MANAGING PROJECT SPECIFIC DETAILS

real-time collaboration between the design professional and product specialists

Guy Long

Building Envelope Technical Specialist
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OBJECTIVES

Explain how architectural drawings are sometimes lacking in structure amenable to air-barrier and waterproofing detailing.

Demonstrate how simple modifications can greatly enhance constructability and detailing to prevent water intrusion and air leakage.

Show how to draw air / water barrier details to facilitate use of fluid-applied products rather than self-adhered membranes and building wrap.

Explain how to work with manufacturers to optimize preparation of details for implementation by contractors.
SEALANT

FLUID APPLIED JOINT TREATMENT

FLUID APPLIED MEMBRANE FLASHING
SEALANT
FLUID APPLIED JOINT
TREATMENT
FLUID APPLIED MEMBRANE
FLASHING
SEALANT
FLUID APPLIED JOINT
TREATMENT
FLUID APPLIED AIR &
WATER BARRIER
ROUGH OPENING
PROTECTION DETAIL
C SILL
DETAIL # 1 A

Air B asso America

All comments or mark-ups to design details and project photographs are provided on request and Prosoco R-Quake® products may be incorporated into the referenced project. Prosoco does not offer design services.
NOTE

Window Brackets
Verify with Window Manuf.
Detail fast flash around brackets
FLUID APPLIED FLASHING MEMBRANE

SEALANT

FLUID APPLIED FLASHING MEMBRANE

TRANSITION BOARD

SS Drip w/Clean
1. Grout I Beam Openings
2. Install insulation into void
3. Install SS cover over open void.
Install insulation into void.

Install SS cover over void.
FLUID APPLIED MEMBRANE FLASHING
FLUID APPLIED JOINT TREATMENT
CL BARREL ROD @ VOID
FLUID APPLIED AIR & WATER BARRIER

METAL ROOF EAVE AND GUTTER

3" MIN
framework. Overcoat with Cat 5 RainScreen @ 25-30 mils thick.
Detail note for overlapping on Sheet no. A
FLUID APPLIED AIR & WATER BARRIER

SANTOPRENE SETTING BLOCKS @ ¼ POINTS

¾" PORT @ 12" O.C. AT PERIMETER

CONTINUOUS SANTOPRENE GASKET GS1# GG002

CUSTOM ALUMINUM PERIMETER MEMBER
SHIM AS REQUIRED

NOTE:
STRUCTURAL CURB, AND SEAL MATERIALS BY OTHERS TOLERANCES OF CURB TO BE ±½" ARCH. STANDARDS AND PER A.S.T.M. FIELD CONCRETE SPEC.
the devil is in the details
(the air and water is too)
Most common threats to the structural integrity and performance of the building envelope

- uncontrolled rainwater penetration
- moisture ingress through moisture-laden air intrusion

Together, they represent up to 80% of all construction-related claims in the United States.

Moisture transfer and air infiltration can occur within a building through multiple mechanisms. Moisture and air intrusion related problems are perhaps the largest set of problems buildings experience within the United States. The design community needs to have a better understanding and employ better design practices to reduce the number of moisture related and air infiltration problems that buildings within the United States experience.
THE PROCESS OF DEVELOPING DETAILS

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Often, the proper integration of related components of a building facade is doomed from the start. All too frequently, the demands of both time and budget combine to create an environment where architects are forced to develop a series of largely generic building envelope details in a short period of time in order to get a project out to bid. While this approach may be successful in bringing the design phase in "on time and under budget," it often proves short-sighted and costly for an owner when an incomplete set of construction documents is the result.
the dilemma...

ARCHITECTS are not specialists
(manufacturers and consultants are)

MANUFACTURERS may know a certain part well
(but they don’t know the whole picture)

CONSULTANTS
Historically recommend what has worked for them in the past
(Construction materials ecosystem move fast)
the dilemma...

Generic building condition details rarely work

project specific detail needs to be created
Specifications are often unclear

**PART 2 - PRODUCTS**

2.1 **FLUID-APPLIED MEMBRANE AIR BARRIER**

A. **Fluid-Applied, Vapor-Perm-selective Membrane Air Barrier:** Synthetic polymer membrane.

1. **Products:** Subject to compliance with requirements, provide one of the following:
   
   a. **Synthetic Polymer Membrane:**
      
      1) 
      2) 

2. **Physical and Performance Properties:**

   a. **Membrane Air Permeance:** Not to exceed 0.004 ci/ft² sq. ft. of surface area at 1.57-lbf/sq. ft. (0.02 L/s x sq. m of surface area at 75-Pa) pressure difference. ASTM E 2178.
   
   b. **Membrane Vapor Permeance:** Not less than 10 perms (580 ng/Pa x s x mm). ASTM E 96.
the results...
consultant and product specialist work together to achieve architect’s goal. Everyone is involved early on in the process (50% DD).
the ultimate...

ARCHITECTS

what
where
how
why certain products

MANUFACTURERS

CONSULTANTS
Elements of success

Take in to account compatibility
(especially components at the roof, window penetrations, below grade to wall interface)
Elements of success

Take in to account compatibility
(especially components at the roof, window penetrations, below grade to wall interface)

Consultant & manufacturer must have broad knowledge of construction details
(waterproofing, how building components are installed & function through life of the building)

Proper sequencing is of upmost importance
(the design intent many times get compromised due to improper sequencing)
Concurrent with the architect of record and engineer of record review of shop drawings, the commissioning agent/building envelope consultant will need to review shop drawings prior to release and fabrication for building envelope requirements and provide written comments to the owner and architect of record.

Depending upon the scale and complexity of the project, the commissioning agent/building envelope consultant should be retained to assist the architect/engineer of record with his/her review of contractor submittals pertaining to the building envelope to verify their conformance with the contract documents and owner requirements.
the ultimate...

Pre-Construction Coordination Meeting

ARCHITECTS

MANUFACTURERS

CONSULTANTS
The commissioning agent will need to participate in one kick-off meeting prior to beginning construction with the various members of the design and construction teams, including, but not limited to, the owner, owner's representatives, architect of record, mechanical engineer, general contractor, and all subcontractors that will be involved in the construction of the building envelope, including, but not limited to, the roofing, wall system, flashing, sealant, fenestration, concrete, and steel.

This meeting will be to discuss construction sequencing and the coordination of trades and the reporting that will be completed during construction of the building envelope and related other elements.
how it normally happens...
CASE STUDY #1 – ROLESVILLE ELEMENTARY SCHOOL

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CASE STUDY #1 – ROSESVILLE ELEMENTARY SCHOOL
CASE STUDY #1 – ROLESVILLE ELEMENTARY SCHOOL

FLUID APPLIED MEMBRANE FLASHING SEALANT

CASE STUDY #1 – ROLESVILLE ELEMENTARY SCHOOL

FLUID APPLIED AIR & WATER BARRIER

STOREFRONT SILL 4 1/2" AT MTL STUD WALL - TYP

3" = 1'-0"
CASE STUDY #2 - MERCY JEWISH HOSPITAL
CASE STUDY #3 – BUILDING RETROFIT

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CASE STUDY #3 – BUILDING RETROFIT

Vertical expansion joint. Estimated ¾” wide but may vary. Proved best way or ways to detail assuming we can use backer rod.

Install air and water barrier behind brick, all existing brick at this wall to be removed.

remove 10-12” of brick from corner. Install some type of end dam vertically to force water. It is a solid mass wall so he may do it with heavy bead sealant.

existing thru-wall to remain
CASE STUDY #3 – BUILDING RETROFIT

EXISTING CONTROL JOINT APPROX. 3/4" WIDE

FIELD VERIFY

DETAIL 2

BRICK VENEER TO BE REMOVED WHERE HIGHLIGHTED

DETAIL 2 - SM

WALL TYPE B

DETAIL 3

WALL TYPE A

EXISTING THROUGH WALL FLASHING TO REMAIN

EXISTING ROOF MEMBRANE

PARAPET CONDITION- EXISTING TO NEW CONDITION

Any comments or markups to design details
CASE STUDY #3 – BUILDING RETROFIT

FLUID APPLIED AIR & WATER BARRIER

3/4” EXP JOINT FIELD VERIFY

INSTALL BACKER FOR JOINTS >1”

WALL TYPE A

FIELD VERIFY

WALL TYPE B

FLUID APPLIED JOINT TREATMENT

FLUID APPLIED MEMBRANE FLASHING

THRU WALL FLASHING WITH VERTICAL END CAP/DAM IN HEAD JOINT. ADHERE WITH FLUID APPLIED FLASHING

INTERIOR

EXISTING CMU
CASE STUDY #3 – BUILDING RETROFIT

DETAIL 2
PARAPET CONDITION- EXISTING TO NEW CONDITION

FLUID APPLIED AIR & WATER BARRIER OVER UNDERTNEATH EXISTING FLASHING
FLUID APPLIED MEMBRANE FLASHING
EXISTING THROUGH WALL FLASHING
EXISTING ROOFING
CASE STUDY #3 – BUILDING RETROFIT

THRU WALL FLASHING

ADHERE WITH FLUID APPLIED MEMBRANEFLASHING

FLUID APPLIED AIR & WATER BARRIER OVER EXISTING SUBSTRATE AND UNDERNEATH EXISTING FLASHING

FLUID APPLIED MEMBRANE FLASHING

EXISTING THROUGH WALL FLASHING TO REMAIN

DETAIL 3
PARAPET CONDITION- EXISTING TO NEW CONDITION
CASE STUDY #4

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Step 1 Prepare the Opening

FLUID APPLIED JOINT TREATMENT

APPLY 3/8" FLUTER
C. CMU TO WOOD FRAME
INTERFACE AROUND INSIDE OF ROUGH OPENING

FLUID APPLIED JOINT TREATMENT
C. 2X 1. 2X INTERFACE INSIDE OUT OF WOOD FRAME

FLUID APPLIED JOINT TREATMENT

DETAIL @ ROUGH
Step 2 Protect the Opening

FLUID APPLIED MEMBRANE FLASHING

FLUID APPLIED AIR & WATER BARRIER

SUGGESTED PROSOCO DETAIL: OPENING GRAY 700
Step 2 Protect the Opening

FLUID APPLIED MEMBRANE FLASHING
FLUID APPLIED AIR & WATER BARRIER
CASE STUDY #5- FIELD MODIFICATIONS

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INSTALL INSULATION BLANKET AROUND STEEL BEAM FILLING
INTERSTITIAL SPACE PRIOR TO INSTALLATION OF SADDLE FLASHING.
THICKNESS TO BE DETERMINED BY DESIGN PROFESSIONAL FOR R-VALUE &
FIRE SAFING RELATED ISSUES!

DETAIL # 1
FLUID APPLIED JOINT TREATMENT

SADDLE FLASHING OF STEEL BEAM PENETRATIONS

INSTALL BOTTOM FLANGE FIRST, SET IN BEAD OF...

FLUID APPLIED JOINT TREATMENT
INSTALL TOP FLANGE OVER IN-PLACE BOTTOM FLANGE. GET IN BEAD OF FLUID APPLIED JOINT TREATMENT

FLUID APPLIED JOINT TREATMENT
INSTALL "Z" FLASHING OVER IN PLACE TOP FLANGE
SET FLASHING IN DEAD OF

FLUID APPLIED JOINT TREATMENT
FLUID APPLIED JOINT TREATMENT

DETAIL #5
WEATHER HOLES - MINIMUM, THREE PER OPENING

SELF-ADHERING MEMBRANE FLASHER. LAP OVER SELF-ADHERING MEMBRANE FLASHER, LAP 4" EACH WAY

SELF-ADHERING MEMBRANE FLASHER. LAP OVER 6" STAINLESS STEEL FLASHING, EXTEND UP OVER TOP OF STEEL ANGLE UNTIL & UP FACE OF BACKUP IN MINIMUM

SHEATHING & PLASTIC-APPLIED MEMBRANE AIR BARRIER

END DAM

0.035" STAINLESS STEEL FLASHING, W/ WEDGED SS END DAMS, BACK DAM & HDR. FLASHING TO EXTEND LENGTH OF STEEL UNTIL EXTENDED EDGE OF SS FLASHING 1/8" PAST FACE OF MASONRY & SEND DOWN TO FORM DRIP.

EXTEND END OF FLASHING TO END OF UNTIL

FLASHING ISOMETRIC DETAIL
HEAD CONDITION
Detail #1

Proprietary joint filler
Beads (2) on angle prior to setting pan head

STEP 1
- Apply 2 beads of J&SF on angle prior to setting head flashing pan on she
- Seal edge of pan flashing on edge of pan flashing.
HEAD CONDITION
Detail #1

STEP 2

- Apply joint filler
- Over cured joint filler down into #5 metal pan flashing
  (approx. 2" onto vertical leg of back dam of the 5.5 flashing pan)
HEAD CONDITION
DETAIL #1

FLUID APPLIED MEMBRANE FLASHING
FLUID APPLIED AIR & WATER BARRIER
FLUID APPLIED JOINT TREATMENT
DENSGLASS

STEP 3
- SPRAY-APPLY TO PREPARED SHEATHING BOARDS
SILL CONDITION

DETAIL #2

FLUID APPLIED JOINT TREATMENT

STEP 1

- Shoot tool a bead of fluid along the joint and corner of opening
- Fill any voids/imperfections with joint & seam filler
FLUID APPLIED MEMBRANE FLASHING

STEP 2
- APPLY TO ROUGH OPENING w/BONDING BLADE
- ADEQUATE COVERAGE IS ACHIEVED WHEN CEMENT/MASTIC IN FULL COVERAGE DOES NOT SEEP THROUGH MEMBRANE
- 12-15 MILS THICK
Sill Condition
Detail #2

Step 3
Spray apply to vertical surface of CMU. Two (2) coats @ 10m is needed.
CASE STUDY #6- SILICONE EXTRUSION

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CASE STUDY #6 - SILICONE EXTRUSION

FLUID APPLIED AIR & WATER BARRIER
2" MAG RIGID INSULATION
MORTAR NET
THRU WALL FLASHING
SILICONE EXTRUSION
STAINLESS STEEL FLASHING
ALUM CURTAIN WALL

FLUID APPLIED MEMBRANE FLASHING
GYP SHEATHING 6" STEEL STUDS
5/8" GYP BD SEALANT

D2 A5602 3" = 1'-0"

STAIR CW - TYP HEAD
CASE STUDY #6- SILICONE EXTRUSION

FLUID APPLIED MEMBRANE FLASHING

SILICONE EXTRUSION

FACE BRICK
2" MIN R13 INSULATION
FLUID APPLIED AIR & WATER BARRIER

FLUID APPLIED MEMBRANE FLASHING

STAIR CW - TYP SILL

3' x 1' x 2"
This concludes the American Institute of Architects Continuing Education System Program.

Guy Long

guy.long@prosoco.com
407-222-79674

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