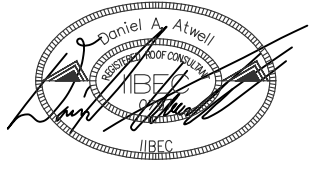


# LANDER UNIVERSITY

## BROOKSIDE BUILDING NO. 7 ROOF REPLACEMENT

DELIVERY ORDER PROJECT NUMBER: H21-PO16-09

WMBE PROJECT NUMBER: 2023-239



DESIGNED: DANIEL ATWELL

LANDER UNIVERSITY  
 BROOKSIDE BUILDING NO. 7  
 ROOF REPLACEMENT  
 PROJECT NUMBER: H21-PO16-09  
 LANDER UNIVERSITY  
 GREENWOOD, SC

### DRAWING LEGEND

- DS/SB DOWNSPOUT TO SPLASH BLOCK
- GEJ GUTTER EXPANSION JOINT
- VTR VENT THROUGH ROOF
- SHINGLE HATCH
- VENTING RIDGE CAP
- SLOPE ARROW
- ROOF EDGE AND OVERHANG

### SITE LOCATION



BROOKSIDE STUDENT HOUSING

BROOKSIDE BUILDING NO. 7

### CODE/INDUSTRY STANDARD REFERENCES

2018 IBC  
 2018 IEBC  
 2009 IECC  
 NRCA - LATEST EDITION  
 SMACNA - LATEST EDITION

### DRAWING SHEETS

- R-1.0 COVER PAGE
- R-1.1 SPECIFICATIONS
- R-1.2 SPECIFICATIONS
- R-1.3 LANDER UNIVERSITY CAMPUS MAP
- R-2.1 BROOKSIDE BUILDING NO. 7 EXISTING ROOF PLAN
- R-2.2 BROOKSIDE BUILDING NO. 7 NEW ROOF PLAN
- D-1.1 DETAILS
- D-1.2 DETAILS
- D-1.3 DETAILS

### ABBREVIATIONS

- MIN MINIMUM
- MAX MAXIMUM
- NRCA NATIONAL ROOFING CONTRACTORS ASSOCIATION
- O.C. ON CENTER
- SMACNA SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION

### JOB CONTACTS

WMBE DANIEL ATWELL  
 803-422-7493  
 DANIEL@WMBECONSULTANTS.COM



BUILDING ENVELOPE CONSULTANTS, LLC

#### COLUMBIA AREA OFFICE

1611 CHAPIN ROAD  
 CHAPIN, SOUTH CAROLINA  
 EMAIL: CHRIS@WMBECONSULTANTS.COM  
 EMAIL: DANIEL@WMBECONSULTANTS.COM

#### CHARLESTON AREA OFFICE

226 N. LIVE OAK DRIVE  
 MONCK'S CORNER, SOUTH CAROLINA  
 EMAIL: JOE@WMBECONSULTANTS.COM  
 EMAIL: MAX@WMBECONSULTANTS.COM

THESE DRAWINGS ARE THE PROPERTY OF:

WM BUILDING ENVELOPE CONSULTANTS, LLC

THE REPRODUCTION, COPYING OR OTHER USE OF THESE DRAWINGS WITHOUT THEIR WRITTEN CONSENT IS PROHIBITED AND MAY BE SUBJECT TO LEGAL ACTION.

NORTH



PROJECT NUMBER: 2023-239

CONSTRUCTION DOCUMENTS

DATE: 10-12-2023

COVER PAGE

PAGE:

R-1.0

# LAMINATED ARCHITECTURAL SHINGLES:

## PART 1:

### 1.00 - SUMMARY

- A. BASE BID:
  - 1. SCOPE OF WORK INCLUDES THE REPLACEMENT OF THE ASPHALT SHINGLE ROOF AND NEW GUTTER AND DOWNSPOUT SYSTEM SHALL BE INSTALLED.
  - 2. ALL AREAS OF MISSING AND LOOSE SOFFIT SHALL BE REPLACED.
- B. SECTION INCLUDES:
  - 1. LAMINATED ARCHITECTURAL FIBERGLASS-REINFORCED ASPHALT SHINGLES.
  - 2. STARTER SHINGLES.
  - 3. SHINGLE UNDERLAYMENT SYSTEM.
  - 4. HIP AND RIDGE PIECES
  - 5. PRE-FABRICATED RIDGE VENTS.
  - 6. FASTENERS.
  - 7. METAL RAKE AND EAVE FLASHING AND TRIM.

### 1.01 - UNIT PRICES (SEE PROJECT MANUAL SPEC SECTION)

- A. UNIT PRICE IS A PRICE PER UNIT OF MEASUREMENT FOR MATERIALS, EQUIPMENT, OR SERVICES, OR A PORTION OF THE WORK.

### 1.02 - INFORMATIONAL SUBMITTALS

- A. PRODUCT LITERATURE: FOR COMPONENTS OF ROOFING SYSTEM, FROM ROOFING MANUFACTURER.
- B. CONTRACTOR'S WORKMANSHIP WARRANTY.

### 1.03 - REGULATORY REQUIREMENTS

- A. INSTALL ALL ROOFING PRODUCTS IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL BUILDING CODES.
- B. ALL WORK SHALL BE PERFORMED IN A MANNER CONSISTENT WITH CURRENT OSHA GUIDELINES.

### 1.04 - WARRANTY

- A. PROVIDE MANUFACTURER'S LIFETIME WARRANTY. MANUFACTURER'S LIFETIME WARRANTY SHALL INCLUDE ALL MATERIALS MANUFACTURED BY THE ROOF SYSTEM MANUFACTURER OR LABELED WITH THE MANUFACTURER'S NAME.
- B. PROVIDE ROOFING CONTRACTOR'S 2-YEAR WARRANTY FOR THE ROOF SYSTEM. THE 2-YEAR WARRANTY PERIOD WILL BE FROM THE SUBSTANTIAL COMPLETION DATE. THE ROOFING CONTRACTOR'S 2-YEAR WARRANTY SHALL BE SIGNED AND WILL INCLUDE ALL COMPONENTS OF THE ROOFING SYSTEM FOR THE WARRANTY PERIOD.

## PART 2:

### 2.01 - QUALITY ASSURANCE

- A. CONTRACTOR SHALL BE APPROVED BY THE ROOFING SYSTEM MANUFACTURER TO INSTALL THE MANUFACTURER'S PRODUCT AND THAT IS ELIGIBLE TO RECEIVE THE SPECIFIED MANUFACTURER'S WARRANTY.
- B. A COPY OF THE LATEST MANUFACTURER'S PRODUCT DATA AND INSTALLATION GUIDE SHALL BE KEPT ON THE ROOF AT ALL TIMES DURING INSTALLATION.

## PART 3: PRODUCTS

### 3.01 - LAMINATED ARCHITECTURAL SHINGLE ROOF DESCRIPTION

- A. LAMINATED ASPHALT SHINGLES: ASTM D3462, LAMINATED, MULTI-PLY CONSTRUCTION, GLASS-FIBER REINFORCED, MINERAL-GRANULE SURFACED, AND SELF-SEALING.
- B. MANUFACTURERS:
  - a. GAF TIMBERLINE HD / HDZ
  - b. CERTAINTEED LANDMARK PRO
  - c. OWENS CORNING DURATION

### 3.02 OTHER MATERIALS

- A. HIP AND RIDGE SHINGLES: USE THE MANUFACTURER'S FACTORY FABRICATED HIP AND RIDGE PIECES AS RECOMMENDED BY THE ROOF SYSTEM MANUFACTURER TO ADHERE TO THE SPECIFIED REQUIREMENTS.
- B. STARTER SHINGLES: USE THE MANUFACTURER'S FACTORY FABRICATED STARTER SHINGLES AS RECOMMENDED BY THE ROOF SYSTEM MANUFACTURER TO ADHERE TO THE SPECIFIED REQUIREMENTS.
- C. SHINGLE UNDERLAYMENT: NON-PERFORATED, SYNTHETIC ROOF UNDERLAYMENT MEETING ASTM D 226, TYPE II.
- D. RIDGE VENTS: MINIMUM 12-INCH-WIDE, INTERLOCKING, POLYPROPYLENE RIDGE VENT DESIGNED TO WORK WITH EAVE/SOFFIT INTAKE VENTILATION TO MAXIMIZE AIR FLOW THROUGH THE ROOF AND ATTIC STRUCTURE. SHALL PASS WIND-DRIVEN RAIN WITH 8.8 IN OF RAIN/HR. AT 110 MPH. THE VENTILATION SYSTEM SHALL ALLOW FOR A MINIMUM OF 1 SQ. FT. OF NET FREE AREA OF VENTILATION TO EVERY 150 FEET OF ATTIC SPACE
- E. FASTENERS: HOT-DIP GALVANIZED, COMPLYING WITH ASTM F1667, MINIMUM 12-GAUGE, 0.0808 INCH SHANK WITH 3/8 INCH DIAMETER HEAD. FASTENER SHALL BE OF SUFFICIENT LENGTH TO PENETRATE A MINIMUM OF 3/4 INCH INTO WOOD DECKING OR PENETRATE THROUGH WOOD DECKING A MINIMUM OF 1/8 INCH. ELECTROPLATED GALVANIZED FASTENERS ARE NOT PERMITTED FOR USE.
- F. ASPHALT ROOF CEMENT: ASTM D 4586, ASBESTOS FREE, COMPATIBLE WITH ROOFING SYSTEM AND ASSOCIATED COMPONENTS.
- G. SELF-ADHERING WATERPROOF UNDERLAYMENT: SELF-ADHERING, MODIFIED BITUMEN UNDERLAYMENT MEETING ASTM D 1970 AND TO BE INSTALLED CONTINUOUSLY AT ALL RAKES, EAVES, VALLEYS, HIPS, RIDGES AND AROUND ALL ROOF PENETRATIONS AND TERMINATIONS. SELF-ADHERING, MODIFIED BITUMEN UNDERLAYMENT IS ALSO REQUIRED TO BE INSTALLED CONTINUOUS ON SLOPES OF LESS THAN 4:12.
- H. PLUMBING VENT FLASHINGS: LEAD, MINIMUM 4 LB., SIZES TO MATCH PIPE SIZES, PAINTED TO MATCH ROOFING COLOR.

## PART 4:

### 4.01 - INSTALLATION, GENERAL

- A. COMPLY WITH ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.
- B. INSTALL ROOFING ACCORDING TO ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS AND APPLICABLE RECOMMENDATIONS IN ARMA/NRCA'S "QUALITY CONTROL GUIDELINES FOR THE APPLICATION OF POLYMER MODIFIED BITUMEN ROOFING".
- C. TEMPORARY PROTECTION TO BE PROVIDED IN ALL AREAS WHERE COMPLETE DETAIL IS NOT COMPLETED DAILY. ALL TEMPORARY PROTECTION TO BE WATERTIGHT.

### 4.02 - SUBSTRATE PREPARATION

- A. EXAMINE DECK AND OTHER SUBSTRATES FOR COMPLIANCE WITH REQUIREMENTS AFFECTING PERFORMANCE OF ROOFING SYSTEM..
- B. VERIFY THAT THE DECK IS DRY, STRUCTURALLY SOUND, CLEAN AND SMOOTH. DECK SHALL BE FREE OF ANY DEPRESSIONS, WAVES, AND PROJECTIONS. COVER ALL HOLES 1 INCH OR LESS IN DIAMETER, CRACKS OVER 1/2 IN IN WIDTH, LOOSE KNOTS AND EXCESSIVELY RESINOUS AREAS WITH MINIMUM 28 GAUGE GALVANIZED STEEL SHEET METAL. DECKING OR DECK BOARDS WITH HOLES GREATER THAN 1 INCH IN DIAMETER SHALL BE REPLACED.
- C. ENSURE SUBSTRATE HAS BEEN PROPERLY PREPARED PRIOR TO INSTALLATION OF ROOFING MATERIALS. DO NOT PROCEED WITH INSTALLATION UNTIL ALL CONDITIONS AFFECTING PROPER INSTALLATION HAVE BEEN CORRECTED.
- D. REMOVE EXISTING WALL AND TRIM MATERIALS AS NECESSARY TO INSTALL UNDERLAYMENT AND FLASHING MATERIALS. PROPERLY REINSTALL MATERIALS REMOVED UPON COMPLETION OF WORK.
- E. CLEAN AND REMOVE FROM SUBSTRATE, DUST, DEBRIS, MOISTURE, AND OTHER SUBSTANCES DETRIMENTAL TO ROOFING INSTALLATION.

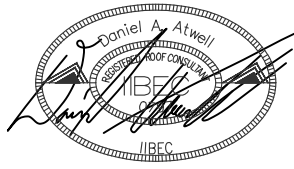
### 4.03 UNDERLAYMENT AND EDGE METAL INSTALLATION

- A. ON SLOPES 4:12 OR GREATER, INSTALL SYNTHETIC ROOF UNDERLAYMENT OVER THE PREPARED SUBSTRATE IN SHINGLE FASHION LAPPED A MINIMUM OF 3 INCHES, IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND IN ACCORDANCE WITH LOCAL BUILDING CODE REQUIREMENTS. SELF-ADHERING WATERPROOF UNDERLAYMENT SHALL BE A FULL 36 INCHES WIDE AND IS ALSO TO BE INSTALLED CONTINUOUSLY AT ALL RAKES, EAVES, VALLEYS, HIPS, RIDGES AND AROUND ALL ROOF PENETRATIONS AND TERMINATIONS. LAP ENDS A MINIMUM OF 6 INCHES AND SEAL. WHERE SELF-ADHERING WATERPROOF UNDERLAYMENT TERMINATES INTO A ROOF PENETRATION OR WALL, TURN UNDERLAYMENT UP THE WALL OR PENETRATION A MINIMUM OF 4 INCHES AND OUT ONTO THE ROOF A MINIMUM OF 12 INCHES UNLESS OTHERWISE RECOMMENDED BY THE ROOF SYSTEM MANUFACTURER.

- B. ON SLOPES LESS THAN 4:12, INSTALL SELF-ADHERING WATERPROOF UNDERLAYMENT OVER THE ENTIRE ROOF DECK. SELF-ADHERING WATERPROOF UNDERLAYMENT SHALL BE A FULL 36 INCHES WIDE. LAP ENDS A MINIMUM OF 6 INCHES AND SEAL. WHERE SELF-ADHERING WATERPROOF UNDERLAYMENT TERMINATES INTO A ROOF PENETRATION OR WALL, TURN UNDERLAYMENT UP THE WALL OR PENETRATION A MINIMUM OF 4 INCHES.
- C. METAL DRIP EDGE SHALL BE INSTALLED ON ALL ROOF EDGES. INSTALL DRIP EDGE ON EAVES FIRST WITH UNDERLAYMENT INSTALLED OVER THE DRIP EDGE. INSTALL DRIP EDGE ON RAKES AFTER UNDERLAYMENT IS INSTALLED, WITH THE DRIP EDGE FASTENED OVER THE UNDERLAYMENT. JOINTS IN DRIP EDGE SHALL BE LAPPED MINIMUM OF 3 INCHES AND SEALED WITH THE UPSLOPE PIECE LAPPED OVER THE DOWN SLOPE PIECE. METAL DRIP EDGE SHALL BE FASTENED A MINIMUM OF 6 INCHES ON CENTER, APPROXIMATELY 1-3/4 INCHES TO 2 INCHES FROM THE OUTSIDE EDGE OF THE DRIP EDGE.

### 4.04 LAMINATED ARCHITECTURAL INSTALLATION

- A. INSTALL ROOFING SYSTEM IN ACCORDANCE WITH ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS, WITH NRCA AND ARMA PRINTED RECOMMENDATIONS AND THE REQUIREMENTS IN THIS SECTION.
  - B. COORDINATE INSTALLING ROOFING SYSTEM SO THAT THE COMPONENTS OF THE ROOFING SYSTEM ARE NOT EXPOSED OR SUBJECTED TO PRECIPITATION/INCLEMENT WEATHER OR LEFT UNCOVERED AT THE END OF THE WORKDAY.
  - C. INSTALL STARTER COURSE AT ROOF EAVE AND ALONG RAKE WITH EDGE OF SHINGLES EXTENDING 1/4 IN OVER EDGE OF ROOF. SEALANT STRIP SHOULD BE CLOSEST TO ROOF EDGE.
  - D. INSTALL FIRST AND SUCCESSIVE COURSES OF SHINGLES STEPPING DIAGONALLY UP AND ACROSS ROOF DECK WITH MANUFACTURER'S RECOMMENDED OFFSET AT EACH SUCCEEDING COURSE. MAINTAIN UNIFORM EXPOSURE OF SHINGLES AT EACH SUCCEEDING COURSE. USE OF A CHALK LINE EVERY OTHER /COURSE TO ENSURE STRAIGHT INSTALLATION.
  - E. FASTEN SHINGLES TO DECK WITH A MINIMUM OF 6 FASTENERS PER SHINGLE. FASTEN SHINGLES IN ACCORDANCE WITH THE SHINGLE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SO THAT ALL LAYERS ARE SECURED.
  - F. ALL FASTENERS SHALL PENETRATE AT LEAST 3/4 IN INTO THE WOOD DECK. WHERE THE DECK IS LESS THAN 3/4 IN THICK, THE FASTENER SHOULD BE LONG ENOUGH TO PENETRATE FULLY AND EXTEND THROUGH THE UNDERSIDE OF THE ROOF DECK. FASTENERS SHALL BE DRIVEN FLUSH WITH THE SHINGLE SURFACE AND NOT BE UNDER DRIVEN OR OVER DRIVEN.
  - G. INSTALL SHINGLES AT VALLEYS, EAVES, RAKES, HIPS AND RIDGES IN ACCORDANCE WITH THE SHINGLE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - H. CLOSED-CUT AND OPEN VALLEYS: COMPLY WITH NRCA AND ARMA RECOMMENDATIONS.
  - I. INSTALL MANUFACTURER'S PREFABRICATED RIDGE AND HIP CAPS IN STRICT ACCORDANCE WITH THE MANUFACTURERS PRINTED INSTRUCTIONS AND TO PROVIDE PROPER VENTING AND A WATERTIGHT DETAIL.
  - J. INSTALL RIDGE VENTS IN STRICT ACCORDANCE WITH THE MANUFACTURERS PRINTED INSTRUCTIONS AND TO PROVIDE PROPER VENTING AND A WATERTIGHT DETAIL.
- ### 4.05 PROTECTION AND CLEANING
- A. PROTECT THE ROOFING SYSTEM FROM DAMAGE AND WEAR DURING THE COURSE OF CONSTRUCTION.
  - B. CLEAN GROUNDS FREE OF ALL NAILS, SHEET METAL, SHINGLES AND OTHER SHINGLE ACCESSORIES EACH DAY.
  - C. CLEAN ALL MARKS LEFT ON SURFACES FROM ROOFING MATERIALS FROM BUILDING AND SURROUNDING GROUNDS USING CLEANING AGENTS AND PROCEDURES RECOMMENDED BY MANUFACTURER OF AFFECTED CONSTRUCTION.



DESIGNED: DANIEL ATWELL

LANDER UNIVERSITY  
BROOKSIDE BUILDING NO. 7  
ROOF REPLACEMENT  
PROJECT NUMBER: H21-PO16-09  
LANDER UNIVERSITY  
GREENWOOD, SC



BUILDING ENVELOPE  
CONSULTANTS, LLC

#### COLUMBIA AREA OFFICE

1611 CHAPIN ROAD  
CHAPIN, SOUTH CAROLINA  
EMAIL: CHRIS@WMBECONSULTANTS.COM  
EMAIL: DANIEL@WMBECONSULTANTS.COM

#### CHARLESTON AREA OFFICE

226 N. LIVE OAK DRIVE  
MONCK'S CORNER, SOUTH CAROLINA  
EMAIL: JOE@WMBECONSULTANTS.COM  
EMAIL: MAX@WMBECONSULTANTS.COM

THESE DRAWINGS ARE THE PROPERTY OF:

WM BUILDING ENVELOPE  
CONSULTANTS, LLC

THE REPRODUCTION, COPYING OR OTHER USE OF THESE DRAWINGS WITHOUT THEIR WRITTEN CONSENT IS PROHIBITED AND MAY BE SUBJECT TO LEGAL ACTION.

NORTH

PROJECT NUMBER: 2023-239

CONSTRUCTION DOCUMENTS

DATE: 10-12-2023

SPECIFICATIONS

PAGE:

R-1.1

SHEET 2 OF 9

# SHEET METAL ROOF SPECIFICATION NOTES:

## PART 1:

### 1.01 - PERFORMANCE REQUIREMENTS

- A. GENERAL: SHEET METAL FLASHING AND TRIM ASSEMBLIES SHALL WITHSTAND WIND LOADS, STRUCTURAL MOVEMENT, THERMALLY INDUCED MOVEMENT, AND EXPOSURE TO WEATHER WITHOUT FAILURE DUE TO DEFECTIVE MANUFACTURE, FABRICATION, INSTALLATION, OR OTHER DEFECTS IN CONSTRUCTION. COMPLETED SHEET METAL FLASHING AND TRIM SHALL NOT RATTLE, LEAK, OR LOOSEN, AND SHALL REMAIN WATERTIGHT.
- B. SHEET METAL STANDARD FOR FLASHING AND TRIM: COMPLY WITH NRCA'S "THE NRCA ROOFING MANUAL" AND SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" REQUIREMENTS FOR DIMENSIONS AND PROFILES SHOWN UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.
- C. THERMAL MOVEMENTS: ALLOW FOR THERMAL MOVEMENTS FROM AMBIENT AND SURFACE TEMPERATURE CHANGES TO PREVENT 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.

### 1.02 - SHEET METALS (MATERIAL)

- A. GENERAL: PROTECT MECHANICAL AND OTHER FINISHES ON EXPOSED SURFACES FROM DAMAGE BY APPLYING STRIPPABLE, TEMPORARY PROTECTIVE FILM BEFORE SHIPPING.
- B. METAL EDGE FLASHING: PREFINISHED, MINIMUM .040 ALUMINUM OR 24 GAGE GALVANIZED STEEL, PRE-FORMED METAL EDGE DRIP FLASHING, COLOR SELECTED BY THE OWNER. MINIMUM 4 INCH FLANGE AND 2 INCH FACE.
- C. ALUMINUM SHEET: ASTM B 209, ALLOY AS STANDARD WITH MANUFACTURER FOR FINISH REQUIRED, WITH TEMPER AS REQUIRED TO SUIT FORMING OPERATIONS AND PERFORMANCE REQUIRED; WITH SMOOTH, FLAT SURFACE. MINIMUM THICKNESS 0.040 INCHES.
  - 1. EXPOSED COIL-COATED FINISH:
    - a. TWO-COAT FLUOROPOLYMER: AAMA 620. FLUOROPOLYMER FINISH CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT. PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES TO COMPLY WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS.
  - 2. COLOR: AS SELECTED BY OWNER FROM MANUFACTURER'S FULL RANGE.
  - 3. CONCEALED FINISH: PRETREAT WITH MANUFACTURER'S STANDARD WHITE OR LIGHT-COLORED ACRYLIC OR POLYESTER BACKER FINISH, CONSISTING OF PRIME COAT AND WASH COAT WITH MINIMUM TOTAL DRY FILM THICKNESS OF 0.5 MIL.
- D. METALLIC-COATED STEEL SHEET: PROVIDE ALUMINUM-ZINC ALLOY-COATED STEEL SHEET ACCORDING TO ASTM A 792/A 792M, CLASS AZ50 COATING DESIGNATION, PRE-PAINTED BY COIL-COATING PROCESS TO COMPLY WITH ASTM A 755/A 755M.
  - 1. SURFACE: SMOOTH, FLAT AND WITH MANUFACTURER'S STANDARD CLEAR ACRYLIC COATING ON BOTH SIDES.
  - 2. EXPOSED COIL-COATED FINISH:
    - a. TWO-COAT FLUOROPOLYMER: AAMA 621. FLUOROPOLYMER FINISH CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT. PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES TO COMPLY WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS.
  - 3. COLOR: AS SELECTED BY OWNER FROM MANUFACTURER'S FULL RANGE STANDARD COLOR CHART.
  - 4. CONCEALED FINISH: PRETREAT WITH MANUFACTURER'S STANDARD WHITE OR LIGHT-COLORED ACRYLIC OR POLYESTER BACKER FINISH, CONSISTING OF PRIME COAT AND WASH COAT WITH MINIMUM TOTAL DRY FILM THICKNESS OF 0.5 MIL.
- E. STAINLESS-STEEL SHEET: ASTM A 240/A 240M OR ASTM A 666, TYPE 304, DEAD SOFT, FULLY ANNEALED; WITH SMOOTH, FLAT SURFACE. MINIMUM THICKNESS 24 GAUGE.

### 1.2 UNDERLAYMENT MATERIALS

- A. SELF-ADHERING, HIGH-TEMPERATURE SHEET: MINIMUM 40 MILS THICK, CONSISTING OF A SLIP-RESISTANT POLYETHYLENE- OR POLYPROPYLENE-FILM TOP SURFACE LAMINATED TO A LAYER OF BUTYL- OR SBS-MODIFIED ASPHALT ADHESIVE, WITH RELEASE-PAPER BACKING; SPECIFICALLY DESIGNED TO WITHSTAND HIGH METAL TEMPERATURES BENEATH METAL ROOFING. PROVIDE PRIMER ACCORDING TO WRITTEN RECOMMENDATIONS OF UNDERLAYMENT MANUFACTURER.
  - 1. THERMAL STABILITY: ASTM D 1970; STABLE AFTER TESTING AT 240 DEG F OR HIGHER.
  - 2. LOW-TEMPERATURE FLEXIBILITY: ASTM D 1970; PASSES AFTER TESTING AT MINUS 20 DEG F OR LOWER.

### 1.03 - MISCELLANEOUS MATERIALS

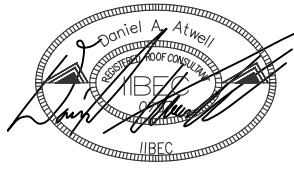
- A. GENERAL: PROVIDE MATERIALS AND TYPES OF FASTENERS, SOLDER, PROTECTIVE COATINGS, SEALANTS, AND OTHER MISCELLANEOUS ITEMS AS REQUIRED FOR COMPLETE SHEET METAL FLASHING AND TRIM INSTALLATION AND AS RECOMMENDED BY MANUFACTURER OF PRIMARY SHEET METAL UNLESS OTHERWISE INDICATED.

### 1.04 - FABRICATION, GENERAL

- A. GENERAL: CUSTOM FABRICATE SHEET METAL FLASHING AND TRIM TO COMPLY WITH DETAILS SHOWN AND RECOMMENDATIONS IN CITED SHEET METAL STANDARD THAT APPLY TO DESIGN, DIMENSIONS, GEOMETRY, METAL THICKNESS, AND OTHER CHARACTERISTICS OF ITEM REQUIRED. FABRICATE SHEET METAL FLASHING AND TRIM IN SHOP TO GREATEST EXTENT POSSIBLE.
  - 1. OBTAIN FIELD MEASUREMENTS FOR ACCURATE FIT BEFORE SHOP FABRICATION.
  - 2. FORM SHEET METAL FLASHING AND TRIM TO FIT SUBSTRATES WITHOUT EXCESSIVE OIL CANNING, BUCKLING, AND TOOL MARKS; TRUE TO LINE, LEVELS, AND SLOPES; AND WITH EXPOSED EDGES FOLDED BACK TO FORM HEMS.
  - 3. CONCEAL FASTENERS AND EXPANSION PROVISIONS WHERE POSSIBLE. DO NOT USE EXPOSED FASTENERS ON FACES EXPOSED TO VIEW.
- B. 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.
- C. COUNTERFLASHING: INSTALL COUNTERFLASHING UMBRELLA WITH CLOSE-FITTING COLLAR WITH TOP EDGE FLARED FOR ELASTOMERIC SEALANT
- D. ROOF-PENETRATION FLASHING: COORDINATE INSTALLATION OF ROOF-PENETRATION FLASHING WITH INSTALLATION OF ROOFING AND OTHER ITEMS PENETRATING ROOF. SEAL WITH SEALANT AND CLAMP FLASHING TO PIPES THAT PENETRATE ROOF.

### 1.05 - CLEANING AND PROTECTION

- A. CLEAN EXPOSED METAL SURFACES OF SUBSTANCES THAT INTERFERE WITH UNIFORM OXIDATION AND WEATHERING.
- B. CLEAN OFF EXCESS SEALANTS.
- C. REMOVE TEMPORARY PROTECTIVE COVERINGS AND STRIPPABLE FILMS AS SHEET METAL FLASHING AND TRIM ARE INSTALLED UNLESS OTHERWISE INDICATED IN MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.



DESIGNED: DANIEL ATWELL

LANDER UNIVERSITY  
BROOKSIDE BUILDING NO. 7  
ROOF REPLACEMENT

PROJECT NUMBER: H21-PO16-09  
LANDER UNIVERSITY  
GREENWOOD, SC



BUILDING ENVELOPE  
CONSULTANTS, LLC

#### COLUMBIA AREA OFFICE

1611 CHAPIN ROAD  
CHAPIN, SOUTH CAROLINA  
EMAIL: CHRIS@WMBECONSULTANTS.COM  
EMAIL: DANIEL@WMBECONSULTANTS.COM

#### CHARLESTON AREA OFFICE

226 N. LIVE OAK DRIVE  
MONCK'S CORNER, SOUTH CAROLINA  
EMAIL: JOE@WMBECONSULTANTS.COM  
EMAIL: MAX@WMBECONSULTANTS.COM

THESE DRAWINGS ARE THE PROPERTY OF:

WM BUILDING ENVELOPE  
CONSULTANTS, LLC

THE REPRODUCTION, COPYING OR OTHER  
USE OF THESE DRAWINGS WITHOUT THEIR  
WRITTEN CONSENT IS PROHIBITED AND  
MAY BE SUBJECT TO LEGAL ACTION.

NORTH

PROJECT NUMBER: 2023-239

CONSTRUCTION DOCUMENTS

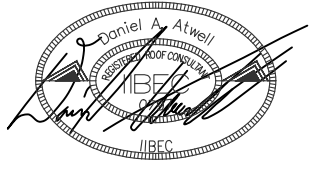
DATE: 10-12-2023

SPECIFICATIONS

PAGE:

R-1.2

SHEET 3 OF 9



DESIGNED: DANIEL ATWELL

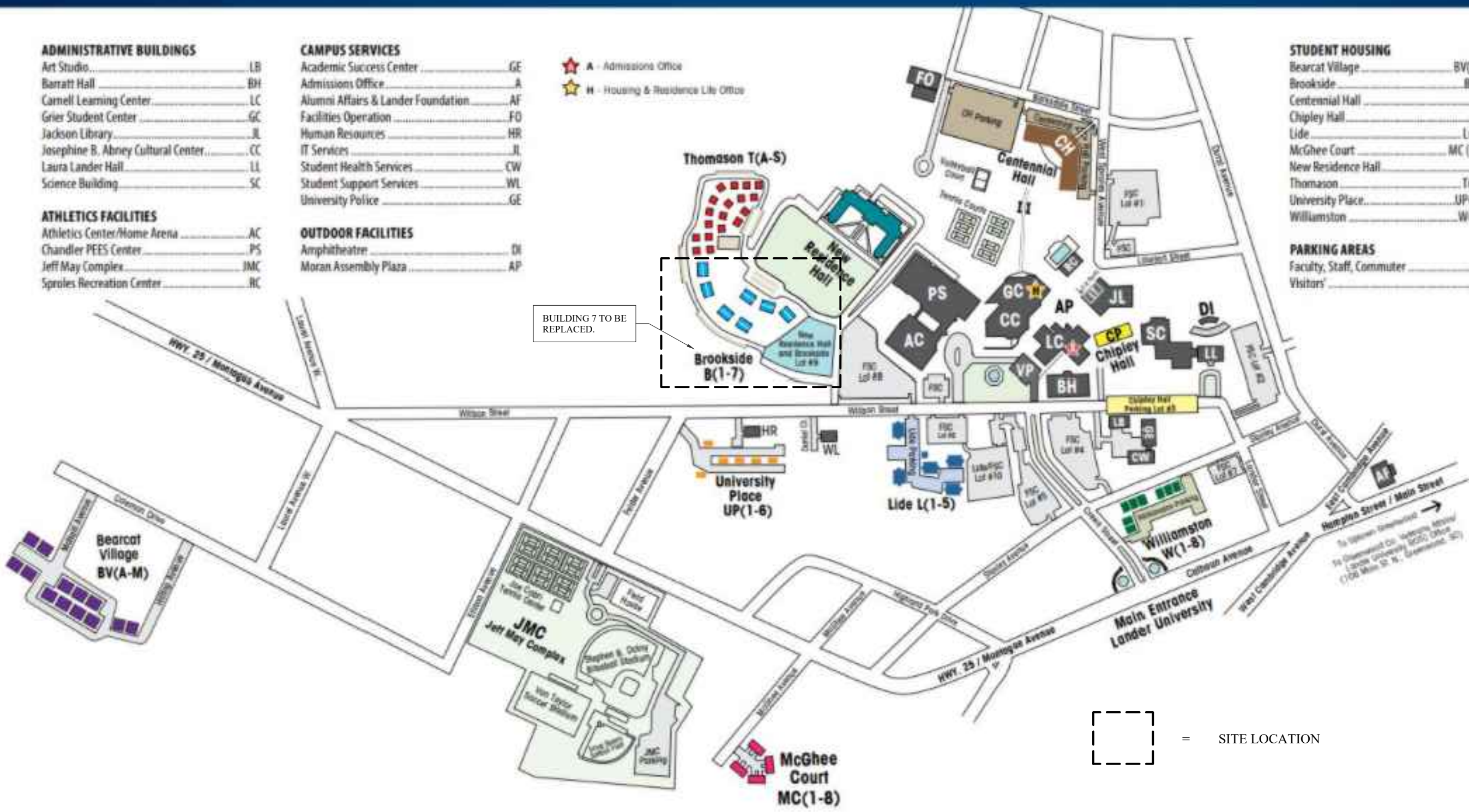
# LANDER UNIVERSITY CAMPUS MAP - 320 STANLEY AVENUE, GREENWOOD, SC

- ADMINISTRATIVE BUILDINGS**
- Art Studio..... LB
  - Barratt Hall..... BH
  - Carnell Learning Center..... LC
  - Grier Student Center..... GC
  - Jackson Library..... JL
  - Josephine B. Abney Cultural Center..... CC
  - Laura Lander Hall..... LL
  - Science Building..... SC
- ATHLETICS FACILITIES**
- Athletics Center/Home Arena..... AC
  - Chandler PEES Center..... PS
  - Jeff May Complex..... JMC
  - Sproles Recreation Center..... RC

- CAMPUS SERVICES**
- Academic Success Center..... GE
  - Admissions Office..... A
  - Alumni Affairs & Lander Foundation..... AF
  - Facilities Operation..... FO
  - Human Resources..... HR
  - IT Services..... IL
  - Student Health Services..... CW
  - Student Support Services..... WL
  - University Police..... UE
- OUTDOOR FACILITIES**
- Amphitheatre..... DI
  - Moran Assembly Plaza..... AP

- ★ A - Admissions Office
- ★ H - Housing & Residence Life Office

- STUDENT HOUSING**
- Bearcat Village..... BV(A-M)
  - Brookside..... B(1-7)
  - Centennial Hall..... CH
  - Chipley Hall..... CP
  - Lide..... L(1-5)
  - McGhee Court..... MC(1-8)
  - New Residence Hall..... NRH
  - Thomason..... T(A-S)
  - University Place..... UP(1-6)
  - Williamston..... W(1-8)
- PARKING AREAS**
- Faculty, Staff, Commuter..... FSC
  - Visitors..... VP



= SITE LOCATION

LANDER UNIVERSITY  
BROOKSIDE BUILDING NO. 7  
ROOF REPLACEMENT

PROJECT NUMBER: H21-PO16-09

LANDER UNIVERSITY  
GREENWOOD, SC



BUILDING ENVELOPE CONSULTANTS, LLC

COLUMBIA AREA OFFICE

1611 CHAPIN ROAD  
CHAPIN, SOUTH CAROLINA  
EMAIL: CHRIS@WMBECONSULTANTS.COM  
EMAIL: DANIEL@WMBECONSULTANTS.COM

CHARLESTON AREA OFFICE

226 N. LIVE OAK DRIVE  
MONCK'S CORNER, SOUTH CAROLINA  
EMAIL: JOE@WMBECONSULTANTS.COM  
EMAIL: MAX@WMBECONSULTANTS.COM

THESE DRAWINGS ARE THE PROPERTY OF:  
WM BUILDING ENVELOPE CONSULTANTS, LLC

THE REPRODUCTION, COPYING OR OTHER USE OF THESE DRAWINGS WITHOUT THEIR WRITTEN CONSENT IS PROHIBITED AND MAY BE SUBJECT TO LEGAL ACTION.

NORTH



PROJECT NUMBER: 2023-239

CONSTRUCTION DOCUMENTS

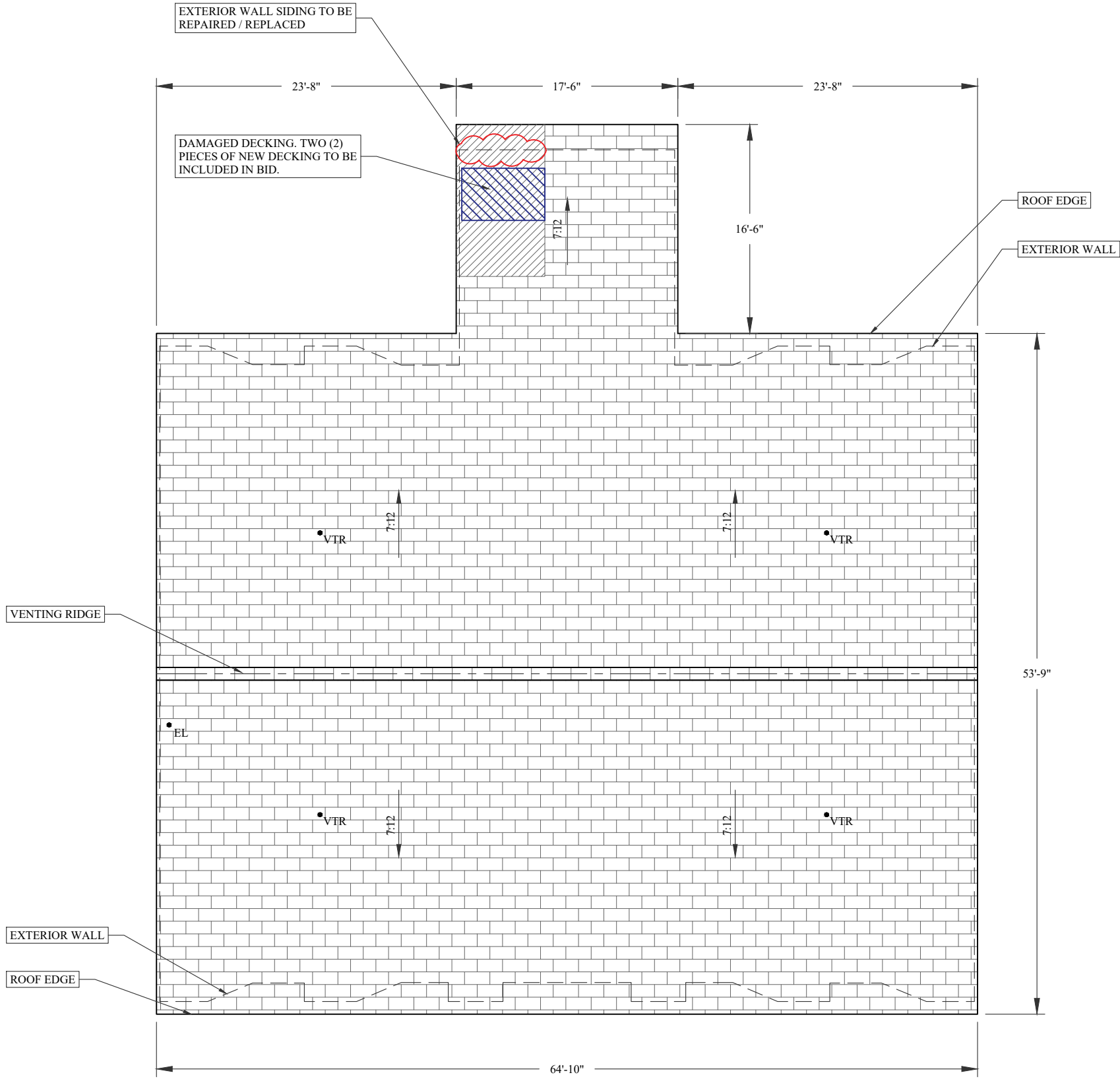
DATE: 10-12-2023

CAMPUS MAP

PAGE:

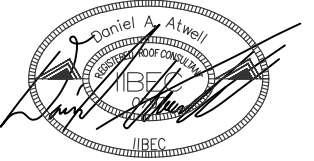
R-1.3

**NOTE:**  
 1. CLEAN ALL ROOF AREAS OF ALL DEBRIS. ALL TREES TO BE REMOVED / TRIMMED AWAY FROM ROOF AREA.



**B** BUILDING "7"  
 1/16" = 1'-0"

**BROOKSIDE BUILDING NO. 7  
 EXISTING ROOF PLAN**



DESIGNED: DANIEL ATWELL

**LANDER UNIVERSITY  
 BROOKSIDE BUILDING NO. 7  
 ROOF REPLACEMENT**  
**PROJECT NUMBER: H21-PO16-09**  
**LANDER UNIVERSITY  
 GREENWOOD, SC**

**BUILDING ENVELOPE  
 CONSULTANTS, LLC**  
 COLUMBIA AREA OFFICE  
 1611 CHAPIN ROAD  
 CHAPIN, SOUTH CAROLINA  
 EMAIL: CHRIS@WMBECONSULTANTS.COM  
 EMAIL: DANIEL@WMBECONSULTANTS.COM

**CHARLESTON AREA OFFICE**  
 226 N. LIVE OAK DRIVE  
 MONCK'S CORNER, SOUTH CAROLINA  
 EMAIL: JOE@WMBECONSULTANTS.COM  
 EMAIL: MAX@WMBECONSULTANTS.COM

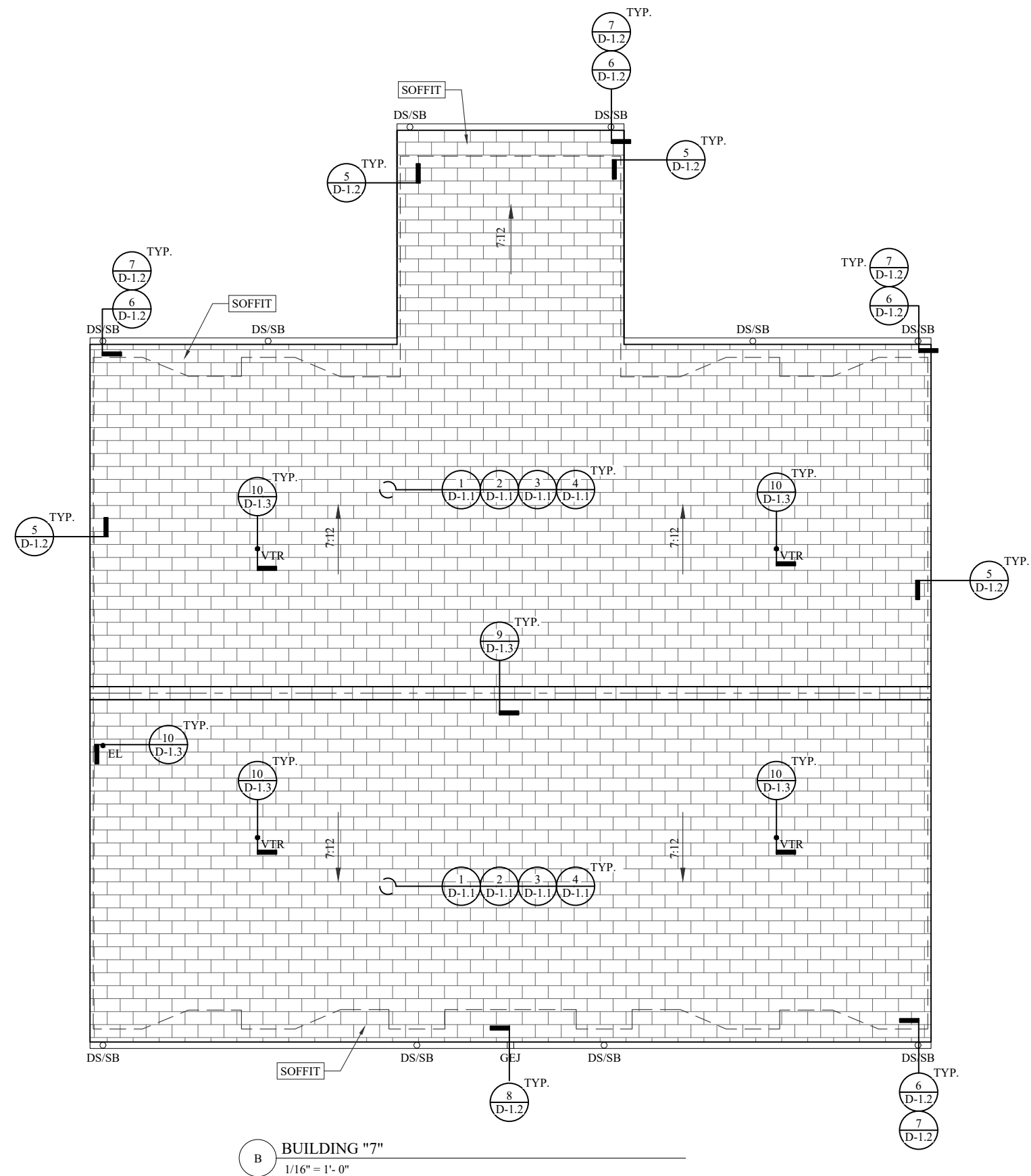
THESE DRAWINGS ARE THE PROPERTY OF:  
 WM BUILDING ENVELOPE  
 CONSULTANTS, LLC  
 THE REPRODUCTION, COPYING OR OTHER  
 USE OF THESE DRAWINGS WITHOUT THEIR  
 WRITTEN CONSENT IS PROHIBITED AND  
 MAY BE SUBJECT TO LEGAL ACTION.



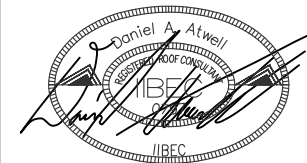
PROJECT NUMBER: 2023-239  
 CONSTRUCTION DOCUMENTS  
 DATE: 10-12-2023  
**BROOKSIDE BUILDING NO. 7  
 EXISTING ROOF PLAN**  
**PAGE:**  
**R-2.1**  
 SHEET 5 OF 9

**NOTE:**

1. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS, PENETRATIONS, AND EXISTING ROOF CORE SUMMARY.



**BROOKSIDE BUILDING NO. 7  
NEW ROOF PLAN**



DESIGNED: DANIEL ATWELL

**LANDER UNIVERSITY  
BROOKSIDE BUILDING NO. 7  
ROOF REPLACEMENT**  
**PROJECT NUMBER: H21-PO16-09**  
**LANDER UNIVERSITY  
GREENWOOD, SC**



BUILDING ENVELOPE  
CONSULTANTS, LLC

COLUMBIA AREA OFFICE

1611 CHAPIN ROAD  
CHAPIN, SOUTH CAROLINA  
EMAIL: CHRIS@WMBECONSULTANTS.COM  
EMAIL: DANIEL@WMBECONSULTANTS.COM

CHARLESTON AREA OFFICE

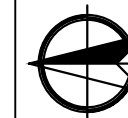
226 N. LIVE OAK DRIVE  
MONCK'S CORNER, SOUTH CAROLINA  
EMAIL: JOE@WMBECONSULTANTS.COM  
EMAIL: MAX@WMBECONSULTANTS.COM

THESE DRAWINGS ARE THE PROPERTY OF:

WM BUILDING ENVELOPE  
CONSULTANTS, LLC

THE REPRODUCTION, COPYING OR OTHER  
USE OF THESE DRAWINGS WITHOUT THEIR  
WRITTEN CONSENT IS PROHIBITED AND  
MAY BE SUBJECT TO LEGAL ACTION.

NORTH



PROJECT NUMBER: 2023-239

CONSTRUCTION DOCUMENTS

DATE: 10-12-2023

**BROOKSIDE BUILDING  
NO. 7 NEW ROOF PLAN**

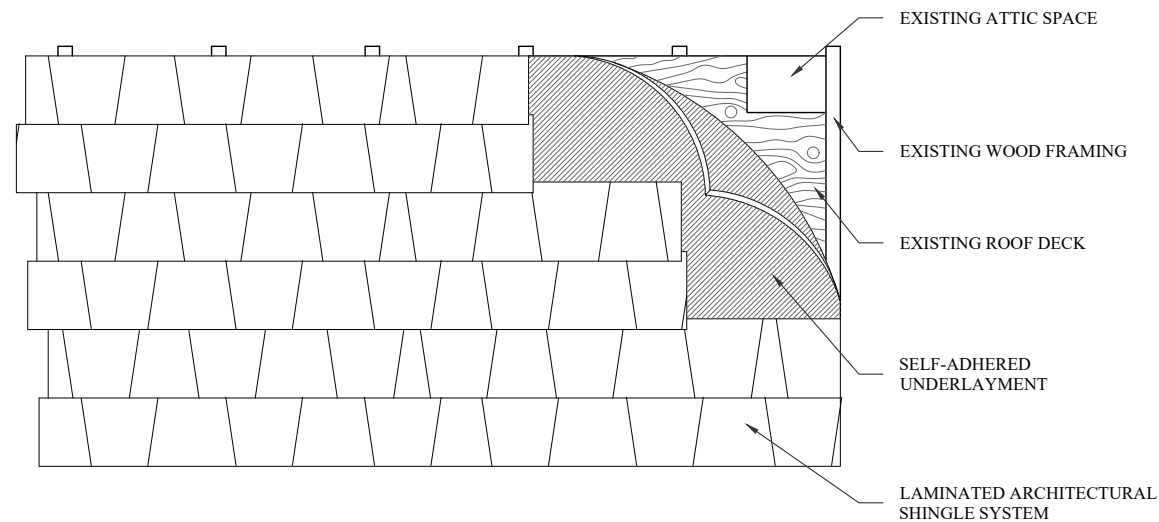
**PAGE:**

**R-2.2**

SHEET 6 OF 9

**NOTE:**

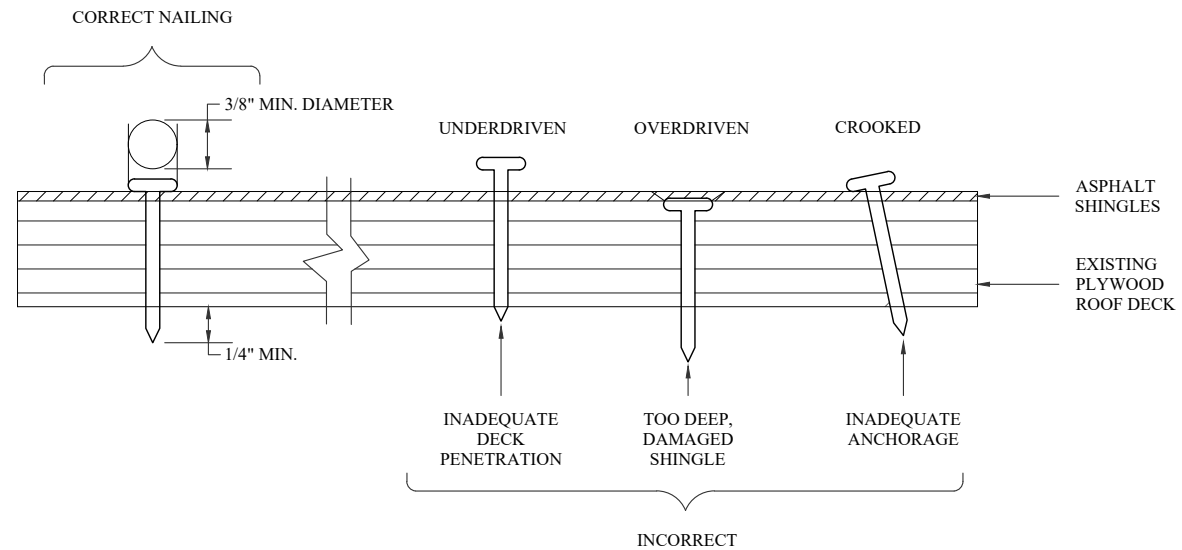
1. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND MATCH EXISTING CONDITIONS DURING RE-INSTALLATION OF FRAMING / SUBSTRATE / STEEP SLOPE ROOF SYSTEM.



**ARCHITECTURAL LAMINATE SHINGLE ASSEMBLY**  
**DETAIL 1/D-1.1**

**NOTES:**

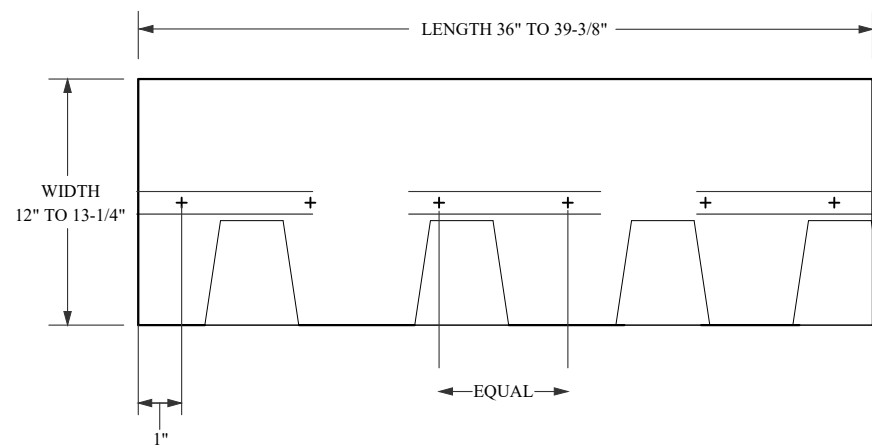
1. 3/4" MINIMUM PENETRATION INTO WOOD DECK.
2. ALL REQUIREMENTS PER NRCA STEEP SLOPE ROOFING MANUAL IS REQUIRED.



**SHINGLE FASTENING STANDARD**  
**DETAIL 2/D-1.1**

**NOTES:**

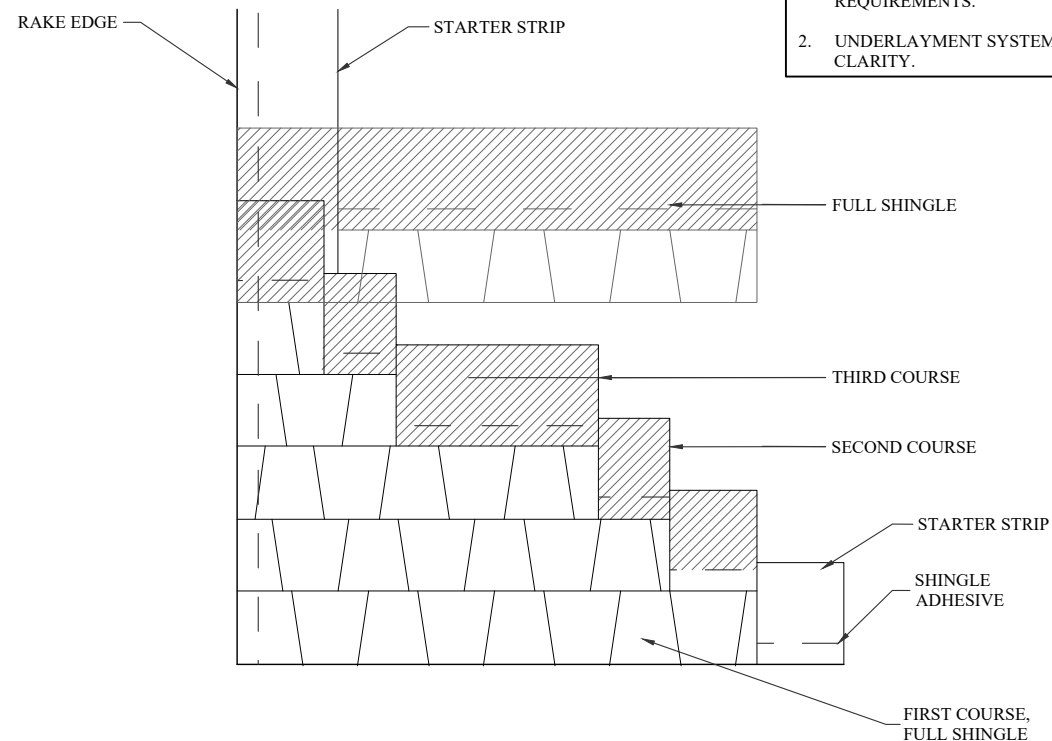
1. SIX (6) FASTENERS ARE REQUIRED TO BE INSTALLED PER SHINGLE INSTALLATION.
2. FASTENING PATTERN LAYOUT MAY VARY BASED ON MANUFACTURER REQUIREMENTS.



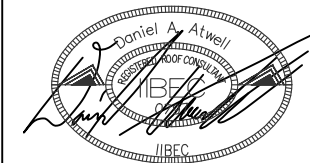
**FASTENER LAYOUT (GENERAL)**  
**DETAIL 3/D-1.1**

**NOTES:**

1. DIMENSION OF STAGGER PER MANUFACTURER REQUIREMENTS.
2. UNDERLAYMENT SYSTEM NOT SHOWN FOR CLARITY.



**SHINGLE INSTALLATION**  
**DETAIL 4/D-1.1**



DESIGNED: DANIEL ATWELL

**LANDER UNIVERSITY  
 BROOKSIDE BUILDING NO. 7  
 ROOF REPLACEMENT**  
**PROJECT NUMBER: H21-PO16-09**  
**LANDER UNIVERSITY  
 GREENWOOD, SC**



**BUILDING ENVELOPE CONSULTANTS, LLC**  
 COLUMBIA AREA OFFICE

1611 CHAPIN ROAD  
 CHAPIN, SOUTH CAROLINA  
 EMAIL: CHRIS@WMBECONSULTANTS.COM  
 EMAIL: DANIEL@WMBECONSULTANTS.COM

**CHARLESTON AREA OFFICE**  
 226 N. LIVE OAK DRIVE  
 MONCK'S CORNER, SOUTH CAROLINA  
 EMAIL: JOE@WMBECONSULTANTS.COM  
 EMAIL: MAX@WMBECONSULTANTS.COM

THESE DRAWINGS ARE THE PROPERTY OF:  
**WM BUILDING ENVELOPE CONSULTANTS, LLC**

THE REPRODUCTION, COPYING OR OTHER USE OF THESE DRAWINGS WITHOUT THEIR WRITTEN CONSENT IS PROHIBITED AND MAY BE SUBJECT TO LEGAL ACTION.

PROJECT NUMBER: 2023-239

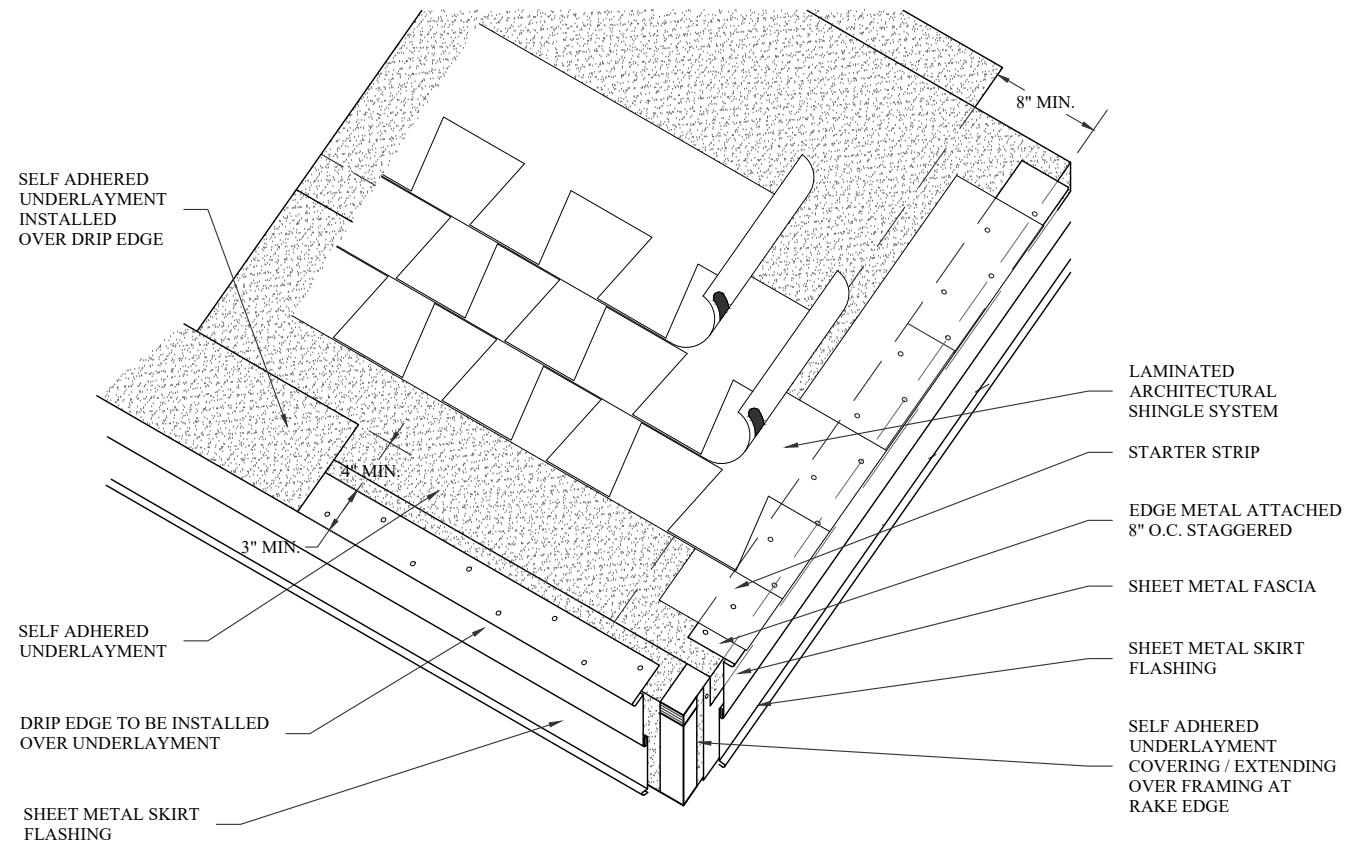
CONSTRUCTION DOCUMENTS

DATE: 10-12-2023

DETAILS

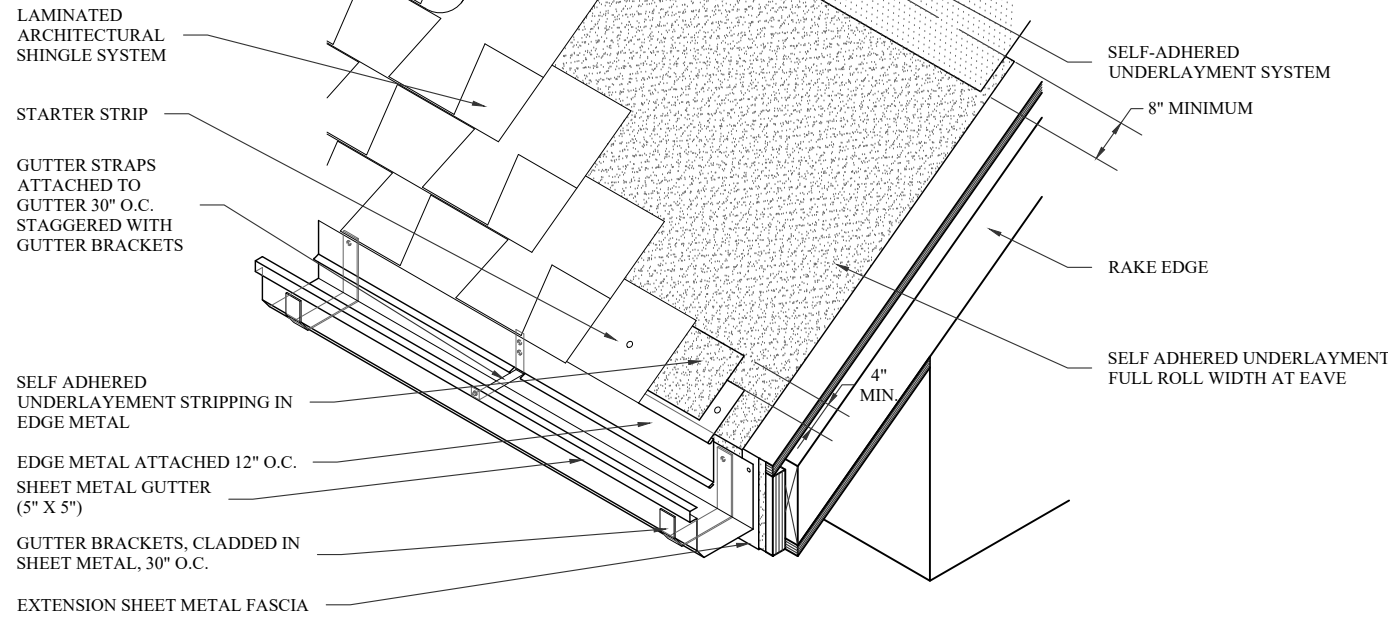
**PAGE:**

**D-1.1**

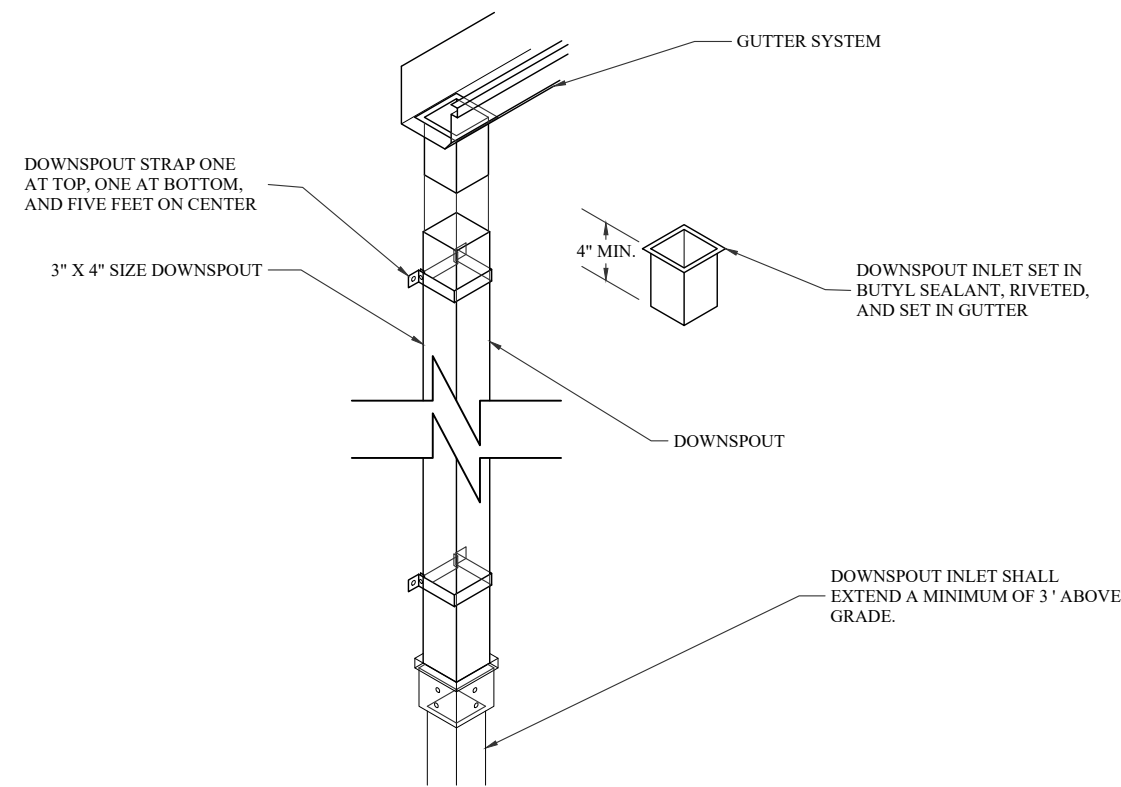


**RAKE EDGE (TWO PIECE  
EDGE METAL)  
DETAIL 5/D-1.2**

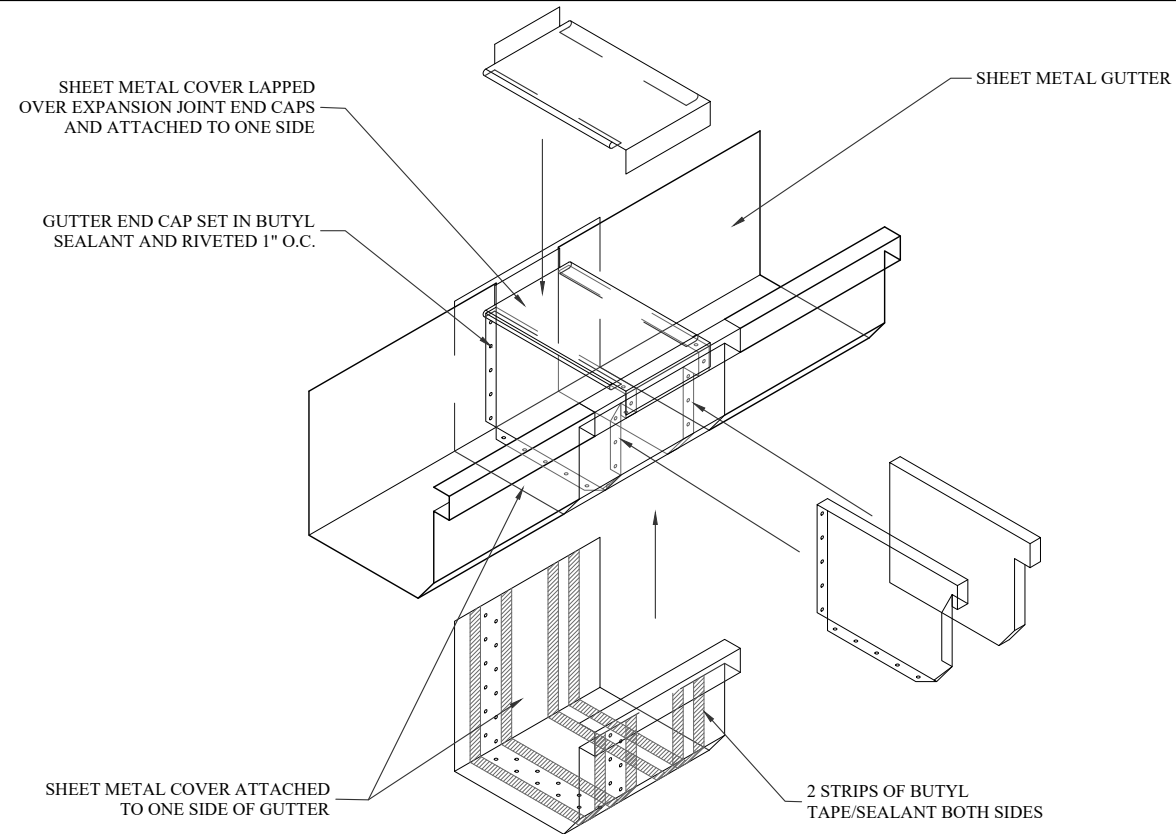
- NOTES:**
1. MANUFACTURERS STARTER SHINGLE IS REQUIRED.
  2. "SEAMLESS" STYLE GUTTER SYSTEM IS REQUIRED



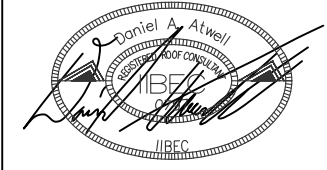
**ROOF EDGE WITH GUTTER  
DETAIL 6/D-1.2**



**DOWNSPOUT  
DETAIL 7/D-1.2**



**GUTTER EXPANSION JOINT  
DETAIL 8/D-1.2**



DESIGNED: DANIEL ATWELL

LANDER UNIVERSITY  
BROOKSIDE BUILDING NO. 7  
ROOF REPLACEMENT  
PROJECT NUMBER: H21-PO16-09  
LANDER UNIVERSITY  
GREENWOOD, SC



BUILDING ENVELOPE  
CONSULTANTS, LLC  
COLUMBIA AREA OFFICE

1611 CHAPIN ROAD  
CHAPIN, SOUTH CAROLINA  
EMAIL: CHRIS@WMBECONSULTANTS.COM  
EMAIL: DANIEL@WMBECONSULTANTS.COM

CHARLESTON AREA OFFICE  
226 N. LIVE OAK DRIVE  
MONCK'S CORNER, SOUTH CAROLINA  
EMAIL: JOE@WMBECONSULTANTS.COM  
EMAIL: MAX@WMBECONSULTANTS.COM

THESE DRAWINGS ARE THE PROPERTY OF:  
WM BUILDING ENVELOPE  
CONSULTANTS, LLC

THE REPRODUCTION, COPYING OR OTHER  
USE OF THESE DRAWINGS WITHOUT THEIR  
WRITTEN CONSENT IS PROHIBITED AND  
MAY BE SUBJECT TO LEGAL ACTION.

PROJECT NUMBER: 2023-239

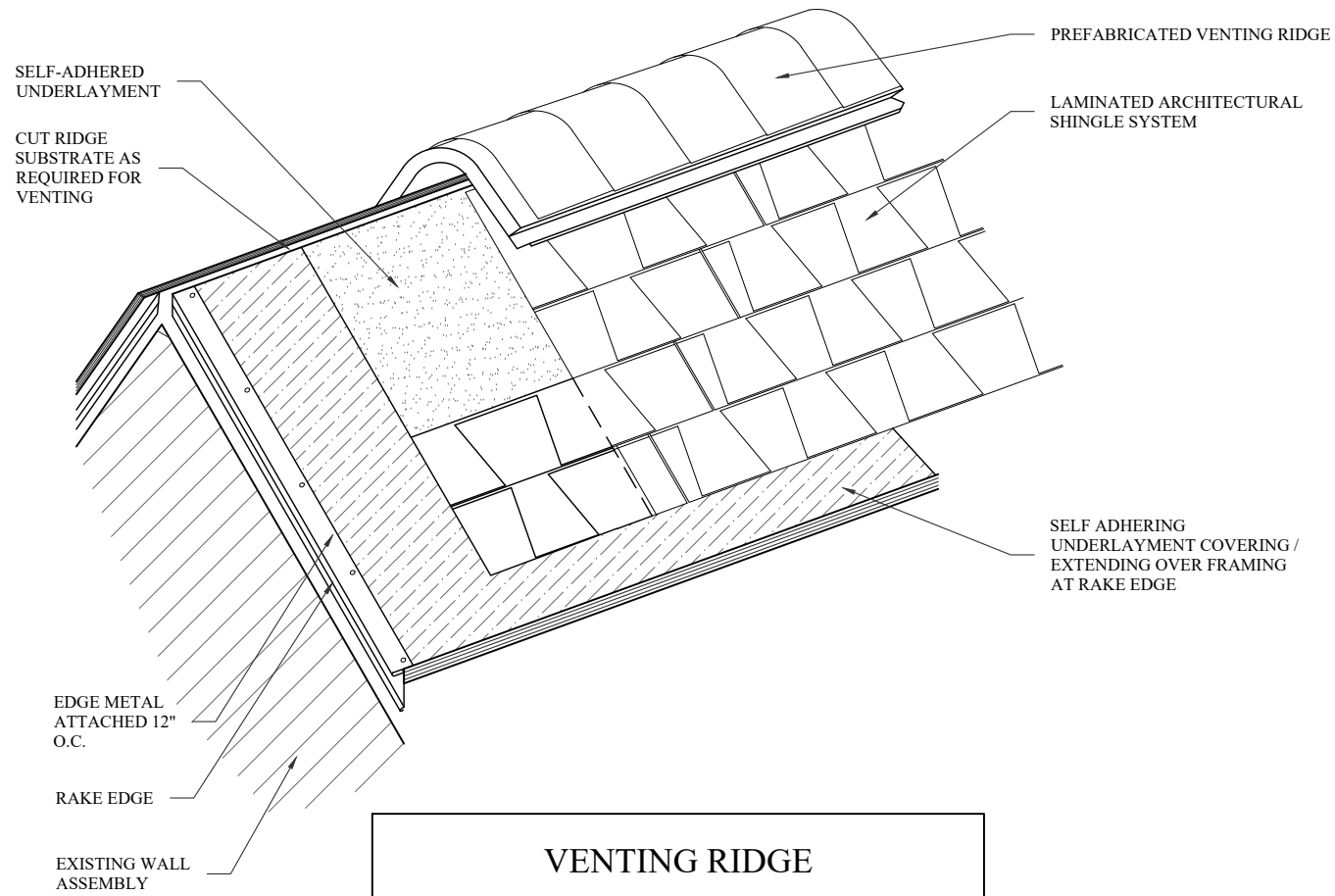
CONSTRUCTION DOCUMENTS

DATE: 10-12-2023

DETAILS

**PAGE:  
D-1.2**





**VENTING RIDGE**

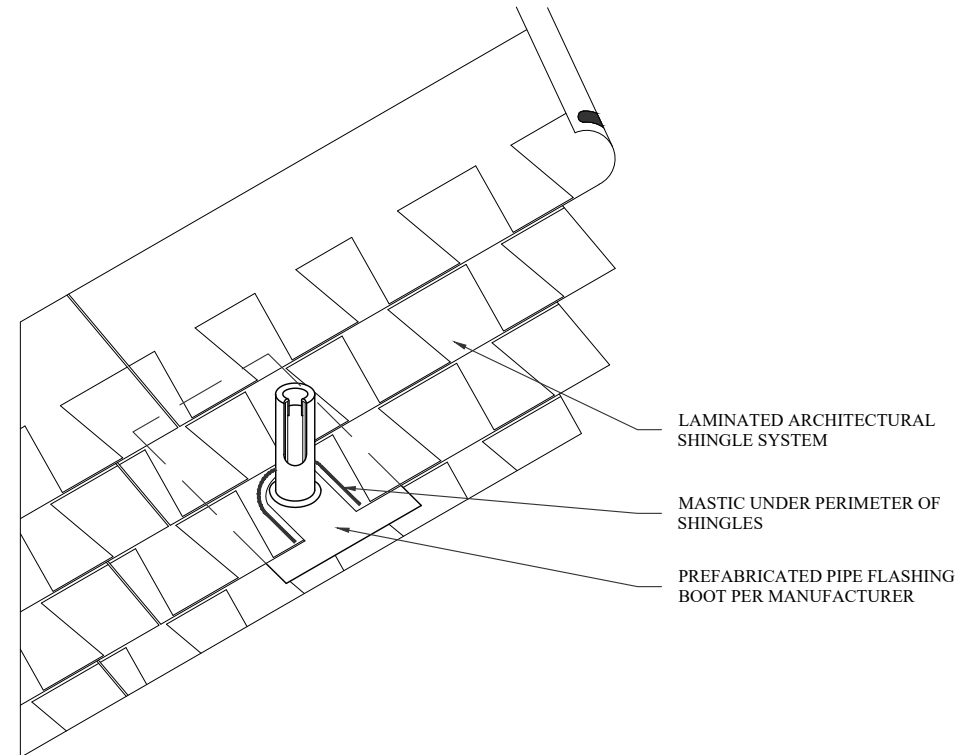
---

**DETAIL 9/D-1.3**

**DETAIL NOT IN USE**

---

**DETAIL 11/D-1.3**



**VENT THROUGH ROOF**

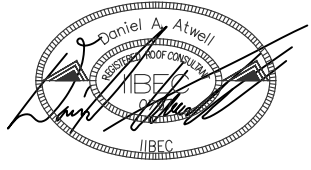
---

**DETAIL 10/D-1.3**

**DETAIL NOT IN USE**

---

**DETAIL 12/D-1.3**



DESIGNED: DANIEL ATWELL

**LANDER UNIVERSITY**  
**BROOKSIDE BUILDING NO. 7**  
**ROOF REPLACEMENT**

**PROJECT NUMBER: H21-PO16-09**  
**LANDER UNIVERSITY**  
**GREENWOOD, SC**



BUILDING ENVELOPE CONSULTANTS, LLC

COLUMBIA AREA OFFICE

1611 CHAPIN ROAD  
 CHAPIN, SOUTH CAROLINA  
 EMAIL: CHRIS@WMBECONSULTANTS.COM  
 EMAIL: DANIEL@WMBECONSULTANTS.COM

CHARLESTON AREA OFFICE

226 N. LIVE OAK DRIVE  
 MONCKS CORNER, SOUTH CAROLINA  
 EMAIL: JOE@WMBECONSULTANTS.COM  
 EMAIL: MAX@WMBECONSULTANTS.COM

THESE DRAWINGS ARE THE PROPERTY OF:  
 WM BUILDING ENVELOPE CONSULTANTS, LLC

THE REPRODUCTION, COPYING OR OTHER USE OF THESE DRAWINGS WITHOUT THEIR WRITTEN CONSENT IS PROHIBITED AND MAY BE SUBJECT TO LEGAL ACTION.

PROJECT NUMBER: 2023-239

CONSTRUCTION DOCUMENTS

DATE: 10-12-2023

DETAILS

**PAGE:**

**D-1.3**