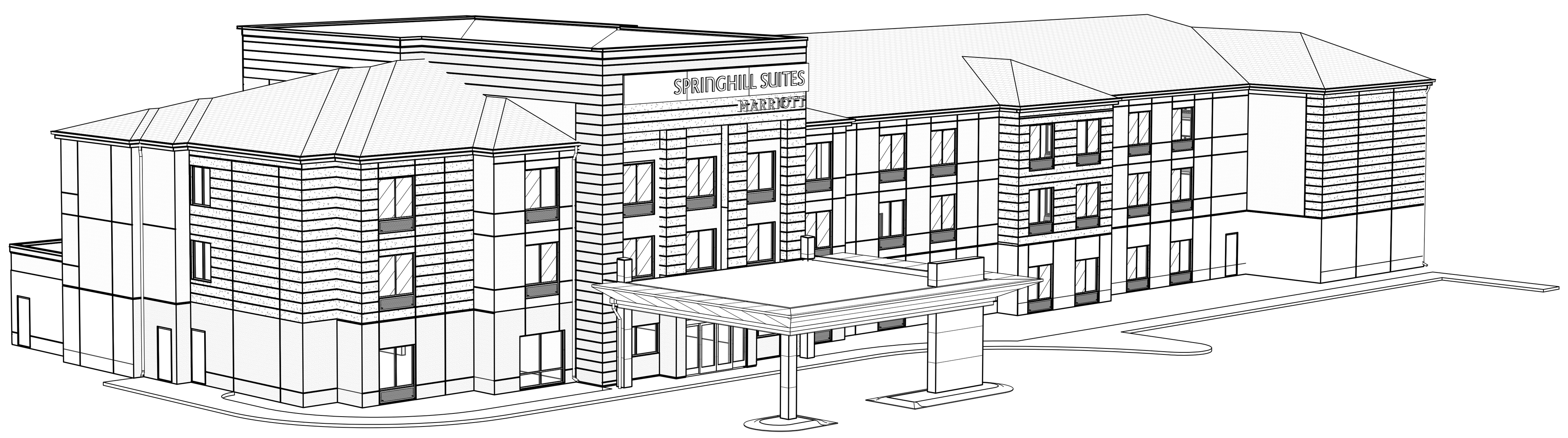
SPRINGHILL SUITES

450 CENTER DRIVE

WALKER, MI

EXTERIOR UPDATES



Sheet Index

● INITIAL ISSUE OR ISSUED WITH REVISIONS
○ ISSUED WITH NO REVISIONS

Project / Code Information

GOVERNING CODES

2012 Michigan Building Code
2012 Michigan Rehabilitation Code
2012 Michigan Mechanical Code
2012 Michigan Plumbing Code
2014 National Electrical Code
2009 Michigan Uniform Energy Code/2007 ASHRAE 90.1

CONSTRUCTION TYPE: 5A, FULLY SPRINKLERED

OCCUPANCY: R-1

ALLOWABLE HEIGHT: MAXIMUM HEIGHT = 40', 504.2 INCREASE TO 60'
ALLOWED STORIES = 3, 504.2 INCREEASE TO 4

ALLOWABLE AREA: MAXIMUM AREA = 10,200 S.F./FLOOR
506.2, 506.3, 506.4: INCREASE TO 20,400 PER FLOOR

ACTUAL HEIGHT & AREAS: 45'-0", (3) STORY
GROUND LEVEL GROSS BUILDING AREA = 16,722 SF

TOTAL ACTUAL AREA = 35,959 SF

PROJECT DESCRIPTION
Renovation of the exterior of existing facility; removal and rehabilitation of certain facade features; redesign of Port Cochere.

Contacts

Owner
American Realty Capital Hospitality Trust
405 Park Avenue, 14th Floor
New York NY 10022
Phone: (212) 415 6500
Contact: Noam Ramati

General Contractor

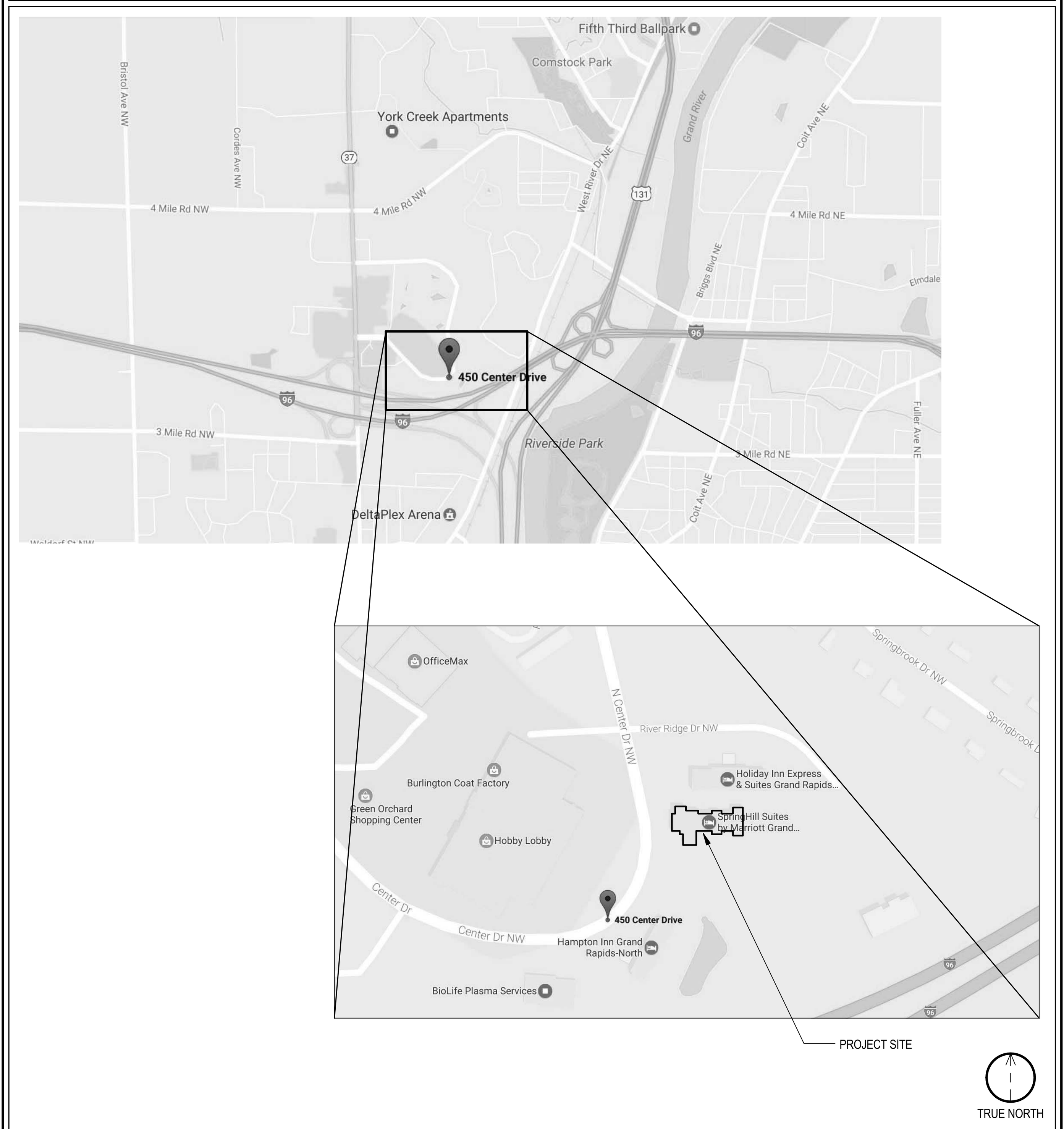
Architect
FRCH Design Worldwide - Cincinnati, Inc.
311 Elm Street, Suite 600
Cincinnati, Ohio 45202
Phone: (513) 241-3000
Contact: Johannes Kolshorn

Civil Engineer

Structural Engineer

Plbg./Mech./Elec. Eng'r.

Vicinity Map



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Plbg./Mech./Elec. Eng'r. p:

Sheet Issue Information

Issued: 2017 05-05 100% CD Set

Revised

#	Description	Date
1	Pre-Bid Revisions	2017-05-31

Professional Stamp

Project Information

Title: Springhill Suites Exterior Updates

Address: Springhill Suites
Grand Rapids
Michigan

Project Number: 032841.000

Sheet Information

Title: TITLE SHEET & DRAWING INDEX

Drawn: CNW

Reviewed: JK

Scale: As Noted

Authorized For: INTERNAL USE ONLY

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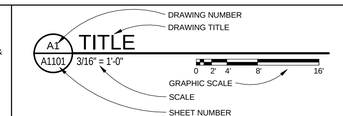
ARCHITECTURAL DRAWING ABBREVIATIONS

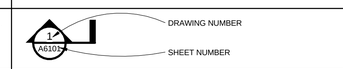
#	Round or Number	J.B.	Joist Bearing
&	And	J.C.	Janitor's Closet
@	At	JAN.	Janitor(ial)
'	Square Feet	JT.	Joint
~	Diameter		
± or +/-	Plus or Minus	K.O.	Knockout
		KIT.	Kitchen
A.B.	Anchor Bolt		
A.C.T.	Acoustical Ceiling Tile	L	Angle
A.F.F.	Above Finish Floor	L.L.	Lease Line
A.F.G.	Above Finish Grade	L.L.H.	Long Leg Horizontal
A/C	Air Conditioning	L.L.V.	Long Leg Vertical
ACOUST.	Acoustic	L.P.	Low Point
ADJ.	Adjustable	LAB.	Laboratory
ALUM.	Aluminum	LAM.	Laminate(d)
AN	Anodized	LAV.	Lavatory
APPROX.	Approximate	LB.	Pound
ARCH.	Architect(ural)	LGMF	Light Gauge Metal Framing
ASPH.	Asphalt	LL	Live Load
ATTEN.	Attention	LT.	Light
		LT. WT.	Light Weight
B.U.R.	Built-up Roof		
B/O	By Others	M.C.	Medicine Cabinet
BD.	Board	M.D.O.	Medium Density Overlay
BIT.	Bituminous	M.H.	Manhole
BLDG.	Building	M.O.	Masonry Opening
BLK.	Block	M.R.	Moisture Resistant
BLKG.	Blocking	MAS.	Masonry
BM.	Beam	MAX.	Maximum
BOT.	Bottom	MECH.	Mechanical
BRG.	Bearing	MEP	Mechanical, Electrical & Plumbing
BRK.	Brick	MFR.	Manufacturer
BRMTL.	Brake Metal	MIN.	Minimum
		MISC.	Miscellaneous
C	Channel	MTD.	Mounted
C.B.	Catch Basin	MTL.	Metal
C.C.	Center to Center	MULL.	Mullion
C.I.	Cast Iron		
C.J.	Control Joint	N	North
C.L.	Centerline	N.A.	Not Applicable
C.M.U.	Concrete Masonry Unit	N.I.C.	Not In Contract
C.O.	Cased Opening	N.T.S.	Not to Scale
C.P.	Chrome Plated	NECY	Necessary
C.W.	Curtain Wall	NO.	Number
CAB.	Cabinet	NOM.	Nominal
CER.	Ceramic	NON COMB.	Non Combustible
CLG.	Ceiling		
CLO.	Closet	O.A.	Overall
CLR.	Clear	O.C.	On Center
COL.	Column	O.D.	Outside Diameter
COMB.	Combination	O.H.	Opposite Hand
COMP.	Compact(ed)	O.T.O.	Out to Out
CONC.	Concrete	OD	Overflow Drain
CONST.	Construction	OFF.	Office
CONT.	Continuous	OPNG.	Opening
CORR.	Corridor	OPP.	Opposite
D.F.	Drinking Fountain	P.	Paint
D.L.	Dead Load	P. LAM.	Plastic Laminate
D.O.	Do Over	P.L.	Property Line
DBL.	Double	P.T.	Pressure Treated
DEMO	Demolish	PART.	Particle or Partial
DEPT.	Department	PL.	Plate
DIA.	Diameter	PLAS.	Plaster
DIV.	Division	PLBG.	Plumbing
DN.	Down	PLWD.	Plywood
DR.	Door	PNL.	Panel
DRN.	Drain	PORC.	Porcelain
DS	Downspout	PR.	Pair
DTL.	Detail	PSF	Pounds/Square Foot
DWG.	Drawing	PT.	Point
DWGS.	Drawings	PTN.	Partition
E	East	R.	Riser
E.C.	Electrical Contractor	R.A.	Return Air
E.G.D.	Environmental Graphics Design	R.O.	Rough Opening
E.J.	Expansion Joint	R.W.L.	Rain Water Leader
E.P.	Electrical Panel	RAD.	Radius
E.W.	Each Way	RD	Roof Drain
E.W.C.	Electric Water Cooler	REC.	Recessed
EA.	Each	REF.	Refer or Reference
EL.	Elevation	REFR.	Refrigerator
ELEC.	Electrical	REG.	Regular or Register
ELEV.	Elevator	REINF.	Reinforce(d)
EMER.	Emergency	REQ'D	Required
ENCL.	Enclosure	RES.	Resilient
ENG.	Engineer	RM.	Room
EQ.	Equal		
EQUIP.	Equipment	S	South
EXP.	Expansion	S.C.W.	Solid Core Wood
EXST.	Existing	S.M.	Sheet Metal
EXT.	Exterior	S.S.	Stainless Steel
		SCHED.	Schedule
F.A.	Fire Alarm	SECT.	Section
F.B.	Face Brick	SF	Square Feet
F.D.	Floor Drain	SHT.	Sheet
F.E.	Fire Extinguisher	SIM.	Similar
F.E.C.	Fire Extinguisher Cabinet	SPEC.	Specification
F.H.C.	Fire Hose Cabinet	SQ.	Square
F.R.	Fire Resistant	ST.	Street
F.R.P.	Fiber Reinforced Plastic	STD.	Standard
F.R.T.	Fire Retardant Treated	STL.	Steel
F.S.	Frame Size	STOR.	Storage
F.S.R.	Flexible Sheet Roofing	STRUCT.	Structural
F.T.	Fully Tempered	SUSP.	Suspended
F.V.	Field Verify	SYM.	Symmetrical
FDN.	Foundation		
FIN.	Finish	T	Tread
FLR.	Floor	T&B	Top & Bottom
FLUOR.	Fluorescent	T&G	Tongue & Groove
FRM.	Frame	T.B.D.	To Be Determined
FT.	Foot/Feet	T.O.C.	Top of Curb/Concrete
FTG.	Footing	T.O.D.	Top of Drain
FUT.	Future	T.O.M.	Top of Masonry
		T.O.P.	Top of Parapet
G.B.	Grab Bar	T.O.S.	Top of Steel
G.S.M.	Galvanized Sheet Metal	T.O.W.	Top of Wall
G.V.	Gas Valve	T.S.	Tube Steel
GA.	Gauge	T.V.	Television
GALV.	Galvanized	TEL.	Telephone
GEN.	General	TEMP.	Tempered
GFRG	Glass Fiber Reinforced Gypsum	THRU	Through
GL.	Glass/Glazing	TYP.	Typical
GRAN.	Granular		
GYP.	Gypsum	U.N.O.	Unless Noted Otherwise
GYP. BD.	Gypsum Board	UR.	Urinal
H.B.	Hose Bib	V.B.	Vertical Bracing
H.C.	Handicapped	V.C.P.	Vitrified Clay Pipe
H.M.	Hollow Metal	V.C.T.	Vinyl Composition Tile
H.P.	High Point	V.I.F.	Verify in Field
H.S.	Heat Strength	VAR.	Varies/Variable
H.V.A.C.	Heating Ventilation & A/C	VERT.	Vertical
H.W.	Hot Water		
HDR.	Header	W	West
HDWD.	Hardwood	W.C.	Water Closet
HDWR.	Hardware	W.F.	Wide Flange
HGT.	Height	W.H.	Water Heater
HORIZ.	Horizontal	W.I.	Wrought Iron
HTG.	Heating	W.M.	Wire Mesh
		W.P.	Waterproof
I.D.	Inside Diameter	W.PT.	Workpoint
I.P.S.	Iron Pipe System	W.V.	Water Value
IN.	Inch(es)	W.W.F.	Welded Wire Fabric
INCL.	Included	W.W.M.	Welded Wire Mesh
INSUL.	Insulation	W/	With
INT.	Interior	W/O	Without
INV.	Invert	WATER-RES.	Water Resistant
		WD.	Wood
		WIN.	Window
		WSCT.	Wainscot
		WT.	Weight

ARCHITECTURAL DRAWING SYMBOLS

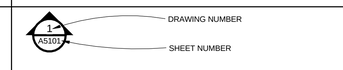
DRAWING TITLE & GRAPHIC SCALE



SECTION/ DETAIL REFERENCE

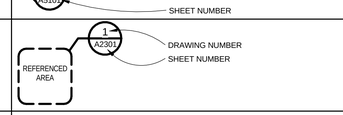


EXT. ELEVATION REFERENCE



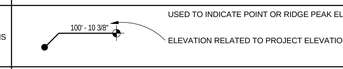
INTERIOR ELEVATION REFERENCE

ENLARGED DETAIL OR PLAN INDICATOR REFERENCE

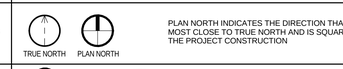


DATUM/ ELEVATION REFERENCE

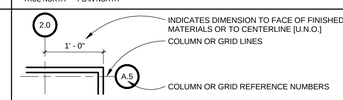
SPOT ELEVATIONS



NORTH ARROWS



DIMENSIONING AND GRIDS



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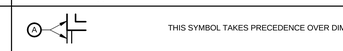
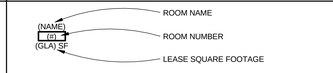


WALL TAG

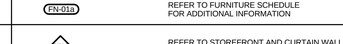
ROOM TAG



DOOR TAG

FINISH TAG

FURNITURE TAG



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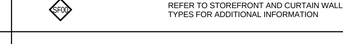

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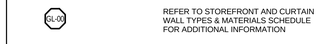

EXITING TAG

FIRE EXTINGUISHER

GRAIN DIRECTION

REVISION OR ADDENDUM TAG

GENERAL NOTES

(APPLY TO ALL SHEETS)

1. CONTRACTOR(S) SHALL COORDINATE ALL ACTIVITIES WITH THE CM, INCLUDING COORDINATION WITH OTHER WORK AT THE SITE.
2. CONTRACTOR(S) SHALL NOTIFY THE CM OF CONFLICTS IN THE CONTRACT DOCUMENTS, OR BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS AND SHALL OBTAIN CLARIFICATION OR RESOLUTION OF SUCH CONFLICTS PRIOR TO PERFORMING THE WORK. THE CM AND/OR THE OWNER WILL NOT ENTERTAIN REQUESTS FOR CHANGES TO CONTRACTOR CONTRACTS FOR WORK RESULTING FROM A FAILURE TO OBTAIN SUCH CLARIFICATIONS OR RESOLUTIONS AS REQUIRED BY THESE GENERAL NOTES.
3. CONTRACTORS SHALL FOLLOW WRITTEN AND VERBAL FIELD DIRECTIVES ONLY FROM THOSE INDIVIDUALS SPECIFICALLY AUTHORIZED TO PROVIDE SUCH DIRECTIVES. CONTRACTOR(S) SHALL OBTAIN CLARIFICATION FROM THE CM FOR ANY DIRECTION GIVEN BY ANY OTHER INDIVIDUAL.
4. THE OWNER AND/OR CM WILL DEVELOP AND MAINTAIN A PROJECT SCHEDULE FOR ALL MAJOR ACTIVITIES AT THE SITE. SUCH SCHEDULE WILL BE UPDATED ON A REGULAR BASIS AND MAY INCLUDE PHASING OF ACTIVITIES. CONTRACTOR(S), CONSISTENT WITH THEIR SCOPE OF WORK, SHALL COOPERATE AND COORDINATE WITH THE CM AND OTHERS AT THE SITE TO ACHIEVE THE GOALS AND OBJECTIVES ESTABLISHED BY SUCH SCHEDULE FOR ALL ASPECTS OF THE PROJECT.
5. THE CM, AND/OR OTHER CONTRACTORS AS DESIGNATED BY THE CM, SHALL OBTAIN ALL PERMITS AND REQUEST ALL INSPECTIONS CONSISTENT WITH REGULATORY REQUIREMENTS, AUTHORITIES HAVING JURISDICTION AND THE NATURE OF THE WORK BEING PERFORMED, AND SHALL PAY ALL ASSOCIATED COSTS, AND SHALL POST SUCH NOTICES AND OTHER DOCUMENTS, AND MAINTAIN ALL RECORDS AS MAY BE REQUIRED.
6. DEBRIS SHALL BE RECYCLED TO THE EXTENT REQUIRED BY APPLICABLE REGULATORY REQUIREMENTS, THE CONSTRUCTION DOCUMENTS, AND/OR THE CM.
7. ALL CONSTRUCTION WORK SHALL COMPLY WITH APPLICABLE REGULATORY REQUIREMENTS, AUTHORITIES HAVING JURISDICTION, OWNER STIPULATED REQUIREMENTS AND PROCEDURES AND APPLICABLE SAFETY REQUIREMENTS.
8. CONTRACTOR(S) SHALL STAGE THEIR TOOLS, EQUIPMENT AND FACILITIES ON THE SITE AND IN THE BUILDING EXCLUSIVELY WITHIN SPECIFIC AREAS DESIGNATED BY THE CM. MOVEMENT ON THE SITE, WITHIN THE BUILDING AND BETWEEN DESIGNATED AREAS SHALL COMPLY WITH PROCEDURES ESTABLISHED BY THE CM. SUCH PROCEDURES MAY BE REVISED FROM TIME TO TIME AS REQUIRED TO MEET THE OVERALL NEEDS OF THE PROJECT.
9. ALL CONSTRUCTION AND WORKER VEHICULAR ACCESS TO AND FROM THE SITE FROM PUBLIC ROADWAYS SHALL FOLLOW SPECIFIC ROUTES DESIGNATED BY THE OWNER AND/OR THE CM AND ALL PARKING SHALL BE IN DESIGNATED AREAS. SUCH ROUTES AND PARKING AREAS MAY CHANGE AT TIMES.
10. CONTRACTOR(S) AND THOSE WORKING UNDER THE DIRECTION OF SUCH CONTRACTOR(S) SHALL MAINTAIN SITE ACCESS ROUTES FREE OF DEBRIS, EXCESSIVE DUST OR OTHER MATERIALS THAT MAY POSE A HAZARD OR NUISANCE.
11. PASSENGER ELEVATORS SHALL NOT BE USED FOR THE MOVEMENT OF ANY MATERIAL OR EQUIPMENT UNLESS SPECIFICALLY AUTHORIZED BY THE CM.
12. THE CM WILL PROVIDE TEMPORARY TOILET FACILITIES THAT WILL BE USED BY WORKERS.
13. THE HOURS DURING WHICH CONSTRUCTION ACTIVITIES MAY TAKE PLACE AT THE SITE SHALL BE SPECIFIED BY THE CM. REQUESTS FOR CHANGES FOR EITHER A SPECIFIC EVENT, OR FOR AN ONGOING PERIOD OF TIME SHALL BE MADE A MINIMUM OF 48 HOURS IN ADVANCE.
14. LARGE TOOLS OR EQUIPMENT ITEMS SHALL BE BROUGHT INTO THE SITE THROUGH SPECIFIC ENTRIES AND ROUTES AS DEFINED IN ADVANCE BY THE CM, AND IN ACCORDANCE WITH PROCEDURES ESTABLISHED BY THE CM.
15. STORAGE OF ALL CONSTRUCTION MATERIALS, AND ALL FUELS, SOLVENTS AND SIMILAR MATERIALS USED IN THE PROCESS OF CONSTRUCTION, SHALL BE STORED IN A MANNER CONSISTENT WITH SAFETY PRECAUTIONS, MANUFACTURER'S RECOMMENDATIONS, AUTHORITIES HAVING JURISDICTION, APPLICABLE REGULATORY REQUIREMENTS AND GOOD PRACTICE. HIGHLY FLAMMABLE MATERIALS SHALL BE STORED OUTSIDE AND AWAY FROM THE BUILDING TO THE EXTENT FEASIBLE, AND WHEN NOT FEASIBLE, IN A MANNER CONSISTENT WITH THE ABOVE AT A LOCATION DESIGNATED BY THE CM.
16. REMOVE ALL DEBRIS RESULTING FROM CONSTRUCTION ACTIVITIES AT REGULAR INTERVALS TO AVOID ACCUMULATION OF DEBRIS IN THE BUILDING, OR ON THE SITE. THE CM, AND OR OWNER'S PROJECT MANAGER MAY REQUIRE DEBRIS REMOVAL AT THEIR DISCRETION IF THEY FEEL ACCUMULATION IS EXCESSIVE. DISPOSE OF ALL DEBRIS IN A MANNER CONSISTENT WITH APPLICABLE REGULATORY REQUIREMENTS.
17. PROVIDE ALL BARRICADES, RAILINGS AND OTHER ITEMS AS REQUIRED TO PROTECT WORKERS AND ANY PUBLIC AS REQUIRED BY APPLICABLE REGULATORY REQUIREMENTS AND AUTHORITIES HAVING JURISDICTION.
18. CONTRACTOR(S) SHALL PROVIDE ALL SHORING, BRACING AND OTHER SUPPORTS REQUIRED TO PERFORM CONSTRUCTION ACTIVITIES IN A SAFE MANNER. PRIOR TO THE START OF WORK, REVIEW ANY ANTICIPATED SHORING AND BRACING REQUIREMENTS WITH THE CM, INCLUDING ASSOCIATED COSTS. WHERE SHORING WILL PROVIDE TEMPORARY SUPPORT OF THE BUILDINGS STRUCTURAL SYSTEM, FLOORS, ROOF OR SIMILAR, THE SYSTEMS, MEANS AND METHODS SHALL BE APPROVED BY A STRUCTURAL ENGINEER. SUCH APPROVAL SHALL INCLUDE VERIFICATION OF STRUCTURAL CAPACITY BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF OHIO INCLUDING SUBMITTAL OF SIGNED AND SEALED DOCUMENTS TO AUTHORITIES HAVING JURISDICTION, THE CM AND THE OWNER, AS REQUIRED BY SUCH PARTY.
19. IF ANY CONSTRUCTION, FOR WHATEVER REASON, APPEARS TO BE INADEQUATELY SUPPORTED AND IN RISK OF COLLAPSE, STOP WORK IMMEDIATELY, NOTIFY THE CM AND WORK WITH THE CM TO DETERMINE A SAFE WAY TO PROCEED.
20. THE CM WILL OVERSEE THE EXTENT AND PROCEDURES FOR OPERATION AND MAINTENANCE OF MECHANICAL EQUIPMENT DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, FILTER REPLACEMENT, CLEANING, CHECKOUT AND RESTART AT THE END OF THE PROJECT.
21. PRIOR TO SUBMITTING BIDS, ALL CONTRACTOR(S) SHALL TOUR THE SITE AND TO THE GREATEST EXTENT FEASIBLE SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS THAT MAY EFFECT THE WORK, AND SHALL OBTAIN CLARIFICATION FROM THE CM, OR OTHERS AS INSTRUCTED BY THE CM, FOR ALL ITEMS AS DEEMED NECESSARY FOR SUBMITTAL OF A COMPREHENSIVE BID. PRIOR TO AN AWARD OF CONTRACT, ALL SITE VISITS SHALL BE COORDINATED WITH THE CM. THE CM AND/OR THE OWNER WILL NOT ENTERTAIN REQUESTS FOR CHANGES TO CONTRACTOR CONTRACTS FOR WORK WHICH SHOULD HAVE BEEN FORESEEN BY THE RESPECTIVE CONTRACTOR.
22. THE CM SHALL CONTRACT FOR AND MANAGE THE REMOVAL OF DEBRIS RESULTING FROM CONSTRUCTION ACTIVITIES.
23. CONTRACTOR(S) SHALL MAINTAIN A RECORD SET OF CONTRACT DOCUMENTS AND SHALL RECORD AS-BUILT CONDITIONS ON A REGULAR BASIS.
24. THE OVERALL SCOPE OF WORK FOR THE PROJECT INCLUDES A NUMBER OF ITEMS THAT WILL BE FABRICATED OFF-SITE. CONTRACTOR(S) SHALL COORDINATE FIELD CONSTRUCTION WITH THE INSTALLATION OF THESE ITEMS, INCLUDING ELECTRICAL CONNECTIONS, PATCHING OF CONSTRUCTION AND FINISHES AROUND ANCHOR LOCATIONS, AND OTHER STEPS AS REQUIRED FOR A COMPLETE AND FINISHED PROJECT. CONTRACTOR(S) SHALL OBTAIN CLARIFICATION FROM THE CM CONCERNING INSTALLATION OF SUCH ITEMS.
25. THE CM SHALL PROVIDE PRIMARY PROTECTION OF NEW FLOOR FINISHES TO PREVENT DAMAGE DURING SUBSEQUENT MOVEMENT OF EQUIPMENT AND MAJOR CONSTRUCTION ACTIVITIES. CONTRACTOR(S) SHALL PROVIDE PROTECTION AGAINST SPILLS AT ALL TIMES AND SHALL PROVIDE OTHER APPROPRIATE PROTECTION FOR ANY WORK DONE AFTER REMOVAL OF THE PRIMARY PROTECTION. COORDINATE WITH THE CM.
26. ALL MATERIALS USED IN THE CONSTRUCTION OF, OR INSTALLED WITHIN, RETURN AIR PLENUM SPACES SHALL BE NON-COMBUSTIBLE. WHERE APPLICABLE, "PLENUM RATED" MATERIALS MAY BE USED.
27. ALL WOOD OTHER THAN TRIM OVER NON-COMBUSTIBLE BACKING SHALL BE F.R.T. WOOD.
28. CONTRACTOR SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR FIRE PENETRATIONS THROUGH WALLS, FLOORS AND FLOOR CEILING ASSEMBLIES AS REQUIRED BY GOVERNING CODES.
29. EACH CONTRACTOR INSTALLING FINISHES OR OTHER CONSTRUCTION OVER A SUBSTRATE SHALL REVIEW THE CONSTRUCTION DOCUMENTS FOR THE SUBSTRATE REQUIREMENTS AND SHALL INSPECT AND ACCEPT THE SUBSTRATE PRIOR TO INSTALLATION OF THE FINISH OR OTHER CONSTRUCTION. IF SUBSEQUENT DISCOVERY OF DEFICIENCIES IN THE SUBSTRATE NECESSITATE REMOVAL OR DAMAGE TO THE FINISH OR INSTALLED CONSTRUCTION, THE INSTALLING CONTRACTOR SHALL REMOVE AND REPLACE SUCH FINISH OR CONSTRUCTION IN COORDINATION WITH CORRECTION OF THE SUBSTRATE DEFICIENCIES AT NO ADDITIONAL COST TO THE OWNER.
30. FOR EACH MATERIAL CALLED FOR BY THE CONSTRUCTION DOCUMENTS, CONTRACTORS SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION UNLESS THE CONSTRUCTION DOCUMENTS SPECIFICALLY INDICATE OTHERWISE. SUCH REQUIREMENTS SHALL INCLUDE, BUT NOT BE LIMITED TO, SUBSTRATE REQUIREMENTS, TAPING OR SEALING OF SEAMS, LAPPING OF MEMBRANES, USE OF ADHESIVES OR MECHANICAL FASTENERS, SEPARATION FROM SPECIFIC OTHER MATERIALS, TEMPERATURE AND MOISTURE LIMITATIONS, ALLOWANCES FOR EXPANSION AND CONTRACTION, REPAIR OF DAMAGE AND INTERFACE WITH OTHER CONSTRUCTION.
31. IF ANY CONSTRUCTION, FOR WHATEVER REASON, APPEARS TO BE INADEQUATELY SUPPORTED AND IN RISK OF COLLAPSE, STOP WORK IMMEDIATELY, NOTIFY THE CM AND WORK WITH THE CM TO DETERMINE A SAFE WAY TO PROCEED.

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Project Information

Title: Springhill Suites Exterior Updates
Address: 450 Center Drive
Walker, MI 49544
Project Number: 032841.000

Sheet Information

Title: GENERAL NOTES SYMBOLS & ABBREVIATIONS
Drawn: CNW
Reviewed: JK
Scale: As Noted
Authorized For: BID & PERMIT

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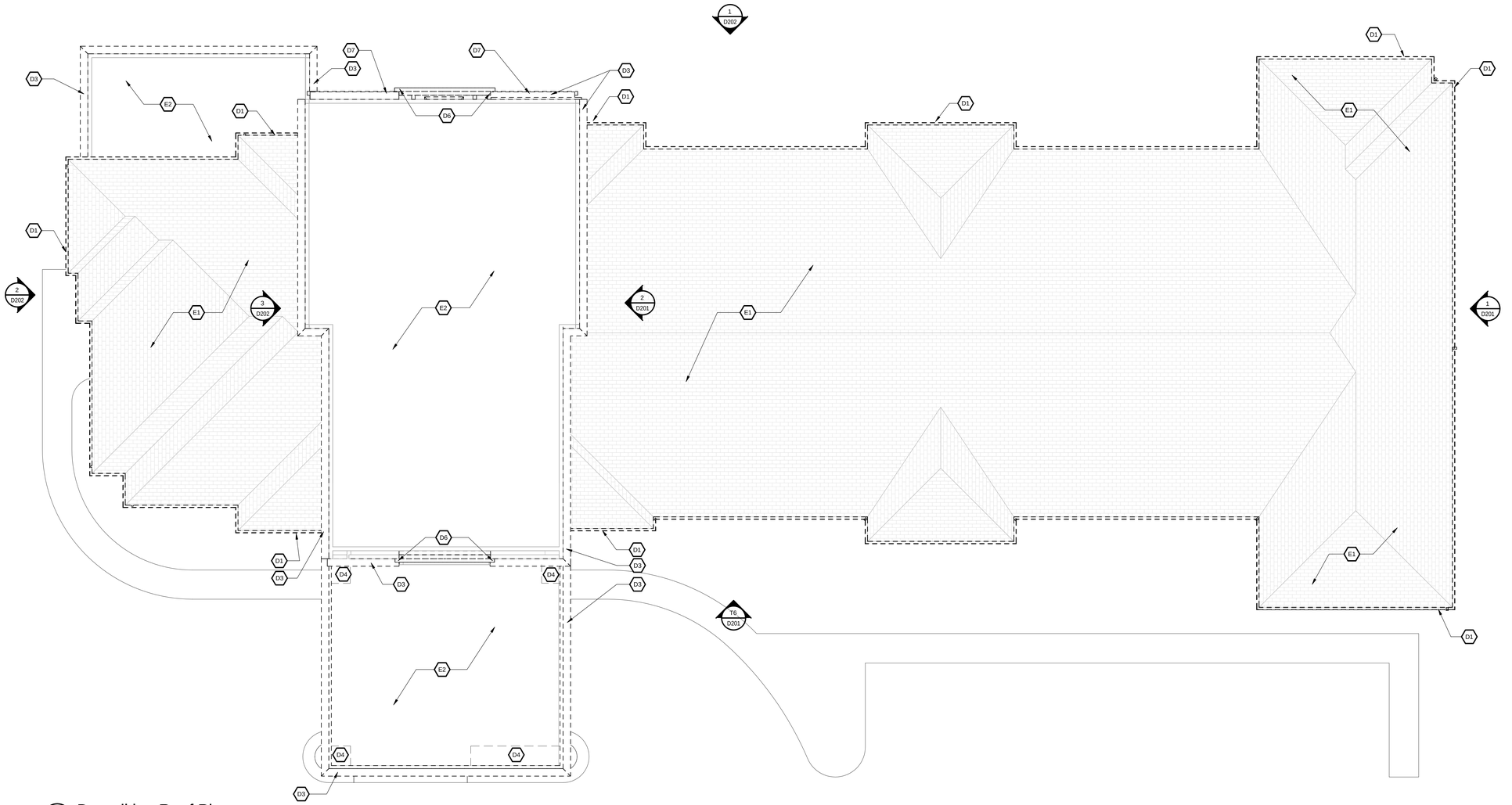

1 Demolition Roof Plan
D101 — 1/8" = 1'-0"

GENERAL SHEET NOTES:

KEY NOTES:

D1 Remove gutter and EIFS cornice detail

D3 Remove EIFS Cornice at parapet

D4 Remove roof membrane and roof elements, down to structural deck. Coordinate extents with new work.

D6 Remove facade feature, including coping, finish materials, sheathing, and framing to extents shown

D7 Remove EIFS, substrate, and chase framing; do not disturb elements of the thermal envelope, or structural elements.

E1 Existing shingle roof to remain; modify and patch to new gutter work. Protect roof and all roof located equipment in place during all phases of construction.

E2 Existing roof membrane to remain; protect in place during all phases of construction.

GRAPHICAL KEY

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D101

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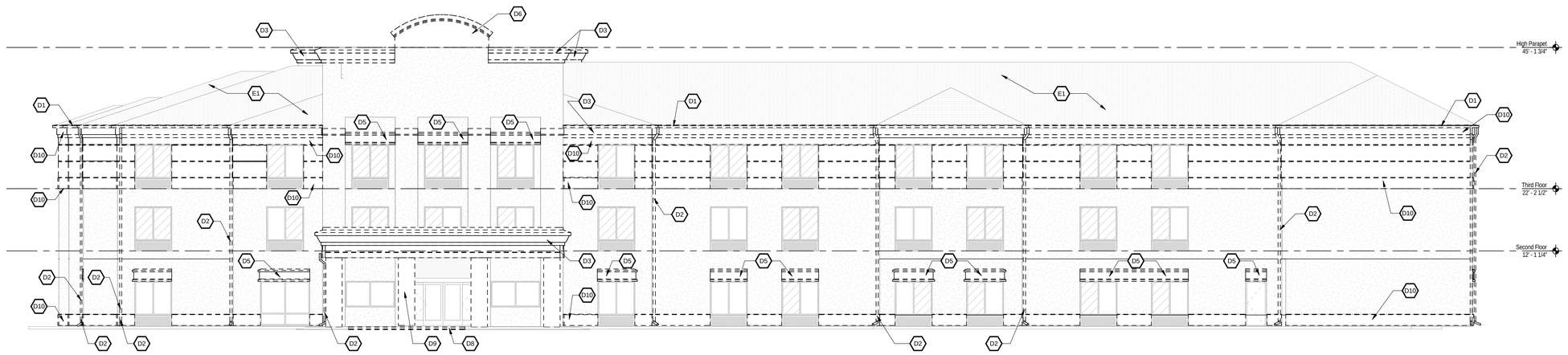
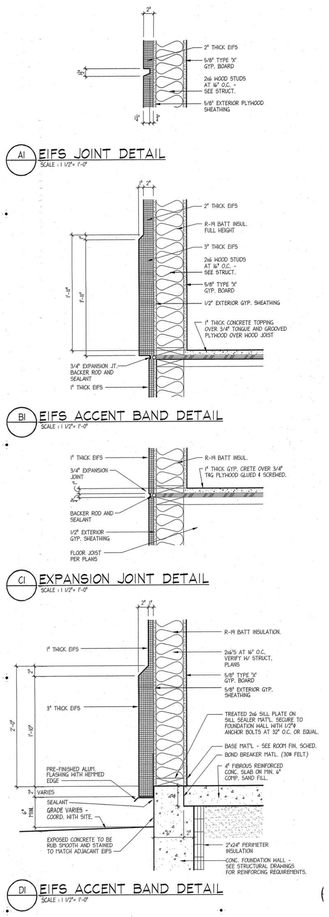
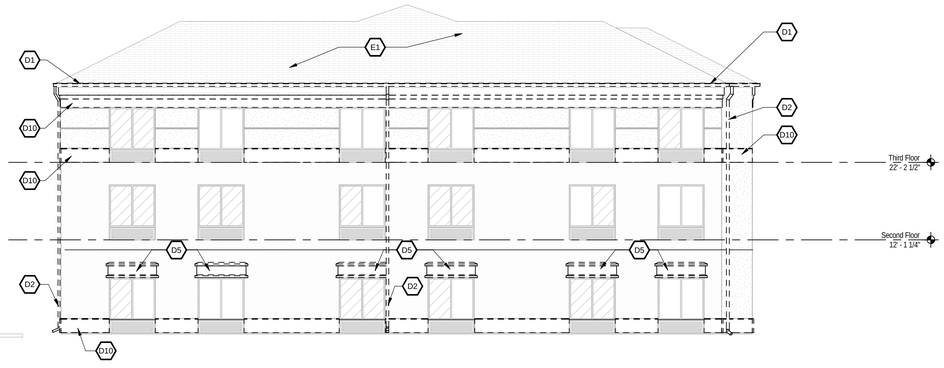


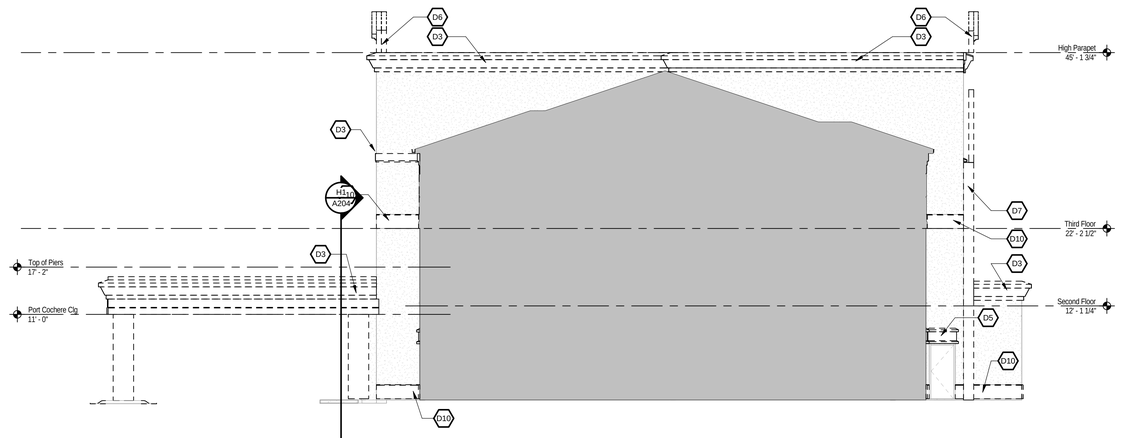
T6 / D201 Demolition - Front Elevation - South View
1/8" = 1'-0"



Existing Wall Section - EIFS
Banding Details to be Demolished



1 / D201 Demolition East Elevation
1/8" = 1'-0"



2 / D201 Demolition - High Elevation
1/8" = 1'-0"

GENERAL SHEET NOTES:

KEY NOTES:

D1	Remove gutter and EIFS cornice detail
D2	Remove downspout
D3	Remove EIFS Cornice at parapet
D5	Remove ornament EIFS door/window head
D6	Remove facade feature, including coping, finish materials, sheathing, and framing to extents shown
D7	Remove EIFS, substrate, and chase framing; do not disturb elements of the thermal envelope, or structural elements.
D8	Cut and remove curb and grade for new walk
D9	Remove port cochere faux pier
D10	Remove EIFS accent band
E1	Existing shingle roof to remain; modify and patch to new gutter work. Protect roof and all roof located equipment in place during all phases of construction.

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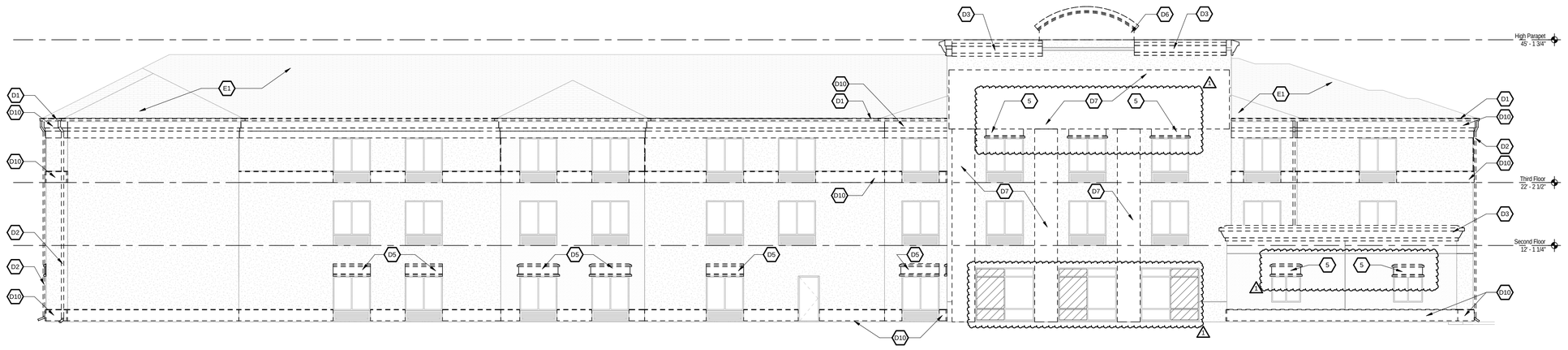
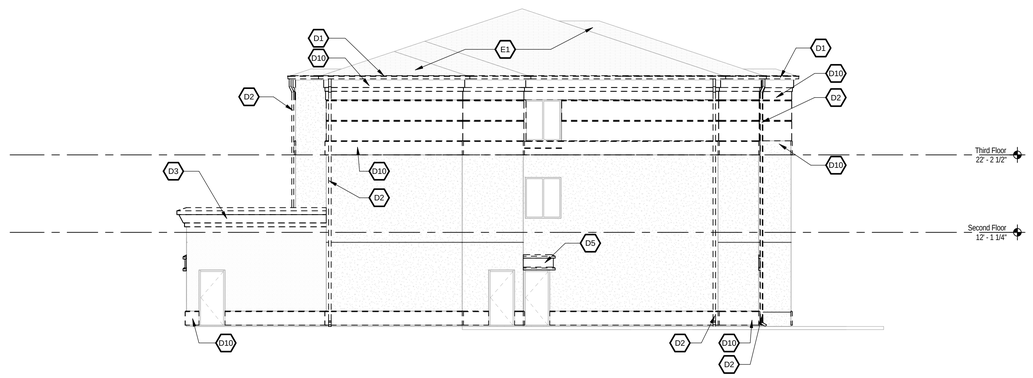


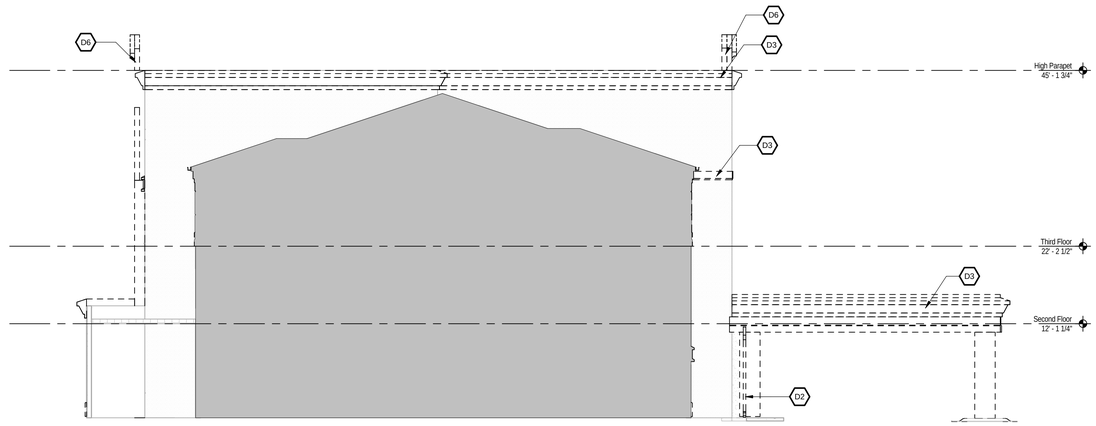
1 D202 Demolition - Rear Elevation - North View

1/8" = 1'-0"



2 D202 Demolition - West Elevation

1/8" = 1'-0"



3 D202 Demolition - High West Elevation

1/8" = 1'-0"

GENERAL SHEET NOTES:

KEY NOTES:

D1	Remove gutter and EIFS cornice detail
D2	Remove downspout
D3	Remove EIFS Cornice at parapet
D5	Remove ornament EIFS door/window head
D6	Remove facade feature, including coping, finish materials, sheathing, and framing to extents shown
D7	Remove EIFS, substrate, and chase framing; do not disturb elements of the thermal envelope, or structural elements.
D10	Remove EIFS accent band
E1	Existing shingle roof to remain; modify and patch to new gutter work. Protect roof and all roof located equipment in place during all phases of construction.

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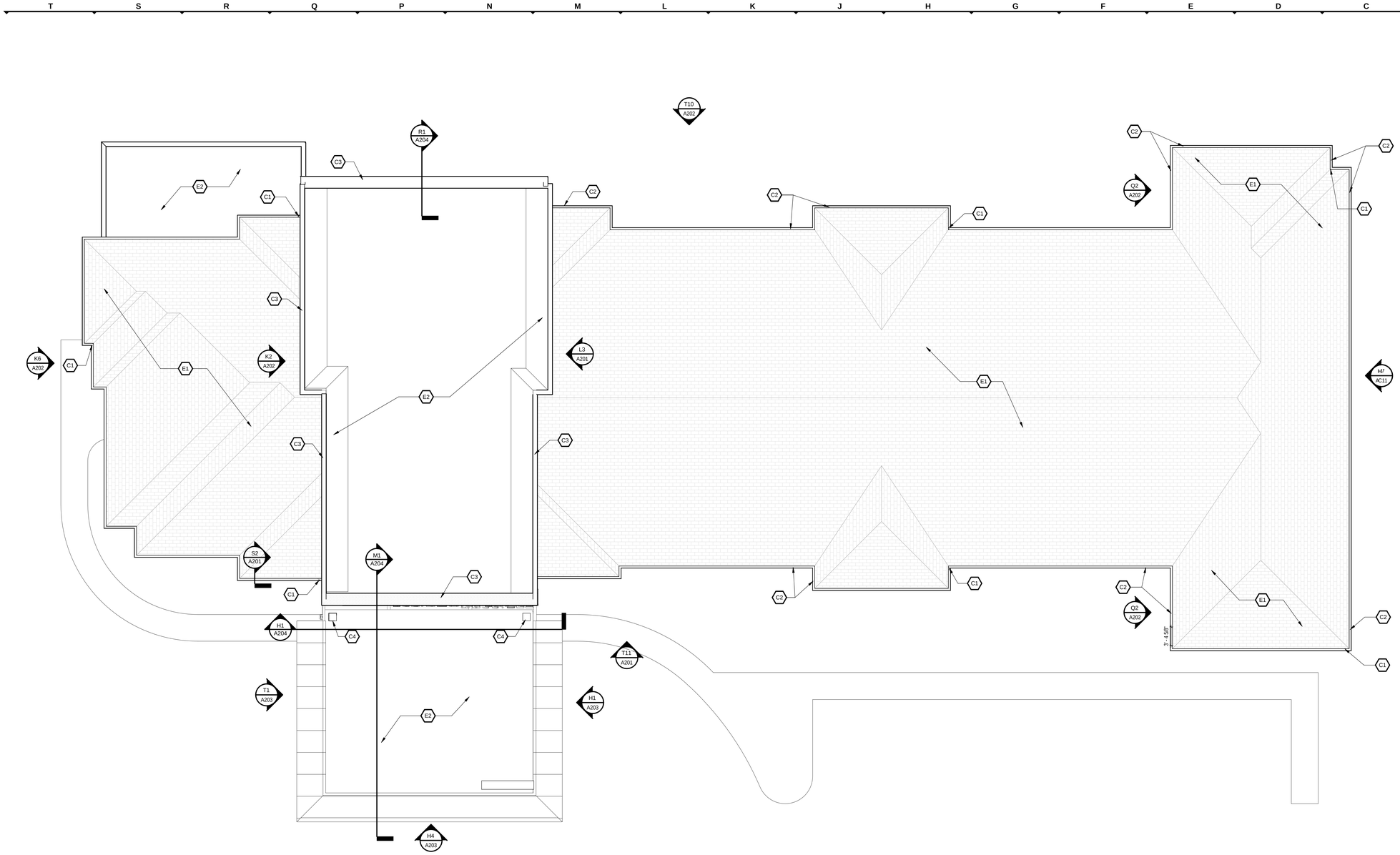

S5 / A101 Roof Plan

1/8" = 1'-0"

GENERAL SHEET NOTES:

Protect existing roofing in place during all phases of construction. Conduct work in a manner to preserve existing roof warranties.

Where existing downspouts are removed and not replaced, cap existing storm water boot; provide clean-out.

KEY NOTES:

C1	Downspout
C2	Cornice/Gutter; see detail
C3	Parapet coping
C4	Prefinished brake metal pier cap
E1	Existing shingle roof to remain; modify and patch to new gutter work. Protect roof and all roof located equipment in place during all phases of construction.
E2	Existing roof membrane to remain; protect in place during all phases of construction.

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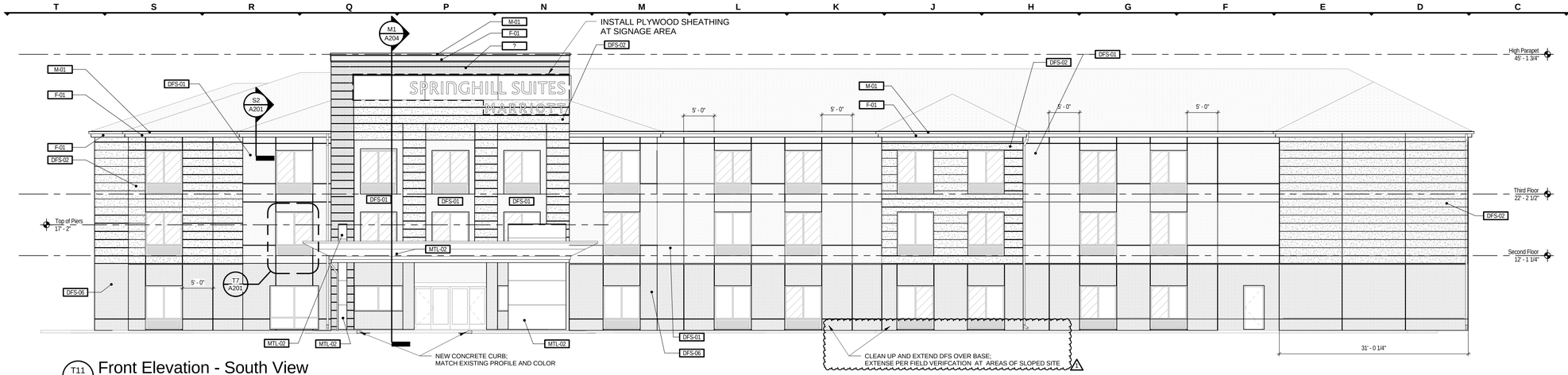
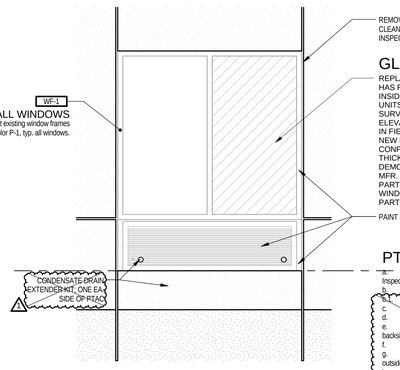


T11 A201 Front Elevation - South View
1/8" = 1'-0"



REMOVE CALK AT PERIMETER OF ALL WINDOWS.
CLEAN JOINT AND SEAL TOP AND SIDES ONLY.
INSPECT AND REPAIR OR REPLACE WEEPS AT BOTTOM.

GLASS REPLACEMENT:

REPLACE INSULATED GLASS UNITS (IGU) WHERE SEAL HAS FAILED AND CONDENSATE CAN BE OBSERVED INSIDE UNIT.
UNITS REQUIRING REPLACEMENT, AS NOTED BY OWNER SURVEY, ARE MARKED WITH HATCHING ON BUILDING ELEVATIONS. VERIFY SCOPE OF GLASS REPLACEMENT IN FIELD.
NEW IGU'S ARE TO MATCH DIMENSIONS AND CONFIGURATION OF EXISTING UNITS, INCLUDING PANE THICKNESS, AIR SPACE, COLOR AND COATINGS.
DEMOUNT EXISTING PANES PER ALUMINUM WINDOW MFR. INSTRUCTIONS; REASSEMBLE WITH EXISTING PARTS AND NEW IGU. CLEAN AND REPAIR ALUMINUM WINDOW FRAME TO LIKE-NEW CONDITION. REPLACE PARTS DAMAGED DURING IGU REPLACEMENT WITH NEW.

PAINT FRAME, PTAC LOUVER, AND PTAC HOUSING P-1

PTAC Scope of work:

a. Inspect PTAC sleeve to insure it is horizontally level from side to side and 1/4" bubble tilt to the outside. Inspect sleeve perimeter caulking.
b. Provide new continuous perimeter caulking. Maintain required weeps.
c. If leveled install drain extenders per item 'k' below.
c. If not leveled, pull PTAC, disconnect power.
d. Remove sleeve.
e. Install drain extenders on both sides of sleeve on the far end holes. Caulk remaining weep holes on backside of sleeve. Drain extenders must be installed on all sleeves regardless
f. Contractor furnish and install rubber gasket on bottom of the window frame.
g. Adjust feet on base so the base to insure it is horizontally level from side to side and 1/4" bubble tilt to the outside.
h. Verify electrical connection for the unit to has a plug-in lieu of hard-wired connection; if hard-wired, or replace connection with a plug-in base.
i. On the PTAC cover, flip the grill so the air flow is up in lieu of down.
j. Install/re-install PTAC sleeves.
k. On the sleeves, please note the following:
i. Screw 2 stainless steel screws through the sleeves to the window frame on both short sides of the sleeve.
ii. The sleeve should also be secured with 2 screws to the base.
iii. Slight slope should be achieved with the adjustable base legs only. NO SHIMMING ALLOWED.
iv. Caulk remaining 3 sides of sleeve.
v. Reinstall PTAC unit.
l. Replace all rusted and/or damaged sleeves and/or bases.

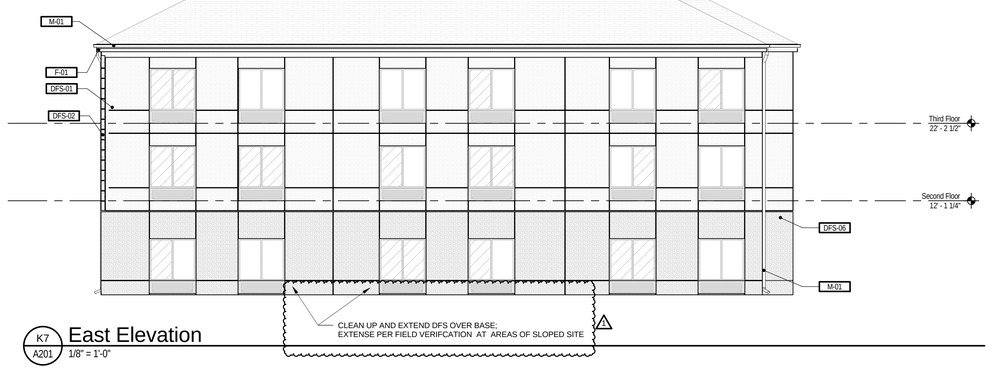
T7 A201 Enlarged Typical Window
1/2" = 1'-0"

MATERIAL LEGEND

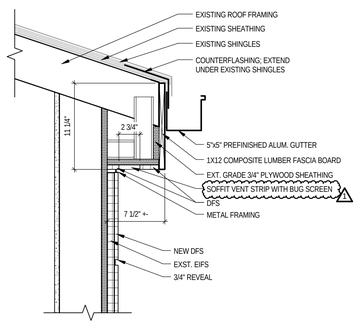
1	Incredible White; Sherwin Williams "SW 7028 Incredible White"
2	Indigo Batik, Sherwin Williams "SW 7602 Indigo Batik"
5	Java; Sherwin Williams "SW 6090 Java"
6	Sherwin Williams, Grey - TBD

MATERIALS LEGEND

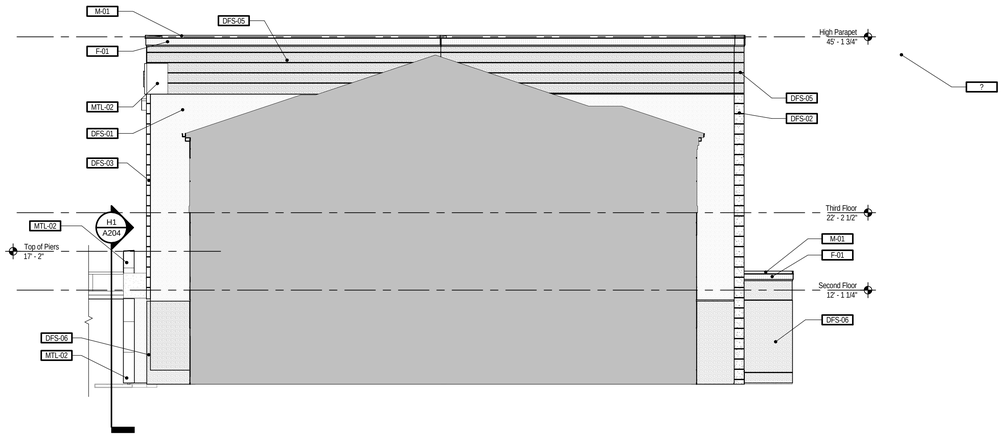
MTL	Metal Panel Cladding; Alucobond or equivalent A
DFS	StoColor Acryl Plus, or equivalent to be used at remaining locations over necessary compatible base preparation
EFS	StoTherm ci Wall System with finish to match StoColor Acryl Plus at all areas of repair, replacement, and patching as required.
M	Prefinished Metal Element: Gutter, Downspout, Coping with integral drip edge
WF	Aluminum Window Frame, Existing; see detail 4/A201
F	Fascia Board; fiber cement board



K7 A201 East Elevation
1/8" = 1'-0"



S2 A201 Gutter Cornice Section - Typical
1 1/2" = 1'-0"



L3 A201 High Elevation East
1/8" = 1'-0"

GENERAL SHEET NOTES:

A STO THERM CI EIFS SYSTEM, OR EQUIVALENT TO BE USED AT ALL NEW, REPLACEMENT, OR PATCHED AREAS. STOCOLOR ACRYL PLUS, OR EQUIVALENT, TO BE USED AT REMAINING LOCATIONS. 1

KEY NOTES:

GRAPHICAL KEY

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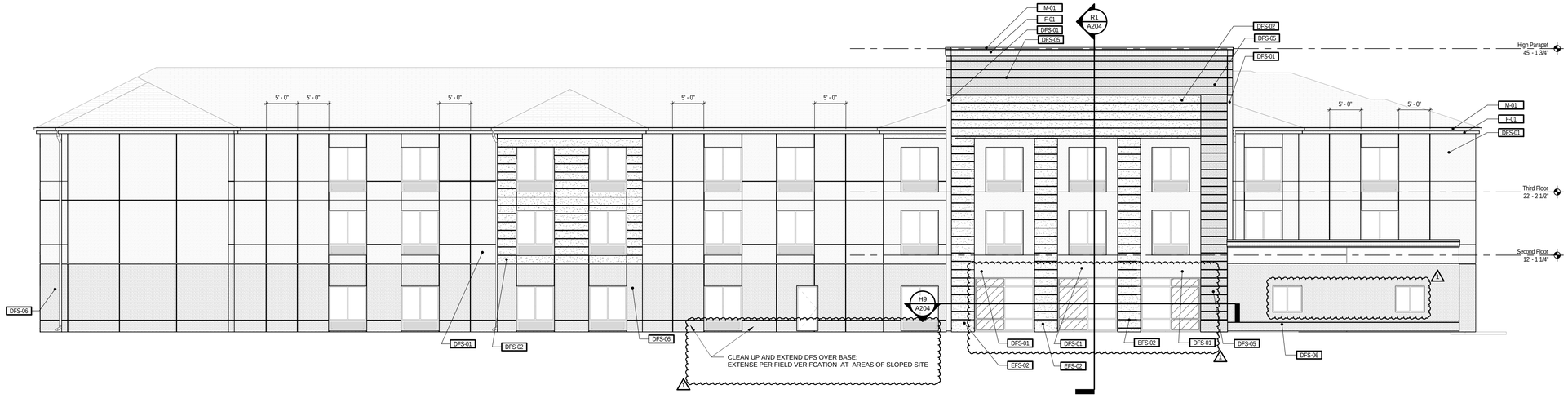
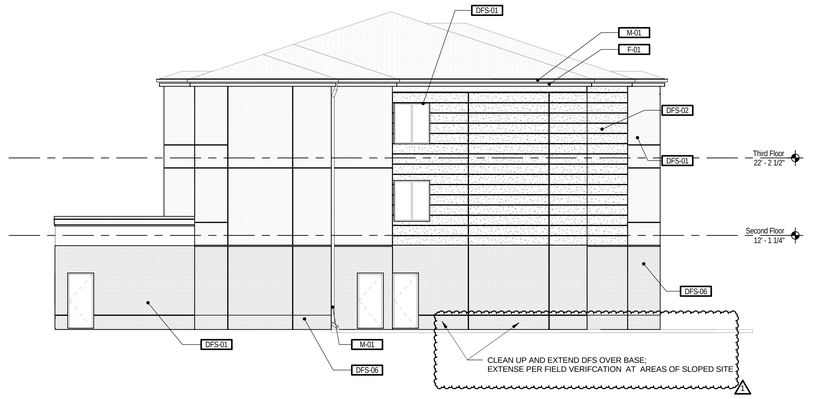
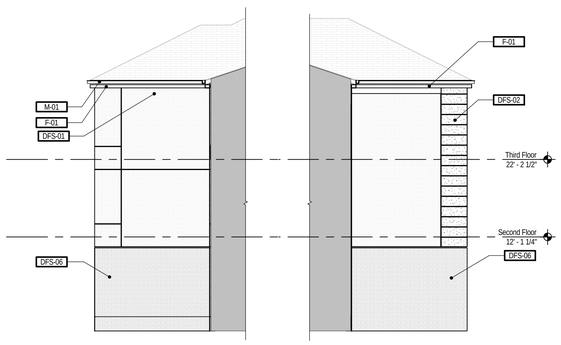


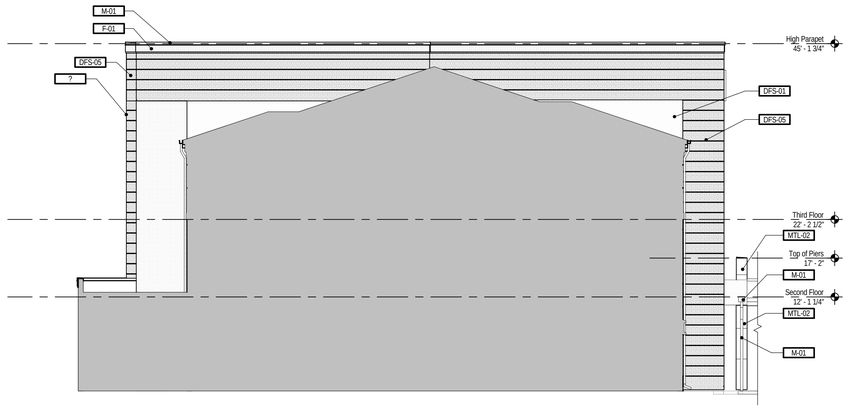
T10 / A202 **Rear Elevation - North View**
1/8" = 1'-0"



K6 / A202 **West Elevation**
1/8" = 1'-0"



Q2 / A202 **Wing Wall Elevations**
1/8" = 1'-0"



K2 / A202 **High Elevation West**
1/8" = 1'-0"

GENERAL SHEET NOTES:

A. STO THERM CI EIFS SYSTEM, OR EQUIVALENT TO BE USED AT ALL NEW, REPLACEMENT, OR PATCHED AREAS. STOCOLOR ACRYL PLUS, OR EQUIVALENT, TO BE USED AT REMAINING LOCATIONS.

KEY NOTES:

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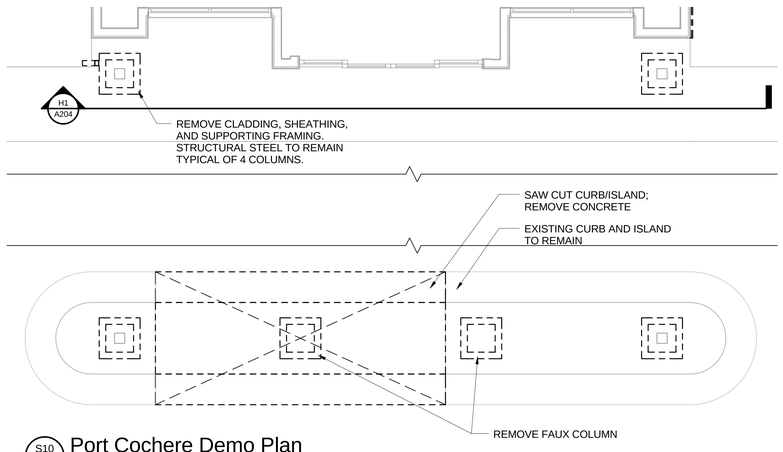
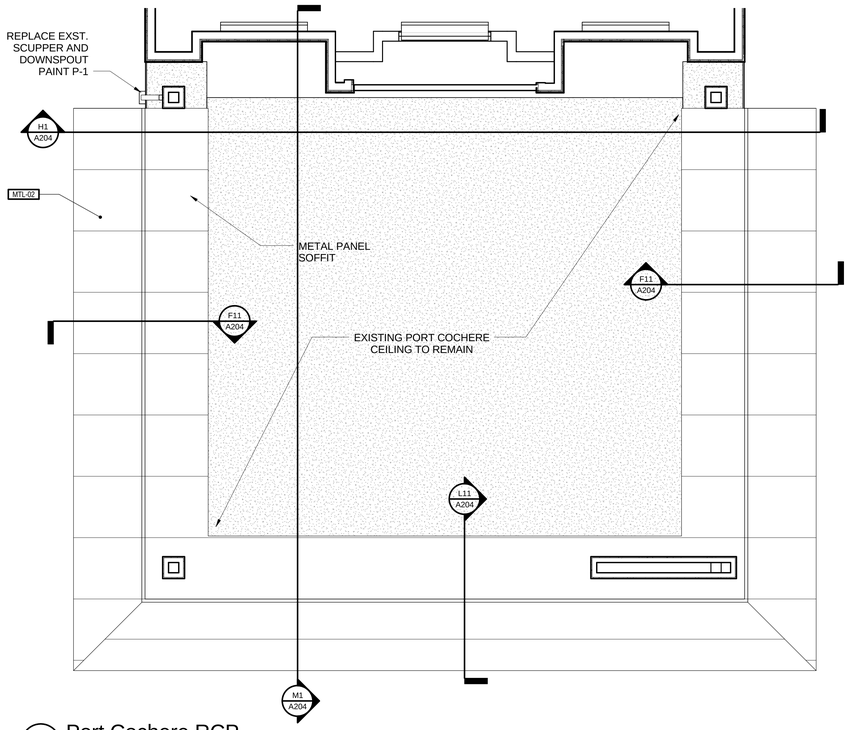
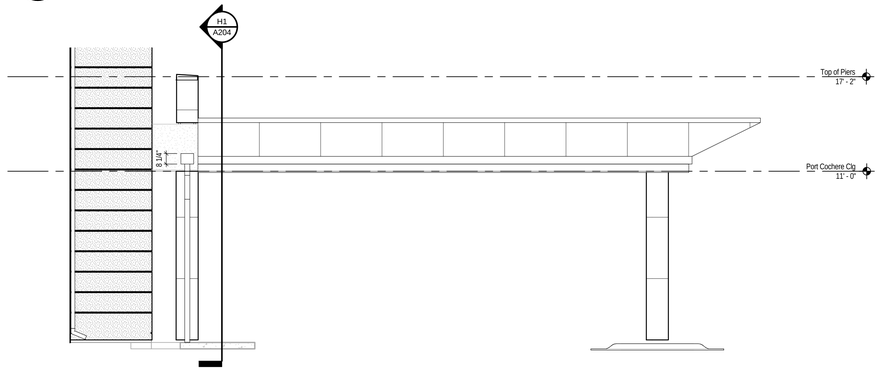


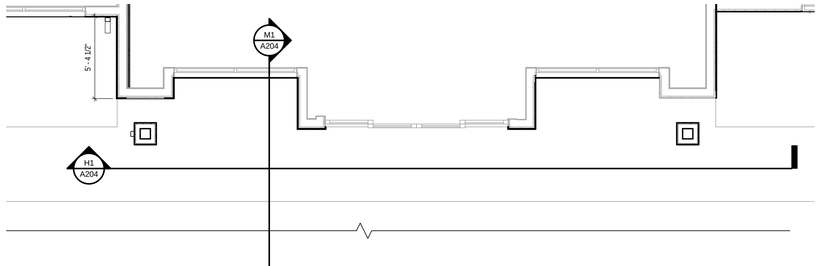
S10 A203 Port Cochere Demo Plan
1/4" = 1'-0"



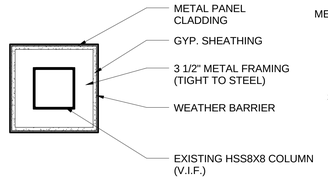
T4 A203 Port Cochere RCP
1/4" = 1'-0"



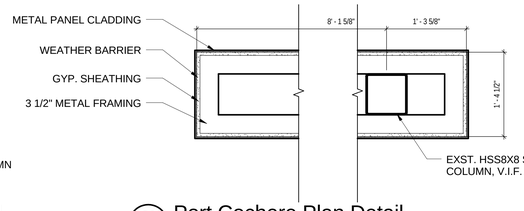
T1 A203 Port Cochere West Elevation
1/4" = 1'-0"



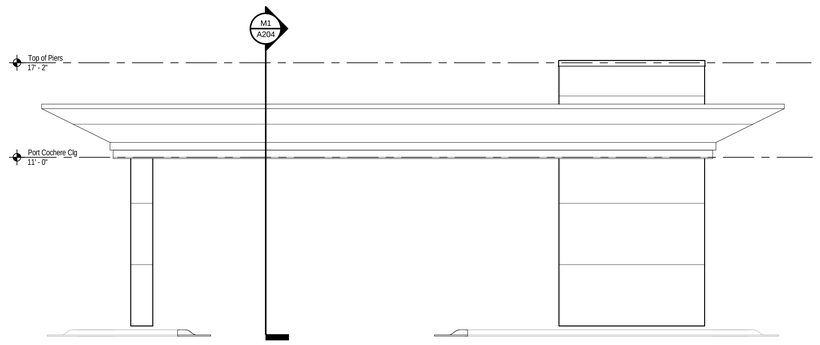
J10 A203 Port Cochere Plan
1/4" = 1'-0"



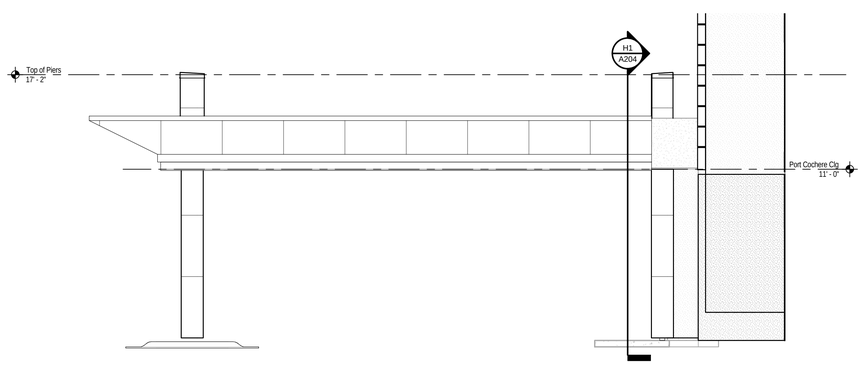
K8 A203 Port Cochere Column Detail
1" = 1'-0"



G8 A203 Port Cochere Plan Detail
1" = 1'-0"



H4 A203 Port Cochere Elevation
1/4" = 1'-0"



H1 A203 Port Cochere East Elevation
1/4" = 1'-0"

GENERAL SHEET NOTES:

KEY NOTES:

GRAPHICAL KEY

FRCH DESIGN WORLDWIDE
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Sheet Issue Information

Issued	2017 05-05 100% CD Set	
Revised	#	Description	Date

Professional Stamp

Project Information

Title: Springhill Suites Exterior Updates
Address: 450 Center Drive
Walker, MI 49544
Project Number: 032841.000

Sheet Information

Title: Port Cochere
Drawn: CNW
Reviewed: JK
Scale: As Noted
Authorized For: INTERNAL USE ONLY

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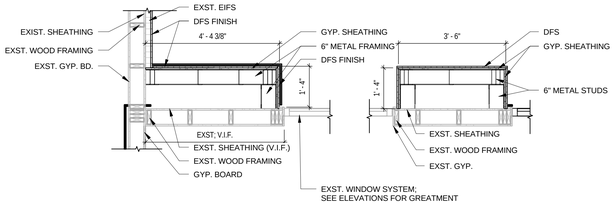
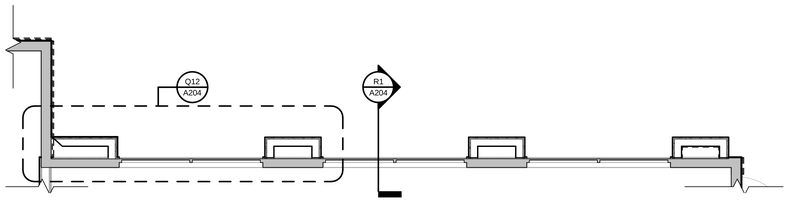
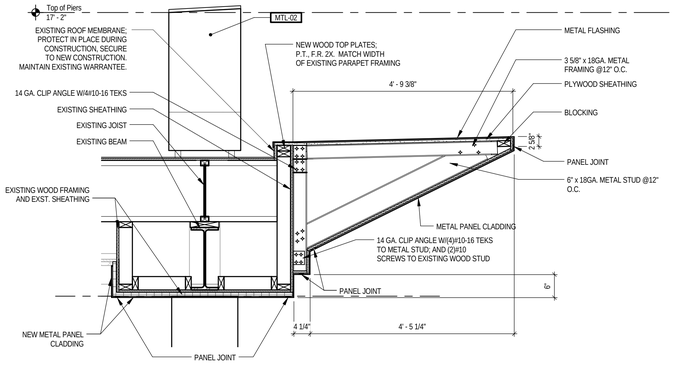


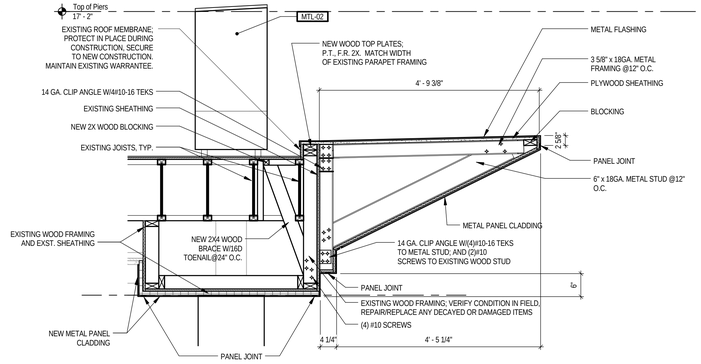
Q12 / A204 **Chase Plan Detail**
1/2" = 1'-0"



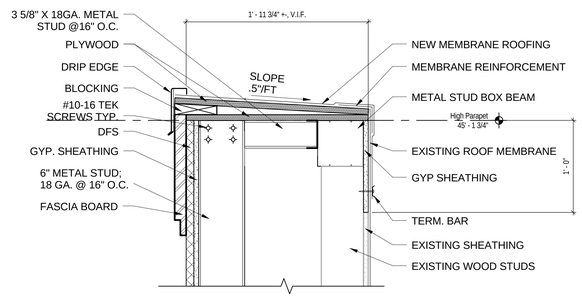
H9 / A204 **Chase Plan**
1/4" = 1'-0"



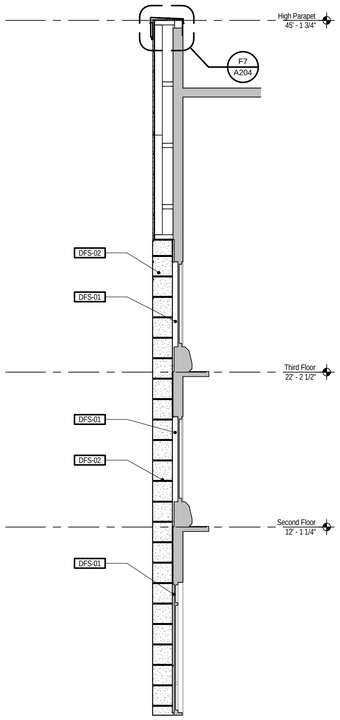
L.11 / A204 **Port Cochere Fascia Section**
3/4" = 1'-0"



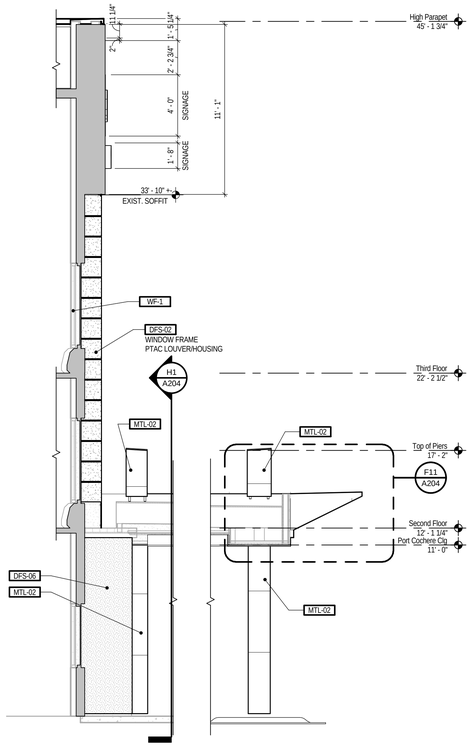
F11 / A204 **Port Cochere Fascia Section - Side**
3/4" = 1'-0"



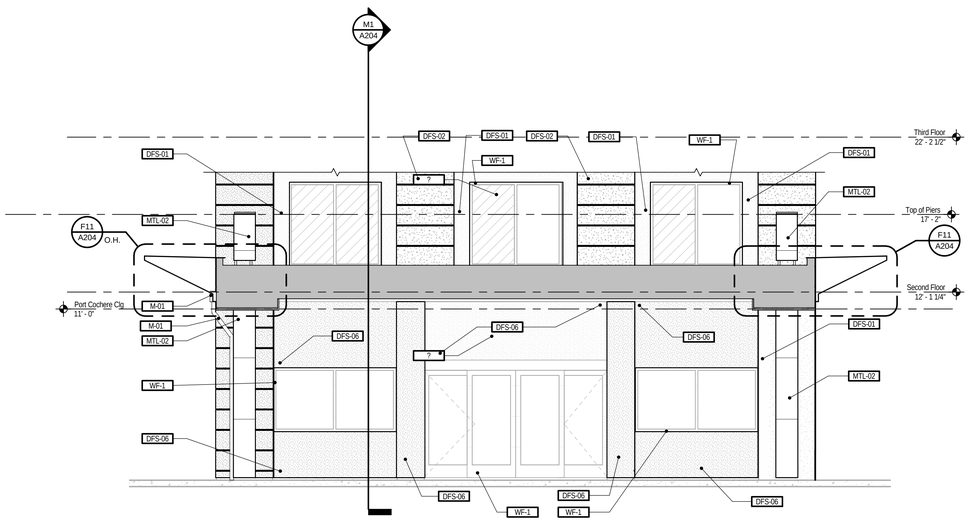
F7 / A204 **Coping Detail**
1 1/2" = 1'-0"



R1 / A204 **Chase Section**
1/4" = 1'-0"



M1 / A204 **Entry Section**
1/4" = 1'-0"



H1 / A204 **Entry Elevation**
1/4" = 1'-0"

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A204

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TABLE 1
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

APPLICABLE TO PROJECT	VERIFICATION AND INSPECTION	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
X	1. MATERIAL TEST REPORTS AND CERTIFICATIONS AS LISTED IN AISC 360 FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS.	X	--
	2. INSPECTION PRIOR TO WELDING:		
X	a. WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE.	X	--
X	b. MANUFACTURERS CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE.	--	X
X	c. MATERIAL IDENTIFICATION (TYPE/GRADE)	--	X
X	d. WELDER IDENTIFICATION SYSTEM.	--	X
X	e. FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) - JOINT PREPARATION - DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) - CLEANLINESS (CONDITION OF STEEL SURFACES) - TACKING (TACK WELD QUALITY AND LOCATION) - BACKING TYPE AND FIT (IF APPLICABLE)	--	X
X	f. CONFIGURATION AND FINISH OF ACCESS HOLES.	--	X
X	g. FIT-UP OF FILLET WELDS - DIMENSIONS (ALIGNMENT, GAPS AT ROOT) - CLEANLINESS (CONDITION OF STEEL SURFACES) - TACKING (TACK WELD QUALITY AND LOCATION)	--	X
X	h. CHECK WELDING EQUIPMENT.	X	--
	3. INSPECTIONS DURING WELDING		
X	a. USE OF QUALIFIED WELDERS	--	X
X	b. CONTROL AND HANDLING OF WELDING CONSUMABLES - PACKAGING - EXPOSURE CONTROL	--	X
X	c. NO WELDING OVER CRACKED TACK WELDS	--	X
X	d. ENVIRONMENTAL CONDITIONS - WIND SPEED WITHIN LIMITS - PRECIPITATION AND TEMPERATURE	--	X
X	e. WPS FOLLOWED - SETTINGS ON WELDING EQUIPMENT - TRAVEL SPEED - SELECTED WELDING MATERIALS - SHIELDING GAS TYPE/FLOW RATE - PREHEAT APPLIED - INTERPASS TEMPERATURE MAINTAINED (MIN/MAX.) - PROPER POSITION (F, V, H, OH)	--	X
X	f. WELDING TECHNIQUES - INTERPASS AND FINAL CLEANING - EACH PASS WITHIN PROFILE LIMITATIONS - EACH PASS MEETS QUALITY REQUIREMENTS	--	X
	4. INSPECTIONS AFTER WELDING		
X	a. WELDS CLEANED	--	X
X	b. SIZE, LENGTH AND LOCATION OF WELDS	X	--
X	c. WELDS MEET VISUAL ACCEPTANCE CRITERIA - CRACK PROHIBITION - WELD/BASE-METAL FUSION - CRATER CROSS SECTION - WELD PROFILES - WELD SIZE - UNDERCUT - POROSITY	X	--
X	d. ARC STRIKES	X	--
X	e. k-AREA	X	--
X	f. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	X	--
X	g. REPAIR ACTIVITIES	X	--
X	h. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	X	--
X	5. WHEN REQUIRED BY AISC 360 APPENDIX 3, TABLE A-3.1 WELDED JOINTS REQUIRING WELD SOUNDNESS TO BE ESTABLISHED BY RADIOGRAPHIC OR ULTRASONIC INSPECTION SHALL BE TESTED BY SPECIAL INSPECTOR AS PRESCRIBED IN AISC 360.	X	--
	6. INSPECTIONS PRIOR TO BOLTING		
X	a. MANUFACTURERS CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	X	--
X	b. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	--	X
X	c. PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH, IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	--	X
X	d. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	--	X
X	e. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	--	X
X	f. PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED.	--	X
X	g. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	--	X
	7. INSPECTIONS DURING BOLTING		
X	a. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	--	X
X	b. JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRE-TENSIONING OPERATION	--	X
X	c. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	--	X
X	d. FASTENERS ARE PRE-TENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TO THE FREE EDGES.	--	X
	8. INSPECTIONS AFTER BOLTING		
X	a. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	X	--

Special Inspection

1. Special inspection is to be provided in addition to the inspections conducted by the department of building safety and shall not be construed to relieve the owner or his authorized agent from requesting the periodic and called inspections required by the applicable building code. Special inspection shall be paid by the owner.

Required Special Inspections

1. In addition to the regular inspections, the following items will also require special inspection in accordance with the applicable building code.
   A. Field welding
   B. Fabricated light gauge elements
2. Special inspector shall meet the qualifications as stated in the applicable building code and shall perform the duties and responsibilities as outlined in the applicable building code. The special inspector shall provide written documentation to the building official demonstrating his or her competence and relevant experience or training. Experience or training shall be considered relevant when the documented experience or training is related in complexity to the same type of special inspection activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in others sections of the applicable building code.
3. Special inspection shall meet the requirements of the applicable building code. Special inspector(s) shall be hired by the owner to perform the required special inspections. The names of persons or firms who are to perform the special inspections shall be forwarded to the building official for approval. The special inspector(s) shall complete and submit all forms required by the building department having jurisdiction.
4. Access for special inspection: The construction or work for which special inspection is required shall remain accessible and exposed for special inspection purposes until completion of the required special inspections.
5. The special inspector(s) shall:
   A. Observe the work assigned for conformance to the approved drawing and specifications.
   B. Furnish inspection reports to the engineer of record and building department. Discrepancies shall be brought to the immediate attention of the contractor for correction, then, if not corrected to the engineer and the building department.
   C. Submit to the engineer of record and the building department a signed final report stating that the work was in conformance with the approved drawings and specifications and the applicable workmanship provisions of the applicable building code.
6. Special Inspection Notes:
   A. Continuous special inspection is always required during the performance of the work unless specifically noted below.
   B. Where fabrication of structural load-bearing members and assemblies is being performed on the premises of a fabricator's shop, special inspection of the fabricated items shall be required during the performance of the work except as allowed by the applicable building code and unless specifically noted below.
   C. It is the responsibility of the contractor to provide the special inspector(s) with advance notice, no less than one working day, of the initiation of any work required to have special inspections. All work performed without required special inspection will be subject to removal.

DESIGN WIND LOADS

C. Components and Cladding Wind Loads (PSF) (Ultimate)

ROOF UPLIFT - COMPONENTS AND CLADDING

Effective Area (sq.ft.)	Gross				Net (roof joists)			
	10	20	50	100	10	20	50	100
Interior Zone	22.2	21.7	20.8	20.3	14.2	13.7	12.8	12.3
Perimeter (6' wide)	29.1	26.1	21.7	18.8	21.1	18.1	13.7	10.8
Corner (6'x6')	56.1	46.7	33.5	24.1	48.1	38.7	25.5	16.1

WALLS-WINDWARD COMPONENTS AND CLADDING

Height	Effective Area (sq.ft)							
	Interior Zone				Exterior Zone			
	10	20	50	100	10	20	50	100
0-50'	37.1	35.6	33.2	31.6	37.1	35.6	33.2	31.6

WALLS-LEEWARD COMPONENTS AND CLADDING

Height	Effective Area (sq.ft)							
	Interior Zone				Exterior Zone			
	10	20	50	100	10	20	50	100
0-50'	-40.3	-38.7	-36.4	-34.8	-49.7	-46.6	-41.9	-38.7

Concrete

1. All concrete construction shall conform to ACI 301, "Specifications for Structural Concrete" and ACI 302, 305 and 306 unless noted otherwise for the year referenced in the applicable building code.
2. All detailing, fabrication and placing of reinforcing bars, unless otherwise noted, shall conform to ACI 318, "Building Code Requirements for Structural Concrete" ACI 117, as referenced in the applicable building code, and the latest ACI detailing manual.
3. Concrete production: General as per ACI 301, Section 4, Article 4.3, except as noted.
4. Ready-mixed Concrete: use for all work, except that when small quantities (not over 1/2 cubic yard) are needed for isolated or relatively unimportant items.
5. Concrete Types Schedule

Type of Concrete	Minimum cementitious content (lb/cu. yd)	Maximum water cement ratio	Specified 28-day compressive strength (psi)	Specified slump range for placement with W.R. (inches)	Specified air content range (% by volume)	Max. size aggregate (inches)
• Spread footings	470	0.60	3000	5	0-3 Entrapped	1 1/2
• Concrete permanently exposed to the weather or vulnerable to de-icers or freeze thaw cycles	564	0.45	4500	5-6	6 ±1.5%	1
• Exterior slabs						

Notes:

A. All cement shall be Type I or Type III Portland Cement per ASTM C150. Types IA and IP are not acceptable. Use one brand of cement throughout project.
B. Fly Ash is permitted and shall conform to ASTM C618 Type C or F, but shall not exceed 20% of cementitious content by weight indicated above on a substitution basis and shall be included in the water-to-cement ratio. If fly ash is used, the mix design submittals shall have tests using the same amount of fly ash. The contractor's schedule shall account for the use of fly ash
C. Ground granulated blast furnace slag (GGBFS) is not permitted .
D. All admixtures other than superplasticizers shall be added at the batch plant. Superplasticizers, designed for addition to the mix at the plant, may be added at the batch plant with verifications from the structural engineer and verifications that the water-to-cement ratio has not been exceeded. Superplasticizers added at the site shall be sent in pre-measured containers from the batch plant.
E. All concrete requiring a high slump for placement (i.e. pumping, drilled piers, etc.) shall contain mid-range and high-range superplasticizer. Increased slump may not be achieved by exceeding the specified maximum water cement ratio. Maximum slump is 8 inches with use of water reducing admixture (ASTM C494).
F. Calcium chloride shall not be permitted nor shall any admixture containing calcium chloride be permitted.

6. Normal weight aggregate: ASTM C33, from a single source.
7. Air-entraining admixture: ASTM C260.
8. Water-reducing admixture: ASTM C494, Type A, containing not more than 0.1% chloride ions.
9. High-range water-reducing admixture (superplasticizer): ASTM C494, Type F or G, containing not more than 0.1% chloride ions.
10. Water-reducing, non-chloride accelerating admixture: ASTM C494, Type E, containing not more than 0.1% chloride ions.
11. Water-reducing, retarding admixture: ASTM C494, Type D, containing not more than 0.1% chloride ions.
12. Certification: upon engineer's request, provide admixture manufacturer's written certification that chloride ion content complies with specified requirements.
13. Curing Compound: liquid membrane-forming type (sodium silicate type not approved) meeting all requirements of ASTM C309, Type 1-D clear or translucent, having a fugitive dye to facilitate visual check of coverage. Use of Type 2 white pigmented type is recommended during hot weather.
14. Moisture-retaining sheet materials: any of the types listed in and meeting requirements of ASTM C171: waterproof paper, 4 mil. (.004") polyethylene film, white burlap/polyethylene sheet.
15. Sealing materials: for laps in sheet cover, provide pressure sensitive tape, non-staining mastic, or other effective adhesive recommended by covering manufacturer.
16. Moisture Barrier: polyethylene sheet not less than 10 mils thick, which complies with ASTM E 1745, Class C.
17. Bond Breaker Felt: 15# felt.
18. All aluminum in contact with concrete or dissimilar metals shall be coated with two coats coal tar epoxy, approved by the architect, unless otherwise noted.
19. Concrete shall be discharged at the site within 1 1/2 hours after water has been added to the cement and aggregates. Addition of water to the mix at the project site will not be permitted. All water must be added at the batch plant. Slump may be adjusted only through the use of additional water reducing admixture or high range water reducing admixture.
20. All concrete shall be placed without horizontal construction joints, except where specifically noted. Horizontal reinforcement shall be continuous through vertical construction joints.
21. See architectural drawings for concrete finishes, masonry anchors, and for miscellaneous embedded plates, bolts, anchors, angles, etc.
22. Reinforcing steel shop drawings shall indicate the sequence in which layers of crossing reinforcing should be placed in order to produce the correct outermost layers as indicated on the drawings.
23. Reinforcing bars shall conform to ASTM A615, Grade 60. No tack welding of reinforcing in the field will be permitted.
24. Reinforcing bars for welded applications shall conform with ASTM A706, 60 ksi yield strength. All welding shall conform to AWS D1.4
25. Welded wire fabric reinforcing shall conform to ASTM A1064 and be furnished in flat sheets and installed on chairs or precast blocks for slab on grade.
26. Reinforcing bar sizes #3 through #5 may be bent cold the first time, provided reinforcing bar temperature is above 32°. For other bar sizes, preheat reinforcing bars before bending. See procedures as outlined in ACI 301 referenced in applicable building code.
27. Wire bar supports shall be furnished for all reinforcing within slabs, inclusive of wire welded fabric. bottom bars in slabs on grade may be supported by other suitable supports. Reinforcing shall be properly positioned prior to concrete placement and may not be repositioned once concrete operations have begun. Wire bar and other types of supports shall be in accordance with the Concrete Reinforcing Steel Institute Manual of Standard Practice.
28. In reinforced concrete walls and trench footings provide corner dowels of same size and spacing as horizontal reinforcing. Dowels shall have a class "b" lap with horizontal reinforcing in each direction
29. Form work for structural elements shall not be removed until concrete has reached 75% of its design.
30. Cold weather placing: comply with ACI 306.
31. Hot weather placing: comply with ACI 305.

Minimum Lap Splice and Anchorage Dimension Table

1. 3000 psi normal weight concrete, Fy=grade 60, non-coated bars

Top Bars			Other Bars		
Bar Size	Lap	Anchorage	Bar Size	Lap	Anchorage
#3	28"	22"	#3	22"	17"
#4	37"	29"	#4	29"	22"
#5	47"	36"	#5	36"	28"
#6	56"	43"	#6	43"	33"

2. 4000 psi normal weight concrete, Fy=grade 60, non-coated bars

Top Bars			Other Bars		
Bar Size	Lap	Anchorage	Bar Size	Lap	Anchorage
#3	24"	19"	#3	19"	15"
#4	33"	25"	#4	25"	19"
#5	41"	31"	#5	31"	24"
#6	49"	37"	#6	37"	29"

1. When lapping two different size bars, use the lap dimension of the smaller bar or the anchorage dimension of the larger bar. Use whichever dimension is larger.
2. Epoxy coated reinforcing-multiply lap lengths by 1.2.

Minimum Concrete Cover for Reinforcing

1. Concrete reinforcing shall be placed per the tolerances of ACI 117 and ACI 318 as referenced in applicable building code regarding minimum cover.

Location	Minimum Cover
• Footings and grade beams cast against and permanently exposed to earth	3"
Slabs on grade (W.W.F.) & slab on composite deck (W.W.F.)	1/3 slab thickness from top of slab
Exterior slabs:	
• #5 and smaller	1 1/2"
• #6 and larger	2"

3. Maximum deviation from the above requirements shall be ±1/4 inch for sections 10 inches thick or less;and ±1/2 inch for sections over 10 inches thick. See ACI 318 listed in the applicable building code reference standards, Section 7.7.1 for conditions not listed.

Floor Finish

1. Exterior slab areas: light flexible bristle broom unless noted otherwise.
2. Provide ACI 'Class A' tolerance, 1/8" variation in 10 feet, measured with a straight edge laid in any direction.

Curing

1. Curing compound shall be provided as prescribed on architectural drawings based on floor use. Coordinate for compatibility of finish material.
2. Moisture-retaining sheet material meeting ASTM C171 may be used.
3. Maintain initial curing for 12 hours after finishing, 24 hours for air temperature of 75 degrees F and above.

Submittals

1. Product data: submit data for proprietary materials and items including admixtures, patching compounds, waterstops, joint systems, curing compounds, finish materials, and others as requested by architect/engineer.
2. Shop drawings/Reinforcement: see ACI 301, Section 3.1 Detailing shall conform to ACI 315, as referenced in applicable building code, "Details and Detailing of Concrete Reinforcement".
3. Shop drawing submittals shall consist of 3 prints of each drawing for the Structural Engineer, 1 print for the Architect and a minimum of 1 print for the General Contractor.
4. Mix design: submit mix designs for each concrete mix for the project per Chapter 5 of ACI 318. Mix designs shall include all back up material with compressive strength breaks based on field experience or breaks from a trial mix per Chapter 5.

Quality Assurance

1. Mold and cure three specimens (cylinders) in accordance with ASTM C31. Three specimens constitute a strength test. Test one cylinder at 7 days and 2 at 28 days. Acceptance of structure will be based on results of 28-day tests.
2. Obtain at least one set of cylinders for each 100 cubic yards or fraction thereof, of each concrete mixture placed in any one day.
3. Air Content
   A. Determine air content of concrete for each strength test by either the pressure method (ASTM C231) or the volumetric method (ASTM C173). The "Chase" air indicator shall not be used.
   B. A minimum of one air content test shall be made in the morning and one in the afternoon. Air content tests shall be made on all concrete whether the concrete is designated as air-entrained or not.
   C. Additional air content tests, for concrete specified as air-entrained, shall be made when any of the following conditions occur:
      • A change in appearance or consistency of concrete.
      • Possible reduction of air content due to time delays of truck and/or hot weather
      • When air temperature is over 80°F, check each truck load.
4. Slump test: perform slump test on each truck load of concrete.
5. Inform engineer immediately of any slump and/or air content tests that do not meet these specifications. If strength, durability or aesthetics of the structure would be impaired, that concrete shall not be used.
6. Concrete test reports shall contain the following information: concrete supplier, quantity of concrete represented, location of samples taken, design strength requirement at 28 days, list of all materials and admixtures used with quantity and brand or source, actual slump, actual air content, air temperature, concrete temperature, weather, cylinder weight as received, date molded, number of days on job site, date tested, test results for 7 and 28 days, and any other information necessary to evaluate test results.
7. Send one copy of reports on all required laboratory testing directly to the structural engineer, two copies to the architect, one copy to the contractor and one copy to the concrete supplier. A copy of all test reports shall be in the engineers office within a maximum of five (5) working days from date of test or inspection.
8. Acceptance of structure: if 28-day test results do not meet requirements, the engineer shall have the right to order a change in mix proportions for remaining portions of structure. He may require core tests to be made at contractors expense. Any such testing shall be done by an independent testing agency acceptable to the engineer.

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Sheet Issue Information

Issued 2017 05-05 100% CD Set

Revised # Description Date

Professional Stamp

Project Information

Title Springhill Suites Exterior Updates

Address 450 Center Drive
Walker, MI 49544

Project Number 032841.000

Sheet Information

Title Specifications

Drawn CNW

Reviewed JK

Scale As Noted

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SECTION 01000 - GENERAL INFORMATION

A. Where specific specification sections are **NOT** provided within this construction document set contractors shall follow manufacturer's installation specifications, installation instructions, installation requirements and installation recommendations.

B. Contractors shall carry Workers' Liability, property damage insurance and all other insurance required by the Owner. All federal, state and local taxes shall be included in their bids. The Owner shall carry general liability and builders risk insurance.

C. Contractors shall verify all dimensions on the job and shall be responsible for same. Report any and all discrepancies in writing to the Owner's Project Manager before proceeding with work of any nature. If contractors do not report discrepancies in writing to the Owner, they assume the total responsibility and liability for same. Onsite verification of all dimensions and conditions shall be the total responsibility of each contractor.

D. Each contractor shall remove all his own rubbish daily at once before it accumulates and shall leave premises broom clean upon completion of work. Contractors shall provide all necessary protection and adhere to strict safety precautions, such as those covered by the Occupational Safety and Health Administration from the start of construction to its completion. All work shall be installed in strict accordance with the manufacturer's specifications and recommendations.

E. Contractors shall submit one set of reproducible drawings in electronic format (PDF) to the Owner/Architect for final review before proceeding with fabrication of work of any nature. All work started and/or completed before said final review shall be at the respective contractor's risk, liability, responsibility and expense. Failure of contractors to provide shop drawings shall render said contractor liable for all detrimental occurrences caused by discrepancies between actual construction and intent of the Architect's Drawings. Contractors must then correct any and all discrepancies at his expense to the full satisfaction of the Owner. There shall be no claims for extra payment. The Owner, Architect and Engineers disclaim any and all responsibility whenever shop drawings are not submitted for final review.

F. All information found in these notes is intended for general use. Information shall be more specific when it is included in their contract. Utilization of applicable notes required by all contractors.

G. Architect shall not have control or charge of, and shall not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, or for the acts or omissions of the contractors or any other persons performing any of the work, or for the failure of any one of them to carry out the work in accordance with the intent of the contract documents and/or required acceptable codes and ordinances.

H. To the fullest extent permitted by law, contractors shall indemnify and hold harmless the Owner, Architect, Architect's Consultants, Owner's Consultants and their respective agents and employees (Indemnities) from and against any and all claims, damages, losses, economic losses and expenses, including but not limited to attorneys' fees arising out of or resulting from performance of the work provided that such claims, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including loss of use resulting therefrom but only to the extent caused in whole or in part by negligent acts or omissions of the contractors, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, excluding any proportionate amount of any claim, damage, loss or expense which is caused by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity which would otherwise exist to a party or person described in this Paragraph. In claims against any person or entity indemnified under this Paragraph by any employee of the contractors, anyone directly or indirectly employed by them or anyone for whose acts they be liable, the indemnification obligation under this Paragraph shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for the contractors under workers' compensation acts, disability benefit acts or other employee benefit acts.

END OF SECTION 01000

SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's and Construction Manager's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect, Structural and MEP Engineering Digital Data Files: Non-title blocked versions of digital data files of the Contract Drawings will be made available by Architect for Contractor's use in preparing submittals upon the following:
1. Contractor signs and returns an electronic drawing release form
2. Payment received of $500.00/sheet for CD Sheets
3. Payment received of $300.00/base plan for building base plans only

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
   a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows: Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 10 business days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 10 business days for review of each resubmittal.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Transmittal Form for Electronic Submittals: Use PDF, containing the following information:
   a. Project name.
   b. Date.
   c. Name of Contractor.
   d. Name of firm or entity that prepared submittal.
   e. Names of subcontractor, manufacturer, and supplier.
   f. Category and type of submittal.
   g. Submittal purpose and description.
   h. Specification Section number and title.
   i. Specification paragraph number or drawing designation and generic name for each of multiple items.
   j. Drawing number and detail references, as appropriate.
   k. Location(s) where product is to be installed, as appropriate.
   l. Related physical samples submitted directly.
   m. Indication of full or partial submittal.
   n. Other necessary identification.
   o. Remarks.

E. Options: Identify options requiring selection by Architect.

F. Deviations: Identify deviations from the Contract Documents on submittals.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's and General Contractor action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:
1. Submit electronic submittals via email as PDF electronic files.
   a. Architect will return annotated file(s). Annotate and retain one copy of file as an electronic Project record document file.
2. Action Submittals: Submit electronic copies of each submittal unless otherwise indicated or a physical material submittal/sample is required. Architect will return copies.
3. Informational Submittals: Submit electronic copies of each submittal unless otherwise indicated or a physical material submittal/sample is required. Architect will not return copies.
4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
   a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
   b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
   a. Manufacturer's catalog cuts.
   b. Manufacturer's product specifications.
   c. Standard color charts (physical/hardcopy samples only).
   d. Statement of compliance with specified referenced standards.
   e. Testing by recognized testing agency.
   f. Application of testing agency labels and seals.
   g. Notation of coordination requirements.
   h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
   a. Wiring diagrams showing factory-installed wiring.
   b. Printed performance curves.
   c. Operational range diagrams.
   d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
   a. PDF electronic file.
   b. Material samples, color charts or other hardcopy required information shall be shipped in their original or native format.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Identification of products.
   b. Schedules.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.
   e. Notation of dimensions established by field measurement.
   f. Relationship and attachment to adjoining construction clearly indicated.
   g. Seal and signature of professional engineer if specified.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit electronic PDF versions of the Shop Drawings sheet sizes that are appropriate to the information being presented.
3. Submit Shop Drawings in the following format:
   a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of applicable Specification Section.
3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return two of the submittals with options selected with one being returned to the originating contractor and the other being kept on site.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
   a. Number of Samples: Submit three sets of Samples. Architect will retain one sample sets; remainder will be returned with one being returned to the originating contractor and the other being kept on site.
      1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: Submit product schedule in PDF electronic file format.

F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

I. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

J. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

K. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

L. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

M. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

N. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

O. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

P. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

Q. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

R. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

S. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES (aka DESIGN BUILD CONTRACTED SERVICES)

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic files, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:
1. No Exceptions Noted: Proceed - submittal meets documented design intent of the construction document package.
2. Exceptions Noted: Proceed with noted changes - with mark-ups, submittal meets documented design intent of the construction document package.
3. Rejected: Submittal does not meet documented design intent of the construction document package - usually requires a resubmittal.
4. Resubmit: Resubmission is required, normally associated with a rejection action stamp but is also associated with an overly marked-up exceptions noted action stamp for a clean record copy.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 05400 - COLD - FORMED METAL FRAMING

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 work of this Section.

1.2 DESCRIPTION OF WORK

A. This Section includes the following:
1. Exterior load-bearing wall framing.
2. Interior load-bearing wall framing.
3. Exterior non-load-bearing framing.

1.3 QUALITY ASSURANCE

A. The sizes, gages and spacing of the cold-formed metal framing is shown on the drawings. All connections, headers, jambs, trusses, etc., not specifically sized and detailed on the drawings, shall be designed by the supplier per the "North American Specification for the Design of Cold-Formed Steel Structural Members (AISI-NASPEC)" and the "Standard for Cold-Formed Steel Framing - General Provisions, American Iron and Steel Institution (AISI - General)."
1. The supplier shall provide all components and connections relative to size, spacing, gage location, and anchorage shown on architectural and structural drawings. Additional costs associated with an increase in the size, or gage of the studs from that shown on the drawings are not permitted. The design intent shall be followed and supplier shall provide design for all framing components and connections not specifically detailed including trusses, headers, jambs, supplemental bracing, etc. Any deviation from this design shall be approved by the Architect/Engineer. Additional Architectural and Structural Engineering fees required to evaluate a revision in stud size, gage or spacing, or revise the Construction Documents are the responsibility of the Contractor.
2. Headers, connections, alternative steel gages and spacings shall be designed per Building Code and Factory Mutual whichever is more stringent. The deflection criteria for cold-formed framing back-up shall be as follows:

EIFS	L/240
Tile or Thin Brick	L/720
Cultured Stone	L/600
Metal Panel	L/240
Stucco	L/360

Back span deflection shall not be reduced by high loads on parapets.

B. Welding: Use qualified welders and comply with AWS D1.3 "Structural Welding Code - Sheet Steel."

C. Fire-Rated Assemblies: Where framing units are components of assemblies indicated for a fire-resistance rating, provide units which have been approved by governing authorities having jurisdiction.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product information and installation instructions for each item of cold-formed framing and accessories.

B. Shop drawings: Submit shop drawings for all framing components and connections indicated on the contract drawings. For all framing components and connections not specifically detailed on the drawings including trusses, headers, jambs, etc. submit shop drawings and calculations. Calculations shall be stamped by an engineer registered in the state the project is located.

C. Show layout, spacing, sizes, thicknesses, and types of cold-formed metal framing, fabrication, and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, stiffeners to prevent web crippling, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

1.5 DELIVERY AND STORAGE

A. Protect metal framing units from rusting and damage. Deliver to project site in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade. Store off ground in a dry ventilated space or protect with breathable waterproof coverings.

PART 2 - PRODUCTS

2.1 METAL FRAMING

A. Acceptable Manufacturers: Subject to compliance with requirements, manufacturers offering cold-formed metal framing which may be incorporated in the work include, but are not limited to, the following:
1. Bostwick Steel Framing Co.
2. Dietrich Industries, Inc.
3. Alabama Metal Industries Corp.
4. Dale Industries Inc.
5. Inryco Inc/Milcor Div.
6. Marino Industries Corp.

B. System Components: With each type of metal framing required, provide manufacturer's standard steel runners (tracks), bracing, clip angles, shoes, reinforcements, fasteners, and accessories as recommended by manufacturer for applications indicated, as needed, to provide a complete metal framing system.

C. Materials and Finishes:
1. Fabricate metal framing components of steel sheet, ASTM A653, with a minimum yield point of 33,000 psi for members 18 gage and lighter, and a minimum yield point of 50,000 psi for members 16 gage and heavier.
2. Provide galvanized finish on metal framing components and accessories complying with ASTM A525 for minimum G 60 coating.

D. C-Shaped Studs: Manufacturer's standard load-bearing steel studs complying with ASTM C955 of size, shape, and gage indicated or as determined by design requirements, with 1.625" flange and flange return lip.

2.2 ACCESSORY MATERIALS

A. Welding Electrodes: Comply with AWS Code.

B. Galvanizing Repair Paint: High zinc-dust content paint for repair of damaged galvanized surfaces complying with Military Specification MIL-P-21035 (Ships).

2.3 FABRICATION

A. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to manufacturer's written recommendations and requirements in this Section.
1. Fabricate framing assemblies using jigs or templates.
2. Cut framing members by sawing or shearing; do not torch cut.
3. Fasten cold-formed metal framing members by welding. Wire tying of framing members is not permitted. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
4. Fasten cold-formed metal framing members by welding or screw fastening, as standard with fabricator. Wire tying of framing members is not permitted.
   a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting weld work.
   b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating jointed members by not less than three exposed screw threads.
5. Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.1 INSPECTION AND PREPARATION

A. Pre-Installation Conference: Before starting installation of metal framing systems, meet at project site with installers of other work including sheathing, insulation and finish system, and mechanical and electrical work. Review areas of potential interference and conflicts, and coordinate layout and support provisions for interfacing work.

3.2 INSTALLATION

A. Manufacturer's Instructions: Install metal framing systems plumb, square and true to line in accordance with manufacturer's printed or written instructions and recommendations, unless otherwise indicated on drawings. All connections are to be designed to resist wind and gravity loads.

B. Install cold-formed metal framing according to ASTM C 1007, unless more stringent requirements are indicated.

C. Where stud system abuts structural columns, beams or walls, including masonry walls, anchor ends of stiffeners to supporting structure.

D. Install supplementary framing, blocking and bracing in metal framing system wherever walls, partitions, canopies and soffits are indicated to support fixtures, equipment, services, and similar work. Where type of supplementary support is not otherwise indicated, comply with stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.

E. Installation of Stud System: Secure studs to runner tracks by either welding or screw fastening at both inside and outside flanges unless otherwise noted on drawings. Seat studs completely in track.
1. Frame both sides of expansion and control joints, with separate studs; do not bridge the joint with components of stud system.
2. Install horizontal stiffeners in stud system, spaced at not more than 4'-6" o.c. Weld at each intersection.
3. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
4. Align studs vertically where wall-framing continuity is interrupted by floor framing. Where studs cannot be aligned, continuously reinforce track to transfer loads.
5. Align floor and roof framing over wall studs. Where framing cannot be aligned, continuously reinforce track to transfer loads.
6. Install headers over wall openings wider than stud spacing. Locate headers above openings as indicated. Fabricate headers of compound shapes indicated or required to transfer load to supporting studs, complete with clip-angle connectors, web stiffeners, or gusset plates.
   a. Frame wall openings with not less than a double stud at each jamb of frame as indicated on Shop Drawings.
   b. Install runner tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with clip angles or by welding, and space jack studs same as full-height wall studs.
7. Field Painting: Touch-up galvanized surfaces damaged during handling and installation, using galvanizing repair paint.
8. Contractor shall coordinate installation of edge angles with steel erection and metal stud contractor to ensure proper alignment of angles for metal stud installation.

3.3 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing agency to perform field quality-control testing.

B. Field and shop welds will be subject to inspection and testing.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.

D. Remove and replace work that does not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.4 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Touch-up Painting: Wire brush, clean, and paint scarred areas, welds, and rust spots on fabricated and installed prime-painted, cold-formed metal framing. Paint framing surfaces with same type of shop paint used on adjacent surfaces.

END OF SECTION 05400

SECTION 072419 - WATER-DRAINAGE EXTERIOR INSULATION FINISH SYSTEM (EIFS)

Note: The following comprehensive specification for water-drainage EIFS is provided for reference. The scope of new EIFS work required on this project is as defined in the Construction Documents, and includes a limited amount of new sheathing, foam shapes, mesh and coating.

PART 1 - GENERAL

1.1 SUMMARY

A. Provide air and moisture barrier, and compatible EIFS for vertical above grade exterior walls and/or soffits.

1.2 SUBMITTALS

A. Manufacturer's specifications, details, installation instructions and product data
B. Drainage: According to EIFS Drainage System ICC-ES AC235.
C. Manufacturer's code compliance report or test summary
D. Manufacturer's standard warranty
E. Applicator's industry training credentials
F. Samples for approval as directed by architect or owner
G. XPS board manufacturer's ICC ES Evaluation Report
H. Sealant manufacturer's certificate of compliance with ASTM C 1382
I. Prepare and submit project-specific details, when required by contract documents.

1.3 REFERENCES

A. ASTM Standards: Refer to Manufacturer's specifications.

B. Building Code Standard:
1. AC 235 Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (November 2009)

C. National Fire Protection Association(NFPA) Standards
1. NFPA 268, Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source
2. NFPA 285, Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus

D. Other Referenced Documents: Refer to Manufacturer's specifications.

1.4 DESIGN REQUIREMENTS

A. Wind Load
1. Design for maximum allowable system deflection, normal to the plane of the wall, of L/240.
2. Design for wind load in conformance with code requirements.
3. Maximum wind load resistance: for psf see A400 (component & cladding, effective area = 10 ft2, and leeward and windward wind pressure), provided structural supports and sheathing/sheathing attachment are adequate to resist these pressures.

B. Moisture Control
1. Prevent the accumulation of water behind the EIFS or into the wall assembly, either by condensation or leakage through the wall construction, in the design and detailing of the wall assembly:
   a. Provide flashing to direct water to the exterior where it is likely to penetrate components in the wall assembly, including, above window and door heads, beneath window and door sills, at roof/wall intersections, decks, abutments of lower walls with higher walls, above projecting features, at floor lines, and at thebase of the wall.
   b. Air Leakage Prevention - provide continuity of the air barrier system at foundation, roof, windows, doors, and other penetrations through the wall with connecting and compatible air barrier components to minimize condensation and leakage caused by air movement.
   c. Vapor Diffusion and Condensation - perform a dew point analysis and/or dynamic hygrothermal modeling of the wall assembly to determine the potential for accumulation of moisture in the wall assembly by diffusion. Adjust insulation thickness and/or other wall assembly components accordingly to minimize risk. Avoid the use of vapor retarders on the interior side of the wall in warm, humid climates.

C. Impact Resistance
1. Provide ultra-high impact resistance of the EIFS to a minimum height of 6'-0" (1.8 m) above finished grade at all areas accessible to pedestrian traffic and other areas exposed
to abnormal stress or impact. Indicate the areas with impact resistance other than "Standard" on Submittals.

D. Color Selection: See Material and Finish schedules for color specification.

E. Joints
1. Provide minimum 3/4 inch (19 mm) wide joints in the EIFS where they exist in the substrate or supporting construction, where the cladding adjoins dissimilar construction or
materials, at changes in building height, at expansion, control, and cold joints in construction, and at floor lines in multi-level wood frame construction. Size joints to correspond with anticipated movement. Align terminating edges of EIFS with joint edges of through wall expansion joints and similar joints in construction. Refer to Sto Details.
2. Provide minimum 1/2 inch (13 mm) wide perimeter sealant joints at all penetrations through the EIFS (windows, doors, mechanical, electrical, and plumbing penetrations,etc.).

F. Grade Condition
1. Provide minimum 6 inch (152 mm) clearance between bottom of EIFS and grade, or as required by code.

G. Trim, Projecting Architectural Features and Reveals
1. Configuration:
   a. All trim and projecting architectural features must have a minimum 1:2 [27°] slope along their top surface.
   b. All reveals must have minimum ¾ inch (19 mm) insulation thickness at the bottom of the reveal.
   c. All horizontal reveals must have a minimum 1:2 [27°] slope along their bottom surface.
   d. Where trim/feature or bottom surface of reveal projects more than 2 inches (51 mm) from the face of the EIFS wall plane, protect the top surface with waterproof base coat.
   e. All trim, projecting features, and reveals to be constructed in conformance with EIFS manufacturer's standard details.
2. Where EIFS is installed on weather exposed projecting ledges, sills, or other projecting features, support with framing or other structural support and protect with metal coping or flashing. Refer to Sto Detail 25.61.

H. Insulation Thickness
1. Minimum XPS insulation thickness is 1 inch (25 mm).
2. Maximum XPS insulation thickness is 6 inches (152 mm), except as noted below for fireresistance rated wall assemblies.

I. Fire Protection
1. Do not use XPS foam plastic in excess of 6 inches (152 mm) thick on types I, II, III, or IV construction unless approved by the code official.
2. Where a fire-resistance rating is required by code use the EIFS over a rated concrete or concrete masonry assembly. Limit use over rated frame assemblies to non-load bearing assemblies (the EIFS is considered not to add or detract from the fire-resistance of the rated assembly). Maximum allowable XPS thickness: 2 inches (51 mm).
3. Refer to manufacturer's testing or applicable code compliance report for other limitations that may apply

1.5 PERFORMANCE REQUIREMENTS

F. Comply with ASTM E2568, ATSM E 2570, and the tables in the Manufacturer's specifications.

1.6 QUALITY ASSURANCE

A. Manufacturer Requirements
1. Member in good standing of the EIFS Industry Members Association (EIMA)
2. Air/moisture barrier and EIFS manufacturer for a minimum of thirty (30) years
3. Manufacturing facilities ISO 9001:2008 Certified Quality System and ISO 14001:2004 Certified Environmental Management System

B. Contractor Requirements
1. Engaged in application of similar systems for a minimum of three (3) years
2. Knowledgeable in the proper use and handling of selected EIFS system materials.
3. Employ skilled mechanics who are experienced and knowledgeable in air/moisture barrier
and EIFS application, and familiar with the requirements of the specified work
4. Successful completion of minimum of three (3) projects of similar size and complexity to the specified project
5. Provide the proper equipment, manpower and supervision on the job site to install the system in compliance with manufacturer's published specifications and details and the project plans and specifications.

C. Insulation Board Manufacturer Requirements
1. XPS board listed in ICC ESR 2142
2. XPS board listed by an approved agency

D. Mock-up Testing
1. Construct full-scale mock-up of typical air/moisture barrier and EIFS/window wall assembly with specified tools and materials and test air and water infiltration and structural performance in accordance with ASTM E 283, ASTM E 331 and ASTM E 330, respectively, through independent laboratory. Mock-up shall comply with requirements of project specifications. Where mock-up is tested at job site maintain approved mock-up at site as reference standard. If tested off-site accurately record construction detailing and sequencing of approved mock-up for replication during construction.

E. Inspections
1. Provide independent third party inspection where required by code or contract documents
2. Conduct inspections in accordance with code requirements and contract documents.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials in their original sealed containers bearing manufacturer's name and identification of product
B. Protect coatings (pail products) from freezing and temperatures in excess of 90°F (32° C). Store away from direct sunlight.
C. Protect Portland cement based materials (bag products) from moisture and humidity. Store under cover off the ground in a dry location.

1.08 PROJECT/SITE CONDITIONS

A. Maintain ambient and surface temperatures above 40°F (4°C) during application and drying period, minimum 24 hours after application of Air/Moisture barrier and EIFS products
B. Provide supplementary heat for installation in temperatures less than 40°F (4°C)
C. Provide protection of surrounding areas and adjacent surfaces from application of products.

1.09 COORDINATION/SCHEDULING

A. Provide site grading such that the EIFS terminates above grade a minimum of 6 inches (150 mm) or as required by code.
B. Coordinate installation of foundation waterproofing, roofing membrane, windows, doors and other wall penetrations to provide a continuously connected air and moisture barrier
C. Provide protection of rough openings before installing windows, doors, and other penetrations through the wall
D. Install window and door head flashing immediately after windows and doors are installed
E. Install diverter flashings wherever water can enter the wall assembly to direct water to the exterior
F. Install splices or tie-ins from air/moisture barrier over back leg of flashings, starter tracks, and similar details to form a shingle lap that directs incidental water to the exterior
G. Install copings and sealant immediately after installation of the the EIFS when coatings are dry, and such that, where sealant is applied against the EIFS surface, it is applied against the base coat or primed base coat surface
H. Schedule work such that air/moisture barrier is exposed to weather no longer than 30 days
I. Attach penetrations through the EIFS to structural support and provide water tight seal at penetrations

1.10 WARRANTY

A. Provide manufacturer's standard warranty

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Provide Air/Moisture Barrier and EIFS coatings and accessories from single source manufacturer or approved supplier
B. The following are acceptable manufacturers:
1. Sto Corp. - Air/Moisture Barrier, EIFS
2. G-P Gypsum Corporation; Glass-Mat Sheathing
3. Dow (The Dow Chemical Company) - Insulation Board
4. Plastic Components, Inc. - EIFS Accesories
5. Owner Approved Equal

2.02 SHEATHING

A. Exterior Sheathing Board
1. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/1177M:
   a. G-P Gypsum Corporation; Densglass Gold Exterior Wall Sheathing
B. Fasteners (for steel studs)
1. Steel drill screws with corrosion-protective coating of length recommended by sheathing manufacturer.
C. Sealant: Silicone emulsion sealant complying with ASTM C 834, compatible with sheathing tape.
D. Sheathing Tape: Self-adhereing glass-fiber tape, min. 2 inches wide.

2.03 AIR/MOISTURE BARRIER

A. StoGuard®
1. Joint Treatment, Rough Opening Protection, and Detail Components:
   a. Sto Gold Fill® - ready mixed coating applied by trowel or knife for rough opening protection of frame walls and joint treatment of sheathing when used with StoGuard Mesh. Also used as a detail component with StoGuard Mesh to splice over back flange of starter track, flashing, and similar ship lap details
   b. Sto Gold Coat® - ready mixed coating applied by brush, roller or spray for rough opening protection of frame walls and joint treatment of sheathing when used with StoGuard Fabric. Also used as a detail component with StoGuard Fabric to splice over back flange of starter track, flashing, and similar ship lap details
   c. StoGuard RapidFill™ - one component rapid drying gun-applied joint treatment for sheathing. Also used at static transition joints or seams in construction and to seal fish mouths, wrinkles, seams, gaps, holes, or other voids in StoGuard air barrier materials. Also used as a detail component to splice over back flange of starter track, flashing, and
   similar ship lap details
   d. StoGuard RapidSeal™ - one component rapid drying gun-applied rough opening protection for frame and CMU walls without mesh or fabric reinforcement. Also use as a
   joint treatment for sheathing when used with StoGuard Mesh. Also used to seal fish mouths, wrinkles, seams, gaps, holes, or other voids in StoGuard air barrier materials
2. Waterproof Coating: Sto Gold Coat® - ready mixed waterproof coating for concrete, concrete masonry, wood-based sheathing, and glass mat gypsum sheathing
3. Transition Membrane: StoGuard Transition Membrane - flexible air barrier membrane for continuity at transitions such as sheathing to foundation, dissimilar materials (CMU to frame wall), wall to balcony floor slab or ceiling, flashing shingle lap transitions, floor line deflection joints, masonry control joints, and through wall joints in masonry or framr construction

2.04 ADHESIVE

A. Sto BTS® Xtra - one component polymer modified cement based high build base coat for insulation board. Also used as a leveler for concrete and masonry surfaces

2.05 INSULATION BOARD

A. Sto EPS - Type X expanded polystyrene rigid foam plastic insulation board
(Note: EPS board is typically furnished in 2 x 8 foot [0.6 x 2.4 m] size and must be pre-cut or cut on site by the installer).

2.06 BASE COAT

A. Sto BTS® Xtra - one component polymer modified cement based high build base coat for insulation board. Also used as a leveler for concrete and masonry surfaces

2.07 REINFORCING MESHES

A. Standard Mesh
1. Sto Mesh - nominal 4.5 oz/yd2 (153 g/m2), symmetrical, interlaced open-weave glass fiber fabric made with alkaline resistant coating for compatibility with Sto materials (achieves Medium Impact Classification)
B. High Impact Mesh
1. Sto Intermediate Mesh - nominal 11.2 oz./yd2 (380 g/m2), high impact, interwoven, open weave glass fiber fabric with alkaline resistant coating for compatibility with Sto materials (achieves High Impact Classification)
C. Ultra-High Impact Mesh
1. Sto Armor Mat - nominal 15 oz/yd2(509 g/m2), ultra-high impact, double strand,interwoven, open-weave glass fiber fabric with alkaline resistant coating for compatibility with Sto materials (Achieves Ultra-High Impact Classification when applied beneath StoMesh)
D. Specialty Meshes
1. Sto Detail Mesh - nominal 4.2 oz/yd2(143 g/m2), flexible, symmetrical, interlaced glass fiber fabric, with alkaline resistant coating for compatibility with Sto materials (used for standard back wrapping, aesthetic detailing, and reinforcement of sheathing joints and protection of rough openings with trowel applied air/moisture barrier)

2.08 PRIMER (select one)

A. Sto Primer Sand - acrylic based tintable primer with sand for roller application
B. Sto Primer Smooth - acrylic based tintable primer for spray application
(Note: the primer is an optional component [except for some specialty finishes] which reduces surface water absorption of the base coat, and enhances finish color, texture, and coverage)

2.09 FINISH COAT

A. StoTherm Ci EIFS System - to be used at all new, replacement, or patched areas, with the finish and color to match the StoColor Acryl Plus.
B. Sto Color Acryl Plus - to be used at remaining locations.

1

2.10 JOB MIXED INGREDIENTS

A. Water - clean and potable
B. Portland Cement - Type I, Type II, or Type-III in conformance with ASTM C 150

2.11 MIXING

A. Sto Gold Fill - mix with a clean, rust-free high speed mixer to a uniform consistency
B. Sto Gold Coat - mix with a clean, rust-free high speed mixer to a uniform consistency
C. Sto BTS Xtra - mix ratio with water: 4.75- 5 quarts (4.5-4.7 L) of clean potable water per 38 pound (17.2 kg) bag of Sto BTS Xtra. Pour water into a clean mixing pail. Add Sto BTS Xtra, mix to a uniform consistency and allow to set for approximately 5 minutes. Adjust mix if necessary with additional Sto BTS Xtra or water and remix to a uniform trowel consistency. Avoid retempering. Keep mix ratio consistent. Do not exceed maximum amount of water in mix ratio.
D. Sto Flexyl - mix ratio with portland cement: 1:1 ratio by weight. Pour Sto Flexyl into a clean mixing pail. Add portland cement, mix to a uniform consistency and allow to set for approximately five minutes. Adjust mix if necessary with additional Sto Flexyl and remix to a uniform trowel consistency. Avoid retempering. Keep mix ratio consistent.
E. Sto Watertight Coat – pour liquid component into a clean mixing pail. Add dry component, mix to a uniform consistency and allow to set for approximately five minutes. Adjust mix if necessary and remix to a uniform trowel consistency. Avoid retempering. Keep mix ratio consistent.
F. Sto primer - mix with a clean, rust-free high speed mixer to a uniform consistency
G. Stolit - mix with a clean, rust-free high speed mixer to a uniform consistency. A small amount of water may be added to adjust workability. Limit addition of water to amount needed to achieve the finish texture.
H. Mix only as much material as can readily be used
I. Do not use anti-freeze compounds or other additives

PART 3 - EXECUTION

3.01 ACCEPTABLE INSTALLERS

A. Prequalify under Quality Assurance requirements of this specification (section 1.06 B)

3.02 EXAMINATION

A. Inspect concrete and masonry substrates prior to start of application for:
1. Contamination—algae, chalkiness, dirt, dust, efflorescence, form oil, fungus, grease, laitance, mildew or other foreign substances
2. Surface absorption and chalkiness
3. Cracks—measure crack width and record location of cracks
4. Damage and deterioration such as voids, honeycombs and spalls
5. Moisture content and moisture damage—use a moisture meter to determine if the surface is dry enough to receive the products and record any areas of moisture damage
6. Compliance with specification tolerances—record areas that are out of tolerance (greater than ¼ inch in 8-0 feet [6mm in 2438 mm] deviation in plane)

B. Inspect sheathing application for compliance with applicable requirement and installation in conformance with specification and manufacturer requirements:
1. Glass Mat Faced gypsum sheathing compliant with ASTM C 1177
2. Exterior Grade and Exposure I wood based sheathing - APA Engineered Wood Association E 30
3. Cementitious sheathing - consult manufacturer
4. Attachment into structural supports with adjoining sheets abutted (gapped if wood-based sheathing) and fasteners at required spacing to resist design wind pressures as determined by design professional
5. Fasteners seated flush with sheathing surface and not over-driven

C. Report deviations from the requirements of project specifications or other conditions that might adversely affect the Air/Moisture Barrier and the EIFS installation to the General Contractor. Do not start work until deviations are corrected

3.03 SURFACE PREPARATION

A. Remove surface contaminants on concrete, concrete masonry, gypsum sheathing, or coated gypsum sheathing surfaces
B. Repair cracks, spalls or damage in concrete and concrete masonry surfaces and level concrete and masonry surfaces to comply with required tolerances
C. Apply conditioner (consult Sto) by spray or roller to chalking or excessively absorptive surfaces or pressure wash to remove surface chalkiness
D. Remove fasteners that are not anchored into supporting construction and seal holes with air barrier material
E. Seal over-driven fasteners with air barrier material and install additional fasteners as needed to comply with fastener spacing requirement
F. Fill large gaps between sheathing or voids around pipe, conduit, scupper, and similar penetrations with spray foam and shave flush with surface.
G. Replace weather-damaged sheathing and repair or replace damaged or cracked sheathing

3.04 SHEATHING INSTALLATION

A. Comply with GA-253 and with manufacturer's written instructions for gypsum sheathing.
B. Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide", for types of structural-use panels and applications indicated.

3.05 EIFS INSTALLATION

The air/moisture barrier described below is one set of materials in the air barrier system and the moisture protection for the structure. Installation of the air/moisture barrier must be integrated with flashing and other air and moisture barrier materials to ensure that where water is likely to penetrate the wall assembly, it will be drained to the exterior at the source of the leak. Proper air barrier connections and integration of the air/moisture barrier through proper sequencing of work and coordination of trades is necessary for a complete air barrier system and complete moisture protection.

IMPORTANT: Ensure the air/moisture barrier surface, insulation board surface, and reinforced base coat surface are free of surface contamination. Install XPS insulation board within 30 days of the application of Sto Gold Coat, or clean the surface and recoat with Sto Gold Coat.

A. Air/Moisture Barrier Installation over Exterior or Exposure I Wood-Based Sheathing (Plywood and OSB), Glass Mat Faced Gypsum Sheathing in compliance with ASTM C 1177, and concrete, or concrete masonry (CMU) wall construction:
1. Transition Detailing with StoGuard Transition Membrane
   a. At floor line deflection joints up to 1 inch (25 mm) wide, and static joints and transitions such as: sheathing to foundation, dissimilar materials (i.e., CMU to frame wall), flashing shingle-lap transitions, and wall to balcony floor slab or ceiling:
      a.a. Apply waterproof coating (Sto Gold Coat) liberally to properly prepared surfaces with brush, roller, or spray.
      a.b. Place pre-cut lengths of StoGuard Transition Membrane centered over the transition in the wet coating. At changes in plane crease the membrane and similarly place the membrane material in the wet coating. At floor line deflection joints achieve a slightly concave profile (recessed into the joint) of the membrane.
      a.c. Immediately top coat the membrane with additional coating and apply pressure with brush or roller to fully embed the membrane in the coating and achieve a smooth and wrinkle-free surface without gaps or voids.
      a.d. Apply coating liberally along all top horizontal edges on walls and along all edges on balcony floor slabs to fully seal the edges.
      a.e. Overlap minimum 2 inches (51 mm) at ends and adhere lap seams together with coating.
   b. At shingle lap vertical seams and vertical to horizontal intersections with minimum 2 inch (51 mm) overlap. At movement joints up to 1 inch (25 mm) wide with up to +50% movement such as masonry control joints, and through wall joints in masonry or frame construction:
      b.a. Insert backer rod sized to friction fit in the joint (diameter 25% greater than joint width).
      b.b. Recess the backer rod ½ inch (13 mm).
      b.c. Apply the waterproof coating liberally to properly prepared surfaces with brush, roller, or spray along the outer surface on each side of the joint (not in the joint).
      b.d. Immediately place the membrane by looping it into the joint against the backer rod surface to provide slack.
      b.e. Embed the membrane in the wet coating along the outer surface on the sides of the joint by top coating with additional coating material and applying pressure with a brush or roller.
   c. At all applications, after the membrane installation is complete and the waterproof coating is dry:
      c.a. Apply a final liberal coat of the waterproof coating to all top horizontal edges on walls to ensure waterproofing integrity. Similarly apply coating at all edges on balcony floor slabs.
      c.b. Inspect the installed membrane for fish mouths, wrinkles, gaps, holes or other deficiencies. Correct fish mouths or wrinkles by cutting, then embedding the area with additional coating applied under and over the membrane.
      c.c. Seal gaps, holes, and complex geometries at three dimensional corners with StoGuard RapidFill or StoGuard RapidSeal.

B. Transition Detailing with StoGuard RapidFill
1. At flashing shingle laps, and through wall penetrations such as pipes, electrical boxes, and scupper penetrations:
   a. Flashing leg or penetration flange must be seated flat against the wall surface without gaps. Apply StoGuard RapidSeal liberally with a caulking gun in a zig-zag pattern across the flashing leg or flange/wall surface seam and spread to a thickness that covers the flange and fastener penetrations and directs water away from the wall. Extend application minimum 1 inch (25 mm) onto both surfaces (flashing leg/flange and wall surface).
   b. At through wall penetrations without flanges ensure the penetrating element (i.e., pipe or scupper) is fitted snug against abutting wall surfaces. Apply a fillet bead with a caulking gun around the penetration and tool against both surfaces (penetration and wall surface) to create a bead profile that directs water away from the penetration. Extend application minimum 1 inch (25 mm) onto both surfaces.
2. Rough Opening Protection (select a., b., or c. for frame construction; for concrete or concrete masonry rough openings with wood bucks and similar openings with complex 3-dimensional geometry, select c. StoGuard RapidSeal):
   a. Sto Gold Fill with StoGuard Mesh: apply 9 inch (229 mm) wide StoGuard Mesh at rough openings. Immediately apply Sto Gold Fill by spray or trowel over the mesh and spread with a trowel to create a smooth surface that completely covers the mesh (refer to Sto Detail 20.20M).
   b. Sto Gold Coat with StoGuard Fabric: apply Sto Gold Coat liberally by spray or roller to corners of openings, immediately place StoGuard RediCorners in the wet coating, and apply additional coating over the RediCorners to completely embed them. After all corners have been completed apply Sto Gold Coat liberally to the entire rough opening, immediately place StoGuard Fabric in the wet coating, smooth any wrinkles with a brush or roller, and apply additional coating over the fabric to completely embed it. Overlap all seams minimum 2 inches (51 mm). Once completed top coat with additional coating as needed to completely seal the surface. Allow to dry and inspect for pinholes or voids. If pinholes or voids are present, seal with additional coating or StoGuard RapidSeal (refer to Sto Detail 20.20F).
   c. StoGuard RapidSeal: apply a generous bead of StoGuard RapidSeal with a caulking gun in a zig-zag pattern along the inside and outside surface of the rough opening. Spread with a 6 inch (152 mm) wide plastic drywall knife all the way around the opening (refer to Sto Details 20.20R and 21.20R)
3. Sheathing Joint Treatment (select one)
   a. Sto Gold Fill with StoGuard Mesh: place 4 inch (102 mm) wide mesh centered along sheathing joints and minimum 9 inch (229 mm) wide mesh centered and folded at inside and outside corners. Immediately apply Sto Gold Fill by spray or trowel and spread with a trowel to create a smooth surface that completely covers the mesh.
   b. Sto Gold Coat with StoGuard Fabric: apply Sto Gold Coat liberally by spray or roller along sheathing joints and immediately place 4 inch (102 mm) wide fabric centered over the joints into the wet coating, and 6 inch (152 mm) wide fabric centered and folded at inside and outside corners into the wet coating. Smooth any wrinkles with a brush or roller and apply additional coating to completely embed the fabric. Overlap seams minimum 2 inches (51 mm).
   c. StoGuard RapidFill: apply a thick bead of StoGuard RapidFill with a caulking gun along sheathing joints, or apply in a zig-zag pattern across and down the joints. Spread to a uniform thickness of 20-30 mils (0.5-0.6 mm). Spread 1 inch (25 mm) beyond the sheathing joint on each side. Follow the same procedure for inside and outside corners.
4. Air/Moisture Barrier Coating Installation
   a. Plywood and Gypsum Sheathing: apply waterproof coating by spray or roller over sheathing surface, including the dry joint treatment, rough opening protection, and transition areas, to a uniform wet mil thickness of 10 mils in one coat. Use ½ inch (13 mm) nap roller for plywood. Use ¾ inch (19 mm) nap roller for glass mat faced gypsum sheathing. Protect from weather until dry.
   b. OSB Sheathing: apply waterproof coating by spray or with a ¾ inch (19 mm) nap roller to sheathing surface to a uniform wet mil thickness of 10 mils. Protect rough openings, joints, and parapets (Paragraph 3.04D), then apply a second coat of waterproof coating.

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Sheet Issue Information

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Revised #	Description	Date
1	Pre-Bid Revisions	2017-05-31

Professional Stamp

Project Information

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Project Number: 032841.000

Sheet Information

Title: Specifications

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5. CMU Surfaces:
a. Repair static cracks up to 1/2 inch (13 mm) wide with StoGuard RapidFill. Rake the crack with a sharp tool to remove loose or friable material and blow clean with oil-free compressed air. Apply the crack filler with a trowel or putty knife over the crack and tool the surface smooth. (Note: For moving cracks or cracks larger than ½ inch [13mm]), consult with a structural engineer for repair method). Protect repair from weather until dry.
b. Liberally apply two coats of Sto Gold Coat to the surface with a ¾ inch nap roller or spray equipment to a minimum wet thickness of 10 – 30 mils each, depending on surface condition. Additional coats may be necessary to provide a void and pinhole free surface. Protect from weather until dry.
c. IMPORTANT: Sto Gold Coat functions as an air and moisture barrier on normal weight concrete masonry wall construction with flush (struck flush with the surface of the CMU) or concave joints when minimum two liberal coats are applied. Additional coats may be necessary depending on the condition of the CMU wall surface, CMU porosity, joint profile, and other variables that may exist. For "rough" CMU wall surfaces, skim coat the entire surface with one of Sto's cementious levelers (Sto BTS Xtra) before application of Sto Gold Coat. A VOID AND PINHOLE FREE SURFACE must be achieved for Sto Gold Coat to properly function as an air and moisture barrier on CMU wall surfaces.

C. Air /Moisture Barrier Connections and Shingle Laps
1. Coordinate installation of connecting air barrier components with other trades to provide a continuous air tight membrane.
2. Coordinate installation of flashing and other moisture protection components with other trades to achieve complete moisture protection such that water is directed to the exterior, not into the wall assembly, and drained to the exterior at sources of leaks (windows, doors and similar penetrations through the wall assembly).
3. Splice-in head flashings above windows, doors, floor lines, roof/sidewall step flashing, and similar locations with StoGuard detail component to achieve shingle lap of the air/moisture barrier such that water is directed to the exterior.(Note: windows and doors are typically installed immediately following installation of the air/moisture barrier and work should be sequenced accordingly. Consult with window manufacturer for installation requirements to maintain air barrier continuity and for head, jamb, sill flashing and perimeter sealant requirements needed to prevent leaks into the wall assembly).

D. EIFS Installation
1. Starter Track
a. Strike a level line at the base of the wall to mark where the top of the starter track terminates.
b. Attach the starter track even with the line into structural supports with the proper fastener:
b.a. Type S-12 corrosion resistant screws for steel framing with minimum 3/8 inch (9 mm) and three thread penetration,
b.b. galvanized or zinc coated nails for wood framing with minimum 3/4 inch (19 mm) penetration,
b.c. corrosion resistant concrete or masonry screws with minimum 1 inch (25 mm) penetration for concrete or CMU.
c. Attach between studs into blocking as needed to secure the track flat against the wall surface. Attach at maximum 16 inches (406 mm) on center into framing. For solid wood sheathing or concrete/masonry surfaces, attach directly at 12 inches (305 mm) on center maximum.
d. Butt sections of starter track together. Miter cut outside corners and abut. Snip front flange of one inside corner piece (to allow XPS insulation board to be seated inside of track) and abut.
e. Install Starter Track at other EIFS terminations as designated on detail drawings: above roof along dormers or gable end walls, and beneath window sills with concealed flashing (refer to Sto Details).
2. Detail Splice Strips for Starter Track, Flashing at Floor Lines, Head of Windows and Doors, Roof/Side Wall Step Flashing: Install minimum 4 inch (100 mm) wide detail component over back flange of starter track, floor line flashing, head flashing, and roof/side wall step flashing. Center the detail component so it spans evenly between the back leg of flashing (or accessory) and the coated sheathing. Make a smooth transition to the coated sheathing with a trowel, knife, or roller, depending on the detail component material being used. When Sto Gold Fill with StoGuard Mesh is the detail component apply another coat of the waterproof coating over the detail area. Do not leave detail components exposed for more than 30 days.
3. Backwrapping
a. Apply a strip of detail mesh to the dry air/moisture barrier at all system terminations (windows, doors, expansion joints, etc.) except where the Starter Track is installed. The mesh must be wide enough to adhere approximately 4 inches (100 mm) of mesh onto the wall, be able to wrap around the insulation board edge and cover a minimum of 2 ½ inches (64 mm) on the outside surface of the insulation board. Attach mesh strips to the air/moisture barrier and allow them to dangle until the backwrap procedure is completed Alternatively, pre-wrap terminating edges of insulation board.
b. "Pre-wrapping" terminating edges of insulation board with Sto Mesh or Sto Detail Mesh embedded in the Sto base coat. This method may be used in conjunction with flashing at the base of the wall, roof/wall intersections, floor lines, and similar terminations to replace the starter track.
4. Adhesive Application and Installation of Insulation Board
a. Ensure the air/moisture barrier surface (Sto Gold Coat) is free of surface contamination. Install the insulation board within 30 days of the application of the air/moisture barrier coating (Sto Gold Coat), or clean the surface and recoat with Sto Gold Coat.
b. Cut the insulation board squarely to a 2 x 4 foot (0.6 x 1.2 m) dimension (if not already furnished pre-cut).
c. Rasp the interior lower face of insulation boards to provide a snug friction fit into the Starter Track. (Note: rasping prevents an outward bow at the Starter Track).
d. Apply adhesive to the back of the insulation board with the dispensing pistol approximately ¾ inch (19 mm) from ends. Apply 5 additional ribbons spaced equally at no greater than 7 inches (177 mm) apart between the end ribbons. Apply uniform ribbons of adhesive parallel with the SHORT dimension of the board so that when boards are placed on the wall the ribbons will be VERTICAL. Apply adhesive ribbons approximately ½ inch (51 mm) in diameter which will expand to ¾ - 1 inch (19 – 25 mm). Keep adhesive ½ inch (51 mm) short of board edges. Allow adhesive to "dwell" and become "tacky" before placing boards on wall. Adhesive will look smooth, not jagged, when ready to apply to wall surface. Place boards while adhesive is "tacky" and before adhesive "skins".
a.a. IMPORTANT: adhesive tack time varies with temperature and humidity. High temperature or high humidity decreases tack time. Low temperature or low humidity increases tack time. Generally adhesive will remain tacky between 1-5 minutes. If adhesive "skins" remove it and apply fresh adhesive.
a.b. Place insulation boards in a running bond pattern on the wall with the long dimension horizontal. Start by inserting the lower edge of the boards inside the starter track at the base of the wall until they contact the bottom of the track. Apply light pressure when placing the boards. After boards have been in place for 5-10 minutes use a straight edge to lightly press the boards inward and to keep board joints flush, as post expansion of the adhesive may force boards slightly outward.
a.c. Bridge sheathing joints by a minimum of 6 inches (152 mm). Interlock inside and outside corners.
a.d. Butt all board joints tightly together to eliminate any thermal breaks. Care must be taken to prevent any adhesive from getting between the joints of the boards.
a.e. Cut insulation board in an L-shaped pattern to fit around openings. Do not align board joints with corners of openings.
a.f. Check for satisfactory contact of the insulation board with the substrate. If any boards have loose areas use the dispensing pistol to create a hole through the board and inject adhesive to attach the loose area. Allow the adhesive to expand to the outer face of the board while withdrawing the pistol. Cut excess adhesive flush with the surface of the insulation. Do not use nails, screws, or any other type of non-thermal mechanical fastener.

5. Slivering and Rasping of Insulation Board Surface
a. Make sure insulation boards are fully adhered to the substrate before proceeding to steps 3.04 E2 and 3.04 E3 below.
b. Fill any open joints in the insulation board layer with slivers of insulation or the spray foam adhesive.
c. Rasp the insulation board surface to achieve a smooth, even surface and to remove any ultraviolet ray damage.
6. Trim, Reveals and Projecting Aesthetic Features
a. Attach features and trim where designated on drawings with adhesive to a base layer of insulation board or to the coated sheathing surface. Fill any gaps between the trim and base layer of insulation with spray foam adhesive and rasp flush with the trim surface. Slope the top surface of all trim/features minimum 1:2 (27°) and the bottom of all horizontal reveals minimum 1:2 (27°).
b. Cut reveals/aesthetic grooves with a hot-knife, router or groove-tool in locations indicated on drawings.
c. Offset reveals/aesthetic grooves minimum 3 inches (75 mm) from insulation board joints.
d. Ensure minimum ¾ inch (19 mm) thickness of insulation board at the bottom of the reveals/aesthetic grooves.
7. Completion of Backwrapping: apply base coat to exposed edges of insulation board and approximately 4 inches (100 mm) onto the face of the insulation board. Pull mesh tight around the board and embed it in the base coat with a stainless steel trowel. Use a corner trowel for clean, straight lines. Smooth any wrinkles or gaps in the mesh.
8. Base Coat and Reinforcing Mesh Application
a. Ensure the insulation board is firmly adhered and free of surface contamination or UV degradation, and is thoroughly rasped before commencing the base coat application.
b. Apply minimum 9x12 inch (225x300 mm) diagonal strips of detail mesh at corners of windows, doors, and all penetrations through the system. Embed the strips in wet base coat and trowel from the center to the edges of the mesh to avoid wrinkles.
c. Apply detail mesh at trim, reveals and projecting architectural features. Embed the mesh in the wet base coat. Trowel from the base of reveals to the edges of the mesh.
d. Ultra-High impact mesh application (recommended to a minimum height of 6'-0" [1.8 m] above finished grade at all areas accessible to pedestrian traffic and other areas exposed to abnormal stress or impact, and where indicated on contract drawings): apply base coat over the insulation board with a stainless steel trowel to a uniform thickness of approximately 1/8 inch (3 mm). Work horizontally or vertically in strips of 40 inches (1016mm), and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Butt ultra-high impact mesh at seams. Allow the basecoat to dry.
e. Standard mesh application: Apply base coat over the insulation board, including areas with Ultra-High impact mesh, with a stainless steel trowel to a uniform thickness of approximately inch (3 mm). Work horizontally or vertically in strips of 40 inches (1016mm), and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Overlap mesh not less than 2-½ inches (64 mm) at mesh seams and at overlaps of detail mesh. Feather seams and edges. Double wrap all inside and outside corners with minimum 2-½ inch (64 mm) overlap in each direction. Avoid wrinkles in the mesh. The mesh must be fully embedded so that no mesh color shows through the base coat when it is dry. Re-skim with additional base coat if mesh color is visible.
f. Sloped Surfaces: for trim, reveals, aesthetic bands, cornice profiles, sills or other architectural features that project beyond the vertical wall plane more than 2 inches (51mm) apply waterproof base coat with a stainless steel trowel to the sloped surface and minimum four inches (100 mm) above and below it. Embed standard mesh or detail mesh in the waterproof base coat and overlap mesh seams a minimum of 2-½ inches (65 mm).
g. Allow base coat to thoroughly dry before applying primer or finish.
9. Primer application
a. Ensure the base coat surface is free of surface contamination before commencing the primer application.
b. Apply primer evenly with brush, roller or proper spray equipment over the clean, dry base coat and allow to dry thoroughly before applying finish.

10. Finish Coat Application
a. Ensure the base coat surface or primed base coat is free of surface contamination before commencing the finish application.
b. Apply finish directly over the base coat or primed base coat when dry. Apply finish by spray or stainless steel trowel, depending on the finish specified. Follow these general rules for application of finish:
b.1. Avoid application in direct sunlight.
b.2. Apply finish in a continuous application, and work to an architectural break in the wall.
b.3. Weather conditions affect application and drying time. Hot or dry conditions limit working time and accelerate drying. Adjustments in the scheduling of work may be required to achieve desired results. Cool or damp conditions extend working time and retard drying and may require added measures of protection against wind, dust, dirt, rain and freezing. Adjust work schedule and provide protection.
b.4. Do not install separate batches of finish side-by-side.
b.5. Do not apply finish into or over sealant joints. Apply finish to outside face of wall only.
b.6. Do not apply finish over irregular or unprepared surfaces, or surfaces not in compliance with the requirements of the project specifications.

3.06 PROTECTION
A. Provide protection of installed materials from water infiltration into or behind them.
B. Provide protection of installed materials from dust, dirt, precipitation, freezing and continuous high humidity until they are fully dry.

3.07 CLEANING, REPAIR AND MAINTENANCE
A. Clean and maintain the EIFS for a fresh appearance and to prevent water entry into and behind the system. Repair cracks, impact damage, spalls or delamination promptly.
B. Maintain adjacent components of construction such as sealants, windows, doors, and flashing, to prevent water entry into or behind the EIFS and anywhere into the wall assembly
C. Refer to Sto reStore Repair and Maintenance Guide (reStore Program) for detailed information on restoration - cleaning, repairs, recoating, resurfacing and refinishing, or re-cladding

END OF SECTION 072419

SECTION 072421 - SURFACE PREPARATION FOR EIFS

PART 1 - GENERAL

1.0 Related Documents
A. ASTM D 4258, Standard Practice for Surface Cleaning of Concrete for Coating
B. SSPC-SP 13/NACE 6, Surface Preparation of Concrete
C. ICRI No. 03732, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays
D. Sto Corp., StoTherm® EIFS Reference Guide: Repair and Maintenance

PART 2 - PRODUCTS
2.0 Materials - Cleaning Solutions
A. General
1. Mix and use commercially available cleaning solutions in accordance with the cleaning product manufacturer's instructions.
2. Refer technical questions about specific commercial cleaning products to the cleaning product manufacturer.
3. Use and dispose of cleaning solutions and rinse water in accordance with applicable local regulations.
4. DO NOT USE solvent based cleaners (acetone, gasoline, ketones, mineral oils, or turpentine)
B. Mild Detergent Wash
1. Solution of 1–2 cups tri-sodium-phosphate (TSP) or TSP substitute per gallon of warm water
2. General Purpose Cleaner by Wind-lock Corp., www.wind-lock.com
3. Wash Down™ by Demand Products, www.demandproducts.com
4. EIFS Clean 'N Prep by PROSOCO, www.prosoco.com
5. Other commercial general cleaners as recommended by the cleaning aterial manufacturer for the surface to be cleaned.
C. Efflorescence Removal
1. Efflorescence and Scale Remover, by Demand Products
2. Sentry Efflorescence and Scale Remover, by Wind-lock Corp.
3. Other commercial efflorescence cleaners as recommended by the cleaning material manufacturer for the surface to be cleaned.
D. Algae and Mildew Removal:
1. Solution of ½ to 1 quart household bleach to 1 gallon of water (may be added to TSP detergent solution for general cleaning)
2. Miracle Mildew Remover by Wind-lock Corp.
3. Other commercial algae and mildew cleaners as recommended by the cleaning material manufacturer for the surface to be cleaned. (Note: bleach is not required if algae or mildew are not present, but existing algae or mildew will recur if bleach solution is not used)

PART 3 - EXECUTION
A. General
1. The techniques described in this section may be used on painted or coated concrete, stucco or EIFS surfaces. All techniques are not necessarily appropriate for all substrates.
2. Test method and material in an inconspicuous area to verify techniques and materials to be used.
3. Use the least aggressive means that produces effective results.
4. Use methods in compliance with applicable local regulations.
5. Protect adjacent construction, property and landscaping from overspray where cleaning solutions are used.
6. Follow applicable regulations for personal protective equipment when performing cleaning.
B. Application of cleaning solutions
1. Commercial cleaning products: Select the appropriate cleaning solution and apply in accordance with the cleaning solution manufacturers recommendations. Rinse thoroughly with clean water to remove all residue and surface contaminants.
2. Generic mild detergent wash:
a. Apply mild detergent solution to the wall area to be cleaned.
b. Rinse thoroughly with clean water to remove all residue and surface contaminants.
3. Generic algae and mildew removal:
a. Apply algae and mildew removal solution and allow to soak for minimum 15 minutes. (Reapplication may be necessary for severe growth).
b. Use hand-scrubbing technique to remove streaking or other localized growth.
c. Rinse thoroughly using clean water to remove all residue and surface contaminants.
C. Hand-Scrubbing
1. Use hand scrubbing technique for localized stubborn stains that are resistant to low pressure washing techniques or otherwise require special treatment.
2. Use soft to medium bristled brush
3. Avoid overly aggressive scrubbing which could damage the existing coatings.
4. DO NOT USE stiff-bristled or wire brushes
D. Pressure Washing (as means of cleaning existing coating)
1. Use cool or warm water. DO NOT USE steam or high temperature methods when existing coatings are to remain in-place
2. Use minimum 30 degree fan tip
3. Determine distance from wall and pressure required to provide satisfactory results without damage to existing coatings or substrates based on test area.
a. Use pressure in the range of 2500 psi to 3000 psi for coatings applied to solid substrates (concrete, masonry, and stucco), unless undesirable effects are produced. If damage to existing coating occurs, adjust pressure, distance of tip from wall, or fan tip angle to achieve satisfactory results.
b. DO NOT USE high pressure on EIFS claddings. Limit pressure to 500 psi, maximum, when EIFS is the substrate.
c. Determine if architectural features are foam shapes to protect against accidental damage in cases where they are attached tos olid substrates such as stucco, masonry or concrete. Limit pressure to 500 psi, maximum, for foam trim features.
E. Pressure Washing (as a means of removing existing coating layers)
1. Determine pressure, fan tip angle and tip distance from wall as required to remove loose coatings or excess coating applications on solid substrates.
2. Verify that the technique does not produce damage to the substrate and adjust as necessary.
3. Dispose of rinse-water and waste in accordance with appropriate local regulations.
(Note: A chemical paint stripper may be an option to improve efficiency in combination with pressure washing when existing coatings are to be removed. Consult with the paint stripper manufacturer for proper use and disposal of rinse-water and waste.)

END OF SECTION 072421

SECTION 072422 - REPAIR OF EIFS WALL ASSEMBLIES STO reSTORE LEVEL 1 OR LEVEL 2

Note: This specification addresses any portions of the EIFS system in poor condition, needing repair. Proceed only after completing surface preparation activities identified in Section 072421.

PART 1 - GENERAL
1.01 SUMMARY
A. Repair distress and construction deficiencies of exterior insulation and finish system (EIFS) cladding.
B. Repair nonstructural EIFS base coat and finish.
C. Repair flashing and waterproofing deficiencies at EIF system terminations.
D. Resurface wall to provide uniform appearance in accordance with owner's requirements.
1. Note: existing EIFS will receive StoColor Acryl Plus as specified in Section 072419, EIFS, as the final finish. See elevations for locations. The finish information contained herein as intended for areas of repair. Areas of repair shall be refinished per this specification to match existing construction prior to application of final finish specified in other locations.
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1.02 SUBMITTALS
A. EIFS, repair materials and coating manufacturers' specifications, details, installation instructions and product data.
B. Samples for approval as directed by architect, engineer, or owner.
C. Manufacturer's standard material warranty.
D. A list of minimum three job references.

1.03 REFERENCES
A. ASTM Standards
1. ASTM C 578, Specification for Foam Plastic Insulation
2. ASTM C 920, Specification for Elastomeric Joint Sealants
3. ASTM C 1382, Spcification for Sealants for EIFS
4. ASTM E 2430, Specification for EIFS Reinforcing Mesh
5. ASTM E 2568, Specification for EIFS
6. ASTM E 2570, Specification for Water-resistive Barrier Coatings
B. Other References
1. Sto Specification RC 100, reStore Guideline Cleaning Specification for Walls Surfaces
2. Sto Therm EIFS Reference Guide: Repair and Maintenance
3. Sto Creativ Brick Finish for StoTherm Exterior Insulation and Finish Systems

1.04 DESIGN REQUIREMENTS
A. A qualified engineer, architect or repair contractor shall provide the services and details listed in this section.
B. Determine repair scope and detail design requirements based on inspection of the field conditions.
C. Provide crack repair detail for cracks not wider than 1/16-inch (1.6 mm) nominal width.
D. Provide crack repair detail for cracks wider than 1/16-inch (1.6 mm) but not wider than 1/8-inch (3.2 mm).
E. Provide flashing installation, repair and/or replacement details for applicable conditions and indicate locations of each repair on submittals. Flashing remediation shall be based on standard flashing requirements listed below and indications of distress or leakage observed during inspection.
1. Provide head flashing above all window and door openings.
2. Provide flashing at the bottom of the EIFS system.
3. Provide flashing at floor line expansion joints in multi-story construction.
4. Terminate EIFS minimum 2-inches (51 mm) above paved grade and roofing materials.
5. Terminate EIFS minimum 6-inches (152 mm) above soil and landscaped finished grades.
6. Provide metal cap flashing for parapets. Cap flashing shall be sloped to drain water onto the roof system.
7. Provide metal flashing for non-vertical or low slope projections to drain water away from the wall exterior.
F. Integrate all flashing repair and replacement with the water-resistive barrier system to provide direct and continuous drainage to the exterior of the wall.
G. Provide back wrap EIFS terminations at grade, expansion joints, and perimeters of wall openings and mechanical penetrations. Provide minimum 1/2" wide space between the back wrapped insulation and window/door frames. Install backer rod and sealant joint at perimeters of window, doors and mechanical penetrations.
H. Indicate on submittal drawings the locations where resurfacing, refinishing, and/or recoating is required.
I. Provide detail drawings consistent with Sto guideline details and Sto product installation instructions.
J. Where lath is cut to facilitate repairs, wire-tie replacement lath to surrounding lath with 1/2-inch(12.5 mm) overlap.
K. As an option to flashing as noted in 1.04 E7, apply waterproof base coat with reinforcing mesh to standard EIFS base coat on the top surfaces of projecting elements and immediately above and below Projecting elements. Slope projecting elements sufficiently to provide drainage to the exterior. Protect these surfaces with horizontal grade coating.

1.05 QUALITY ASSURANCE
A. Manufacturer's requirements
1. EIFS material manufacturer shall be experienced provider of cementitious and polymer-based materials for use in EIFS construction and repair for minimum 25 years.
2. EIFS manufacturer shall have a manufacturing quality control system that is certified to comply with ISO 9001-2008 and an environmental quality management system certified to comply with ISO 14001-2004.
B. Contractor requirements
1. Contractor shall be licensed and insured and shall have been engaged in EIFS and EIFS repair construction for minimum three years.
2. Contractor shall be knowledgeable in the proper handling, use and installation of Sto materials.
3. Contractor shall employ skilled mechanics who are experienced and knowledgeable in the repair procedures and requirements of the specified project.
4. Contractor shall have completed minimum three projects of similar size, scope and complexity to the project being specified.
5. Contractor shall provide the proper equipment, manpower and supervision on the job site to perform the repair procedures in accordance with Sto's published repair specifications, applicable Sto details and the contract documents.
C. Inspection requirements
1. Quality control inspections shall be provided for by the owner or owner's representative.
2. Inspectors shall be qualified by experience to evaluate field conditions before and during the repair process and shall be familiar with the specified repair procedures prior to commencement of work.
3. Inspections shall be provided at key intervals during each repair.
4. Inspect locations for flashing repair and other locations where existing EIFS must be removed after demolition of the EIFS is completed and before any existing flashing is removed. Verify that the proposed repair is constructible and will function in the manner intended based on the visible conditions. Resolve any visible construction detail conflicts with the repair designer before allowing the contractor to proceed with the repair.
5. Inspect the condition of the water-resistive barrier and transition elements for visible evidence of material integrity and continuity of the system.
6. Inspect the conditions of newly installed or replaced flashing, water-resistive barrier components before installing the replacement installation. Verify that flashing and water-resistive barrier installation is in accordance with the repair detail design. Verify visible continuity of the water-resistive barrier system to direct water to the exterior of the wall via the flashing.
7. Inspect the final appearance of each repair location to verify compliance with owner requirements.

1.06 DELIVERY, STORAGE AND HANDLING
A. Deliver all materials in their original sealed containers bearing manufacturer's name and product identification.
B. Protect liquid products (pails) from freezing and temperatures greater than 90 degrees F (32 degrees C). Do not store in direct sunlight.
C. Protect portland cement based materials (bag products) from moisture and humidity. Store under cover and off of the ground in a dry location.

1.07 PROJECT/SITE CONDITIONS
A. Apply materials only when surface and ambient temperatures are above 40 degrees F (4 degrees C) and are expected to remain above 40 degrees F (4 degrees C) for 24 hours after application.
B. Provide supplementary heat for installation in temperatures less than 40 degrees F (4 degrees C).
C. Provide protection of surrounding areas and adjacent surfaces from spillage, splatter, overspray or other unintended contact with the materials that are being applied.

1.08 COORDINATION AND SCHEDULING
A. Schedule repairs to permit inspections where specified in Section 1.05.
B. Do not start repairs in an area unless sufficient work can be completed such that the area is weather-tight at the end of the work shift. Alternatively allow sufficient time before the end of the work shift to provide weather protection until work can resume.
C. Coordinate with all trades involved to schedule work to result in the proper sequencing of materials within the repair (proper lapping of water resistive system components and flashing).
D. Schedule finish and coating application to large areas such that each day's application will end at an architectural break.

1.09 WARRANTY
A. Provide manufacturer's standard warranty for products used.

PART 2 - PRODUCTS
NOTE: Detailed product information is available at www.stocorp.com. Many different products options are presented below. All products may not be required. Product selection assistance is available from your local Sto representative and Sto Corp. Technical Services for each repair, compatible with the existing EIFS.

2.01 MANUFACTURERS
A. Provide EIFS component materials and coatings (as applicable) from single manufacturer:
1. Sto Corp., 3800 Camp Creek PKWY, Building 1400, Suite 120, Atlanta, GA 30331; www.stocorp.com, 1-800-221-2397
B. Provide EIFS accessory components from qualified manufacturer.

2.02 WATER RESISTIVE BARRIER
A. Provide water-resistive barrier coating and transition membrane system.
1. Sto Gold Coat
2. Sto Gold Fill
3. StoGuard RapidSeal
4. StoGuard Tape
5. StoGuard Fabric

2.03 ADHESIVE
A. Cementitious Adhesives.
1. BTS Plus
2. BTS Xtra
3. Primer/Adhesive-B
4. Primer/Adhesive
5. Sto TurboStick

2.04 INSULATION BOARD
A. Nominal 1.0 pcf Expanded Polystyrene (EPS) insulation board in compliance with ASTM E 2430 and ASTM C 578, Type 1 requirements. (Note: minimum required thickness is 1 inch and maximum thickness is six inches when installed in accordance with ICC-ES ESR 1748).

2.05 BASE COAT
A. Cementitious Base Coats
1. BTS Plus
2. BTS Xtra
3. Primer/Adhesive-B
4. Primer/Adhesive

2.06 GLASS FIBER MESH REINFORCEMENT
A. Provide alkali resistant, open weave glass fiber mesh reinforcing for surface leveling and waterproof base coat.
1. Products:
a. Sto Mesh – alkali-resistant, glass-fiber reinforcing mesh for use with Sto base coat products to provide crack resistance.
b. Sto Detail Mesh – alkali-resistant, glass-fiber reinforcing mesh for use with Sto base coats to provide crack resistance and at system terminations.
c. StoGuard Mesh – self-adhesive mesh for use with Sto Gold Fill water resistive barrier joint and transition treatment.
d. Sto Armor Mat - high impact resistant, 15 oz. per sq. yd. alkali resistant, glass-fiberreinforcing mesh.

2.07 ACRYLIC CRACK FILLER
A. Provide acrylic crack filler.
1. Products: Sto Flexible Crack Filler – acrylic-based crack filler packaged in sealant tube for use (unreinforced) in repair of cracks not wider than 1/16-inch (1.6 mm) and up to 1/8-inch (3.2 mm) wide with mesh reinforcement.

2.09 PORTLAND CEMENT
A. Provide ASTM C 150 Type 1, Type II, or Type I-II cement for mixing with Sto Primer/Adhesive.

2.10 ARCHITECTURAL FINISH
A. Provide polymeric elastomeric or acrylic finish. Color and texture to match existing.

2.11 SEALANT
A. Sealant shall be low-modulus, comply with ASTM C920, ASTM C 1382 and be recommended for use with EIFS by the sealant manufacturer.

2.12 MIXING
A. Mix in accordance with manufacturer's printed instructions.
B. Mix cementitious products with clean, potable water.

PART 3 - EXECUTION

3.01 ACCEPTABLE INSTALLERS
A. Prequalify repair contractor under Quality Assurance requirements of this specification(section 1.05.B).

3.02 EXAMINATION
A. Inspect surfaces for
1. Contamination - algae, chalkiness, dirt, dust, efflorescence, form oil, fungus, grease, laitance, mildew or other foreign substances.
2. Surface absorption and chalkiness.
3. Cracks - measure crack width and record location of cracks.
4. Damage and deterioration.
5. Moisture content and moisture damage - use a moisture meter to determine if the surface is dry enough to recieve finish. record any areas of moisture damage.
6. Compliance with specification tolerances - record areas that are greater than 1/4 inch in 8'-0" deviation in plane.
B. Establish clear understanding of the repair scope and process with the mechanics that will perform the work for each individual location.

3.03 SELECTIVE DEMOLITION
A. Remove and replace EIFS in areas requiring localized repair and as indicated on the project drawings.
B. Use hearing, eye, ear and respiratory personal protective equipment when performing demolition.
C. Provide adequate protection to persons and property from potential falling debris from demolition and repair construction.
D. Comply with local environmental regulations with regard to handling and disposal of construction waste produced by selective EIFS demolition.
E. Comply with StoTherm EIFS Repair and Maintenance Guide available at www.stocorp.com
F. Limit the depth of cuts through the EIFS lamina into the insulation board to prevent damage of the substrate.
G. Remove and replace damaged substrate as required by conditions that may become evident as a result of the demolition process.

3.04 FLASHING REPLACEMENT
A. Repair flashing and/or correct conditions in locations indicated on the project drawings and as described in section 1.04 of this specification.
B. Remove EIFS in accordance with section 3.01 of this specification.
C. Remove enough area to permit proper installation of flashing as detailed in Sto Corp. guideline details for water-resistive barrier and EIFS construction (available at www.stocorp.com).
D. Inspect the condition of the water-resistive barrier membrane and transition materials.
E. Repair or replace damaged water resistive barrier system components.
F. Install replacement components in a sequence and manner to provide shingle-laps and provide a continuous path for moisture drainage to the exterior of the wall via the flashing.
G. Install new flashing components such that the completed repair will comply with Sto Corp. guideline details for EIFS construction.
H. Mix and apply EIFS materials in accordance with printed instructions for the products being used.

3.05 EIFS DAMAGE REPAIR
A. Perform repairs in accordance with StoTherm EIFS Reference guide: Repair and Maintenance: (available at www.stocorp.com)
1. Repair impact damage to EIFS including damaged substrate, insulation, base coat, reinforcing mesh and finish in locations where damage is present. Determine the exact scope of individual repairs based on inspection at the time of selective demolition.
2. Repair cracks in EIFS finish and lamina where cracks occur.

3.06 SEALANT JOINT REPAIR
A. Remove damaged and worn sealant at joints in EIFS in accordance with StoTherm EIFS Reference Guide:Repair and Maintenance.
1. Protect surrounding EIFS from damage during removal of existing sealant.
2. Replace esalant with approved low-modulus material recommended by the sealant manufacturer for use with EIFS.
3. Install sealant in accordance with sealant manufacturer's publised installation instructions for use with EIFS materials. Use sealant primer recommended by the sealant manufacturer on base coat surface if specified by the sealant manufacturer.

3.07 SURFACE REPAIR AND RECOATING
A. Surface leveling for finish texture change:
1. Apply unreinforced skim coat to existing finish surfaces to level surface in preparation for new finish application.
a. Sto RFP
a.a. Apply Sto RFP to existing finish and pull tight to fill low areas in finish and provide flat surface to receive new textured finish.
a.b. Allow Sto RFP to fully dry before applying finish.
b. Sto BTS Xtra
b.a. Apply Sto BTS Xtra over textured cementitious finish and pull tight to fill low areas in finish and provide flat surface to receive new textured finish.
b.b. Allow Sto Sto BTS Xtra to fully dry before applying finish.
B. Skim Coat with additional mesh to provide impact resistance:
1. Apply glass-fiber mesh reinforced base coat in accordance with the applicable Sto Insulation Wall Cladding Specfication for the products and system being used.
C. Skim Coat Surface-Applied Waterproofing
D. Apply glass fiber mesh reinforced waterproof base coat to required areas.
1. StoFlexyl
2. Sto Watertight Coat

3.08 FINISH
A. Apply Sto finish in accordance with Sto written instruction for the specified product.

3.09 COATING
A. Prepare surface to receive Sto coating in accordance with Sto reStore Cleaning specification.
B. Apply Sto coating in accordance with Sto written instruction for the specified product.
1

~~END OF SECTION 072423~~

A. SECTION 072423 - Not Used

SECTION 07_6200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Through wall flashing
2. Openings flashing
1.2 ACTION SUBMITTALS
A. Product Data: For each type of product indicated.
1.3 INFORMATIONAL SUBMITTALS
A. Warranty: Sample of special warranty.
1.4 CLOSEOUT SUBMITTALS
A. Maintenance data.
1.5 QUALITY ASSURANCE
A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
1.6 WARRANTY
A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within 20 years from date of Substantial Completion.

PART 2 - PRODUCTS
2.1 SHEET METALS
A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.
2.3 MISCELLANEOUS MATERIALS
A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.
B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
1. General: self-drilling screws, gasketed, with hex-washer head.
a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
b. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
C. 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 wide and 1/8 inch thick.
2.4 FABRICATION, GENERAL
A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
1. Obtain field measurements for accurate fit before shop fabrication.
2. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
3. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.
B. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant.
C. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
E. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

2.5 WALL SHEET METAL FABRICATIONS

A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96-inch- long, but not exceeding 12-foot- long, sections, under copings, at shelf angles, and where indicated. Fabricate discontinuous lintel, sill, and similar flashings to extend 6 inches beyond each side of wall openings. Form with 2-inch- high, end dams where flashing is discontinuous. Fabricate from the following materials:
1. Stainless Steel: 0.016 inch thick.
B. Opening Flashings in Frame Construction: Fabricate head, sill and similar flashings to extend minimum 4 inches beyond wall openings or as indicated on drawings. Form head and sill flashing with 2-inch- high, end dams that are sealed. Fabricate from the following materials:
1. Aluminum: 0.032 inch thick.
EXECUTION
2.6 UNDERLAYMENT INSTALLATION
A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.
2.7 INSTALLATION, GENERAL
A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement so that completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
5. Install sealant tape where indicated.
6. Torch cutting of sheet metal flashing and trim is not permitted.
B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
1. Coat back side of uncoated aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact ferrous metal, or cementitious construction.
2. Underlayment: Where installing metal flashing directly on cementitious substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.
C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
D. Fastener Sizes: Use fasteners of sizes that will penetrate wood not less than 3/4 inch for wood screws and metal decking not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
E. Seal joints as shown and as required for watertight construction.
F. Rivets: Rivet joints in uncoated aluminum where indicated and where necessary for strength.
Retain first paragraph below for metal splash pans.
2.8 WALL FLASHING INSTALLATION
A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
B. Opening Flashings in Frame Construction: Install continuous head, sill, and similar flashings to extend 4 inches beyond wall openings.
2.9 CLEANING AND PROTECTION
A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.
END OF SECTION 07_6200

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Sheet Issue Information

Issued 2017 05-05 100% CD Set

Revised	#	Description	Date
	1	Pre-Bid Revisions	2017-05-31

Professional Stamp

Project Information

Title: Springhill Suites Exterior Updates
Address: 450 Center Drive, Walker, MI 49544
Project Number: 032841.000

Sheet Information

Title: Specifications

Drawn: CNW
Reviewed: JK
Scale: As Noted
Authorized For: INTERNAL USE ONLY

A402

SECTION 07_7100 - ROOF SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Copings
2. Roof-edge flashings
3. Reglets and counterflashings
4. Roof edge drainage systems

1.2 PERFORMANCE REQUIREMENTS

A. Comply with the performance requirements of Section 07_5423 "TPO Roofing System".

1.3 ACTION SUBMITTALS

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

B. Samples: For each exposed product and for each color and texture specified.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

B. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within 20 years from date of Substantial Completion.

C. See Section 07_5423 for TPO Roofing System warranties including roof specialities.

PART 2 - PRODUCTS

2.1 EXPOSED METALS

A. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.

1. Surface: Smooth, flat finish.
2. Exposed Coil-Coated Finishes: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2.2 CONCEALED METALS

A. Aluminum Sheet: ASTM B 209, alloy and temper recommended by manufacturer for type of use and structural performance indicated, mill finished.

B. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F .
2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F .

2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.

B. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:

1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.
2. Fasteners for Aluminum: Aluminum or Series 300 stainless steel.
3. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A 153/A 153M or ASTM F 2329.

C. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.

D. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

E. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

F. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.5 MANUFACTURERS

A. General: Provide roof specialities from manufacturers approved by the roofing manufacturer, where required to achieve comprehensive roof warranties. Roof warranties as specified in Section 07_5423 "TPO Roofing System".

2.6 COPINGS

B. Copings: Manufactured coping system consisting of formed-metal coping cap in section lengths not exceeding 12 feet, concealed anchorage; corner units, end cap units, and concealed splice plates with same finish as coping caps.

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

a. Architectural Products Company .
b. ATAS International, Inc .
c. Hickman Company, W. P .
d. Johns Manville .
e. Metal-Era, Inc .
f. Metal-Fab Manufacturing, LLC .
g. MM Systems Corporation .

2. Coping-Cap Material: Formed aluminum, thickness as required to meet performance requirements.

a. Finish: Three-coat fluoropolymer.
b. Color: As indicated on drawings or as selected by Architect from manufacturer's full range .
c. Style: Basis of Design: Presto Lock - Tapered (Johns Manville)

3. Corners: Factory mitered and continuously welded.
4. Coping-Cap Attachment Method: Snap-on, fabricated from coping-cap material.
5. Snap-on-Coping Anchor Plates: Concealed, galvanized-steel sheet, 12 inches wide, with integral cleats.

2.7 ROOF-EDGE FLASHINGS

A. Canted Roof-Edge Fascia: Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding 12 feet and a continuous formed galvanized-steel sheet cant, 0.028 inch thick, minimum, with extended vertical leg terminating in a drip-edge cleat. Provide matching corner units.

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

a. Architectural Products Company .
b. ATAS International, Inc .
c. Hickman Company, W. P .
d. Johns Manville .
e. Metal-Era, Inc .
f. Metal-Fab Manufacturing, LLC .
g. MM Systems Corporation .

2. Fascia System: Formed Aluminum: Thickness as required to meet performance requirements.

a. Finish: Three-coat fluoropolymer.
b. Color: As indicated on drawings or as selected by Architect from manufacturer's full range .
c. Style: Basis of Design: Presto Lock Fascia System (Johns Manville)

3. Corners: Factory mitered and continuously welded.
4. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.

2.8 ROOF-EDGE DRAINAGE SYSTEMS

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

1. Andreas Renner KG .
2. Architectural Products Company .
3. ATAS International, Inc .
4. Berger Building Products, Inc .
5. Castle Metal Products .
6. Cheney Flashing Company .
7. Hickman Company, W. P .
8. Klauer Manufacturing Company .
9. Merchant & Evans, Inc .
10. Metal-Era, Inc .
11. Metal-Fab Manufacturing, LLC .
12. MM Systems Corporation .
13. National Sheet Metal Systems, Inc .
14. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc .

B. Gutters: Manufactured in uniform section lengths not exceeding 12 feet, with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch above front edge. Furnish flat-stock gutter straps, gutter brackets, expansion joints, and expansion-joint covers fabricated from same metal as gutters.

1. Fabricate from the following exposed metal:

a. Formed Aluminum: 0.040 inch thick.

2. Gutter Profile: Formed box gutter.
3. Corners: Factory mitered and mechanically clinched and sealed watertight.
4. Gutter Supports: Manufacturer's standard supports as selected by Architect with finish matching the gutters.

C. Downspouts: Plain rectangular complete with mitered elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors.

1. Formed Aluminum: 0.040 inch thick.

D. Aluminum Finish: Three-coat fluoropolymer.

2. Color: As indicated on drawings or as selected by Architect from manufacturer's full range

2.9 REGLETS AND COUNTERFLASHINGS

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

1. Castle Metal Products .
2. Cheney Flashing Company .
3. Fry Reglet Corporation .
4. Heckmann Building Products Inc .
5. Hickman Company, W. P .
6. Keystone Flashing Company, Inc .
7. Metal-Era, Inc .
8. Metal-Fab Manufacturing, LLC .
9. MM Systems Corporation .

B. Reglets: Manufactured units formed to provide secure interlocking of separate reglet and counterflashing pieces, from the following exposed metal:

1. Formed Aluminum: 0.050 inch thick.
2. Corners: Factory mitered and mechanically clinched and sealed watertight.
3. Surface-Mounted Type: Provide reglets with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.

C. Counterflashings: Manufactured units of lengths to overlap top edges of base flashings by 4 inches and in lengths not exceeding 12 feet designed to snap into reglets or through-wall-flashing receiver and compress against base flashings with joints lapped, from the following exposed metal:

1. Formed Aluminum: 0.032 inch thick.

D. Accessories:

1. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where reglet is provided separate from metal counterflashing.
2. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.

E. Aluminum Finish: Three-coat fluoropolymer.

3. Color: As selected by Architect from manufacturer's full range matching adjacent wall finish.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. General: Install roof specialities according to manufacturer's written instructions. Anchor roof specialities securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete roof-specialty systems.

1. Install roof specialities level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
2. Provide uniform, neat seams with minimum exposure of solder and sealant.
3. Install roof specialities to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
4. Torch cutting of roof specialities is not permitted.
5. Install underlayment with adhesive for temporary anchorage. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Coat concealed side of uncoated aluminum and stainless-steel roof specialities with bituminous coating where in contact with ferrous metal, or cementitious construction.
2. Underlayment: Where installing metal flashing directly on cementitious substrates, install a course of self-adhering, high-temperature sheet underlayment.

C. Expansion Provisions: Allow for thermal expansion of exposed roof specialities.

1. Space movement joints at a maximum of 12 feet with no joints within 18 inches of corners or intersections unless otherwise shown on Drawings
2. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.

D. Fastener Sizes: Use fasteners of sizes that will penetrate wood blocking not less than 3/4 inch for wood screws and metal deck substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Seal joints with sealant as required by roofing-specialty manufacturer.

F. Seal joints as required for watertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F

3.2 COPING INSTALLATION

A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.

B. Anchor copings to meet performance requirements.

3. Interlock face and back leg drip edges of snap-on coping cap into cleated anchor plates anchored to substrate at manufacturer's required spacing that meets performance requirements.

3.3 ROOF-EDGE FLASHING INSTALLATION

A. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners.

B. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

3.4 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions.

B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than 24 inches apart. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.

C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c.

D. Parapet Scuppers: Install scuppers where indicated through parapet. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.

E. Conductor Heads: Anchor securely to wall with elevation of conductor top edge 1 inch below gutter discharge.

3.5 REGLET AND COUNTERFLASHING INSTALLATION

A. Surface-Mounted Reglets: Install reglets to receive flashings where flashing without embedded reglets is indicated on Drawings. Install at height so that inserted counterflashings overlap 4 inches over top edge of base flashings.

B. Counterflashings: Insert counterflashings into reglets or other indicated receivers; ensure that counterflashings overlap 4 inches over top edge of base flashings. Lap counterflashing joints a minimum of 4 inches and bed with sealant. Fit counterflashings tightly to base flashings.

3.6 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as roof specialities are installed.

END OF SECTION 07_7100

SECTION 074213 - COMPOSITE METAL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes metal-faced composite panels.

B. Related Sections:

1. Section 054400 "Cold-Formed Metal Framing" for cold-formed metal framing supporting metal-faced composite wall panels.
2. Section 076200 "Sheet Metal Flashing and Trim" for field-formed flashings and other sheet metal work not part of metal-faced composite wall panel assemblies.

1.3 DEFINITION

C. Metal-Faced Composite Wall Panel Assembly: Metal-faced composite wall panels, attachment system components, miscellaneous metal framing, and accessories necessary for a complete weathertight wall system.

1.4 PERFORMANCE REQUIREMENTS

A. General Performance: Metal-faced composite wall panel assemblies shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B. Structural Performance: Provide metal-faced composite wall panel assemblies capable of withstanding the effects of the following loads and stresses within limits and under conditions indicated, based on testing according to ASTM E 330:

1. Wind Loads: Determine loads based on the following minimum design wind pressures:
   a. Uniform pressure as indicated on Drawings.
2. Deflection Limits: Metal-faced composite wall panel assemblies shall withstand wind loads with horizontal deflections no greater than 1/175 of the span at the perimeter and 1/60 of the span anywhere in the panel.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal-faced composite wall panel and accessory.

B. Shop Drawings: Show fabrication and installation layouts of metal-faced composite wall panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Distinguish among factory-, shop-, and field-assembled work.

4. Accessories: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches
   b. Flashing and trim.
   c. Anchorage systems.

C. Samples for Initial Selection: For each type of metal-faced composite wall panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.
2. Include manufacturer's color charts consisting of strips of cured samples showing the full range of colors available for each sealant exposed to view.

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

1. Metal-Faced Composite Wall Panels: **Minimum 12 x 12 inches (300 x 300 mm)** . Include fasteners, closures, and other metal-faced composite wall panel accessories.
   a. Composite Panels: Include four-way joint.
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.
4. Exposed Gaskets: 12 inches (300 mm) long.
5. Exposed Sealants: For each type and color of joint sealant required. Install joint sealant in 12-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of metal-faced composite wall panels adjacent to joint sealants.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal wall panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of metal-faced composite wall panel from single source from single manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

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

B. Unload, store, and erect metal-faced composite wall panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Store metal-faced composite wall panels vertically, covered with suitable weathertight and ventilated covering. Store metal-faced composite wall panels to ensure dryness, with positive slope for drainage of water. Do not store metal-faced composite wall panels in contact with other materials that might cause staining, denting, or other surface damage. Do not allow storage space to exceed 120 deg F (49 deg C) .

D. Retain strippable protective covering on metal-faced composite wall panel for period of panel installation.

1.9 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal-faced composite wall panels to be performed according to manufacturer's written instructions and warranty requirements.

B. Field Measurements: Verify locations of structural members and wall opening dimensions by field measurements before metal-faced composite wall panel fabrication and indicate measurements on Shop Drawings.

1.10 COORDINATION

A. Coordinate metal-faced composite wall panel assemblies with rain drainage work, flashing, trim, and construction of studs, soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal-faced composite wall 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 and other materials beyond normal weathering.
2. Warranty Period: Two years from date of Substantial Completion.

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

3. Exposed Panel 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.
4. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL MATERIALS

D. 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: Smooth, flat finish.
2. Exposed Coil-Coated Finishes:
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:

A. Joint Sealant: ASTM C 920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal-faced composite wall panels and remain weathertight; and as recommended in writing by panel manufacturer.

2.2 MISCELLANEOUS METAL FRAMING

A. Miscellaneous Metal Framing, General: ASTM C 645, cold-formed metallic-coated steel sh**ASTM A 653/A 653M, G40 (Z120) hot-dip galvanized** or coating with equivalent corrosion resistance unless otherwise indicated.

B. Subgirts: Manufacturer's standard C- or Z-shaped sections 0.064-inch (1.63-mm) nominal thickness.

C. Zee Clips: 0.079-inch (2.01-mm) nominal thickness.

D. Hat-Shaped, Rigid Furring Channels:

1. Nominal Thickness: As required to meet performance requirements
2. Depth: As indicated

E. Cold-Rolled Furring Channels: Minimum 1/2-inch- (13-mm-) wide flange.

1. Nominal Thickness: As required to meet performance requirements
2. Depth: As indicated
3. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with nominal thickness of 0.040 inch (1.02 mm).
4. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- (1.57-mm-) diameter wire or double strand of 0.048-inch- (1.22-mm-) diameter wire.

F. Fasteners for Miscellaneous Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal framing members to substrates.

2.3 MISCELLANEOUS MATERIALS

A. Aluminum Extrusions: ASTM B 221 (ASTM B 221M) , alloy and temper recommended by manufacturer for type of use and finish indicated.

B. 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-faced composite wall panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

2.4 METAL-FACED COMPOSITE WALL AND SOFFIT PANELS

A. General: Provide factory-formed and -assembled, metal-faced composite wall panels fabricated from two metal facings bonded, using no glues or adhesives, to solid, extruded thermoplastic core; formed into profile for installation method indicated. Include attachment system components and accessories required for weathertight system.

1. Surface Burning Characteristics: Noncombustible, 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:
   a. Flame-Spread Index: 25 or less.
   b. Smoke-Developed Index: 450 or less.
2. Products: Basis of Design: Alcan composites, USA; Sobotec Dry Joint System SL-2000 or composite system by:
   a. Alcan Composites USA Inc .; Alucobond.
   b. Alcoa Inc.; Reynobond PE.
   c. ALPOLIC, Division of Mitsubishi Chemical America, Inc .; ALPOLIC
   d. Protean Construction Products, Inc .; ACM 100.

B. Aluminum-Faced Composite Wall Panels: Formed with 0.020-inch- (0.50-mm-) thick, coil-coated aluminum sheet facings.

1. Panel Thickness: 0.118 inch (3 mm) .
2. Core: Standard.
3. Exterior Finish: 2-coat fluoropolymer
   a. Color: Refer to material schedule
4. Attachment System Components: Formed from extruded aluminum.

2.5 ACCESSORIES

A. Wall Panel Accessories: Provide components required for a complete metal-faced composite wall panel assembly including trim, copings, fascias, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal-faced composite wall panels unless otherwise indicated.

B. Flashing and Trim: Formed from 0.018-inch- (0.46-mm-) minimum thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, sloped roofs, fascias, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal-faced composite wall panels.

2.6 FABRICATION

C. General: Fabricate and finish metal-faced composite wall 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.

D. Fabricate metal-faced composite wall panels in a manner that eliminates condensation on interior side of panel and with joints between panels designed to form weathertight seals.

E. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to 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-faced composite wall panel manufacturer.
   a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal-faced composite wall panel manufacturer for application, but not less than thickness of metal being secured.

2.7 GENERAL FINISH REQUIREMENTS

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

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

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. 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-faced composite wall panel supports, and other conditions affecting performance of the Work.

7. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal-faced composite wall panel manufacturer.
8. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal-faced composite wall panel manufacturer.
9. Verify that weather-resistant sheathing paper has been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

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

C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

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

3.2 PREPARATION

A. Miscellaneous Framing: Install subgirts, base angles, sills, furring, and other miscellaneous wall panel support members and anchorage according to ASTM C 754 and metal-faced composite wall panel manufacturer's written instructions.

3.3 METAL-FACED COMPOSITE WALL PANEL INSTALLATION

General: Install metal-faced composite wall panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts and subgirts unless otherwise indicated. Anchor panels and other components of the Work securely in place, with provisions for thermal and structural movement.

A. Fasteners:

1. Aluminum Wall 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.

C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by metal-faced composite wall panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weathertight performance of metal-faced composite wall panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by manufacturer that are compatible with adjacent materials.

2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

E. Attachment System Installation, General: Install attachment system required to support metal-faced composite wall panels and to provide a complete weathertight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips, and anchor channels.

1. Include attachment to supports, panel-to-panel joinery, panel-to-dissimilar-material joinery, and panel-system joint seals.
2. Do not begin installation until weather barrier and flashings that will be concealed by composite panels are installed.

F. Rainscreen-Principle Installation: Provide manufacturer's standard pressure-equalized, rainscreen-principle system with vertical channel that provides support and complete secondary drainage system, draining at base of wall. Notch vertical channel to receive support pins. Install vertical channels supported by channel brackets or adjuster angles and at locations, spacings, and with fasteners recommended by manufacturer. Attach wall panels by engaging horizontal support pins into notches in vertical channels and into flanges of wall panels. Leave horizontal and vertical joints with open reveal.

1. Install wall panels to allow individual panels to "free float" and be installed and removed without disturbing adjacent panels.
2. Do not apply sealants to joints unless otherwise indicated on Drawings.

3.4 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-faced composite wall panel assembly including trim, copings, corners, 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 (3m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped 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).

3.5 ERECTION TOLERANCES

H. Installation Tolerances: Shim and align metal-faced composite wall panel units within installed tolerance of 1/4 in. 20 feet (6 mm in 6 m) , nonaccumulative, on level, plumb, and location lines as indicated and within 1/2 inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.6 CLEANING

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

B. After metal-faced composite wall panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

C. Replace metal-faced composite wall panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074213

SECTION 099113 EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

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

B. Related Requirements:

1. Section 072421 "Surface Preparation for EIFS and Coated Concrete and Masonry" for preparation of EIFS surfaces to be painted.

1.3 ACTION SUBMITTALS

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

1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
2. Indicate VOC content.

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

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

C. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

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

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups 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.
   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 mockups.
   a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 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.

1.7 FIELD 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.

1.8 WARRANTY

A. Installer's warranty: Provide 2-year warranty for products that fail in workmanship or material. Failures include but are not limited to excessive cracking, peeling, or fading of finish.

B. Special product warranty: Kynar-coated metal: Provide manufacturer's 10-year warranty for field- applied coatings over kynar-coated metal.

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Sheet Issue Information

Issued	2017 05-05 100% CD Set		
Revised	#	Description	Date

Professional Stamp

Project Information

Title: Springhill Suites Exterior Updates
Address: 450 Center Drive
Walker, MI 49544
Project Number: 032841.000

Sheet Information

Title: Specifications
Drawn: CNW
Reviewed: JK
Scale: As Noted
Authorized For: INTERNAL USE ONLY

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PART 2 - PRODUCTS

2.1 PREPARATORY CLEANING MATERIALS

A. Provide preparatory cleaning materials recommended by paint manufacturer for substrate, including but not limited to the following:
   1. Water: Potable.
   2. Hot Water: Water heated to a temperature of 140 to 160 deg F (60 to 71 deg C).
   3. Detergent Solution: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium pyrophosphate (TSPP), 1/2 cup (125 mL) of laundry detergent that contains no ammonia, 5 quarts (5 L) of 5 percent sodium hypochlorite bleach, and 15 quarts (15 L) of warm water for every 5 gal. (20 L) of solution required.
   4. Mildewcide: Commercial proprietary mildewcide or a job-mixed solution prepared by mixing 1/3 cup (80 mL) of household detergent that contains no ammonia, 1 quart (1 L) of 5 percent sodium hypochlorite bleach, and 3 quarts (3 L) of warm water.
   5. Abrasives for Ferrous Metal Cleaning: Aluminum oxide paper, emery paper, fine steel wool, steel scrapers, and steel-wire brushes of various sizes.
   6. Rust Remover: Manufacturer's standard phosphoric acid-based gel formulation, also called "naval jelly," to removing corrosion from iron and steel.

2.2 PAINT REMOVERS

A. Manufacturers:
   1. American Building Restoration Products
   2. Diedrich Technologies, Inc.
   3. PROSOCO, Inc.
B. Products:
   1. Low-Odor, Solvent-Type Paste Paint Remover: Manufacturer's standard low-odor, water-rinsable, solvent-type paste, gel, or foamed emulsion formulation for removing paint from masonry, stone, wood, plaster, or metal as required to suit Project; and containing no methanol or methylene chloride.

2.3 PATCHING MATERIALS

A. Metal-Patching Compound: Two-part, polyester-resin, metal-patching compound; knife-grade formulation as recommended in writing by manufacturer for type of metal repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be produced for filling metal that has deteriorated from corrosion. Filler shall be capable of filling deep holes and spreading to feather edge.

2.4 PAINT MANUFACTURERS

A. Product Manufacturers: Subject to compliance with requirements, provide product listed in the Exterior Painting Schedule for the paint category indicated, or approved equal by one of the manufacturers listed.
   1. Benjamin Moore & Co.
   2. Coronado Paint; Benjamin Moore Company.
   3. Glidden Professional.
   4. Kelly-Moore Paint Company Inc.
   5. M.A.B. Paints.
   6. PPG Architectural Finishes, Inc.
   7. Sherwin-Williams Company (The).
B. Proprietary Manufacturers: No substitutions for products listed in the Exterior Painting Schedule for use over Kynar-coated Metal.

2.5 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists.", except where specified otherwise.
B. Material Compatibility:
   1. Materials for use within each paint system shall be 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, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
C. Comply with VOC regulations of governing codes and Authorities Having Jurisdiction.
D. Colors: As indicated in a color schedule.

2.6 ACCESSORY MATERIALS

A. Recommended sealant for use with Coraflon System: Pecora #895 or Dow #795.

2.7 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
   1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
   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.

PART 3 - EXECUTION

3.1 PROTECTION

A. Comply with each manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
   1. Cover adjacent surfaces with materials that are proven to resist chemical solutions being used unless the solutions will not damage adjacent surfaces. Use protective materials that are UV resistant and waterproof. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
   2. Do not apply chemical solutions during winds of sufficient force to spread them to unprotected surfaces.
   3. Neutralize and collect alkaline and acid wastes before disposal.
   4. Dispose of runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

3.2 MAINTENANCE REPAINTING, GENERAL

A. Maintenance Repainting Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from building exterior at 20 feet (6 m) away from painted surface.
B. Execution of the Work: In repainting surfaces, disturb them as minimally as possible and as follows:
   1. Remove failed coatings and corrosion and repaint.
   2. Verify that substrate surface conditions are suitable for repainting.
   3. Allow other trades to repair items in place before repainting.
C. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use gentle methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail.
D. Heat Processes: Do not use torches, heat guns, or heat plates.

3.3 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
B. Alkalinity: Do not begin application of coatings unless surface alkalinity is within range recommended in writing by paint manufacturer. Conduct alkali testing with litmus paper on exposed plaster, cementitious, and masonry surfaces.
C. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
D. Proceed with coating application only after unsatisfactory conditions have been corrected.
   1. Application of coating indicates acceptance of surfaces and conditions.

3.4 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 hardware, covers, plates, and similar items already in place that are removable and 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.
C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

3.5 PREPARATORY CLEANING

A. EIFS Substrates: Refer to specification section 072421 & 072422.
B. Non-EIFS substrates, general:
   1. General: Use the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.
   2. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub surface with detergent solution and bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet. Rinse with water applied by clean rags or sponges.
   3. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to commencement of paint application, provided enough time is allowed for complete evaporation. Use clean solvent and clean rags for the final wash to ensure that all foreign materials have been removed. Do not use solvents, including primer thinner and turpentine, that leave residue.
   4. Mildew: Clean off existing mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges.
   5. Chemical Rust Removal:
      a. Remove loose rust scale with specified abrasives for ferrous-metal cleaning.
      b. Apply rust remover with brushes or as recommended in writing by manufacturer.
      c. Allow rust remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing. Do not allow extended dwell time.
      d. Wipe off residue with mineral spirits and either steel wool or soft rags, or clean with method recommended in writing by manufacturer to remove residue.
      e. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
      f. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.
   6. Mechanical Rust Removal:
      a. Remove rust with specified abrasives for ferrous-metal cleaning. Clean to bright metal.
      b. Wipe off residue with mineral spirits and either steel wool or soft rags.
      c. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
      d. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.
C. Kynar-coated metal:
   1. Solvent clean per SSPC-SP 1 or Pressure-Clean entire surface via SSPC SP-12 - LP WC, 3000 psi minimum, to remove any contamination that may be present.
   2. Completely remove existing caulk, sealant, and residue/contamination including the coating of unknown origin used to touch up the panels.
   3. Abrade entire substrate per SSPC SP-2/3 "Hand-Tool Cleaning" / "Power-Tool Cleaning" to remove gloss and to obtain a maximum surface profile of 1.0 mil.
   4. Prepare bare and rusted areas per SSPC SP-2/SP-3 "Hand Tool Cleaning" or "Power-Tool Cleaning" to remove loose rust and loose peeling paint.
   5. Solvent wipe to remove dust.

3.6 PAINT REMOVAL

A. General: Remove paint where indicated. Where cleaning methods have been attempted and further removal of the paint is required because of incompatible or unsatisfactory surfaces for repainting, remove paint to extent required by conditions.
   1. Application: Apply paint removers according to paint-remover manufacturer's written instructions. Do not allow paint removers to remain on surface for periods longer than those indicated or recommended in writing by manufacturer.
      a. Apply materials to all surfaces, corners, contours, and interstices, to provide a uniform final appearance without streaks.
      b. After work is complete, remove protection no longer required. Remove tape and adhesive marks.
   2. Brushes: Use brushes that are resistant to chemicals being used.
      a. Metal Substrates: If using wire brushes on metal, use brushes of same metal composition as metal being treated.
   3. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that spray methods do not damage surfaces.
      a. Equip units with pressure gages.
      b. Unless otherwise indicated, hold spray nozzle at least 6 inches (150 mm) from surface and apply material in horizontal, back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.
      c. For chemical spray application, use low-pressure tank or chemical pump suitable for chemical indicated, equipped with nozzle having a cone-shaped spray.
      d. For water-spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
      e. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F (60 and 71 deg C) at flow rates indicated.
B. Paint Removal with Hand Tools: Remove paint manually using hand-held scrapers, wire brushes, sandpaper, and metallic wool as appropriate for the substrate material.
C. Paint Removal with Solvent-Type Paste Paint Remover:
   1. Remove loose and peeling paint using water, scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
   2. Apply thick coating of paint remover to dry, painted surface with natural-fiber cleaning brush, deep-nap roller, or large paintbrush. Apply in one or two coats according to manufacturer's written instructions.
   3. Allow paint remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing.
   4. Rinse with cold water applied by low-pressure spray to remove chemicals and paint residue.
   5. Use mechanical methods recommended in writing by manufacturer to remove chemicals and paint residue.
   6. Repeat process if necessary to remove all paint.

3.7 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.
B. EIFS Repair: Refer to Sections 072421 & 072422
C. Metal Substrate:
   1. Preparation: Treat repair locations by wire-brushing and solvent cleaning. Use chemical or mechanical rust removal method to clean off rust.
   2. Defects in Metal Surfaces: Repair non-load-bearing defects in existing metal surfaces, including dents and gouges more than 1/8 inch (3 mm) deep or 1/2 inch (13 mm) across and all holes and cracks by filling with metal-patching compound and sanding smooth. Remove burrs and protruding fasteners.
   3. Priming: Prime iron and steel surfaces immediately after repair to prevent flash rusting. Stripe paint corners, crevices, bolts, welds, and sharp edges. Apply two coats to surfaces that are inaccessible after completion of the Work.

3.8 PAINT APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
   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.
   3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
   4. Paint entire exposed surface of window frames and sashes.
   5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. 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 Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
   1. Paint the following work where exposed to view in color to match adjacent wall surface:
      a. Uninsulated metal piping.
      b. Uninsulated plastic piping.
      c. Pipe hangers and supports.
      d. Metal conduit.
      e. Plastic conduit.
      f. Kynar-coated metal: Follow manufacturer's mixing and thinning information for primers and paint. Apply by conventional airspray or HVLP only. Do not brush or roll. For standing seam meatl roofing, stripe coat the standing seam prior to finish coating flat fairway portion of roof. After the standing seams have been stripe-coated, coat the "flat fairway" part of the roof. Finish coat must be applied defect free.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
   1. Contractor shall touch up and restore painted surfaces damaged by testing.
   2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

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. Existing Kynar-Coated Surfaces (Metal Roofing, Copings):
   1. PPG Industries Corafilon ADS (Air-Dry System)
      a. Primer Coat: Wash primer as recommended by manufacturer
      b. Tie primer: ADS Epoxy PVDF Bonding Primer
      c. Topcoat: Coraflon ADS Intermix Gloss - 1 or 2 coats as recommended by manufacturer. 1.5-2.0 Dry Film Thickness per coat. Custom Color to match Architect's sample.
      d. Clear coat: As recommended by manufacturer
B. Previously-Painted Galvanized-Metal Substrates (Doors & Frames):
   1. Latex System:
      a. Prime Coat: As recommended by paint manufacturer.
      b. Intermediate Coat: Latex, exterior, matching topcoat.
      c. Topcoat: Latex, exterior, semi-gloss (MPI Gloss Level 5), MPI #11.
         1) Benjamin Moore, Ben 100% Acrylic Exterior Semi-Gloss Finish.
C. Anodized Aluminum Substrates (Window Frames and PTAC Unit Covers):
   1. Water-Based Light Industrial Coating System:
      a. Prime Coat: Benjamin Moore Insul-X Stix Waterborne Bonding Primer SXA-110
      b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
      c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (MPI Gloss Level 5).
         1) Benjamin Moore Ultra Spec HP D.T.M. Acrylic Semi-Gloss HP 29
D. EIFS Substrates:
   1. Latex System:
      a. Prime Coat: MPI #6, Benjamin Moore Fresh Start Multi-Purpose Latex Primer N023.
      b. Intermediate Coat: Latex, exterior, matching topcoat.
      c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4) MPI #15.
         1) Benjamin Moore Regal Select Exterior Paint, High Build Low Lustre Finish N401.

END OF SECTION 099113

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