

DOCUMENT 00 91 13**Addendum Number One**

DATE: March 9, 2023

PROJECT: ITD D5 Maintenance Building Addition and
Renovation and New Brine Facility
Blackfoot, Idaho

PROJECT NO.: 22569

OWNER: Idaho Transportation Department
11331 West Chinden Boulevard, Building 8
Boise, Idaho 83714

CONSTRUCTION
MANAGER: Bateman Hall, Inc.
1405 Foote Drive
Idaho Falls, Idaho 83402

ARCHITECT: Myers Anderson Architects, PLLC
122 South Main Street, Suite 1
Pocatello, Idaho 83204

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the Bidding Documents dated February 2023.

Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may disqualify the Bidder.

This Addendum consists of five (5) pages plus attachments. **Total seventy (70) pages.**

Reminders and Clarifications

1. The Bid Date is Tuesday, March 21, 2023.
2. The Bid Submission Deadlines (and immediate openings) will be staggered as noted in specification section 00 00 30 – Advertisement for Bids.
3. Review the specification requirements for labeling sealed bids envelopes as described in specification section 00 00 30 – Advertisement for Bids.
4. As a clarification to how the bids can be received, per specification Section 00 00 30 – Advertisement for Bids, sealed bids
 - a. MAY be hand delivered or mailed to the location in the specification; and
 - b. MAY NOT be faxed or emailed.

General

1. The existing Maintenance Building and Building Addition shall receive a single-ply roofing system. It is the contractor's option to bid either a TPO System or a PVC System, the State of Idaho 30 Year Guaranty for Single-Ply Roofing and the State of Idaho 5 Year Roofing Warranty shall be provided for either option.
2. The Brine Facility Building shall receive a metal roof system as indicated in the specifications and drawings.
3. Contact Information for the specified Brine System is as follows.
 - a. Varitech Brine System
Paul Tollefson
Cell # (952-737-7347
Email: ptollefson@varitech-industries.com

Specifications

1. Replace Table of Contents in the specification with attached Table of Contents.
2. Replace Section 00 00 31 Bid Package Index with attached 00 00 31 Bid Package Index. Revisions are as follows.
(Note that sections removed/added to/from specs were also revised in their respective bid packages)
 - a. Added "Division 29 – Appendices" to every Bid Package scope.
 - b. Revised Footer to reflect Addendum Revision.
 - c. "BP-01" Not Used" added in body of section for clarification and continuity.
 - d. BP-02: Added "Demo at mezzanine for temporary shoring" and "Filing of Notification of Demolition and Renovation with State of Idaho" to scope.
 - e. BP-07: Added "Repair mezzanine floor at temporary shoring locations" to scope.
 - f. BP-08
 - 1) Added Section 07 01 40 – Selective Demolition of Roofing Materials
 - 2) Added Section 07 53 03 – Elastomeric Membrane Roofing (TPO) Fully Adhered
 - 3) Added Section 07 53 03 – Elastomeric Membrane Roofing (PVC) (Alt. to TPO)
 - 4) Added Section 07 61 00 – Sheet Metal Roofing
 - 5) Added Section Number and Revised Name for "07 99 00 – Roofing Workmanship 5 Yr. Warranty (DPW Form)"
 - 6) Added Section 07 99 01 – Single-Ply Roofing 30 Yr. Guaranty (DPW Form)
 - g. BP-12: Corrected Section 07 41 13.13 to read correctly as 07 42 10.21 and deleted in its entirety.
 - h. BP-18: Added "including concrete cutting, removal & patch back as necessary" to scope.
 - i. BP-19
 - 1) Added "Division 28 – Electronic Safety & Security (Fire Alarm) to scope.
 - 2) Added "including concrete cutting, removal, & patch back as necessary to scope.
 - 3) Removed "Owner Trailer Hook-up" from scope.
3. Replace Section 00 08 13 Sample Contract Exhibit (A132-2019 Exhibit A) and Insurance Examples with attached Section 00 08 13 Sample Contract Exhibit (A132-2019 Exhibit A) and Insurance Examples. Revisions are as follows.
 - a. Revised Footer, where applicable, to reflect Addendum Revision.
 - b. Added Project Specific Insurance Requirements Information to Page 6.
 - c. Added Sample Insurance Certification to Page 7.
4. Replace the language in Section 01 23 00 – Alternates, 3.1 Schedule of Alternates, B. Alternate No. 2 with the following.
Alternate No. 2: Brine Production Facility, Site Work, and Components
 1. Base Bid: Excludes all work and site work associated with the construction for the Brine Production Facility, including brine building materials, building location site work, utilities to

the brine facility, brine production units and components, brine tank area slab, stem walls, concrete piers, and brine tank piping.

2. Add Alternate: All work associated with construction of the Brine Production Facility including site grading as described on and in the drawings and specifications. Including Brine Production Facility building materials, location site work, utilities, brine production units and components, brine tank area slab, stem walls, concrete piers, six brine tanks and all brine tank piping. Brine production unit(s) basis of design is the Varitech Brine Boss with automated touchscreen-controlled unit paired with the Salt Brine Production unit (stainless steel) [MODEL(S): HCSB1400-SS-1PH and BRINE BOSS CABINET-1PH]. Brine tank unit basis of design is the Den Hartog 10,500 gal vertical tank, Part #VT10500-142. Any/all substitutions shall be reviewed for approval at time of bidding. Contractor is responsible for the piping and plumbing of these tanks. Brine Production slab and concrete stem walls to receive Sikagard 705L. The Brine Tank Area slab and stem walls to receive Sikagard 705L. Any/all substitutions for Sikagard 705L shall be reviewed for approval at time of bidding. Coordinate with structural, electrical, mechanical, and plumbing drawings for ADD ALT info / directives.
5. Delete Section 05 40 00 Cold-Formed Metal Framing in its entirety from the specification including all references to this section.
6. Add attached Section 07 01 40 – Selective Demolition of Roofing Materials to the specification.
7. Delete Section 07 42 10.21 Continuous Insulation (CI) with Composite Framing Support (CFS) System in its entirety from the specification including all references to this section.
8. Delete Section 07 25 00 Weather Barriers in its entirety from the specification including all references to this section.
9. Add attached Section 07 53 03 – Elastomeric Membrane Roofing (TPO) – Fully Adhered to the specification.
10. Add attached Section 07 53 03 – Elastomeric Membrane Roofing (PVC) (Alternative Option to TPO) to the specification.
11. Add attached Section 07 99 01 - Single-Ply Roofing 30 Yr. Guaranty (DPW Form) to the specification.
12. Add attached Section 09 51 13 – Acoustical Panel Ceilings to the specification.
13. Replace Section 22 01 00 – Plumbing with attached Section 22 01 00 in the specification. 2.5-A. Added a specification for the brine transfer system

Substitutions

1. Section 07 41 13.13 Formed Metal Roof Panels: Taylor Metal Products is an approved manufacturer.
2. Section 07 42 13 Metal Wall Panels: Taylor Metal Products is an approved manufacturer.
3. Section 07 61 00 Sheet Metal Roofing: Taylor Metal Products is an approved manufacturer.
4. Section 10 21 13 Toilet Partitions: Scranton Products Eclipse Partitions are an approved manufacturer.

Architectural Drawings

1. Sheet G100: Schedule of Alternates. Replace language for Alternate No. 2 with the following.
Alternate No. 2: Brine Production Facility, Site Work, and Components
 - b. Base Bid: Excludes all work and site work associated with the construction for the Brine Production Facility, including brine building materials, building location site work, utilities to the brine facility, brine production units and components, brine tank area slab, stem walls, concrete piers, and brine tank piping.
 - c. Add Alternate: All work associated with construction of the Brine Production Facility including site grading as described on and in the drawings and specifications. Including Brine Production Facility building materials, location site work, utilities, brine production units and components, brine tank

area slab, stem walls, concrete piers, six brine tanks and all brine tank piping. Brine production unit(s) basis of design is the Varitech Brine Boss with automated touchscreen-controlled unit paired with the Salt Brine Production unit (stainless steel) [MODEL(S): HCSB1400-SS-1PH and BRINE BOSS CABINET-1PH]. Brine tank unit basis of design is the Den Hartog 10,500 gal vertical tank, Part #VT10500-142. Any/all substitutions shall be reviewed for approval at time of bidding. Contractor is responsible for the piping and plumbing of these tanks. Brine Production slab and concrete stem walls to receive Sikagard 705L. The Brine Tank Area slab and stem walls to receive Sikagard 705L. Any/all substitutions for Sikagard 705L shall be reviewed for approval at time of bidding. Coordinate with structural, electrical, mechanical, and plumbing drawings for ADD ALT info / directives.

2. Sheets G102, G104, D100, D101, A100, A101, A102, A103, A104, A105, A106, A200, A201, S300, A301, A302, A400, A401, A500, A501, A502, A600, S1.0, S1.1, S1.2, S1.3, S1.4, S2.0, S2.1, S2.2, S2.3, S2.4, S3.0, S3.1, S4.0, S5.0, S5.1, MD100, M100, PD100, P100, P101, P102, E100, E101, E200, E201, E300, E302: Replace language for Add Alternate 2 with the following.
 - a. Brine production facility and all associated items, to include bldg. location site work, utilities, bldg. materials, brine production units and components, brine tank area slab, stem walls, conc. piers, six brine tanks and tank piping.
3. Sheet G104: Wall Types.
 - a. Wall type W8A interior 5/8" gyp board to carry from floor to ceiling.
 - b. Wall types W8A and B8Y disregard the vapor barrier called out on the wall above grade.
4. Sheet A105: Brine Building Plan, Sheet Note #2. Revise language to read as follows.
 - a. Contractor responsible for all brine tank plumbing and to provide (6) brine storage tanks per plan. Brine tank unit basis of design is the Den Hartog 10,500 gal. vertical tank, Part #VT10500-142.
5. Replace Sheet A400: Door & Window Schedules, Elevations and Notes with attached Sheet A400: Door & Window Schedules, Elevations and Notes. Revisions include the following.
 - a. Updated door and window schedule (detail/1/A400)
 - b. Updated door elevations and associated door elevation numbers (detail 3/A400)
6. Sheets A500: Finish Schedule and A502: Interior Elevations. FRP shall be Class C, White, Embossed.

Plumbing Clarifications

1. There will be areas of the waste drainage system that will need to be hand dug due to the close proximity of existing walls and utilities. Plumbing Contractor should plan accordingly.
2. PVC condensate plans are acceptable as outline in the plumbing specifications.
3. Press fittings are acceptable.

Plumbing Drawings

1. Replace Sheet P102: Brine Plumbing New Work Plan with attached Sheet P102: Brine Plumbing New Work Plan. Revisions include the following.
 - a. Added replacement brine pumps and tanks.
2. Sheet P102: Brine Building Plumbing Plan. Keyed Note 8: Pipe supports shall be designed to keep the pipe off of the ground. Support blocks with unistrut and clamps are acceptable.
3. Replace Sheet P201: Plumbing Details & Schedules with attached Sheet P201: Plumbing Details & Schedules. Revisions include the following.
 - a. Added Transfer Station Schedule
 - b. Added Brine Tank Schedule

Electrical Drawings

1. Replace Sheet E201: Brine Power Plan with attached Sheet E201: Brine Power Plan. Revisions are as follows.
 - a. Revised transfer pump electrical connection

Attachments

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Section 07 53 03 - Elastomeric Membrane Roofing (TPO) – Fully Adhered

Section 07 53 03 - Elastomeric Membrane Roofing (PVC) - Alternative Option to TPO

Section 07 99 01 - Single-Ply Roofing 30 Yr. Guaranty (DPW Form)

Section 09 51 13 - Acoustical Panel Ceilings

Section 22 01 00 - Plumbing

Sheet A400 - Door & Window Schedules, Elevations, and Notes

Sheet P102 - Brine Plumbing New Work Plan

Sheet P201 - Plumbing Details & Schedules

Sheet E201 - Brine Power Plan

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BP-01 Not Used

BP-02 Demolition (FM52322)

Contract Documents including all drawings and the following specifications:

- Division 00 – Procurement and Contracting Requirements
- Division 01 – General Requirements
- Division 02 – Existing Conditions
- Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Removal of the following items as identified on the drawings:

- Interior wall (including Gypsum)
- CMU Walls
- Concrete (footings, walls and aprons)
- Asphalt, as necessary for new construction
- Bond Beam
- Concrete Slab demo for new fire riser location

Cut opening for new access hatch;

Shoring & Bracing as necessary to maintain integrity of existing structure during new construction (including design calculations);

Demo at mezzanine for temporary shoring;

Filing of Notification of Demolition and Renovation with State of Idaho;

Clean-up and Waste Disposal of own work.

BP-03 Concrete (FM52323)

Contract Documents including all drawings and the following specifications:

- Division 00 – Procurement and Contracting Requirements
- Division 01 – General Requirements
- Division 02 – Existing Conditions (as applicable to this scope package)
- Division 03 – Concrete
- 07 90 00 – Joint Protection (as applicable to this scope package)
- Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

- All concrete associated with both buildings (interior & exterior) and the containment structure;
- Excavation and backfill, including structural fill and compaction as necessary;
- Aggregate base course for slabs and Associated Site Concrete;
- Concrete pumping (as required);
- Exposed concrete sack finishes (as required);
- Finish grading away from buildings and structure;
- Placement of structural steel embeds;
- Grout column base plates (including at the tank structure);
- Clean-Up and Waste Disposal of Own Work;
- Coordinate with plumber on installation of plumber's trench drains;
- Supply and installation of:
 - Bollards
 - Reinforcement
 - Anchor bolts
 - Rigid Insulation at foundation walls and slab
 - Expansion materials
 - Concrete sealants
 - Concrete sealer (including power wash and prep prior to)
 - Weather protection, if needed
 - Concrete washout for SWPPP
 - Floor slab pour-back at new fire riser

BP-04 Masonry (FM52324)

Contract Documents including all drawings and the following specifications:

- Division 00 – Procurement and Contracting Requirements
- Division 01 – General Requirements
- Division 04 – Masonry
- 07 90 00 – Joint Protection (as applicable to this scope package)
- Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

- CMU Walls;
- Layout and Placement of embeds;
- Drill and epoxy masonry rebar in concrete;
- Installation of hollow metal frames in masonry walls (coordinate with supplier);
- Shoring and bracing (as required);
- Cell Fill;
- Protection of Masonry;
- Protection of adjacent work during construction;
- Point, Patch and Cleaning of all Masonry;
- Dust Control;
- Concrete washouts for own work;
- SWPPP Maintenance and repairs for Own Work;
- Clean-Up and Waste Disposal of Own Work;
- Supply and Installation of:
 - Reinforcement
 - Lintels
 - Weather protection, if needed

BP-05 Structural/Misc. Steel (FM52325)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

05 12 00 – Structural Steel Framing

05 50 00 – Metal Fabrications

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Structural Steel;

Anchor Bolts and Anchor bolt templates;

Gas Meter Cover;

All Steel Embeds;

All Misc. Steel except for masonry lintels (masonry lintels will be supplied by BP-04 Masonry);

Includes steel for door jambs and overhead doors;

Connection Clips and Plates;

Field Verify Dimensions;

Equipment Required to Perform Work (including crane if needed);

Chipping and Touch Up Painting of own welds;

All Bearing Pads, Shim Packs, and Bolts;

Clean-up and Waste Disposal of own work;

Protection of own work.

BP-06 Metal Canopy (FM52326)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

Division 13 – Special Construction

05 12 00 – Structural Steel Framing (as applicable to this scope package)

05 50 00 – Metal Fabrications (as applicable to this scope package)

07 90 00 – Joint Protection (as applicable to this scope package)

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Metal canopy structure;

Engineered Drawings;

Anchor bolts;

Flashing to Brine Facility;

Equipment Required to Perform Work (including crane if needed);

Clean-up and Waste Disposal of own work;

BP-07 Wood Framing (FM52327)

Contract Documents including all drawings and the following specifications:

- Division 00 – Procurement and Contracting Requirements
- Division 01 – General Requirements
- Division 06 – Wood, Plastics and Composites
- 07 26 00 – Vapor Retarders (as applicable to this scope package)
- 08 12 14 – Standard Steel Frames (as applicable to this scope package)
- Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

- Walls;
- Joists;
- Rough hardware, hangers, and ledger;
- Window prep;
- Blocking;
- Set door jambs;
- Weather Barrier where shown on drawings;
- Layout of own work;
- Repair mezzanine floor at temporary shoring locations;
- Equipment Required to Perform Work (including crane if needed);
- Clean-up and Waste Disposal of own work.

BP-08 Roofing (FM52328)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

07 01 40 – Selective Demolition of Roofing Materials

07 41 13.13 – Formed Metal Roof Panels

07 42 13 – Metal Wall Panels

07 53 03 – Elastomeric Membrane Roofing (TPO) Fully Adhered

07 53 03 – Elastomeric Membrane Roofing (PVC) (Alternative Option to TPO)

07 61 00 – Sheet Metal Roofing

07 62 00 – Sheet Metal Flashing and Trim

07 71 00 – Roof Specialties

07 71 23 – Manufactured Gutters and Downspouts

07 90 00 – Joint Protection (as applicable to this scope package)

07 99 00 – Roofing Workmanship 5 Yr. Warranty (DPW Form)

07 99 01 – Single Ply Roofing 30 Yr. Guaranty (DPW Form)

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Removal of existing roofing, gutters, downspout, fascia and trim on the maintenance building;
New roofing, gutters, downspouts, fascia, trim, soffits and insulation for the maintenance building;
Metal roof, soffit, fascia and trim for the brine building;
Provide Unit Price to repair damaged cover board and insulation that was to remain;
Splashblocks;
Caulking of own work;
Clean-Up and Waste Disposal of Own Work.

BP-09 Windows (FM52329)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

~~07 25 00 – Weather Barriers (as applicable to this scope package)~~

07 90 00 – Joint Protection (as applicable to this scope package)

08 53 13 – Vinyl Windows

08 80 00 - Glazing

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

New windows for both buildings;

Pre-Finished metal drip edge at windows;

All caulking, sealants and material for the continuous weather and moisture barrier requirements;

Finish sealants to the adjacent finish surfaces such as masonry, drywall, EIFS, etc.;

Removal of all stickers;

Clean-Up and Waste Disposal of Own Work.

BP-10 Doors (FM52330)

Contract Documents including all drawings and the following specifications:

- Division 00 – Procurement and Contracting Requirements
- Division 01 – General Requirements
- 07 90 00 – Joint Protection (as applicable to this scope package)
- 08 12 14 – Standard Steel Frames
- 08 13 14 – Standard Steel Doors
- 08 14 16 – Flush Wood Doors
- 08 71 00 – Door Hardware
- Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

- Doors, frames and hardware;
- Include additional adjustment of hardware after three months of use;
- Prep and Installation of all Door Frames (Masonry Wall Frame Installation will be by Mason – Coordinate and Special Instruction with Mason including foaming of the door frames for hardware prep.);
- Prep all doors and frames for paint (including bondo as needed);
- Clean-Up and Waste Disposal of Own Work.

BP-11 Overhead Doors (FM52331)

Contract Documents including all drawings and the following specifications:

- Division 00 – Procurement and Contracting Requirements
- Division 01 – General Requirements
- 08 36 13 – Sectional Doors
- Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

- Overhead doors with motors;
- Windows/glass @ OH Doors;
- Layout and Field Measurement of own work;
- Clean-Up and Waste Disposal of Own Work.

BP-12 Drywall & Insulation (FM52332)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

~~05 40 00 – Cold-Formed Metal Framing~~

07 21 13 – Board Insulation

07 21 16 – Blanket Insulation

~~07 25 00 – Weather Barriers~~

07 26 00 – Vapor Retarders (as applicable to this scope package)

~~07 42 10 21 – Continuous Insulation with Composite Framing Support System~~

07 90 00 – Joint Protection (as applicable to this scope package)

08 12 14 – Standard Steel Frames (as applicable to this scope package)

09 21 16 – Gypsum Board Assemblies

09 22 16 – Non-Structural Metal Framing

Division 29 – Appendices

Added

09 51 13 - Acoustical Panel Ceilings

Work to Include, but not limited to the supply and installation of:

Drywall, tape and texture;

Ceilings (gypsum and suspended);

Fire Rated materials where required;

Wall and Ceiling Insulation (including rigid with Z-clips);

Vapor barrier;

Sealant at wall to slab;

FRP panels;

Clean-Up and Waste Disposal of Own Work.

BP-13 Painting (FM52333)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

09 90 00 – Painting and Coatings

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Painting complete including walls, floors, doors, ceilings and bollards;

Indicator striping as per A500 & A501;

Caulking of anything that paints, prior to painting;

Clean, sand and prep all items prior to painting;

Block sealer;

Painting of gas piping;

Any necessary touch up painting required for steel;

Protection of adjacent work;

Protection of other work as necessary;

Clean-Up and Waste Disposal of Own Work (including any over-spray).

BP-14 Not Used

BP-15 LVP Flooring (FM52335)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

09 65 00 – Resilient Flooring

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Rubber base;

Transitions to adjacent surfaces;

Floor preparation;

Moisture Mitigation for Own Work;

Protection of work after installation;

Clean-Up and Waste Disposal of Own Work.

BP-16 Specialty Items (FM52336)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

Division 10 – Specialties

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Toilet Partitions;

Toilet Accessories;

Fire Extinguishers;

Signage;

Robe Hooks;

Layout of own work;

Corner Guards;

Clean-Up and Waste Disposal of Own Work.

BP-17 Fire Suppression (Alternate Bid Item) (FM52337)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

Division 21 – Fire Suppression

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Design;

Permit Approval and Fees;

Fire Water Connection and Line into Building (includes excavation, backfill and thrust blocks);

Structural Supports as needed for fire pump equipment;

Core drilling, saw cutting, grouting, caulking and fire stopping for own penetrations;

Protection of heads after install and removal of protection at substantial completion;

Fire Caulking of own work where required by code;

Commissioning and Start Up Reports;

Clean-Up and Waste Disposal of Own Work.

BP-18 Plumbing & HVAC (FM52338)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

Division 22 – Plumbing

Division 23 – Heating, Ventilating, and Air Conditioning

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Plumbing and Mechanical demolition (including concrete cutting, removal, & patch back as necessary);

Plumbing & Mechanical Permits and Fees;

Utilities to 5' Outside of Building;

Excavation and backfill of own work;

Spoil pile remove of own work;

Trench Drains;

Gas piping;

Compressed air;

Blocking for plumbing and mechanical items;

Seismic bracing per code requirements;

Core drilling, saw cutting, grouting, caulking and fire Stopping for own penetrations;

Roof curbs for mechanical equipment;

HVAC controls;

All Plumbing and Mechanical Fixtures;

Brine Maker;

Brine Tanks;

Brine Containment/Tank Piping System

Fire Caulking of own work where required by code;

Commissioning and Start-Up Reports;

Test and Balancing, Provide Reports;

Vehicle Exhaust Control System (in coordination with Electrical);

Clean-Up of Own Work.

BP-19 Electrical (FM52339)

Contract Documents including all drawings and the following specifications:

Division 00 – Procurement and Contracting Requirements

Division 01 – General Requirements

Division 26 – Electrical

Division 27 – Communications

Division 28 – Electronic Safety & Security (Fire Alarm)

Division 29 – Appendices

Work to Include, but not limited to the supply and installation of:

Electrical Demolition (including concrete cutting, removal, & patch back as necessary);

Electrical Permits and Fees;

CM Trailer Hook-up;

Power for Temp Construction needs;

Coordination with Power Company for services needed;

All trenching, backfill conduits and concrete associated with new service;

Excavation and backfill of own work;

Removal of own spoil piles;

Core drilling, saw cutting, grouting, caulking and fire caulking for own penetrations;

Underground electrical conduits are to be placed under the slab gravel;

Brine Containment System Electrical including Brine Pumps, Control Stations, Control Panels, and VFDs;

Blocking for electrical items;

Seismic bracing per code requirements;

Fire Caulking of own work where required by code;

Low voltage wiring;

Commissioning of systems per Drawing Sheet E001 (or as otherwise noted);

Vehicle Exhaust Control System (in coordination with Mechanical);

Clean-Up of Own Work.

END OF SECTION 00 00 31

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AIA® Document A132™ – 2019 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the {Day} day of {Month} in the year {Year}.
(In words, indicate day, month and year.)

for the following PROJECT:
(Name and location or address)

D5 Blackfoot Maintenance Extension & Renovation

Project Number: D225080

50 N 380 W
Blackfoot, ID 83221

THE OWNER:
(Name, legal status and address)

State of Idaho Transportation Department

11331 W Chinden Blvd
Boise, ID 83714
208-334-8000

THE CONTRACTOR:
(Name, legal status, and address)

{Contractor's Company Name}
{Physical Address}
{Physical City, State Zip}
{Office Phone}
{Email}

Contract Number: {State Contract No.}

TABLE OF ARTICLES

- A.1 GENERAL
- A.2 OWNER'S INSURANCE
- A.3 CONTRACTOR'S INSURANCE AND BONDS
- A.4 SPECIAL TERMS AND CONDITIONS

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions* Report that notes added information as well as revision to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232™-2019, General Conditions of the Contract for Construction, Article 11 of A232™-2019 contains additional insurance provisions.

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A232™–2019, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

§ A.2.3 Required Property Insurance

§ A.2.3.1 The Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

[Paragraph Deleted]

[Paragraph Deleted]

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ A.2.4 Optional Extended Property Insurance.
[Section Deleted Due To Inapplicability]

§ A.2.5 Other Optional Insurance.
[Section Deleted Due To Inapplicability]

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect and the Architect's consultants, and the Construction Manager and the Construction Manager's consultants, as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, and the Construction Manager and the Construction Manager's consultants, CG 20 32 07 04.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2.

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than **One Million Dollars (\$1,000,000.00)** each occurrence, **Two Million Dollars (\$2,000,000.00)** general aggregate, and **Two Million Dollars (\$2,000,000.00)** aggregate for products-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.

- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than **One Million Dollars (\$1,000,000.00)** per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than **One Million Dollars (\$1,000,000.00)** each accident, **One Million Dollars (\$1,000,000.00)** each employee, and **One Million Dollars (\$1,000,000.00)** policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than **One Million Dollars (\$1,000,000.00)** per claim and **One Million Dollars (\$1,000,000.00)** in the aggregate.

[Paragraph Deleted]

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§ A.3.3 Contractor's Other Insurance Coverage
[Section Deleted Due To Inapplicability]

§ A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:

(Specify type and penal sum of bonds.)

Type	Penal Sum (\$0.00)
Payment Bond	100% of Contract Value
Performance Bond	100% of Contract Value

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

| NA

SAMPLE

INSURANCE CERTIFICATE REQUIREMENTS

1 COMMERCIAL GENERAL LIABILITY

\$1,000,000	Each Occurrence
\$50,000	Damage to Rented Premises
\$5,000	Med Exp (Any one Person)
\$1,000,000	Personal & Adv Injury
\$2,000,000	General Aggregate
\$2,000,000	Products/Completed Operations Aggregate

- Coverage to be written on an "**Occurrence**" Basis
- General Aggregate limits applicable **per project**
- The certificate must reference a particular project
- Contractor's/Subcontractor's insurance shall include Bateman-Hall, Inc., the project Owner, and any other party to whom Bateman-Hall, Inc. may owe protection as an additional insured on the Contractor's/Subcontractor's insurance policies**
- The additional insured coverage shall be **primary and noncontributory**
- The additional insured coverage must **include Completed Operations**
- The additional insured coverage shall not be limited in any way (e.g., not just for "general supervision")
- Include waiver of subrogation
- A copy of the additional insured waiver of subrogation and aggregate per project endorsements must be attached to the certificate of insurance**

PLEASE SEND THIS LETTER AND
SAMPLE CERTIFICATE TO
YOUR INSURANCE AGENT
WHEN REQUESTING YOUR
CERTIFICATES OF INSURANCE

2 AUTOMOBILE LIABILITY

\$1,000,000 Combined Bodily Injury and Property Damage

- Covering Any Auto
- or
- Schedule, Hired, and Non-Owned Autos

3 WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY

\$500,000 E.L. – Each Accident
\$500,000 E.L. – Disease – Each Employee
\$500,000 E.L. – Disease – Policy Limit

- Statutory Coverage for Project Location
- Waiver of Subrogation where permitted by law
- Stop Gap Liability endorsement for monopolistic states (ND, OH, WA, WY)

4 PROJECT INFORMATION

Project Name: D5 Blackfoot Maintenance Extension & Renovation
Owner's Info: State of Idaho Transportation Department
11331 W Chinden Blvd
Boise, ID 83714

5 SEND Certificates & Endorsement(s) to Bateman-Hall, Inc. via any of the following:

Mail: PO Box 1464
Idaho Falls, ID 83403
Fax: 208-523-1643
Email: Patti.Cole@bateman-hall.com

If you have any questions, please call
Patti Cole or Randy Stanger at 208-523-2681



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
08/31/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Agency Name Agency Address	CONTACT NAME: Agent's Name and Phone #	
	PHONE (A/C, No, Ext): E-MAIL ADDRESS:	FAX (A/C, No):
INSURED Subcontractors Name PO Box 123 Anywhere, ID 83402	INSURER(S) AFFORDING COVERAGE	
	INSURER A: ABC Insurance	
	INSURER B: XYZ Insurance	
	INSURER C:	
	INSURER D:	
	INSURER E:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GENL AGGREGATE LIMIT APPLIES PER: POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:	X X	ABC123456	01/01/2017	01/01/2018	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPIOP AGG \$ 2,000,000 \$
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS		ABC123456	01/01/2017	01/01/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$					EACH OCCURRENCE \$ AGGREGATE \$ \$
B	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A	WC123456	01/01/2017	01/01/2018	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Bateman Hall, Inc., Owner & Any Other Party as required by contract are included as Additional Insureds per provided form #XXXXXX on a primary & non-contributory basis. A Waiver of Subrogation on General Liability applies per provided form #XXXXXX and on Workers Compensation per provided form #XXXXXX. SUBCONTRACTOR MUST PROVIDE COPIES OF ALL FORMS REFERENCED.

CERTIFICATE HOLDER Bateman-Hall, Inc. REFERENCE PROJECT INFO HERE PO Box 1464 Idaho Falls, ID 83403	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Agent's Signature
--	---

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SECTION 07 01 40

SELECTIVE DEMOLITION OF ROOFING MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Demolishing designated roofing materials, flashing, and metal trim
 - 2. Cutting and alterations for completion of the Work
 - 3. Protecting items designated to remain
 - 4. Removing demolished materials
- B. Related Sections:
 - 1. Section 07 53 05 Elastomeric Membrane Roofing – Mechanically Attached

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals
- B. Demolition Schedule: Indicate overall schedule and interruptions required for utility and building services

1.3 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals
- B. Project Record Documents: Accurately record actual locations of capped utilities, concealed utilities discovered during demolition, and subsurface obstructions
- C. Operation and Maintenance Data: Submit description of system, inspection data, and parts lists

1.4 QUALITY ASSURANCE

- A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection
- B. Conform to applicable code for procedures when hazardous or contaminated materials are discovered
- C. Obtain required permits from authorities having jurisdiction
- D. Conform to Agency policies for demolition work, dust control, notification of disruption of HVAC and electrical systems and re-connection

1.5 SEQUENCING

- A. Section 01 10 00 - Summary: Requirements for sequencing
- B. Sequence demolition activities to remove no more roofing materials than can be replaced in the same work day
- C. Owner will conduct salvage operations before demolition begins to remove materials Owner chooses to retain

1.6 SCHEDULING

- A. Schedule Work to coincide with overall construction schedule.
- B. Cooperate with Owner in scheduling noisy operations and waste removal that may impact Owners operation and in adjoining spaces

1.7 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with occupied building areas
- B. Cease operations immediately if structure appears to be in danger and notify Architect
 - 1. Do not resume operations until directed

PART 2 - PRODUCTS - Not Used.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Notify Owner and Agency before starting work and comply with their requirements
- B. Mark location and termination of utilities
- C. Erect, and maintain temporary barriers and security devices, including warning signs and lights, and similar measures, for protection of the occupants, public, Owner, and existing improvements indicated to remain
- D. Do not close or obstruct building egress path
- E. Do not disable or disrupt building fire or life safety systems without 3weeks prior written notice to Owner

3.2 SALVAGE REQUIREMENTS

- A. Coordinate with Owner to identify building components and equipment required to be removed and delivered to Owner
- B. Tag components and equipment Owner designates for salvage
- C. Protect designated salvage items from demolition operations until items can be removed
- D. Carefully remove building components and equipment indicated to be salvaged
- E. Disassemble as required to permit removal from building
- F. Package small and loose parts to avoid loss
- G. Mark equipment and packaged parts to permit identification and consolidation of components of each salvaged item
- H. Prepare assembly instructions consistent with disassembled parts
 - 1. Package assembly instructions in protective envelope and securely attach to each disassembled salvaged item
- I. Deliver salvaged items to Owner
- J. Obtain signed receipt from Owner

3.3 DEMOLITION

- A. Conduct demolition to minimize interference with occupied building areas
- B. Do not conduct demolition in adverse weather conditions
 - 1. Cease operations immediately when adverse weather condition appear and protect all demo areas to prevent water and other infiltration entering the building
 - 2. Comply with roofing manufacturer requirement regarding weather condition
- C. Do not close or obstruct roadways sidewalks without Agency permission
- D. Cease operations immediately when structure appears to be in danger and notify Architect
- E. Protect existing structural roof deck from damage during demolition of roofing materials

- F. Disconnect and remove designated utilities within demolition areas
- G. Cap and identify abandoned utilities at termination points when utility is not completely removed
 - 1. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition
- H. Demolish in orderly and careful manner.
 - 1. Protect existing improvements and supporting structural members
- I. Carefully remove building components indicated to be reused
 - 1. Disassemble components as required to permit removal
 - 2. Package small and loose parts to avoid loss
 - 3. Mark components and packaged parts to permit reinstallation
 - 4. Store components, protected from construction operations, until reinstalled
- J. Remove demolished materials from site
 - 1. Remove materials as Work progresses
 - 2. Remove demolished materials from the site weekly
 - 3. Do not allow demolished materials to accumulate on site
 - 4. Do not burn or bury materials on site
 - 5. Demolished materials shall be store in covered container
- K. Upon completion of Work, leave areas in clean condition
- L. Remove temporary Work.

3.4 PROTECTION OF EXISTING FACILITIES

- A. Section 01 73 00 – Execution: Protection of installed construction
- B. Protect Owner and Agency property from water and other infiltration during all demolition and installation of all roofing materials
- C. Damage to Owner and Agency property shall be repaired, or replaced at Contractor expense

END OF SECTION

SECTION 07 53 03

ELASTOMERIC MEMBRANE ROOFING (TPO) - FULLY ADHERED

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes membrane roofing, base flashings roofing membrane expansion joints, and counterflashings
- B. Related Sections:
 - 1. Section 06 10 53 - Miscellaneous Rough Carpentry: Wood nailers
 - 2. Section 07 62 00 - Sheet Metal Flashing and Trim: Counterflashings

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
 - 2. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
 - 3. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
 - 4. ASTM D1004 - Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting
 - 5. ASTM D4637 - ASTM D5019 - Standard Specification for Reinforced Non-Vulcanized Polymeric Sheet Used in Roofing Membrane
 - 6. ASTM D6878 - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing
 - 7. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials
 - 8. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials
 - 9. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings
 - 10. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials
- B. FM Global:
 - 1. FM DS 1-28 - Wind Loads to Roof Systems and Roof Deck Securement
- C. Intertek Testing Services (Warnock Hersey Listed):
 - 1. WH - Certification Listings
- D. National Roofing Contractors Association:
 - 1. NRCA - The NRCA Roofing and Waterproofing Manual
- E. Single Ply Roofing Institute:
 - 1. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems
- F. Underwriters Laboratories Inc.:
 - 1. UL - Fire Resistance Directory
 - 2. UL 790 - Tests for Fire Resistance of Roof Covering Materials
 - 3. UL 1256 - Fire Test of Roof Deck Construction
 - 4. UL 1897 - Uplift Tests for Roof Covering Systems

1.3 SYSTEM DESCRIPTION

- A. Elastomeric Sheet Membrane Conventional Roofing System: One ply membrane system with insulation, and adhesive applied membrane finish.

1.4 DESIGN REQUIREMENTS

- A. Low Slope Membrane Roof Edge Securement: Conform to SPRI ES-1 for wind speeds determined from applicable code.

1.5 PERFORMANCE REQUIREMENTS

- A. Uplift Resistance: UL 1897; 90 psf uplift pressure resistance.

1.6 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures
- B. Shop Drawings: Joint and termination detail conditions, conditions of interface with other materials
 - 1. Indicate membrane layout and seam locations
- C. Product Data: Submit characteristics on membrane materials, adhesives, seaming materials, and flashing materials
- D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in fully adhered, unreinforced TPO membranes with ten years' experience
 - 1. The manufacturer shall certify the TPO membrane meets the physical properties specified
- B. Applicator: A company approved by Manufacturer, and specializing in single-ply roofing systems with at least three installations of fully adhered TPO roofing within the past two years

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products
- B. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact
- C. Store products in weather protected environment, clear of ground and moisture

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site
- B. Do not apply roofing membrane during inclement weather without proper weather protection
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day

1.11 COORDINATION

- A. Section 01 73 00 - Execution: Coordination and project conditions
- B. Coordinate Work with installation of associated roof penetrations and metal flashings, as Work of this section proceeds

1.12 WARRANTY

- A. Section 01 73 00 - Execution and 01 77 00 – Closeout Procedures: Requirements for warranties
- B. Furnish 30-year State of Idaho manufacturer's warranty including coverage of materials and installation and resulting damage to building resulting from failure to resist penetration of moisture
- C. Furnish 5 year State of Idaho Standard Roofing Contractor warranty including coverage of installation and resulting damage to building resulting from failure to resist penetration of moisture

PART 2 - PRODUCTS

2.1 SINGLE PLY ROOFING - FULLY ADHERED

- A. Manufacturers:
 - 1. Carlisle SynTec Systems Model: Sure Weld
 - 2. Firestone Building Products Co. Model Ultra-Ply
 - 3. GAF , Model (Everguard)
 - 4. Johns Manville
 - 5. Versico
 - 6. Substitutions: Section 01 60 00 - Product Requirements

2.2 COMPONENTS

- A. Elastomeric Sheet Material:
 - 1. Membrane shall be 80 mil overall minimum thickness, uncured white TPO membrane reinforced
 - 2. In order to minimize seams on the roof, the minimum width of the membrane shall be 6 feet

- B. The membrane shall have the following physical properties.

	<u>Physical Property</u>	<u>Test Method</u>	<u>Typical Values</u>
1.	Tolerance on nominal thickness, %	ASTM D-751	+10%
2.	Thickness over scrim, in	ASTM D-68780	.024
3.	Breaking Strength	ASTM D-751	250 min
4.	Elongation break of reinforcement, %	ASTM D-751	15 min.
5.	Tear Strength	ASTM D-751	55 min.
6.	Brittleness	ASTM D-2137	-40 max
7.	Linear dimensional change, %	ASTM D-1204	± 1 max
8.	Ozone Resistance**	ASTM D-1149	Pass
9.	Water absorption resistance, mass %	ASTM D-471	3.0 max
10.	Factory seam strength, lbf /in	ASTM D-751	66 min
11.	Field seam strength, lbf /in	ASTM D1876	25 min
12.	Water Vapor Permeance, Perms	ASTM E96	0.10 max
13.	Puncture Resistance, lbf	FTM 101C (Method 2031)	300 min
14.	Solar Reflectance (initial)	ASTM E-903	>70%
15.	Thermal Emittance	ASTM E-408	>0.93
16.	Properties after heat aging,	ASTMD573	670 hrs. @ 240 °F
17.	Breaking strength, % retained		90 min

- | | | |
|-----|-------------------------------|---------|
| 18. | Elongation reinf., % retained | 90 min |
| 19. | Tearing strength, % retained | 60 min. |
| 20. | Weight change, %± | 1.0 max |
- C. Seaming Materials: As recommended by membrane manufacturer
 - D. Washer Disc: Membrane material with adhesive backing
 - E. Adhesive Materials:
 - 1. Surface Conditioner: type compatible with membrane
 - 2. Membrane Adhesives: As recommended by membrane manufacturer
 - 3. Insulation Adhesive: As recommended by insulation manufacturer
 - 4. Thinner and Cleaner: As recommended by adhesive manufacturer, compatible with sheet membrane
 - F. Insulation: ASTM C1289, type II, Class I, faced rigid cellular polyisocyanurate roof insulation, with the following characteristics:
 - 1. Board Density: 2lb/cu ft
 - 2. Board Size: 48 x 96 inch
 - 3. Board Thickness: 2 inches
 - 4. Board Edges: square
 - 5. Thermal Conductivity: K factor of 25 as determined by ASTM C1289
 - 6. Compressive Strength: Minimum 20 psi
 - G. Disc Washers and Screws:
 - 1. Disc washer: 2 inches in diameter, 22 gauge metal.
 - 2. Screws As recommended by membrane manufacturer to penetrate roof deck.
 - H. Flexible Flashings: Same material as membrane
 - I. Counterflashings: Galvanized metal, as specified in Section 07 62 00

2.3 ACCESSORIES

- A. Roofing Nails: Galvanized hot dipped or non-ferrous type, size as required to suit application.
- B. Sealants: As recommended by membrane manufacturer.
- C. Stack Boots: Flexible boot and collar for pipe stacks through membrane.
- D. Overnight Seal: As provided by Manufacturer.
 - 1. Substitutions: Not Permitted

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 31 00 – Project Management: Coordination and project conditions
- B. Verify surfaces and site conditions are ready to receive Work
- C. Verify deck is supported and secure
- D. Verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains and suitable for installation of roof system
- E. Verify deck surfaces are dry and free of snow or ice
- F. Verify roof openings, curbs and vents through roof are solidly set, and reglets are in place

3.2 PREPARATION

- A. Existing roofing
 - 1. Clean any existing roof surface as required to install new roofing

2. Remove all existing roofing material as required to provide a flat surface
3. Remove only the amount of roofing that can be replaced in the same day
4. Seal the edge of the roofing membrane water tight with manufacture overnight seal at the end of each day

B. Existing Insulation:

1. Replace or repair the damaged insulation as required to provide smooth roof surface

3.3 INSTALLATION

A. Insulation Application (Adhered):

1. Ensure vapor retarder is clean and dry
2. Apply adhesive to existing insulation. Embed insulation into adhesive with full contact
3. Apply adhesive to top surface of insulation
 - a. Embed second layer of insulation into adhesive, with joints staggered minimum 6inch from joints of first layer
4. Place constant thickness first layer and tapered thickness insulation second layer to required slope pattern
5. Minimum Total Insulation Thickness: 6 inches, including existing insulation.
6. Lay boards with edges in moderate contact without forcing
 - a. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof
7. Cut boards to slope for distance of 18 inches back from roof drains for positive drainage
8. Apply no more insulation than can be covered with membrane in same day

B. Membrane Application:

1. Apply primer
2. Apply adhesive as recommended by roofing manufacturer
3. Roll out membrane, free from air pockets, wrinkles, or tears
 - a. Firmly press sheet into place without stretching
4. Bond sheet to insulation except those areas directly over or within 3 inches of control or expansion joint
5. Overlap edges and ends and seal by heat welding minimum 3inches
 - a. Seal permanently waterproof
 - b. Apply uniform bead of sealant to joint edge
6. Seal membrane around roof penetrations

C. Flashings And Accessories:

1. Apply flexible flashings to seal membrane to vertical elements
2. Secure to nailing strips at 4 inches oc and reglets
3. Coordinate installation of roof drains and related flashings
4. Seal flashings and flanges of items penetrating membrane

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing

3.5 CLEANING

- A. Section 01 73 00 - Execution: Final cleaning
- B. In areas where finished surfaces are soiled by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions
- C. Repair or replace defaced or disfigured finishes caused by Work of this section

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01 73 00 - Execution and 01 77 00 Closeout Procedures: Protecting installed construction
- B. Protect building surfaces against damage from roofing Work
- C. Where traffic must continue over finished roof membrane, protect surfaces

END OF SECTION

SECTION 07 53 03

ELASTOMERIC MEMBRANE ROOFING (PVC) – (ALTERNATIVE OPTION TO TPO)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes membrane roofing, base flashings, roofing membrane expansion joints, and counterflashings
- B. Related Sections:
 - 1. Section 06 10 53 - Miscellaneous Rough Carpentry: Wood nailers
 - 2. Section 07 62 00 - Sheet Metal Flashing and Trim: Counterflashings

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
 - 2. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
 - 3. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
 - 4. ASTM D1004 - Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting
 - 5. ASTM D4637 - ASTM D5019 - Standard Specification for Reinforced Non-Vulcanized Polymeric Sheet Used in Roofing Membrane
 - 6. ASTM D4434 - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing
 - 7. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials
 - 8. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials
 - 9. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings
 - 10. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials
- B. FM Global:
 - 1. FM DS 1-28 - Wind Loads to Roof Systems and Roof Deck Securement
- C. Intertek Testing Services (Warnock Hersey Listed):
 - 1. WH - Certification Listings
- D. National Roofing Contractors Association:
 - 1. NRCA - The NRCA Roofing and Waterproofing Manual
- E. Single Ply Roofing Institute:
 - 1. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems
- F. Underwriters Laboratories Inc.:
 - 1. UL - Fire Resistance Directory
 - 2. UL 790 - Tests for Fire Resistance of Roof Covering Materials
 - 3. UL 1256 - Fire Test of Roof Deck Construction

4. UL 1897 - Uplift Tests for Roof Covering Systems

1.3 SYSTEM DESCRIPTION

- A. Elastomeric Sheet Membrane Conventional Roofing System: One ply membrane system with insulation, and adhesive applied membrane finish

1.4 DESIGN REQUIREMENTS

- A. Low Slope Membrane Roof Edge Securement: Conform to SPRI ES-1 for wind speeds determined from applicable code

1.5 PERFORMANCE REQUIREMENTS

- A. Uplift Resistance: UL 1897; 90 psf uplift pressure resistance

1.6 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures
- B. Shop Drawings: Joint and termination detail conditions, conditions of interface with other materials
 - 1. Indicate membrane layout and seam locations
- C. Product Data: Submit characteristics on membrane materials, adhesives, seaming materials, and flashing materials
- D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements

1.7 CLOSEOUT SUBMITTALS

- A. Section 01 77 00 – Closeout Procedures: Requirements for submittals
 - 1. Installation and Maintenance Data: For roofing system to include the following in Roof Plan Binder:
 - a. Bid Document (Specification)
 - b. Installation History (Notice of Award / Accepted Notice of Award)
 - c. Warranties (State of Idaho 20 year and State of Idaho 3 year contractor warranties)
 - d. Maintenance forms and requirements

1.8 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual

1.9 QUALIFICATIONS

- A. Manufacturer: Company specializing in fully adhered, reinforced PVC membranes with ten years' experience
 - 1. The manufacturer shall certify the PVC membrane meets the physical properties specified
- E. Applicator: A company approved by Manufacturer, and specializing in single-ply roofing systems with at least three installations of fully adhered PVC roofing within the past two years

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products
- B. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact
- C. Store products in weather protected environment, clear of ground and moisture
 - 1. Store membrane rolls lying down on pallets and fully protected from the weather with clean canvas tarpaulins
 - a. Unvented polyethylene tarpaulins are not accepted
 - 2. Store adhesives at temperatures between 40°F and 80°F
 - a. Read instructions contained on adhesive canister for specific storage instructions
 - 3. Store all flammable materials in a cool, dry area away from sparks and open flames
 - a. Follow precautions outlined on containers or supplied by material manufacturer/supplier
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.
- E. All materials which are determined to be damaged by the Owner's or Manufacturer Representative shall be removed from the job site and replaced at no cost to the Owner

1.2 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site
- B. Do not apply roofing membrane during inclement weather without proper weather protection
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day

1.3 COORDINATION

- A. Section 01 73 00 - Execution: Coordination and project conditions
- B. Coordinate Work with installation of associated roof penetrations and metal flashings, as Work of this section proceeds

1.4 WARRANTY

- A. Section 01 73 00 - Execution and Section 01 77 00 Closeout Procedures: Requirements for warranties
- B. Furnish 30-year State of Idaho manufacturer's warranty including coverage of materials and installation and resulting damage to building resulting from failure to resist penetration of moisture.

- C. Furnish 5-year State of Idaho Standard Roofing Contractor warranty including coverage of installation and resulting damage to building resulting from failure to resist penetration of moisture.

PART 2 - PRODUCTS

2.1 SINGLE PLY ROOFING - FULLY ADHERED

- A. Manufacturers:
1. Fibertite
 2. Sika Sarnafil
 3. Carlisle Syntec
 4. GAF
 5. John Mansville
 6. Versico
 7. Substitutions: Section 01 60 00 - Product Requirements

2.2 COMPONENTS

- A. Elastomeric Sheet Material: Membrane shall be 80 mil overall minimum thickness, uncured white PVC membrane reinforced.
1. In order to minimize seams on the roof, the minimum width of the membrane shall be 6 feet.

- B. The membrane shall have the following physical properties.

<u>Parameters</u>	<u>ASTM Test Method</u>	<u>ASTM D-4434 Spec. Requirement</u>	<u>Typical Physical Properties</u>
Reinforcing Material	-	-	Fiberglass
Overall Thickness(1), min., inches (mm)	D638	0.045 (1.14)	[0.0__inches]]
Thickness Above Scrim, mil	-	16	24 (avg.)
Tensile Strength, min., lbf/in (N) (machine transverse)	D751	55 (245) - 55 (245)	55 (245) - 55 (245)
Elongation at Break, min. (machine / transverse)	D751	250% / 220%	250% / 220%
Seam strength(2), min. (% of tensile strength)	D638	75	80
Retention of Properties After Heat Aging	D3045	-	-
Tensile Strength, min., (% of original)	D638	90	95
Elongation, min., (% of original)	D638	90	90
Tearing Resistance, min., lbf (N)	D1004	10 (45.0)	14 (63.0)
Low Temperature Bend, -40° F (-40° C)	D2136	Pass	Pass
Accelerated Weathering Test (florescent light, uv exposure)	G154	5,000 Hours	10,000 Hours
Cracking (7x magnification)	-	None	None
Discoloration (by observation)	-	Negligible	Negligible
Crazing (7x magnification)	-	None	None
Linear Dimensional Change	D1204	0.10 % max.	0.02%
Weight Change After Immersion in Water	D570	± 3.0% max.	2.5%
Static Puncture Resistance, 33 lbf (15 kg)	D5602	Pass	Pass
Dynamic Puncture Resistance, 7.3 ft-lbf (10 J)	D5635	Pass	Pass
Initial Solar Reflectance	E903	-	0.83
Emissivity	E408, C1371, Other	-	0.90
Solar Reflective Index (SRI)	E1980	-	104
Recycled Content (5 & 10 ft. sheets only)	9% Pre-Consumer / 1% Post Consumer		

Notes

- (1) Typical Physical Properties data is applicable for 0.048 in (1.2 mm) membrane thickness and greater.
- (2) Failure occurs through membrane rupture not seam failure.

- D. Seaming Materials: As recommended by membrane manufacturer.

- E. Adhesive Materials:
 1. Surface Conditioner: type compatible with and required by manufacturer
 2. Membrane Adhesives: As recommended by insulation manufacturer
 3. Insulation Adhesive: As recommended by insulation manufacturer
 4. Thinner and Cleaner: As recommended by adhesive manufacturer, compatible with sheet membrane.

- F. Insulation: As specified in section 07 21 13

- G. Insulation (Add Alternate #2): ASTM C1289, type II, Class I, faced rigid cellular polyisocyanurate roof insulation, with the following characteristics:
 1. Board Density: 2lb/cu ft
 2. Board Size: 48 x 96 inch
 3. Board Thickness: 2 inches
 4. Board Edges: square
 5. Thermal Conductivity: K factor of 25 as determined by ASTM C1289
 6. Compressive Strength: Minimum 20 psi

- H. Disc Washers and Screws:
 1. Disc washer: 2 inches in diameter, 22 gauge metal.
 2. Screws As recommended by membrane manufacturer to penetrate roof deck.

- I. Flexible Flashings:
 1. Flashing Membrane – 80 mils min, white (to match field of roof). Fiberglass reinforced.
 2. Detail Membrane – 80 mils min, white (to match field of roof). Non reinforced.
 3. PVC clad metal – for use at the eaves and other conditions. See detail drawings.
 4. Flashing Adhesive: Solvent-based reactivating adhesive used to attach membrane to flashing substrate.
 5. Self-adhered flashing material is also acceptable as long as included in roofing manufacturer's warranty for the full term (30 years) of the warranty.

- J. Counter flashings: Galvanized metal, as specified in Section 07 62 00

- K. Walkway Protection: Polyester reinforced, 96 mil (2.4 mm) thick, weldable membrane with surface embossment similar to a chevron pattern. Used as a protection layer from rooftop traffic.

2.3 ACCESSORIES

- A. Roofing Nails: Galvanized hot dipped or non-ferrous type, size as required to suit application

- B. Sealants: As recommended by membrane manufacturer

- C. Stack Boots: Flexible boot and collar for pipe stacks through membrane

- D. Aluminum Tape: 2" (51 mm) wide pressure-sensitive aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as a bond-breaker under the coverstrip at PVC clad joints.

- E. Seam Cleaner: Used to clean adhesive out of seams. It is not to be used as a general membrane cleaner. It is also used to clean metal and reactivate existing Liquid Flashing prior to the application of new Liquid Flashing.

- F. Peel Stop: 1" wide extruded aluminum, low profile bar used with #15 fasteners to secure membrane to the roof deck or to walls/curbs at terminations, penetrations and at angle changes of the substrate.
- G. Pitch Pocket Filler: Moisture-cured, one-component polyurethane-based, non-sag elastomeric sealant used in wall, curb and drain terminations. It is also used as a sealant at pipe penetrations and under certain metal flashings. Sikaflex-1a can be used as a pourable sealer pocket filler.
- H. Overnight Seal: As provided by Manufacturer
- I. Wood Nailers: Code compliant wood nailers shall be installed at the perimeter of the entire roof and around such other roof projections and penetrations as specified on Project Drawings. Thickness of nailers must match the height of the insulation and roof board to achieve a smooth transition.
- J. Fasteners: All fasteners, anchors, nails, straps, bars, etc. shall be post-galvanized steel, aluminum or stainless steel. Mixed metal type components shall be assembled in such a manner as to avoid galvanic corrosion. Fasteners for attachment of metal to masonry shall be expansion type fasteners with stainless steel pins.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 73 00 - Execution: Coordination and project conditions
- B. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation
 - 3. The substrate shall be clean, smooth, dry, free of water, ice and snow and free of flaws, sharp edges, loose and foreign material, oil, grease and other contaminants. Roofing shall not start until all defects have been corrected.
- C. Proceed with installation only after unsatisfactory conditions have been corrected

3.2 PREPARATION

- A. Existing roofing
 - 1. Clean any existing roof surface as required to install new roofing
 - 2. Remove all existing roofing material as required to provide a flat surface.
 - a. Remove only the amount of roofing that can be replaced in the same day
 - b. Seal the edge of the roofing membrane water tight with manufacture overnight seal at the end of each day
 - 3. The roof deck and existing roof construction must be structurally sound to provide support for the new roof system. The Owner's Representative shall ensure that the roof deck is secured to the structural framing according to local building code or insurance requirements and in such a manner as to resist all anticipated loads in that location.
 - 4. Reroofing
 - a. All existing roofing, base flashing, deteriorated wood blocking or deteriorated metal flashings shall be removed. Remove only that amount of roofing and

flashing which can be made weathertight with new materials during a one-day period or before the onset of inclement weather.

- b. Steel Deck: All rusted or deteriorated decking shall be brought to the attention of the Owner's Representative to determine method of treatment or replacement. Surface-only rusted metal shall be sanded and treated with rust-inhibiting paint. Sections that have rusted deeper than the surface or are not structurally sound shall be removed and replaced. Deck type shall match existing and the attachment shall conform to local code requirements.

B. Wood Nailers:

1. Install continuous code compliant wood nailers at the perimeter of the entire roof and around roof projections and penetrations as shown on the Detail Drawings.
2. Install continuous code compliant wood nailers at the perimeter of the entire roof and around roof projections and penetrations as shown on the Detail Drawings.

3.3 INSTALLATION

A. Liquid Adhesive:

1. Apply adhesive direct to substrate, rate may vary depending on porosity of substrate. Only an area which can be completely covered in the same day's operations shall be coated with adhesive. The first layer of adhesive shall be allowed to dry completely prior to installing the membrane.
2. Refer to individual Product Data Sheets (PDS) and Adhered Systems: Solvent Based Adhesive Installation section of Roofing Applicator's Handbook for detailed installation instructions.

B. Hot-Air Welding of Membrane Overlaps

1. All membrane overlaps shall be hot-air welded. The membrane shall be clean and dry prior to hot-air welding.
2. Field membrane overlaps for automatic machine-welding shall be 3" (76 mm) in width. A minimum of 4" (10.2 cm) wide overlap is required when hand-welding details.
3. 1" (25 mm) wide cross-section samples of welded seams shall be taken at least two times a day, once in the morning and once in the afternoon.

C. Membrane Flashing:

1. All flashings shall be installed concurrently with the roof membrane as the job progresses. No temporary flashings shall be allowed without the prior written approval of the Owner's Representative. Approval shall only be for specific locations on specific dates. If any water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Applicator's expense. Flashing shall be adhered to compatible, dry, and smooth surfaces free of dirt, dust, and debris. Use caution to ensure adhesive fumes are not drawn into the building.
2. All flashings should extend a minimum of 8" (20.3 cm) above finished roofing level. Submit requests for exceptions in writing to the Owner's Representative for signed approval.
3. All adhered flashings that exceed 45" (1.14 m) in height shall receive additional securement, unless applying SA membrane to plywood, DensDeck Prime, glass-faced polyisocyanurate, or smooth poured concrete with a concrete surface profile range of CSP 2 to CSP 5 according to ICRI Technical Guideline No. 310.2R-2013.

D. PVC Clad Metal Flashings and Edge Metal Flashings

1. All flashings shall be installed concurrently with the roof membrane as the job progresses. No temporary flashings shall be allowed without the prior written

approval of the Owner's Representative. Approval shall only be for specific locations on specific dates. If any water is allowed to enter under the newly completed roofing due to incomplete flashings, the affected area shall be removed and replaced at the Applicator's expense.

2. Metal details, fabrication practices and installation methods shall conform to the applicable requirements of the following:
 - a. ANSI SPRI ES-1 (latest issue).
 - b. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - latest issue.
3. Pre-formed metal flashing shall be installed according to metal manufacturer's guidelines.
4. PVC clad and other metal flashings shall be formed and installed per the Detail Drawings.

E. Flashings And Accessories:

1. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions
2. Apply bonding adhesive as directed by Roofing Manufacturer
 - a. Do not apply to seam area of flashing
3. Flash penetrations and field-formed inside and outside corners as directed by Roofing Manufacturer
4. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive
5. Hot-air weld side and end laps to ensure a watertight seam installation
6. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars

F. Walkway

1. Flexible Walkways: Install per roofing manufacturer requirements.

G. Temporary Cut-Off

1. All flashings shall be installed concurrently with the roof membrane in order to maintain a watertight condition as the work progresses. All temporary cut-offs shall be constructed to provide a watertight seal. The new membrane shall be carried into the temporary cut-off. Temporary cut-off shall be sealed to the deck or substrate so that water will not be allowed to travel under the new or existing roofing. When work resumes, the contaminated membrane shall be cut out.
2. If inclement weather occurs while a temporary cut-off is in place, the Applicator shall provide the labor necessary to monitor the situation to maintain a watertight condition.
3. If any water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Applicator's expense.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Adhesion tests must be done by the manufacturer of board adhesive to quantify the bond to the existing layer of polyiso. Results of adhesive test to be submitted to and reviewed by architect/owner prior to commencement of construction.

3.5 CLEANING

- A. Section 01 77 00 - Closeout Procedures: Final cleaning

- B. In areas where finished surfaces are soiled by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions
- C. Repair or replace defaced or disfigured finishes caused by Work of this section

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01 73 00 - Execution: Protection of installed construction
- B. Protect building surfaces against damage from roofing Work
- C. Where traffic must continue over finished roof membrane, protect surfaces

END OF SECTION



Idaho Department of Administration Division of Public Works

“Provide responsive, cost effective, and timely support services to Idaho’s policy makers, public agencies, and state employees as they serve Idaho citizens.”

BRAD LITTLE
Governor

KEITH REYNOLDS
Director

PAT DONALDSON
Administrator

30 YEAR GUARANTY FOR SINGLE-PLY ROOFING

WHEREAS, _____, corporation whose address is _____, hereinafter called the Manufacturer, has manufactured and sold and caused to have applied, pursuant to the specifications and inspection, the necessary roofing materials to construct a _____ roof of approximately _____ square feet, and associated roof flashing of approximately _____ linear feet on the building described below:

OWNER: State of Idaho, Division of Public Works

DPW PROJECT NO: _____

BUILDING: _____

LOCATION: _____

DATE OF COMPLETION OF ROOFING: _____, 20____.

ROOFING CONTRACTOR: _____

ADDRESS: _____

ROOFING SPECIFICATION: _____

MANUFACTURER’S GUARANTEE NO: _____

AND WHEREAS, by careful examination of said roof by the Manufacturer’s representative, it has been determined that required quantities of roofing materials have been used and that roofing materials have been applied in conformance with contract documents;

AND WHEREAS, Manufacturer represents and wishes to guarantee, subject to the limits stated herein, that its roofing when so applied is effectively watertight for a period of **thirty (30) years** despite normal wear and tear by the elements, as well as guaranteeing it against defects in workmanship or materials; which result in leaks.

NOW THEREFORE, said Manufacturer guarantees to the said Owner that, as set forth below, during a period of **thirty (30) years** from the date of substantial completion of said single-ply roofing described above, Manufacturer will at its own expense, make or cause to be made, any repairs that may be necessary, as a result of defects in workmanship or materials supplied by the Manufacturer which results in leaks or of normal wear and tear by the elements which results in leaks, and will maintain said roof in water tight condition free from all leaks arising from such causes. For purposes of this Guaranty, damage to the roof caused by hurricanes, lightning, tornadoes, gales, hailstorms or other unusual natural phenomena shall not be deemed to be "normal wear and tear by the elements".

INCLUSIONS: This Guaranty does cover, and Manufacturer shall be liable for the following:

1. Roofing membrane, membrane flashings, metal flashings, mechanical fastening system, anchors, adhesives, seaming materials, slip sheets, fabrics, insulations, underlayments, and accessories furnished by the Manufacturer as incorporated into the roof membrane system.
2. Replacement of roof insulation and vapor barrier damages by any leakage and/or failure of the roof membrane assembly;
3. Repair of blisters, buckles, splits, breaks, cracks, and seam failures in membrane system.

EXCLUSIONS: This Guaranty does not cover, and Manufacturer shall not be liable for the following:

1. Metal work, including metal counter flashings, not a part of the roof membrane system and such damage as may result from application of these materials;
2. Any damage to the roof caused by structural defect in, or failure of, the building or defects in, or failure of, any structural roof deck, or other sheathing materials, used as the base over which the roof and roof insulation is applied;
3. Roof damage from special chemical conditions not disclosed to Manufacturer;
4. Any damage to the building or contents thereof, except replacement of damaged roof insulation and vapor barrier as noted under "INCLUSION" above;
5. Roof damage through use of materials after original installation not furnished by Manufacturer;
6. Damage to the roof due to mechanical abrasion or abuse not caused by the Manufacturer.
7. Reasonable care and maintenance will be the responsibility of the Owner.

INSPECTION AND REPAIR: During the term of this Guarantee, Manufacturer, its agents or employees, shall have free access to the roof during regular business hours. Upon written notice by Owner to Manufacturer within four days of the discovery of any leaks in the roofing system,

or need of repair of roof, the Manufacturer shall have ten (10) days to inspect the roof. Following such inspection:

1. Manufacturer, at its own expense shall make such repairs to thereof as are required by the Guaranty.
2. In case owner or his agent has notified Manufacturer in writing that repairs are required and such repairs are not covered by the Guaranty (including repairs required by owner's alteration, extension or addition to the roof) Owner, after having obtained Manufacturer's consent thereto, in writing, shall make or cause to be made, such repairs at Owner's expense in accordance with specifications and procedures as established by Manufacturer and this Guaranty shall thereupon remain in effect for the un-expired portion of its original term. If Owner fails to obtain authorization from Manufacturer or if repairs are made by one other than the Manufacturer's authorized designee, this Guaranty with respect to such area shall be automatically terminated.
3. In the event the (1) Owner notifies Manufacturer and has confirmed in writing the need of repair of roof and (2) Manufacturer is unable to promptly inspect and repair same, and (3) an emergency condition exists which requires prompt repair in order to avoid substantial damage to owner, then owner may make such temporary repairs as may be essential and any such action shall not be a breach of the provision of this Guaranty. Owner will bear emergency repair expenses.

INSPECTION SERVICE: Manufacturer agrees to re-inspect the completed roof not earlier than 12 nor later than 24 months after completion of the roofing, and if it is determined that there are leaks in the roofing, then Manufacturer shall make, or cause to be made at its own expense, such repairs as are necessary in the opinion of the Manufacturer, to assure watertight integrity of the roof within the scope of its' responsibility under the terms of this Guaranty.

IN WITNESS WHEREOF, Manufacturer has caused this instrument to be signed and sealed by its duly authorized officer this _____ day of _____, 20____.

BY: _____

TITLE: _____

CORPORATION: _____

SEAL:

Pat Donaldson, Administrator
Division of Public Works

SECTION 09 51 13

ACOUSTICAL PANEL CEILINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes suspended metal grid ceiling system, acoustic panels, and perimeter trim

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
 - 2. ASTM C636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 - 3. ASTM E580/E580M - Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint.
 - 4. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.
- B. Ceilings and Interior Systems Construction Association:
 - 1. CISCA - Acoustical Ceilings: Use and Practice.

1.3 PERFORMANCE REQUIREMENTS

- A. Suspension System: Rigidly secure acoustic ceiling system including integral mechanical and electrical components with maximum deflection of 1: 360 .

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data on metal grid system components, and acoustic units.
- C. Samples: Submit samples large enough to illustrating material and finish of acoustic units.
- D. Samples: Submit samples each, 6 inches long, of suspension system.

1.5 QUALITY ASSURANCE

- A. Conform to CISCA requirements.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum three years experience approved by manufacturer.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements.

- B. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustic unit installation.

1.8 SEQUENCING

- A. Section 01 10 00 - Summary: Requirements for sequencing.
- B. Sequence Work to ensure acoustic ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- C. Install acoustic units after interior wet work is dry.

1.9 EXTRA MATERIALS

- A. Section 01 78 23 – Operation and Maintenance Data: Spare parts and maintenance products.
- B. Furnish two percent of total acoustic unit area of extra panels to Owner.

PART 2 PRODUCTS

2.1 SUSPENDED ACOUSTICAL CEILINGS

- A. Manufacturers:
 - 1. Armstrong, Model: Dune Square
 - 2. BPB Americas Inc.
 - 3. United States Gypsum Company.
 - 4. Substitutions: Section 01 60 00 - Product Requirements .

2.2 COMPONENTS

- A. Acoustic Panels: ASTM E1264, conforming to the following:
 - 1. Size: 24 x 24 inches.
 - 2. Thickness: 5/16 inches.
 - 3. Composition: Mineral.
 - 4. Texture: Fine
 - 5. Light Reflectance: .86 percent.
 - 6. NRC Range: .70
 - 7. Edge: Square Lay-In
 - 8. Surface Color: White.
 - 9. Surface Finish: Perforated
- B. Grid: Non-fire Rated Grid: ASTM C635, heavy duty; exposed T; components die cut and interlocking.
 - 1. Grid Materials: Commercial quality cold rolled steel with galvanized coating.
 - 2. Exposed Grid Surface Width: 15/16 inch.
 - 3. Grid Finish: color as selected.
- C. Accessories: Stabilizer bars, clips, splices, perimeter moldings, hold down clips, required for suspended grid system.
 - 1. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

2.3 ACCESSORIES

- A. Touch-up Paint: Type and color to match acoustic and grid units.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 31 00 – Project Management and Coordination: Coordination and project conditions.
- B. Verify layout of hangers will not interfere with other work.

3.2 EXISTING WORK

- A. Extend existing acoustical ceiling installations using materials and methods as specified.
- B. Clean and repair existing acoustical ceilings which remain or are to be reinstalled.

3.3 INSTALLATION

- A. Lay-In Grid Suspension System:
 - 1. Install suspension system in accordance with ASTM C635, ASTM C636 and as supplemented in this section.
 - 2. Install system in accordance with ASTM E580/E580M.
 - 3. Install system capable of supporting imposed loads to deflection of 1/360 maximum.
 - 4. Lay out system to balanced grid design with edge units no less than 50 percent of acoustic unit size. Arrange system with long dimension of tile perpendicular to long dimension of the space or as shown on Drawings.
 - 5. Locate system on room axis according to reflected plan.
 - 6. Install after major above ceiling work is complete. Coordinate location of hangers with other work.
 - 7. Install hanger clips during steel deck erection. Install additional hangers and inserts as required.
 - 8. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
 - 9. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest affected hangers and related carrying channels to span extra distance.
 - 10. Do not support components on main runners or cross runners when weight causes total dead load to exceed deflection capability.
 - 11. Do not eccentrically load system, or produce rotation of runners.
 - 12. Perimeter Molding:
 - a. Install edge molding at intersection of ceiling and vertical surfaces.
 - b. Use longest practical lengths.
 - c. Miter corners.
 - d. Install at junctions with other interruption.
- B. Acoustic Units:
 - 1. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.
 - 2. Lay directional patterned units one way with pattern parallel to shortest room axis or as shown on Drawings. Fit border trim neatly against abutting surfaces.
 - 3. Install units after above ceiling work is complete.
 - 4. Install acoustic units' level, in uniform plane, and free from twist, warp, and dents.
 - 5. Cutting Acoustic Units:
 - a. Cut to fit irregular grid and perimeter edge trim.
 - b. Cut square reveal edges to field cut units.

- c. Double cut and field paint exposed edges of tegular units. Install hold-down clips to retain panels tight to grid system within 20 ft of exterior door .

3.4 ERECTION TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- C. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: degrees.

3.5 SCHEDULES

- A. Refer to Room Finish Schedule.

END OF SECTION

SECTION 220100 - PLUMBING

PART 1 - GENERAL

1.1 SCOPE:

- A. This section covers the work necessary for the plumbing system, complete. The Plumbing General Requirements, Section 220000, are to be included as a part of this section of the specifications.

1.2 CODES:

- A. The plumbing system shall be installed in accordance with the requirements of local adopted plumbing code, latest edition, International Fuel Gas Code, latest edition; and all local and State Codes.

1.3 FIXTURES & EQUIPMENT:

A. General:

1. Plumbing fixtures and equipment shall be as listed on the drawings. In addition to those specifically listed, the following manufacturers are approved for bidding only. All other manufacturers require prior approval. Final approval for installation is based on submittal data furnished:
 - a. Tank Type Water Closets: American Standard, Kohler, Mansfield, Sloan, Toto, & Zurn.
 - b. Urinals: American Standard, Briggs, Gerber, Kohler, Mansfield, Sloan, Toto & Zurn.
 - c. Vitreous China Sinks: American Standard, Crane, Kohler, Mansfield, Sloan, Toto, & Zurn.
 - d. Stainless Steel Sinks: Elkay, Just.
 - e. Faucets: American Standard, AMTC, Aquaspec, CHG Encore Saniguard, Chicago Faucets, Delta, Elkay, Gerber, Geberit, Kohler, Moen, T&S Brass, Symmons, Speakman, Sloan & Zurn.
 - f. Sensor Faucets: Chicago Faucets, Elkay, Mac Faucets, Symmons, Speakman, Sloan, & T & S Brass.
 - g. Valves and Trim: Brasscraft, Dearborn Brass, ProFlo, Sloan & T&S Brass.
 - h. Flush Valves: American Standard Selectronic, AMTC, Delta, Kohler, Moen (sensor-operated only) Sloan, & Zurn.
 - i. Carriers and Drainage Products: Jay R. Smith, Josam, MIFAB, Neenah Foundry, NDS, Sun Drainage, Wade, Watts, & Zurn.
 - j. Toilet Seats: American Standard, Beneke, Church, Kohler, Plumb Tech & Zurn.
 - k. Mixing Valves: Acorn Controls, Lawler, Leonard, Powers, Stingray, Symmons, Watts, & Wilkins.
 - l. Fiberglass/ Acrylic Fixtures: Aquatic, Aquaglass, Best Bath, Fiat, Intersan, MAXX, Mustee Praxis-Comfort Designs, & Swan.
 - m. Drinking Fountains/ Electric Water Coolers: Elkay, Halsey Taylor, Haws, Murdock Stern Williams, & Sunroc.
 - n. Safety Fixtures & Safety Mixing Valves: Acorn, Bradley, Chicago Faucets, Encon, Guardian, Haws, Lawler, Speakman, Speakman, Stingray.
 - o. Service Sinks: Acorn, Fiat, Mustee, Proflo, Stern Williams, & Zurn.
 - p. System Valves: Apollo, Nebco & Red-White Valve Corp.
 - q. Backflow Preventers: Conbraco/Apollo, Watts, & Wilkins.
 - r. Hose Bibbs: Josam, J.R. Smith, Prier, Woodford, & Zurn.

- s. Trench Drains: ABT, ACO, Dura Trench, J.R. Smith, NDS, Strongwell Polycast, Rapid, Wade, & Zurn.
 - t. Utility Sinks: Fiat, Mustee, & Proflo.
2. Plumbing Fixture Standards:
- a. All plumbing fixtures shall meet or exceed the following standards:
 - b. ANSI A112.6.1 - Supports for Off-the Floor Plumbing Fixtures for Public Use.
 - c. ANSI A112.18.1 - Finished and Rough Brass Plumbing Fixture Fittings.
 - d. ANSI A112.19.1 - Enameled Cast Iron Plumbing Fixtures.
 - e. ANSI A112.19.2 - Vitreous China Plumbing Fixtures.
 - f. ANSI A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use).
 - g. ANSI A112.19.4 - Porcelain Enameled Formed Steel Plumbing Fixtures.
 - h. ANSI A112.19.5 - Trim for Water-Closet Bowls, Tanks, and Urinals.
 - i. ANSI Z358.1 - Emergency Eye Wash and Shower Equipment.
 - j. ARI 1010 - Drinking Fountains and Self-Contained Mechanically Refrigerated Drinking Water Coolers.
 - k. AWSI/ASSE 1001 – Atmospheric Vacuum Breaker
 - l. ANSI/ASSE 1012 - Backflow Preventers with Immediate Atmospheric Vent.
 - m. ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.
 - n. ANSI/ASSE 1013 - Backflow Preventers, Reduced Pressure Principle.
 - o. ANSI/ASSE 1015 – Backflow Preventers, Double Check Principle
 - p. ANSI/ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.
 - q. AWSI/ASSE 1020 – Pressure Vacuum Breaker
 - r. AWSI/ASSE – 1-52 – Hose Connection, Double Check
 - s. ANSI A112.21.1 - Floor Drains.
 - t. ANSI A112.26.1 - Water Hammer Arresters.
 - u. PDI WH-201 - Water Hammer Arresters.
 - v. ANSI/AWWA C606 – Grooved and Shouldered Joints
 - w. NSF/ANSI Standard 61 – Drinking Water System Components – Health Effects

PART 2 - PRODUCTS

2.1 PLUMBING FIXTURES & TRIM:

- A. All plumbing fixtures shall be provided complete with all required trim for a complete and operational system. All piping penetrations through finished walls shall be provided with chrome escutcheons. All plumbing fixtures shall be caulked and sealed to surrounding surfaces. All sink traps shall be provided with a cleanout plug in the bottom of the trap. All interior exposed pipe, valves, and fixture trim shall be chrome plated, including kitchen compartment sinks. Braided stainless steel pipe risers are approved for concealed locations only, such as behind casework doors or lav shields. Each fixture shall be provided with stop valves and the stop valves shall be quarter-turn brass ball type. All fixtures and trim must be lead free. All floor drains and floor sinks shall be provided with trap primers (PPP, Zurn or Wade as needed for appropriate use. Provide ball valve type shut-off valve upstream of all trap primer valves).

2.2 PIPING AND FITTINGS:

A. General:

- 1. Underground sanitary sewer and storm drain lines shall be installed at 1/4" per foot slope, unless otherwise indicated. If such slope is not possible due to existing

inverts, approval shall be obtained from the Architect/Engineer and the authority having jurisdiction before any piping is installed at a lesser slope.

2. Connections between piping of dissimilar materials shall be made with dielectric waterway fittings or unions.
3. Provide standard manufactured water hammer arresters at all flush valves. Size and locate per manufacturers recommendations. Provide access panels for access to all water hammer arresters.

B. Domestic & Non-Potable Hot and Cold Water:

1. Piping inside building above slab or above grade in crawl space shall be ASTM B88, Type "L", hard drawn copper. Fittings shall be ANSI/ASME B16.22 cast brass, or ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASTM B32 solder, Grade 95-5, lead free.
 - a. Cold Water Only Option- ANSI/ASME B16.18 cast bronze, or ANSI/ASME B16.22 wrought copper. Joints shall be copper-tube dimensioned grooved joint couplings, and Flush Seal style gasket. (Gasket shall be UL classified in accordance with ANSI/NSF-61 for potable water service.) Victaulic Style 606, Gruvlok style 6400, Grinnell Universal Tongue and Groove 672, Shurjoint C305, or equal.
 - b. Piping Option – Mechanically Formed Extruded Outlets:
 - 1) Mechanically formed extruded outlets shall be perpendicular to the axis of the run tube (header). They shall be formed by drilling a pilot hole and drawing out the tube surface to form a collar having a height of not less than three times the thickness of the branch wall and shall conform to ASME B31.9 and NFPA 99. T-Drill or approved equal.
 - 2) Branch tubes shall not restrict the flow in the run tube. To ensure this by conforming the branch tube to the shape of the inner curve of the run tube, a dimple / depth stop shall be formed in the branch tube to ensure that penetration into the collar is of the correct depth. For inspection purposes, a second dimple shall be placed 0.25 inch above the first dimple. Dimples shall be aligned with the tube run.
 - 3) Branches can be formed up to the run tube size as shown in ASTM F 2014. Forming procedures shall be in accordance with the tool manufacturer's recommendations.
 - 4) Joints shall be made with the use of approved brazing alloys BCup2 thru BCup5 (0-15% silver content). Brazed with a filler that has a melting point above 540 deg. Centigrade (1000 deg. F). **Soft soldered joints are not allowed.**
 - 5) K and L copper types allowed.
 - 6) Soft and Hard copper allowed.
 - 7) Each model used for making branch connections shall be permanently marked with manufacturer's name and appropriate model number.
 - 8) Mechanically formed extruded outlets can (but not limited to) be used on commercial and residential buildings.
 - 9) Fitter / Plumber shall be trained and certified to operate the equipment.
2. Piping underground within 5 feet of the building line, smaller than 4 inches, shall be ASTM B88, Type "K", hard drawn copper. Piping below floor slab, smaller than 4 inches, shall be type "K", soft annealed copper. Fittings shall be ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASTM B32 solder, Grade 95-5, lead free. No joints shall be installed beneath concrete floor slabs, unless approved by the Engineer. Underground or underslab copper piping shall be provided with a

polyethylene jacket, ANSI/AWWA C105, or shall be wrapped with double layer, half-lapped, 10 mil polyethylene tape.

- a. Underground (below slab) Piping Option- ½” to 4”, High Density Polyethylene (HDPE) pressure pipe. ASTM D3350, ASTM D3035 & ASTM F714. AWWA C901 & AWWAC906, NSF. Fittings shall be HDPE, solvent weld. Piping shall be rated for not less than 150 psig.
 - b. Trap Primer Piping (below floor or concealed only)
3. Piping underground beyond 5 feet from building line shall be Schedule 40 PVC, ASTM D1785 or D2241. Fittings shall be PVC, ANSI/ASTM D2466. Joints shall be solvent weld, ASTM D2855, or gasketed, ASTM F477. Piping shall be rated for not less than 150 psig pressure.

C. Sanitary Sewer and Vent:

1. Piping and fittings shall be Schedule 40 PVC-DWV (cellular core), per ASTM F1488 and ASTM F891, solvent welded per solvent manufacturer's instructions, or ABS Schedule 40 piping and fittings per either ASTM D2661 or ASTM F628 with solvent cement conforming to ASTM D2235. All sewer risers (2 story or more) shall be service weight cast iron, no-hub or single-hub, ASTM A74. All piping penetrations through fire rated walls, floors, or ceilings, and all piping located above ceilings used as return air plenums shall also be cast iron or galvanized steel, ASTM A53. Underground PVC-DWV piping shall be installed per ASTM D-2321.
2. Piping and fittings beyond 5 feet from the building line shall be PVC, ASTM D3033 or D3034, SDR 35. Joints shall be ASTM F477 with elastomeric gaskets. Underground piping shall be installed per ASTM D-2321.
3. All 90 degree waste line elbows shall be formed per the latest issue of the adopted plumbing code, latest edition.
4. All exposed vent piping located in occupied areas or rooms, is to be cast iron with cast iron fittings.
5. All flush valve fixtures that are installed back to back shall have offset waste outlet fittings.
6. Cleanouts shall be provided at each horizontal drainage pipe, at its upper terminal, and each run of piping which is more than 100 feet and shall be provided for each 100 feet developed length, or fraction thereof of such piping. An additional cleanout shall be provided for each aggregate horizontal change of direction exceeding one hundred and thirty-five degrees, per applicable plumbing code. This shall be provided regardless of what is shown on the drawings.
7. All floor drains, floor sinks, and hub drains shall be installed with a trap primer.
 - a. Flush Valve Primer: Trap primer shall be Precision plumbing products model FVP-1VB with vacuum breaker.
 - b. Pressure Activated Primer: Trap primer shall be Precision Plumbing products Model CPO-500 with DU distribution unit if required.
 - c. Tail Piece Primer: Trap primer shall be Precision Plumbing Products Model LTP-1500 with ½” clear poly flexible priming make up water line and chrome plated escutcheons plates.
8. All vent's through roof (VTR'S) shall be extended at least 1 foot above the roof surface, or to the top of the closest adjacent parapet wall, whichever is greater.

D. Compressed Air:

1. Piping shall be Schedule 40 black steel pipe, ASTM A53, with black banded 200 pound malleable iron fittings and couplings.
2. Piping 2" and below may be ASTM A-312, Type 304/304L, Schedule 5S stainless steel in lieu of soldered copper.
 - a. Fittings shall be precision, cold drawn austenitic stainless steel with elastomer O-ring seals. (O-ring shall be grade "E" EPDM for oil free compressed air, or grade "T" Nitrile for air with oil vapors) Vic-Press 304 or equal.
3. Alternate material - Piping inside building above slab or above grade shall be ASTM B88, Type "L", hard drawn copper. Fittings shall be ANSI/ASME B16.23 cast brass or ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASME B32 solder, Grade 95-5, lead free.

E. Propane Gas:

1. Piping shall be Schedule 40 black steel pipe, ASTM A53. Exposed fittings 2 inches and smaller shall be ANSI/ASME B16.3, screwed, black malleable iron.
2. Fittings larger than 2 inches and all underground fittings shall be Schedule 40 steel butt-welded type. Underground piping shall be provided with a polyethylene jacket, ANSI/AWWA C105, or shall be wrapped with double layer, half-lapped, 10 mil polyethylene tape.
 - a. Contractors Option for Underground Pipe:
 - 1) Gastite Type PE flexible corrugated gas piping. NFPA-54 & 56. ASTM D2513 Category 1. ASME D-B31.8-1995.
 - 2) Piping and fittings underground and outside the building line may be JM Eagle UAC 2000 MDPE, medium-density polyethylene yellow gas pipe or an approved equal. Piping shall be installed in accordance with JM Eagle Publication JME-12B, "Polyethylene Yellow Gas Distribution Installation Guide." JM Eagle's UAC 2000 system can be joined by butt heat fusion, socket fusion, or saddle fusion. Installing contractor shall be licensed for fusion pipe installation of polyethylene pipe. ASTM D2513.
3. All exterior piping exposed to the weather shall be coated with a rust inhibitor – Rustoleum #866 Pro-Guard Primer – yellow or gray color – or approved equal.

F. Condensate Drain Piping:

1. Exterior to building or located within a plenum: Piping shall be Type L hard drawn copper, ASTM B88, with solder joints. Copper piping shall not be used on 90% condensing type equipment.
 1. Interior: Piping shall be Type L hard drawn copper, ASTM B88, with solder joints, grade 95TA, or may be Schedule 40 PVC. Copper piping shall not be used on 90% condensing type equipment. Provide a neoprene or rubber gasket at all copper piping support hangers to inhibit corrosion.
 - a. Inside Mechanical Rooms: Piping shall be Type L hard drawn copper, ASTM B88, with solder joints, grade 95TA, for durability reasons.

G. Hanger and Supports:

1. Pipe hangers shall be provided to adequately support all piping systems. Hangers shall be vertically adjustable to provide for proper pitch and drainage. Hangers shall

allow for expansion and contraction of the piping system. Reference “General Regulations” of the latest edition of the adopted plumbing code, latest edition.

2. Hangers for pipe sizes 1/2 to 6 inches shall be adjustable clevis type, or unistrut saddles with all-thread hanger rod.
3. Hangers for hot pipe, sizes 6 inches and over shall be adjustable steel yoke, cast iron roll, double hanger type.
4. Vertical pipes shall be supported with steel riser clamps. Spacing interval requirements per “General Regulations” of the latest edition of the adopted plumbing code, latest edition.
5. All insulated piping shall be provided with minimum 18 gauge galvanized insulation shields, 12 inches long, and oversized hangers. Pipe sizes 2 inches and over shall also be provided with 12 inch long calcium silicate insulating blocks between the piping and the galvanized insulation shield.
 - a. Alternate: Insulated pipe support inserts may be provided at hanger, support, and guide locations on piping requiring insulation. The insert should consist of either Hydrous Calcium Silicate or Polyisocyanurate Foam insulation (Urethane) encircling the entire circumference of the pipe with a 360 deg. PVC (1.524 mm thick) or galvanized steel jacket and installed during the installation of the piping system. These insulated pipe support inserts shall be provided by the Mechanical Contractor and installed by the same during pipe support installation.
6. Hanger rod sizing and spacing for pipe shall be as follows:

Pipe Size	Minimum Rod Diameter	Maximum Spacing
To 1-1/4 inches	3/8 inch	6.5 feet
To 2 inches	3/8 inch	10 feet
To 3 inches	1/2 inch	10 feet
To 6 inches	5/8 inch	10 feet
8 to 12 inches	7/8 inch	12 feet
PVC & ABS (all sizes)	3/8 inch	4 feet
Cast Iron No-Hub	5/8 inch at joints	5 feet and

7. Provide hangers within 12 inches of each horizontal elbow.
8. Provide hangers with minimum 1-1/2 inches vertical adjustment.

H. Ethylene-Propylene (EPDM) Piping

1. Brine facility piping shall be Ethylene-Propylene (EPDM) piping with a reinforced polyethylene helix. EPDM piping shall include the following ratings:
 - a. Working Pressure at 72°F: 90-psi
 - b. Vacuum Rating at 72°F: 29.8-In Hg
 - c. Minimum Bending Radius at 68°F: 7-inches
 - d. Weight: 1.25 lbs/ft
 - e. Temperature Range: -40°F to 140°F
 - f. Type: Suction and Discharge
 - g. Application: Brine chemicals

2.3 INSULATION:

A. General:

1. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
2. Fire-Test-Response Characteristics: Insulation and related materials NFPA 255, UL Classified per UL 723 or meeting ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement containers, with appropriate markings of applicable testing and inspecting agency.
 - a. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 - b. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

B. Piping:

1. All domestic, potable & non-potable, hot and cold water lines and rain drains shall be insulated with preformed insulation.
 - a. Fiberglass insulation with a vapor barrier jacket. Insulation shall have a conductivity not exceeding 0.28 Btu-inch/hour-sq. ft.-degrees F. Laps and butt joints shall be sealed with pressure sensitive joint sealing tape of the same finish as the insulation jacket to provide a continuous vapor seal. Fittings and valves shall be insulated with PVC fitting covers and fiberglass insulation inserts, or with hydraulic setting insulating cement and four ounce canvass jacket with vapor barrier adhesive.
 - b. Alternate material for Cross-Linked Polyethylene Tubing (PEX): One piece preformed flexible elastomeric closed cell foam with built-in vapor barrier. Seal laps and butt joints with moisture resistant adhesive to provide a continuous vapor seal. Insulation shall have a conductivity rating not exceeding 0.27 Btu-inch/hour-sq. ft.-°F.

Insulation thicknesses shall be as follows:

<u>System</u>	<u>Pipe Sizes</u>	<u>½" and above</u>
Domestic Cold Water (pot. & non-pot.)		½"
Domestic Hot Water & Recirc. (pot. & non-pot.)		1"

2. Insulation shall be installed in strict accordance with manufacturer's instructions.
3. Insulation shall be continuous through penetrations.
4. All insulation shall be installed in a neat and workmanlike manner.

2.4 VALVES & STRAINERS:

A. Gate Valves:

1. Valves 2-inches and smaller shall be cast bronze body, ASTM B-62, rising stem, 200 psi WOG. Stems shall be dezincification-resistant silicon bronze, ASTM B-371, or low-zinc alloy, ASTM B-99, NSF/ANSI 61-8 Annex F&G, NSF 372 Lead Free. If unable to use a rising stem valve due to inadequate clearance, use non-rising stem gate valve. Valves shall comply with MSS SP-80. Valves over 2-inches shall be iron body, bronze trim, rising stem and hand wheel, flanged ends. Valves shall comply with MSS SP-70. Valves mounted higher than 7'-0" A.F.F. shall be provided with chain, wheel, and guides. Basis of design: Apollo # 101T-LF/101S-LF Lead Free Bronze, Apollo #611F-LF Lead Free Cast Iron, or equal.

B. Globe Valves:

1. Valves 2-inches and smaller shall be cast bronze body, ASTM B-62, renewable composition disc, 200 psi WOG, ASTM B-62, rising stem and hand wheel. Stems shall be of dezincification-resistant silicon bronze, ASTM B-371, or low-zinc alloy, ASTM B-99, NSF/ANSI 61-8 Annex F&G, NSF 372 Lead Free. Valves over 2-inches shall be iron body, bronze trim, rising stem and hand wheel, plug type disc, flanged ends. Valves shall comply with MSS SP-85. Valves mounted higher than 7'-0" A.F.F. shall be provided with chain, wheel and guides. Basis of design: Apollo #120T-LF/120S-LF Lead Free Bronze, Apollo #711F-LF Lead Free Cast Iron, or equal.

C. Ball Valves:

1. Valves 2-inches and smaller shall be lead free cast bronze body, chrome-plated brass ball, teflon seats, and lever handle, 600 psi CWP. Valves shall comply with MSS SP-110, NSF/ANSI 61, NSF/ANSI 372 Lead Free. Valves over 2-inches shall be cast steel body, chrome plated steel ball, teflon seats, and lever handle. Victaulic, Anvil Gruvlok, Grinnell, or Shurjoint ball valves are acceptable if grooved piping is used. Valves mounted higher than 7'-0" A.F.F. shall be provided with chain, wheel, and guides. Basis of design: Apollo #77CLF-A Series or equal.

D. Butterfly Valve:

1. Valves 12-inches and smaller shall be ductile iron lug body, ASTM A-536, 316 stainless steel disc, EPDM Liner, 316 stainless steel stem, and safety twist-lock multi-position lever handle with open-closed lockout capabilities. Valve shall be rated at 175 psig WOG. Valves mounted higher than 7'-0" A.F.F. shall be provided with chain wheel and guides. Valves shall comply with MSS SP-67. Victaulic, Anvil Gruvlok, Grinnell, or Shurjoint butterfly valves are acceptable if grooved piping is used.

E. Check Valves:

1. Valves 2-inches and smaller shall be bronze body Y-pattern, ASTM B-62, swing check, bronze disc, 200 psi WOG. Valves shall comply with MSS SP-80, NSF/ANSI 61-8 F&G, NSF/ANSI 372 Lead Free. Valves, over 2-inches shall be iron body, ASTM A-126, bronze trim, swing check, renewable disc and seat. Valves shall comply with MSS SP-71. Victaulic, Anvil Gruvlok, Grinnell, or Shurlock check valves are acceptable if grooved piping is used. Basis of design: Apollo # 161T-LF/161S-LF Lead Free Bronze, Apollo # 920F-LF Lead Free Cast Iron, or equal.
2. Swing check valves with outside lever and spring (not center guided) is to be used on sewage ejector or storm-water sump pumps. Basis of design: Apollo # 910FLW-LF Lead Free Cast Iron or equal.

F. Pressure Reducing Valves:

1. Valves 2-inches and smaller shall be bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer, and single union end. Basis of design: Apollo # 36ELF Series Lead Free Bronze or equal.

G. Balance Valve:

1. Valve shall have a twin tube 316 S.S. design with blowout proof attachment to station body. Ports shall include $\frac{3}{4}$ " port for thermometer, $\frac{1}{4}$ " port for pressure gauge, air vent, and $\frac{1}{2}$ " drain port.
2. The instrument station shall be 120/150-flanged construction.
3. The butterfly valve shall be lug pattern with a rating of 200 WP, 250 deg. F. The valve shall have an infinite. Position operator with memory stop (6" and smaller), worm gear with memory stop (8" and larger).

H. Y-Pattern Strainers:

1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
 2. End Connections: Threaded ends for NPS 2 (DN 50) and smaller; flanged ends for NPS 2-1/2 (DN 65) and larger.
 3. Strainer Screen: 40-mesh startup strainer and perforated stainless-steel basket with 50 percent free area.
 4. CWP Rating: 125 psig (862 kPa).
- I. Install strainers on inlet side of each control valve, pressure-reducing valve, solenoid valve, inline pump, and elsewhere as indicated. Install NPS $\frac{3}{4}$ (DN 20) nipple and ball valve in blowdown connection of strainers NPS 2 (DN 50) and larger. Match size of strainer blow-off connection for strainers smaller than NPS (DN50).

2.5 EQUIPMENT

A. Brine Transfer System

1. Pump:
 - a. The pump shall be a 2" inlet x 1 $\frac{1}{2}$ " outlet Stainless Steel centrifugal pump with a stainless steel shaft and mechanical seal. The pump shall be close coupled to a 3 HP, 230 volt, single phase, 3450 RPM, TEFC motor. Based on water, this pump shall be capable of pumping 165 GPM at 15 PSI. The pump assembly shall be mounted on a galvanized steel frame and enclosed in a UV stabilized polyethylene enclosure. The frame shall incorporate a 5' vertical post, which will include a hose rack to store the fill and unload hoses in the off season, as well as, provide a place to mount the pump control and run light. The run light shall be red in color and will illuminate with the pump when the pump is turned on.
2. Piping Connections:
 - a. Each side of the pump shall be equipped with a 3-way poly ball valve that is accessible from the outside of the pump enclosure. The connection between the pump and this ball valve must be made with a brass or stainless steel nipple – **no exceptions**. The 3-way ball valves shall allow for the filling and unloading of truck mounted tanks, and shall also allow for the recirculation of the storage tank. The valve on the suction side of the pump shall be a side load 2" poly valve, while the valve on the discharge side of the pump shall be a bottom load 1 $\frac{1}{2}$ " poly valve.
3. Hoses:
 - a. The 3" x 25' hose on the suction side of the pump for connection to storage tank shall be constructed of black thermoplastic rubber with a rigid polyethylene helix. The hoses on the discharge side of the pump shall be constructed of heavy-duty EPDM rubber and shall consist of the following lengths and sizes: 1 $\frac{1}{2}$ " x 25' to connect truck mounted tanks to the pump for

filling. Each hose end that connects to the storage tank shall include female camlock fittings to connect to the mating male camlock fittings. Each hose end that connects to the truck mounted tanks shall include a hose barb, ball valve, and proper camlock fitting to mate to the fitting on the truck mounted tanks. The discharge hose for filling truck mounted tank shall also be capable of being connected to the suction side of the pump for offloading of the truck mounted tank.

PART 3 - EXECUTION

3.1 WORKMANSHIP:

A. General:

1. Install all piping, fixtures, equipment, and accessories as shown, and in strict accordance with the plumbing laws, rules, and regulations of the State and/or City. All work shall be done in a neat and orderly fashion and left in a condition satisfactory to the Architect/Engineer.

B. Piping:

1. All piping shall be run parallel or perpendicular to established building lines. Install piping so as to allow for expansion. Waste and vent piping occurring above floor slab shall be installed true and plumb. Extend vents at least 1 foot above roof, or to the top of the closest adjacent parapet wall, whichever is greater, and provide watertight flashing sleeves. Excavation and backfill shall be in accordance with Section 220000 of these specifications.

C. Fixtures:

1. Install fixtures true and plumb with building walls. Caulk all plumbing fixtures at joints along walls, countertops, and other intersecting surfaces. Locate fixtures as shown and per manufacturer's instructions. Furnish all required trim for fixtures to provide a complete and workable installation.

3.2 TESTS:

A. General:

1. All piping, fixtures, and equipment shall be inspected and approved before concealing or covering. All work shall be tested as required by Section 220000 of these specifications and shall be leak proof before inspection is requested. All tests shall be repeated if required by those making the inspection.
2. All potable water systems shall be flushed and disinfected in accordance with Section 220000 of these specifications. Following disinfection, system shall be flushed and water sampled to show compliance with requirements of public health authority having jurisdiction. If tested water does not meet requirements, disinfecting shall be repeated until water quality meets requirements.
3. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove. Gasket shall be molded and produced by Victaulic Company, Gruvlok, or Grinnell Mechanical Products, or equal. Verify gasket grade is suitable for the intended service. The grooved coupling manufacturer's factory trained representative shall provide on-site training for

contractor's field personnel the use of grooving tools, application of groove, and installation of grooved end products.

- a. All grooved joint couplings, fittings, valves and specialties shall be the products of Victaulic Company, Gruvlok, Grinnell Mechanical Products, or equal.
4. Install the grooved piping in accordance with the latest recommendations as published by the manufacturer. Pipe shall be square cut, ± 0.30 ", properly deburred and cleaned. Mark pipe ends at the required location using a gauge supplied by the manufacturer to ensure full insertion into the coupling or fitting during assembly. Use a manufacturer's tool with the proper sized jaw for pressing.

B. Fixtures and Equipment:

1. Fill all plumbing fixtures with water and check for leaks or retarded flow. Repair as required. Adjust each piece of plumbing equipment as required to ensure proper functioning. Leave all fixtures and equipment in first class operating condition.
2. The Plumbing Contractor is responsible for all backflow devices to be inspected by a certified backflow technician before use of the building potable water system.

C. Smoke Test:

1. A smoke test shall be performed on the entire waste and vent system before building occupancy. After all fixtures are permanently connected and traps are filled with water, fill entire drainage systems with smoke under pressure of 1.3 pKa (1 inch of water) with a smoke machine. If leaks are detected, they shall be repaired and the smoke test shall be performed again until no leaks are found.

MUSGROVE ENGINEERING
234 S. Whisperwood Way
Boise, Idaho 83709
E-mail: musgrove@musgrovepa.com
Phone: (208) 384-0765

PIPING SYSTEM TEST REPORT

STRUCTURE/BUILDING: _____

TEST NUMBER: _____

LOCATION: _____

CONTRACT NO. _____

DESCRIPTION OF SYSTEM/PIPING BEING TESTED:

Description of Test Performed	Test Pressure	Test Duration	Pass/Fail
Hydrostatic: _____	P.S.I.	_____	_____
Inert Gas: _____	P.S.I.	_____	_____
Compressed Air: _____	P.S.I.	_____	_____
Waste & Vent Smoke Test: _____	1" Water Column	_____	_____

NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TEST'S FOR CONTRACTOR:

Name: _____ Title: _____

Signature: _____

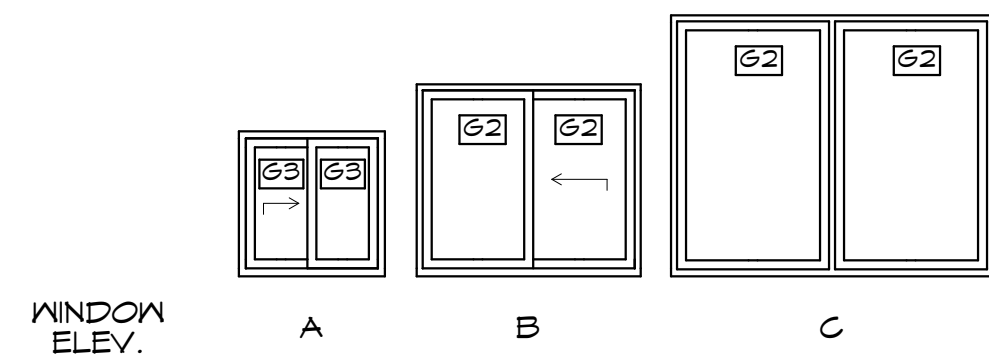
I hereby certify that the above described system has been tested as indicated above and found to be entirely satisfactory as required in the contract specifications.

Signature of Inspector: _____ Date: _____

REMARKS: _____

END OF SECTION 220100

WINDOW SCHEDULE					
WINDOW ELEV.	WIDTH	HEIGHT	FRAME TYPE	WINDOW DETAIL	NOTES
A	3'-0"	3'-0"	VINYL SLIDER	4/A401	1; 2; 8
B	4'-8"	4'-0"	VINYL SLIDER	6/A401	1; 2; 9; 10
C	6'-8"	5'-5"	FIXED PANEL	6/A401	1; 2



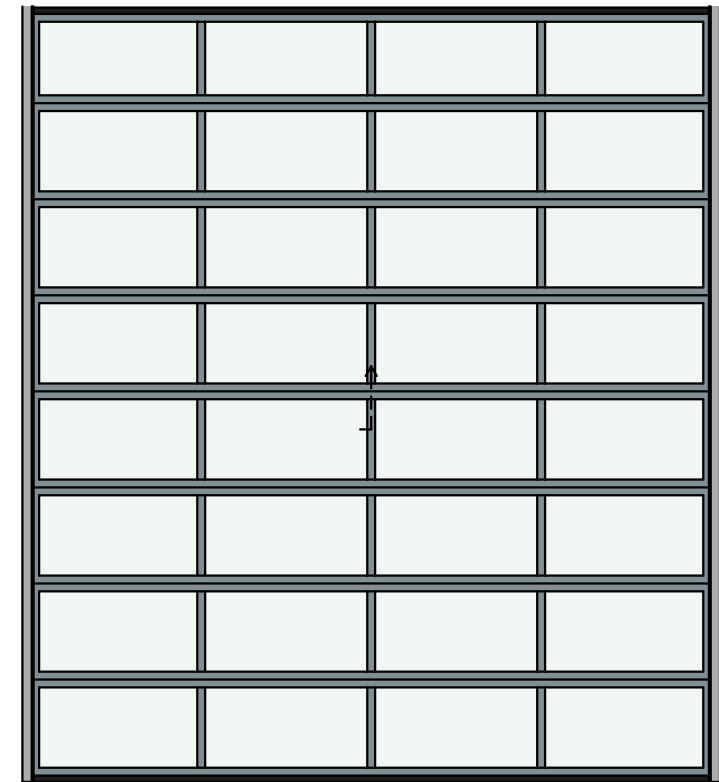
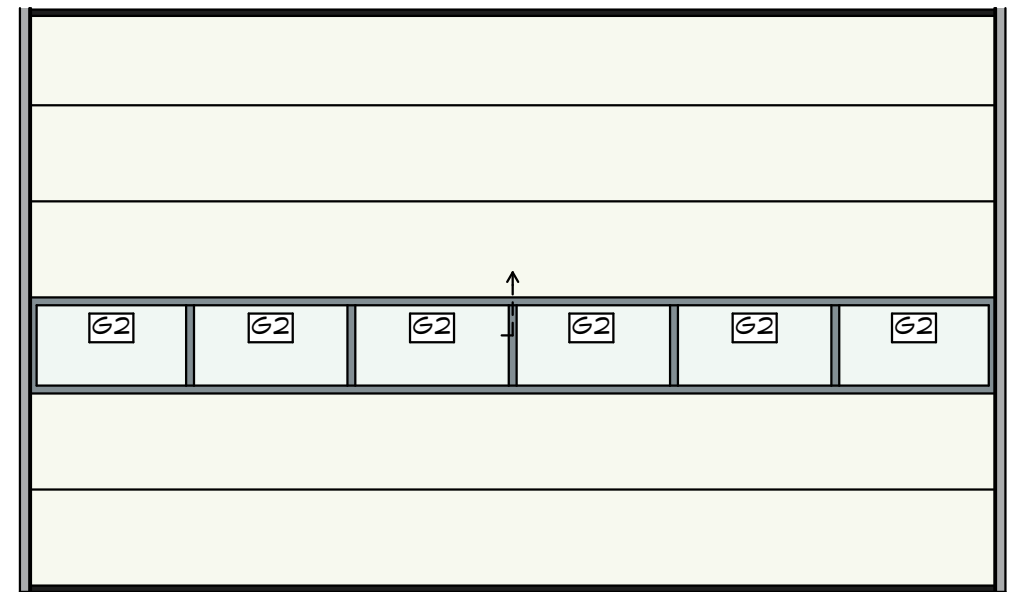
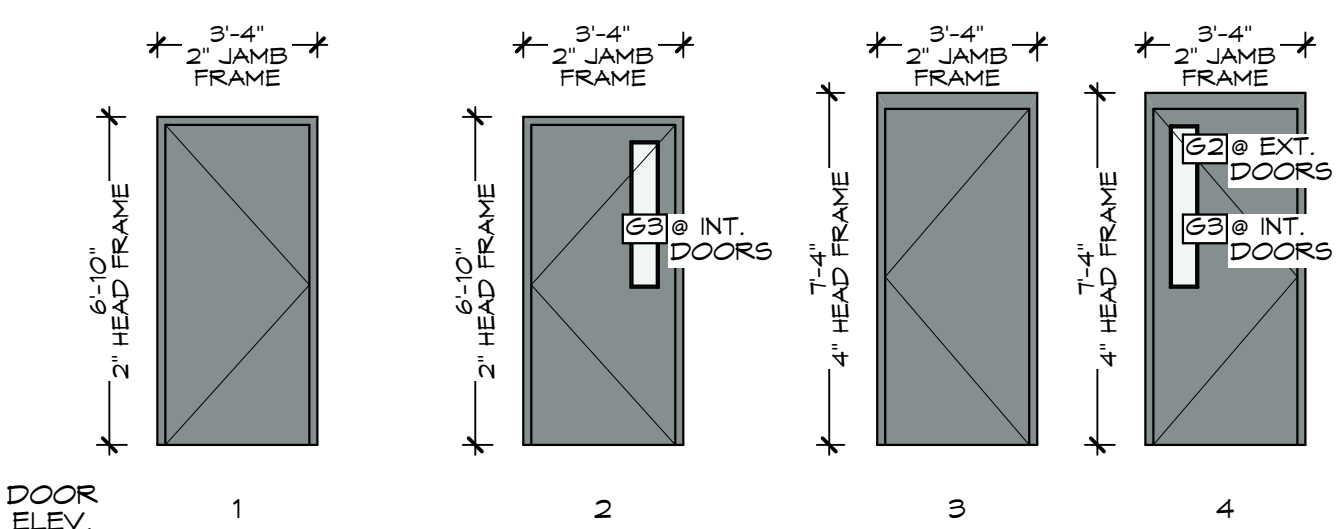
5 WINDOW SCHEDULE
SCALE: 1" = 1'-0"

4 WINDOW ELEVATIONS
SCALE: 1" = 1'-0"

HINGES		
H1	TA 2714 4 1/2 x 4 1/2 US26D	MCKINNEY
H2	TA 2714 4 1/2 x 4 1/2 NRP US26D	MCKINNEY
LOCKS		
L1: ENTRANCE	ND50PD RHO US26D	SCHLAGE
L2: PASSAGE	ND10S RHO US26D	SCHLAGE
L3: OFFICE	ND10PD RHO US26D	SCHLAGE
L4: STORAGE	ND80PD RHO US26D	SCHLAGE
L5: PRIVACY	ND40S RHO US26D	SCHLAGE
L6: CYLINDER	20 SERIES	SCHLAGE
CLOSER		
C1	COMMERCIAL GRADE 150	NORTON
KICKPLATES		
K1	V1994	STANLEY
STOPS		
S1	CD80-4011 WALL	STANLEY
S2	SP4202 FLOOR	STANLEY
WEATHER STRIPPING		
WS1	303CPK	PEMCO
SMOKE SEALS		
SS1	303CPK	PEMCO
DOOR SWEEP		
DS1	18062CP	PEMCO
THRESHOLD		
T1	PEMCO 112A	COORD. W/ SPEC
EXIT DEVICE		
ED1	99L	VON DUPRIN

SHEET NOTES

- GLAZING SCHEDULE:**
- G1 = 1" INSULATED GLASS
 - G2 = 1" INSULATED GLASS - TEMPERED
 - G3 = 1/4" FLOAT GLASS - TEMPERED
 - G4 = 5/8" POLYCARBONATE (BY O.H. DOOR MANUF.)
- INT. WINDOW BLIND LEGEND:**
- B1 = CORDLESS, FAUX WOOD, WHITE, 2"
- DOOR & WINDOW SCHEDULE NOTES:**
- PRIOR TO ORDER CONTRACTOR TO VERIFY ALL SCHEDULED WINDOW AND DOOR SIZES AT EXISTING OPENING.
 - ALL NEW WINDOW or DOOR @ EXISTING OPENING PREP FOR NEW ROUGH OPENINGS, PRESSURE TREATED LUMBER, TYP.
 - VERIFY EXISTING or NEW WALL THICKNESS FOR NEW DOOR FRAME THROAT SIZE, TYP.
 - OVERHEAD DOOR w/ DOOR OPERATOR, COORDINATE W/ ELECTRICAL FOR DOOR OPERATION AND CONTROLS.
 - OVERHEAD DOOR GLAZING BY O.H. DOOR MANUF.
 - OVERHEAD DOORS WITH FAC. FIN. AND BASE TWO PANELS (INT. & EXT.) SAFETY PAINT COLOR or LOGO COLOR
 - DOOR VISION LITE KITS ARE TO BE 43" MIN. OFFSET FROM FIN. FLR. HT.
 - SIM. DETAILS FOR (2) MEZZ. WINDOWS AS 4/A401. V.I.F. FRAMED SILL IS IN "GOOD REPAIR", REPLACE / INFILL AS NEEDED w/ MATERIALS TO MATCH.
 - ALL 'B' WINDOW TYPE TO RECEIVE B1 (WINDOW BLIND)
 - SILL HT. AT E.T.R. OPENINGS, SEE BLDG. ELEVATIONS FOR NEW TO ALIGN W/ EXISTING, TYP.



NOTE: ALL PANELS G4

3 DOOR ELEVATIONS
SCALE: 1" = 1'-0"

2 DOOR LEGEND
SCALE: 1" = 1'-0"

OVERHEAD DOOR SCHEDULE															
DOOR #	DOOR ELEV.	WIDTH	HEIGHT	DOOR		FRAME		HARDWARE			GLAZING	DETAIL	SCHED. NOTES	COMMENTS	DOOR #
				DOOR MATERIAL	DOOR FINISH	FRAME MATERIAL	FRAME FINISH	LOCKS	CLOSER						
BAY DR - A	5	20'-0"	12'-0"	MTL	PAINT	MTL. TRACK	---	LOCKING, SEE SPEC	MOTOR	G2	5/A401	4; 5; 6	--	BAY DR - A	
BAY DR - B	5	20'-0"	12'-0"	MTL	PAINT	MTL. TRACK	---	LOCKING, SEE SPEC	MOTOR	G2	5/A401	4; 5; 6	--	BAY DR - B	
BAY DR - C	5	20'-0"	12'-0"	MTL	PAINT	MTL. TRACK	---	LOCKING, SEE SPEC	MOTOR	G2	5/A401	4; 5; 6	--	BAY DR - C	
BAY DR - D	5	20'-0"	12'-0"	MTL	PAINT	MTL. TRACK	---	LOCKING, SEE SPEC	MOTOR	G2	5/A401	4; 5; 6	--	BAY DR - D	
BAY DR - E	5	20'-0"	12'-0"	MTL	PAINT	MTL. TRACK	---	LOCKING, SEE SPEC	MOTOR	G2	5/A401	4; 5; 6	--	BAY DR - E	
BAY DR - F	5	20'-0"	12'-0"	MTL	PAINT	MTL. TRACK	---	LOCKING, SEE SPEC	MOTOR	G2	5/A401	4; 5; 6	--	BAY DR - F	
BRINE BAY DR - 1	6	14'-0"	16'-0"	MTL	PAINT	MTL. TRACK	---	LOCKING, SEE SPEC	MOTOR	G4	5/A401	4; 5; 6	ADD ALT #2	BRINE BAY DR - 1	

DOOR SCHEDULE																						
DOOR NO.	WIDTH	HEIGHT	DOOR ELEV.	DOOR		FRAME		HARDWARE					WEATHER STRIPPING	DOOR SWEEP	THRESHOLD	EXIT DEVICE	GLAZING	FIRE RATING	DETAIL	NOTES	COMMENTS	DOOR NO.
				DOOR MAT.	DOOR FIN.	FRAME MAT.	FRAME FIN.	HINGES	LOCKS	CLOSER	KICKPLATES	STOPS										
101A	3'-0"	7'-0"	4	INSO. H.M.	PAINT	H.M.	PAINT	H2	L6	C1	K1	---	WS1	DS1	T1	ED1	G2	---	2/A401	1; 2; 7	---	101A
101B	3'-0"	6'-8"	2	HM	PAINT	H.M.	PAINT	H1	L6	C1	K1	S1	SS1	DS1	T1	ED1	G3	---	3/A401	1; 2; 7	---	101B
102A	3'-0"	6'-8"	1	WD	FAC. FIN.	H.M.	PAINT	H1	L3	---	---	---	S1	SS1	---	---	---	---	3/A401	1; 2	---	102A
103A	3'-0"	6'-8"	1	WD	FAC. FIN.	H.M.	PAINT	H1	L4	---	---	---	S1	SS1	---	---	---	---	3/A401	1; 2	---	103A
104A	3'-0"	6'-8"	1	WD	FAC. FIN.	H.M.	PAINT	H1	L3	---	---	---	S1	SS1	---	---	---	---	4/A401	3	---	104A
105A	3'-0"	6'-8"	1	WD	FAC. FIN.	H.M.	PAINT	H1	L3	---	---	---	S1	SS1	---	---	---	---	4/A401	3	---	105A
106A	2'-8"	6'-8"	1	WD	FAC. FIN.	H.M.	PAINT	H1	L4	---	---	---	---	---	---	---	---	---	4/A401	3	ADJ. FRAME SIZE FOR DOOR SLAB SIZE AS INDICATED ON DOOR SCHED.	106A
106B	3'-0"	6'-8"	1	WD	FAC. FIN.	H.M.	PAINT	H1	L3	---	---	---	SS1	DS1	---	---	---	---	4/A401	3	---	106B
106C	3'-0"	6'-8"	1	HM	PAINT	H.M.	PAINT	H1	L3	---	K1	S1	SS1	DS1	---	---	---	---	4/A401	3	---	106C
108A	3'-4"	6'-8"	1	HM	PAINT	H.M.	PAINT	H1	L3	---	K1	S1	---	DS1	---	---	---	---	3/A401	1; 2	ADJ. FRAME SIZE FOR DOOR SLAB SIZE AS INDICATED ON DOOR SCHED.	108A
109A	3'-0"	6'-8"	1	WD	FAC. FIN.	H.M.	PAINT	H1	L5	C1	---	---	S1	SS1	DS1	---	---	---	3/A401	1; 2	---	109A
110A	3'-0"	6'-8"	1	WD	FAC. FIN.	H.M.	PAINT	H1	L5	C1	---	---	S1	SS1	DS1	---	---	---	3/A401	1; 2	---	110A
111A	3'-0"	6'-8"	1	HM	PAINT	H.M.	PAINT	H1	L2	---	---	---	---	---	---	---	---	---	4/A401	3	---	111A
112A	3'-0"	7'-0"	4	INSO. H.M.	PAINT	H.M.	PAINT	H2	L6	C1	K1	---	WS1	DS1	T1	ED1	G2	---	1/A401	3; 7	---	112A
112B	3'-0"	7'-0"	4	INSO. H.M.	PAINT	H.M.	PAINT	H2	L6	C1	K1	---	WS1	DS1	T1	ED1	G2	---	1/A401	3; 7	---	112B
114A	3'-0"	7'-0"	3	HM	PAINT	H.M.	PAINT	H1	L1	---	---	---	WS1	DS1	---	---	---	---	1/A401	3	DOOR WITHIN BASE BID. REMOVE W/ ADD ALT #1 AND CREDIT TO OWNER	114A
114B	3'-0"	7'-0"	3	HM	PAINT	H.M.	PAINT	H1	L1	---	---	---	WS1	DS1	---	---	---	---	1/A401	3	DOOR WITHIN BASE BID. REMOVE W/ ADD ALT #1 AND CREDIT TO OWNER	114B
117A	3'-0"	7'-0"	4	INSO. H.M.	PAINT	H.M.	PAINT	H2	L6	C1	K1	---	WS1	DS1	T1	ED1	G2	---	1/A401	3; 7	---	117A
B01A	3'-0"	7'-0"	4	INSO. H.M.	PAINT	H.M.	PAINT	H2	L3	---	K1	S2	WS1	DS1	T1	---	---	---	1/A401	1; 2; 5; 7	ADD ALT #2	B01A
B02A	3'-0"	7'-0"	4	INSO. H.M.	PAINT	H.M.	PAINT	H2	L6	C1	K1	---	WS1	DS1	T1	---	---	---	2/A401	1; 2; 5; 7	ADD ALT #2	B02A

1 DOOR SCHEDULE
SCALE: 1" = 1'-0"

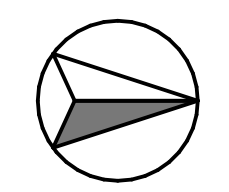
ADD. ALTERNATES

- FIRE SUPPRESSION SYSTEM, FIRE RISER, AND DEMO EXISTING CMU DIVIDER WALL BTWN BAY-C & BAY-D. (MAINT. BLDG. ONLY)
- BRINE PRODUCTION FACILITY AND ALL ASSOCIATED ITEMS, TO INCLUDE: BLDG. LOCATION SITE WORK, UTILITIES, BRINE PRODUCTION UNITS & COMPONENTS AND BRINE TANK AREA SLAB, STEM WALLS, CONC. PIERS, SIX BRINE TANKS AND TANK PIPING.
- BRINE TANK AREA ROOFING AND PEMB STRUCTURE TO INCLUDE: PEMB BLDG. PACKAGE W/ ALL ROOFING AND ACCESSORIES, PEMB COLUMN CONC. PIERS AND ASSOC. FOOTINGS FOR PEMB COLUMNS ARE WITHIN ADD ALT #2.

GRAPHIC REPRESENTATION

- [- - -] = DEMOLITION
- [Solid Grey] = EXISTING
- [Solid White] = NEW CONSTRUCTION
- [- - - -] = ADD ALT (SCOPE)

PROJECT NORTH



Myers Anderson
 Architecture • Interior Design • Historic Preservation
 122 South Main Street • Pocatello, Idaho 83204 • Tel: (208) 332-3741 • Fax: (208) 232-3782



ITD D5 MAINTENANCE BLDG. ADDITION & RENOVATION W/ BRINE PRODUCTION FACILITY
 BLACKFOOT, IDAHO

DOOR & WINDOW SCHEDULES, ELEVATIONS, AND NOTES

DRAWING SCALE APPLIES TO 22" X 34" SHEET SIZE

CONTRACTOR SHALL VERIFY ALL DIMENSIONS & CONDITIONS SHOWN OR IMPLIED

DO NOT DISTRIBUTE PARTIAL SETS OF DRAWINGS OR SPECIFICATIONS

REVISION DATE

ARCH. JOB NUMBER: 22569

CLIENT PROJ. NUMBER: --

SHEET ISSUED DATE: FEB 2023

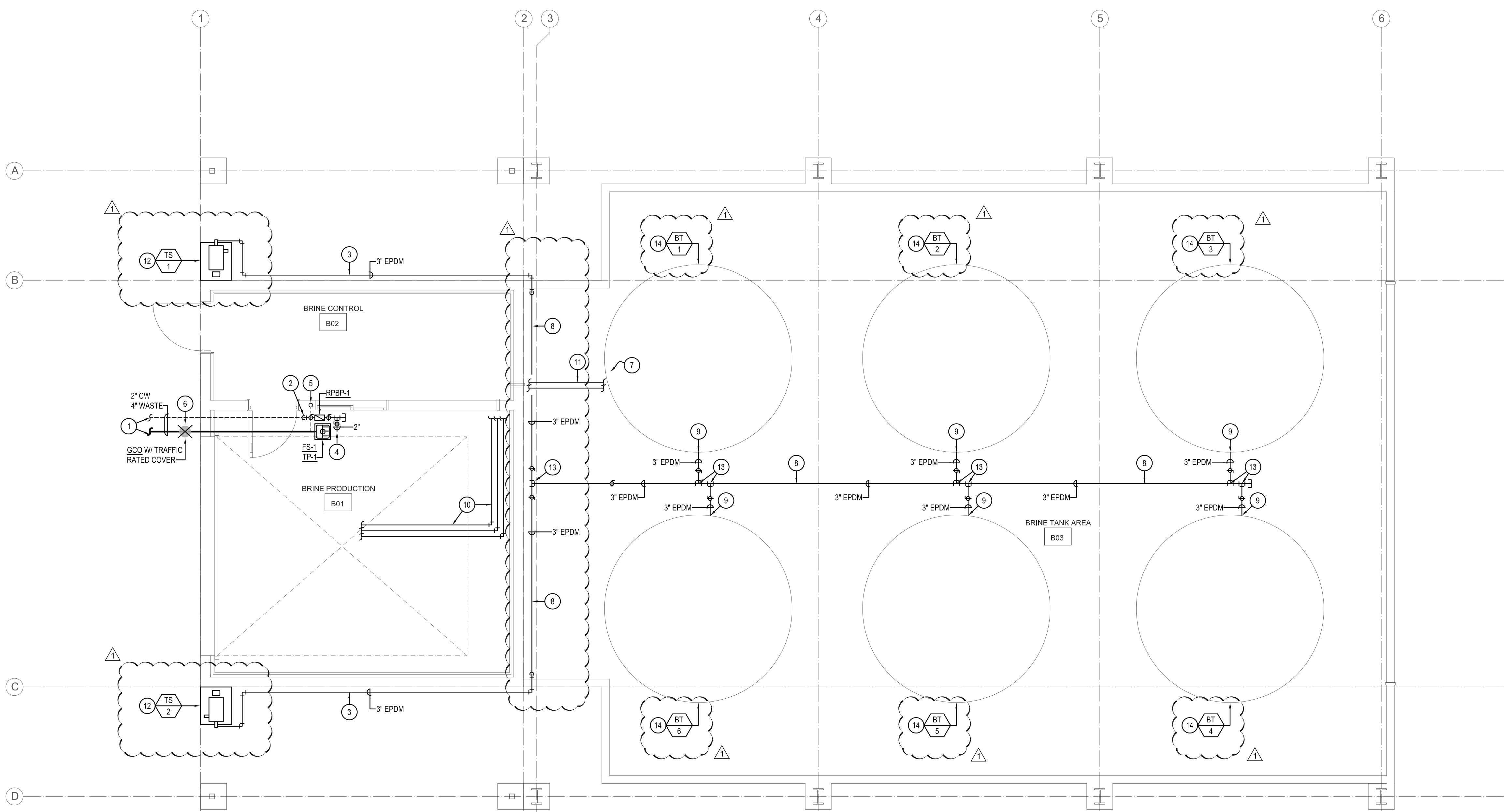
SHEET **A400**



ITD D5 MAINTENANCE BLDG. ADDITION & RENOVATION w/ BRINE PRODUCTION FACILITY
 BLACKFOOT, IDAHO

NOTES

- # SYMBOL USED FOR NOTE CALLOUT.
- ① SEE CIVIL DRAWINGS FOR CONTINUATION OF 2'Ø CW LINE AND 4'Ø WASTE.
- ② ROUTE 2'Ø CW UP FROM BELOW GRADE TO NEW BACKFLOW PREVENTION DEVICE (RPBP-1). SEE DETAIL FOR INSTALLATION REQUIREMENTS. TERMINATE DRAIN FROM BACKFLOW DEVICE INDIRECTLY AT FS-1.
- ③ ROUTE AND INSTALL REINFORCED 3'Ø EPDM PIPE TO TRANSFER STATION PUMP (BASIS OF DESIGN: KANAFLEX 390SD). SECURE PIPE TO WALL.
- ④ PROVIDE 2'Ø NPT THREADED FITTING FOR BRINE PRODUCTION SYSTEM CONNECTION.
- ⑤ ROUTE NEW 2'Ø VENT TO ROOF.
- ⑥ THE INVERT AT THIS LOCATION IS APPROXIMATELY 20" B.F.F.
- ⑦ PROVIDE (2) 2'Ø FTH BULKHEAD CONNECTIONS ATTACHED TO NEW BRINE TANK NEAR BASE (BASIS OF DESIGN: BANJO TF200), AND (2) 2'Ø FTH BULKHEAD CONNECTIONS ATTACHED TO NEW TANK NEAR TOP (BASIS OF DESIGN: BANJO TF200). PLUMBER SHALL PROVIDE ALL MODIFICATIONS TO NEW TANK AS REQUIRED PER THE BRINE SYSTEM MANUFACTURER REQUIREMENTS. COORDINATE WITH BRINE SYSTEM MANUFACTURER PRIOR TO INSTALLATION.
- ⑧ ROUTE REINFORCED 3'Ø EPDM PIPE NEAR CONCRETE FLOOR (BASIS OF DESIGN: KANAFLEX 390SD). SUPPORT PIPE EVERY 2'-0" WITH HOSE CLAMP AND STAND.
- ⑨ CONNECT REINFORCED 3'Ø EPDM PIPE TO BULKHEAD NEAR BASE OF NEW BRINE TANK. PROVIDE WITH EPDM SHUTOFF VALVE (BASIS OF DESIGN: BANJO V300FP).
- ⑩ PIPING FROM BRINE MAKER TO CONTROL CABINET TO BE PROVIDED BY BRINE SYSTEM MANUFACTURER, SHOWN FOR COORDINATION ONLY.
- ⑪ PIPING FROM BRINE CONTROL CABINET TO TANK IN CONTAINMENT AREA TO BE PROVIDED BY BRINE SYSTEM MANUFACTURER, SHOWN FOR COORDINATION ONLY.
- ⑫ ROUTE AND CONNECT 3'Ø EPDM PIPE (BASIS OF DESIGN: KANAFLEX 390SD) TO NEW TRANSFER STATION PUMP. PROVIDE TRANSITION AND REDUCER TO CONNECT TO PUMP SUCTION.
- ⑬ PROVIDE FULL PORT FLANGED TEE (BASIS OF DESIGN: BANJO M300TEE) WITH SCREW CLAMP AND EPDM GASKET.
- ⑭ PROVIDE AND INSTALL NEW BRINE TANK.

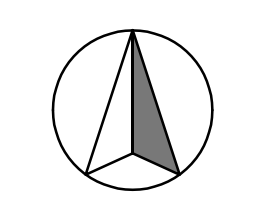


1 BRINE BUILDING PLUMBING PLAN
 P102 SCALE: 1/4" = 1'-0"

ADD. ALTERNATES

- ① FIRE SUPPRESSION SYSTEM, FIRE RISER AND DEMO EXISTING CMU DIVIDER WALL BTWN BAY-C & BAY-D. (MAINT. BLDG. ONLY)
- ② BRINE PRODUCTION FACILITY AND ALL ASSOCIATED ITEMS, TO INCLUDE: BLDG. LOCATION SITE WORK, UTILITIES, BLDG. MATERIALS, BRINE PRODUCTION UNITS & COMPONENTS AND BRINE TANK AREA SLAB, STEM WALLS, CONC. PIERS, AND TANK PIPING. (SIX BRINE TANKS BY OWNER)
- ③ BRINE TANK AREA ROOFING AND PEMB STRUCTURE. TO INCLUDE: PEMB BLDG. PACKAGE w/ ALL ROOFING AND ACCESSORIES, PEMB COLUMN CONC. PIERS AND ASSOC. FOOTINGS FOR PEMB COLUMNS ARE WITHIN ADD ALT #2.

PROJECT NORTH



PROJECT NAME:

SHEET TITLE:

BRINE BUILDING PLUMBING PLAN

DRAWING SCALE APPLIES TO 22" X 34" SHEET SIZE

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SHEET **P102**

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE DESCRIPTION	CONNECTION SIZE					MANUFACTURER / MODEL NUMBER / DESCRIPTION / ADDITIONAL COMMENTS
		WASTE	VENT	TRAP	CW	HW	
DF-1	DRINKING FOUNTAIN WITH BOTTLE FILLING STATION (INTERIOR DUAL BUBBLERS) (ELECTRIC WATER COOLER) (ADA COMPLIANT) (HIGH/LOW)	1 1/2	1 1/2	1 1/2	1/2	--	ELKAY MODEL LZSTL8WSLP (FILTERED) MODEL EZSTL8WSVRSK (NON-FILTERED) 8H-LEVEL ADA COOLER WITH BOTTLE FILLING STATION FURNISHED WITH FLEXI-GUARD SAFETY BUBBLER, BUBBLER ACTIVATED BY PUSHBAR, BOTTLE FILLER ACTIVATED BY ELECTRONIC SENSOR WITH AUTOMATIC 30-SECOND SHUT-OFF TIMER, 115 VOLT, 5.0 AMPS, 60 HERTZ, PROVIDE WITH JAY R. SMITH 0834 FLOOR MOUNTED SUPPORT CARRIER, CANE APRON TO BE INSTALLED ON HIGH COOLER.
EYE-1	EMERGENCY EYE WASH (WALL MOUNTED w/ RECOIL HOSE)	--	--	--	1/2	1/2	ACORN SAFETY MODEL S0406-CH12-BFP, WALL MOUNTED WITH DUAL 45° ANGLED HEADS AND RECOIL HOSE, PROVIDE WITH FLIP TOP DUST COVERS, UNIVERSAL EMERGENCY SIGN, DOUBLE CHECK VALVE, STAINLESS STEEL 90° WITH SHEET NIPPLE, AND ACORN MODEL E771-1-BVS-OTG LEAD-FREE EMERGENCY THERMOSTATIC MIXING VALVE WITH 1/2" NPT INLETS & OUTLET, 4 GPM @ 5 PSID, PROVIDE WITH LOCKABLE INLET BALL VALVES, STANDARD OUTLET TEMPERATURE GAUGE, AND SELECTABLE TEMPERATURE RANGE FROM 60°F TO 95°F.
FCO	FLOOR CLEANOUT	SEE PLANS	--	--	--	--	JAY R. SMITH 4020 SERIES WITH ADJUSTABLE, ROUND NICKEL BRONZE TOP AND ABS PLUG.
FD-1	FLOOR DRAIN (PVC BODY) (CONCRETE FLOOR)	2	2	2	--	--	SIoux CHIEF SERIES NUMBER 832-2PNR, POST- CONSTRUCTION LEVELING FLOOR DRAIN, NO-HUB OUTLET, 6-1/2" ROUND, ADJUSTABLE NICKEL BRONZE STRAINER AND TRAP PRIMER PORT, INSTALL TOP OF DRAIN 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
FS-1	FLOOR SINK (6" DEEP) (HALF GRATE, FOOT TRAFFIC RATED)	2	2	2	--	--	JAY R. SMITH FIGURE NUMBER 3100Y-12, CAST IRON RECEPTOR, ALUMINUM DOME STRAINER, NICKEL BRONZE GRATE, AND TRAP PRIMER, INSTALL TOP OF SINK 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
FS-2	FLOOR SINK (10" DEEP) (HALF GRATE, FOOT TRAFFIC RATED)	4	2	4	--	--	JAY R. SMITH FIGURE NUMBER 3160Y-12, CAST IRON RECEPTOR, ALUMINUM DOME STRAINER, NICKEL BRONZE GRATE, AND TRAP PRIMER, INSTALL TOP OF SINK 1/8" BELOW FINISH FLOOR AND CAULK EDGE.
GCO	GRADE CLEANOUT (PAVED AREAS) (VEHICULAR TRAFFIC)	SEE PLANS	--	--	--	--	JAY R. SMITH 4250 SERIES, ROUND FLANGED HOUSING WITH HEAVY DUTY CAST IRON COVER, FURNISH WITH ABS PLUG, COVER TO BE INSCRIBED "SAN".
HB-1	HOSE BIBB (INTERIOR)	--	--	--	3/4	--	MUELLER INDUSTRIES 102-454HN HOSE BIBB, 3/4" FEMALE INLET, 3/4" MALE OUTLET.
HB-2	HOSE BIBB (EXTERIOR) (NON-FREEZE)	--	--	--	3/4	--	WOODFORD MODEL 67 - EXPOSED STYLE WITH MODEL 50HA BACKFLOW PREVENTER, 3/4" INLET, AND CHROME PLATED, PROVIDE WITH TEE KEY AND INSTALL AT 18" ABOVE FINISH GRADE.
LAV-1	LAVATORY (WALL MOUNTED) (ADA COMPLIANT)	1 1/2	1 1/2	1 1/4	1/2	1/2	KOHLER KINGSTON MODEL K-2005; VITREOUS CHINA, WALL MOUNTED, HOLES ON 4" CENTERS, AND GRID STRAINER, KOHLER CORALIS MODEL K-15198; 4-1/2" LONG, SINGLE LEVER FAUCET WITH 0.5 GPM AERATOR, PROVIDE WITH JAY R. SMITH FIGURE NUMBER 0700-Z SUPPORT WITH CONCEALED ARMS AND WATTS SERIES LFUSG-B LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F. PROVIDE WITH LS-1 LAV SHIELD.
LS-1	LAVATORY SHIELD (WALL MOUNTED SHIELD FOR CONCEALING PIPING, VALVES, AND INSTANTANEOUS WATER HEATERS)	--	--	--	--	--	TRUEBRO "LAV SHIELD" ADA COMPLIANT, TOTAL ENCLOSURE, SINGLE-PIECE CONSTRUCTION, SLOAN OPTISHIELD ETF-529, OR APPROVED EQUAL.
RP-1	RECIRCULATION PUMP (HOT WATER RETURN SYSTEM) (SMALL SYSTEM)	--	--	--	--	3/4	BELL AND GOSSETT BRONZE MODEL NBF-10S/LW, 115 VOLT, 0.46 AMPS, 55 WATTS, AND SHALL PROVIDE 4 GPM AT 7 FEET HEAD, INCLUDE 7-DAY PROGRAMMABLE ELECTRONIC TIME CLOCK WITH BATTERY BACKUP, INTERMATIC MODEL GM40AVE-RD89, APPROVED ALTERNATE: ARMSTRONG, TACO, GRUNDFOS.
RPBP-1	REDUCED PRESSURE BACKFLOW PREVENTER	INDIRECT		--	--	--	WATTS SERIES LF009 LEAD-FREE REDUCED PRESSURE ZONE ASSEMBLY WITH QUARTER-TURN BALL VALVES, STRAINER, AND AIR GAP, CAST COPPER BODY CONSTRUCTION - 1/2" THRU 2". PROVIDE SERIES 957 FOR SIZES 2 1/2" THRU 10".
SA-1	SHOCK ABSORBER (WATER HAMMER ARRESTOR)	--	--	--	--	--	JAY R. SMITH FIGURE NUMBER 5005 TO 5050, SIZED PER FIXTURES SERVED, PROVIDE AN ACCESS PANEL AND A BALL TYPE SHUT-OFF VALVE UPSTREAM OF SHOCK ABSORBER.
TD-1	TRENCH DRAIN (10" WIDE) (HEAVY TRAFFIC RATED)	4	2	4	--	--	JAY R. SMITH FIGURE NUMBER 9812 10" WIDE TRENCH DRAIN SYSTEM, SLOPE DRAIN SYSTEM WITH INTEGRAL METAL RAIL, PROVIDE WITH END CAPS, OUTLETS, CATCH BASIN (98120-880-C824-BP), AND HEAVY DUTY (CLASS C) GALVANIZED STEEL BAR GRATE (MODEL 9812-G), REFER TO ARCHITECTURAL PLAN FOR EXACT LENGTH REQUIREMENTS.
TP-1	TRAP PRIMER (PRESSURE ACTIVATED) (1 TO 4 TRAPS)	--	--	--	1/2"	--	PRECISION PLUMBING PRODUCTS MODEL CPO-500 WITH DU DISTRIBUTION UNIT IF REQUIRED FOR SERVING MORE THAN ONE TRAP.
U-1	URINAL (FLUSH VALVE) (SEE ARCH. FOR MOUNTING HEIGHT)	2	1 1/2	INT.	3/4	--	KOHLER BARDON MODEL K-4991-ET WALL MOUNTED URINAL WITH 3/4" TOP SPUD, SLOAN REGAL MODEL 186-0.5 FLUSHOMETER, 0.5 GPF, INCLUDE BEEHIVE STRAINER AND JAY R. SMITH FIGURE NUMBER 0637 ADJUSTABLE FIXTURE SUPPORT.
US-1	UTILITY SINK (23" X 21" X 13") (FLOOR MOUNTED)	2	1 1/2	1 1/2	1/2	1/2	FIAT MOLDED STONE MODEL FL-1 FLOOR MOUNTED SINK WITH EASY LEVELING LEGS, DRAIN ASSEMBLY AND STOPPER WITH FIAT A1 CHROME FAUCET, DECK MOUNTED, 4" O.C. WITH 4" WRISTBLADES, 6-3/4" SWING SPOUT, AND WATTS SERIES LFUSG-B LF, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRONZE BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F.
WC-1	WATER CLOSET (17-1/2" SEAT HEIGHT) (FLUSH TANK) (FLOOR MOUNTED) (COMFORT HEIGHT / ADA)	4	2	INT.	1/2	--	KOHLER CIMARRON MODEL K-5310 (LEFT LEVER) / K-5310-RA (RIGHT LEVER), FLOOR MOUNTED, GRAVITY FLUSH TANK WITH ELONGATED BOWL, 1.28 GPF, KOHLER LUSTRA MODEL K-4650 ELONGATED, OPEN FRONT SEAT WITH CHECK HINGE AND NO COVER.

NOTES:

- ALL ADA COMPLIANT FIXTURES MUST COMPLY WITH ICC/ANSI A117.1. SEE ARCHITECTURAL PLANS FOR HANDICAPPED FIXTURE DESIGNATIONS, LOCATIONS, CLEARANCES, AND MOUNTING HEIGHTS.
- ALL EXPOSED HW PIPING, CW PIPING, AND DRAIN LINES BENEATH ALL LAVATORIES AND ALL ADA COMPLIANT SINKS MUST BE INSULATED TO PREVENT INJURY. REFER TO ARCHITECTURAL PLANS, INSULATE WITH MOLDED CLOSED CELL VINYL INSULATION - TRUEBRO, PLUMBEREX, OR EQUAL.
- PROVIDE P-TRAP PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS (NOT ALL TRAP PRIMERS ARE INDICATED ON PLANS - REFERENCE DETAILS FOR ADDITIONAL INFORMATION). PROVIDE A BALL TYPE SHUT-OFF VALVE UPSTREAM OF PRIMER VALVE. SEE SPECIFICATIONS.
- SEE SPECIFICATIONS FOR ALTERNATE APPROVED MANUFACTURERS.

TRANSFER STATION SCHEDULE

SYMBOL	AREA SERVED	TYPE	FLOW (GPM)	MOTOR		MANUFACTURER AND MODEL	REMARKS
				HP	V/Ø		
TS-1	BRINE FACILITY FILLING	PACKAGED PUMP SKID PACKAGE	165.0	3.0	208/1	VARITECH TS-350	1, 2, 3
TS-1	BRINE FACILITY FILLING	PACKAGED PUMP SKID PACKAGE	165.0	3.0	208/1	VARITECH TS-350	1, 2, 3

REMARKS:

- SUBMIT FOR PRIOR APPROVAL.
- PROVIDE UNIT WITH PREMIUM EFFICIENCY MOTOR.
- PROVIDE UNIT WITH 3/16 SS PUMP SHAFT, SS PUMP HEAD, PROTECTIVE PUMP COVER, PRE-WIRED ON/OFF CONTROL, AND EPDM WIRE REINFORCED HOSE AND VALVE CONNECTIONS.

BRINE TANK SCHEDULE

SYMBOL	PURPOSE	TYPE	MATERIAL	CAPACITY (GALLONS)	MANUFACTURER AND MODEL	REMARKS
BT-1	BRINE STORAGE	VERTICAL DOME TOP TANK	HIGH DENSITY POLYETHYLENE	10,500	DEN HARTOG VT10500-142	1, 2, 3, 4
BT-2	BRINE STORAGE	VERTICAL DOME TOP TANK	HIGH DENSITY POLYETHYLENE	10,500	DEN HARTOG VT10500-142	1, 2, 3, 5
BT-3	BRINE STORAGE	VERTICAL DOME TOP TANK	HIGH DENSITY POLYETHYLENE	10,500	DEN HARTOG VT10500-142	1, 2, 3, 5
BT-4	BRINE STORAGE	VERTICAL DOME TOP TANK	HIGH DENSITY POLYETHYLENE	10,500	DEN HARTOG VT10500-142	1, 2, 3, 5
BT-5	BRINE STORAGE	VERTICAL DOME TOP TANK	HIGH DENSITY POLYETHYLENE	10,500	DEN HARTOG VT10500-142	1, 2, 3, 5
BT-6	BRINE STORAGE	VERTICAL DOME TOP TANK	HIGH DENSITY POLYETHYLENE	10,500	DEN HARTOG VT10500-142	1, 2, 3, 5

REMARKS:

- ALTERNATE MANUFACTURER'S SHALL SUBMIT FOR PRIOR APPROVAL.
- ARCHITECT TO SELECT COLOR PRIOR TO ORDERING.
- PROVIDE WITH 3"Ø STANDARD CONNECTION FITTINGS.
- BRINE PRODUCTION SYSTEM SMART TANK.
- STANDARD BRINE STORAGE TANK.

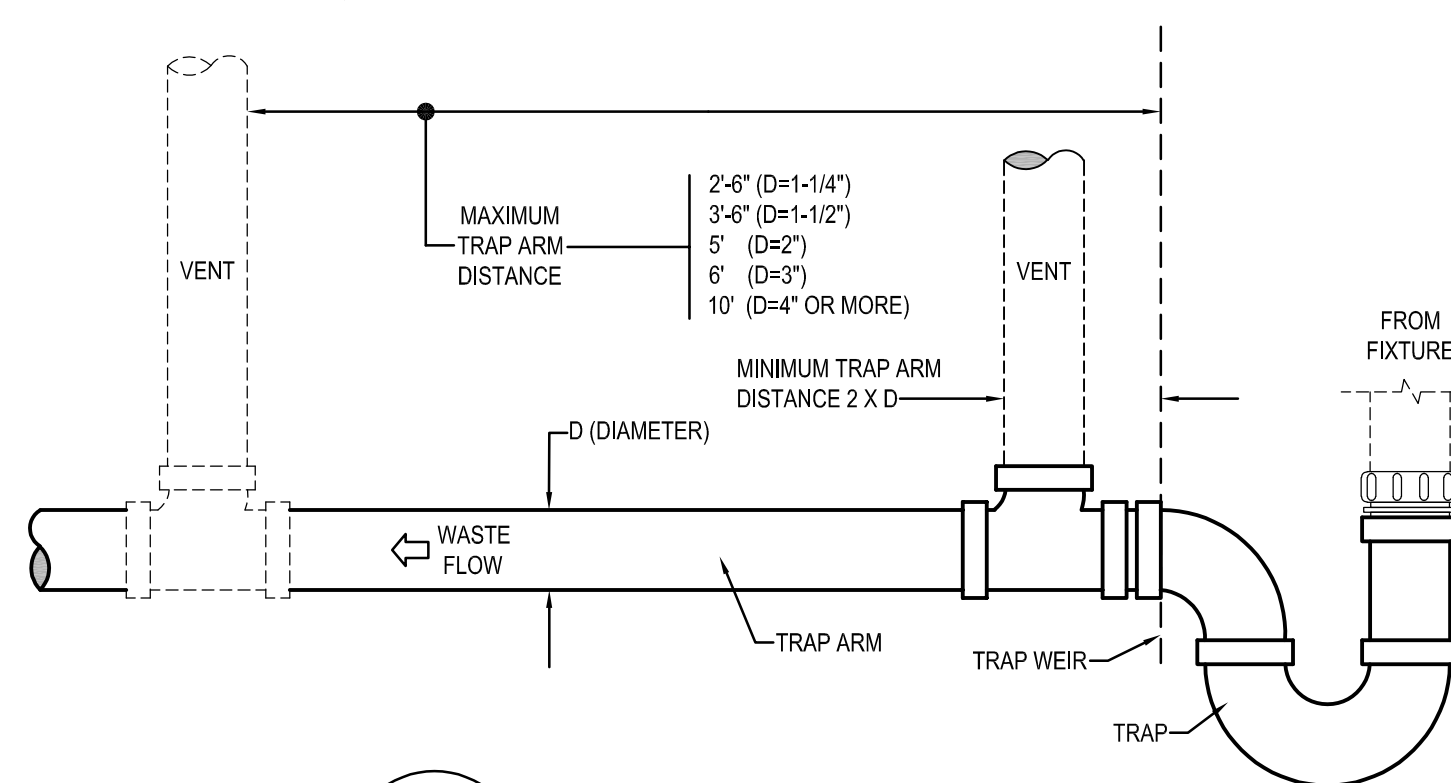
GAS SIZING CHART

SYMBOL	INPUT (MBH)	RUNOUT SIZE (2PSI) (INCHES)	EQUIPMENT CONNECTION SIZES (7" WC) (INCHES)
EXISTING FURNACE	80	3/4"	3/4"
EXISTING UNIT HEATER	120	3/4"	3/4"
EXISTING UNIT HEATER	120	3/4"	3/4"
EXISTING UNIT HEATER	120	3/4"	3/4"
NEW UNIT HEATER (UH-1)	100	3/4"	3/4"
NEW UNIT HEATER (UH-2)	100	3/4"	3/4"
NEW MAKEUP AIR UNIT (MAU-1)	513	3/4"	3/4"
TOTAL	1,153	EQUIVALENT LENGTH = 130 FT PRESSURE = 2 PSI MAIN SIZE = 1"Ø	

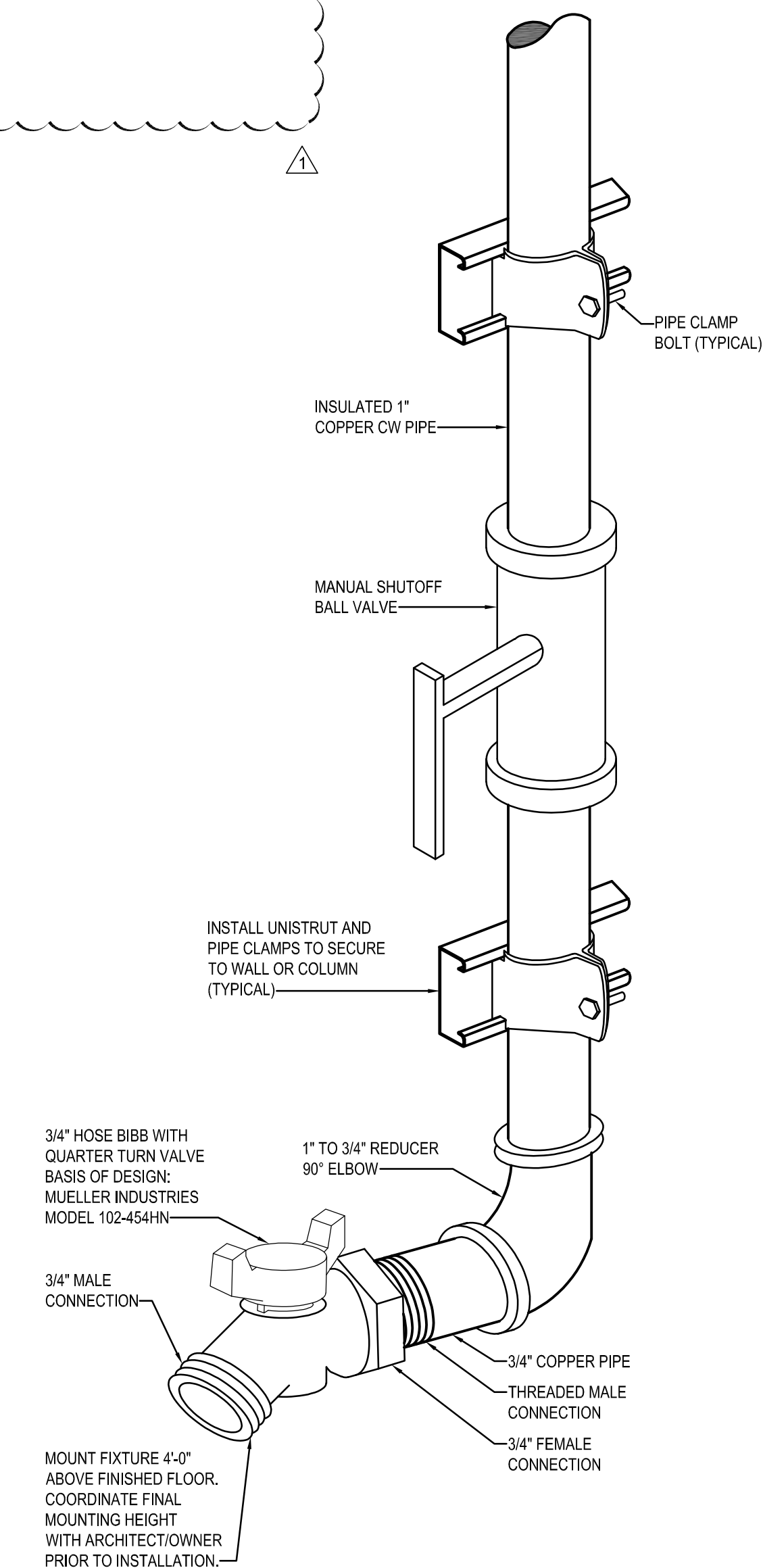
NOTE: GAS SIZES TO EQUIPMENT ARE AS NOTED IN SCHEDULE ABOVE. ROUTE NOTED (2-PSI) GAS LINE TO GAS EQUIPMENT. PROVIDE GAS COCK AND PRESSURE REGULATOR (2 PSI-7" WC) SIZED FOR GAS LOAD AT EACH PIECE OF EQUIPMENT. VENT TO ATMOSPHERE PER MANUFACTURERS RECOMMENDATIONS. ROUTE NOTED (7" WC) GAS LINE TO GAS FIRED EQUIPMENT WITH GAS COCK AND FLEX CONNECTOR AT UNIT. SEE GAS CONNECTION DETAILS ON SHEET P200.

NOTES:

- MAINTAIN ONE-FOURTH (1/4) INCH PER FOOT SLOPE.
- THE DEVELOPED LENGTH BETWEEN THE TRAP OF A WATER CLOSET OR SIMILAR FIXTURE (MEASURED FROM THE TOP OF THE CLOSET FLANGE TO THE INNER EDGE OF THE VENT) AND ITS VENT SHALL NOT EXCEED SIX (6) FEET.
- ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ADOPTED PLUMBING CODE, AND ALL LOCAL AND STATE CODES.



1 TRAP ARM DETAIL
NOT TO SCALE



2 BAY HOSE BIBB PIPING DETAIL
NOT TO SCALE



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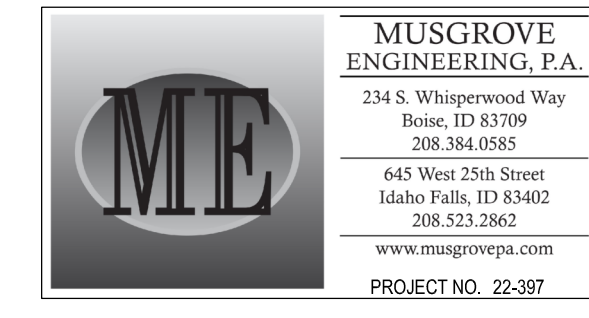
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BLACKFOOT, IDAHO

PLUMBING DETAILS AND SCHEDULES

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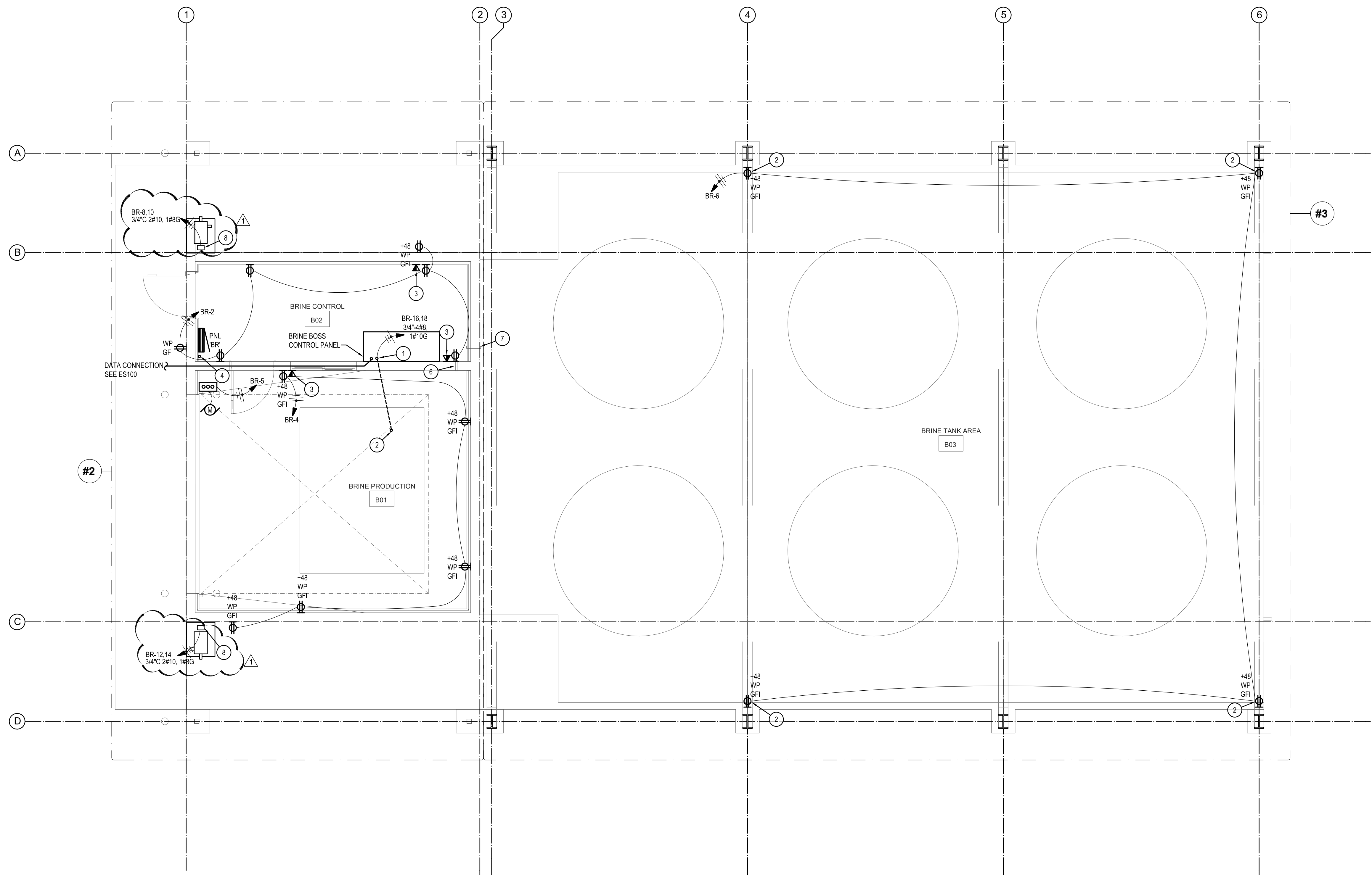
**ITD D5 MAINTENANCE BLDG.
 ADDITION & RENOVATION w/
 BRINE PRODUCTION FACILITY**
 BLACKFOOT, IDAHO

PROJECT NAME:

SHEET TITLE:
**BRINE BUILDING
 POWER
 INSTALLATION
 PLANS**

KEYED NOTES:

- # SYMBOL USED FOR NOTE CALLOUT.
- 1. 1-1/2" UNDER SLAB TO BRINE MACHINE POWER LOCATION. VERIFY LOCATION WITH ACTUAL BRINE EQUIPMENT PRIOR TO INSTALLATION.
- 2. 1-1/2" UNDER SLAB TO BRINE MACHINE CONTROLS LOCATION. VERIFY LOCATION WITH ACTUAL BRINE EQUIPMENT PRIOR TO INSTALLATION.
- 3. 1" DATA/COMM BACK TO DATA/COMM ENTRANCE.
- 4. 2" DATA/COMM FROM MAINTENANCE BUILDING IT CLOSET 103.
- 5. INSTALL RECEPTACLES ON CONCRETE WALLS IF ALTERNATE #3 IS NOT ACCEPTED.
- 6. 3-2" SLEEVES THROUGH BRINE PRODUCTION ROOM WALL. 1 AT 12" UP 4" FROM BRINE CONTROL ROOM CORNER. 1 AT 20" UP 4" FROM BRINE CONTROL ROOM CORNER. 1 AT 44" UP 4" IN FROM BRINE CONTROL ROOM CORNER AND 1 1" CONDUIT SLEEVE 7" UP AND 6" FROM BRINE CONTROL ROOM CORNER. COORDINATE INSTALLATION WITH BRINE SYSTEM SUPPLIER PRIOR TO CONSTRUCTION.
- 7. 2-2" SLEEVES THROUGH BRINE CONTROL ROOM WALL TO CONTAINMENT AREA. 1 AT 5" UP 10" FROM BRINE CONTROL ROOM CORNER. 1 AT 10" UP 18" FROM BRINE CONTROL ROOM CORNER. AND 1 3/4" CONDUIT SLEEVE 5" UP AND 14" FROM BRINE CONTROL ROOM CORNER. COORDINATE INSTALLATION WITH BRINE SYSTEM SUPPLIER PRIOR TO CONSTRUCTION.
- 8. DISCONNECT SWITCH PROVIDED WITH TRANSFER PUMP SKID.

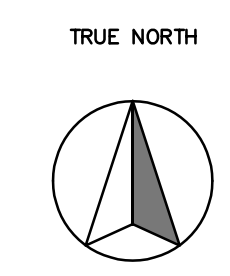


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 E201 BRINE BUILDING POWER INSTALLATION PLAN
 SCALE: 1/4" = 1'-0"

ADD. ALTERNATES

- 1 FIRE SUPPRESSION SYSTEM, FIRE RISER, AND DEMO EXISTING CMU DIVIDER WALL BTWN BAY-C & BAY-D. (MAINT. BLDG. ONLY)
- 2 BRINE PRODUCTION FACILITY AND ALL ASSOCIATED ITEMS, TO INCLUDE: BLDG. LOCATION SITE WORK, UTILITIES, BLDG. MATERIALS, BRINE PRODUCTION UNITS & COMPONENTS AND BRINE TANK AREA SLAB, STEM WALLS, CONC. PIERS, AND TANK PIPING. (SIX BRINE TANKS BY OWNER)
- 3 BRINE TANK AREA ROOFING AND PEMB STRUCTURE, TO INCLUDE: PEMB BLDG. PACKAGE w/ ALL ROOFING AND ACCESSORIES. PEMB COLUMN CONC. PIERS AND ASSOC. FOOTINGS FOR PEMB COLUMNS ARE WITHIN ADD ALT #2.

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