

douglas a. selby  
architect

P.O. Box 2851  
Cheyenne, WY 82003

Phone: 307.778.3060  
selbyarchts@mindspring.com

204 West 4<sup>th</sup> Avenue  
Cheyenne, WY 82001

December 29, 2011

**ADDENDUM NUMBER TWO**

Addendum Dated: December 29, 2011

**RE: WYOMING DEPARTMENT OF TRANSPORTATION  
STATE PROJECT NO. PEB1745  
SIGN SHOP STORAGE BUILDING (WYDOT HEADQUARTERS),  
LARAMIE COUNTY, WY**

Bidders are hereby notified that the Project Manual Specifications and Drawings for the referenced project is amended, modified, corrected, interpreted and supplemented as follows. Bidders shall make all necessary adjustments to their bids for the items listed in this Addendum. Receipt of this Addendum shall be acknowledged on the Bid Form. Upon receipt, this Addendum shall be bound or stapled into the front of the Project Manual.

**I. Clarifications:**

1. Bidders shall note that the "List of Eligible Bidders" that was included with Addendum No. 1 should be labeled "Pre-bid Conference Attendee's". Inclusion on the list does not imply that any bidder is pre-qualified to bid on the project by WYDOT as set forth in the bidding documents.
2. Bidders shall note that AIA docs are listed in Table of Contents but not included as documents in the Specs. Contractor is responsible for obtaining and being familiar with those documents as called for within the Project Manual.
3. All work shall be constructed in accordance with the International Energy Conservation Code (IECC), current edition for City, County and State requirements. Contractor shall note that the bid documents have been designed to meet the IECC requirements based on the IECC COMcheck requirements.
4. Contractor shall comply will Chapter 14 of the International Fire Code for Fire Safety During Construction and Demolition.
5. See mechanical and electrical addenda attachments for additional information.

**II. Specifications:**

1. On Division 05310, Steel Deck, make the following change: Delete the entire specification and note that specifications for the steel deck are shown on the structural drawings. Requirements for Special Inspections detailed in Addenda No. 1 remain in place for all steel deck work.
2. On Division 07105, Spray Applied Air and Vapor Barrier, Section 3.3(A), add the following sentence: "Membrane shall be spray applied regardless of whether or not the membrane manufacturer allows rolling or brush applied applications. Membrane shall be applied and cured before the application of the cavity wall insulation and masonry veneer."
3. On Division 07525, Modified Bitumen Built-Up Roofing, delete section in its entirety and replace with the attached Division 07525, Styrene-Butadiene-Styrene (SBS) Modified Bituminous Membrane Roofing, Addenda No. 2, see attachments.

4. On Division 08711, Door Hardware, delete Section 3.6, Door Hardware Schedule, pages 12-13 and replace with the new Door Hardware Schedule (Addendum No. 2), pages 12-13, see attachment.
5. See mechanical and electrical addenda attachments for additional information.

III. **Drawings:**

1. On Drawings A5.1, A6.1, and A6.2, all references to 4" Base below floor slabs or exterior slabs shall refer to 4" drainage course of drainage fill material.
2. On Drawing A9.2, Door Elevations, Elevation #2, add 2<sup>nd</sup> door astragal note as follows: "Steel Z astragal on bottom of each upper in-active door leaf (typical)".
3. On Drawing A9.2, Door Elevations, Elevation #4 and 4A, add glazing note as follows: "For door glazing, 1" insulated glass, tinted "grey", low E, tempered per IBC and related code requirements".
4. See mechanical and electrical addenda attachments for additional information.

IV. **Product Approvals:** Approvals are subject to compliance with specification requirements.

1. None for architectural Divisions.
2. See attached Mechanical Addenda for any mechanical product approvals.
3. See attached Electrical Addenda for any electrical product approvals.

Attachments:

- Division 07525, Styrene-Butadiene-Styrene (SBS) Modified Bituminous Membrane Roofing, 11 pages.
- Division 08711, paragraph 3.6, Door Hardware Schedule (Addendum No. 2), pages 12-13.
- Mechanical Addenda No. 2 Items, Abrahamson Engineering, Inc., dated 12/20/11, 1 page.
- Electrical Addenda No. 2 Items, Sample Engineering, Inc., dated 12/29/11, 6 pages.

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## SECTION 07525 - STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

### 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:
  - 1. Styrene-butadiene-styrene (SBS)-modified bituminous membrane roofing.
  - 2. Roof insulation and related materials.
- B. Related Requirements:
  - 1. Section 07620 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
  - 2. Section 07920 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.
  - 3. Division 15 for roof drains.

#### 1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Roofing Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
  - 5. Review structural loading limitations of roof deck during and after roofing.
  - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
  - 7. Review governing regulations and requirements for insurance and certificates if applicable.
  - 8. Review temporary protection requirements for roofing system during and after installation.
  - 9. Review roof observation and repair procedures after roofing installation.

## 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:
  - 1. Base flashings and membrane terminations.
  - 2. Crickets, saddles, and tapered edge strips, including slopes.
  - 3. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Samples for Verification: For the following products:
  - 1. Base sheet, membrane ply, cap sheet of color required.
  - 2. Insulation and cover board.
  - 3. Fasteners.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installers, provide certification letter from manufacturer indicating installer is licensed by the manufacturer.
- B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
  - 1. Submit evidence of complying with performance requirements.
- C. Product Test Reports: For components of membrane roofing system, for tests performed by manufacturer and witnessed by a qualified testing agency.
- D. Research/Evaluation Reports: For components of membrane roofing system, from ICC-ES.
- E. Sample Warranties: For manufacturer's special warranties.

## 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.

## 1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for membrane roofing system identical to that used for this Project.
- B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

## 1.10 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

## 1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
  - 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, roofing accessories, and other components of roofing system.
  - 2. Warranty Period: 15 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards for the following warranty period:
  - 1. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Malarkey Roofing Company or equal product by one of the following:
  - 1. Firestone Building Products.
  - 2. GAF Materials Corporation.
  - 3. Johns Manville.
  - 4. Malarkey Roofing Company.

## STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

5. Siplast, Inc.
6. Tamko Building Products, Inc.

- B. Source Limitations: Obtain components including roof insulation, fasteners and related materials for roofing system from roofing manufacturer or as approved by membrane roofing manufacturer.

## 2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
  2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Tested by a qualified testing agency to resist the following uplift pressures:
1. Corner Uplift Pressure: As required to comply with current local codes.
  2. Perimeter Uplift Pressure: As required to comply with current local codes.
  3. Field-of-Roof Uplift Pressure: As required to comply with current local codes.
  4. Fire/Windstorm Classification: Minimum Class 1A-90, and as required to comply with current local codes.
- D. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- E. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

## 2.3 ROOFING SHEET MATERIALS

- A. Base Sheet: ASTM D 4601, Type II, SBS-modified asphalt-impregnated and -coated sheet, with glass-fiber-reinforcing mat, dusted with fine mineral surfacing on both sides.
1. Weight: 30.5 lb/100 sq. ft., minimum.
  2. Provide Malarkey 501 Modified Base Sheet, or equal.
- B. Glass-Fiber Ply Sheet: ASTM D 2178-97a, Type IV, asphalt-impregnated, glass-fiber felt, 36lb/100 sq.ft., minimum. Two plys required, see installation requirements.
1. Provide Malarkey 500 Ply 4 Ply Sheet, or equal.

- C. Granule-Surfaced Roofing Cap Sheet: ASTM D 6163, Grade G, Type I, SBS-modified asphalt sheet (reinforced with glass fibers); granule surfaced; suitable for application method specified, and as follows:
  - 1. Granule Color: White.
  - 2. Provide Malarkey 625 Paragon Cap, SBS Modified Fiberglass Cap Sheet, 100 lbs/ 100 sq. ft. minimum weight, or equal.

#### 2.4 BASE FLASHING SHEET MATERIALS

- A. Backer Sheet: ASTM D 4601, Type II, asphalt-impregnated and -coated, glass-fiber sheet, dusted with fine mineral surfacing on both sides.
  - 1. Weight: 30.5 lb/100 sq. ft., minimum.
  - 2. Provide Malarkey 501 Modified Base Sheet, or equal.
- B. Granule-Surfaced Flashing Sheet: ASTM D 6163, Grade G, Type I, SBS-modified asphalt sheet (reinforced with glass fibers); granule surfaced; suitable for application method specified, and as follows:
  - 1. Granule Color: White.
  - 2. Provide Malarkey 601 Cap, SBS Modified Fiberglass Cap Sheet, 100 lbs/ 100 sq. ft. minimum weight, or equal.
- C. Glass-Fiber Fabric: Woven glass-fiber cloth, treated with asphalt, complying with ASTM D 1668, Type I.

#### 2.5 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
  - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
  - 2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:
    - a. Plastic Foam Adhesives: 50 g/L.
    - b. Gypsum Board and Panel Adhesives: 50 g/L.
    - c. Multipurpose Construction Adhesives: 70 g/L.
    - d. Fiberglass Adhesives: 80 g/L.
    - e. Contact Adhesives: 80 g/L.
    - f. Other Adhesives: 250 g/L.
    - g. Nonmembrane Roof Sealants: 300 g/L.
    - h. Sealant Primers for Nonporous Substrates: 250 g/L.
    - i. Sealant Primers for Porous Substrates: 775 g/L.
- B. Asphalt Primer: ASTM D 41/D 41M.
- C. Roofing Asphalt: ASTM D 312, Type III as recommended by roofing system manufacturer for application.

- D. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.
- E. Mastic Sealant: Polyisobutylene, plain or modified bitumen; nonhardening, nonmigrating, nonskinning, and nondrying.
- F. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- G. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 (2.36-mm) sieve and 98 percent of mass retained on No. 40 (0.425-mm) sieve, color to match roofing.
- H. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.
- I. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistant requirements.

## 2.6 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses and sizes indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, felt or glass-fiber mat facer on both major surfaces compatible with hot asphalt installation methods, insulation and facer type as approved by roofing system manufacturer.
  - 1. Provide 4" total insulation thickness, install in 2 layers of 2" thickness. All boards shall be installed in maximum 4'x4' sizes, no 4'x8' boards shall be allowed.
  - 2. 4" insulation total thickness shall have an R-30 insulation value.
- C. Cellulosic-Fiber Board Insulation (Cover Board): ASTM C 208, Type II, Grade 2, fibrous-felted, rigid insulation boards of wood fiber or other cellulosic-fiber and water-resistant binders, asphalt impregnated, chemically treated for deterioration.
  - 1. Provide 1/2" recover board insulation thickness over top of Polyisocyanurate Insulation. All boards shall be installed in maximum 4'x4' sizes, no 4'x8' boards shall be allowed.
- D. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope as shown on drawings for drainage areas unless otherwise indicated.
- E. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

## 2.7 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.



- C. Insulation Cant Strips: ASTM C 728, perlite insulation board.
- D. Insulation Cant Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
- E. Wood Nailer Strips: Comply with requirements in and in accordance with manufacturers required installation requirements and code requirements.
- F. Tapered Edge Strips: ASTM C 728, perlite insulation board.
- G. Tapered Edge Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
- H. Cover Board: ASTM C 208, Type II, Grade 2, fibrous-felted, rigid insulation boards of wood fiber or other cellulosic-fiber and water-resistant binders, asphalt impregnated, chemically treated for deterioration.
  - 1. Provide 1/2" recover board insulation thickness over top of Polyisocyanurate Insulation. All boards shall be installed in maximum 4'x4' sizes, no 4'x8' boards shall be allowed.
- I. Substrate Joint Tape: 6- or 8-inch- (150- or 200-mm-) wide, coated, glass fiber.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
  - 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
  - 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  - 3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Section 05310 "Steel Deck."
  - 4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

### 3.3 INSTALLATION, GENERAL

- A. Comply with roofing system manufacturer's written instructions.

- B. Asphalt Heating: Heat asphalt to its equiviscous temperature, measured at the mop cart or mechanical spreader immediately before application. Circulate asphalt during heating. Do not raise asphalt temperature above equiviscous temperature range more than one hour before time of application. Do not exceed asphalt manufacturer's recommended temperature limits during asphalt heating. Do not heat asphalt within 25 deg F (14 deg C) of flash point. Discard asphalt maintained at a temperature exceeding finished blowing temperature for more than four hours.
  - 1. Apply hot roofing asphalt within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
- C. Substrate-Joint Penetrations: Prevent roofing asphalt and adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

### 3.4 INSULATION INSTALLATION

- A. Install insulation according to roofing system manufacturer's written instructions.
- B. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing system with vertical surfaces or angle changes greater than 45 degrees.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install insulation with long joints of insulation in a continuous straight line, with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
  - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- E. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
- F. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- H. Mechanically Fastened and Adhered Insulation: Install first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
  - 1. Fasten first layer of insulation according to requirements in FM Global's "RoofNav" for specified Windstorm Resistance Classification.
  - 2. Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof.
  - 3. Set each subsequent layer of insulation in a solid mopping of hot roofing asphalt.
- I. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together. Tape joints if required by roofing system manufacturer.
  - 1. Apply hot roofing asphalt to underside, and immediately bond cover board to substrate.

### 3.5 ROOFING INSTALLATION, GENERAL

- A. Install roofing system 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" and as follows based on the Malarkey Roofing, Low Slope Roofing System Specification, Four-Ply Hybrid 601 (Base, Pys and Cap):

1. Deck Type: Metal.
  2. Adhering Method: mopped.
  3. Base Sheet: One, 501 Modified Base.
  4. Number of Glass-Fiber Base-Ply Sheets: Two, 500 Ply 4.
  5. Surfacing Type: 625 Paragon Cap, SBS Modified Fiberglass Cap Sheet, (mineral-granule-surfaced cap sheet).
  6. Base Flashing Sheet: One, 501 Modified Base.
  7. Flashing Surfacing Type: 601 Cap, SBS Modified Fiberglass Cap Sheet, (mineral-granule-surfaced cap sheet).
- B. Coordinate installation of roofing system so insulation and other components of the roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
1. Provide tie-offs at end of each day's work to cover exposed roofing sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt, with joints and edges sealed.
  2. Complete terminations and base flashings, and provide temporary seals to prevent water from entering completed sections of roofing system.
  3. Remove and discard temporary seals before beginning work on adjoining roofing.

### 3.6 BASE-SHEET INSTALLATION

- A. Install lapped base-sheet course, extending sheet over and terminating beyond cants. Attach base sheet as follows:
1. Adhere to cover board substrate in a solid mopping of hot roofing asphalt.

### 3.7 BASE-PLY (Interply) SHEET INSTALLATION

- A. Install glass-fiber base-ply sheets according to roofing system manufacturer's written instructions starting at low point of roofing system. Align glass-fiber base-ply sheets without stretching. Extend sheets over and terminate beyond cants.
1. Shingle side laps of glass-fiber base-ply sheets uniformly to ensure that required number of glass-fiber base-ply sheets covers substrate at any point. Shingle in direction to shed water.
  2. Embed each glass-fiber base-ply sheet in a continuous void-free mopping of hot roofing asphalt to form a uniform membrane without glass-fiber base-ply sheets touching.

### 3.8 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
1. Adhere to substrate in a solid mopping of hot roofing asphalt applied at not less than 425 deg F (218 deg C).
  2. Unroll roofing sheets and allow them to relax for minimum time period required by manufacturer.
- B. Laps: Accurately align roofing sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.

1. Repair tears and voids in laps and lapped seams not completely sealed.
  2. Apply roofing granules to cover exuded bead at laps while bead is hot.
- C. Install roofing sheets so side and end laps shed water.

### 3.9 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloped and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
1. Prime substrates with asphalt primer if required by roofing system manufacturer.
  2. Backer-Sheet Application: Adhere backer sheet to substrate in a solid mopping of hot roofing asphalt.
  3. Flashing-Sheet Application: Adhere flashing sheet to substrate in a solid mopping of hot roofing asphalt applied at not less than 425 deg F (218 deg C). Apply hot roofing asphalt to back of flashing sheet if recommended by roofing system manufacturer.
- B. Extend base flashing up walls or parapets a minimum of 8 inches (200 mm) above roofing membrane and 4 inches (100 mm) onto field of roofing membrane, and as shown on the drawings.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
1. Seal top termination of base flashing[ with a strip of glass-fiber fabric set in asphalt roofing cement].
  2. Cover over top of parapets with water proofing membrane as shown on drawings.
- D. Install roofing cap-sheet stripping where metal flanges and edgings are set on roofing according to roofing system manufacturer's written instructions.
- E. Roof Drains: Set 30-by-30-inch- (760-by-760-mm-) metal flashing in bed of asphaltic adhesive on completed roofing membrane. Cover metal flashing with roofing cap-sheet stripping, and extend a minimum of 6 inches (150 mm) beyond edge of metal flashing onto field of roofing membrane. Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring.
1. Install stripping according to roofing system manufacturer's written instructions.

### 3.10 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
1. Notify Architect and Owner 48 hours in advance of date and time of inspection.

### 3.11 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

### 3.12 ROOFING INSTALLER'S WARRANTY

- A. See attachment roofing installer's warranty following this section.

END OF SECTION 07525

3.6 DOOR HARDWARE SCHEDULE (ADDENDA NO. TWO)

Manufacturer's Legend:

Bes	Best
C/R	Corbin/Russwin
Hag	Hager
McK	McKinney
LCN	LCN
NGP	National Guard Products
Nor	Norton
Pem	Pemko
Res	Reese
Sar	Sargent
Sch	Schlage
Sta	Stanley
Tri	Trimco

Set No. One –

(3) each hinges	Hag BB1191 4-1/2 x 4-1/2 US10 NRP McK TA2314 4-1/2 x 4-1/2 US10 NRP Sta FBB191 4-1/2 x 4-1/2 US10 NRP
(1) each removable core lock	Bes 47H7T15H-612 Sch L9456BDC 06A 612 Sar 70-8225 LNL US10 C/R ML2065 NSA 612 CT7SD
(1) each closer	Nor CPS7500H 691 Sar CPS351H EP LCN 4041 SPRG-CUSH-H LTBNZ
(1) each kick plate	McK KP50 10 x 2" LDW US10 Hag 190S 10" x 2" LDW US10 Tri K0050 10" x 2" LDW US10
(1) floor stop	McK DS08 Hag 269F Tri 1209
(1) each threshold	Pem 252X3AFG x LAR NGP 8425 x LAR Res S282A x LAR
(1) each door bottom	Pem 345D x LAR NGP 17 x LAR Res R199D
(1) set seal	Pem S88DTAN, head and jambs NGP 5050TAN, head and jambs Hag 726TAN, head and jambs

Set No. Two –

All hardware by door manufacturer.

**Set No. Three –**

- |   |  |
|---|--|
| (4) each continuous hinge                             | Hag 780-112HD BZ<br>McK MCK-12HD BZ<br>Sta 661HD BZ                                    |
| (2) each manual flush bolts<br>(bottom inactive leaf) | McK FB01M US10<br>Hag 282D-12" US10<br>Tri 3917-12" 612                                |
| (1) each dustproof strike<br>(bottom inactive leaf)   | McK DPS US10<br>Hag 280X US10<br>Tri 3910N 612   |
| (2) each chain bolt<br>(top inactive leafs)           | Sta 812550 6"<br>Hag equal<br>Tri equal  |
| (1) each passage set                                  | Bes 47H0N15H-612<br>Sch L9010 06A 612<br>Sar 8215 LNL 612<br>C/R ML2010 NSA 612        |
| (2) each kick plate                                   | McK KP50 10 x 2" LDW US10<br>Hag 190S 10" x 2" LDW US10<br>Tri K0050 10" x 2" LDW US10 |
| (2) each floor stop                                   | McK FS02-L US10<br>Hag 243F US10<br>Tri 1212 612                                       |
| (4) each sets silencers                               | McK S1M<br>Hag 307D<br>Tri 1229A   |
| (2) each Z vertical astragal by door supplier         |  |
| (2) each Z horizontal astragal by door supplier       |  |

**Set No. Four –**

- (1) each rim or mortise cylinder x 626 (each storefront entrance door)

END OF SECTION 08711



Abrahamson Engineering, Inc.  
3101 Kintzley Court, Unit D  
LaPorte, Colorado 80535  
Phone 970-221-2569  
Fax 970-221-2671  
mail@abrahamsoneng.com

December 20, 2011

Doug A. Selby, Architect  
P.O. Box 2851  
Cheyenne, WY 82003

Re: WYDOT Sign Shop, Cheyenne, WY – Addendum #2, our job number 1111.

Doug:

Please include the following item(s) in Addendum #2:

1. Add the following new sentence to Specification Section 15300, paragraph 5.C.
  - a. “ All complete plans/shop drawings and calculations shall be stamped by a Wyoming licensed Fire Protection Engineer or a Wyoming licensed Mechanical Engineer prior to submittal to the authority having jurisdiction.”
2. Add the following to Specification Section 15300, paragraph 6.A.
  - a. After “Local Fire Authority” add “and Laramie County Planning and Development Office”.
3. Add the following new paragraph, 6.B., to Specification Section 15300.
  - a. “ Upon completion of the work of this project the Fire Suppression Contractor shall obtain a new fire sprinkler inspection and report for the entire building and submit a copy of this report to the City of Cheyenne Fire Prevention Bureau.”
4. Add the following new paragraph to Specification Section 15300, paragraph 3.
  - a. “Fire Suppression Contractor shall comply with International Fire Code Chapter 14, “Fire Safety During Construction and Demolition”.

If you have any questions or concerns, please let me know.

Sincerely,  
John E. Nail, P.E.  
Abrahamson Engineering





## Addendum #2 to Sign Shop Storage Building Project, WYDOT PEB1745

**Date:** December 29, 2011

**From:** Sample Engineering, Inc.  
3101 Kintzley Ct., Unit A  
Laporte, CO 80535  
Telephone (970) 206-4392  
Fax (970) 204-9029

**Reference:**

State Project Number: PEB1745

Project Name: Sign Shop Storage Building (WYDOT Headquarters, Laramie County)

Subject: Electrical Addendum Items for Electrical Construction Drawings  
Produced by Sample Engineering, Inc

---

Dear Mr. Selby,

In the following, we list our Addendum Items for Addendum #2 to the Electrical Construction Drawings for the subject project: No changes were made to the Electrical Specifications.

Changes to the Drawings:

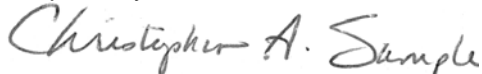
- E1. Sheet E0.1, Luminaire Schedule, Change the requirements for the Type 'A' Luminaires to include dual-level switching capability. The two inside lamps shall be separately controllable from the two outside lamps in each light fixture. See attached Sketch ADD-2, SKETCH-2.
- E2. Sheet E0.1, Luminaire Schedule, Change the requirements for the Type 'C' Luminaires to indicate the color of the fixture shall be Dark Bronze. See attached Sketch ADD-2, SKETCH-2.
- E3. Sheet E2.1, The Note "EXISTING FACP TO REMAIN" has been added to Sheet E2.1 to clarify the location of the existing Fire Alarm Control Panel (FACP). See attached Sketch ADD-2, SKETCH-4.
- E4. Sheet E3.1, In order to clarify the requirements for Dual Level Switching for the Type 'A' lighting fixtures in new room N120, make the following changes to the Drawing:
  - a. Add Lighting Flag Note H to read as follows: "PROVIDE 20A LIGHT SWITCH. 'a' 'b' INDICATES DUAL LEVEL SWITCHING. (2)INSIDE LAMPS CONTROLLED BY 'a' SWITCH, (2) OUTSIDE LAMPS CONTROLLED BY 'b' SWITCH."
  - b. Add 'a,b' next to each Type 'A' Fixture.
  - c. Add 'a' next to the 3-way switches beside the two (2) exterior doors.
  - d. Add 'a' next to the 4-way switch, and add 'b' next to the 1-way switch near the double door.
  - e. See attached Sketch ADD-2, SKETCH-1.
- E5. Sheet E3.1, In order to ensure that no fixtures are installed in "Daylight Zones" adjacent to windows as defined in the International Energy Conservation Code (IECC) and thereby invoke mandatory requirements for separate lighting controls, the locations of some selected Type 'A' fixtures have been adjusted. Dimensions showing the desired locations have been added. See attached Sketch ADD-2, SKETCH-1.

- E6. Sheet E3.1, In order to clarify the requirements for Fire Alarm System modifications, Add Power Flag Note 10 to read as follows: "PROVIDE AND INSTALL INDICATED NEW FIRE ALARM SYSTEM DEVICES. PROVIDE ALL NECESSARY NEW WIRING IN 1/2" CONDUIT. SEE SHEET E2.1 FOR LOCATION OF EXISTING FIRE ALARM CONTROL PANEL (FACP) TO REMAIN. ENGAGE WEST FIRE, MIKE SCHAECHER 303-273-9800, EXT. 310 TO MAKE CONNECTIONS AND MODIFICATIONS TO EXISTING FCI FIRE ALARM CONTROL PANEL (FACP)." See attached Sketch ADD-2, SKETCH-3
- E7. Requests for product substitutions as described in the following will be allowed pending final shop drawing review for compliance with all requirements in the drawings and specifications:
- a. The Envoy, Model SM727 has been determined to be an acceptable substitute for Luminaire Type B.

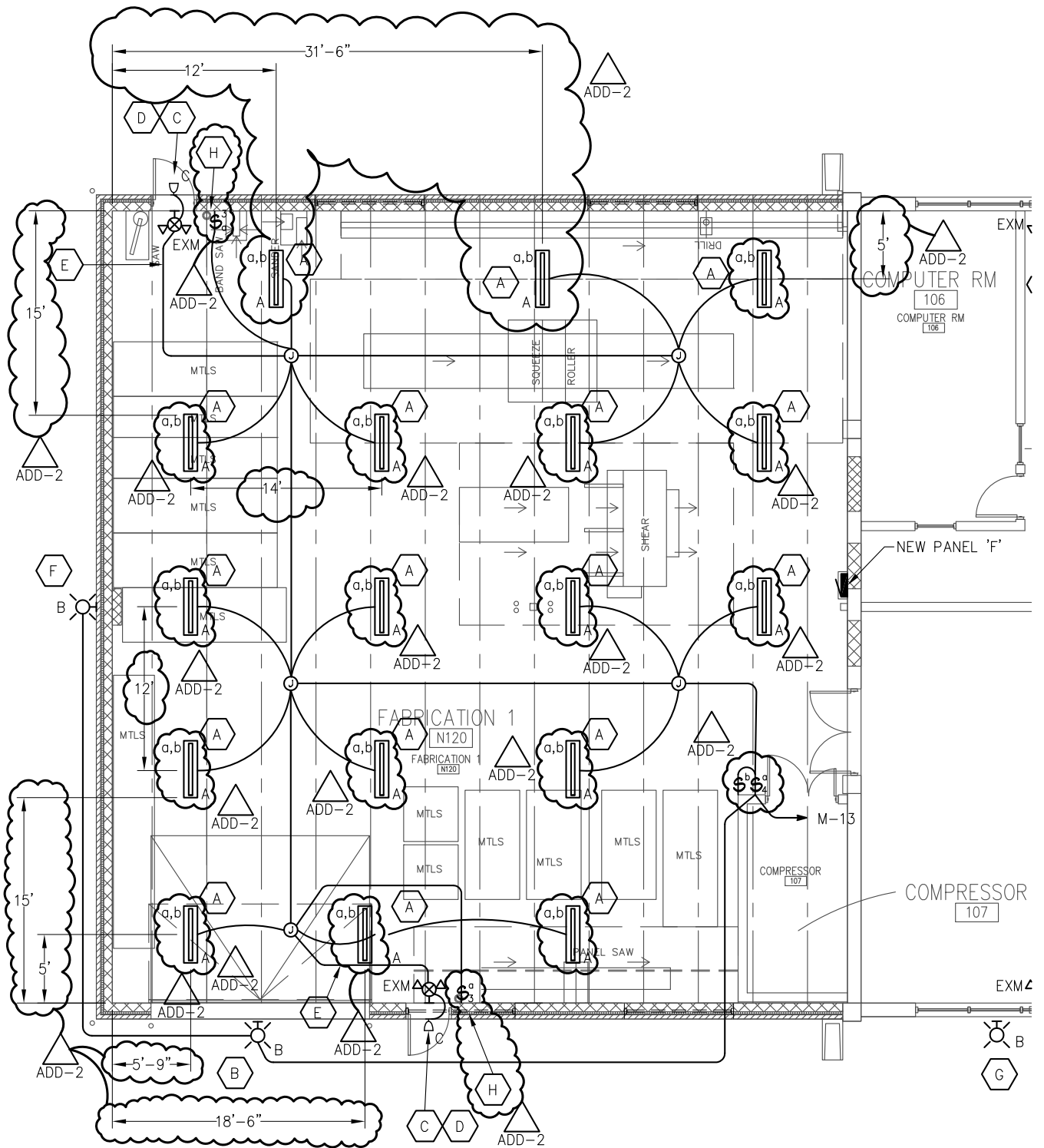
Changes to the Specifications:

- E8. Specifications Section 16442 1.5 A., In order to clarify that testing of panelboards will be allowed to be performed by the Contractor, delete Specifications Section 16442 1.5 A. in its entirety.



Respectfully,



Christopher A. Sample, PE  
President, Sample Engineering, Inc.



### LIGHTING FLAG NOTES

 ADD-2  H PROVIDE 20A LIGHT SWITCH. 'a' 'b' INDICATES DUAL LEVEL SWITCHING. (2) INSIDE LAMPS CONTROLLED BY 'a' SWITCH, (2) OUTSIDE LAMPS CONTROLLED BY 'b' SWITCH.

ADD-2, SKETCH-1  
 DATE: 12-29-11  
 BY: DA, CS.  
 Ref. Sht.# E3.1

Wyoming Dept. of Transportation  
 FEB1745  
 Sign Shop Storage Building



### LUMINAIRE SCHEDULE

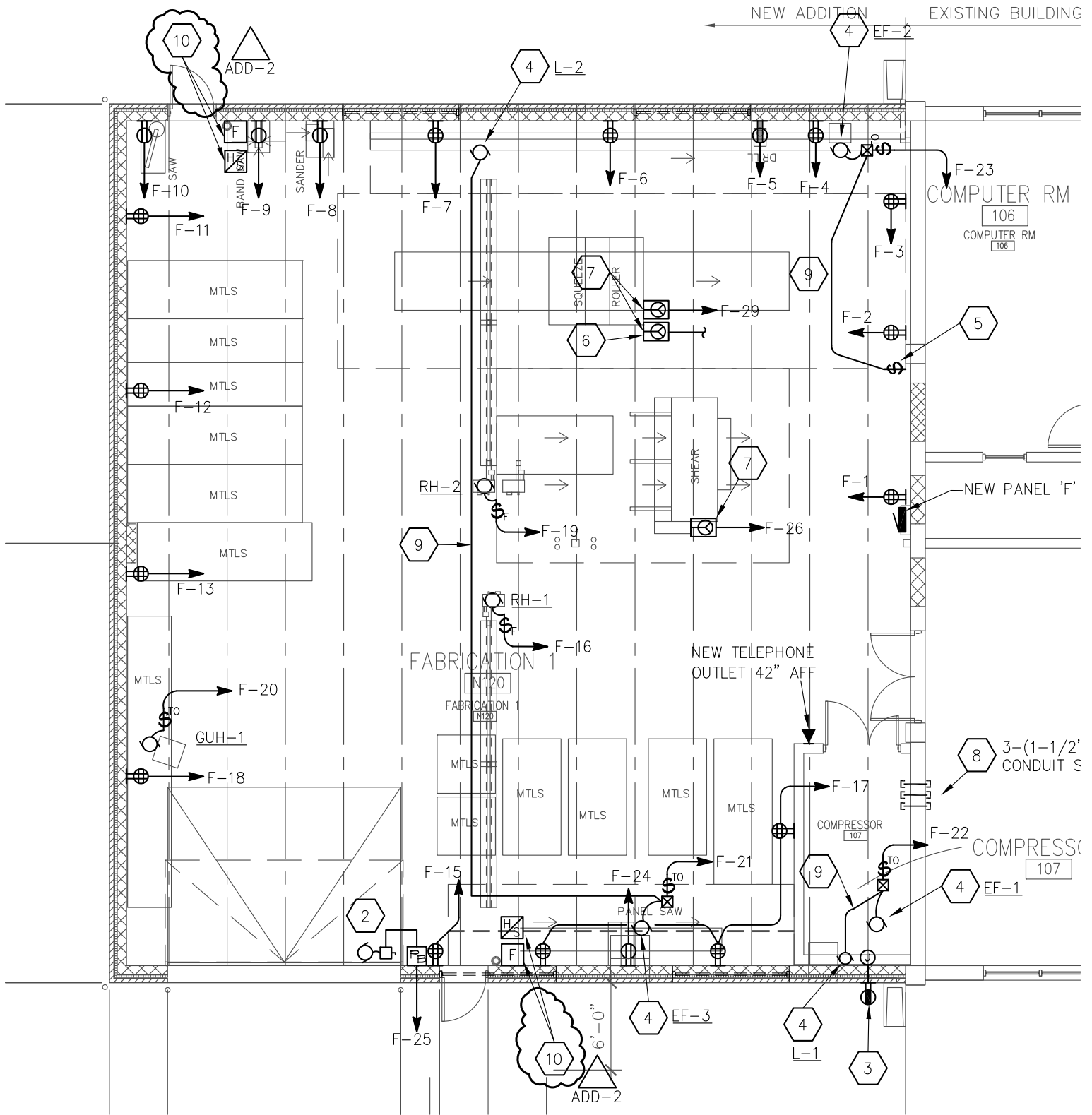
NOTE: EXCEPT WHERE NOTED OTHERWISE, SCHEDULE PROVIDES ONE (1) MANUFACTURER. SUBSTITUTIONS BY OTHER MANUFACTURERS ARE ALLOWED PROVIDED THE SUBSTITUTES HAVE SIMILAR CHARACTERISTICS, INCLUDING PHOTOMETRY, FINISH AND QUALITY. SEE SPECIFICATIONS. APPROVED IN ADVANCE OF BID.

TYPE	DESCRIPTION	LAMPS	FXTR WATTS	MANUFACTURER	CATALOG NUMBER	VOLTAGE	FINISH	MOUNTING	REMARKS
A	LINEAR HIGHBAY FLUORESCENT FIXTURE, EXTRUDED ALUMINUM CONSTRUCTION, PC-POWDER COATED WIRE GUARD. DUAL LEVEL LIGHTING. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">ADD-2</span>	(4)F64T5/HO SPX41	182	LUX DYNAMICS	LHB454-UNV-WD-BOTTOM-F0841-CORD4/10-HANGER-5-WG	277	ANODIZED ALUMINUM	4-POINT ADJ. AIRCRAFT CABLE SUSPENDED FROM STRUCTURE BETWEEN TRUSSES 13' AFF.	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">PROVIDE (2) BALLASTS FOR DUAL LEVEL LIGHTING</span>
B	EXTERIOR WALL CUT-OFF, CLEAR GLASS LENS, WITH PHOTO CONTROL	(1)150 METAL HALIDE	150	HUBBELL	PGSA3-150P-18-BZ-L-PBT-234	277	DARK BRONZE	MOUNT APPROX. 13'-6" AFF TO BOT. OF FIXTURE UON. SEE SHEET A7.1	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">ADD-2</span>
C	EXTERIOR EGRESS REMOTE HEAD LED FIXTURE	LED	3	DUAL LITE	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">OGRSZ0603L</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">ADD-2</span>	6VDC	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">DARK BRONZE</span>	CENTER ABOVE DOOR <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">ADD-2</span>	
<del>ADD-2</del> EXM	COMBINATION LED EXIT/EMERGENCY LIGHT, UNIVERSAL MOUNTED. WITH REMOTE CAPACITY	LED	23	DUAL LITE	HXCURW-RC12-03L	277	WHITE	SURFACE ABOVE DOOR	CONNECT UNSWITCHED TO SAME CIRCUIT THAT FEEDS NORMAL LIGHTING IN SAME AREA
NOTES:									

ADD-2, SKETCH-2  
 DATE: 12-29-11  
 BY: DA, CS.  
 Ref. Sht.# E0.1

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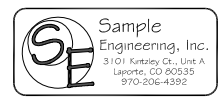
**POWER FLAG NOTES**

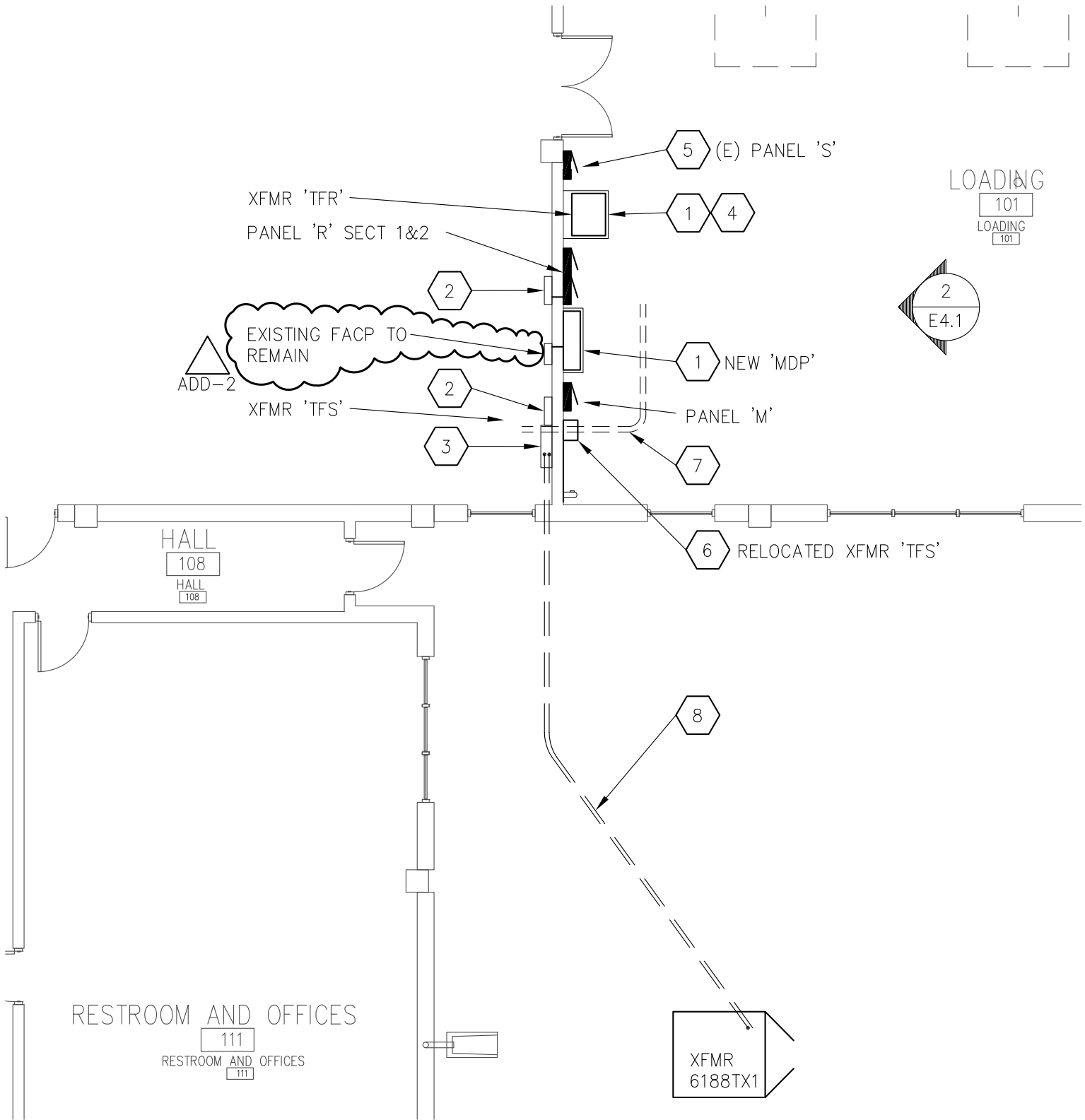
10

 PROVIDE AND INSTALL INDICATED NEW FIRE ALARM SYSTEM DEVICES. PROVIDE ALL NECESSARY NEW WIRING IN 1/2" CONDUIT. SEE SHEET E2.1 FOR LOCATION OF EXISTING FIRE ALARM CONTROL PANEL (FACP) TO REMAIN. ENGAGE WEST FIRE, MIKE SCHAECHER 303-273-9800, EXT. 310 TO MAKE CONNECTIONS AND MODIFICATIONS TO EXISTING FCI FIRE ALARM CONTROL PANEL (FACP).

ADD-2, SKETCH-3  
 DATE: 12-29-11  
 BY: DA, CS.  
 Ref. Sht.# E3.1

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ADD-2, SKETCH-4  
 DATE: 12-29-11  
 BY: DA, CS.  
 Ref. Sht.# E2.1

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Sample Engineering, Inc.  
 3101 Kantley Ct., Unit A  
 Laporte, CO 80535  
 970-206-4392