & 7-8' spread, that is typically a 5-6" Caliper Live Oak. Please clarify the spec. Caliper vs Height? Huge difference in pricing.
   Live oak spec should be changed to 12' HT, 4.5' spread, 2" Cal.

2. We need specifications on: Roofing, Doors & Hardware, Windows, roll up door, Sealed concrete finish.
   Specs for Metal Roof Panels, Standard Steel Doors and Frames, Aluminum-Framed Storefronts and Finish Hardware are included in this addendum. Sealed concrete finish to be a standard clear penetrating commercial silane siloxane concrete sealer.

3. Line Item #20 Fencing, only includes remove and relocate. Where will new fencing be included?
   All new fencing and cap lineal footage are shown as a new line item on the revised attached bid form.

4. Line Item #33 Concrete? Where is this concrete? Line item #34 Masonry? Where is this masonry?
   Concrete/Masonry is all concrete slabs and are shown on as a new line item on the revised attached bid form.

5. Can you provide the size of the relocated Sabal Palms? Where is the source of these Sabal Palms?
   Sizes of palms to be relocated range from 12"-14" DBH. Their locations are located by symbol on Sheets LC-2 and LC-3 of the construction plans.

6. Reading the specs, I did not see the Geotechnical engineer report, which it is mentioned under the section 26 – 2.3 Structural Parameters, letter C:
   C) The foundation design shall be based on soil parameters as outlined in the geotechnical report.
   The geotechnical report was provided in Addendum 2

7. Would you like a line item option for roll sod in lieu of sprigging the field?
   Line item 31 ALT has been added for an alternate option for big roll sod. Determination between sprigging and roll sod will be made at award.

8. Will the softball / hybrid field require a scoreboard?
   No scoreboard required.

9. Will you need us to provide pricing for home plates, pitching rubbers, and bases?
   No pricing for any of the above is required.

10. Will you need us to provide pricing for foul poles?
    No pricing for foul poles required.

11. Do you have a linear feet count for the fence cap?
    Lineal feet count for fence capping is listed on the line item bid sheets.

12. What size is the well casing for specified submersible pump? Please provide a well specification - What is the well casing type (Galvanized steel, PVC)? Has a test well been performed on site? If not, is it required? Please provide a well specification - What size is the well casing for specified submersible pump? What is the minimum depth requirement for the proposed well? What is the length and type of screen if required? Is this to be gravel packed?

No test well has been performed. All well related design information should be supplied by the contractor based on flow and pressure specifications on the irrigation plans.

13. IR Pg.9 Callout # 12 (Trench, Pipe and Wire). What is the communication cable for? Please provide a specification for the communication cable and any other required components for the communication cable from source to end point.
There is no communication cable, it was a stock detail. There is a control wire that runs from the controller to all valves.

14. Can Qualite Sports Lighting products be used instead of Musco?
No. Musco Lighting is utilized throughout our recreation system, enabling staff to operate lighting at all facilities through a single controller platform.

15. Are the fill quantity values "in place" which would include compaction?
Yes

16. Please verify, contractors are to include the Florida sales tax within our bid?
Yes, contractors are to include Florida sales tax.

17. Turf- Tifway 419 (of limited availability & no longer in Florida's Certification program). What would be an alternate turf- Latitude 36 or Celebration Bermuda?
Turf has been changed to Celebration Bermuda.

18. The bid forms specifies pricing for Bermuda sprigging instead of sod for the baseball fields. The plan sheet 9- calls for Bermuda Big roll sod. Which is correct?
The bid form has been updated to provide pricing for sprigging, with alternate pricing provided for big roll sod. Sprigging will be included in the base bid total, with the roll sod considered an alternate after award.

19. If sprigging is selected- what is the planting rate? 25 bushels per 1000 sf or ?
The required quantity will be dependent when the awarded Contractor schedules to sprig the field, based on their developed construction schedule and growth rate. The Contractor must plant enough springs and provide the required maintenance so that at the end of the warranty period, and/or prior to the County accepting the field, the field is grown in to big roll sod-like Celebration Bermuda grass count and playable conditions.

20. What is the sod grow in duration? 60 days?
The County will, within 14 days, inform the contractor whether installation has been completed satisfactorily, and if they have not been completed, what if any deficiency(ies) must be corrected before an 8-week warranty period will begin. If problems arise during the warranty period, the project will be deemed to be incomplete.

21. What is the sprig grow in duration? 120 days?
County acceptance will be 21 days after sprigs are planted

22. Is sand top dressing part of the grow in? If so what is application rate of sand & how many top dressings are required?
The Contractor will be responsible for installation methods and maintenance, irrigating, mowing, fertilizing, pest control, and all other turf maintenance practices for the 26 week warranty period.

23. The bid form- Specifies 450 cy of clay. This would be correct for the infield skins only. What type material & what quantity for warning tracks?
Material is 3" Crimson Stone and quantity is 400 CY.

24. Warning track- The plans show clay in warning track, However note on Sheet 9- call for 3" Crimson Stone – which is correct?
Material is 3" Crimson Stone

25. The area behind Homeplate is a low point & a 2x12 is shown on the backstop fence to hold in clay but also runoff. How is the rain water supposed to leave this area? Should some subsurface drainage be added? Exfiltration Trench or?
No other drainage is proposed.

26. Bull pens are shown but no detail. Are the bull pens by others?
Contractor is responsible for bullpen installation. Bullpens will be 10' tall galvanized chain link fence.

27. Can we use an alternate Pump control system as long as it is equivalent to pump station specifications pre plan? (Example: Hoover pump system, Rain Bird pump system ect.)
Bids should be in compliance with the items as specified in the plans and specifications, however, after award and execution of the agreement, the County will formally consider substitutes.

28. We would like clarification that sales tax is to be included in the bids, as of bid time, on the Musco lighting package. Or would the County like it excluded from the bid, since they may Direct purchase?
Everything on the bid form should reflect total cost for the CONTRACTOR to complete the work, so they should include sales tax.

Page 26 of 39 - Sample Agreement, Contract Time;

3.02 *Days to Achieve Substantial Completion, Final Completion and Final Payment*

29.

A. The Work will be completed and ready for final payment on or before the 270th day after the date when the Contract Times commence to run.

This Article is not standard in the public project construction industry, typically it would be 270 days to substantial completion and 30 days to final completion. Please clarify.
Final completion will be 270 days.

Page 27 of 39 - Sample Agreement, Liquidated Damages;

30.

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.02 above, plus any extensions thereof allowed in writing as a change order to this Agreement. Liquidated damages will commence for this portion of work. The parties also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER $1,148.00 for each calendar day that expires after the time specified in paragraph 3.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

This amount of liquidated damages seems excessive for this type of project, please consider lowering as it may drive proposal cost higher.

Liquidated damages are typical for municipal projects, based on the estimated dollar value of the project.

Addendum 3

31. Civil Sheet 9 of 15, Root Zone Mix and other specialty materials;

a. Please provide sand particle/gradation size and/or sieve analysis requirement for the 80% Good Quality Percolating Sand.
b. Is it the owner's intent to have the root zone mix manufactured off site from a USGA approved pit and delivered to the site for installation OR to have the material delivered separately and mixed on site by the contractor.
c. Please confirm the warning track is made up of 3" Crimson Stone only. Also, please provide contact information.
d. Please provide design and foundation /vertical support parameters for the scoreboard.
e. Please provide home plate and base specification and foundation details
f. If maintenance gates are required for grooming equipment access, please provide location and size
g. Please provide material specification for the bullpen(s) and surface

a. Sand must meet U.S.G.A. physical performance and specifications.
b. The rootzone mix should be mixed off site as specified. However, if the awarded bidder can demonstrate that they can mix onsite then have the root zone batch certified then the County would accept that.
c. Warning track is to be 3" Crimson Stone.
d. Contractor responsible for meeting 150 mph ultimate risk use factor 1 for scoreboard foundation.
e. Bases are not included in this bid.
f. Sheets 9 and 10 of the construction plans depict the size and location of the maintenance gates. They are located on each side near the outfield fence.
g. Bullpens shall be 10' tall galvanized chain link fence. Surface material shall be 15' of infield clay at each end and warning track material in the middle. All to be 4" deep. The cubic yardage of infield clay must be changed to 465 CY and warning track material must be changed to 420 CY on the line item bid sheets.

32. Architectural Sheet A2.30 Toilet Partitions; Please provide toilet partition & accessory specifications.
Specifications are attached as "10155 Toilet Compartments and 10801 Toilet and Bath Accessories"

33. Architectural Sheet A6.10 Finish Schedule;

a. Please provide restroom floor tile specifications
b. Please provide painting specifications
c. Please provide Door Hardware Group(s) specifications

Specifications are attached as:

a. 09310 Ceramic Tile
b. 09911 Exterior Paint, and 09912 Interior Paint
c. 08111 Standard Steel Doors and Frames, and 08710 Finish Hardware

34. The Addendum No. 1 Bid Form: Please provide a Bid Line Item for the New Baseball Field Fencing
Added to Bid Form – Addendum 3

35. There are 77 palm to be removed and only 42 are to be relocated. Are we to dispose of the remaining palms?
They are to be disposed of.

36. Are we to remove the 1" water service? Or are we just to cut and cap?
Close existing corp stop and plug.

37. Can we offer a different manufacturer for the dugouts?
Bids should be in compliance with the items as specified in the plans, however, after award and execution of the agreement, the County will formally consider substitutes.

38. Is there a spec or a material allowance we use for the tile in the restroom floors?
See question 33.

39. If the drainage, water and sewer quantities listed on the bid form differ from actual drawing quantities, should the contractor use the Bid Form Quantities?
Follow bid form quantities, using the Bid Form – Addendum 3

40. Foundation structural plans show MWF-40 and no other foundations. Foundation schedule also lists a MWF-24. Most of the wall foundations are 24" foundations. Are we to dimension the plans and assume the 24" foundation is typical?
Typical wall footings are MWF 24 unless otherwise noted. The MWF 40 is only under the double 8" cmu plumbing walls where noted.

41. What is the spec for the ceiling fan?
Ceiling fan to be provided by Owner

42. What is the spec for the hand dryer?
Acceptable Manufacturer: Excel Dryer Inc., which is located at: 357 Chestnut St. P. O. Box 365; East Longmeadow, MA 01028. ASD. Tel: 413-525-4531; Fax: 413-525- 2853; Email: sales@exceldryer.com; Web: www.exceldryer.com . Model: XL -BW White with Thermoset Cover.

43. Are we to install the reused bleachers? According to plans we are only installing the angle into the slab. Are the cut sheets available for the bleachers?
Contractor to remove and salvage bleachers. The County will relocate.

44. Are we to supply a flag with the flag pole?
Yes

45. Who is responsible for the relocation of the batting cages? If we are responsible is more information available for the type of structure to be relocated?
The County will remove the existing batting cages before construction has begun. The contractor will not be responsible for batting cage relocation. Proposed lighting for the relocated structure to remain in the project in anticipation of installation of new batting cages at a later date.

46. There is no sod indicated on the landscape plan? There is seed/mulch listed on the bid sheet but no sod? Is the seed & mulch hydroseed or regular? Is there a specification desired? Is no Bahia sod required?
See revised plan Sheet 05 – Site Plan A and Bid Form – Addendum 3, which reflects all disturbed areas outside of the baseball field fencing to be sodded with high quality Bahia grass rather than seed & mulch.

47. Sheet S-2 shows bleacher foundation plan with a quantity of 8. Site Plan shows 10 total bleacher slabs. Which is correct?
There are 10 total bleacher slabs.

48. Is Polygon dugouts is the only acceptable dugout per specification?
See answer to question 37.

49. What is the floor finish for the Covered entry?
Light Broom Finish

Indian River County Purchasing Division
1800 27th Street
Vero Beach, FL 32960
Phone (772) 226-1416

For Reference Only

Bid Form – Addendum 3

Project Name Hobart Park Baseball Field Project

Bid #:	2019055	
Bid Opening Date and Time:	October 4~~2~~, 2019	2:00 P.M.
Bid Opening Location:	Purchasing Division 1800 27th Street Vero Beach, FL 32960	

The following addenda are hereby acknowledged:

Addendum Number	Date

In accordance with all terms, conditions, specifications, and requirements, the Bidder offers the following:

Item and Description		Unit	Unit Price	Qty	Total
EROSION AND SEDIMENT CONTROL					
1.	Erosion and Sediment Control	LS	$	1	$
GENERAL					
2.	Mobilization	LS	$	1	$
3.	Clearing & Stripping	AC	$	5.75	$
4.	Excavation	CY	$	6,280	$
5.	Import Fill	CY	$	11,525	$
6.	Import Fill (Special - Infield Clay)	CY	$	~~450~~465	$
7.	Import Fill (Special – Warning Track)	CY	$	420	$
~~7~~8.	Grading	SY	$	48,000	$
~~8~~9.	Inline Drain (15")	EA	$	6	$
~~9~~10.	Type "C" Inlet	EA	$	5	$

Item and Description		Unit	Unit Price	Qty	Total
11	New Stormwater Control Structure	LS	$	1	$
12	HDPE - 12" Dia.	LF	$	733	$
~~14~~13	RCP - 18" Dia.	LF	$	~~894~~786	$
14	CAP – 18”	LF	$	105	$
15	MES - 18" Dia. RCP	EA	$	3	$
16	Parking Area - Asphalt 1.5" SP12.5	SY	$	2,640	$
17	Parking Area - Cemented Coquina Rock 6" Thick (Surface)	SY	$	2,700	$
18	Parking Area - 8" Stabilized Subgrade	SY	$	2,750	$
19	Sidewalks (6' wide 4" Thick)	SY	$	1,111	$
20	Fencing (To Be Removed ~~& Reinstall per Plan~~)	LF	$	1,380	$
20a	Fencing – 24’ Height w/cap	LF	$	190	$
20b	Fencing – 10’ Height w/cap	LF	$	1,720	$
20c	Fencing – 6’ Height w/cap	LF	$	1,130	$
20d	Fencing – Single Gate	EA	$	8	$
20e	Fencing – Double Gate	EA	$	4	$
20f	2” x 12” Wood Back Stop Backing	LF	$	190	$
21	Thermoplastic Parking Striping /Signs	LS	$	1	$
UTILITIES					
22	Sewer Wet Tap (12" x 4")	LS	$	1	$
23	Sewer Lateral (~~6"~~4” PVC w/cleanout)	LF	$	120	$
24	Sewer Lift Station	LS	$	1	$
25	Sewer Force Main (4" PVC)	LF	$	~~190~~50	$
25a	Sewer Force Main (2” PVC w/cleanout)	LF	$	140	$
26	Potable Water Wet Tap Connection (24" x 6")	LS	$	1	$
27	Potable Water Fire Hydrant Assembly w/ Valve	LS	$	1	$
~~28~~	~~Potable Water Service~~	~~LS~~	~~$~~	~~1~~	~~$~~
~~29~~	~~Potable Water - RPZ~~	~~LS~~	~~$~~	~~1~~	~~$~~
28	3/4" PVC Potable Water Service w/RPZ	LF	$	180	$
29	2” PVC Potable Water Services w/RPZ	LF	$	580	$
29a	4” x 16” Wet Tap w/2” threaded nipple	EA	$	1	$

Item and Description		Unit	Unit Price	Qty	Total
IRRIGATION					
30	Irrigation	LS	$	1	$
TURF					
31	Grassing - Performance Turf (Sprigged)	SY	$	12,900	$
31a	Grassing - Performance Turf (Sprigged)	SY	$	7,400	$
31 ALT	Alternate – Big Roll Sod in place of Performance Turf (Sprigged) – EXCLUDED from total bid price	SY	$		
SOD					
32	Grassing - Seed & Mulch (Argentine Bahia)	SY	$	27,700	$
CONCRETE / MASONARY					
33	Concrete / Masonary (all concrete slabs)	LS	$	1	$
STEEL					
34	Steel	LS	$	1	$
CONCESSION BUILDING					
35	Concession Building	LS	$	1	$
EQUIPMENT / SPECIAL					
36	Dugouts/ ~~Relocate Batting Cage~~/ Flagpole/ Scoreboard	LS	$	1	$
PLUMBING					
37	Plumbing	LS	$	1	$
BALLFIELD LIGHTING					
38	College Field New Lighting (furnish)	LS	$	1	$
38a	College Field New Lighting (install	LS	$	1	$
39	Softball Field Salvage Lighting (~~furnish~~remove)	LS	$	1	$
39a	Softball Field Salvage Lighting (install)	LS	$	1	$
ELECTRICAL					
40	Electrical	LS	$	1	$
SURVEYING					
41	Stake-Out/ As-Built Survey (Project Record Documents)	LS	$	1	$
LANDSCAPING					
42	Landscaping	LS	$	1	$
TREE MITIGATION FEE ASSESSMENT					

Item and Description		Unit	Unit Price	Qty	Total
43	Tree Mitigation Fee Assessment	LS	$	1	$
REMOVE / RELOCATE CABBAGE PALMS					
44	Remove / Relocate Cabbage Palms	LS	$	1	$
MISCELLANEOUS					
45	Miscellaneous*	LS	$	1	$
			Subtotal		$
Contingency			15%		$
	Total Bid Price		**$**		

Total Bid Price in Words

Includes any work described on the Construction Plans including electric and irrigation adjustments not specifically paid for in other items

The undersigned hereby certifies that they have read and understand the contents of this solicitation and agree to furnish at the prices shown any or all of the items above, subject to all instructions, conditions, specifications, and attachments hereto. Failure to have read all the provisions of this solicitation shall not be cause to alter any resulting contract or request additional compensation.

Company Name:_____

Company Address: _____

City, State:_____ Zip Code _____

Telephone: _____ Fax: _____

E-mail: _____

Business Tax Receipt Number: _____ FEIN Number: _____

Authorized Signature: _____ Date: _____

Name: _____ Title: _____
(Type / Printed)

Indian River County Purchasing Division
1800 27th Street
Vero Beach, FL 32960
Phone (772) 226-1416

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Contingency			15%		$
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Total Bid Price in Words

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Company Name: _____

Company Address: _____

City, State: _____ Zip Code _____

Telephone: _____ Fax: _____

E-mail: _____

Business Tax Receipt Number: _____ FEIN Number: _____

Authorized Signature: _____ Date: _____

Name: _____ Title: _____
(Type / Printed)

SECTION 07411 - METAL ROOF PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Factory-formed and field-assembled, standing-seam metal roof panels.

B. Related Sections include the following:
1. Division 7 Section "Sheet Metal Flashing and Trim" for fasciae, copings, flashings and other sheet metal work not part of metal roof panel assemblies.
2. Division 7 Section "Manufactured Roof Specialties" for fasciae and copings not part of metal roof panel assemblies.
3. Division 7 Section "Joint Sealants" for field-applied sealants not otherwise specified in this Section.

1.3 DEFINITIONS

A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous metal framing, thermal insulation, and accessories necessary for a complete weathertight roofing system.

B. Solar Flux: Direct and diffuse radiation from the sun received at ground level over the solar spectrum, expressed in watts per square meter.

C. Solar Reflectance: Fraction of solar flux reflected by a surface, expressed as a percent or within the range of 0.00 and 1.00.

D. Steel Sheet Thickness: Minimum thickness of base metal without metallic coatings or painted finishes.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide metal roof panel assemblies that comply with performance requirements specified as determined by testing manufacturers' standard assemblies similar to those indicated for this Project, by a qualified testing and inspecting agency.

B. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift resistance class indicated.

1. Uniform pressure as indicated on the Structural drawings.

C. FMG Listing: Provide metal roof panels and component materials that comply with requirements in FMG 4471 as part of a panel roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.

1. Fire/Windstorm Classification: Class 1A- 120.
2. Hail Resistance: MH.

D. Thermal Movements: Provide metal roof panel assemblies that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.5 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal roof panel and accessory.

B. Shop Drawings: Show fabrication and installation layouts of metal roof panels; details of edge conditions, joints, panel profiles, corners, anchorages, trim, flashings, closures, and accessories; and special details. Distinguish between factory- and field-assembled work.

1. Accessories: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches (1:10):

a. Flashing and trim.
b. Gutters.
c. Downspouts.

2. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

C. Coordination Drawings: Roof plans drawn to scale and coordinating penetrations and roof-mounted items. Show the following:

1. Roof panels and attachments.
2. Purlins and rafters.
3. Roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, snow guards, and items mounted on roof curbs.

D. Samples for Initial Selection: For each type of metal roof panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

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

1. Metal Roof Panels: 12 inches (300 mm) long by actual panel width. Include fasteners, clips, closures, and other metal roof panel accessories.
2. Trim and Closures: 12 inches (300 mm) long. Include fasteners and other exposed accessories.
3. Accessories: 12-inch- (300-mm-) long Samples for each type of accessory.

F. Qualification Data: For Installer.

G. Material Certificates: For, signed by manufacturers.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for the following:

1. Metal Roof Panels: Include reports for air infiltration, water penetration, and structural performance.
2. Insulation and Vapor Retarders: Include reports for thermal resistance, fire-test-response characteristics, water-vapor transmission, and water absorption.

I. Maintenance Data: For metal roof panels to include in maintenance manuals.

J. Warranties: Special warranties specified in this Section.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

1. Installer's responsibilities include fabricating and installing metal roof panel assemblies and providing professional engineering services needed to assume engineering responsibility.
2. Engineering Responsibility: Preparation of data for metal roof panels, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Source Limitations: Obtain each type of metal roof panels through one source from a single manufacturer.

C. Product Options: Drawings indicate size, profiles, and dimensional requirements of metal roof panels and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

D. Fire-Resistance Ratings: Where indicated, provide metal roof panels identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Combustion Characteristics: ASTM E 136.
2. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
3. Metal roof panels shall be identified with appropriate markings of applicable testing and inspecting agency.

E. Surface-Burning Characteristics: Provide insulated metal roof panels having insulation core material with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Flame-Spread Index: 25 or less, unless otherwise indicated.
2. Smoke-Developed Index: 450 or less, unless otherwise indicated.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, sheets, metal roof panels, and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.

B. Unload, store, and erect metal roof panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Protect strippable protective covering on metal roof panels from exposure to sunlight and high humidity, except to extent necessary for period of metal roof panel installation.

E. Protect foam-plastic insulation as follows:

1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to Project site before installation time.
3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal roof panels to be performed according to manufacturers' written instructions and warranty requirements.

B. Field Measurements: Verify locations of roof framing and roof opening dimensions by field measurements before metal roof panel fabrication and indicate measurements on Shop Drawings.

1.9 COORDINATION

A. Coordinate installation of roof curbs, equipment supports, and roof penetrations, which are specified in Division 7 Section "Roof Accessories."

B. Coordinate metal panel roof assemblies with rain drainage work, flashing, trim, and construction of parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

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

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

a. Structural failures, including rupturing, cracking, or puncturing.
b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

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

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

C. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

2.2 PANEL MATERIALS

A. Aluminum Sheet: Coil-coated sheet, ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.

1. Surface: Embossed finish.
2. Exposed Coil-Coated Finish:

a. 3-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

3. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

B. Panel Sealants:

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C 920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal roof panels and remain weathertight; and as recommended in writing by metal roof panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering High Temperature, Polyethylene-Faced Sheet: ASTM D 1970, 40 mils (1.0 mm) thick minimum, consisting of slip-resisting polyethylene-film reinforcing and top surface laminated to SBS-modified asphalt adhesive, with release-paper backing; cold applied.

1. Available Products:

a. Carlisle Coatings & Waterproofing, Div. of Carlisle Companies Inc.; Dri-Start "A."
b. Grace, W. R. & Co.; Grace Ice and Water Shield.
c. Henry Company; Perma-Seal PE.
d. Johns Manville International, Inc.; Roof Defender.
e. NEI Advanced Composite Technology; AC Poly Ice and StormSeal.
f. Owens Corning; WeatherLock.
g. Polyguard Products, Inc.; Polyguard Deck Guard.
h. Protecto Wrap Company; Rainproof TM.

B. Slip Sheet: Building paper, minimum 5 lb/100 sq. ft. (0.24 kg/sq. m), rosin sized.

2.4

2.5 MISCELLANEOUS MATERIALS

A. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal roof panels by means of plastic caps or factory-applied coating.

1. Fasteners for Roof Panels: Self-drilling or self-tapping 410 stainless or zinc-alloy steel hex washer head, with EPDM or PVC washer under heads of fasteners bearing on weather side of metal roof panels.
2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
3. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

B. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.6 STANDING-SEAM METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be field assembled by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1637.

B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels, and mechanically seaming panels together.

1. Available Manufacturers:

   a. AEP-Span.
   b. ATAS International, Inc.
   c. Delcoa Industries, Inc.
   d. MBCI; Div. of NCI Building Systems.

2. Material: Aluminum sheet, 0.040 inch (1.02 mm) thick.

   a. Exterior Finish: 3-coat fluoropolymer.
   b. Color: To match existing metal roof color on Campus..

3. Batten: Same material, finish, and color as roof panels.
4. Clips: Floating to accommodate thermal movement.

   a. Material: 0.0528-inch- (1.35-mm-) thick, steel sheet.

5. Joint Type: As standard with manufacturer.
6. Panel Coverage: 24 inches (610 mm).
7. Panel Height: 2.0 inches (51 mm).
8. Uplift Rating: UL 90.

2.7 ACCESSORIES

A. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels, unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal roof panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

B. Flashing and Trim: Provide flashing and trim as required to match roof material and to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal roof panels.

2.8 FABRICATION

A. General: Fabricate and finish metal roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended by metal roof panel manufacturer.

    a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal roof panel manufacturer for application but not less than thickness of metal being secured.

2.9 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal roof panel supports, and other conditions affecting performance of work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.
3. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.

B. Examine roughing-in for components and systems penetrating metal roof panels to verify actual locations of penetrations relative to seam locations of metal roof panels before metal roof panel installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.

B. Install flashings and other sheet metal to comply with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim."

C. Install fasciae and copings to comply with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim."

D. Miscellaneous Framing: Install subpurlins, eave angles, furring, and other miscellaneous roof panel support members and anchorage according to metal roof panel manufacturer's written recommendations.

3.3 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free, on roof sheathing under metal roof panels. Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply over entire roof, in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Extend underlayment into gutter trough. Roll laps with roller. Cover underlayment within 14 days.

1. Roof perimeter for a distance up from eaves of 24 inches (600 mm) beyond interior wall line.
2. Hips and ridges for a distance on each side of 12 inches (300 mm).

B. Install flashings to cover underlayment to comply with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim."

C. Apply slip sheet over underlayment before installing metal roof panels.

3.4 METAL ROOF PANEL INSTALLATION, GENERAL

A. General: Provide metal roof panels of full length from eave to ridge, unless otherwise indicated or restricted by shipping limitations. Anchor metal roof panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cutting of metal roof panels by torch is not permitted.
2. Install panels perpendicular to roof structure.
3. Rigidly fasten eave end of metal roof panels and allow ridge end free movement due to thermal expansion and contraction. Predrill panels.
4. Provide metal closures at peaks and each side of ridge and hip caps.
5. Flash and seal metal roof panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
6. Locate and space fastenings in uniform vertical and horizontal alignment.
7. Install ridge and hip caps as metal roof panel work proceeds.
8. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
9. Lap metal flashing over metal roof panels to allow moisture to run over and off the material.

B. Fasteners:

1. Aluminum Roof Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior and aluminum or galvanized steel fasteners for surfaces exposed to the interior.
2. Copper Roof Panels: Use copper or stainless-steel fasteners.
3. Stainless-Steel Roof Panels: Use stainless-steel fasteners.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

1. Coat back side of aluminum roof panels with bituminous coating where roof panels will contact wood, ferrous metal, or cementitious construction.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal roof panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal roof panel manufacturer.

1. Seal metal roof panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal roof panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

3.5 FIELD-ASSEMBLED METAL ROOF PANEL INSTALLATION

A. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
4. Seamed Joint: Crimp standing seams with manufacturer-approved motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.

3.6 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

3.7 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal roof panel units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.8 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal roof panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07411

SECTION 08111 - STANDARD STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Standard hollow-metal steel doors.
2. Standard hollow-metal steel frames.

B. Related Sections include the following:

1. Division 8 Section "Glazing" for glazed lites in standard steel doors and frames.
2. Division 8 Sections for door hardware for standard steel doors.
3. Division 9 painting Sections for field painting standard steel doors and frames.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, core descriptions, label compliance, fire-resistance and temperature-rise ratings, and finishes for each type of steel door and frame specified.

B. Shop Drawings: In addition to requirements below, provide a schedule of standard steel doors and frames using same reference numbers for details and openings as those on Drawings:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details.
3. Frame details for each frame type, including dimensioned profiles.
4. Details and locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, accessories, joints, and connections.
7. Details of glazing frames and stops showing glazing.
8. Details of conduit and preparations for electrified door hardware and controls.

C. Coordination Drawings: Drawings of each opening, including door and frame, drawn to scale and coordinating door hardware. Show elevations of each door design type, showing dimensions, locations of door hardware, and preparations for power, signal, and control systems.

D. Oversize Construction Certification: For standard steel door assemblies required to be fire rated and exceeding limitations of labeled assemblies; include statement that doors comply with requirements of design, materials, and construction but have not been subjected to fire test.

E. Product Test Reports: Based on evaluation of comprehensive fire tests performed by a qualified testing agency, for each type of standard steel door and frame.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.

C. Source Limitations: Obtain standard steel doors and frames through one source from a single manufacturer.

D. Fire-Rated Door Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated.

1. Test Pressure: Test at atmospheric (neutral) pressure according to NFPA 252 or UL 10B.
2. Test Pressure: Test according to NFPA 252 or UL 10C. After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill.
3. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-protection-rated door assemblies except for size.
4. Temperature-Rise Rating: At exit enclosures, provide doors that have a temperature-rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber.

1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION

A. Coordinate installation of anchorages for standard steel frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Amweld Building Products, LLC.
2. Ceco Door Products; an ASSA ABLOY Group Company.
3. CURRIES Company; an ASSA ABLOY Group Company.
4. Republic Builders Products Company.
5. Steelcraft; an Ingersoll-Rand Company.

2.2 MATERIALS

A. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A60 zinc-iron-alloy (galvannealed) coating designation.

B. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized.

C. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.

D. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153/A 153M.

E. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching standard steel door frames of type indicated.

F. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. (96- to 192-kg/cu. m) density; with maximum flame-spread and smoke-developed indexes of 25 and 50 respectively; passing ASTM E 136 for combustion characteristics.

G. Glazing: Comply with requirements in Division 8 Section "Glazing."

H. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD STEEL DOORS

A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces, unless otherwise indicated. Comply with ANSI A250.8.

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, mineral-board, or vertical steel-stiffener core that produces doors complying with ANSI A250.8.

    a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
    b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than 6.0 deg F x h x sq. ft./Btu (1.057 K x sq. m/W) when tested according to ASTM C 1363.

        1) Locations: Exterior doors and interior doors where indicated.

3. Vertical Edges for Single-Acting Doors: Square edge.

    a. Beveled Edge: 1/8 inch in 2 inches (3 mm in 50 mm).

4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch (54-mm) radius.
5. Top and Bottom Edges: Closed with flush or inverted 0.042-inch- (1.0-mm-) thick end closures or channels of same material as face sheets.
6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

1. Level 4 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).

C. Interior Doors: Face sheets fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior door requirements. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

1. Level 3 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).

D. Hardware Reinforcement: Fabricate reinforcement plates from same material as door face sheets to comply with the following minimum sizes:

1. Hinges: Minimum 0.123 inch (3.0 mm) thick by 1-1/2 inches (38 mm) wide by 6 inches (152 mm) longer than hinge, secured by not less than 6 spot welds.
2. Pivots: Minimum 0.167 inch (4.2 mm) thick by 1-1/2 inches (38 mm) wide by 6 inches (152 mm) longer than hinge, secured by not less than 6 spot welds.
3. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0.067 inch (1.7 mm) thick.
4. All Other Surface-Mounted Hardware: Minimum 0.067 inch (1.7 mm) thick.

E. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD STEEL FRAMES

A. General: Comply with ANSI A250.8 and with details indicated for type and profile.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

1. Fabricate frames with mitered or coped and welded face corners and seamless face joints.
2. Frames for Level 4 Steel Doors: 0.078-inch thick steel sheet, unless otherwise indicated.

C. Interior Frames: Fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior frame requirements.

1. Fabricate frames with mitered or coped and welded face corners and seamless face joints, unless otherwise indicated.
2. Fabricate knocked-down frames with mitered or coped corners, for field assembly.
3. Frames for Level 3 Steel Doors: 0.063-inch thick steel sheet, unless otherwise indicated.
4. Frames for Wood Doors: 0.063-inch thick steel sheet.
5. Frames for Borrowed Lights: 0.052-inch- thick steel sheet.

D. Hardware Reinforcement: Fabricate reinforcement plates from same material as frames to comply with the following minimum sizes:

1. Hinges: Minimum 0.123 inch (3.0 mm) thick by 1-1/2 inches (38 mm) wide by 6 inches (152 mm) longer than hinge, secured by not less than 6 spot welds.
2. Pivots: Minimum 0.167 inch (4.2 mm) thick by 1-1/2 inches (38 mm) wide by 6 inches (152 mm) longer than hinge, secured by not less than 6 spot welds.
3. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0.067 inch (1.7 mm) thick.
4. All Other Surface-Mounted Hardware: Minimum 0.067 inch (1.7 mm) thick.

E. Supports and Anchors: Fabricated from electrolytic zinc-coated or metallic-coated steel sheet.

F. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.

G. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch (50-mm) height adjustment. Terminate bottom of frames at finish floor surface.

H. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.5 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, fabricated from same material as door face sheet in which they are installed.

B. Fixed Frame Moldings: Formed integral with standard steel frames, minimum 5/8 inch (16 mm) high, unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, fabricated from same material as frames in which they are installed.

2.6 FABRICATION

A. General: Fabricate standard steel doors and frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Standard Steel Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.

C. Standard Steel Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners, unless otherwise indicated.
3. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
4. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Masonry Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Two anchors per jamb up to 60 inches (1524 mm) in height.
        2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) in height.
        3) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) in height.
        4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof more than 120 inches (3048 mm) in height.

    b. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Three anchors per jamb up to 60 inches (1524 mm) in height.
        2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) in height.
        3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) in height.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof more than 96 inches (2438 mm) in height.
        5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.

5. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.

    a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Hardware Preparation: Factory prepare standard steel doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."

1. Reinforce doors and frames to receive nontemplated mortised and surface-mounted door hardware.
2. Comply with applicable requirements in ANSI A250.6 and ANSI/DHI A115 Series specifications for door and frame preparation for hardware. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of door or frame.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings such that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of doors and frames.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.7 STEEL FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish standard steel door and frames after assembly.

B. Metallic-Coated Steel Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.

1. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

C. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel; comply with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

D. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils (0.018 mm).

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of standard steel doors and frames.

1. Examine roughing-in for embedded and built-in anchors to verify actual locations of standard steel frame connections before frame installation.
2. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory.

B. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.

C. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Standard Steel Frames: Install standard steel frames for doors and borrowed lights and other openings, of size and profile indicated. Comply with SDI 105.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. At fire-protection-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable glazing stops located on secure side of opening.
    d. Install door silencers in frames before grouting.
    e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    f. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    g. Apply bituminous coating to backs of frames that are filled with mortar, grout, and plaster containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with postinstalled expansion anchors.

    a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar as specified in Division 4 Section "Unit Masonry Assemblies."
5. Installation Tolerances: Adjust standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

C. Standard Steel Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

    a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

D. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with standard steel door and frame manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c., and not more than 2 inches (50 mm) o.c. from each corner.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.

B. Clean grout and other bonding material off standard steel doors and frames immediately after installation.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

D. Galvannealed Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 08111

SECTION 08411 - ALUMINUM-FRAMED STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and Technical Provisions of the Contract, including General and Supplementary Conditions and Division 0 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Exterior aluminum-framed storefronts.

a. Glazing is retained mechanically with gaskets on four sides.

B. Related Sections include the following:

1. Division 7 Section "Joint Sealants" for installation of joint sealants installed with aluminum-framed systems and for sealants to the extent not specified in this Section.
2. Division 8 Section "Finish Hardware" for hardware to the extent not specified in this Section.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide aluminum-framed systems, including anchorage, capable of withstanding, without failure, the effects of the following:

1. Structural loads.
2. Thermal movements.
3. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
4. Dimensional tolerances of building frame and other adjacent construction.
5. Failure includes the following:

a. Deflection exceeding specified limits.
b. Thermal stresses transferred to building structure.
c. Framing members transferring stresses, including those caused by thermal and structural movements, to glazing.
d. Noise or vibration created by wind and thermal and structural movements.
e. Loosening or weakening of fasteners, attachments, and other components.
f. Sealant failure.
g. Failure of operating units to function properly.

B. Structural Loads:

1. Wind Loads: As indicated on Structural Drawings.

C. Deflection of Framing Members:

1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches (4.1 m) and to 1/240 of clear span plus 1/4 inch (6.35 mm) for spans greater than 13 feet 6 inches (4.1 m) or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19 mm), whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch (3.2 mm), whichever is smaller.

D. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
3. Test Durations: As required by design wind velocity but not less than 10 seconds.

E. Windborne-Debris-Impact-Resistance-Test Performance: Provide aluminum-framed systems that pass large and small missile-impact tests and cyclic-pressure tests according to the Florida Building Code.

F. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

G. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa).

H. Water Penetration Under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa).

1. Maximum Water Leakage: According to AAMA 501.1. Water controlled by flashing and gutters that is drained to exterior and cannot damage adjacent materials or finishes is not considered water leakage.

I. Average Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having average U-factor of not more than 0.69 Btu/sq. ft. x h x deg F (3.92 W/sq. m x K) when tested according to AAMA 1503.

J. Sound Transmission: Provide aluminum-framed systems with fixed glazing and framing areas having minimum STC 32 according to ASTM E 413 and an OITC 26 according to ASTM E 1332, as determined by testing according to ASTM E 90.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of product indicated.

B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.

1. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
2. Include details of provisions for system expansion and contraction and for draining moisture occurring within the system to the exterior.
3. For entrances, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.

C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.

D. Fabrication Sample: Of each vertical-to-horizontal intersection of systems, made from 12-inch (300-mm) lengths of full-size components and showing details of the following:

1. Joinery.
2. Anchorage.
3. Expansion provisions.
4. Glazing.
5. Flashing and drainage.

E. Qualification Data: For Installer.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems.

G. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Capable of assuming engineering responsibility and performing work of this Section and who is acceptable to manufacturer.

1. Engineering Responsibility: Preparation of data for aluminum-framed systems including Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project and submission of reports of tests performed on manufacturer's standard assemblies.

B. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

C. Accessible Entrances: Comply with FED-STD-795, "Uniform Federal Accessibility Standards."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Arch Aluminum & Glass Co., Inc.
2. Kawneer.
3. YKK
4. Vistawall Architectural Products.

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Structural Profiles: ASTM B 308/B 308M.

2.3 FRAMING SYSTEMS

A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Construction: Framing members are composite assemblies of two separate extruded-aluminum components permanently bonded by an elastomeric material of low thermal conductance.

B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

1. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
2. Reinforce members as required to receive fastener threads.

D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.

E. Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials. Form exposed flashing from sheet aluminum finished to match framing and of sufficient thickness to maintain a flat appearance without visible deflection.

F. Framing System Gaskets and Sealants: Manufacturer's standard recommended by manufacturer for joint type.

2.4 GLAZING SYSTEMS

A. Glass: Impact resistant glass complying with the Florida Building Code for missile impact requirements.

B. Glazing Gaskets: Manufacturer's standard compression types, replaceable, molded or extruded, that maintain uniform pressure and watertight seal.

C. Spacers and Setting Blocks: Manufacturer's standard elastomeric types.

2.5 ACCESSORY MATERIALS

A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 7 Section "Joint Sealants."

B. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.6 FABRICATION

A. Form aluminum shapes before finishing.

B. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Means to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
4. Physical and thermal isolation of glazing from framing members.
5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
6. Provisions for field replacement of glazing from exterior.
7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

C. Mechanically Glazed Framing Members: Fabricate for flush glazing (without projecting stops).

D. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.7 ALUMINUM FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

1. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
6. Seal joints watertight, unless otherwise indicated.

B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

D. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" and to produce weathertight installation.

E. Install components plumb and true in alignment with established lines and grades, without warp or rack.

F. Install glazing as specified in Division 8 Section "Glazing."

G. Install perimeter joint sealants as specified in Division 7 Section "Joint Sealants" and to produce weathertight installation.

H. Erection Tolerances: Install aluminum-framed systems to comply with the following maximum tolerances:

1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
2. Alignment:

    a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm).
    b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).

3. Diagonal Measurements: Limit difference between diagonal measurement to 1/8 inch (3 mm).

END OF SECTION 08411

SECTION 08710 - FINISH HARDWARE

PART 1 GENERAL

1.01 WORK INCLUDED

A. The work in this section shall include furnishing of all items of finish hardware as hereinafter specified or obviously necessary to complete the building, except those items that are specifically excluded from this section of the specification.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. 08111 - Steel Doors and Frames

1.03 DESCRIPTION OF WORK

A. Furnish labor and material to complete hardware work indicated, as specified herein, or as may be required by actual conditions at building.

B. Include all necessary screws, bolts, expansion shields, other devices, if necessary, as required for proper hardware application. The hardware supplier shall assume all responsibility for correct quantities.

C. Hardware shall meet the requirements of Federal, State and Local codes having jurisdiction over this project, notwithstanding any real or apparent conflict therewith in these specifications.

D. Fire-rated openings:
   1. Provide hardware for fire-rated openings in compliance with A.I.A. (NBFU) Pamphlet No. 80, NFPA Standards NO. 101, UBC 702 (1997) and UL10C. This requirement takes precedence over other requirements for such hardware. Provide only hardware that has been tested and listed by UL for the types and sizes of doors required, and complies with the requirements of the door and door frame labels.
   2. Where panic exit devices are required on fire-rated doors, provide supplementary marking on door UL label indicating Fire Door to be equipped with fire exit hardware and provide UL label on exit device indicating “Fire Exit Hardware”.

E. Fasteners:
   1. Hardware as furnished shall conform to published templates generally prepared for machine screw installation.
   2. Furnish each item complete with all screws required for installation. Typically, all exposed screws installation.
   3. Insofar as practical, furnished concealed type fasteners for hardware units that have exposed screws shall be furnished with Phillips flat head screws, finished to match adjacent hardware.
   4. Door closers and exit devices to be installed with closed head through bolts (sex bolts).

F. Exterior openings
   1. Provide hardware for hurricane openings in compliance with local jurisdiction.
      This requirement takes precedence over other requirements for such hardware. Provide only hardware that has been tested and listed by local authority for the types and sizes of doors required, and complies with the requirements of the door and door frame. Coordinate Section (08710) Finish Hardware with the Hollow Metal Doors and Frames (08111).

1.04 QUALITY ASSURANCE

A. The supplier to be a directly franchised distributor of the products to be furnished and have in their employ an AHC (Architectural Hardware Consultant). This person is to be available for consultation to the architect, owner and the general contractor at reasonable times during the course of work.

B. The finish hardware supplier shall prepare and submit to the architect six (6) copies of a complete schedule identifying each door and each set number, following the numbering system and not creating any separate system himself. He shall submit the schedule for review, make corrections as directed and resubmit the corrected schedule for final approval. Approval of schedule will not relieve Contractor of the responsibility for furnishing all necessary hardware, including the responsibility for furnishing correct quantities.
C. No manufacturing orders shall be placed until detailed schedule has been submitted to the architect and written approval received.
D. After hardware schedule has been approved, furnish templates required by manufacturing contractors for making proper provisions in their work for accurate fitting, finishing hardware setting. Furnish templates in ample time to facilitate progress of work.
E. Hardware supplier shall have an office and warehouse facilities to accommodate the materials used on this project. The supplier must be an authorized distributor of the products specified.
F. The hardware manufactures are to supply both a pre-installation class as well as a post-installation walk-thru. This is to insure proper installation and provide for any adjustments or replacements of hardware as required.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Wrap, protect finishing hardware items for shipment. Deliver to manufacturing contractors hardware items required by them for their application; deliver balance of hardware to job; store in designated location. Each item shall be clearly marked with its intended location.

1.06 WARRANTY

A. The material furnished shall be warranted for one year after installation or longer as the individual manufacturer's warranty permits.
B. The manufacturer against failure due to defective materials and workmanship shall warrant overhead door closers in writing for a period of ten (10) years. Commencing on the Date of Final Completion and Acceptance, and in the event of failure, the manufacture is to promptly repair or replace the defective with no additional cost to the Owner.

PART II PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. To the greatest extent possible, obtain each kind of hardware from only one manufacturer.
B. All numbers and symbols used herein have been taken from the current catalogues of the following manufacturers.

PRODUCT	ACCEPTABLE MANUFACTURER	ACCEPTABLE SUBSTITUTE
1) Hinges	Ives	Hager, Stanley, Bommer
2) Locks & Latches	Schlage	Approved Equal
3) Door Closers	LCN	Approved Equal
4) Wall Stops/Floor Stops, Flush bolts	Ives	Burns, Rockwood,
5) Threshold/Weather-strip	Zero	National Guard, Pemko
6) Silencers	Ives	Trimco, Rockwood
7) Key Cabinet	Lund	Key Control

C. If material manufactured by other than that specified or listed herewith as an equal, is to be bid upon, permission must be requested from the architect seven (7) days prior to bidding. If substitution is allowed, it will be so noted by addendum.

2.02 FINISH OF HARDWARE:

A. Exterior Hinges to be stainless (630), Locks to be satin chrome (626), Flat Goods to be satin stainless (630) and the Thresholds to be Mill Finish Aluminum.

2.03 HINGES AND PIVOTS:

A. Exterior butts shall be Stainless Steel. Butts on all out swinging doors shall be furnished with non-removable pins (NRP).
B. Doors 5’ or less in height shall have two (2) butts. Furnish one (1) additional butt for each 2’6” in height or fraction thereof. Dutch door shall have two (2) butts per leaf.

2.04 KEYING:

A. Equip locks and cylinders with mastered keyed and construction keyed cylinders.
B. All bittings shall be issued by lock manufacture per owners instructions.
C. Provide Four (2) each change keys per lock and Six (6) each grand master, master keys, control keys and (10) each construction keys. Key Schedule:
D. After a keying meeting between representatives of the Owner, Architect, hardware supplier—provide a keying schedule listing the levels of keying as well as an explanation of the key system's function, the key symbols used and the door numbers controlled.
E. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
F. Forward bitting list, key cuts and key system schematic directly to owner, by a means as directed by owner.
G. Key as directed by owner to existing or new key system.

2.05 LOCKSETS:

A. Locksets shall be Schlage L and ND Series, unless specified otherwise, with Lever designs as scheduled.

2.06 CLOSERS:

A. Scheduled Manufacturer: LCN 4040XP series and 1461 Series

B. Requirements:

C. Provide door closers certified to ANSI/BHMA A156.4 Grade 1 requirements by a BHMA certified independent testing laboratory. Closers shall be ISO 9000 certified. Units shall be stamped with date of manufacture code.
D. Door closers shall have fully hydraulic, full rack and pinion action with a high strength Cylinder, and shall utilize full complement bearings at shaft. Cylinder body shall be 1-1/2 inch diameter, and double heat-treated pinion shall be 11/16 inch diameter.
E. Provide hydraulic fluid requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F. Fluid shall be fireproof and shall pass the requirements of the UL10C “positive pressure” fire test.
F. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force as required by accessibility codes and standards. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and backcheck.
G. Provide closers with a solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
H. Closers shall not incorporate Pressure Relief Valve (PRV) technology.

I. Closer cylinders, arms, adapter plates, and metal covers shall have a powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or shall have special rust inhibitor (SRI).
J. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.
K. Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Closers shall not be visible in corridors, lobbies and other public spaces unless approved by Architect.

2.07 TRIM AND PLATES:

A. Kick plates, mop plates, and armor plates, shall be .050 gauge with satin stainless steel (630) finish. Kick plates to be 10" high, mop plates to be 4" high. All plates shall be two (2) inches less full width of a single door. One (1) inch less door width on a pair of doors.
B. Push plates, pull plates, door pulls, and miscellaneous door trim shall be shown in the hardware schedule.

2.08 DOOR STOPS:

A. Doorstops shall be furnished for all doors to prevent damage to doors or hardware from striking adjacent walls or fixtures. Wall bumpers equal to Ives WS407 Series are preferred, but where not practical furnish floor stops equal to Ives FS436 or FS438 series. Where conditions prohibit the use of either wall or floor type stops, furnish surface mounted overhead stops equal to Glynn Johnson, 450 Series.

2.09 THRESHOLDS AND WEATHERSTRIP:

A. Thresholds and weather-strip shall be as listed in the hardware schedule.

2.10 DOOR SILENCERS:

A. Furnish rubber door silencers equal to Ives SR64 for all new interior hollow metal frames, (2) per pair and (3) per single door frame.

PART III EXECUTION

3.01 INSTALLATION:

A. All hardware shall be applied and installed in accordance with the Finish Hardware schedule. Care shall be exercised not to mar or damage adjacent work.
B. Contractor to provide a secure lock-up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items that are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses both before and after installation.
C. No hardware is to be installed until the hardware manufactures have provided a pre-installation class to insure proper installation of the specified products. A post installation inspection by a manufacturer's representative will be provided to insure proper installation.

3.02 ADJUSTING AND CLEANING:

A. Contractor shall adjust all hardware in strict compliance with manufacturer's instructions. Prior to turning project to owner, contractor shall clean and make any final adjustments to the finish hardware.

3.03 PROTECTION:

A. Contractor shall protect the hardware, as it is stored on construction site in a covered and dry place.
B. Contractor shall protect exposed hardware installed on doors during the construction phase.

3.04 KEY CABINET:

A. Set up and index one (1) Key Cabinet that allows room for expansion for 150% of the number of keys for the project.

3.05 HARDWARE SCHEDULE:

A. This hardware schedule was prepared by.

Allegion
3451 Technological Ave, Suite 7
Orlando, FL 32817
Ph: 407-571-2000
Fax 407-571-2006

MANUFACTURER INDEX:

IVE = Ives
LCN = LCN Closers
SCH = Schlage
ZER = Zero
LDW = Less Door Width
LAR = Length as Required

Hardware Group No. 01
For use on mark/door #(s):
101

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	CLOSET LOCK W/DB	L9465P 06A	626	SCH
1	EA	SURFACE CLOSER	4040XP CUSH SRI TBSRT	689	LCN
1	EA	RAIN DRIP	11A	A	ZER
1	EA	GASKETING	139A-S	A	ZER
1	EA	GASKETING	475AA-S	AA	ZER
1	EA	GASKETING	8144SBK PSA	BK	ZER
1	EA	DOOR SWEEP	539AA	AA	ZER
1	EA	THRESHOLD	566A-223	A	ZER

SCHLAGE LOCK CO. NOA #17-0320.06 - WATER INFILTRATION COMPLIANT
FAS-SEAL DOOR SWEEP BY DOOR SUPPLIER

Hardware Group No. 01A
For use on mark/door #(s):

105 106

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	CLOSET LOCK W/DB	L9465P 06A	626	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ SRI TBSRT	689	LCN
1	EA	FLOOR STOP/HOLDER	FS446	US26D	IVE
1	EA	RAIN DRIP	11A	A	ZER
1	EA	GASKETING	139A-S	A	ZER
1	EA	GASKETING	475AA-S	AA	ZER
1	EA	GASKETING	8144SBK PSA	BK	ZER
1	EA	DOOR SWEEP	539AA	AA	ZER
1	EA	THRESHOLD	566A-223	A	ZER

SCHLAGE LOCK CO. NOA #17-0320.06 - WATER INFILTRATION COMPLIANT
FAS-SEAL DOOR SWEEP BY DOOR SUPPLIER

Hardware Group No. 02
For use on mark/door #(s):

102 103 104

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	STOREROOM W/DEADBOLT	L9480P 06A	626	SCH
1	EA	SURFACE CLOSER	4040XP CUSH SRI TBSRT	689	LCN
1	EA	RAIN DRIP	11A	A	ZER
1	EA	GASKETING	139A-S	A	ZER
1	EA	GASKETING	475AA-S	AA	ZER
1	EA	GASKETING	8144SBK PSA	BK	ZER
1	EA	DOOR SWEEP	539AA	AA	ZER
1	EA	THRESHOLD	566A-223	A	ZER

SCHLAGE LOCK CO. NOA #17-0320.06 - WATER INFILTRATION COMPLIANT
FAS-SEAL DOOR SWEEP BY DOOR SUPPLIER

END OF DOCUMENT 08710

SECTION 09310 - CERAMIC TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Glazed wall tile.
   2. Porcelain Floor Tile
   3. Stone thresholds installed as part of tile installations.

B. Related Sections include the following:

   1. Division 7 Section "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.3 DEFINITIONS

A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.

B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).

C. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.4 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:

   1. Level Surfaces: Minimum 0.6.
   2. Ramp Surfaces: Minimum 0.8.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.

C. Samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required.
2. Full-size units of each type of trim and accessory for each color and finish required.
3. Stone thresholds in 6-inch (150-mm) lengths.

D. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

E. Product Certificates: For each type of product, signed by product manufacturer.

F. Qualification Data: For Installer.

G. Material Test Reports: For each tile-setting and -grouting product.

1.6 QUALITY ASSURANCE

A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.

1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:

1. Stone thresholds.
2. Waterproofing.
3. Joint sealants.

D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Store liquid latexes in unopened containers and protected from freezing.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.

C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

1. As selected by Architect from manufacturer's full range.

D. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.

1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.2 TILE PRODUCTS

A. Manufacturers:
   1. Daltile; Div. of Dal-Tile International Inc. e

B. Porcelain Floor Tile: Flat tile as follows:

   1. Module Size: 2 by 2 inches.
   2. Thickness: 5/16 inch (8 mm).
   3. Face: Plain with cushion edges.
   4. Finish: Mat, clear glaze.
   5. Mounting: Factory back-mounted.

2.3 THRESHOLDS

A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.

   1. Bevel edges at 1:2 slope, aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to 1/2 inch (12.7 mm) or less, and finish bevel to match face of threshold.

B. Marble Thresholds: ASTM C 503 with a minimum abrasion resistance of [**10**] [**12**] per ASTM C 1353 or ASTM C 241 and with honed finish.

   1. Description: Uniform, fine- to medium-grained white stone with gray veining.
   2. Description: Match Architect's sample.

2.4 SETTING AND GROUTING MATERIALS

A. Available Manufacturers:

   1. Bonsal, W. R., Company.
   2. LATICRETE International Inc.
   3. TEC Specialty Products Inc.

B. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:

   1. Prepackaged dry-mortar mix containing dry, redispersible, ethylene vinyl acetate additive to which only water must be added at Project site.
   2. Prepackaged dry-mortar mix combined with acrylic resin liquid-latex additive.

      a. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.

C. Medium-Bed, Latex-Portland Cement Mortar: Provide materials composed as follows, with physical properties equaling or exceeding those required for thin-set mortars based on testing of medium-bed specimens according to ANSI A118.4:

   1. Prepackaged dry-mortar mix combined with acrylic resin liquid-latex additive.

D. Polymer-Modified Tile Grout: ANSI A118.7, color as indicated.

1. Polymer Type: Ethylene vinyl acetate, in dry, redispersible form, prepackaged with other dry ingredients.
2. Polymer Type: Acrylic resin in liquid-latex form for addition to prepackaged dry-grout mix.

3. Polymer Type: Either ethylene vinyl acetate, in dry, redispersible form, prepackaged with other dry ingredients, or acrylic resin or styrene-butadiene rubber in liquid-latex form for addition to prepackaged dry-grout mix.

    a. Unsanded grout mixture for joints 1/8 inch (3.2 mm) and narrower.

2.5 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 7 Section "Joint Sealants."

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

C. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.

1. Available Products:

    a. Dow Corning Corporation; Dow Corning 786.
    b. GE Silicones; Sanitary 1700.
    c. Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
    d. Tremco, Inc.; Tremsil 600 White.
    e. Insert manufacturer's name; product.

D. Multipart, Pourable Urethane Sealant for Use T: ASTM C 920; Type M; Grade P; Class 25; Uses T, M, A, and, as applicable to joint substrates indicated, O.

1. Available Products:

    a. Bostik; Chem-Calk 550.
    b. Mameco International, Inc.; Vulkem 245.
    c. Pecora Corporation; NR-200 Urexpan.
    d. Tremco, Inc.; THC-900.
    e. Insert manufacturer's name; product.

2.6 MISCELLANEOUS MATERIALS

A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

C. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.

1. Available Products:

a. Bonsal, W. R., Company; Grout Sealer.
b. Bostik; CeramaSeal Grout Sealer.
c. C-Cure; Penetrating Sealer 978.
d. Custom Building Products; Sealer.
e. Jamo Inc.; Sealer.
f. MAPEI Corporation; KER .
g. Southern Grouts & Mortars, Inc.; Silicone Grout Sealer.
h. Summitville Tiles, Inc.; SL-15, Invisible Seal Penetrating Grout and Tile Sealer.
i. TEC Specialty Products Inc.; Grout Sealer.

2.7 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.

B. Provide concrete substrates for tile floors installed with thin-set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.

1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
2. Remove protrusions, bumps, and ridges by sanding or grinding.

C. Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.

C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.

1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.

F. Lay out tile wainscots to next full tile beyond dimensions indicated.

G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.

2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

H. Grout tile to comply with requirements of the following tile installation standards:

1. For ceramic tile grouts (sand-portland cement; dry-set, commercial portland cement; and latex-portland cement grouts), comply with ANSI A108.10.
2. For chemical-resistant epoxy grouts, comply with ANSI A108.6.

I. At locations where indicated, install cementitious backer units and treat joints to comply with ANSI A108.11 and manufacturer's written instructions for type of application indicated.

3.4 FLOOR TILE INSTALLATION

A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.

1. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.

a. Tile floors in wet areas.
b. Tile floors composed of tiles 13 by 13 inches or larger.
c. Tile floors composed of rib-backed tiles.

B. Joint Widths: Install tile on floors with the following joint widths:

1. Porcelain Tile: 3/16 inch .

C. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile, unless otherwise indicated.

1. Set thresholds in latex-portland cement mortar for locations where mortar bed would otherwise be exposed above adjacent nontile floor finish.

D. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.5 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove epoxy and latex-portland cement grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.6 FLOOR TILE INSTALLATION SCHEDULE

A. Tile Installation: Interior floor installation on concrete; thin-set mortar, grout; TCA F115 and ANSI A108.5.

1. Tile Type: Porcelain Tile.
2. Thin-Set Mortar: Latex- portland cement mortar.
3. Grout: Chemical-resistant, water-cleanable, tile-setting and -grouting epoxy.

END OF SECTION 09310

SECTION 09911 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:

1. Exterior portland cement plaster(stucco).
2. Fiber-Cement Soffit and Battens.
3. Fiber-Cement Fascia and Trim.

B. Related Sections include the following:

1. Division 9 Section "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches (200 mm) square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on benchmark samples.

a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 Insert number percent, but not less than 1 gal. (3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Benjamin Moore & Co.
2. ICI Paints
3. PPG Architectural Finishes, Inc.
4. Sherwin-Williams Company .

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

B. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

C. Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS/SEALERS

A. Alkali-Resistant Primer: MPI #3.

1. VOC Content: E Range of E1.

2.4 EXTERIOR LATEX PAINTS

A. Exterior Latex (Flat): MPI #10 (Gloss Level 1).

1. VOC Content: E Range of E1.

B. Exterior Latex (Semigloss): MPI #11 (Gloss Level 5).

1. VOC Content: E Range of E1.

C. Exterior Latex (Gloss): MPI #119 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).

1. VOC Content: E Range of E1.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

D. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance of paint materials with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Stucco Substrates:

1. Latex Over Alkali-Resistant Primer System: MPI EXT 9.1J.

a. Prime Coat: Alkali-resistant primer.
b. Intermediate Coat: Exterior latex matching topcoat.
c. Topcoat: Exterior latex.(eggshell or satin)

B. Fiber-Cement Fascia, Trim and Soffit:

1. Latex System: MPI EXT 3.3J.

a. Prime Coat: Alkali-Resistant Primer as recommended in writing by topcoat manufacturer.
b. Intermediate Coat: As recommended in writing by topcoat manufacturer.
c. Topcoat: Latex (exterior).

END OF SECTION 09911

SECTION 09912 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete masonry units (CMU).
2. Gypsum board.

B. Related Sections include the following:
1. Division 9 Section "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches (200 mm) square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
3. Final approval of color selections will be based on benchmark samples.

a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Benjamin Moore & Co.
2. ICI Paints

3. PPG Architectural Finishes, Inc.
4. Sherwin-Williams Company .

2.2 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches (200 mm) square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

2.3 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

4. Restricted Components: Paints and coatings shall not contain any of the following:

a. Acrolein.
b. Acrylonitrile.
c. Antimony.
d. Benzene.
e. Butyl benzyl phthalate.
f. Cadmium.
g. Di (2-ethylhexyl) phthalate.
h. Di-n-butyl phthalate.
i. Di-n-octyl phthalate.

j. 1,2-dichlorobenzene.
k. Diethyl phthalate.
l. Dimethyl phthalate.
m. Ethylbenzene.
n. Formaldehyde.
o. Hexavalent chromium.
p. Isophorone.
q. Lead.
r. Mercury.
s. Methyl ethyl ketone.
t. Methyl isobutyl ketone.
u. Methylene chloride.
v. Naphthalene.
w. Toluene (methylbenzene).
x. 1,1,1-trichloroethane.
y. Vinyl chloride.

C. Colors: As selected by Architect from manufacturer's full range.

2.4 BLOCK FILLERS

A. Interior/Exterior Latex Block Filler: MPI #4.
1. VOC Content: E Range of E2.

2.5 PRIMERS/SEALERS

A. Interior Latex Primer/Sealer: MPI #50.
1. VOC Content: E Range of E1.
2. Environmental Performance Rating: EPR 1.

2.6 LATEX PAINTS

A. High-Performance Architectural Latex (Low Sheen): MPI #138 (Gloss Level 2).
1. VOC Content: E Range of E1.
2. Environmental Performance Rating: EPR 4.

B. High-Performance Architectural Latex (Eggshell): MPI #139 (Gloss Level 3).
1. VOC Content: E Range of E2.
2. Environmental Performance Rating: EPR 5.

C. High-Performance Architectural Latex (Satin): MPI #140 (Gloss Level 4).
1. VOC Content: E Range of E1.
2. Environmental Performance Rating: EPR 4.5.

D. High-Performance Architectural Latex (Semigloss): MPI #141 (Gloss Level 5).
1. VOC Content: E Range of E1.
2. Environmental Performance Rating: EPR 5.

2.7 METAL PRIMERS

A. Alkyd Anticorrosive Metal Primer: MPI #79.
   1. VOC Content: E Range of E1.

B. Quick-Drying Alkyd Metal Primer: MPI #76.
   1. VOC Content: E Range of E1.

C. Cementitious Galvanized-Metal Primer: MPI #26.
   1. VOC Content: E Range of E1.

2.8 LATEX PAINTS

A. Interior Latex (Flat): MPI #53 (Gloss Level 1).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 1.5.

B. Interior Latex (Low Sheen): MPI #44 (Gloss Level 2).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 1.

C. Interior Latex (Eggshell): MPI #52 (Gloss Level 3).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 1.

D. Interior Latex (Satin): MPI #43 (Gloss Level 4).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 1.5.

E. Interior Latex (Semigloss): MPI #54 (Gloss Level 5).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 2.

F. Interior Latex (Gloss): MPI #114 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 2.

2.9 ALKYD PAINTS

A. Interior Alkyd (Flat): MPI #49 (Gloss Level 1).
   1. VOC Content: E Range of E1.

B. Interior Alkyd (Eggshell): MPI #51 (Gloss Level 3).
   1. VOC Content: E Range of E1.

C. Interior Alkyd (Semigloss): MPI #47 (Gloss Level 5).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 1.

D. Interior Alkyd (Gloss): MPI #48 (Gloss Level 6).
   1. VOC Content: E Range of E1.
   2.

E. Interior Latex (Semigloss): MPI #54 (Gloss Level 5).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 2.

F. Interior Latex (Gloss): MPI #114 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).
   1. VOC Content: E Range of E1.
   2. Environmental Performance Rating: EPR 2.
   3. VOC Content: E Range of E1.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

   1. Concrete: 12 percent.
   2. Masonry (Clay and CMU): 12 percent.
   3. Gypsum Board: 12 percent.
   4. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

   1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
   2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

   1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

H. Aluminum Substrates: Remove surface oxidation.

I. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

J. Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:

1. Mechanical Work:

a. Uninsulated metal piping.
b. Uninsulated plastic piping.
c. Pipe hangers and supports.
d. Tanks that do not have factory-applied final finishes.
e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.

f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.

2. Electrical Work:

a. Switchgear.
b. Panelboards.
c. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 FIELD QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance with product requirements.

3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. CMU Substrates:

1. Alkyd Over Acrylic Sealer System: MPI INT 4.2N.

a. Prime Coat: Interior/exterior Acrylic block filler.
b. Sealer Coat: Interior Acrylic primer/sealer.
c. Intermediate Coat: Interior alkyd matching topcoat.
d. Topcoat: Interior alkyd (semi-gloss).

B. Steel Substrates:

1. Latex Over Alkyd Primer System: MPI INT 5.1Q.

a. Prime Coat: Alkyd anticorrosive metal primer.
b. Intermediate Coat: Interior latex matching topcoat.
c. Topcoat: Interior latex (low sheen).

C. Galvanized-Metal Substrates:

1. Alkyd System: MPI INT 5.3C.

a. Prime Coat: Cementitious galvanized-metal primer.
b. Intermediate Coat: Interior alkyd matching topcoat.
c. Topcoat: Interior alkyd (eggshell).

D. Gypsum Board Substrates:

1. Acrylic Over Latex Primer System: MPI INT 9.2C.

a. Prime Coat: Interior latex primer/sealer.
b. Intermediate Coat: Interior Acrylic matching topcoat.
c. Topcoat: Interior alkyd (eggshell)**.**

2. High-Performance Architectural Latex System: MPI INT 9.2B.

a. Prime Coat: Interior latex primer/sealer.
b. Intermediate Coat: High-performance architectural latex matching topcoat.
c. Topcoat: High-performance architectural latex (semi-gloss).

END OF SECTION 09912

SECTION 10155 - TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes solid-polymer units as follows:

1. Toilet Enclosures: Floor anchored.
2. Urinal Screens: Wall hung.

B. Related Sections include the following:
1. Division 10 "Toilet and Bath Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Show locations of cutouts for compartment-mounted toilet accessories.

C. Samples for Initial Selection: For each type of unit indicated.

D. Samples for Verification: Of each type of color and finish required for units, prepared on 6-inch- (150-mm-) square Samples of same thickness and material indicated for Work.

1.4 QUALITY ASSURANCE

Comply with requirements in CID-A-A-60003, "Partitions, Toilets, Complete."

1.5 PROJECT CONDITIONS

Field Measurements: Verify actual locations of walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating toilet compartments without field measurements. Coordinate wall, floor, ceilings, and other contiguous construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 SOLID-POLYMER UNITS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Ampco.
2. Comtec Industries.
3. Santana Products, Inc.

B. Door, Panel, and Pilaster Construction: Solid, high-density polyethylene (HDPE) or polypropylene (PP) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, and with homogenous color and pattern throughout thickness of material.

1. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range of colors and patterns.

C. Pilaster Shoes: Manufacturer's standard design; polymer.

1. Polymer Color and Pattern: Matching pilaster.

D. Brackets (Fittings):

1. Full-Height (Continuous) Type: Manufacturer's standard design; polymer.

a. Polymer Color and Pattern: Matching pilaster.

E. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum strip fastened to exposed bottom edges of solid-polymer components to prevent burning.

2.2 ACCESSORIES

A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.

1. Material: Chrome-plated brass.

B. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

2.3 ABRICATION

A. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.

B. Doors: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments indicated to be accessible to people with disabilities.

1. Hinges: Manufacturer's standard self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees.
2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to people with disabilities.
3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
4. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
5. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with accessibility requirements of authorities having jurisdiction. Provide units on both sides of doors at compartments indicated to be accessible to people with disabilities.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.

1. Maximum Clearances:

a. Pilasters and Panels: 1/2 inch (13 mm).
b. Panels and Walls: 1 inch (25 mm).

B. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches (50 mm) into structural floor, unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.

C. Wall-Hung Urinal Screens: Attach with continuous angle anchoring devices to suit supporting structure. Set units level and plumb and to resist lateral impact.

3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION 10155

SECTION 10801 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Public-use washroom accessories.
2. Underlavatory guards.
3. Custodial accessories.

B. Related Sections include the following:

1. Division 9 Section "Ceramic Tile" for ceramic toilet and bath accessories.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include the following:

1. Construction details and dimensions.
2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
3. Material and finish descriptions.
4. Features that will be included for Project.
5. Manufacturer's warranty.

B. Samples: Full size, for each accessory item to verify design, operation, and finish requirements.

1. Approved full-size Samples will be returned and may be used in the Work.

C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated on Drawings.
2. Identify products using designations indicated on Drawings.

D. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Source Limitations: For products listed together in the same articles in Part 2, provide products of same manufacturer unless otherwise approved by Architect.

1.5 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.6 WARRANTY

A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, 0.0312-inch (0.8-mm) minimum nominal thickness, unless otherwise indicated.

B. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.0359-inch (0.9-mm) minimum nominal thickness.

C. Galvanized Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.

D. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

E. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.

F. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

G. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

H. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. A & J Washroom Accessories, Inc.
2. Bobrick Washroom Equipment, Inc.
3. Bradley Corporation.

B. Toilet Tissue – By Owner.

C. Paper Towel Dispenser– By Owner.

D. Liquid-Soap Dispenser– By Owner.

E. Grab Bar: **Designation - gb**

1. Mounting: Flanges with concealed fasteners.
2. Material: Stainless steel, 0.05 inch (1.3 mm) thick.

    a. Finish: Smooth, No. 4, satin finish on ends and slip-resistant texture in grip area.

3. Outside Diameter: 1-1/2 inches (38 mm).
4. Configuration and Length: Straight, 36" long and 42" long.
5. Location and quantity: (quantity shown 1st for 36" and 2nd 42" grabbars) –

F. Sanitary-Napkin Disposal Unit– By Owner.

G. Mirror Unit: **Designation - m**

1. Frame: Stainless-steel angle, 0.05 inch (1.3 mm) thick and Stainless steel, adjustable tilt.

    a. Corners: Manufacturer's standard.

2. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.

    a. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
    b. Wall bracket of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.

3. Size: .18 inches wide by 30 inches high.

H. Surface Mounted Stainless Steel Shelf: **Designation – sms**

1. Material:
    a. 22 gauge stainless steel flanges and support arms,
    b. 16 gauge stainless steel mounting brackets and concealed wall plates with fasteners.
    c. Type 304 bright polished finish stainless steel shelf with roll-formed edges.
2. Configuration and Length: 26" long x 5 ¾" deep.

2.3 UNDERLAVATORY GUARDS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Plumberex Specialty Products, Inc.
2. TCI Products.
3. Truebro, Inc.

B. Underlavatory Guard: **Designation - ulg**

1. Description: Insulating pipe covering for supply and drain piping assemblies, that prevent direct contact with and burns from piping, and allow service access without removing coverings.
2. Material and Finish: Antimicrobial, molded-plastic, white.

2.4 CUSTODIAL ACCESSORIES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. A & J Washroom Accessories, Inc.
2. Bobrick Washroom Equipment, Inc.
3. Bradley Corporation.

B. Mop and Broom Holder: **Designation - mbh**

1. Description: Unit with shelf, hooks, holders, and rod suspended beneath shelf.
2. Length: 36 inches (914 mm).
3. Hooks: Three.
4. Mop/Broom Holders: Four, spring-loaded, rubber hat, cam type.
5. Material and Finish: Stainless steel, No. 4 finish (satin).

    a. Shelf: Not less than nominal 0.05-inch- (1.3-mm-) thick stainless steel.
    b. Rod: Approximately 1/4-inch- (6-mm-) diameter stainless steel.

2.5 FABRICATION

A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to method in ASTM F 446.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10801

Two Alternate Pricing for Turf Application
Big Roll Sod
Rootzone Mix

Sand rootzone mix components must be well mixed off-site and measured by weight unless otherwise stated and will have the following characteristics as determined by a Physical Soil Testing Laboratory accredited by the American Association for Laboratory Accreditation (A2LA) as listed by the United States Golf Association for testing materials specified in the USGA's Recommendations for Putting Green Construction:

(a) primarily of mineral components that are silica and not calcareous and have pH less than 7.0;
(b) at least 30% medium sand, particles between 0.25 mm and 0.50 mm in diameter;
(c) at least 80% fine plus medium plus coarse sand, particles between 0.10 and 1.00 mm in diameter;
(d) not more than 10% very fine sand plus silt plus clay, particles less than 0.10 mm in diameter;
(f) not more than 10% fine sand, particles less than 0.25 mm and more than 0.10 mm in diameter;
(g) not more than 10% very coarse sand plus gravel, particles more than 1.00 mm in diameter;
(h) have at least 10% and not more 15% by volume Canadian spaghnum peat moss or other fibrous peat;
(i) have less than 2% organic matter by weight except for added Canadian sphagnum peat moss or other fibrous peat;
(j have saturated hydraulic conductivity as determined after off-site mixing of at least 6 inches / hour;
(k) have at least 15% by volume large (air-filled) porosity after off-site mixing; and
(l) have no deleterious chemical or physical property..

Before shipping the sand rootzone to the Project site, contractor must provide a copy of the physical analysis from an accredited laboratory using ASTM methods showing that the intended sand rootzone mix meets or exceeds the specifications. Based on the analysis, the County has the right within 7 days to accept or reject the sand rootzone mix. The County again has the right to resample and retest and accept or reject the sand rootzone mix within 14 days after it is delivered on County property.

Sod

Bermudagrass sod, cultivar 'Celebration,' must be certified by either the Southern Seed Certification Association of Auburn, Alabama, or the Georgia Crop Improvement Association or the Georgia Crop Improvement Association of Athens, Georgia. Sod must be healthy and free of weeds or other pests and must be produced on sand soil with less than 5% soil organic matter by weight. Contractor must provide the name, address, and block of the farm area where the Celebration bermudagrass sod is intended to be obtained, within 2 weeks before the sod will be cut. The County may reject the proposed sod if it is not certified, if it is not mature enough to hold together when picked up by end, if it appears unhealthy, if it contains weeds or other pests, or is otherwise unsuitable for play.

Sod installation

Big Roll Sod pieces must be placed to completely cover the soil with no gaps or cracks between sod pieces. All portions of the top of each sod piece must be uniformly green and there may be no areas that are brown or yellow. Sod must be rolled after planting to improve the smoothness of the surface. If there is subsidence or dips following rolling, the low areas must be dug up, backfilled with sand rootzone mix, and the sod in those areas replanted.

Warranty

Contractor will be responsible for irrigating, mowing, fertilizing, pest control, and all other turf maintenance practices for 8 weeks after the final completion involving grading, capping, sodding, and replacement of irrigation. Contractor will inform the County on the date of final completion when grading, capping, addition of sand rootzone and sodding have been completed, and the County will within 14 days inform the contractor whether these steps have been completed satisfactorily, and if they have not been completed, what if any deficiency(ies) must be corrected before the 8-week warranty period will begin. If problems arise during the warranty period, the project will be deemed to be incomplete. Problems may include but are not restricted to failure of the sod to root enough to prevent it from being pulled out by hand, noticeable weeds including weeds that were present before sodding, insect or disease damage, conspicuous discoloration, cracks between sod pieces, and irregularities in grade or slope that exceed 1/2 inch elevation within any 100 square foot area or that cause scalping to occur when mowed with a suitably adjusted riding mower.

Bermudagrass Celebration Sprigging Alternate Pricing Option

Proposer will have the option of submitting to the County a Bermudagrass Celebration Sprigging Option. The must follow the specifications above for the **Rootzone Mix** and **Sod (type and certification).** The proposer will present to the County their proposed number of USDA Bushels of Bermudagrass Celebration Sprigs to be apply and the application method. All conditions of the Bermudagrass Celebration Alternate Pricing Option must be approved and reviewed by the County. The **Warranty** conditions for the Bermudagrass Celebration Alternate Pricing Option are the same for the **Sod and Sod Installation** however the acceptance period of the sprigging will be 21 days after the last sprigs where planted and the County will within 14 days inform the contractor whether these steps have been completed satisfactorily, and if they have not been completed, what if any deficiency(ies) must be corrected before the 26 week warranty period will begin. The Contractor will be responsible for irrigating, mowing, fertilizing, pest control, and all other turf maintenance practices for the 26 week warranty period or until the Contractor is informed by the County Project Manager in writing that the County will assume maintenance responsibilities for the turf.

MOTOR SPECIFICATIONS:

ELECTRICAL EQUIPMENT LIST:

BOTTOM BAR LOCKING:

Slidebolt with hasp for padlocking located at both jambs.
Padlocks (not by C.I.W.) Ø1/4" maximum shank.

Operable coil side only.

QUANTITY & MARK:

(1)

MATERIAL & FINISH:

Curtain - Galvanized steel with GalvaNex™ coating system.
Finish color: Gray

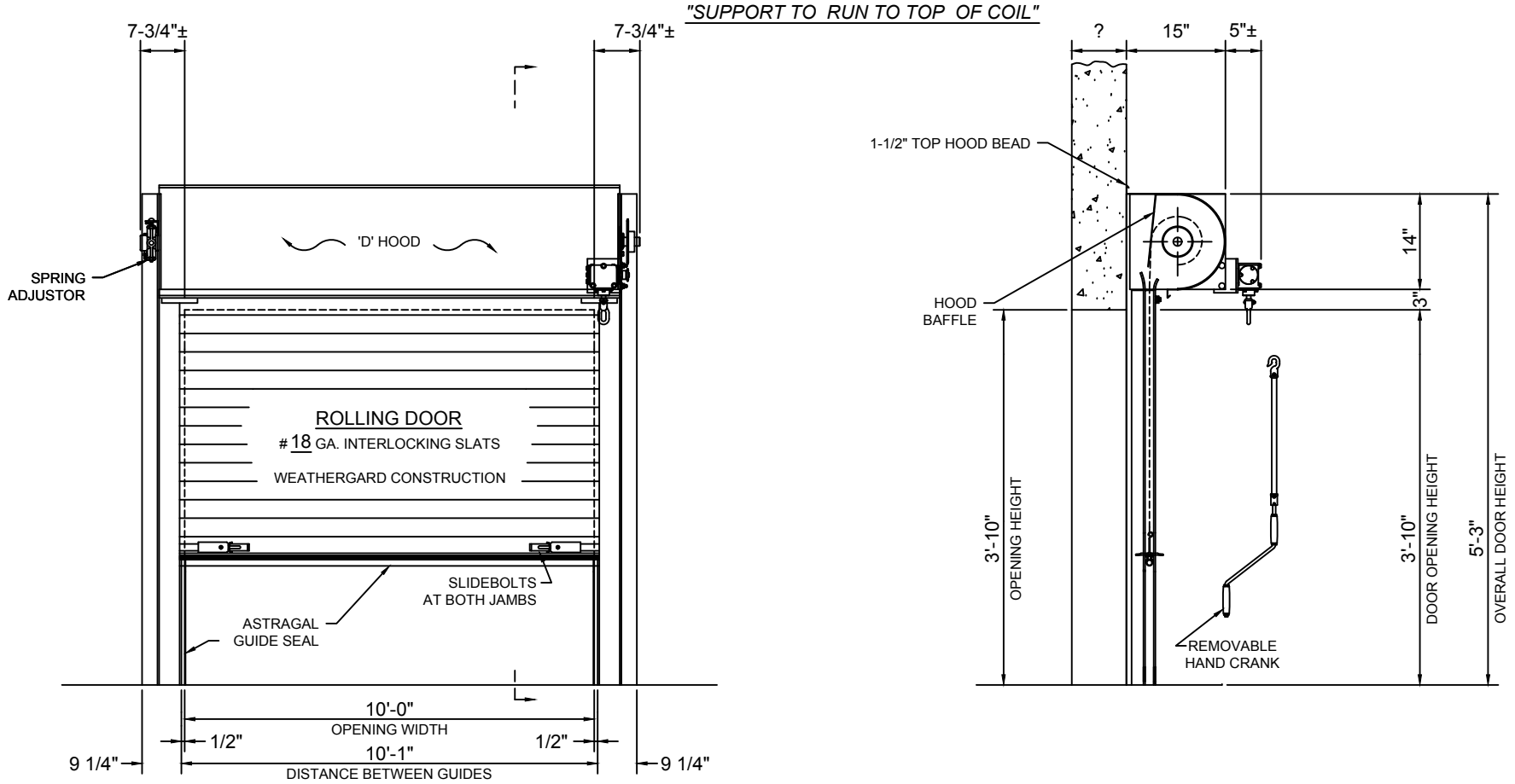
Bottom Bar - Aluminum, mill finish

Guides - Structural steel, Gray polyester powder coating

Hood - Galvanized steel with GalvaNex™ coating system.
Finish color: Gray

Plain Steel - Powder coated Gray

FLORIDA PRODUCT APPROVAL, FL 17419
Door is designed to withstand maximum windload of ± 100 P.S.F.
Door is rated for a large missile impact of 80 F.P.S. maximum



ELEVATION (COIL SIDE) AND SECTION VIEW

See drawing # 001 B for guide detail.

01-18-2018	PRODUCT CODE: KFW 5F 18GP
BSE_STDR	

MODEL # :	JOB #:
ESD10	001 A

#	REVISION	DATE	BY
---	ORIGINAL DRAWING	03/15/18	WEBENGR

CORNELL innovative door solutions.

CRANK
OPERATED ROLLING DOOR

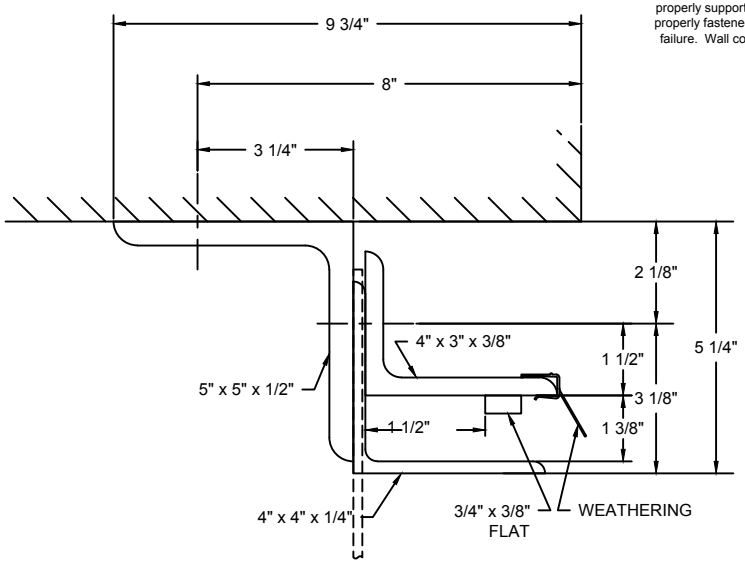
JOB:

AGENT: CORNELLCOOKSON A.D.S.

CONTRACTOR:

ARCHITECT:

NOTE: Wall construction detail shown is for illustrative purposes only, does not imply compliance with building requirements, and must meet architectural specifications to properly support product. Products designed with wind load requirements must be properly fastened to structural members as specified in order to avoid catastrophic failure. Wall construction and closure installation shall be in accordance with the local authority having jurisdiction requirements.



GA0675 - 5 1/4"

WALL FASTENERS:

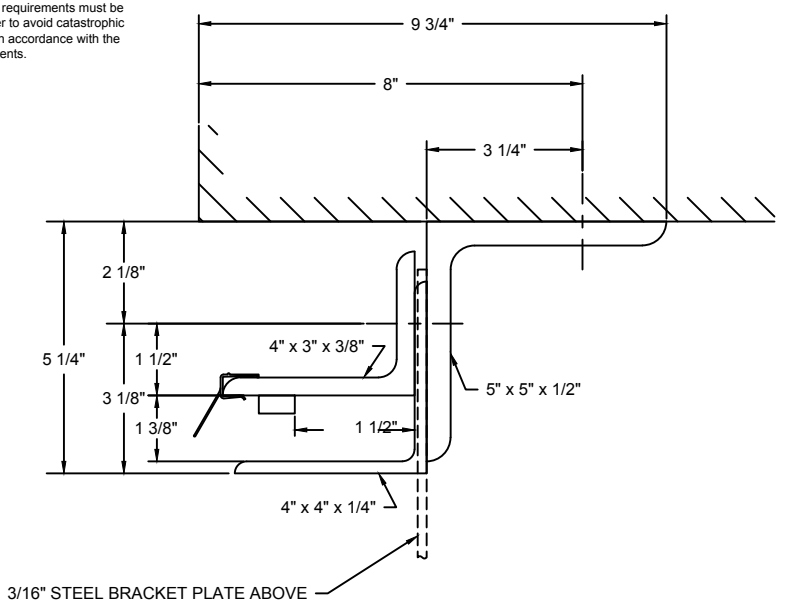
AT 7" ON CENTER

- Ø3/4" x 7" SIMPSON WEDGE-ALL, MIN. 3000 PSI CONCRETE REQ'D MIN. EMBEDMENT DEPTH - 5"

ASSEMBLY FASTENERS:

AT 18" ON CENTER

- Ø3/4-10 x 2 1/2" HEX HEAD CAP SCREW, GR. 8
- HEX HEAD NUT, GR. 8
- HARDENED FLAT WASHERS



GA0675 - 5 1/4"

WALL FASTENERS:

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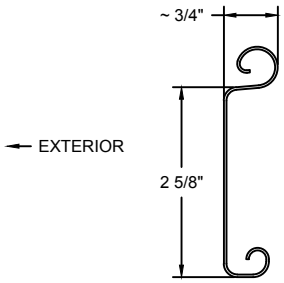
ASSEMBLY FASTENERS:

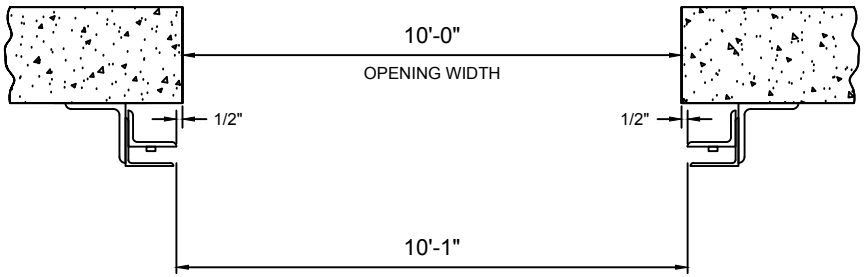
AT 18" ON CENTER

- Ø3/4-10 x 2 1/2" HEX HEAD CAP SCREW, GR. 8
- HEX HEAD NUT, GR. 8
- HARDENED FLAT WASHERS

C20P SLAT



PLAN OF OPENING

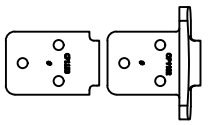


INSTALLERS NOTE:

MAINTAINING FACTORY SET GUIDE GAPS IS CRITICAL TO THE PROPER OPERATION OF THE DOOR AND IT'S ABILITY TO WITHSTAND THE DESIGNED WINDLOAD!

ENDLOCK DETAIL

CP1152 CAST IRON ENDLOCK / WINDLOCK AND CP1153 WINDLOCK ALTERNATING SLATS TO FORM CONTINUOUS WINDLOCKS, EACH WITH 3 x 1/4" RIVETS.



CP1153 CP1152

07-14-2016	PRODUCT CODE: KFW 5F 18GP	MODEL # : ESD10	JOB #: 001 B
GSD14_525			

#	REVISION	DATE	BY
---	ORIGINAL DRAWING	03/15/18	WEBENGR

CORNELL innovative door solutions.

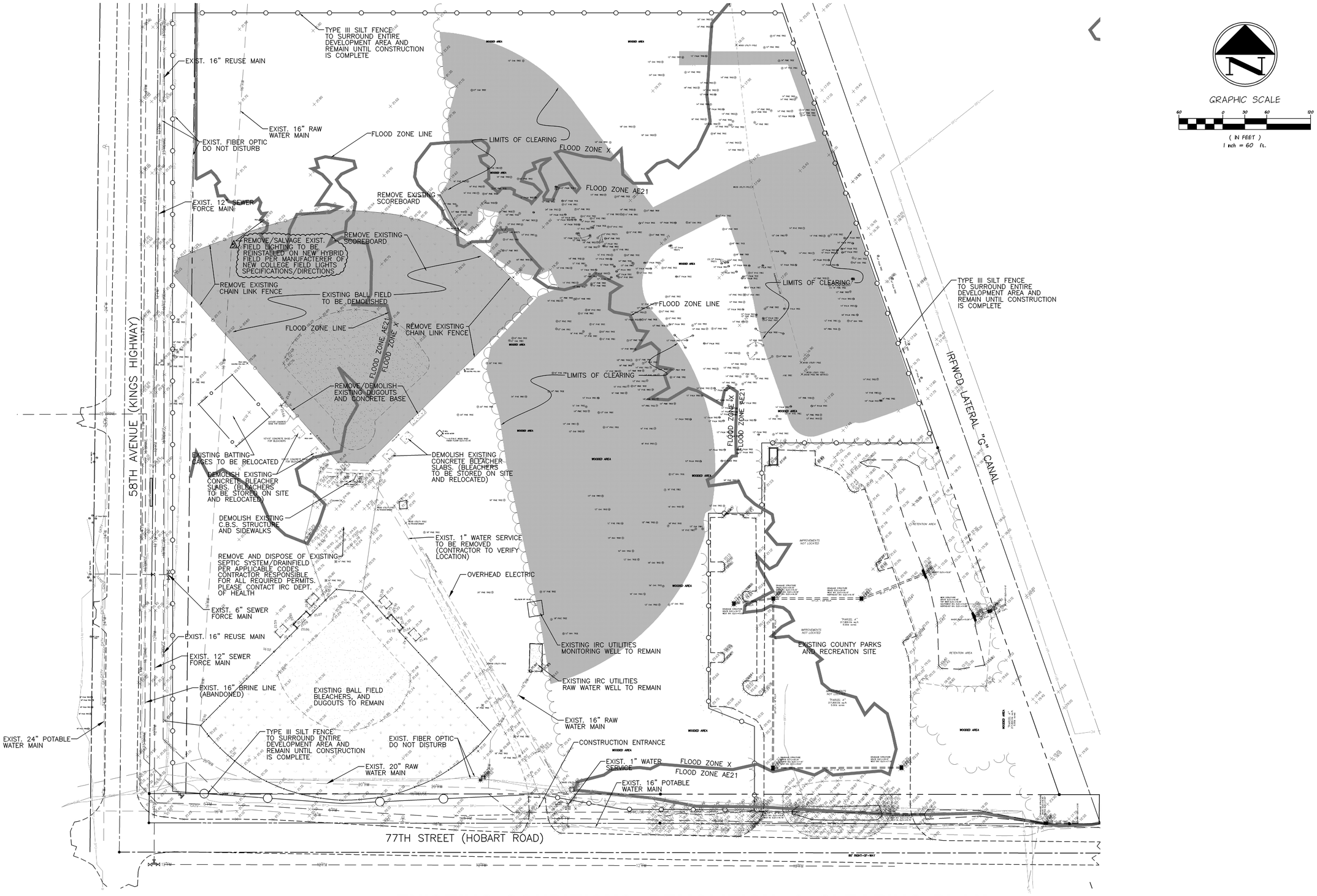
SERVICE DOOR GUIDE ASSEMBLY
5-1/4" PACKOFF

JOB:

AGENT: CORNELLCOOKSON A.D.S.

CONTRACTOR:

ARCHITECT:



EXISTING CONDITIONS, DEMOLITION, & CLEARING PLAN

NO.	DATE	DESCRIPTION	DR/APP
4.	9/18/19	ADD NOTES REGARDING EXISTING FIELD LIGHTING	SH/SEM
4.	8/28/18	REVISED PER IRC COMMENTS EMAILED ON 7/31/18	SH/SEM
3.	7/31/18	REVISED PER IRC COMMENT LETTERS OF 6/20 & 6/30/18	SH/SEM
2.	6/11/18	REVISED PER IRC TRC COMMENT LETTER OF 6/14/18	SH/SEM
1.	5/10/18	REVISED PER IRC PRE-APP COMMENTS	SH/SEM

REVISIONS

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
1655 27th STREET, SUITE #2, VERO BEACH, FLORIDA, 32960
(772) 567-5300 / FAX (772) 794-1106
CERTIFICATE OF AUTHORIZATION NUMBER 4204

INDIAN RIVER COUNTY — FLORIDA

HOBART PARK

BASEBALL FIELD IMPROVEMENTS

STEPHEN E. MOLER, P.E. FL#33193

DRAWN	SH
DESIGNED	SH
CHECKED	SEM
DATE	11/17
SCALE	1"=60'
SHEET	4 OF 15
PROJECT NO:	1756

SITE DATA

Owner / Applicant

INDIAN RIVER COUNTY
1801 27TH STREET
VERO BEACH, FL 32960
TEL. (772) 567-8000

Engineer

MASTELLER & MOLER, INC.
1655 27TH STREET- SUITE 2
VERO BEACH, FL 32960
TEL. (772) 567-5300

Surveyor

INDIAN RIVER COUNTY
1801 27TH STREET
VERO BEACH, FL 32960
TEL. (772) 226-1220

Construction Schedule

START DATE: September 2018 FINISH DATE: December 2018

Site Information

SITE ADDRESS:	5790 77th STREET VERO BEACH, FL 32967
TAX ID #:	31 39 33 00000 5000 00003.0
PARCEL AREA:	84.52 AC
SITE AREA:	27.73 AC
LESS UNDISTURBED NORTH AREA:	5.49 AC
LESS UNDISTURBED SOUTH AREA / EXIST. PARKS & REC. SITE:	8.03 AC
DEVELOPMENT AREA:	=14.21 AC
PROPOSED USE:	PARK
EXISTING ZONING:	A-1 (22.04 ACRES) RS-6 (5.69 ACRES)
FUTURE LAND USE:	REC REC
EXISTING SOILS:	EAUGALLIE FINE SAND MYAKKA-MYAKKA, WET, FINE SAND QUARTZIPSAMMENTS EAUGALLIE FINE SAND POMELLO SAND
FEMA FLOOD ZONE:	ZONE X and ZONE "AE 21" Ref. FIRM 12061C0087F DATED 12/4/12 (AREA CURRENTLY IN DISPUTE)
POTABLE WATER:	INDIAN RIVER COUNTY UTILITIES
WASTEWATER:	INDIAN RIVER COUNTY UTILITIES
LEGAL DESCRIPTION:	(See Survey for Full Legal Description of Parcels)

Zoning Criteria (A-1)

	REQUIRED	PROPOSED
DENSITY (MAX):	0.2 D.U./AC	N/A
LOT SIZE (MIN):	200,000 SF	959,932 SF
LOT WIDTH:	150'	463.61'
FRONT YARD SETBACK:	30'	30'
SIDE YARD SETBACK:	30'	30'
REAR YARD SETBACK:	30'	30'
BUILDING HEIGHT:	35' (MAX)	9'-4"
BUILDING COVERAGE:	20% (MAX)	0.06%
OPEN SPACE:	80%	88.0%

Zoning Criteria (RS-6)

	REQUIRED	PROPOSED
DENSITY (MAX):	6 D.U./AC	N/A
LOT SIZE (MIN):	7,000 SF	247,967 SF
LOT WIDTH:	70'	310.67'
FRONT YARD SETBACK:	20'	20'
SIDE YARD SETBACK:	10'	10'
REAR YARD SETBACK:	20'	20'
BUILDING HEIGHT:	35' (MAX)	N/A
BUILDING COVERAGE:	30% (MAX)	0%
OPEN SPACE:	40%	99.8%

Open Space Computations

Required:
A-1 ZONING: 22.04 Acres X 60% = 13.22 Acres
RS-6 ZONING: 5.69 Acres X 25% = 1.42 Acres

Proposed:
A-1 ZONING: 19.31 Acres = 87.6%
RS-6 ZONING: 5.69 Acres = 99.6%

Total Site Improvements Coverage Summary (Includes Exist. Parks / Rec Development)

SITE AREA:	1,207,859 SF	27.73 AC	(100%)
EXISTING BUILDING AREA:	5,513 SF	0.13 AC	(0.46%)
EXISTING CONCRETE / PAVED AREA:	74,952 SF	1.72 AC	(6.21%)
PROPOSED BUILDING FLOOR AREA:	1,056 SF	0.02 AC	(0.09%)
PROPOSED PAVING & CONCRETE:	39,472 SF	0.91 AC	(3.27%)
EXISTING BUILDING/CONCRETE TO BE REMOVED:	1,988 SF	0.05 AC	(0.16%)
TOTAL IMPERVIOUS:	119,005 SF	2.73 AC	(9.85%)

Development Area Improvements Coverage Summary

DEVELOPMENT AREA:	619,081 SF	14.21 AC
BUILDING FLOOR AREA:	1,056 SF	0.02 AC
PAVING & CONCRETE	39,472 SF	0.91 AC
EXISTING BUILDING/CONCRETE TO BE REMOVED:	1,988 SF	0.05 AC
TOTAL IMPERVIOUS:	38,540 SF	0.88 AC

Parking Calculations

Required:
STADIUMS: ONE (1) SPACE PER THREE (3) SEATS OF THE SEATING CAPACITY =
300 SEATS X 1 SPACE / 3 SEATS = 100 SPACES *

Required:
PUBLIC PARKS: TWO (2) SPACES PER ACRE OF REMAINING AVAILABLE OPEN SPACE =
1.39 AC X 2 SPACES = 3 SPACES
PUBLIC PARKS: ONE (1) SPACE PER 300 SF OF GROSS BUILDING AREA =
1,056 X 1 SPACES / 300 = 4 SPACES

Required Total: 107 SPACES

Proposed:
STANDARD PAVED = 42
HANDICAP PAVED = 8
STANDARD GRASS = 60
TOTAL = 110

* AS NO MORE THAN ONE BALL FIELD WILL BE USED AT ONE TIME, PARKING WAS BASED ON SEATING CAPACITY FOR THE LARGEST STADIUM

Site Plan Notes:

1. NO WETLANDS EXIST WITHIN DEVELOPMENT AREA.
2. ALL OUTDOOR LIGHTING SHALL BE SHIELDED FROM ADJACENT PROPERTIES AND ROADWAYS.
3. ALL NUISANCE EXOTIC VEGETATION SHALL BE REMOVED IN CONJUNCTION WITH SITE DEVELOPMENT.
4. SURVEY DATA IS PROVIDED BY INDIAN RIVER COUNTY
5. CONTRACTOR SHALL COORDINATE WITH IRC TELECOMMUNICATIONS (772-226-1318) DIVISION TO LOCATE AND MARK EXISTING IRC FIBER-OPTIC CABLE PRIOR TO CONSTRUCTION.
6. STREET DESIGNATION SIGNS SHALL BE 8" IN HEIGHT WITH 6" LETTERS.

General Notes:

1. ALL SOLID NON BREAKAWAY OBJECTS (RAILINGS,POSTS/COLUMNS, BOLLARDS, LIGHT POLES, ETC.) ALONGSIDE INTERIOR STREETS AND DRIVING AISLES, SHALL BE LOCATED OUTSIDE THE CLEAR ZONE. FOR STREETS/DRIVING AISLES WITH A DESIGN SPEED OF 45 MPH AND AN ADT<1500, THE MINIMUM CLEAR ZONE IS 14 FEET FROM THE EDGE OF THE OUTSIDE MOTOR VEHICULAR TRAVELED WAY. THIS APPLIES TO PUBLIC AND PRIVATE PROPERTY.
2. ALL SOLID NON BREAKAWAY OBJECTS (RAILINGS,POSTS/COLUMNS, BOLLARDS, LIGHT POLES, ETC.) ALONGSIDE INTERIOR STREETS AND DRIVING AISLES, SHALL BE LOCATED OUTSIDE THE CLEAR ZONE. FOR STREETS/DRIVING AISLES WITH A DESIGN SPEED OF 25 MPH OR LESS, THE MINIMUM CLEAR ZONE IS 1.5 FEET FROM THE FACE OF CURB (TYPE D OR F) OR 6 FEET FROM THE EDGE OF THE TRAVEL LANE. THIS APPLIES TO PUBLIC AND PRIVATE PROPERTY.

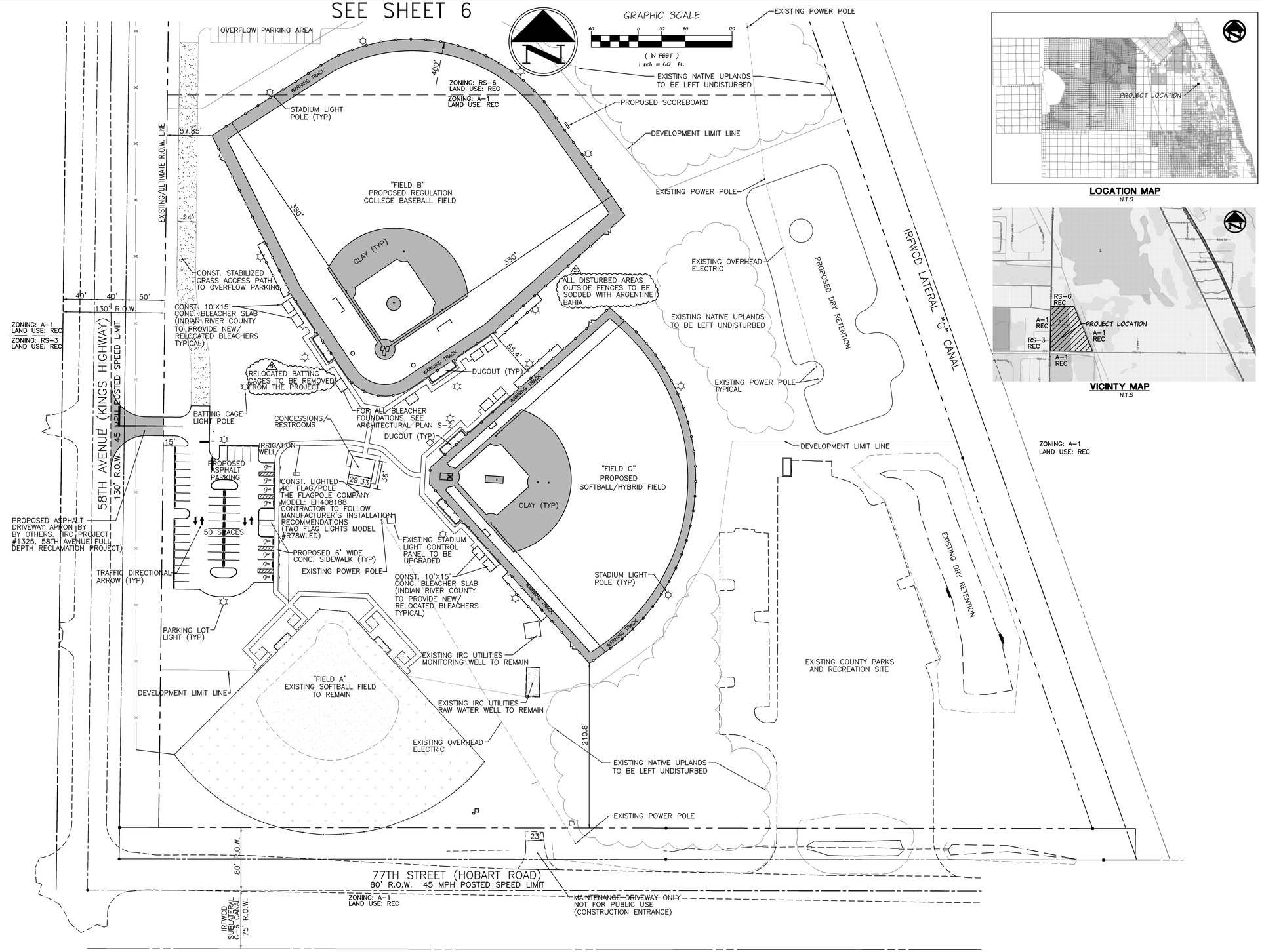
Specific Land Use Criteria:

1. NO OFF-STREET PARKING OR LOADING AREAS OF BUILDINGS AND STRUCTURES ARE DESIGNED BE LOCATED CLOSER THAN 20' TO ANY PROPERTY LINE ABUTTING A RESIDENTIALLY DESIGNATED DISTRICT. (NOT APPLICABLE TO THIS PROJECT AS ALL PROPERTY LINES ABUT EITHER CANAL OR ROAD RIGHTS OF WAY.)
2. ANY RECREATIONAL USE IS EQUIPPED WITH LIGHTING TO ALLOW THE USE OF THE FACILITY AFTER SUNSET AND IS DESIGNED SUCH THAT:
   a. ALL LIGHTS DEPICTED ARE SHIELDED FROM SHINING INTO RESIDENTIALLY DESIGNATED ADJACENT PROPERTIES; (OUTDOOR LIGHTING FOR THIS PROJECT HAS BEEN DESIGNED SO THAT LIGHTING WILL BE SHIELDED AND DIRECTED AWAY FROM ANY RESIDENTIALLY DESIGNATED AREAS AS DEPICTED ON THE ILLUMINATION GRID SUMMARY PROVIDED BY MUSCO LIGHTING. DETAILS OF THE LIGHT POLES, LAMP STYLES, AND SHIELDS ARE SUBMITTED SEPARATELY).
   b. HOURS OF OPERATION AND/OR SPECIAL DESIGN TECHNIQUES ARE TO BE USED TO MITIGATE NOISE IMPACTS, ESPECIALLY DURING EVENING AND NIGHTTIME HOURS. (THIS IS AN BASEBALL / SOFTBALL PARK WITH AN EXISTING PRESSBOX. THE NEW PRESSBOX SHALL BE OVER 700 FEET AWAY FROM THE NEAREST RESIDENCE AND PRESSBOX SPEAKERS WILL BE DIRECTED AWAY FROM THAT AREA.)
3. BUFFERING OF THE PROJECT SHALL BE SUFFICIENT TO NOT ADVERSELY AFFECT ADJACENT PROPERTY. (THIS IS AN EXISTING BASEBALL / SOFTBALL PARK WITH NO EXISTING SIGNIFICANT LANDSCAPE BUFFERING. THE DESIGN OF THE PROJECT IMPROVEMENTS INCLUDES LANDSCAPE BUFFERING PER IRC CODE WHICH IS EXPECTED TO IMPROVE THE SITE BUFFERING FOR AESTHETICS, LIGHTING, AND NOISE IMPACTS OFFSITE.)

Jurisdictional Permitting Requirements

INDIAN RIVER COUNTY:	SITE PLAN APPROVAL
INDIAN RIVER COUNTY:	TYPE "B" STORMWATER PERMIT
INDIAN RIVER COUNTY:	CONCURRENCY CERTIFICATE
INDIAN RIVER COUNTY:	LAND CLEARING
INDIAN RIVER COUNTY:	TREE REMOVAL
INDIAN RIVER COUNTY:	RIGHT OF WAY (UTILITIES)
INDIAN RIVER COUNTY:	UTILITIES CONSTRUCTION PERMIT
SJRWMD:	ENVIRONMENTAL RESOURCE PERMIT
FDEP:	SEWER MAIN EXTENSION GENERAL PERMIT
IRFWCD:	CULVERT CONNECTION PERMIT

SEE SHEET 6



LOCATION MAP
N.T.S

VICINITY MAP
N.T.S

SITE PLAN A

NO.	DATE	DESCRIPTION	DR/APP
5.	8/28/18	REMOVE BATTING CAGES AND ADD SOD NOTE	SH/SEM
4.	8/28/18	REVISED PER IRC COMMENTS EMAILED ON 7/31/18	SH/SEM
3.	7/31/18	REVISED PER IRC COMMENT LETTERS OF 6/20 & 6/30/18	SH/SEM
2.	6/11/18	REVISED PER IRC TRC COMMENT LETTER OF 6/14/18	SH/SEM
1.	5/10/18	REVISED PER IRC PRE-APP COMMENTS	SH/SEM

REVISIONS

MASTELLER & MOLER, INC.
CONSULTING ENGINEERS
1655 27th STREET, SUITE #2, VERO BEACH, FLORIDA, 32960
(772) 567-5300 / FAX (772) 794-1106
CERTIFICATE OF AUTHORIZATION NUMBER 4204

HOBART PARK

BASEBALL FIELD IMPROVEMENTS

INDIAN RIVER COUNTY FLORIDA

STEPHEN E. MOLER, P.E. FL#33193

DRAWN	SH
DESIGNED	SH
CHECKED	SEM
DATE	11/17
SCALE	1"=60'
SHEET	5 OF 15
PROJECT NO:	1756