



State of Utah

JON M. HUNTSMAN, JR.  
Governor

GARY R. HERBERT  
Lieutenant Governor

Department of Administrative Services

KIMBERLY K. HOOD  
Executive Director

Division of Facilities Construction and Management

DAVID G. BUXTON  
Director

## ADDENDUM NO. 1

Date: June 17, 2009

To:	Company	Contact	Fax
	Broderick and Henderson Const	Mr. Gary Broderick	(801) 225-4697
	Chad Husband Construction, Inc.	Mr. Richard Marshall	(801) 886-1784
	Garff Construction	Mr. Phil Henriksen	(801) 972-1928
	Jacobsen Construction	Mr. Steve Nelson	(801) 973-7496
	Keller Construction	Mr. S. Daniel Hill	(801) 972-1063
	R & O Construction	Mr. Ken Warnick	(801) 399-1480

From: Jim Russell, Project Manager, DFCM

Reference: New Heber City Liquor and Wine Store  
Department of Alcoholic Beverage Control  
DFCM Project No. 08224030

Subject: **Addendum No. 1**

Pages	Addendum Cover Sheet	1 page
	ABC Liquor Store Addendum List	1 page
	Architect's Addendum	12 pages
	Total	14 pages

**Note:** *This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.*

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

1.1 **SCHEDULE CHANGES:** No schedule changes.

1.2 **GENERAL ITEMS:**

1.2.1 ABC Liquor Store Addendum List

1.2.2 Architect's Addendum.

### ABC Liquor Store Addendum List

The General Contractor must have a designated Superintendent on site at all times work is being performed.

The General Contractor is responsible to vet all Subcontractors and Suppliers prior to bidding.

Unqualified Subcontractors and Suppliers will not be allowed.

The DFCM will not compensate for the removal of Unqualified Subcontractors and Suppliers.

The General Contractors are to become familiar with the site, as each site has different site issues including Excavation and Utilities.

The General Contractor is responsible to coordinate with all Utilities and the DFCM will approve and pay all necessary Connection Fees.

The Cities and Counties have no jurisdiction over State of Utah projects and as such are not due any permit fees except for those authorized and paid by the DFCM. However plans may be submitted to each requesting jurisdiction and an effort will be made to comply with requests that are deemed reasonable by the DFCM.

Department of Alcoholic Beverage Control  
New Heber City Liquor Store  
Addendum A01

**Addendum No. A01**

**Issued Monday June 15, 2009**

**PROJECT**

**New Heber City, UT Liquor Store  
Department of Alcoholic Beverage Control  
Cedar City, Utah  
DFCM Project No. 08224030**

**ARCHITECT**

**Frank N Murdock Jr Architect & Associates  
975 East 100 South  
Salt Lake City, Utah 84102  
(801) 532-4441**

The original Contract Documents issued for the above noted project are amended as noted in this Addendum. It shall be the sole responsibility of the bidder to appropriately disseminate this data to all concerned, prior to the assigned bid time and date.

Receipt of this Addendum shall be acknowledged by inserting its number and date in the appropriate space provided on the bid form. This Addendum consists of three (3) 8 1/2" x 11" Addendum Sheets and one (1) specification section (07511) in PDF format.

**This document identifies changes made to the construction documents and may not be all-inclusive of the changes. Please refer to new drawings accompanying this Addendum.**

**DRAWINGS:**

1. **Sheet A104:** This sheet has been revised with the following changes:
  - a. Detail 19/A104: handrail mounting height at office stairs changed from 2'-10" to 3'-0".
  - b. Details 15/A104, 17/A104, 19/A104, 20/A104, 21/A104, 22/A104 and 23/A104: change all references to "vinyl base" to "rubber base".
2. **Sheet A106:** This sheet has been revised with the following changes:
  - a. Enlarged Floor Plan 1/A106: note regarding handrail mounting height changed from 2'-10" to 3'-0".
  - b. Details 3/A106, 4/A106 and 5/A106: handrail mounting heights changed from 2'-10" to 3'-0".
3. **Sheet E201:** This sheet has been revised with the following changes:
  - a. Provide and install a weatherproof fire alarm horn/strobe on the front of the building. Locate on the column at Grids D & 5.
  - b. All of the fire alarm system horn/strobes in the building are to be 75 Candela with exception to the horn/strobes in the Toilet Rooms which are to be 15 Candela.
4. **Sheet E501** – This sheet has been revised with the following changes:
  - a. Lighting fixture schedule: Lighting fixture manufacturer listed as DMC should read PMC for Fixture Types F1 thru F4E.

**SPECIFICATIONS:**

1. **Specification Section 07511 – THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING:** This specification section has been revised, is being reissued and is attached to this Addendum.
2. **Specification Section 07512 – BUILT-UP ASPHALT ROOFING:** This specification section has been deleted in its entirety. Remove references to this section from the Specification Index and Table of Contents
3. **Specification Section 09650 – RESILIENT FLOORING:** Delete references to “vinyl wall base” and change all references to “rubber wall base”. Rubber wall base to comply with the following:
  - a. Rubber Wall Base: Provide base complying with ASTM F-1861, Type TP, Group 1 (solid), with matching end stops and preformed or molded corner units, and as follows:
    - (1) Height: 4", coved toe profile, including inside and outside corners with 4" returns.
    - (2) Thickness: .125" thickness.
    - (3) Hardness: ASTM D 2240 Rubber - 85 Shore A.
    - (4) Meets or exceeds the performance requirements of resistance to heat/light aging, chemicals, and dimensional stability when tested to the methods, as described, in ASTM F-1861.
    - (5) Adhesives: Porous Surfaces, Johnsonite 960 Acrylic Cove Base; Non-porous surfaces, Johnsonite 945 Contact Bond Adhesive.
    - (6) Warranty: Limited 1-year warranty by manufacturer.
    - (7) Style: Standard top-set cove at V.C.T. and sealed concrete flooring.
    - (8) Finish: Matte.
    - (9) Color: As selected by Architect from manufacturer's full range of colors.
4. **Specification Section 16835 – CCTV & Digital Recording System:**
  - a. Page 1: delete Paragraph 1.3 Approved Installers.
  - b. Page 3: “Digital Video Recording System DVR to be a Toshiba DVR 16-480-2000 as described or approved equal”.
5. **Specification Section 16900 – Fire Alarm Detection System:**
  - a. Page 2 Acceptable manufacturers to be amended to add “Fire-lite as an acceptable manufacturer”. Also add the statement “or approved equal”.

**LIST OF PRIOR APPROVALS:**

1. **List of prior approvals (Electrical):**
  - a. The following items, trade names, products and manufactures are approved for bidding. Approval does not relieve the bidder from satisfying the intent of the requirements of the drawings, specifications, and addenda in every respect. Failure to conform to the design quality and standards specified, established and required may result in later disapproval. If equipment must be disapproved after bidding, supplier shall supply specified equipment at no extra cost to the owner.

Items are listed generally and specific model number, etc. shall be as submitted. Items submitted but not approved either did not satisfy the requirements, or showed insufficient data, or arrived after the 8 day deadline established for the submittal process.

Description:

Manufacturer:

Lighting Fixtures F1 and F1E	Lightolier, Lite Control, Prudential
Lighting Fixtures F2 and F2E	Lightolier, Lite Control, Prudential
Lighting Fixture F3	Lightolier, Lite Control, Prudential
Lighting Fixtures F4 and F4E	Lightolier, Lite Control, Prudential
Lighting Fixture F5	Lightolier, Intense, Lithonia
Lighting Fixture F6	Lightolier, Eureka, Pace
Lighting Fixture F7	Pinnacle, Winona, Rebelle
Lighting Fixture F8	Lightolier, Prescolite, Gotham
Lighting Fixture F9	Prisma, Eclipse
Lighting Fixture F10	Exceline, Hubbell, Lithonia
Lighting Fixture F11	Lightolier, Columbia, Lithonia EJ
Lighting Fixture F12	Lightolier, Columbia, Lithonia
Lighting Fixture F13	Lightolier, Columbia, Lithonia
Lighting Fixture E1 and E2	Lightolier, Hubbell, Lithonia
Lighting Fixture E3	Lightolier, Hubbell, Lithonia
Lighting Fixture X1	Lightolier, Hubbell, Lithonia
Lighting Fixtures SF1 and SF2	Lithonia

**QUESTIONS:**

1. On plan sheet AS101, why does the asphalt parking on the east side of the building have a D-P keyed note rather than a D-R note, which is in the other areas of the asphalt? These two notes appear to be the same.  
**ANSWER: Keyed note D-R designates 3.5" asphalt concrete over 10" granular base, compacted to 96% over properly prepared subgrade or fill. Keyed note D-P designates 3" asphalt concrete over 9" granular base, compacted to 96% over properly prepared subgrade or fill. Refer to 10/AS501 Pavement Sections.**
2. On plan sheet AS101 there does not appear to be a curb wall or curb and gutter at the east and west edge of the asphalt parking lot. What is the edge detail? Does the asphalt just roll off?  
**ANSWER: Detail 25/AS501 applies at all areas where the asphalt does not intersect with concrete curbs and/or gutters and would apply in the areas in question.**
3. On plan sheet AS101 at the southeast edge of the asphalt there is a note B calling for curb and gutter, but the curb and gutter is not drawn in. Do we still figure curb and gutter at that location?  
**ANSWER: Provide concrete curb and gutter at the location in question.**
4. On plan sheet AS101 reference notes 4 and 6 do not appear to apply to this project.  
**ANSWER: Reference notes 4 and 6 do not apply to this project.**

End of Document

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

SECTION 07511 – THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A.
1. Provide and install a complete **mechanically fastened** Thermoplastic Polyolefin (TPO) membrane roofing system and Polyisocyanurate Foam Board Insulation. Provide **60 mil membrane**, light gray or white in color.
- B. Related work specified elsewhere is as follows:
1. Metal counterflashings, copings and expansion joint covers are specified in another Division 7 Section.
  2. Division 6 Section “Rough Carpentry” for Wood Nailers and Curbs.
- C. Quality Assurance:
1. Manufacturer Qualifications: Provide primary products, including each type of roofing sheet composition flashings, produced or labeled by primary system manufacturer. Provide secondary products only as approved in writing by manufacturer of primary products for use with roofing system specified.
  2. Installer qualifications: A single Installer (“Roofer”) shall perform the work of this Section.
    - a. Contractor shall be pre-qualified prior to acceptance of bid according to the procedures outlined in the ROOFING CONTRACTOR QUALIFICATION STATEMENT included in these documents.
  3. Installer’s Field Supervision: Installer must maintain full-time supervisor/foreman on job site during times that roofing work is in progress.
    - a. Maintain same foreman/supervisor on the job throughout the Construction Period.
    - b. Any changes because of extenuating circumstances must be approved by the Architect.
    - c. Field Supervisor’s Qualifications:
      - 1) Minimum of 5 years experience in roofing work similar in nature and scope to specified work.
      - 2) Ability to fluently speak and read English, understand roofing terminology applicable to specified work and able to read and understand Construction Documents.
  4. Pre-Installation Roofing Conference: Approximately two weeks prior to scheduled commencement of built-up (or alternate) roofing installation and associated work, meet at project site with Roofing Installer, Roofer’s Field Supervisor, installer of each component of associated work, installers of deck or substrate construction to receive roofing work, in and around roofing which must precede or follow roofing work, Architect, Owners Representative, Agency Representative and other representatives directly concerned with

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

performance of the work.

- a. Review foreseeable methods and procedures related to roofing work, including but not necessarily limited to the following:
    - 1) Tour representative areas of roof inspect and discuss condition of substrate, roof drains, curbs, penetrations and other existing work which must be considered in conjunction with roof installation.
    - 2) Review roofing system requirements (drawings, specifications and other contract documents).
    - 3) Review required submittals, both completed and yet to be completed.
    - 4) Review and finalize construction schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
    - 5) Review required inspection, testing, certifying and material usage accounting procedures.
    - 6) Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.
  - b. Architect will record discussions of conference and decisions and agreements (or disagreements) reached and furnish copy of record to each party attending.
  - c. Field Supervisor's Qualifications:
    - 1) Minimum of 5 years experience in roofing work similar in nature and scope to specified work.
5. Governing standards: Provide TPO roofing system and component materials which have been tested for application and slopes indicated and comply with applicable standards of the following organizations:
- a. Underwriters Laboratories, Inc. (UL) for Class A external fire exposure.
    - 1) Provide roof covering materials bearing Classification Marking (UL) on bundle, package or container indicating that materials have been produced under UL's Classification and Follow-Up Service.
  - b. Factory Mutual, minimum Wind Uplift Classification of I-90.
  - c. International Building Code, latest edition.
  - d. National Roofing Contractors Association (NRCA)
  - e. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
  - f. American Society for testing and Materials (ASTM)
  - g. American Roofing Manufacturers Association (ARMA)
  - h. RIC-TIMA
6. Conflicts of Governing Standards: If conflicts occur between any listed governing standards or between listed standards and Construction Documents, comply with the most expensive, stringent, limiting or explicit requirements as judged by the Architect.
- a. Refer any conflicts to Architect for direction before proceeding.
7. Quality of Installation: Requirements for Quality of Work are intended for procurement of manufacturer's highest grade product for type of roofing system indicated. All work shall meet or exceed manufacturer's latest published requirements which would qualify for a 20 year labor and material "No Dollar Limit" guarantee.
- a. Owner will not purchase Manufacturer's Roof Membrane Warranty.
8. Inspection and Testing of Installation:
- a. Owner's Inspectors: Owner's Inspectors may observe the work periodically for compliance with requirements.
    - 1) Inspectors will report observations to Architect, Owner and Contractor.
    - 2) Architect will give directions for any corrective work based on observations by Owners Inspectors.

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

- b. Inspection Services: Owner's may employ services of an independent inspection agency to observe (full or part time) installation of the work.

**1.3 SUBMITTALS**

- A. Product Data, including manufacturer's technical product data, installation instructions, and recommendations for each type of roofing product required. Include data substantiating that materials comply with requirements.
  - 1. For TPO, provide label on each container or certification with each load of roofing materials.

**1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: Engage an experienced Installer ("Roofer") to perform TPO roofing work who has specialized in the installation of TPO roofing systems similar to that required for this project and who is acceptable to by manufacturer of primary roofing materials.
  - 1. Installer Certification: Obtain written certification from manufacturer of TPO roofing system certifying that Installer is approved by manufacturer for installation of specified roofing system. Provide copy of certification to Architect prior to award of roofing work.
- B. Manufacturer Qualifications: Obtain primary products from a single manufacturer. Provide secondary products as recommended by manufacturer of primary products for use with roofing system specified.
- C. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.
- D. UL Listing: Provide TPO roofing system and component materials that have been tested for application and slopes indicated and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure.
  - 1. Provide roof-covering materials bearing UL Classification Marking on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-up Service.
  - 2. Provide TPO roofing system that can be installed to comply with UL requirements for "Fire Classified" and "Class 90" wind uplift requirements.
- E. FM Listing: Provide TPO roofing system and component materials that have been evaluated by Factory Mutual System for fire spread, wind uplift, and hail damage and are listed in "Factory Mutual Approval Guide" for Class I construction.
  - 1. Provide roof covering materials bearing FM approval marking on bundle, package, or container, indicating that material has been subjected to FM's examination and follow-up inspection service.
- F. Fire Performance Characteristics: Provide insulation materials that are identical to materials whose fire performance characteristics, per requirements listed in Part 2 of this Section, have been determined by testing by UL or other testing and inspecting agency acceptable to authorities having jurisdiction, when tested for the assemblies of which the insulation materials are a part and in accordance with test methods.

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

- G. Preliminary Roofing Conference: As soon as possible after award of TPO roofing work, meet with Installer (Roofer), installers of substrate construction (decks) and other work adjoining roof system including penetrating work and rooftop units, Architect, Owner, and representatives of other entities directly concerned with performance of roofing system including (as applicable) Owner's insurers and test agencies.
1. Review requirements (Contract Documents), submittals, status of coordinating work, availability of materials, and installation facilities and establish preliminary installation schedule. Review requirements for inspections, testing, certifications, forecasted weather conditions, governing regulations, insurance requirements, and proposed installation procedures.
  2. Discuss roofing system protection requirements for construction period extending beyond roofing installation. Discuss possible need for temporary roofing.
  3. Record discussion, including agreement or disagreement on matters of significance; furnish copy of recorded discussions to each participant. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
- H. Pre-application Roofing Conference: Approximately two weeks prior to scheduled commencement of TPO roofing installation and associated work, meet at project site with Installer, installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in and around roofing that must precede or follow roofing work (including mechanical work if any), Architect, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the work, including (where applicable) Owner's insurers, test agencies, and governing authorities.
1. Review foreseeable methods and procedures related to roofing work, including but not necessarily limited to the following:
    - a. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations, and other preparatory work performed by other trades.
    - b. Review structural loading limitations of steel deck and inspect deck for loss of flatness and for required mechanical fastening.
    - c. Review roofing system requirements (drawings, specifications, and other contract documents).
    - d. Review required submittals, both completed and yet to be completed.
    - e. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
    - f. Review required inspection, testing, certifying, and material usage accounting procedures.
    - g. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not a mandatory requirement).

**1.5 PROJECT CONDITIONS**

- A. Weather Condition Limitations: Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle all roofing materials and accessories in a manner that will ensure that there is no possibility of significant moisture pickup. Store in a dry, well-ventilated, weather-tight place. Unless protected from weather or other moisture sources, do not leave unused materials on the roof overnight or when roofing work is not in progress. Store materials on pallets or other raised surface. Handle and store materials or equipment in a manner to avoid significant or permanent deflection of deck.

1.7 WARRANTIES

- A. Manufacturer's Warranty: Submit executed copy of roofing manufacturer's standard "Limited Service Warranty" agreement including flashing endorsement, signed by an authorized representative of TPO roofing system manufacturer, on form that was published with product literature as of date of Contract Documents, for the following period of time:

1. **20 years after date of Substantial Completion.**

PART 2 - PRODUCT

2.1 ROOF INSULATION

- B. Polyisocyanurate Foam Board Insulation: Rigid boards of minimum 2.0 lb./cu. ft. density polyisocyanurate based foam core, permanently bonded to roofing felt facer sheets. Provide in thickness indicated, with minimum aged K-value of 0.17 (when conditioned per RIC/TIMA Bulletin NO. 281-1).

2.2 THERMOPLASTIC PLYOLEFIN (TPO) mechanically fastened membrane roofing system. Provide **60 mil membrane**, light gray or white in color, meeting the following physical properties and requirements:

- a. Breaking Strength: 225 lbf (1kN); ASTM D 751, grab method.
- b. Elongation at Break: 25 percent, ASTM D 751.
- c. Tearing strength: 55 lbf minimum; ASTM D 751, Procedure B.
- d. Brittleness Point: Minus -40 deg. F.
- e. Ozone Resistance: No cracks after sample, wrapped around a 3-inch (75 mm.) diameter mandrel, is exposed for 166 hours to a temperature of 104 deg F (40 deg C) and an ozone level of 100 pphm (100 mPa); ASTM D 1149.
- f. Resistance to Heat Aging: 90 percent minimum retention of breaking strength, elongation at break, and tearing strength after 166 hours at 240 deg F (116 deg C); ASTM D 573.
- g. Water Absorption: Less than 4 percent max. mass change after 166 hours immersion at 158 deg F (70 deg C); ASTM D 471.
- h. Linear Dimension Change: Plus or minus 1 percent; ASTM D 1204.
- i. Provide auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- j. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic polyolefin sheet flashing, **60 mils thick**, minimum, of same color as sheet membrane.
- k. Bonding Adhesive: Manufacturer's standard solvent-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings.

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

- l. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions of FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- m. Miscellaneous Accessories: Provide pourable sealer, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint cover, termination reglets, cover strips, and other accessories.
- j. Install all roofing materials in accordance with manufacturer's recommendations and current applicable codes.
- i. Available Manufacturers:
  - 1. Carlisle Syn Tec Incorporated.
  - 2. Firestone Building Products Company.
  - 3. GAF Materials Corporation.
  - 4. GenFlex Roofing Systems.
  - 5. Johns Manville International, Inc.
  - 6. Sarnafil Inc.
  - 7. Stevens Roofing Systems; Division of JPS Elastomerics.

**2.3 SHEET METAL ACCESSORY MATERIALS**

- A. Refer to Section 07600, "FLASHING AND SHEET METAL."

**2.4 MISCELLANEOUS MATERIALS**

- B. Wood Members, Units: Comply with requirements of "Carpentry" sections of these specifications for nailers and other wood members indicated as roofing system work. Provide wood pressure treated with waterborne preservatives for above-ground use (AWPB LP-2).
- C. Substrate Joint Tape: 6-inch or 8-inch-wide coated glass-fiber joint tape.
- D. Mastic Sealant: Polysio-butylene (plain or bituminous modified), nonhardening, nonmigrating, nonskinning, and nondrying.
- E. Fasteners: Provide industry-standard types of mechanical fasteners for TPO roofing system work, tested by manufacturer for required pull-out strength where applicable and compatible with deck type and roofing products used. Provide either 1-inch-diameter nail heads or 1-3/8-inch-diameter by 30-gage sheet metal caps for nails used to secure base sheets, felts, or insulation boards of roofing system.

**2.5 FABRICATION OF SHEET METAL ACCESSORIES**

- A. SMACNA and NRCA Details: Conform work with details shown and with applicable fabrication requirements of "Architectural Sheet Metal Manual" by SMACNA. Comply with installation details of "Roofing and Waterproofing Manual" by NRCA.
- B. Fabricate work with flat-lock soldered joints and seams; except where joint movement is necessary, provide 1-inch-deep interlocking hooked flanges filled with mastic sealant.
- C. Fabricate roof insulation vents with 4-inch-diameter stack, 12 inches high, filled with glass-fiber insulation. Equip stack with 6-inch-diameter by 3-inch-high weatherproof vent cap.
- D. Fabricate penetration sleeves with minimum 8-inch-high stack, of diameter 1 inch larger than penetrating element. Counterflashing is specified as work of another section of these

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

specifications.

**PART 3 - EXECUTION**

**3.1 INSPECTION OF SUBSTRATE**

- A. Examine substrate surfaces to receive TPO roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Installer.
  - 1. Verify that flatness and fastening of metal roof decks comply with the following:
    - a. Top Flanges: No concavity or convexity in excess of 1/16 inch across any 3 adjacent flanges.
    - b. Side Laps: Properly nested and mechanically fastened at a maximum spacing of 3 feet o.c.
    - c. End Laps: Minimum 2-inch laps located over and fastened to supports.
    - d. Deck secured to each supporting member in every other rib (maximum spacing 12 inches o.c.) with puddle welds or approved mechanical fasteners.

**3.2 GENERAL INSTALLATION REQUIREMENTS**

- B. Insurance/Code Compliance: Install TPO roofing system for (and test where required to show) compliance with governing regulations and with the following insurance requirements:
  - 1. Factory Mutual requirements for "Class I" or "Noncombustible," including zoned wind resistance as specified by FM.
  - 2. Underwriters Laboratories "Fire Classified" and "Class 90" wind uplift resistance.
- C. Coordinate the installation of insulation, roofing sheets, flashings, stripping, coatings, and surfacings so that insulation is not exposed to precipitation or exposed overnight. Provide cut offs at end of each day's work, to cover exposed membrane and insulation with a course of membrane with joints and edges sealed with appropriate material. Remove cut offs immediately before resuming work. Glaze-coat installed ply-sheet courses at end of each day's work where final surfacing has not been installed.
- D. Cutoffs: At end of each day's roofing installation, protect exposed edge of incomplete work. Provide temporary covering of membrane; remove at beginning of next day's work.

**3.3 VAPOR RETARDER INSTALLATION**

- E. Vapor Retarder on Steel Decks: Mechanically fasten one course of perlite board roof insulation in thickness as required to span deck flutes, but not less than 1 inch thick. Use FM-approved fasteners specifically designed for securing insulation boards to steel roof deck and driven through metal discs. Space fasteners in accordance with FM requirements for Windstorm Resistance Classification I-90. Locate end joints of insulation over deck flutes.

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

**3.4 INSTALLATION OF INSULATION**

- A. General: Comply with insulation manufacturer's instructions and recommendations for the handling, installation, and bonding or anchorage of insulation to substrate.
- B. Secure insulation to deck using mechanical fasteners specifically designed and sized for attachment of specified board type insulation to deck type shown. Fasten insulation over entire area of roofing at spacing as required by FM for Windstorm Resistance Classification I-90. Run long joints for insulation in continuous straight lines, perpendicular to roof slope with end joints staggered between rows.
- C. Two-Layer Installation: Where overall insulation thickness is 2 inches or greater, install required thickness in two layers with joints of second layer staggered from joints of first layer a minimum of 12 inches each direction. Install using a minimum of six (6) fasteners and plates per 4' by 8' board (1 per 5.3 square feet) and four (4) fasteners and plates per 4' by 4' board (1 per 4 square feet).
- D. Trim surface of insulation where necessary at roof drains so completed surface is flush with ring of drain.

**3.5 ROOF MEMBRANE INSTALLATION**

- A. Install in strict accordance with Manufacturer's recommendations, requirements and methods. Manufacturer's fasteners and fastening plates must be used for membrane securement and are dependent on the roof deck type. Refer to manufacturer's Withdrawal Resistance Criteria for specific fastener and plate requirements. The field and perimeter membrane width and fastening requirements are dependent upon the project wind zone, building height and deck type. Additional membrane securement is required at the perimeter of each roof level, roof section, curb, skylight, interior wall, penthouse, etc., at any inside angle change where slope or combined slopes exceed 2" in one horizontal foot, at and other penetrations in accordance with the applicable manufacturer details.
- A. Shingling of Plies: Except as otherwise indicated, install membrane with ply sheets shingled uniformly to achieve required number of thickness of membrane throughout. Shingle in proper direction to shed water on each large area of roofing, where slope is significant (over 1/2 inch).
- B. Cant Strips/Tapered Edge Strips: Except as otherwise shown, install preformed 45-deg insulation cant strips at junctures of TPO roofing system membrane with vertical surface. Provide preformed, tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

**3.6 FLASHING AND STRIPPING**

- C. Install stripping where metal flanges are set on roofing.
- D. Roof Drains: Fill clamping ring base with a heavy coating of roofing cement. Set lead flashing sheet in a bed of roofing cement on completed TPO roofing ply sheet courses, with lead sheet clamped in roof drain ring and extended 12 inches onto roofing. Cover lead sheet with stripping, with plies extended 4 inches to 6 inches beyond edges of lead sheet.
- E. Allow for expansion of running metal flashing and edge trim which adjoins roofing. Do not seal or bond membrane to metal flanges over 3 feet in length.
- F. Counter-flashings: Counter-flashings, cap flashings, expansion joints, and similar work to be coordinated with TPO roofing work are specified in other sections of these specifications.

**DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL  
NEW LIQUOR STORE**

END OF SECTION 07511