ADDENDUM NO. 1
April 1, 2022

PROJECT: Jerome Elementary School
Jerome School District
Jerome, Idaho

The following addenda apply to the Drawings and/or Specifications for this project and shall be a part of the Contract Documents.

PROJECT MANUAL

TABLE OF CONTENTS

1. Delete reference to Specification Section 116800 – Playground Equipment & Structures. This specification section was replaced by 321800 – Playground.

SPECIFICATION SECTION 055113 – METAL PAN STAIRS

1. Delete this section in its entirety.

SPECIFICATION SECTION 087100 – DOOR HARDWARE

1. Refer to Section 2.5.E.2, revise to be "Dormakaba BEST (BE) – CORMAX".
2. Delete Section 2.6.P. "Electronic Key Management System".

SPECIFICATION SECTION 116623 – GYMNASIUM EQUIPMENT

1. Refer to Section 2.6.B.2, revise the cover plate to be equal to Draper 501031.
2. Refer to Section 2.6.C.1, revise the volleyball standards to be equal to Draper 500001.

APPENDIX A - GEOTECHNICAL REPORT

1. Revise the depth to rock dimensions for Test Holes #2 and #3 to be 2 feet and 5.5 feet respectively.

DRAWINGS

SHEET C.2 and W.1

1. Revises the location of the exterior water main lines per revised Sheets C.2 and W.1, attached.

SHEET A1.1

1. Revise allowable area calculations and provide new fire wall location as shown per revised Sheet A1.1, attached.

SHEET A1.3

1. Provide new fire wall termination detail 5/A1.3, per revised Sheet A1.3, attached.

SHEET A3.4

1. Revise Door C120 to be 8'-0" x 7'-0".

SHEET A3.7

1. Revise wall types to be fire rated walls at Stage F101 as shown per revised Sheet A3.7, attached.
2. Revise door F101a to be 20-minute rated door construction.
3. Under stage doors shall be 4'-0" x 2'-3". Door type A2, Flush wood, Stain.

SHEET A3.9

1. Provide new fire wall and 1 ½ hour rated door as shown per revised sheet A3.9, attached. Door shall be 8'-0"x7'-0", type A2, steel and painted. Frame shall be A1 steel, paint. Apply door remarks 7 and 10.

SHEET A3.12

1. Revise enlarged floor plans at 1/A3.12, 4/A3.12 and 5/A3.12 as shown per revised Sheet A3.12, attached.

SHEET A3.13

1. Revise kitchen equipment K9, K18 and K19 to be gas operated equipment in lieu of electric. See Mechanical and Electrical Addendums for additional information.
2. Revise the location of Toilet E108 and Janitor E109 as shown per revised Sheet A3.13, attached.

SHEET A3.15

1. At detail 3/A3.15, provide new section through stair location. Section reference shall be 5/A3.16.

SHEET A3.16

1. Revise detail 2/A3.16 as shown per revised Sheet A3.16, attached.
2. Provide new details 5/A3.16 and 6/3.16 as shown per revised Sheet A3.16, attached.

SHEET A5.3

1. Refer to Elevation 4/A5.3, revise the Keyed Note at the horizontal sunshades at the Gymnasium to be 107000.A1 in lieu of 107000.B1.

SHEET A6.2

1. At gridline 1.1, Contractor shall provide fire retardant treated roof sheathing, 4'-0" minimum on each side of new fire rated wall.

SHEET A8.1

1. Provide new detail 11/A8.1 for wall type IWT-5 per revised sheet A8.1, attached.

SHEET A8.6

1. Provide new attachment detail 11/A8.6 for tectum sound panel per revised sheet A8.6, attached.

SHEET A9.1

1. Revise elevations 2/A9.1 and 13/A9.1 to include new urinal partitions at locations indicated on A/3.12.

SHEET A9.2

1. Refer to Keyed Note 098413.A1, all tectum wall panels are to be field painted.

Landscape Addendum Items

Refer to Breckon Land Design "Addendum #1" attached, this and all related documents shall be a part of this addendum and part of the Contract Documents for this Project.

Structural Addendum Items

Refer to BHB Structural "Addendum #1 attached, this and all related documents shall be a part of of this addendum and part of the Contract Documents for this Project.

Mechanical Addendum Items

Refer to Musgrove Engineering "Addendum #1 (Mechanical)" attached, this and all related documents shall be a part of this addendum and part of Contract Documents for this Project.

Electrical Addendum Items

Refer to Musgrove Engineering "Addendum #1 (Electrical)" attached, this and all related documents shall be a part of this addendum and part of Contract Documents for this Project.

APPROVALS

The following approvals are for manufacturers of products only unless specified products or systems are indicated. Contractor is responsible for providing product and/or materials that are equivalent in size, performance, quality, and appearance to those specified. Contractor is responsible for all conditions and/or field adaptations required for approved products other than those specified.

This acceptance is an acceptance of quality only. No attempt has been made to check each material as to special features, capacities or physical dimensions especially required by this project. Final acceptance of exact features, sizes, capacities, etc. all of which must match materials indicated specified, will be determined when submitted during construction period. Certain acceptances are subject to conditions as noted.

SPECIFICATION SECTION NO.	ITEM	MANUFACTURER / PRODUCT
033543 – Polished Concrete Finishing		Induroshine – W.R. Meadows
092900 – Gypsum Board		PABCO Gypsum
101400 – Signage		RIXIR Systems LLC
102113 – Toilet Compartments	Phenolic-Core Units	Scranton Products Hiny Hinders Solid Plastic
105113 – Metal Lockers	Heavy-Duty Metal Lockers	Scranton Products Tuftec Lockers

Attachments:

Sheet C.2 – Master Utility Plan
Sheet W.1 – Well Plan

Breckon Land Design, Addendum #1
Sheet SL7.1 – Irrigation Plan
Sheet SL7.2 – Irrigation Plan

Sheet A1.1 – Code Plan
Sheet A1.3 – Fire Wall Details
Sheet A3.7 – Floor Plan – Area F
Sheet A3.9 – Floor / Ceiling Plan – Add Alternate No. 1
Sheet A3.12 – Enlarged Floor Plan
Sheet A3.13 – Enlarged Floor Plan – Kitchen
Sheet A3.16 – Stair Sections
Sheet A8.1 – Wall Types / Details
Sheet A8.6 – Architectural Details

BHB Structural, Addendum #1
Sheet S1.05 – Footing and Foundation Plan – Area E
Sheet S1.11 – Roof Framing Plan – Area A
Sheet S1.11A – Add Alternate 1
Sheet S1.12 – Roof Framing Plan – Area B
Sheet S1.13 – Roof Framing Plan – Area C
Sheet S1.14 – Roof Framing Plan – Area D
Sheet S1.14A – Add Alternate 2

Sheet S1.15 – Roof Framing Plan – Area E
Sheet S1.16 – Roof Framing Plan – Area F
Sheet S5.12 – Details
Sheet S5.13 – Details
Sheet S6.02 - Schedules

Musgrove Engineering (Mechanical / Plumbing), Addendum #1
Specification Section 230100 – Heating, Ventilating, and Air Conditioning
Sheet M2.5 – HVAC Floor Plan – Area E
Sheet M2.7 – HVAC Floor Plan – Add Alternates 1 &2
Sheet M3.7 – Hydronic Piping Floor Plan – Add Alternate 1 &2
Sheet M4.5 – HVAC Roof Plan – Area E
Sheet M5.1 – Enlarged Mechanical Plan
Sheet M7.1 – Mechanical Schedules
Sheet M7.2 – Mechanical Schedules
Sheet P1.5 – Foundation Plumbing Plan - Area E
Sheet P2.5 – Plumbing Plan - Area E
Sheet P4.1 – Enlarged Plumbing Plan
Sheet P5.1 – Plumbing Details
Sheet P6.2 – Plumbing Riser Diagrams
Sheet P7.2 – Plumbing Schedules

Musgrove Engineering (Electrical), Addendum #1
Sheet 1.0 – Electrical Site Plan
Sheet E3.5 – Fire Alarm Plan – Area E
Sheet E3.7 – Fire Alarm Plans – Add Alternate 1 & 2
Sheet E4.5 – Lighting Plan – Area E
Sheet E4.7 – Lighting Plans – Add Alternates 1 & 2
Sheet E5.5 – Mechanical Power Plan – Area E
Sheet E6.8 – Enlarged Kitchen Plan
Sheet E7.5 – Special Systems Plan – Area E
Sheet 10.1 – Electrical Schedules
Sheet 10.3 – Electrical Schedules

- End of Addendum No. 1 -

Jerome School District - New Jerome Elementary School

Bids to Starr Corporation by April 14, 2022 at 2:00PM

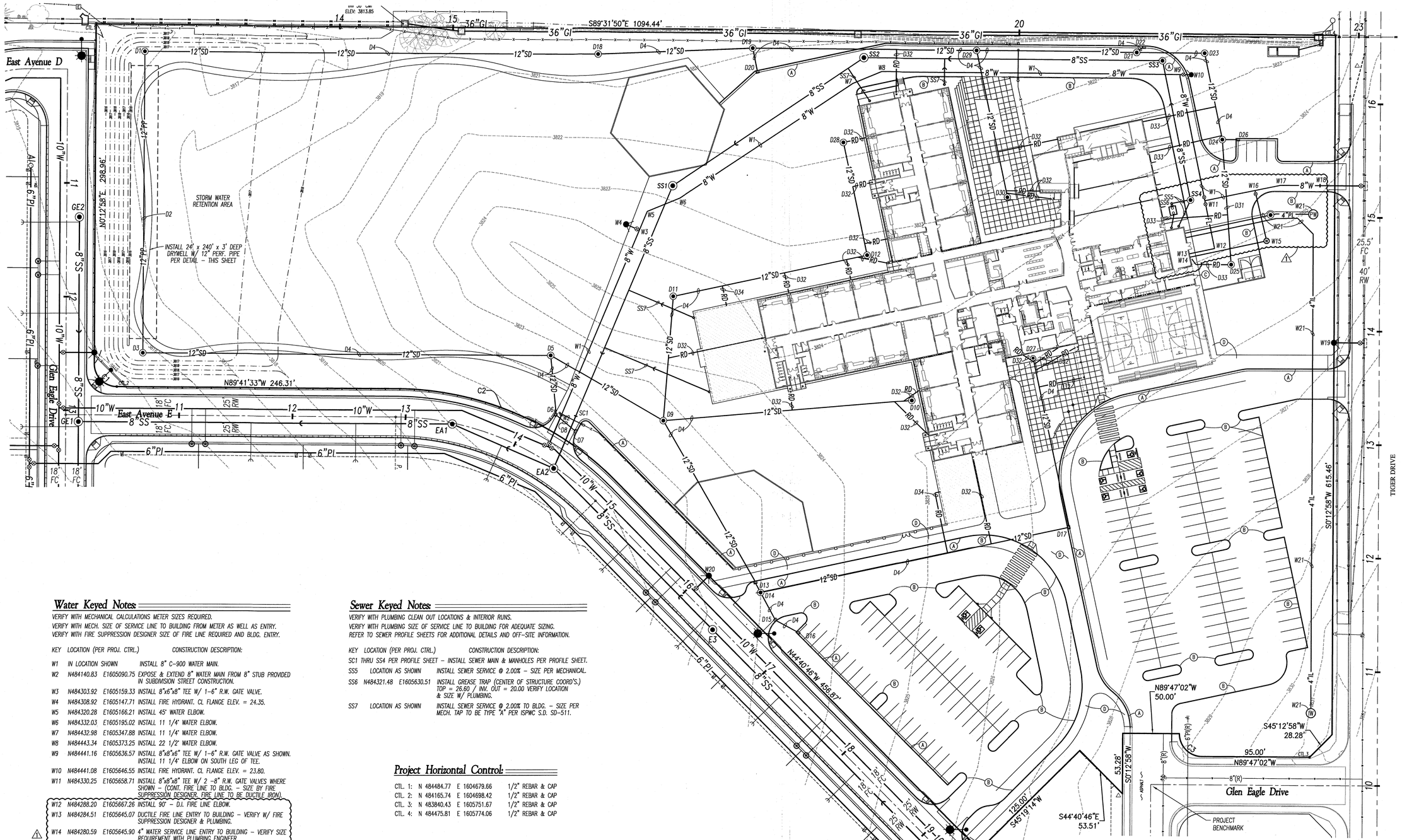
ADD-01 REVISIONS 4/1/22

Bid Package No.	Package Description	Spec Section	Description	Additional Comments: All items include material, labor, and equipment for installation, unless noted otherwise.
BP-01 CONCRETE (Building, On-Site & Sub-Division Combined)				
	Concrete (Building, On-Site & Sub-Division)	Division 1	General Requirements	All sections to be included in their entirety.
	Concrete (Building, On-Site & Sub-Division)	033000	Cast-In-Place Concrete	Includes all building, On-Site & Sub-Division concrete including reinforcement and embeds. Includes excavation & backfill of building foundations, installation of 3/4" base material under slabs-on-grade, (gravel provided by Site Contractor). Grading for On-Site & Sub-Division concrete by Site Contractor. Curbs, gutters & sidewalk for both On-Site & Sub-Division included.
	Concrete (Building, On-Site & Sub-Division)	071113	Bituminous Dampproofing	Provide for concrete foundation walls.
	Concrete (Building, On-Site & Sub-Division)	072100	Thermal Insulation	Provide for foundation insulation only.
	Concrete (Building, On-Site & Sub-Division)	079200	Joint Sealants	For this scope of work only.
	Concrete (Building, On-Site & Sub-Division)	321313	Concrete Paving	Excludes concrete for Playground Equipment & Site Furnishings. Includes all curb, gutter & sidewalks.
	Concrete (Building, On-Site & Sub-Division)	321726	Tactile Warning Surfacing	As required for this scope of work.
BP-01a CONCRETE (Building & On-Site, only)				
	Concrete (Building & On-Site, only)	Division 1	General Requirements	All sections to be included in their entirety.
	Concrete (Building & On-Site, only)	033000	Cast-In-Place Concrete	Includes all building and site concrete including reinforcement and embeds. Grading for Building & On-Site concrete by Site Contractor. Curbs, gutters & sidewalk for On-Site included.
	Concrete (Building & On-Site, only)	071113	Bituminous Dampproofing	Provide for concrete foundation walls.
	Concrete (Building & On-Site, only)	072100	Thermal Insulation	Provide for foundation insulation only.
	Concrete (Building & On-Site, only)	079200	Joint Sealants	For this scope of work only.
	Concrete (Building & On-Site, only)	321313	Concrete Paving	Excludes concrete for Playground Equipment & Site Furnishings. Includes all curb, gutter & sidewalks.
	Concrete (Building & On-Site, only)	321726	Tactile Warning Surfacing	As required for this scope of work.
BP-01b CONCRETE (Sub-Division, only)				
	Concrete (Sub-Division, only)	Division 1	General Requirements	All sections to be included in their entirety.
	Concrete (Sub-Division, only)	033000	Cast-In-Place Concrete	Includes all Sub-Division concrete including reinforcement and embeds. Grading for Sub-Division concrete by Site Contractor.
	Concrete (Sub-Division, only)	071113	Bituminous Dampproofing	Provide for concrete foundation walls.
	Concrete (Sub-Division, only)	072100	Thermal Insulation	Provide for foundation insulation only.
	Concrete (Sub-Division, only)	079200	Joint Sealants	For this scope of work only.
	Concrete (Sub-Division, only)	321313	Concrete Paving	Excludes concrete for Playground Equipment & Site Furnishings. Includes all curb, gutter & sidewalks.
	Concrete (Sub-Division, only)	321726	Tactile Warning Surfacing	As required for this scope of work.
BP-02 POLISHED CONCRETE FINISHING				
	Polished Concrete Finishing	Division 1	General Requirements	All sections to be included in their entirety.
	Polished Concrete Finishing	033543	Polished Concrete Finishing	
	Polished Concrete Finishing	079200	Joint Sealants	For this scope of work only.
BP-03 MASONRY				
	Masonry	Division 1	General Requirements	All sections to be included in their entirety.
	Masonry	042000	Unit Masonry	Include all masonry reinforcement. Bucks for CMU openings by Others.
	Masonry	079200	Joint Sealants	For this scope of work only.
BP-04 STRUCTURAL STEEL (Supply & Install)				
	Structural Steel	Division 1	General Requirements	All sections to be included in their entirety.
	Structural Steel	051200	Structural Steel Framing	Material supplied, but installed by Others: Steel bollards, steel downspouts, anchor bolts set in concrete or masonry, masonry lintels,embeds and as per Specs. Include grouting of column bases.
	Structural Steel	052100	Steel Joist Framing	
	Structural Steel	053100	Steel Decking	
	Structural Steel	055000	Metal Fabrications	Includes roof ladder, all miscellaneous angles and lintels.
	Structural Steel	055113	Metal Pan Stairs	ADD-01: Delete this spec in its entirety.
	Structural Steel	055213	Pipe and Tube Railings	
BP-04a STRUCTURAL STEEL (Install, Only)				
	Structural Steel	Division 1	General Requirements	All sections to be included in their entirety.
	Structural Steel	051200	Structural Steel Framing	Material supplied, but installed by Others: Steel bollards, steel downspouts, anchor bolts set in concrete or masonry, masonry lintels, embeds and as per Specs. Include grouting of column bases.
	Structural Steel	052100	Steel Joist Framing	
	Structural Steel	053100	Steel Decking	
	Structural Steel	055000	Metal Fabrications	Includes roof ladder, all miscellaneous angles and lintels.
	Structural Steel	055113	Metal Pan Stairs	ADD-01: Delete this spec in its entirety.
	Structural Steel	055213	Pipe and Tube Railings	
BP-04b STRUCTURAL STEEL (Supply, Only)				
	Structural Steel	Division 1	General Requirements	All sections to be included in their entirety.
	Structural Steel	051200	Structural Steel Framing	Material supplied, but installed by Others: Steel bollards, steel downspounts, anchor bolts set in concrete or masonry, masonry lintels, embeds and as per Specs.
	Structural Steel	052100	Steel Joist Framing	
	Structural Steel	053100	Steel Decking	
	Structural Steel	055000	Metal Fabrications	Includes roof ladder, all miscellaneous angles and lintels.
	Structural Steel	055113	Metal Pan Stairs	ADD-01: Delete this spec in its entirety.
	Structural Steel	055213	Pipe and Tube Railings	
BP-05 ROUGH CARPENTRY				
	Rough Carpentry	Division 1	General Requirements	All sections to be included in their entirety.
	Rough Carpentry	061000	Rough Carpentry	Includes all wood blocking and wood nailer at top of parapets. Include all framing connectors, (i.e. holdowns, straps, hangers, etc.). Include bucks for all CMU openings.
	Rough Carpentry	061600	Sheathing	
	Rough Carpentry	061753	Shop Fabricated Wood Trusses	
	Rough Carpentry	074243	Composite Wall Panels	
	Rough Carpentry	072700	Infiltraton Barriers	
	Rough Carpentry	079200	Joint Sealants	For this scope of work only.
BP-06 MILLWORK				
	Millwork	Division 1	General Requirements	All sections to be included in their entirety.

	Millwork	064116	Plastic Laminate Faced Architectural Cabinets	Includes countertops, window sills, and other miscellaneous laminates per the drawings and specifications. Provide all trim & Under-stage storage doors marked as, "US" at Stage area.
	Millwork	079200	Joint Sealants	Sealants for this scope of work only.
BP-07 ROOFING				
	Roofing	Division 1	General Requirements	All sections to be included in their entirety.
	Roofing	072100	Thermal Insulation	For this scope of work only.
	Roofing	074213	Metal Panels	
	Roofing	075423	Thermoplastic Polyolefin Roofing (TPO)	
	Roofing	076200	Sheet Metal Flashing and Trim	Gutter and gutter sleeve only. Steel downspout by others. Includes metal valley flashing.
	Roofing	077200	Roof Accessories	
	Roofing	079200	Joint Sealants	Sealants for this scope of work only.
BP-08 DOORS & HARDWARE				
	Doors and Hardware	Division 1	General Requirements	All sections to be included in their entirety.
	Doors and Hardware	081113	Hollow Metal Doors and Frames	Includes metal hollow door and window frames, doors, sidelite and borrow lite frames and hardware.
	Doors and Hardware	081416	Flush Wood Doors	Include in this scope of work.
	Doors and Hardware	087100	Door Hardware	Hardware for this scope of work, only.
	Doors and Hardware	088000	Glazing	ADD-01: Delete this Spec Section from BP-08. All glazing provided by BP-10.
BP-09 OVERHEAD COILING DOORS				
	Overhead Coiling Doors	Division 1	General Requirements	All sections to be included in their entirety.
	Overhead Coiling Doors	083313	Overhead Coiling Doors	
	Overhead Coiling Doors	079200	Joint Sealants	Sealants for this scope of work only.
BP-10 ALUMINUM FRAMED ENTRANCES & STOREFRONTS				
	Aluminum Framed Entrances & Storefronts	Division 1	General Requirements	All sections to be included in their entirety.
	Aluminum Framed Entrances & Storefronts	084113	Aluminum Framed Entrances & Storefronts	
	Aluminum Framed Entrances & Storefronts	084523	Translucent Fiberglass Sandwich Panel Assembly	
	Aluminum Framed Entrances & Storefronts	085619	Pass Thru Windows	
	Aluminum Framed Entrances & Storefronts	087100	Door Hardware	Hardware for this scope of work, only.
	Aluminum Framed Entrances & Storefronts	088000	Glazing	Includes all glass for storefronts & hollow metal doors & frames.
	Aluminum Framed Entrances & Storefronts	079200	Joint Sealants	Sealants for this scope of work only.
BP-11 DRYWALL				
	Drywall	Division 1	General Requirements	All sections to be included in their entirety.
	Drywall	054000	Cold Formed Metal Framing	
	Drywall	066400	Plastic Paneling (FRP)	
	Drywall	072100	Thermal Insulation	Wall, Ceiling & Vapor barrier, only.
	Drywall	078446	Fire Resistive Joint Systems	As applies to the scope of work.
	Drywall	079000	Joint Sealants	Sealants for this scope of work only.
	Drywall	092216	Light Gauge Steel Framing	
	Drywall	092900	Gypsum Board	Provide & install cementitious backer units.
	Drywall	095113	Acoustical Panel Ceilings	
	Drywall	097723	Fabric Wrapped Panels	
	Drywall	098413	Fixed Sound Absorptive Panels	
BP-12 WOOD ATHLETIC FLOORING				
	Wood Athletic Flooring	Division 1	General Requirements	All sections to be included in their entirety.
	Wood Athletic Flooring	096466	Wood Athletic Flooring	Includes hardwood flooring at Stage F101.
	Wood Athletic Flooring	079000	Joint Sealants	Sealants for this scope of work only.
BP-13 TILING				
	Tiling	Division 1	General Requirements	All sections to be included in their entirety.
	Tiling	093013	Tiling	Cementitious backer units by Drywall bid package.
	Tiling	079000	Joint Sealants	Sealants for this scope of work only.
BP-14 FLOOR COVERING				
	Flooring	Division 1	General Requirements	All sections to be included in their entirety.
	Flooring	096513	Resilient Base and Accessories	
	Flooring	096516	Resilient Sheet Flooring	Joint and crack filling, minor leveling, and sanding is included.
	Flooring	096519	Resilient Tile Flooring (LVT)	Joint and crack filling, minor leveling, and sanding is included.
	Flooring	096816	Carpeting	Joint and crack filling, minor leveling, and sanding is included.
	Flooring	079000	Joint Sealants	All joints between materials installed under this scope and adjacent finishes
BP-15 PAINTING				
	Painting	Division 1	General Requirements	All sections to be included in their entirety.
	Painting	099113	Exterior Painting	Prime & paint in entirety all roof top equipment, vents & flues extending above top of parapet elevation that are not factory-finished, (REF: Elevation Plans A5.1 plus).
	Painting	071900	Water Repellents	Seal all exterior masonry surfaces with water repellent sealer / anti-graffiti coating.
	Painting	097200	Digitally Printed Vinyl Wallcovering Murals	
	Painting	099123	Interior Painting	Includes labor and materials to seal the concrete floors indicated in the Room Finish Schedule, (A4.1 & Spec 099123). ADD-01: Include field-painting of Tectum Panels, (REF: Spec 098413-2; A; 1).
	Painting	099600	High Performance Coatings	All exposed-to-view structural steel both interior & exterior.
	Painting	079000	Joint Sealants	All interior sealants exclusive of concrete, aluminum storefront, and millwork. Includes caulking hollow metal frames prior to painting.
BP-16 SPECIALTIES				
	Specialties	Division 1	General Requirements	All sections to be included in their entirety.
	Specialties	083513	Accordion Folding Partition	
	Specialties	101100	Visual Display Surfaces	
	Specialties	101416	Signage	
	Specialties	102113	Toilet Compartments	
	Specialties	102123	Cubicle Curtains	
	Specialties	102600	Wall & Door Protection	
	Specialties	102800	Toilet & Bath Accessories	Labor for Toilet Paper, Paper Towel & Soap Dispensers, Owner Furnished & Contractor Installed.
	Specialties	104413	Fire Extinguisher Cabinets	Provide & install Knox Box listed in this Specification.
	Specialties	104416	Fire Extinguishers	
	Specialties	105113	Metal Lockers	
	Specialties	107000	Exterior Sun Control Devices	
	Specialties	115213	Projection Screens	
	Specialties	116143	Platform Curtains	
	Specialties	323190	Flagpole	
	Specialties	079000	Joint Sealants	Sealants for this scope of work only.
BP-17 FOOD SERVICE EQUIPMENT				

	Food Service Equipment	Division 1	General Requirements	All sections to be included in their entirety.
	Food Service Equipment	113013	Residential Appliances	Provide & install all Residential Appliances specified.
	Food Service Equipment	114000	Food Service Equipment	Provide & install all Food Service Equipment specified.
BP-18 GYMNASIUM EQUIPMENT				
	Gymnasium Equipment	Division 1	General Requirements	All sections to be included in their entirety.
	Gymnasium Equipment	116600	Wall & Floor Padding	
	Gymnasium Equipment	116623	Gymnasium Equipment	
BP-19 HORIZONTAL LOUVER BLINDS				
	Horizontal Louver Blinds	Division 1	General Requirements	All sections to be included in their entirety.
	Horizontal Louver Blinds	122213	Horizontal Louver Blinds	
BP-20 TELESCOPING STANDS				
	Telescoping Stands	Division 1	General Requirements	All sections to be included in their entirety.
	Telescoping Stands	126600	Telescoping Stands	
BP-21 FIRE SPRINKLER SYSTEM				
	Fire Sprinkler System	Division 1	General Requirements	All sections to be included in their entirety.
	Fire Sprinkler System	210000	Fire Sprinkler Systems	
	Fire Sprinkler System	078413	Penetration Firestopping	As required for this scope of work.
	Fire Sprinkler System	078413	Firestopping Appendix A	As required for this scope of work.
	Fire Sprinkler System	078446	Fire Resistive Joint Systems	As required for this scope of work.
	Fire Sprinkler System	079200	Joint Sealants	As required for this scope of work.
	Fire Sprinkler System	083113	Access Doors and Frames	Supply and install as needed for access to items installed under this scope of work.
BP-22 PLUMBING				
	Plumbing	Division 1	General Requirements	All sections to be included in their entirety.
	Plumbing	220000	Plumbing General Requirements	
	Plumbing	220100	Plumbing	
	Plumbing	220800	Commissioning of Plumbing	
	Plumbing	078413	Penetration Firestopping	As required for this scope of work.
	Plumbing	078413	Firestopping Appendix A	As required for this scope of work.
	Plumbing	078446	Fire Resistive Joint Systems	As required for this scope of work.
	Plumbing	079200	Joint Sealants	As required for this scope of work.
	Plumbing	083113	Access Doors and Frames	Supply and install as needed for access to items installed under this scope of work.
BP-23 HVAC				
	HVAC	Division 1	General Requirements	All sections to be included in their entirety.
	HVAC	230000	HVAC General Requirements	
	HVAC	230100	Heating, Ventilating and Air Conditioning	
	HVAC	230150	Mechanical Start-Up	
	HVAC	230593	Testing, Adjusting, and Balancing for HVAC	
	HVAC	230800	HVAC Commissioning Requirements	
	HVAC	230900	Direct Digital Control System	
	HVAC	078413	Penetration Firestopping	As required for this scope of work.
	HVAC	078413	Firestopping Appendix A	As required for this scope of work.
	HVAC	078446	Fire Resistive Joint Systems	As required for this scope of work.
	HVAC	079200	Joint Sealants	As required for this scope of work.
	HVAC	083113	Access Doors and Frames	Supply and install as needed for access to items installed under this scope of work.
BP-24 ELECTRICAL				
	Electrical	Division 1	General Requirements	All sections to be included in their entirety.
	Electrical	260500	Electrical General Provisions	
	Electrical	260501	Field Test and Operational Check	
	Electrical	260502	Coordination Study	
	Electrical	260519	Conductors and Cables	
	Electrical	260526	Grounding	
	Electrical	260529	Supporting Devices	
	Electrical	260533	Raceways and Boxes	
	Electrical	260536	Cable Trays	
	Electrical	260543	Under Slab and Underground Electrical Work	
	Electrical	260800	Lighting Systems Commissioning	
	Electrical	260923	Lighting Control Devices	
	Electrical	262200	Dry-Type Transformers	
	Electrical	262413	Switchboards	
	Electrical	262416	Panelboards	
	Electrical	262726	Wiring Devices	
	Electrical	262813	Fuses	
	Electrical	262815	Disconnect Switches	
	Electrical	264314	Transient Voltage Surge Suppression	
	Electrical	265100	Interior Lighting	
	Electrical	265600	Exterior Lighting	Include concrete light pole bases, excavation, backfill & compaction.
	Electrical	271101	Telecom Raceway Systems	
	Electrical	275116	Integrated Communications and Clock Network	
	Electrical	275117	Sound Systems	
	Electrical	275200	Classroom Audio System	
	Electrical	281000	Access Control System	
	Electrical	282310	Video Management System	
	Electrical	282329	Video Surveillance Remote Devices and Sensors	
	Electrical	283200	Voice Evacuation Fire Alarm System	
	Electrical	078413	Penetration Firestopping	As required for this scope of work.
	Electrical	078413	Firestopping Appendix A	As required for this scope of work.
	Electrical	078446	Fire Resistive Joint Systems	As required for this scope of work.
	Electrical	079200	Joint Sealants	As required for this scope of work.
	Electrical	083113	Access Doors and Frames	Supply and install as needed for access to items installed under this scope of work.
BP-25 SITEWORK (On-Site & Sub-Division Combined)				
	Sitework (On-Site & Sub-Division Combined)	Division 1	General Requirements	All sections to be included in their entirety. **Refer to both the On-Site and Glen Eagle Sub-Division Civil drawings.**
	Sitework (On-Site & Sub-Division Combined)	310120	Traffic Control Requirements	As required for this scope of work for both On-Site & Sub-Division Sitework.
	Sitework (On-Site & Sub-Division Combined)	311000	Site Clearing	Includes erosion controls for both On-Site & Sub-Division Sitework

	Sitework (On-Site & Sub-Division Combined)	312000	Earth Moving	Provide base material for Building interior slabs-on-grade. Placed by Concrete Contractor. Building foundation excavation & backfill by Concrete Contractor. Excavation & backfill for On-Site & Sub-Division cast-in-place structures included. Gravel & grading for On-Site & Sub-Division concrete included. Includes grading, gravel & asphalt.
	Sitework (On-Site & Sub-Division Combined)	315000	Excavation Support & Protecton	Include for both On-Site & Sub-Division Sitework.
ADD-01	Sitework (On-Site & Sub-Division Combined)	Glen Eagle Sub-Division & On-Site Civil drawings	On & Off-Site Utilities	Provide all utilities both On-Site & Sub-Division as shown on On-Site & Glen Eagle Sub-Division Civil drawings. This work excludes the Production & Injection wells, but includes all piping to and from those wells to the building. Includes Fire Service Line from Main to inside MECH E111 up through slab including flange connection. Includes Water Service Line from Main to inside MECH E111 up through slab, including flange connection.
	Sitework (On-Site & Sub-Division Combined)	321723	Pavement Markings	Includes parking lot striping, handicap stalls, directional arrows, fire lane markings. Excludes striping for playground area games.
	Sitework (On-Site & Sub-Division Combined)	323150	Site Signage	Includes all site signage, either pole, fence or building mounted.
	Sitework (On-Site & Sub-Division Combined)	Appendix A	Geotechnical Report	Provide a unit price on Site Work bid form for rock excavation.
BP-25a SITEWORK (On-Site, Only)				
	Sitework (On-Site, Only)	Division 1	General Requirements	All sections to be included in their entirety. **Refer to the On-Site Civil drawings.**
	Sitework (On-Site, Only)	310120	Traffic Control Requirements	As required for this scope of work for On-Site Sitework, only.
	Sitework (On-Site, Only)	311000	Site Clearing	Includes erosion controls for On-Site Sitework, only.
	Sitework (On-Site, Only)	312000	Earth Moving	Provide base material for Building interior slabs-on-grade. Placed by Concrete Contractor. Building foundation excavation & backfill by Concrete Contractor. Includes grading, gravel & asphalt.
	Sitework (On-Site, Only)	315000	Excavation Support & Protecton	Include for On-Site Sitework, only.
ADD-01	Sitework (On-Site, Only)	On-Site Civil drawings	On-Site Utilities	Includes all utilities. Connect to stub-ins provided by Sub-Division Contractor. This work excludes the Production & Injection wells, but includes all piping to and from the wells to the building. Includes Fire Service Line from Main to inside MECH E111 up through slab including flange connection. Includes Water Service Line from Main to inside MECH E111 up through slab, including flange connection.
	Sitework (On-Site, Only)	321723	Pavement Markings	Includes parking lot striping, handicap stalls, directional arrows, fire lane markings. Excludes striping for playground area games.
	Sitework (On-Site, Only)	323150	Site Signage	Includes all site signage, either pole, fence or building mounted.
	Sitework (On-Site, Only)	Appendix A	Geotechnical Report	Provide a unit price on Site Work bid form for rock excavation.
BP-25b SITEWORK (Sub-Division, Only)				
	Sitework (Sub-Division, Only)	Division 1	General Requirements	All sections to be included in their entirety. **Refer to the Glen Eagle Sub-Division Civil drawings.**
	Sitework (Sub-Division, Only)	310120	Traffic Control Requirements	As required for this scope of work for Sub-Division Sitework, only.
	Sitework (Sub-Division, Only)	311000	Site Clearing	Includes erosion controls for Sub-Division Sitework, only.
	Sitework (Sub-Division, Only)	312000	Earth Moving	Gravel & grading for On-Site & Sub-Division concrete included. Includes grading, gravel & asphalt.
	Sitework (Sub-Division, Only)	315000	Excavation Support & Protecton	Include for Sub-Division Sitework, only.
	Sitework (Sub-Division, Only)	Glen Eagle Sub-Division Civil drawings	On-Site Utilities	Includes all utilities stubbed into the building site as shown on drawings.
	Sitework (Sub-Division, Only)	321723	Pavement Markings	As required for this scope of work.
	Sitework (Sub-Division, Only)	323150	Site Signage	As required for this scope of work.
	Sitework (Sub-Division, Only)	Appendix A	Geotechnical Report	Provide a unit price on Site Work bid form for rock excavation.
BP-27 PLAYGROUND EQUIPMENT & STRUCTURES				
	Playground Equipment & Structures	Division 1	General Requirements	All sections to be included in their entirety.
	Playground Equipment & Structures	321800	Playground Equipment and Structures	REF: SD2.1 - Playground EQ Lists. Includes all concrete for this scope of work.
	Playground Equipment & Structures	321822	Synthetic Playground Turf	
BP-28 SITE FURNISHINGS				
	Site Furnishings	Division 1	General Requirements	All sections to be included in their entirety.
	Site Furnishings	323300	Site Furnishings	Provide and install all items in this Spec Section. Includes concrete, bases & anchoring for all equipment along with striping.
BP-29 CHAIN-LINK & DECORATIVE FENCES				
	Chain-Link & Decorative Fences	Division 1	General Requirements	All sections to be included in their entirety.
	Chain-Link & Decorative Fences	323113	Chain Link Fences and Gates	
	Chain-Link & Decorative Fences	323119	Decorative Metal Fences and Gates	
BP-30 LANDSCAPE & IRRIGATION				
	Landscape & Irrigation	Division 1	General Requirements	All sections to be included in their entirety.
	Landscape & Irrigation	328400	Landscape Irrigation	
	Landscape & Irrigation	328500	Landscape Grading	Site will be cut to sub-grade elevation, (+/-) one-tenth by Others.
	Landscape & Irrigation	329113	Soil Preparation	
	Landscape & Irrigation	329200	Turf and Grasses	
	Landscape & Irrigation	329290	Tree Protection and Trimming	
	Landscape & Irrigation	329300	Plants	



Water Keyed Notes:

VERIFY WITH MECHANICAL CALCULATIONS METER SIZES REQUIRED.
VERIFY WITH MECH. SIZE OF SERVICE LINE TO BUILDING FROM METER AS WELL AS ENTRY.
VERIFY WITH FIRE SUPPRESSION DESIGNER SIZE OF FIRE LINE REQUIRED AND BLDG. ENTRY.

KEY	LOCATION (PER PROJ. CTRL.)		CONSTRUCTION DESCRIPTION:
W1	IN LOCATION SHOWN		INSTALL 8" C-900 WATER MAIN.
W2	N484140.83	E1605090.75	EXPOSE & EXTEND 8" WATER MAIN FROM 8" STUB PROVIDED IN SUBDIVISION STREET CONSTRUCTION.
W3	N484303.92	E1605159.33	INSTALL 8"x6"x8" TEE W/ 1-6" R.W. GATE VALVE.
W4	N484308.92	E1605147.71	INSTALL FIRE HYDRANT. CL FLANGE ELEV. = 24.35.
W5	N484320.28	E1605166.21	INSTALL 45° WATER ELBOW.
W6	N484332.03	E1605195.02	INSTALL 11 1/4° WATER ELBOW.
W7	N484432.98	E1605347.88	INSTALL 11 1/4° WATER ELBOW.
W8	N484443.34	E1605373.25	INSTALL 22 1/2° WATER ELBOW.
W9	N484441.16	E1605636.57	INSTALL 8"x8"x6" TEE W/ 1-6" R.W. GATE VALVE AS SHOWN. INSTALL 11 1/4° ELBOW ON SOUTH LEG OF TEE.
W10	N484441.08	E1605646.55	INSTALL FIRE HYDRANT. CL FLANGE ELEV. = 23.80.
W11	N484330.25	E1605658.71	INSTALL 8"x8"x8" TEE W/ 2 -8" R.W. GATE VALVES WHERE SHOWN – (CONT. FIRE LINE TO BLDG. – SIZE BY FIRE SUPPRESSION DESIGNER. FIRE LINE TO BE DUCTILE IRON).
W12	N484288.20	E1605667.26	INSTALL 90° – D.I. FIRE LINE ELBOW.
W13	N484284.51	E1605645.07	DUCTILE FIRE LINE ENTRY TO BUILDING – VERIFY W/ FIRE SUPPRESSION DESIGNER & PLUMBING.
W14	N484280.59	E1605645.90	4" WATER SERVICE LINE ENTRY TO BUILDING – VERIFY SIZE REQUIREMENT WITH PLUMBING ENGINEER.
W15	N484294.94	E1605713.39	INSTALL 4" WATER METER – SIZE TO BE VERIFIED BY PLUMBING ENGINEER. TOP OF METER BOX = 26.10.
W16	N484339.26	E1605702.98	INSTALL 8"x4"x8 TEE W/ 1-4" R.W. GATE VALVE AS SHOWN. VERIFY SIZE OF LINE TO METER WITH PLUMBING ENGINEER.
W17	N484343.90	E1605725.81	INSTALL 11 1/4° WATER ELBOW.
W18	N484343.62	E1605760.43	EXPOSE & EXTEND 8" WATER MAIN FROM 8" STUB PROVIDED IN SUBDIVISION STREET CONSTRUCTION.
W19	N484205.35	E1605773.04	FIRE HYDRANT PROVIDED DURING TIGER DRIVE CONSTRUCTION. CL FLANGE ELEV. = 28.40
W20	N483999.34	E1605221.31	FIRE HYDRANT PROVIDED DURING E. AVE. E CONSTRUCTION. CL FLANGE ELEV. = 22.35
W21	IN LOCATION SHOWN		PRODUCTION & INJECTION WELL SYSTEM – SEE SEPARATE PLAN SET ISSUED BY EHM FOR DETAILS.

Sewer Keyed Notes:

VERIFY WITH PLUMBING CLEAN OUT LOCATIONS & INTERIOR RUNS.
VERIFY WITH PLUMBING SIZE OF SERVICE LINE TO BUILDING FOR ADEQUATE SIZING.
REFER TO SEWER PROFILE SHEETS FOR ADDITIONAL DETAILS AND OFF-SITE INFORMATION.

KEY	LOCATION (PER PROJ. CTRL.)		CONSTRUCTION DESCRIPTION:
SC1 THRU SS4 PER PROFILE SHEET – INSTALL SEWER MAIN & MANHOLES PER PROFILE SHEET.			
SS5	LOCATION AS SHOWN		INSTALL SEWER SERVICE @ 2.00% – SIZE PER MECHANICAL.
SS6	N484321.48	E1605630.51	INSTALL GREASE TRAP (CENTER OF STRUCTURE COORD'S.) TOP = 26.60 / INV. OUT = 20.00 VERIFY LOCATION & SIZE W/ PLUMBING.
SS7	LOCATION AS SHOWN		INSTALL SEWER SERVICE @ 2.00% TO BLDG. – SIZE PER MECH. TAP TO BE TYPE "A" PER ISPWC S.D. SD-511.

Project Horizontal Control:

CTL. 1:	N 484484.77	E 1604679.66	1/2" REBAR & CAP
CTL. 2:	N 484165.74	E 1604698.42	1/2" REBAR & CAP
CTL. 3:	N 483840.43	E 1605751.67	1/2" REBAR & CAP
CTL. 4:	N 484475.81	E 1605774.06	1/2" REBAR & CAP

NOTE:
CONTRACTOR TO REFER TO GRADING AND DRAINAGE SHEETS C.3 THRU C.5 FOR KEYED NOTES REGARDING DRAINAGE FACILITIES.

Curve Table

CURVE #	DELTA	RADIUS	ARC	CHORD	TANGENT	CHORD BRG
C1	89°54'30"	20.00'	31.38'	28.26'	19.97'	N44°44'18"W
C2	45°00'47"	275.00'	216.05'	210.53'	113.95'	N67°11'09"W
C3	90°00'00"	20.00'	31.42'	28.28'	20.00'	N44°47'02"W

LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

Revisions

#	Description	Date
1	(RP-07) WATER AND WELL SYSTEM LOCATIONS REVISED 5-25-2022	

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 2/11/2022
LKV PROJECT #: 2120
EHM PROJECT #: 351-21

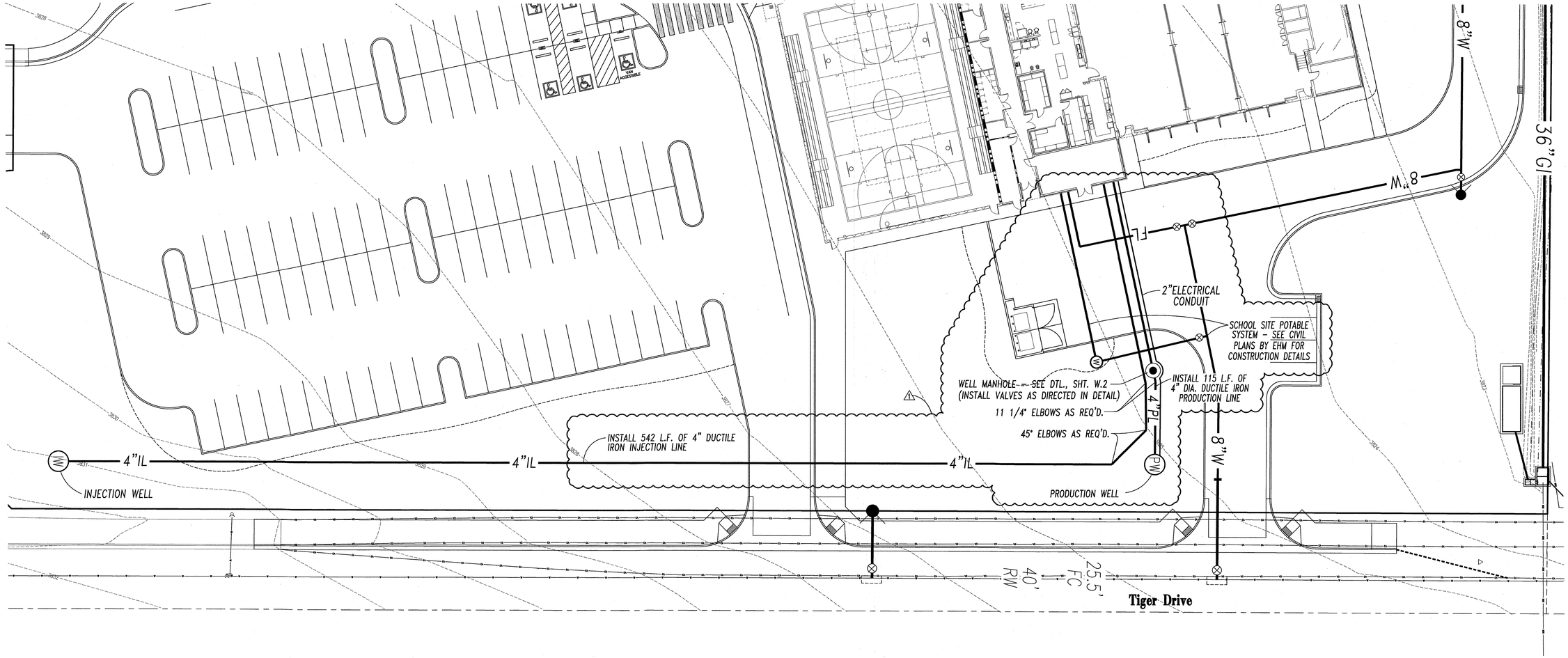
DRAWN BY: TV
CHECKED BY: DT

BID SET

DRAWING NO.:
C.2
MASTER UTILITY OVERALL

PROFESSIONAL ENGINEER LICENSED 14924 STATE OF IDAHO DAVID L. THIBAULT 5/25/22

EHM Engineers, Inc.
BUILDING THE FUTURE ON A FOUNDATION OF EXCELLENCE
Engineers / Surveyors / Planners
621 North College Road, Suite 100 Twin Falls, Idaho 83301
p (208)-734-4888 fax (208)-734-6049 web: ehminc.com



LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

(RFI-07) WATER AND WELL SYSTEM LOCATIONS REVISED 3-25-2022

PROFESSIONAL ENGINEER LICENSED 14924 3/23/2022 STATE OF IDAHO DAVID L. THIBAULT

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621 North College Road, Suite 100 Twin Falls, Idaho 83301
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Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 2/11/2022
LKV PROJECT #:
EHM PROJECT #: 351-21

DRAWN BY: TV
CHECKED BY: DT

BID SET

DRAWING NO.:

W.1
WELL PLAN

Breckon Land Design Inc.
6661 North Glenwood Street
Garden City, Idaho 83714
p: 208-376-5153
f: 208-376-6528
www.breckonlanddesign.com

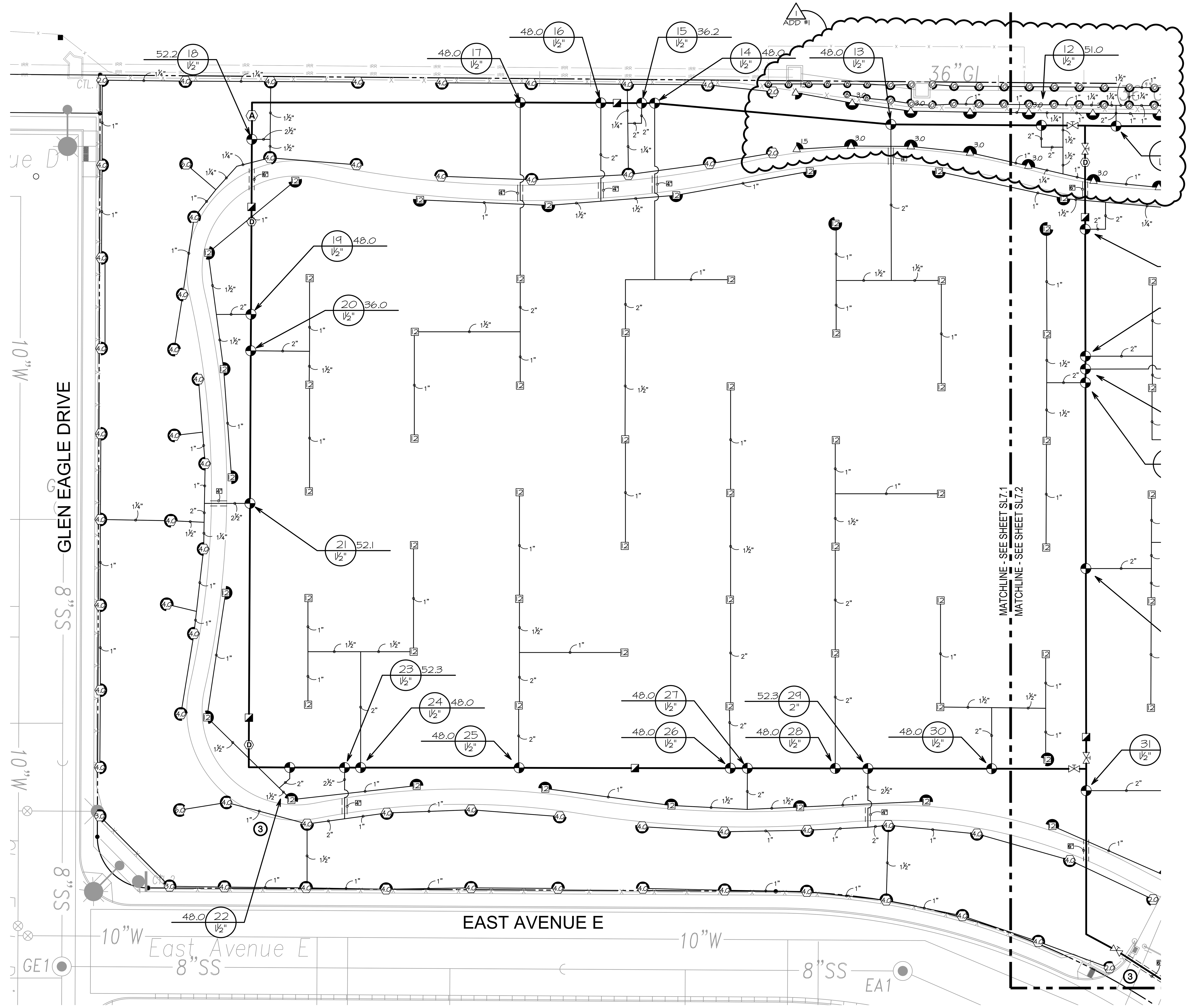
Landscape Architecture ● Waterscape Design ● Graphic Communication ● Civil Engineering ● Irrigation Design ● Land Planning

Addendum #1

DATE: April 1, 2022
TO: Bidders
FROM: Jon Breckon
RE: Addendum #1, Jerome Elementary School

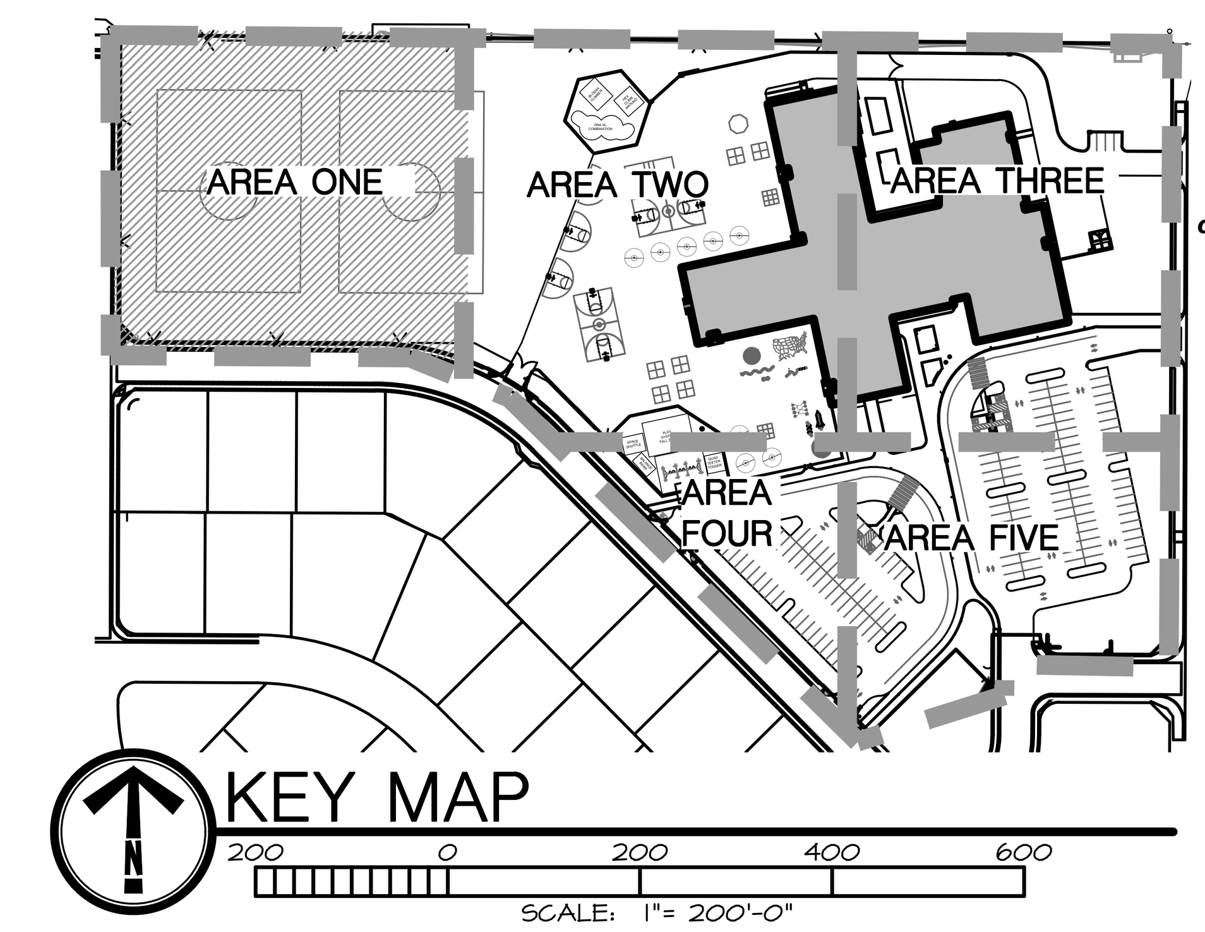
Drawings

1-1 Replace sheets SL7.1 and SL7.2 with the attached drawings to modify irrigation layout adjacent to the north property line.



IRRIGATION PLAN- AREA ONE

SCALE: 1"= 20'-0"



KEY MAP

SCALE: 1"= 200'-0"

811 Know what's below. Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

IRRIGATION MATERIAL LEGEND

SYMBOL	DESCRIPTION
8 — Q T H F	Rain Bird 1804-U-SAM-NP U8 Series Turf Spray 4" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
10 — Q T H F	Rain Bird 1804-U-SAM-NP U10 Series Turf Spray 4" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
12 — Q T H TT TQ F	Rain Bird 1804-U-SAM-NP U12 Series Turf Spray 4" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
15 — Q T H TT TQ F	Rain Bird 1804-U-SAM-NP U15 Series Turf Spray 4" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
E L R C S — EST LCS RCS CST SST	Rain Bird 1812-SAM-NP-U 15 Strip Series Shurb Spray 12" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
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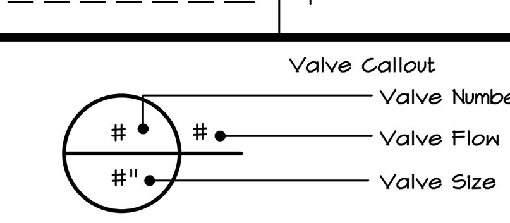
15 — Q T H TT TQ F	Rain Bird 1812-SAM-NP-U U15 Series Shurb Spray 12" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
1.0 1.5 2.0 3.0 4.0	Rain Bird 3504-PC-SAM-NP Turf Rotor, 4" Pop-Up. With Seal-A-Matic Check Valve, and Non Potable Purple Cover.
2.0 3.0 4.0 6.0 8.0	Rain Bird 5004-PC, FC-SAM-R-SS-NP Turf Rotor, 4" Pop-Up with Stainless Steel Riser. Standard Angle Nozzle, In-Stem Pressure Regulator. With Seal-A-Matic Check Valve and Non-Potable Purple Cover.
6 12	Rain Bird 8005-SS-NP Turf Rotor, 5" Pop-Up, Stainless Steel Riser, Standard Nozzle. With Seal-A-Matic Check Valve. Non-Potable Purple Cover.
	Rain Bird PESBR Durable Chlorine-Resistant Valves for Reclaimed Water Applications. With Scrubber Mechanism Technology, and Purple Flow Control Handle.
	Rain Bird 5-NP 1" Brass Quick-Coupling Valve, with Locking Non-Potable Purple Rubber Cover.
	Leemco LMV-33BB 3" x 3" LMV-BB Series Mainline Gate Valve.
MV	Rain Bird 300-BPES-NP-HAN Globe 3" 3" Brass Master Valve, with Globe Configuration, and Purple Handle for Non Potable Use. With a Patented Nylon Scrubber that Scrapes a Stainless Steel Screen to Prevent Debris Build-Up and Clogging.
A	Air Relief Valve See detail 3/SL7.6.
D	Drain Valve See detail 8/SL7.7
C	Hunter A2C-75D-SS 75-Station Decoder controller in a stainless steel wall mount enclosure.
S	Hunter Solar-Sync Solar, rain freeze sensor.
FS	Hunter HFS-300 Flow Sensor for use with ACC controller, 3" Schedule 40 Sensor Body, 24 VAC, 2 amp.
POC	Point of Connection EXTEND 4" PVC CLASS 200 MAIN LINE TO PUMP DISCHARGE PIPE. REFER TO CIVIL PUMP PLANS.
	Irrigation Lateral Line: PVC Schedule 40 Only lateral transition pipe sizes 1" and above are indicated on the plan, with all others being 3/4".
	Irrigation Mainline: PVC Class 200 SDR 21 (Gasketed) Provide 4" size pipe from P.O.C. to downstream end of flow sensor, as shown. Mainline loop to be 3" in size, typical.
	2" Schedule 40 PVC for electrical control wires. Coordinate with electrical.
	Pipe Sleeve: PVC Class 200 SDR 21



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BRECKON landdesign
• Civil Engineering • Landscape Architecture • Erosion & Sediment Control • Graphic Communication • Irrigation Design • Land Planning
www.breckonlanddesign.com
Fax: 208-376-6528
Phone: 208-376-5153
6661 North Glenwood Street
Garden City, Idaho 83714

STATE OF IDAHO — JON FRITZ BRECKON — LICENSED LANDSCAPE ARCHITECT — LA-16536 — 2/11/2022

Revisions	Description	Date
1	Addendum #1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

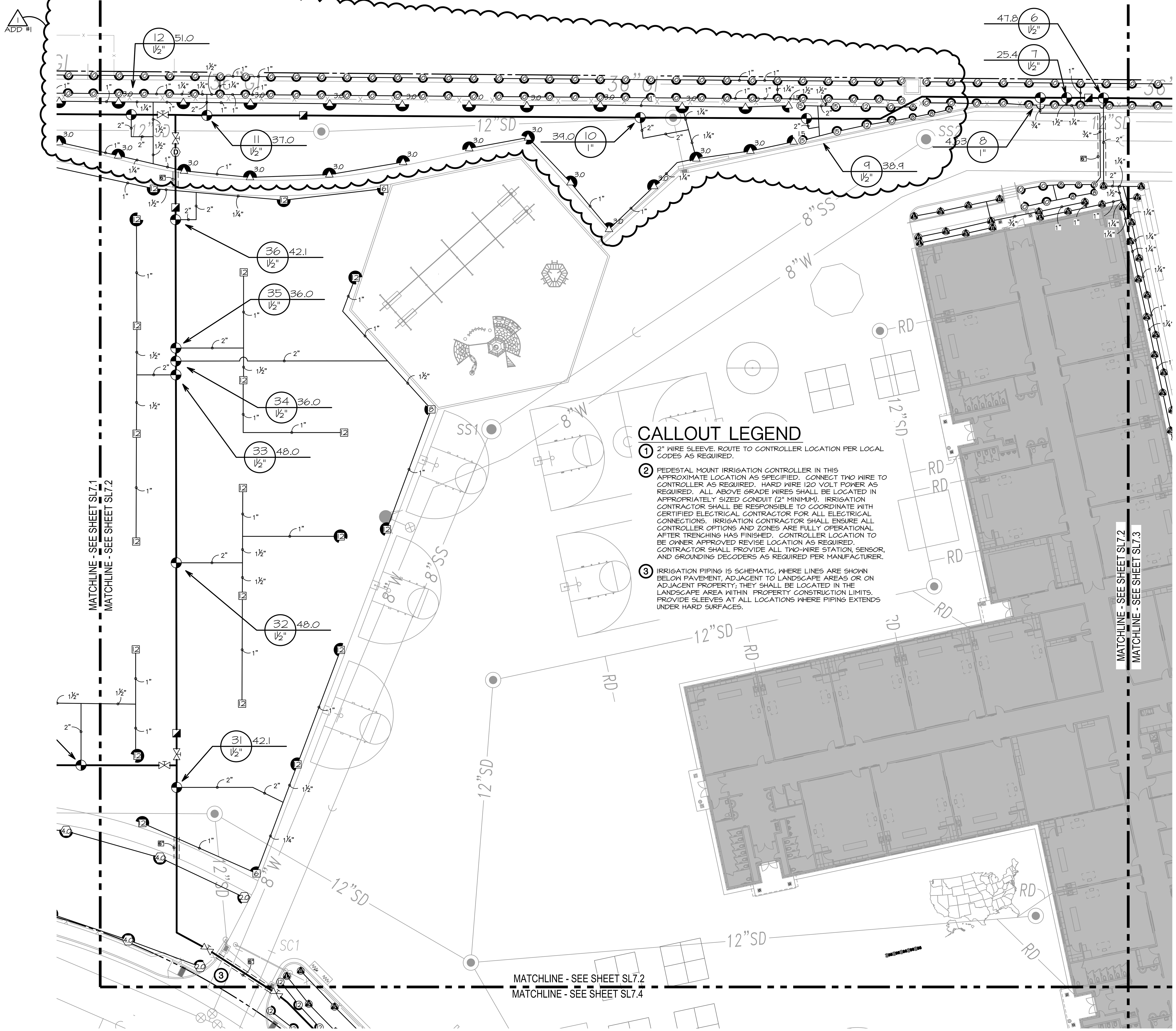
DATE: 2/11/2022
LKV PROJECT #: 2120
BLD PROJECT #: 21114

DRAWN BY: CP
CHECKED BY: JB

BID SET

DRAWING NO.:

SL7.1
IRRIGATION PLAN- AREA ONE

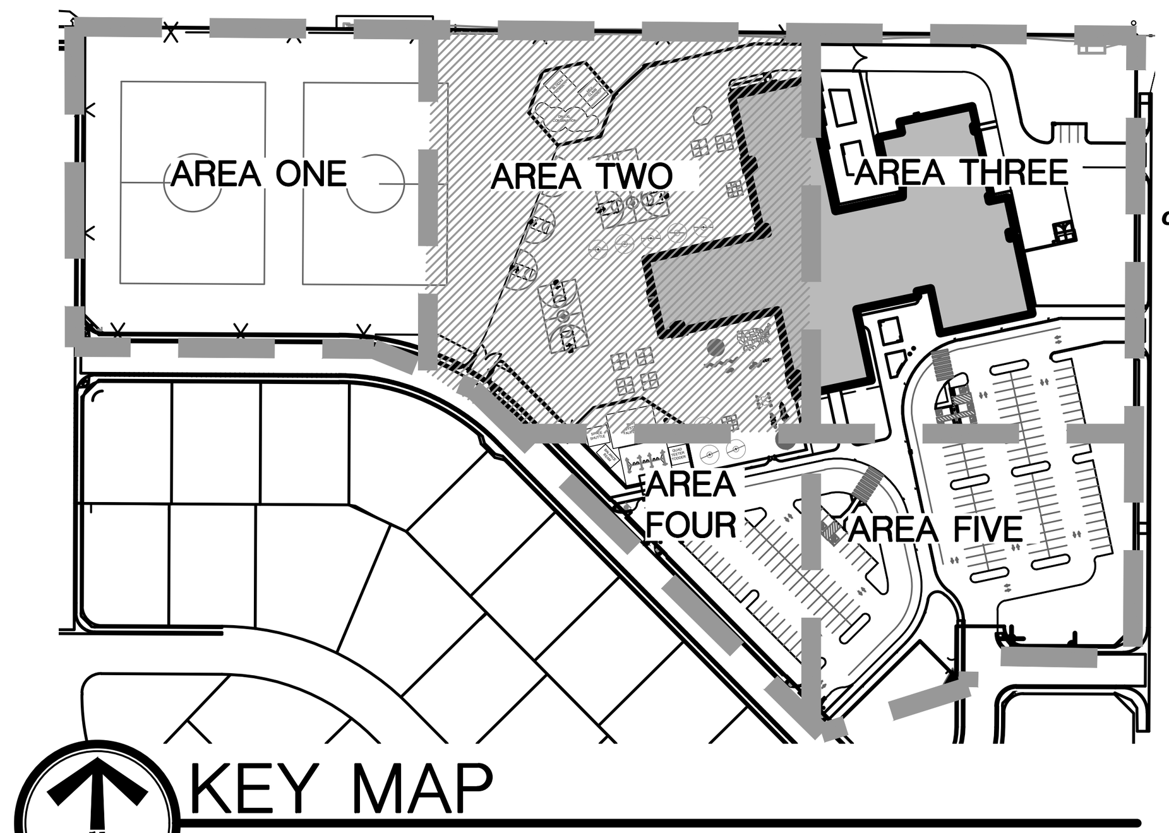


CALLOUT LEGEND

1. 2" WIRE SLEEVE. ROUTE TO CONTROLLER LOCATION PER LOCAL CODES AS REQUIRED.
2. PEDESTAL MOUNT IRRIGATION CONTROLLER IN THIS APPROXIMATE LOCATION AS SPECIFIED. CONNECT TWO WIRE TO CONTROLLER AS REQUIRED. HARD WIRE 120 VOLT POWER AS REQUIRED. ALL ABOVE GRADE WIRES SHALL BE LOCATED IN APPROPRIATELY SIZED CONDUIT (2" MINIMUM). IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH CERTIFIED ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL CONNECTIONS. IRRIGATION CONTRACTOR SHALL ENSURE ALL CONTROLLER OPTIONS AND ZONES ARE FULLY OPERATIONAL AFTER TRENCHING HAS FINISHED. CONTROLLER LOCATION TO BE OWNER APPROVED REVISE LOCATION AS REQUIRED. CONTRACTOR SHALL PROVIDE ALL TWO-WIRE STATION, SENSOR, AND GROUNDING DECODERS AS REQUIRED PER MANUFACTURER.
3. IRRIGATION PIPING IS SCHEMATIC, WHERE LINES ARE SHOWN BELOW PAVEMENT, ADJACENT TO LANDSCAPE AREAS OR ON ADJACENT PROPERTY; THEY SHALL BE LOCATED IN THE LANDSCAPE AREA WITHIN PROPERTY CONSTRUCTION LIMITS. PROVIDE SLEEVES AT ALL LOCATIONS WHERE PIPING EXTENDS UNDER HARD SURFACES.

IRRIGATION PLAN- AREA TWO

20 0 20 40 60
SCALE: 1"= 20'-0"



KEY MAP

200 0 200 400 600
SCALE: 1"= 200'-0"

811
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IRRIGATION MATERIAL LEGEND

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10 Q T H F	Rain Bird 1804-U-SAM-NP U10 Series Turf Spray 4" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
12 Q T H TT TQ F	Rain Bird 1804-U-SAM-NP U12 Series Turf Spray 4" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
15 Q T H TT TQ F	Rain Bird 1804-U-SAM-NP U15 Series Turf Spray 4" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
E L R C S EST LCS RCS CST SST	Rain Bird 1812-SAM-NP-U 15 Strip Series Shurb Spray 12" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
8 Q T H F	Rain Bird 1812-SAM-NP-U U8 Series Shurb Spray 12" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
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15 Q T H TT TQ F	Rain Bird 1812-SAM-NP-U U15 Series Shurb Spray 12" Pop-Up Sprinkler, with Seal-A-Matic Check Valve and Non-Potable Purple Cap.
1.0 1.5 2.0 3.0 4.0	Rain Bird 3504-PC-SAM-NP Turf Rotor, 4" Pop-Up. With Seal-A-Matic Check Valve, and Non Potable Purple Cover.
2.0 3.0 4.0 6.0 8.0	Rain Bird 5004-PC, FC-SAM-R-SS-NP Turf Rotor, 4" Pop-Up with Stainless Steel Riser. Standard Angle Nozzle, In-Stem Pressure Regulator. With Seal-A-Matic Check Valve and Non-Potable Purple Cover.
6 12	Rain Bird 8005-SS-NP Turf Rotor, 5" Pop-Up, Stainless Steel Riser, Standard Nozzle. With Seal-A-Matic Check Valve. Non-Potable Purple Cover.
	Rain Bird PESBR Durable Chlorine-Resistant Valves for Reclaimed Water Applications. With Scrubber Mechanism Technology, and Purple Flow Control Handle.
	Rain Bird 5-NP 1" Brass Quick-Coupling Valve, with Locking Non-Potable Purple Rubber Cover.
	Leemco LMV-33BB 3" x 3" LMV-BB Series Mainline Gate Valve.
MV	Rain Bird 300-BPES-NP-HAN Globe 3" 3" Brass Master Valve, with Globe Configuration, and Purple Handle for Non Potable Use. With a Patented Nylon Scrubber that Scrapes a Stainless Steel Screen to Prevent Debris Build-Up and Clogging.
A	Air Relief Valve See detail 3/SL7.6.
D	Drain Valve See detail 8/SL7.7
C	Hunter A2C-75D-SS 75-Station Decoder controller in a stainless steel wall mount enclosure.
S	Hunter Solar-Sync Solar, rain freeze sensor.
FS	Hunter HFS-300 Flow Sensor for use with ACC controller, 3" Schedule 40 Sensor Body, 24 VAC, 2 amp.
POC	Point of Connection EXTEND 4" PVC CLASS 200 MAIN LINE TO PUMP DISCHARGE PIPE. REFER TO CIVIL PUMP PLANS.
	Irrigation Lateral Line: PVC Schedule 40 Only lateral transition pipe sizes 1" and above are indicated on the plan, with all others being 3/4".
	Irrigation Mainline: PVC Class 200 SDR 21 (Gasketed) Provide 4" size pipe from P.O.C. to downstream end of flow sensor, as shown. Mainline loop to be 3" in size, typical.
	2" Schedule 40 PVC for electrical control wires. Coordinate with electrical.
	Pipe Sleeve: PVC Class 200 SDR 21

Valve Callout
\# Valve Number
\# Valve Flow
\#" Valve Size

LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

BRECKON landdesign

STATE OF IDAHO – LICENSED LANDSCAPE ARCHITECT – LA-16836 – 2/11/2022

Revisions		
	Description	Date
1	Addendum #1	04/01/2022

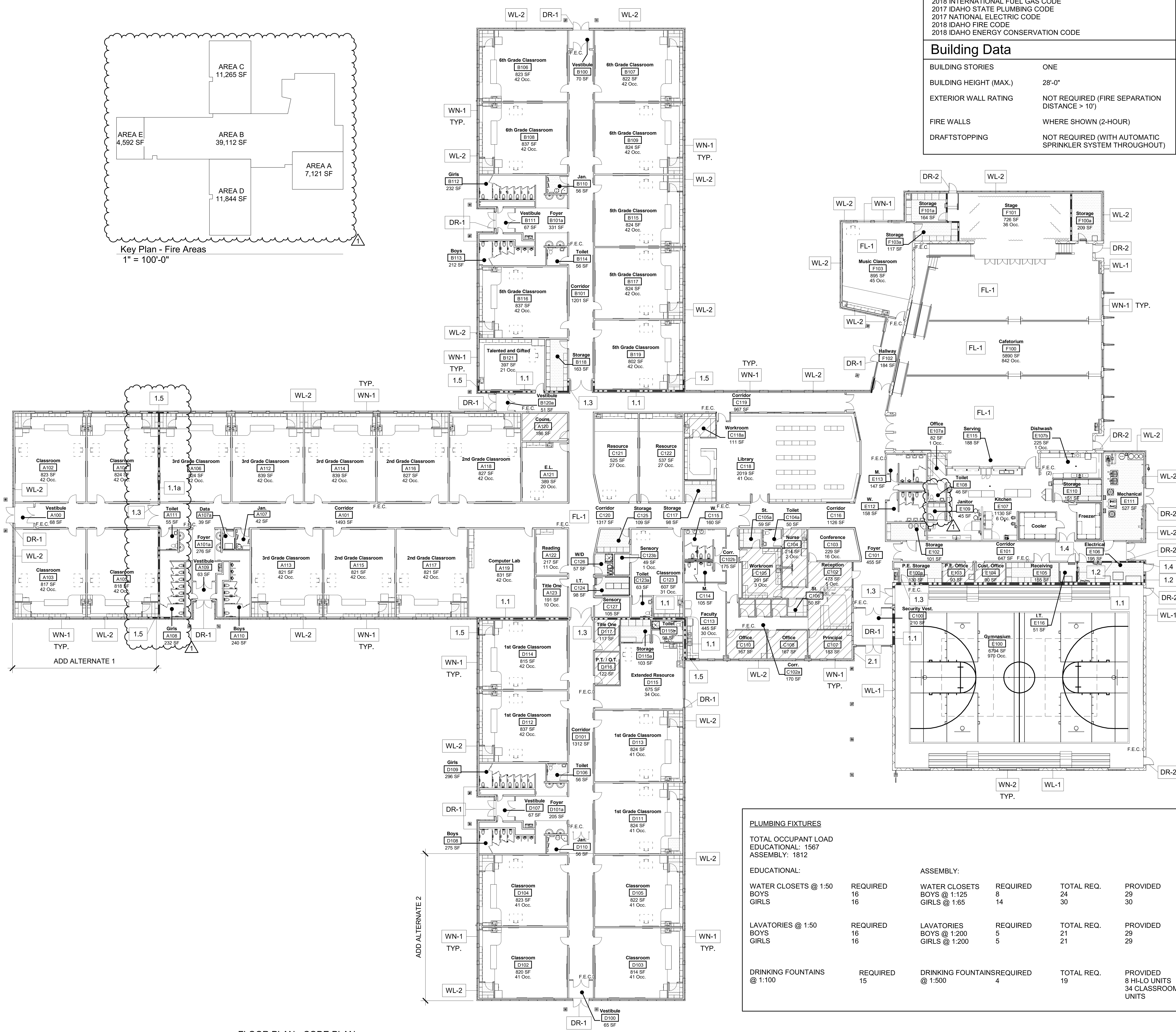
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 2/11/2022
LKV PROJECT #: 2120
BLD PROJECT #: 21114

DRAWN BY: CP
CHECKED BY: JB

BID SET

DRAWING NO.:
SL7.2
IRRIGATION PLAN- AREA TWO



Key Plan - Fire Areas
1" = 100'-0"

1 FLOOR PLAN - CODE PLAN
1" = 20'-0"

Applicable Codes

2018 INTERNATIONAL BUILDING CODE
2009 ICC A117.1
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL FUEL GAS CODE
2017 IDAHO STATE PLUMBING CODE
2017 NATIONAL ELECTRIC CODE
2018 IDAHO FIRE CODE
2018 IDAHO ENERGY CONSERVATION CODE

Building Data

BUILDING STORIES	ONE
BUILDING HEIGHT (MAX.)	28'-0"
EXTERIOR WALL RATING	NOT REQUIRED (FIRE SEPARATION DISTANCE > 10')
FIRE WALLS	WHERE SHOWN (2-HOUR)
DRAFTSTOPPING	NOT REQUIRED (WITH AUTOMATIC SPRINKLER SYSTEM THROUGHOUT)

Building Code Compliance Summary

OCCUPANCY GROUP	GROUP E, EDUCATIONAL (S-1 ACCESSORY)	
CONSTRUCTION TYPE	V-B CONBUSTIBLE, BUILDING ELEMENTS NON RATED EXCEPT AS INDICATED OTHERWISE.	
BUILDING AREA	ACTUAL	ALLOWED
AREA A	7121 SF	41,135
AREA B	39112 SF	42,560
AREA C	11265 SF	42,655
AREA D	11880 SF	42,370
AREA E	4592 SF	40,945
TOTAL AREA	73932 SF	

SPACE	S.F./OCC.	OCCUPANTS
CLASSROOMS	20 NET	1,439
LIBRARY	50 NET	41
CAFETERIA	7 NET	842
KITCHEN	200 GROSS	6
GYMNASIUM	7 NET	970
OFFICE/SUPPORT	100 GROSS	22
CONFERENCE/FACULTY	15 NET	46
STORAGE/ACCESSORY	300 GROSS	13
TOTAL		3,379

ALLOWABLE AREA CALCULATIONS

AREA A:

Aa = Allowable Area	Aa = At + (NS x If)
At = Tabular Area Factor 38,000 s.f. per TABLE 506.2	Aa = 38,000 s.f. + (9,500 s.f. x .33)
	Aa = 38,000 s.f. + 3,135 s.f.
NS = Tabular Area 9,500 s.f. per TABLE 506.2	Aa = 41,135 s.f.

AREA B:

Aa = Allowable Area	Aa = At + (NS x If)
At = Tabular Area Factor 38,000 s.f. per TABLE 506.2	Aa = 38,000 s.f. + (9,500 s.f. x .48)
	Aa = 38,000 s.f. + 4,560 s.f.
NS = Tabular Area 9,500 s.f. per TABLE 506.2	Aa = 42,560 s.f.

AREA C:

Aa = Allowable Area	Aa = At + (NS x If)
At = Tabular Area Factor 38,000 s.f. per TABLE 506.2	Aa = 38,000 s.f. + (9,500 s.f. x .49)
	Aa = 38,000 s.f. + 4,655 s.f.
NS = Tabular Area 9,500 s.f. per TABLE 506.2	Aa = 42,655 s.f.

AREA D:

Aa = Allowable Area	Aa = At + (NS x If)
At = Tabular Area Factor 38,000 s.f. per TABLE 506.2	Aa = 38,000 s.f. + (9,500 s.f. x .46)
	Aa = 38,000 s.f. + 4,370 s.f.
NS = Tabular Area 9,500 s.f. per TABLE 506.2	Aa = 42,370 s.f.

AREA E:

Aa = Allowable Area	Aa = At + (NS x If)
At = Tabular Area Factor 38,000 s.f. per TABLE 506.2	Aa = 38,000 s.f. + (9,500 s.f. x .31)
	Aa = 38,000 s.f. + 2,945 s.f.
NS = Tabular Area 9,500 s.f. per TABLE 506.2	Aa = 40,945 s.f.

FIRE PROTECTION SYSTEMS	AUTOMATIC WET PIPE SPRINKLER SYSTEM THROUGHOUT FIRE ALARM SYSTEM WITH AUDIBLE VOICE EVACUATION AND VISIBLE ALARMS THROUGHOUT
EXITS	(18) TOTAL, (10) FROM CORRIDORS, (8) FROM ROOMS
CORRIDOR CONSTRUCTION	NON-RATED (WITH AUTOMATIC SPRINKLER SYSTEM THROUGHOUT)
TRAVEL DISTANCE (MAXIMUM)	<250 FT. TO EXIT (WITH AUTOMATIC SPRINKLER SYSTEM THROUGHOUT)
COMMON PATH OF EGRESS TRAVEL (MAXIMUM)	<75 F. TO (2) PATHS OF EGRESS
DOORS	36" LEAFS WITH SWING AS SHOWN (OUTSWING REQUIRED WHERE OCCUPANT LOADS EXCEEDS 49)
DOOR HARDWARE	ADA COMPLIANT (PANIC HARDWARE REQUIRED WHERE OCCUPANT LOAD EXCEEDS 49)
ACCESSIBILITY	ACCESSIBLE ROUTE CONSISTING ON ADA COMPLIANT CORRIDORS, DOORWAYS, SHELVING, HARDWARE, FIXTURES, ELECTRICAL DEVICES, AND SIGNAGE
RATED CONSTURCTION	ONE AND TWO HOUR WALLS PER REFERENCED FIRE-RATED ASSEMBLIES. SEE BUILDING CODE REFERENCE NOTES
FIRE EXINGUISHER CABINET (F.E.C.)	WHERE SHOWN

PLUMBING FIXTURES

TOTAL OCCUPANT LOAD
EDUCATIONAL: 1567
ASSEMBLY: 1812

EDUCATIONAL:		ASSEMBLY:			
WATER CLOSETS @ 1:50	REQUIRED	WATER CLOSETS	REQUIRED	TOTAL REQ.	PROVIDED
BOYS	16	BOYS @ 1:125	8	24	29
GIRLS	16	GIRLS @ 1:65	14	30	30
LAVATORIES @ 1:50	REQUIRED	LAVATORIES	REQUIRED	TOTAL REQ.	PROVIDED
BOYS	16	BOYS @ 1:200	5	21	29
GIRLS	16	GIRLS @ 1:200	5	21	29
DRINKING FOUNTAINS @ 1:100	REQUIRED 15	DRINKING FOUNTAINS @ 1:500	REQUIRED 4	TOTAL REQ. 19	PROVIDED 8 HI-LO UNITS 34 CLASSROOM UNITS

General Notes

1. REFER TO UNDERWRITERS LABORATORIES INC. FIRE RESISTANCE DIRECTORY, GYPSUM ASSOCIATION FIRE RATED ASSEMBLY MANUAL, AND 2015 INTERNATIONAL BUILDING CODE FOR COMPLETE DESCRIPTION OF REFERENCED FIRE RATED ASSEMBLY MATERIAL AND INSTALLATION REQUIREMENTS.
2. DUCT AND MISCELLANEOUS PENETRATION OPENINGS IN FIRE RATED STEEL STUD WALLS SHALL BE WRAPPED WITH GYPSUM BOARD OF SAME TYPE AND TOTAL THICKNESS AS FACE OF WALL.
3. RE: DETAILS ON SHEET A1.3 FOR DETAILS AT FIRE WALL.
4. RE: MECHANICAL DRAWING SHEET M0.1 FOR BUILDING ENERGY MODEL.

Fire Rated Assemblies

1.1	2-HOUR CONCRETE MASONRY UNIT WALL ASSEMBLY: CONCRETE MASONRY UNIT CONSTRUCTION 3-1.4 PER I.B.C. TABLE 720.1. ALL CELLS GROUTED SOLID OR FILLED WITH SILICONE TREATED LOOSE FILL INSULATION. REQUIRED THICKNESS: 7 5/8", ACUTAL THICKNESS 11 5/8".
1.1a	2-HOUR WOOD STUD WALL ASSEMBLY: U.L. DESIGN NO. ____. (2) LAYER OF 5/8" TYPE 'X' GYPSUM BOARD BOTH SIDES, MINIMUM 2X4 WOOD STUDS AT 24" O.C. WITH 6d COATED NAILS, 7" O.C. STUD CAVITIES FILLED WITH U.L. RATED GLASS FIBER BATT INSULATION.
1.2	1-HOUR WOOD STUD AND GYPSUM BOARD WALL / CEILING ASSEMBLY: U.L. DESIGN NO. U-314. ONE LAYER OF 5/8" TYPE "X" GYPSUM BOARD BOTHS SIDES, MINIMUM 2X4 WOOD STUDS AT 24" O.C. WITH 6d COATED NAILS, 7" O.C. INTERIOR WALL RATING. (2) LAYER 5/8" TYPE 'X' GYPSUM BOARD ON EACH SIDE OF STUDS. APPLY GYPSUM BOARD TO STUDS VERTICALLY. STUD CAVITIES FILLED WITH U.L. RATED GLASS FIBER BATT INSULATION.
1.3	1 1/2 HOUR RATED DOOR ASSEMBLY.
1.4	3/4 HOUR RATED DOOR ASSEMBLY.
1.5	5/8" EXTERIOR GRADE GYPSUM WALL SHEATHING 4'-0" BEYOND FIRE WALL EACH SIDE. SEE SHEET A1.3.
2.1	FIRE DEPARTMENT - KNOX BOX

Energy Analysis Reference Notes

SEE THERMAL ENVELOPE ASSEMBLIES BELOW. SEE WALL SECTIONS AND WALL TYPES FOR CONSTRUCTION DETAILS.

FL1	4" CONCRETE SLAB ON GRADE.
WL1	12" MASONRY WALLS 8" HIGH WITH HI-R BLOCK INSERTS.
WL2	6" WOOD STUDS WITH 5 1/2 INCHES OF CAVITY INSULATION AND MASONRY VENEER. (R-21)
WN1	FIXED ALUMINUM WINDOWS WITH TINTED LOW-E INSULATING GLASS.
WN2	KALWALL
DR1	ALUMINUM DOOR AND FRAME WITH TINTED LOW-E INSULATING GLASS.
DR2	INSULATED HOLLOW METAL DOOR AND STEEL FRAME.

LKV
ARCHITECTS
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LICENSED ARCHITECT
AR-985153
02/11/2022
STATE OF IDAHO

Revisions

#	Description	Date
1	Addendum 1	04/01/2022

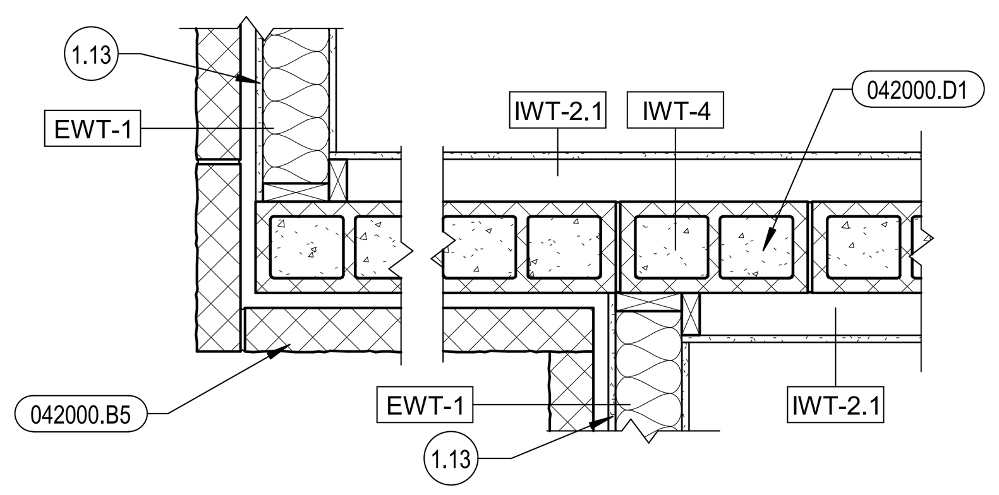
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

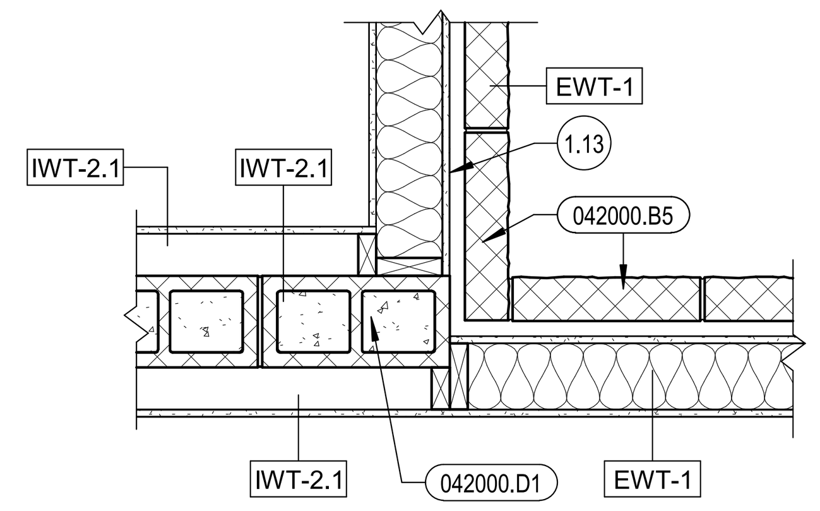
DRAWN BY: KB
CHECKED BY: BT

BID SET

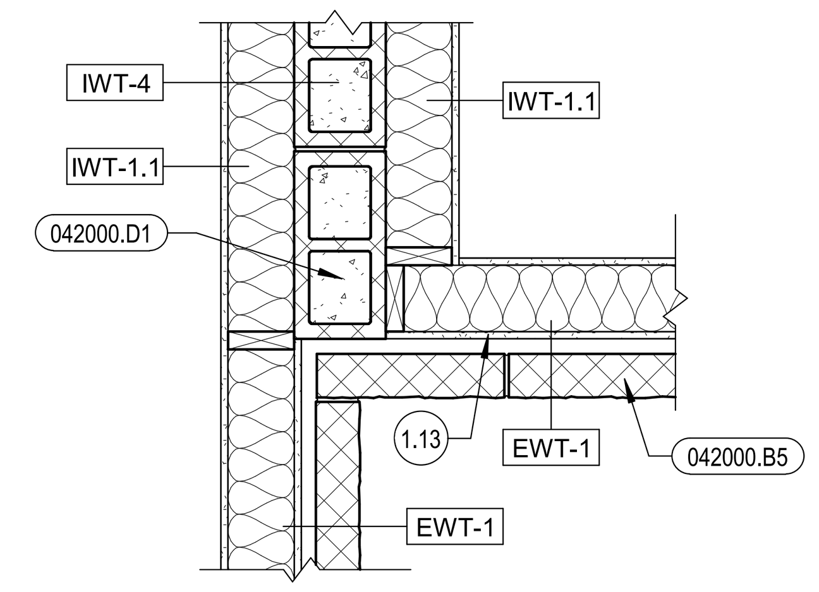
DRAWING NO.:
A1.1
CODE PLAN



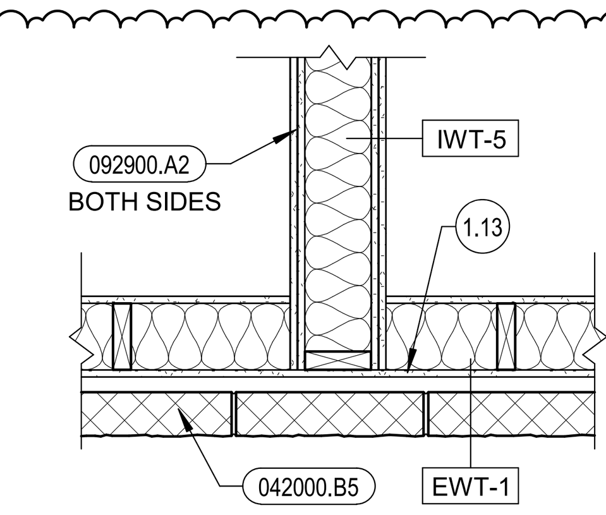
1 FIRE WALL TERMINATION 1
3/4" = 1'-0"



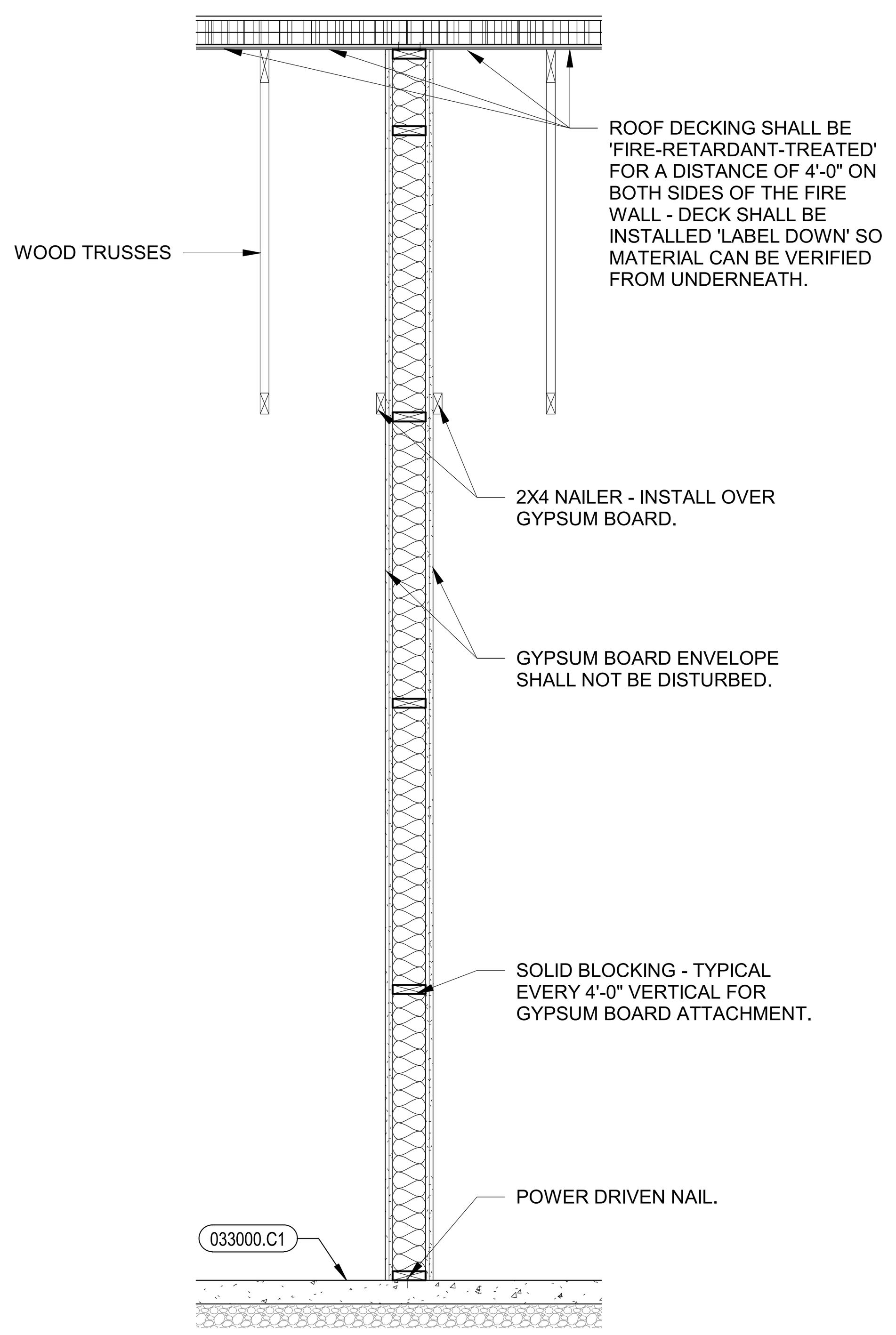
2 FIRE WALL TERMINATION 2
3/4" = 1'-0"



3 FIRE WALL TERMINATION 3
3/4" = 1'-0"



5 FIRE WALL TERMINATION 4
3/4" = 1'-0"



4 2 HOUR FIREWALL - U.L. #U-425
1/2" = 1'-0"

General Notes

1. ALL FIRE WALLS SHALL BE LABELED ABOVE CEILING EVERY 6'-0" O.C.

Reference Notes

1.13	5/8" GYPSUM SHEATHING 4'-0" BEYOND INTERSECTION.

Keyed Notes

033000.C1	CONCRETE FLOOR SLAB ON GRADE, 4" U.N.O.
042000.B5	CONCRETE MASONRY UNIT(S) SPLIT FACE, 4X4X16
042000.D1	SOLID GROUT
092900.A2	DOUBLE LAYER GYPSUM BOARD, 5/8" TYPE "X" U.N.O.

LKV
ARCHITECTS
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www.lkvarchitects.com
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Revisions

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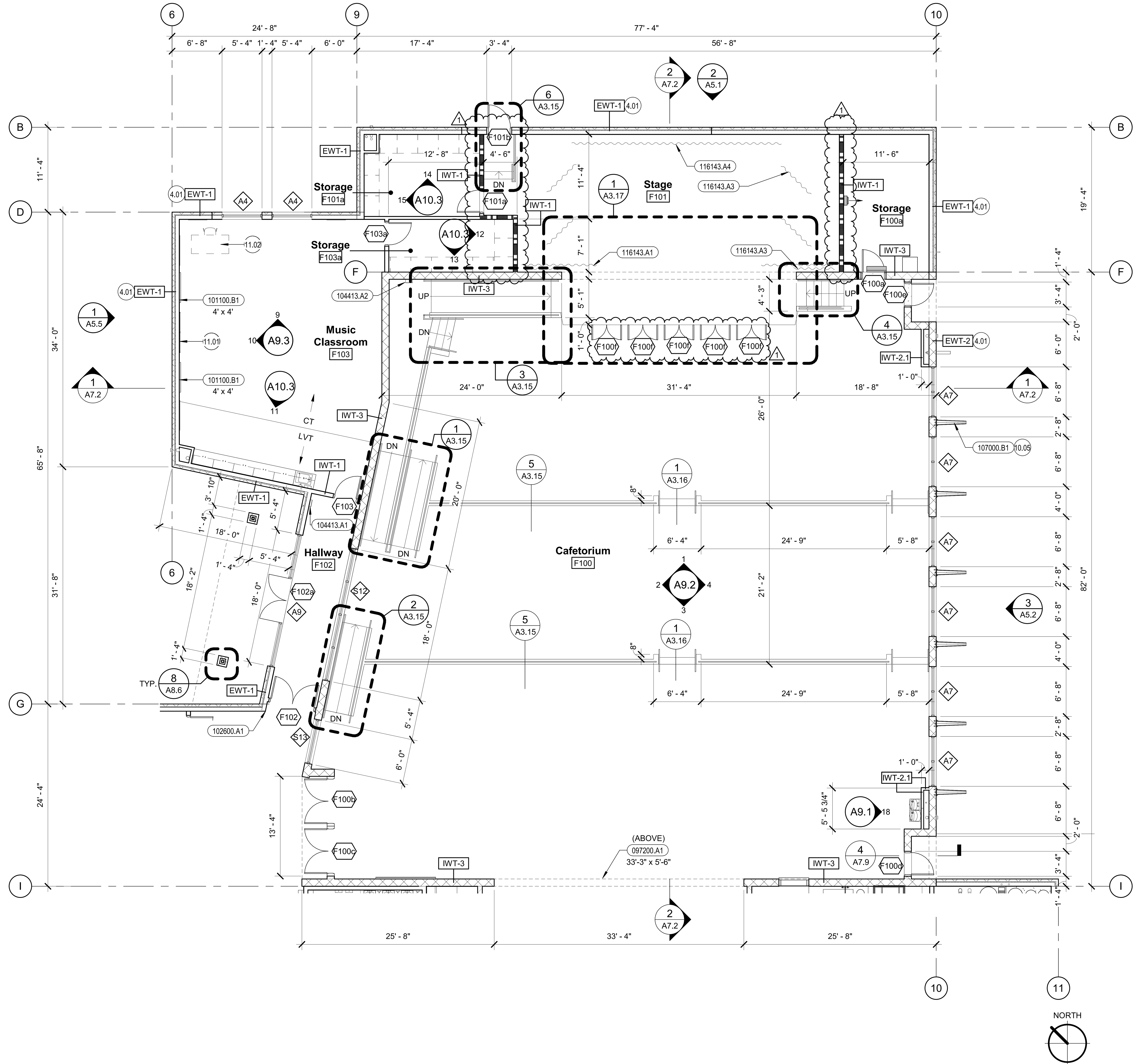
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: Author
CHECKED BY: Checker

BID SET

DRAWING NO.:
A1.3
FIRE WALL DETAILS



1 FLOOR PLAN - AREA F
1/8" = 1'-0"

General Notes

1. EXTERIOR DIMENSIONS ARE TO OUTSIDE FACE OF FINISH, UNLESS NOTED OTHERWISE.
2. INTERIOR DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
3. SEE SHEET A1.1 FOR CODE COMPLIANCE FLOOR PLAN AND BUILDING CODE COMPLIANCE SUMMARY.
4. SEE SHEET A3.8 FOR TYPICAL CLASSROOMS, TACKBOARD, AND MARKERBOARD SIZES AND LAYOUTS.
5. SEE SHEET A4.1 FOR ROOM FINISH SCHEDULE.
6. SEE SHEET A4.2 FOR DOOR SCHEDULE AND DOOR TYPES AND SHEETS A4.2, A4.3, AND A4.4 FOR WINDOWS AND FRAME TYPES.
7. FURNISH AND INSTALL INTERIOR SIGNS AT ALL INTERIOR DOORS AND AT OTHER LOCATIONS UP TO SPECIFIED LIMITS. SEE SPECIFICATIONS.
8. FURNISH AND INSTALL WINDOW BLINDS.
9. SEE SHEET A1.2 FOR SPECIALTY MOUNTING HEIGHTS.
10. SEE SHEET A8.1 FOR WALL TYPES.

Reference Notes

4.01	SEE EXTERIOR ELEVATIONS FOR MATERIAL CHANGES.
10.05	SUNSHADE TYPE 3. SEE DRAWING SHEET A4.2 FOR SUNSHADE TYPES.
11.01	O.F.C.I. FLAT SCREEN TV.
11.02	TEACHER STATION, O.F.O.I. (N.I.C.)

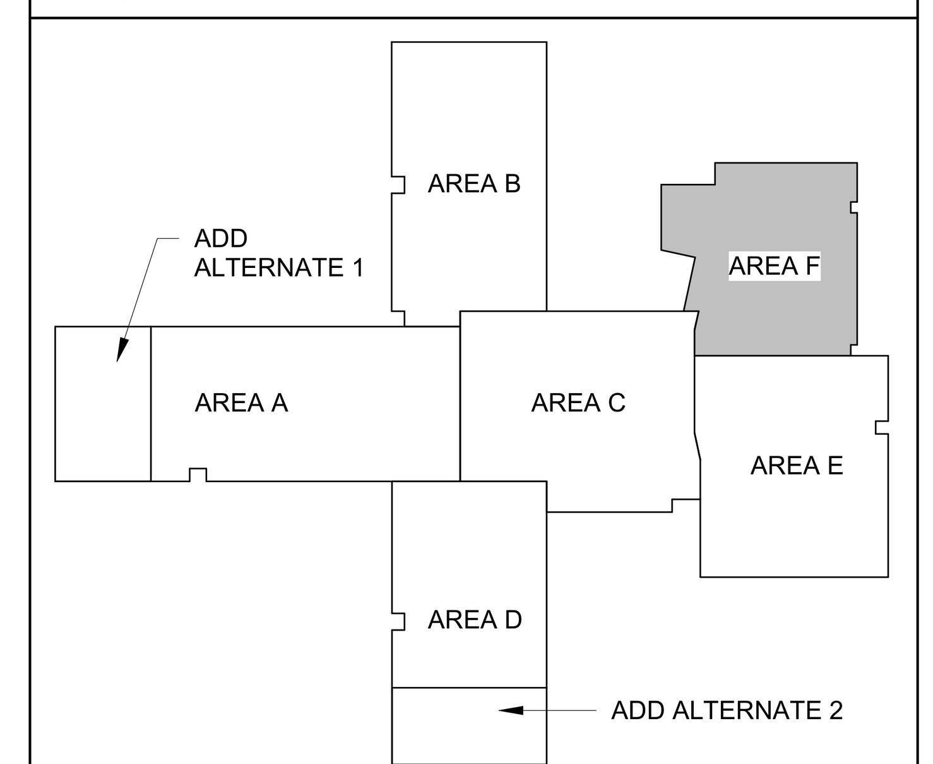
Keyed Notes

097200.A1	VINYL WALL COVERING
101100.B1	VINYL FABRIC FACED CORK TACKBOARD
102600.A1	CORNER GUARD, 90 DEGREE, 4'-0"
104413.A1	FIRE EXTINGUISHER CABINET, SEMI-RECESSED
104413.A2	FIRE EXTINGUISHER CABINET, SURFACED MOUNTED
107000.B1	SUNSHADE ASSEMBLY, VERTICAL.
116143.A1	PROSCENIUM CURTAIN
116143.A3	BORDER CURTAIN
116143.A4	REAR CURTAIN

Legend

- FIRE WALL - 2 HR CMU
- FIRE WALL - 1 HR STUD WALL
- FIRE WALL - 2 HR STUD WALL
- MATCHLINE

Keyed Plan



LKV ARCHITECTS
2400 E. Riverwalk Drive
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Revisions

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1	Addendum 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
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DATE: 02/11/2022
LKV PROJECT #: 2120

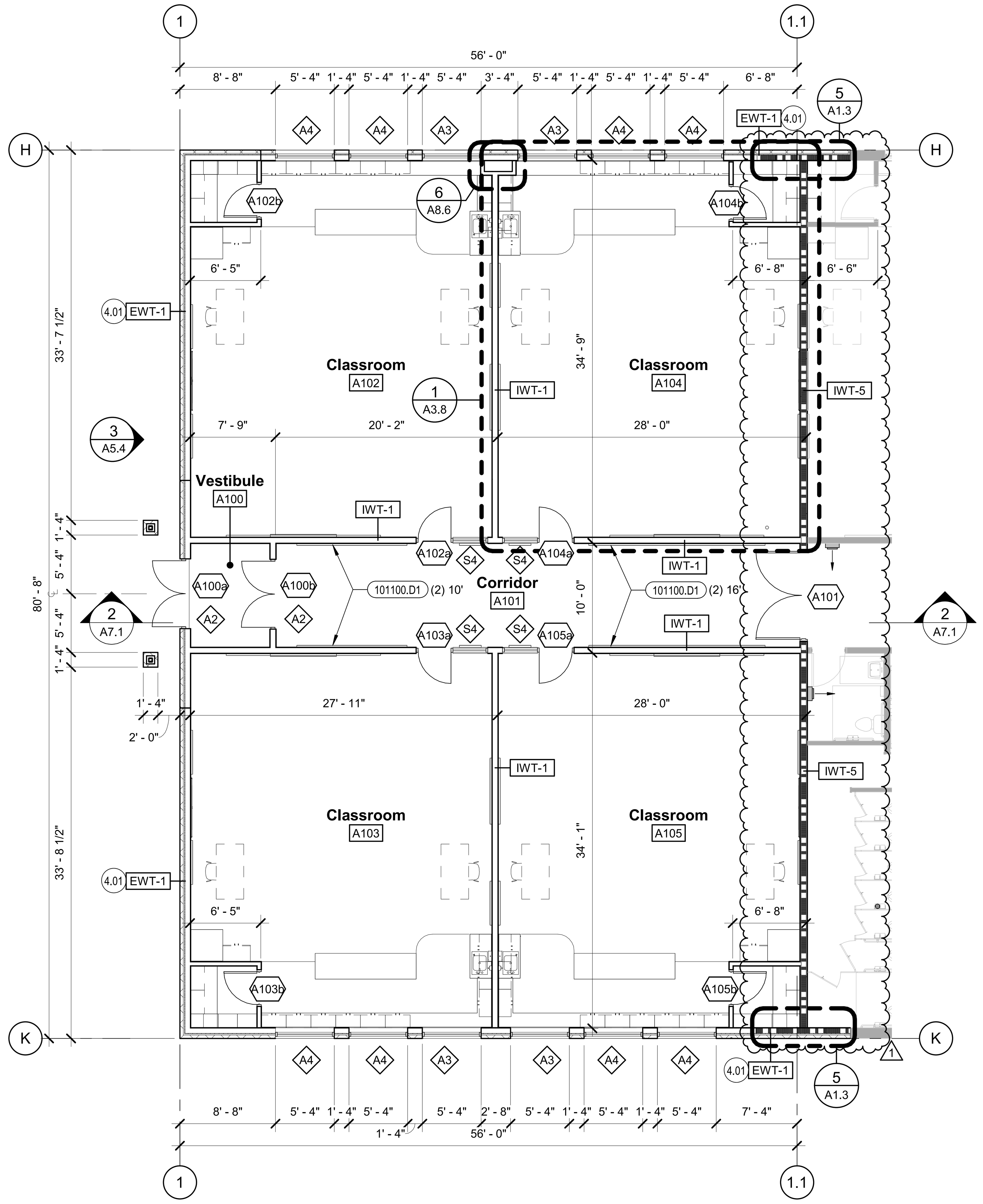
DRAWN BY: KB
CHECKED BY: BT

BID SET

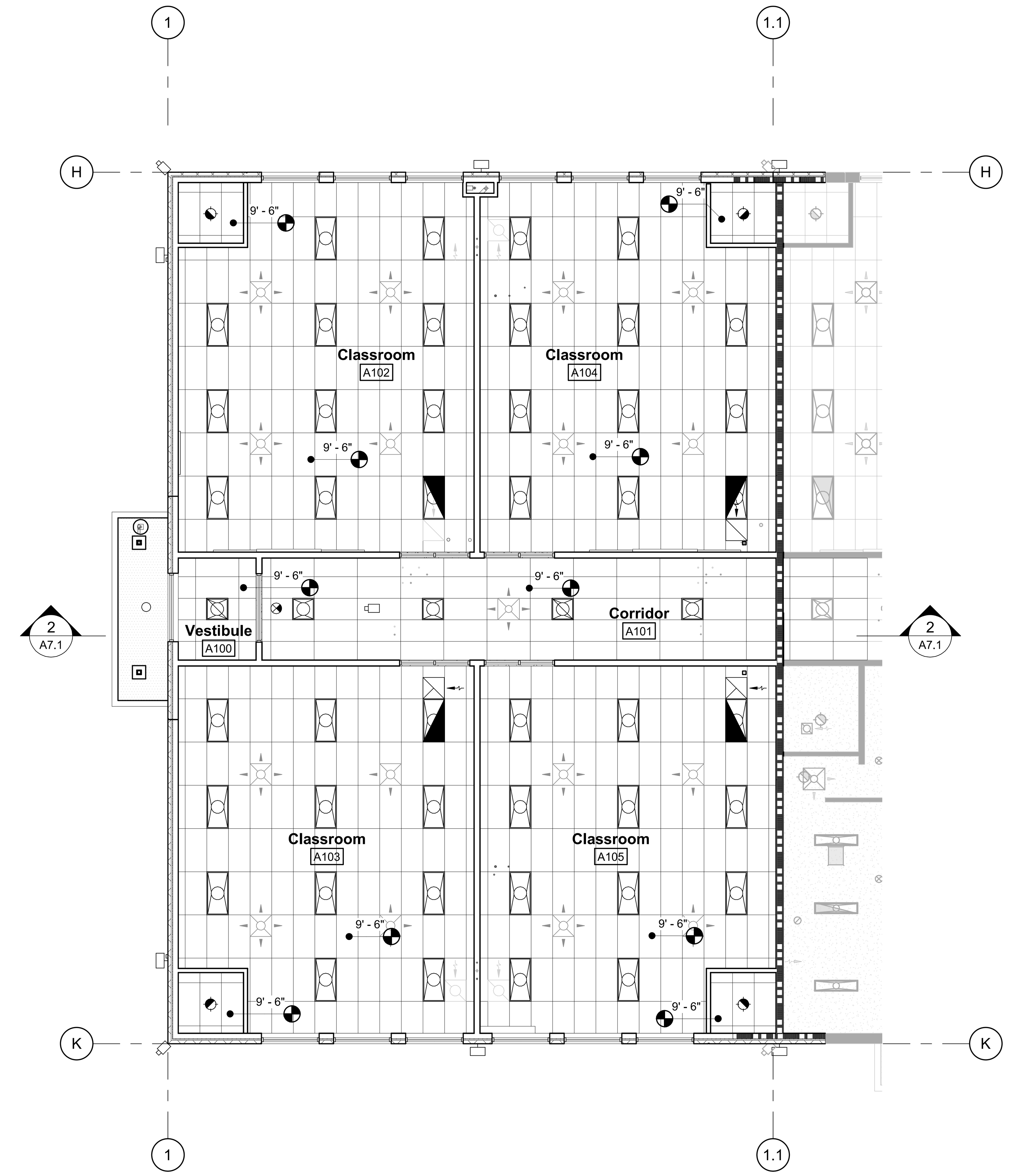
DRAWING NO.:

A3.7

FLOOR PLAN – AREA F



ENLARGED FLOOR PLAN - ADD ALTERNATE 1
1/8" = 1'-0"



REFLECTED CEILING PLAN - ADD ALTERNATE 1
1/8" = 1'-0"

General Notes

1. EXTERIOR DIMENSIONS ARE TO OUTSIDE FACE OF FINISH, UNLESS NOTED OTHERWISE.
2. INTERIOR DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
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4. SEE SHEET A3.8 FOR TYPICAL CLASSROOMS, TACKBOARD, AND MARKERBOARD SIZES AND LAYOUTS.
5. SEE SHEET A4.1 FOR ROOM FINISH SCHEDULE.
6. SEE SHEET A4.2 FOR DOOR SCHEDULE AND DOOR TYPES AND SHEETS A4.2, A4.3, AND A4.4 FOR WINDOWS AND FRAME TYPES.
7. FURNISH AND INSTALL INTERIOR SIGNS AT ALL INTERIOR DOORS AND AT OTHER LOCATIONS UP TO SPECIFIED LIMITS. SEE SPECIFICATIONS.
8. FURNISH AND INSTALL WINDOW BLINDS.
9. SEE SHEET A1.2 FOR SPECIALTY MOUNTING HEIGHTS.
10. SEE SHEET A8.1 FOR WALL TYPES.

Reference Notes

4.01 SEE EXTERIOR ELEVATIONS FOR MATERIAL CHANGES.

Keyed Notes

101100.D1 DISPLAY RAIL TACK STRIP, LENGTH PER PLAN

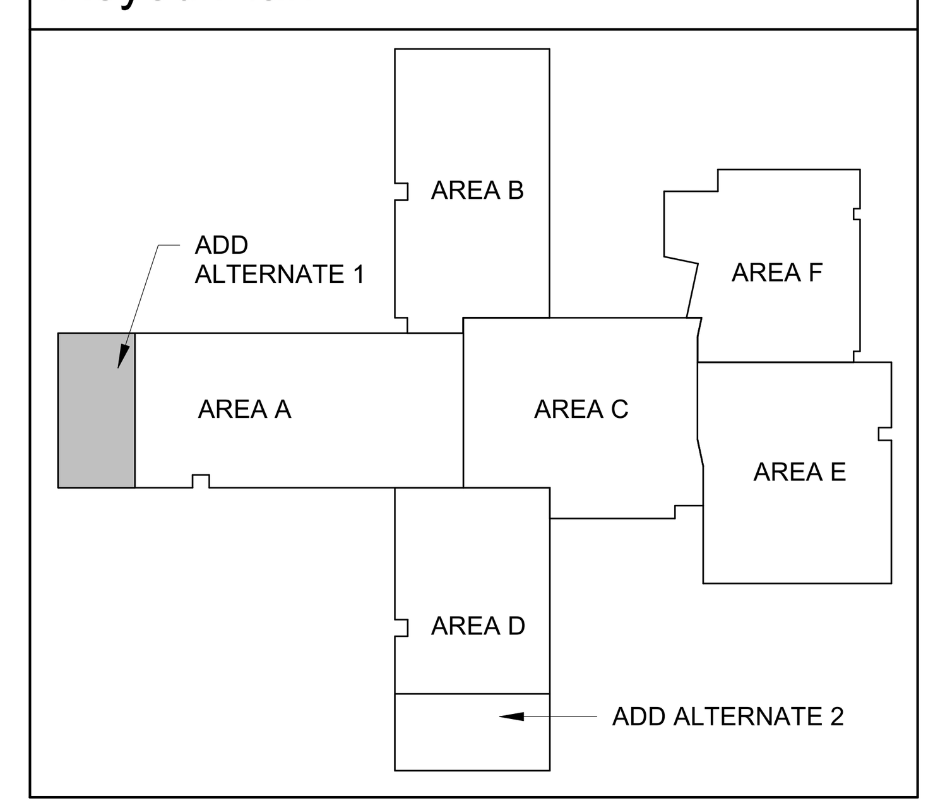
Legend

- FIRE WALL - 2 HR CMU
- FIRE WALL - 1 HR STUD WALL
- FIRE WALL - 2 HR STUD WALL
- MATCHLINE

Legend

- TYPICAL LIGHTING FIXTURES. REFER TO ELECTRICAL DRAWINGS.
- TYPICAL MECHANICAL FIXTURES. REFER TO MECHANICAL DRAWINGS.
- CEILING HEIGHT ABOVE FINISHED FLOOR.
- GYPSUM CEILING BOARD. (092900.A1) SEE SPECIFICATION SECTION 092216 FOR FRAMING REQUIREMENTS.
- SUSPENDED ACOUSTICAL PANEL CEILING, WITH SUSPENSION SYSTEM, INTERMEDIATE DUTY.
- SUSPENDED ACOUSTICAL PANEL CEILING, WITH SUSPENSION SYSTEM, INTERMEDIATE DUTY. WASHABLE VINYL FACED PANELS.
- SUSPENDED ACOUSTICAL PANEL CEILING, WITH SUSPENSION SYSTEM, INTERMEDIATE DUTY. IMPACT RESISTANT PANELS.
- SUSPENDED ACOUSTICAL PANEL CEILING, WITH SUSPENSION SYSTEM, INTERMEDIATE DUTY. METAL PANELS.
- EXTERIOR METAL SOFFIT SYSTEM. REFER TO WALL SECTIONS FOR FRAMING DETAILS.

Keyed Plan



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1	Addendum 1	04/01/2022

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Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
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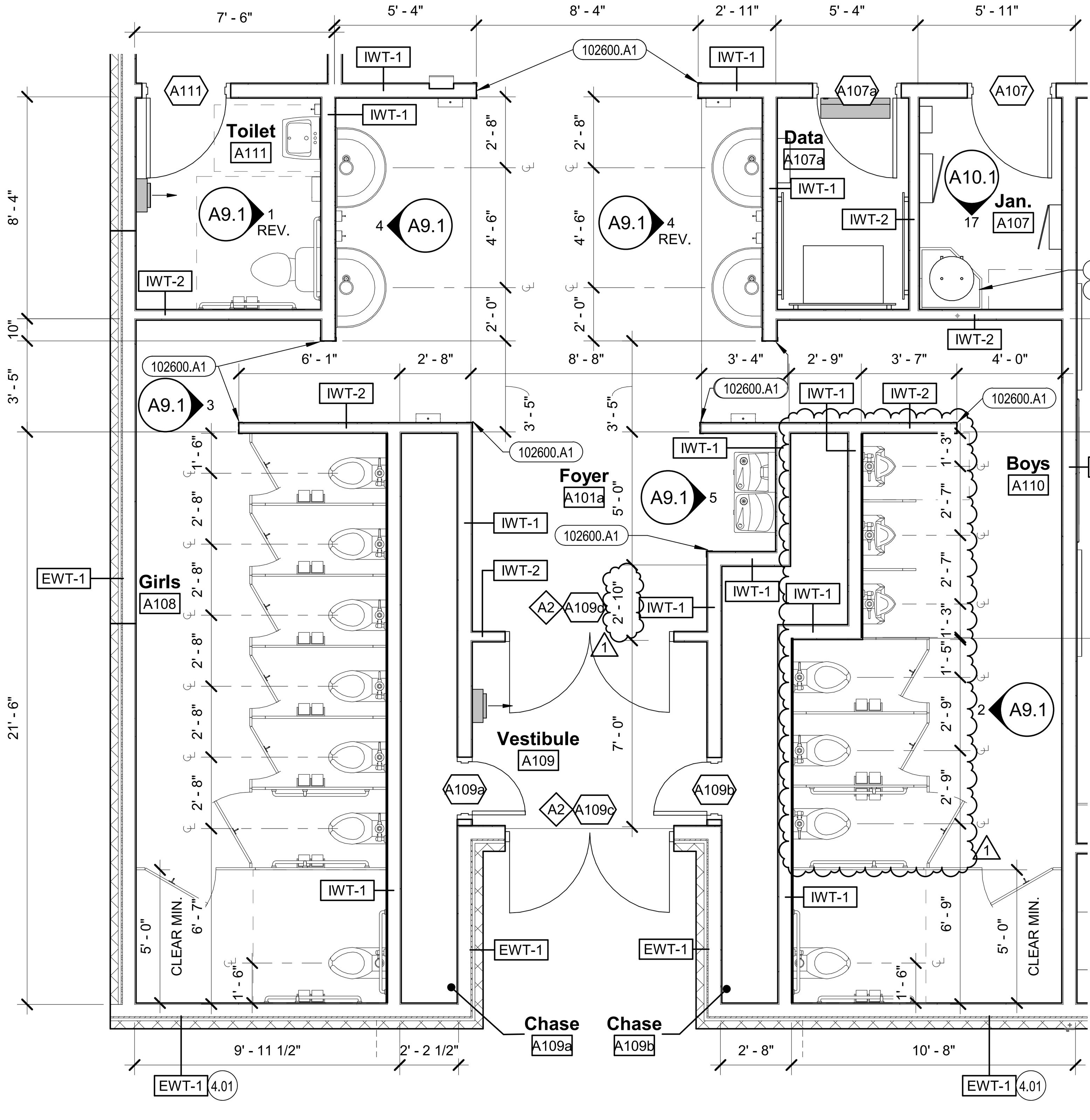
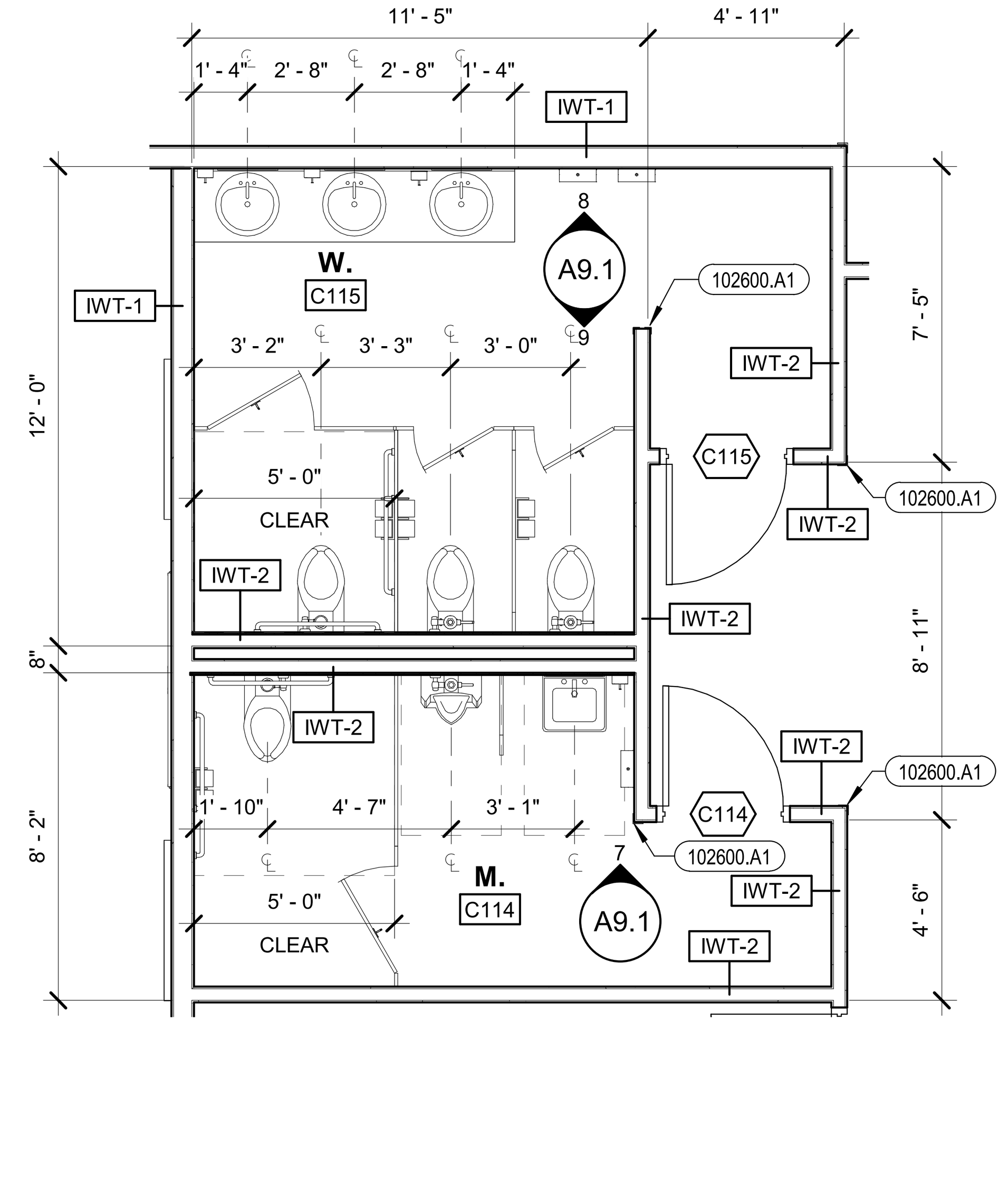
DRAWN BY: Author
CHECKED BY: Checker

BID SET

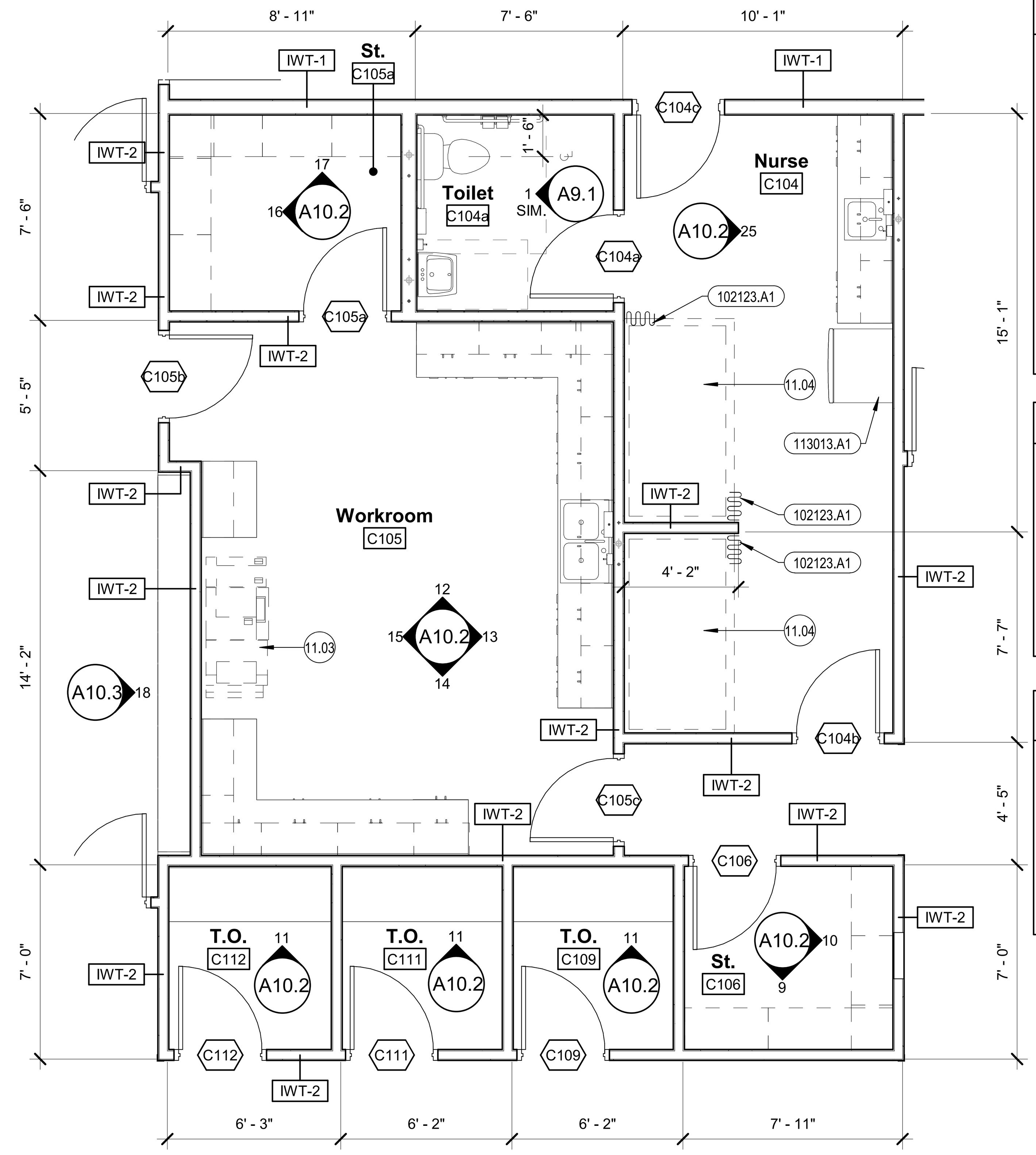
DRAWING NO.:
A3.9
FLOOR/CEILING PLAN - ADD ALTERNATE 1



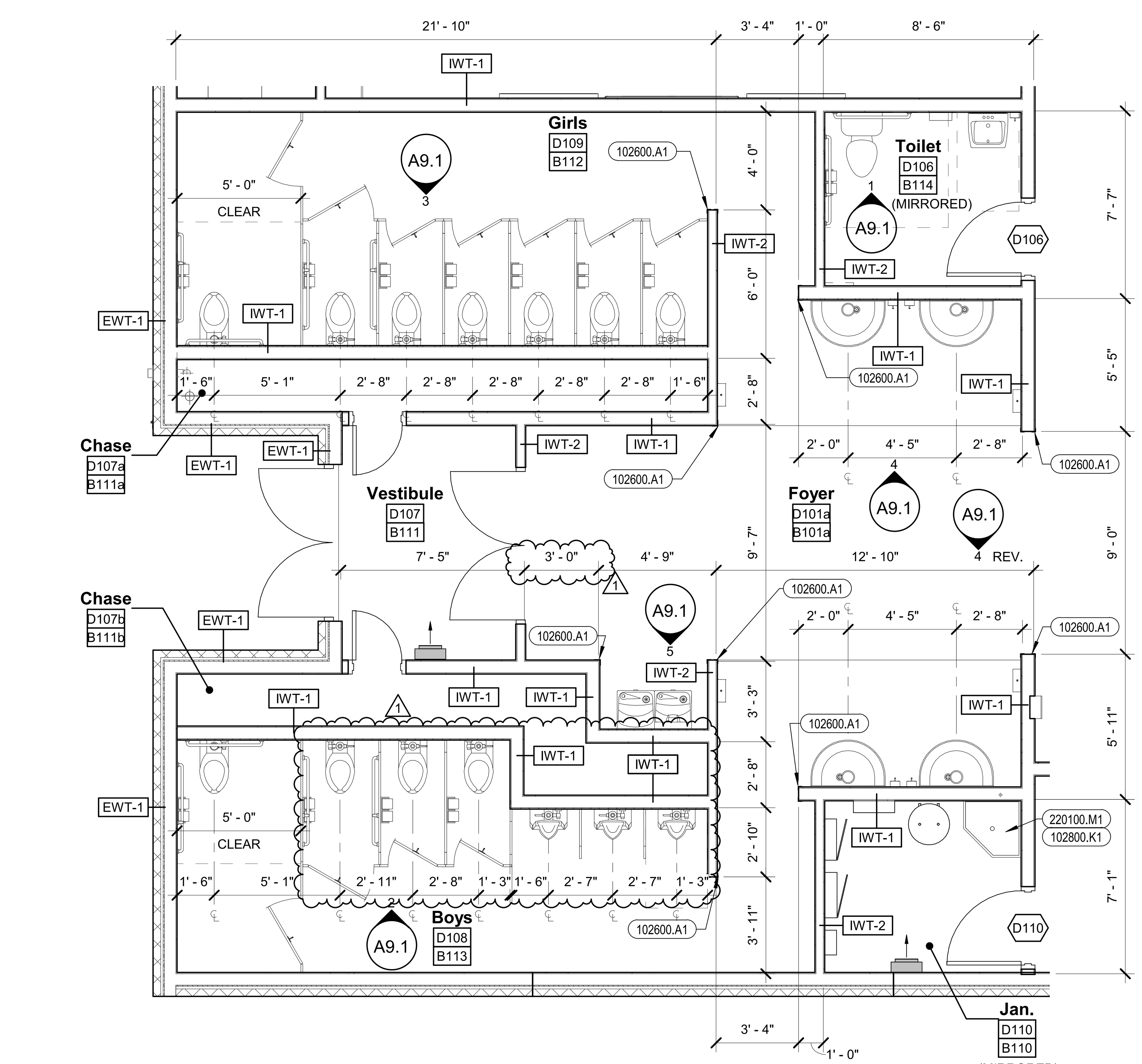
1 ENLARGED FLOOR PLAN - RESTROOMS AREA A
1/4" = 1'-0"



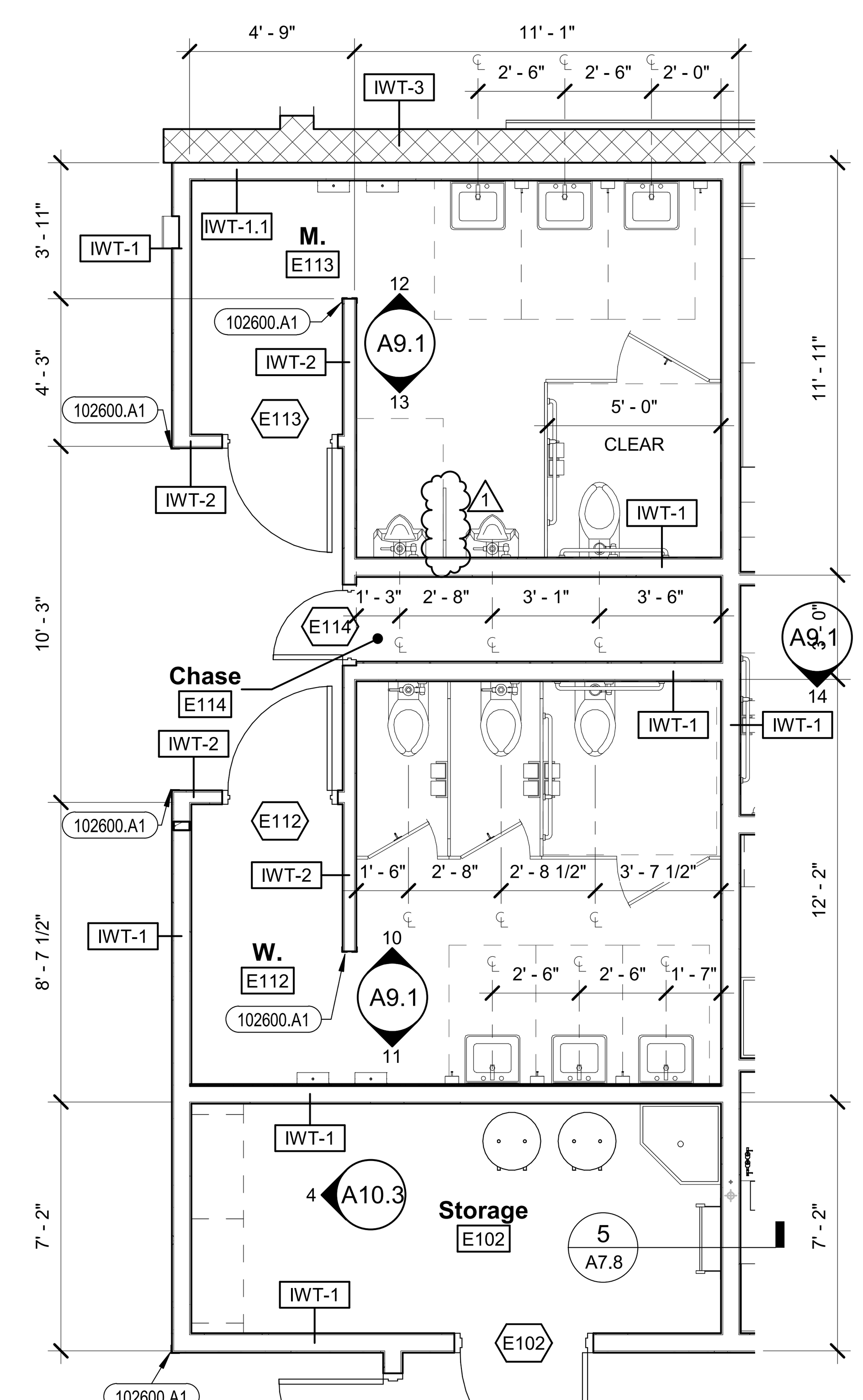
2 ENLARGED FLOOR PLAN - ADMIN RESTROOMS
1/4" = 1'-0"



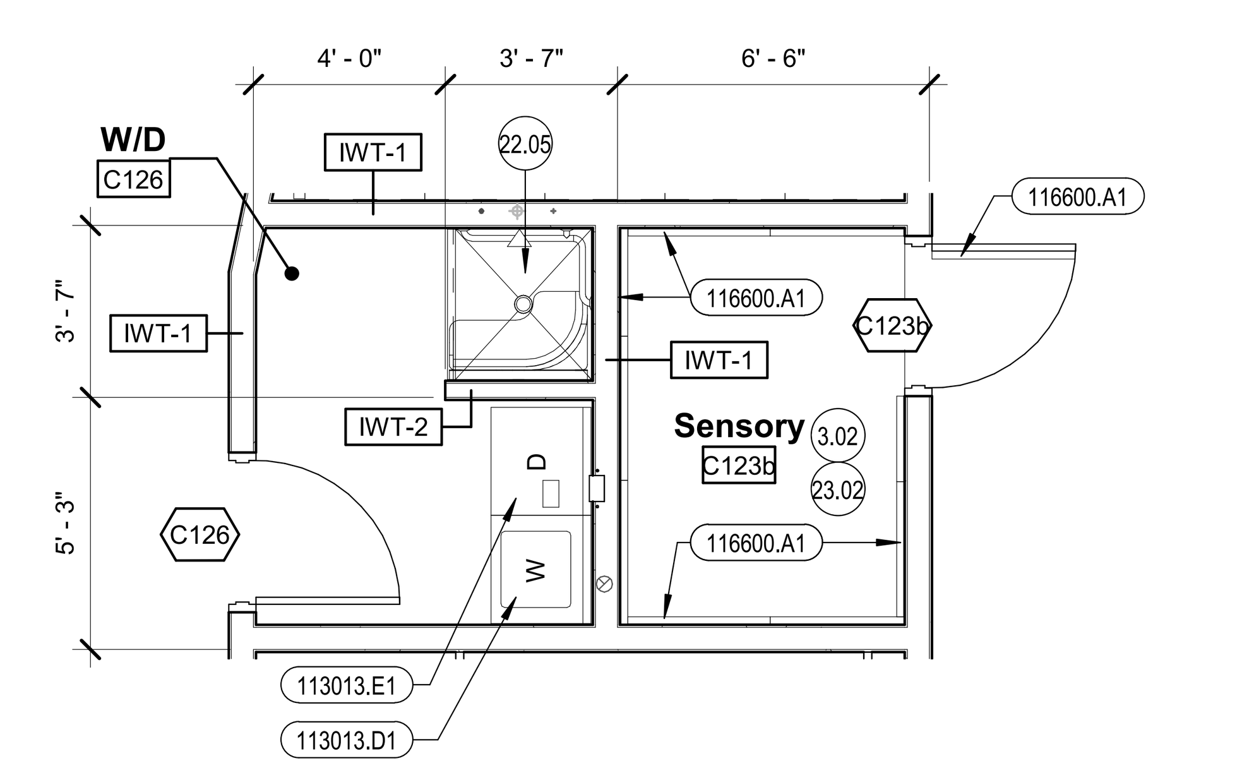
3 ENLARGED FLOOR PLAN - NURSE
1/4" = 1'-0"



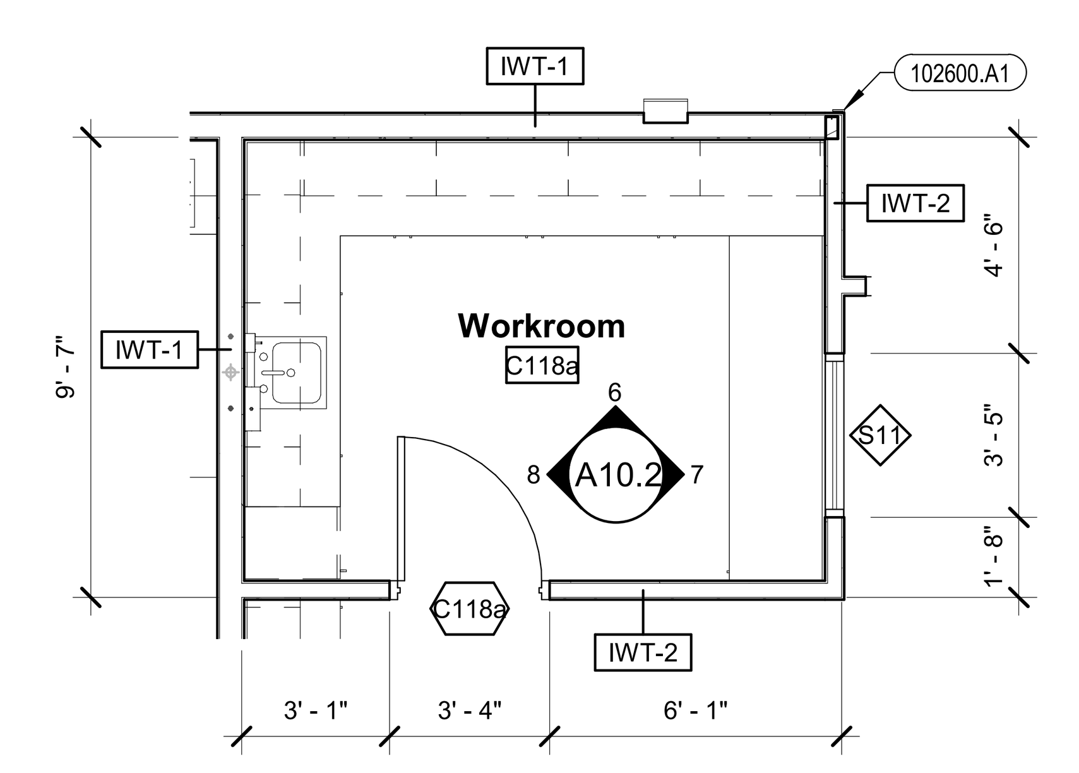
4 ENLARGED FLOOR PLAN - RESTROOMS
1/4" = 1'-0"



5 ENLARGED FLOOR PLAN - CAFETERIA RESTROOMS
1/4" = 1'-0"



6 ENLARGED FLOOR PLAN - W/D C126
1/4" = 1'-0"



7 ENLARGED FLOOR PLAN - LIBRARY WORKROOM
1/4" = 1'-0"

General Notes

1. EXTERIOR DIMENSIONS ARE TO OUTSIDE FACE OF FINISH, UNLESS NOTED OTHERWISE.
2. INTERIOR DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
3. SEE SHEET A1.1 FOR CODE COMPLIANCE FLOOR PLAN AND BUILDING CODE COMPLIANCE SUMMARY.
4. SEE SHEET A3.8 FOR TYPICAL CLASSROOMS, TACKBOARD, AND MARKERBOARD SIZES AND LAYOUTS.
5. SEE SHEET A4.1 FOR ROOM FINISH SCHEDULE.
6. SEE SHEET A4.2 FOR DOOR SCHEDULE AND DOOR TYPES AND SHEETS A4.2, A4.3, AND A4.4 FOR WINDOWS AND FRAME TYPES.
7. FURNISH AND INSTALL INTERIOR SIGNS AT ALL INTERIOR DOORS AND AT OTHER LOCATIONS UP TO SPECIFIED LIMITS. SEE SPECIFICATIONS.
8. FURNISH AND INSTALL WINDOW BLINDS.
9. SEE SHEET A1.2 FOR SPECIALTY MOUNTING HEIGHTS.
10. SEE SHEET A8.1 FOR WALL TYPES.

Reference Notes

3.02	RECESSED SLAB. SEE STRUCTURAL DRAWINGS.
4.01	SEE EXTERIOR ELEVATIONS FOR MATERIAL CHANGES.
11.03	COPY MACHINE, O.F.O.I.
11.04	NURSE BED(S), O.F.O.I.
22.05	SHOWER ASSEMBLY WITH COLLAPSIBLE THRESHHOLD. SEE PLUMBING DOCUMENTS.
23.02	ROOM TO BE EQUIPPED WITH EXHAUST FAN, FIRE HORN, AND SPRINKLER HEAD.

Keyed Notes

102123.A1	CUBICLE CURTAIN
102600.A1	CORNER GUARD, 90 DEGREE, 4'-0"
102800.K1	MOP HOOK.
113013.A1	REFRIGERATOR
113013.D1	WASHER
113013.E1	DRYER
116600.A1	SAFETY WALL PADS
220100.M1	MOP SINK

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LICENSED ARCHITECT BROOK THORNTON AR-985153 02/11/2022 STATE OF IDAHO

Revisions

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1	Addendum 1	04/01/2022

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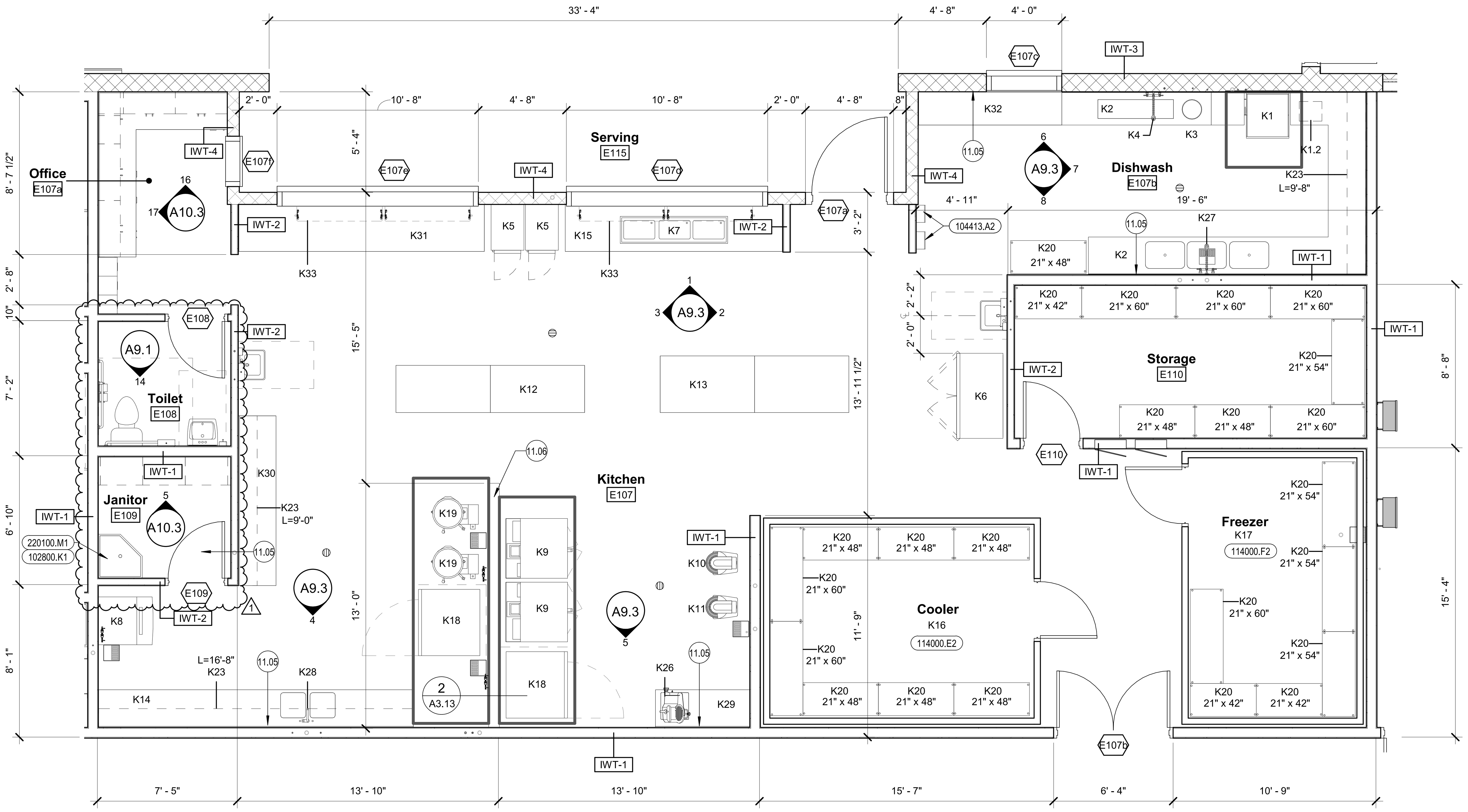
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: KB
CHECKED BY: BT

BID SET

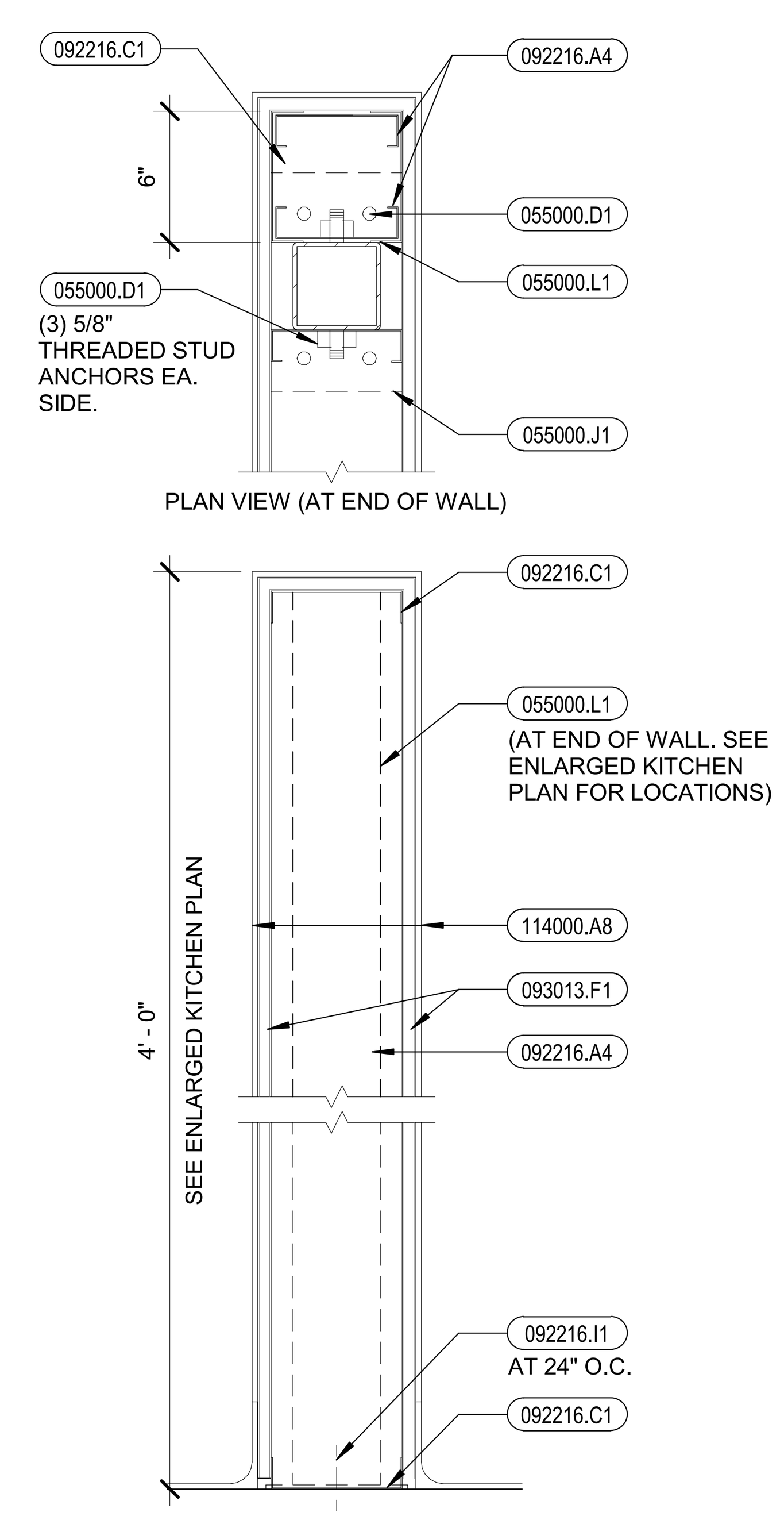
DRAWING NO.:
A3.12
ENLARGED FLOOR PLANS



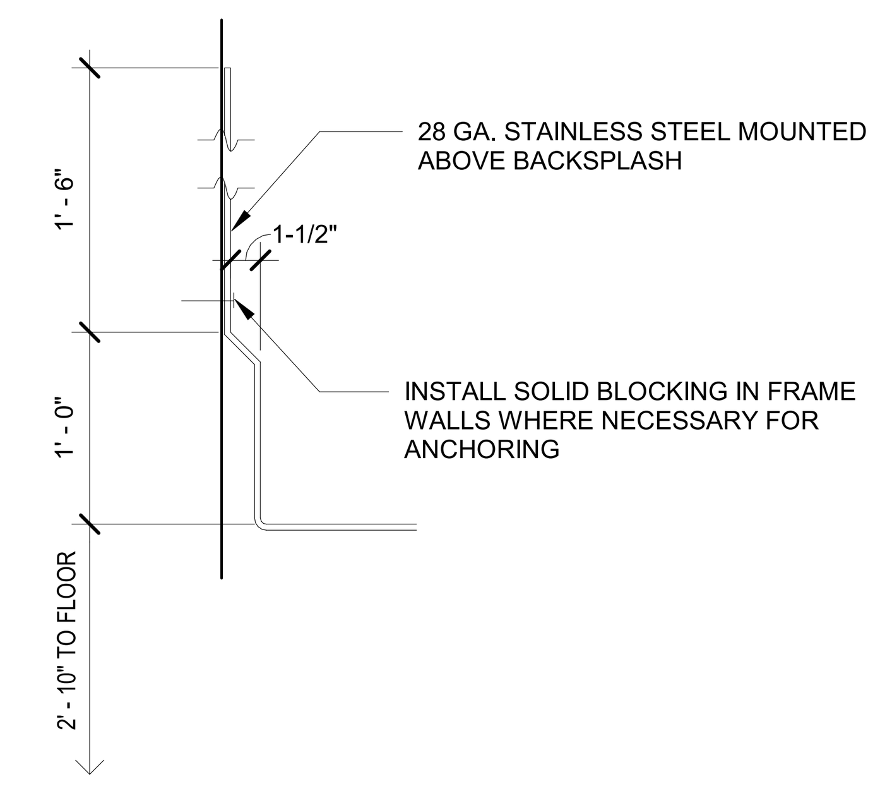
① ENLARGED FLOOR PLAN - KITCHEN
1/4" = 1'-0"

KITCHEN EQUIPMENT SCHEDULE

ITEM #	QTY.	DESCRIPTION OF NEW EQUIPMENT	MANUFACTURER / MODEL	PLUMBING CONNECTIONS COLD	HOT	WASTE	VENT	ELECTRICAL CONNECTIONS	REMARKS
K1	1	DISHWASHER	'HOBART' AM-16T-BAS	3/4"	2"	1 1/2"		208v / 60 / 3ph , 1 hp / 5 KW HEATER	(2) 30 AMP BREAKERS
K1.2	1	BOOSTER HEATER	'HATCO' C-15		3/4"	3/4"		208V / 60 / 3-PHASE, 15 KW	
K2	1	DISHTABLE WITH TROUGH AND TRIPLE SINK	CUSTOM FABRICATED REFER TO DETAILS						14 GA STAINLESS STELL TOP, COVE, ALL VERT. TO HORIZ INTERSECTIONS, RADIU ALL BENDS, SHELF UNDER, SIM.
K3	1	GARBAGE DISPOSER	'HOBART' FD4/150	1/2"		2"		1 1/2 hp, 208/240 v, 8 amps	PROVIDE GROUP B ACCESSORIES AND 18" CONE SINK WITH WATER SWIRL.
K4	1	PRE-RINSE UNIT	'T&S' BRASS & BRONZE B-0133-B WITH B-0155 W/ SWING NOZZLE SIZED TO SINKS	1/2"	1/2"				PROVIDE W/ B109 WALL BRACKET AND HANDWASH FAUCET
K5	2	HOT FOOD CABINET	METRO C539-CDC					120v, 16a, 60H2	DUTCH DOORS, INSULATED, HOLDING AND PROOFING
K6	1	REACH-IN REFRIGERATOR	BEVERAGE-AIR HRS2HC-1G						DOUBLE DOORS, GLASS DOOR
K7	1	STEAM DROP IN	ADVANCE TABCO SLIMLINE DISLS-3-240-M					208/240v, 14 AMPS, 3300 WATTS	RECESS PANS 1/2", BOTH STEAM AND DRY HEAT. OPEN SHELVING, ON CASTERS
K8	1	ICE MAKER / ICE BIN	AVANTCO ICE KMC-350-B2F	3/4"				1 PHASE / 60 / 12 AMPS / 115 VOLTS	
K9	2	DBL. STACK CONVECTION OVEN (ELECTRIC)	VULCAN VC44GD					SEE ELECTRICAL	PROVIDE WITH CASTORS.
K10	1	MIXER, 40 QT.	'HOBART' HL300					3/4 HP / 230v / 50 / 1	PROVIDE WITH ACCESSORY PACKAGE.
K11	1	MIXER, 60 QT.	'HOBART' HL600					3/4 HP / 230v / 50 / 1	PROVIDE WITH ACCESSORY PACKAGE.
K12	2	S.S. TABLE	'DUKE' 416-2460						(2) TIERS OF (3) 'DUKE' 185 DRAWERS
K13	2	S.S. TABLE	'DUKE' 416-2460						(2) TIERS OF (3) 'DUKE' 185 DRAWERS
K14	1	S.S. TABLE W/ (2) SINKS 24" x 22"	CUSTOM FABRICATED REFER TO DETAILS	1/4"	1/4"	1 1/2"	1 1/2"		PROVIDE 'DUKE' 314659 DRAIN AT ALL SINKS. REFER TO MECHANICAL FOR PIPING SIZES AND LOCATIONS. PROVIDE DRAIN BOARD AND (3) DUKE 185 DRAWERS.
K15	1	SERVICE COUNTER	CUSTOM FABRICATED REFER TO DETAILS	1/4"	1/4"	1 1/2"	1 1/2"		INSTALL K7
K16	1	WALK - IN COOLER	KOLPACK 4" PANELS			3/4"		208v / 60 / 3ph 19.6 AMPS 2 1/2 HP	REFER TO KITCHEN EQUIPMENT NOTES.
K17	1	WALK - IN FREEZER	KOLPACK 4" PANELS						REFER TO KITCHEN EQUIPMENT NOTES.
K18	2	SINGLE STACK COMBI OVEN (GAS)	RATIONAL ICOMBI PRO 20 -1/1 GAS	3/4"		3/4"		SEE ELECTRICAL	GAS CONNECTION 3/4" NPT
K19	2	STEAM KETTLE	'CLEVELAND' KGT-12-T	1/2"	1/2"	1/2"		SEE ELECTRICAL	2" TANGENT DRAW OFF VALVE WITH DRAIN STRAINER. HOT AND COLD WATER FAUCET WITH SWING SPOUT AND MOUNING BRACKET. KETTLE ACCESSORY KIT AND SPRING ASSISTED COVER AND COOKING BASKETS W/ ST28 EQUIPMENT STAND.
K20	23	WIRE SHELVING UNIT (SIZE VARIES)	'METRO' SUPER ERECTA						4 TIER, EPOXY COATED, MICROBAN PROTECTION, AND ALUMINUM SPLIT SLEEVES FOR COOLER / FREEZER SHELVING 21" DEEP X LENGTH INDICATED
K23	3	WIRE SHELVING UNIT, WALL MOUNTED	'UNIVERSAL' STAINLESS						12" DEEP X LENGTH INDICATED
K26	1	FOOD SLICER (TABLE TOP)							
K27	1	PRE-RINSE UNIT	'T&S' BRASS & BRONZE B-0133-B WITH B-0155 W/ SWING NOZZLE SIZED TO SINKS	1/2"	1/2"				PROVIDE W/ B109 WALL BRACKET AND HANDWASH FAUCET
K28	1	DOUBLE SINK MIXING FAUCET	'T&S' B-0221	1/2"	1/2"				DECK MOUNTED
K29	1	S.S. TABLE	CUSTOM FABRICATED REFER TO DETAILS						REFER TO PLUMBING FOR PIPING SIZES AND DRAINS.
K30	1	S.S. TABLE	CUSTOM FABRICATED REFER TO DETAILS						
K31	1	SERVICE COUNTER	CUSTOM FABRICATED REFER TO DETAILS						
K32	1	S.S. DISHTABLE	CUSTOM FABRICATED REFER TO DETAILS						REFER TO PLUMBING FOR PIPING SIZES AND DRAINS.
K33	2	SNEEZE GUARD - CEILING MOUNTED	'BSI' ZG9500-5 EZ SPAN						



② KITCHEN WALL
1 1/2" = 1'-0"



③ BACKSPLASH DETAIL
1/4" = 1'-0"

Kitchen Equipment Notes

1. ALL SHOP AND FIELD JOINTS IN STAINLESS STEEL. TOPS OF DISHTABLE K2, K15, K14, K29, K30, K31, AND SERVING COUNTER(S) K15 AND K31 SHALL BE CONTINUOUSLY WELDED WITH STAINLESS STEEL ROD AND GROUND SMOOTH TO FORM SEAMLESS TOP.
2. MECHANICAL CONTRACTOR SHALL RUN SUPPLY, WASTE, AND VENT PIPING TO AND SHALL MAKE CONNECTIONS TO ALL ITEMS OF KITCHEN EQUIPMENT.
3. ELECTRICAL CONTRACTOR SHALL RUN CONDUIT AND CONDUCTORS TO AND SHALL PROVIDE J-BOXES, OUTLETS, BREAKERS, ETC. FOR ALL ITEMS OF KITCHEN EQUIPMENT.
4. KITCHEN EQUIPMENT CONTRACTOR SHALL PROVIDE AND PLUMBING CONTRACTOR SHALL INSTALL ALL FAUCETS, DRAINS, TRAPS, STRAINERS, ETC. FOR SINKS IN KITCHEN EQUIPMENT K14 AND K2.
5. ALL KITCHEN EQUIPMENT SHALL BE NSF APPROVED. ITEMS K2, K14, K15, K29, K30, K31 SHALL BE CONSTRUCTED IN ACCORDANCE WITH NSG STANDARDS.
6. CONDENSING UNITS FOR ITEMS K16 AND K17 SHALL BE LOCATED ON THE ROOF. REFER TO MECHANICAL AND ROOF PLAN. EACH CONDENSING UNIT SHALL BE PROVIDED WITH MANUFACTURER'S STANDARD.
   A. WEATHERPROOF OF CONTROLS
   B. PUMP DOWN CYCLE
   C. HEAD PRESSURE CONTROL VALVE
   D. CRANKCASE HEATER
   E. CURBS FOR ROOF MOUNTED INSTALLATION (CURBS SHOULD ACCOUNT FOR DEPTH OF INSULATION).
   F. PROTECTED STEEL COVER.
7. PREFABRICATED COOLER / FREEZER PANELS TO MEET REQUIREMENTS OF INTERNATIONAL BUILDING CODE.
8. ITEMS K16 AND K17 SHALL MEET THE FOLLOWING CRITERIA
   A. SIZES SHALL BE SHOWN ON THE DRAWINGS AND HEIGHT SHALL BE 8'-6" CLEAR INSIDE
   B. WALLS SHALL BE 4" THICK R34. ROOF (CEILING) PANELS SHALL MATCH WALL PANELS. FINISH OF PANELS SHALL BE:
      a. OUTSIDE - 26 GA. EMBOSSED GALVANIZED STEEL WITH BAKED ON POLYESTER ENAMEL.
      b. INSIDE - 0.032" EMBOSSED ALUMINUM.
   C. FLOOR SHALL BE RECESSED TO ACCOMMODATE INSULATED FLOOR PANELS. FLOOR PANELS SHALL HAVE A SPRAYED NON-SLIP EPOXY FLOOR FINISH. 1" OSB SUBFLOOR BACKING. THICKNESS OF FLOOR PANELS SHALL BE 3".
   D. DOORS SHALL BE STANDARD IN FITTING OVER LAP TYPE 36" X 80".
   E. PROVIDE ALL ACCESSORIES AND COMPONENTS AS REQUIRED FOR COMPLETE AND OPERATIONAL COOLER / FREEZER INSTALLATION, MEETING ALL APPLICABLE CODES, REGULATIONS, AND STANDARDS.
   F. ENCLOSURES SHALL BE LISTED BY THE NATIONAL SANITATION FOUNDATION (N.S.F.) STANDARD #7 AND SHALL BEAR THE N.S.F. SEAL OF APPROVAL
   G. PROVIDE 26 GA. STAINLESS STEEL CLOSURE STRIP AT TOP OF FREEZER / COOLER UNITS TO TERMINATE AT SUSPENDED CEILING.
   H. PROVIDE A SINGLE WALL PANEL BETWEEN THE FREEZER AND COOLER UNITS.
   I. GROUT BETWEEN FLOOR SLAB AND COOLER / FREEZER UNIT PER MANUFACTURER SPECS.

General Notes

1. EXTERIOR DIMENSIONS ARE TO OUTSIDE FACE OF FINISH, UNLESS NOTED OTHERWISE.
2. INTERIOR DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
3. SEE SHEET A1.1 FOR CODE COMPLIANCE FLOOR PLAN AND BUILDING CODE COMPLIANCE SUMMARY.
4. SEE SHEET A3.8 FOR TYPICAL CLASSROOMS, TACKBOARD, AND MARKERBOARD SIZES AND LAYOUTS.
5. SEE SHEET A4.1 FOR ROOM FINISH SCHEDULE.
6. SEE SHEET A4.2 FOR DOOR SCHEDULE AND DOOR TYPES AND SHEETS A4.2, A4.3, AND A4.4 FOR WINDOWS AND FRAME TYPES.
7. FURNISH AND INSTALL INTERIOR SIGNS AT ALL INTERIOR DOORS AND AT OTHER LOCATIONS UP TO SPECIFIED LIMITS. SEE SPECIFICATIONS.
8. FURNISH AND INSTALL WINDOW BLINDS.
9. SEE SHEET A1.2 FOR SPECIALTY MOUNTING HEIGHTS.
10. SEE SHEET A8.1 FOR WALL TYPES.

Reference Notes

11.05	STAINLESS STEEL BACKSPLASH DETAIL. SEE DETAIL 3 / A3.13
11.06	STAINLESS STEEL WALL CLADDING OVER CEMENTITIOUS BACKER UNIT. SEE DETAIL 2 / A3.13

Keyed Notes

055000.D1	BOLT(S)
055000.J1	STEEL PLATE
055000.L1	STEEL TUBE
092216.A4	STEEL STUD(S) 6" 20 GA. @ 16" O.C. U.N.O.
092216.C1	STEEL STUD TRACK, SAME WIDTH AND GUAGE AS STUDS U.N.O.
092216.I1	POWER DRIVEN ANCHOR(S)
093013.F1	CEMENTITIOUS BACKER UNITS, 5/8"
102800.K1	MOP HOOK.
104413.A2	FIRE EXTINGUISHER CABINET, SURFACED MOUNTED
114000.A8	16 GA. STAINLESS STEEL CLADDING
114000.E2	REFRIGERATOR (WALK-IN)
114000.F2	FREEZER (WALK-IN)
220100.M1	MOP SINK

LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

LICENSED ARCHITECT BROOK THORNTON AR-985153 02/11/2022 STATE OF IDAHO

Revisions

#	Description	Date
1	Addendum 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

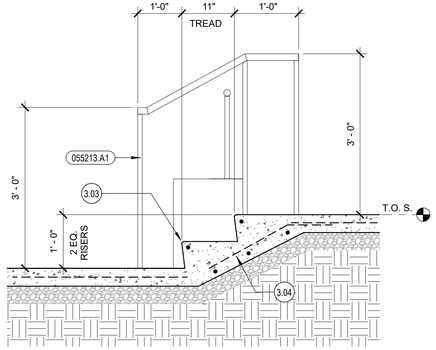
DRAWN BY: KB
CHECKED BY: BT

BID SET

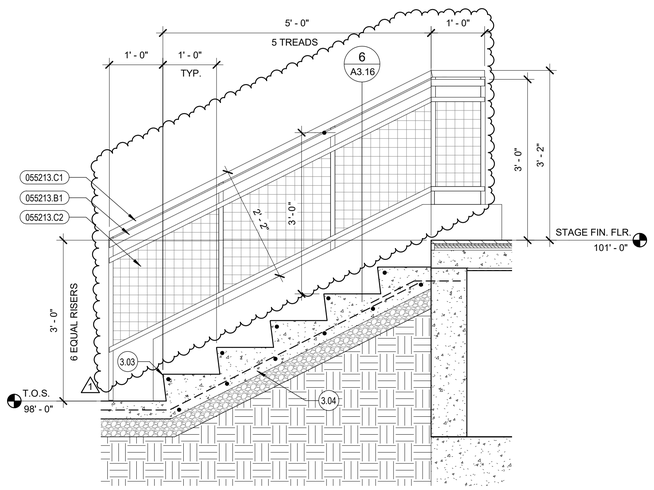
DRAWING NO.:

A3.13

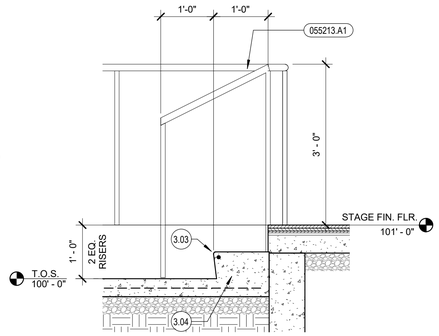
ENLARGED FLOOR PLAN – KITCHEN



1 CAFETERIA STAIR SECTION
3/4" = 1'-0"



2 STAGE STAIRS
3/4" = 1'-0"



3 STAGE STAIRS
3/4" = 1'-0"

4 Detail 7
3/4" = 1'-0"

5 STAGE STAIR DETAIL
3/4" = 1'-0"

6 RAILING SECTION
1 1/2" = 1'-0"

General Notes

Reference Notes

3.01	3/4" CHAMFER
3.03	3/4" RADIUS NOSING
3.04	SEE STRUCTURAL FOR CONCRETE STAIR CONSTRUCTION.
5.27	
5.28	

Keyed Notes

033000.C1	CONCRETE FLOOR SLAB ON GRADE, 4" U.N.O.
055213.A1	STEEL PIPE / TUBE GUARDRAIL, MIN. OUTSIDE DIA. 1 1/2"
055213.B1	STEEL PIPE HANDRAIL, MIN. OUTSIDE DIA. 1 1/2"
055213.C1	STEEL TUBE POST / RAIL
055213.C2	2X2 WIRE MESH.

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Boise, Idaho 83706
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1	Addendum 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

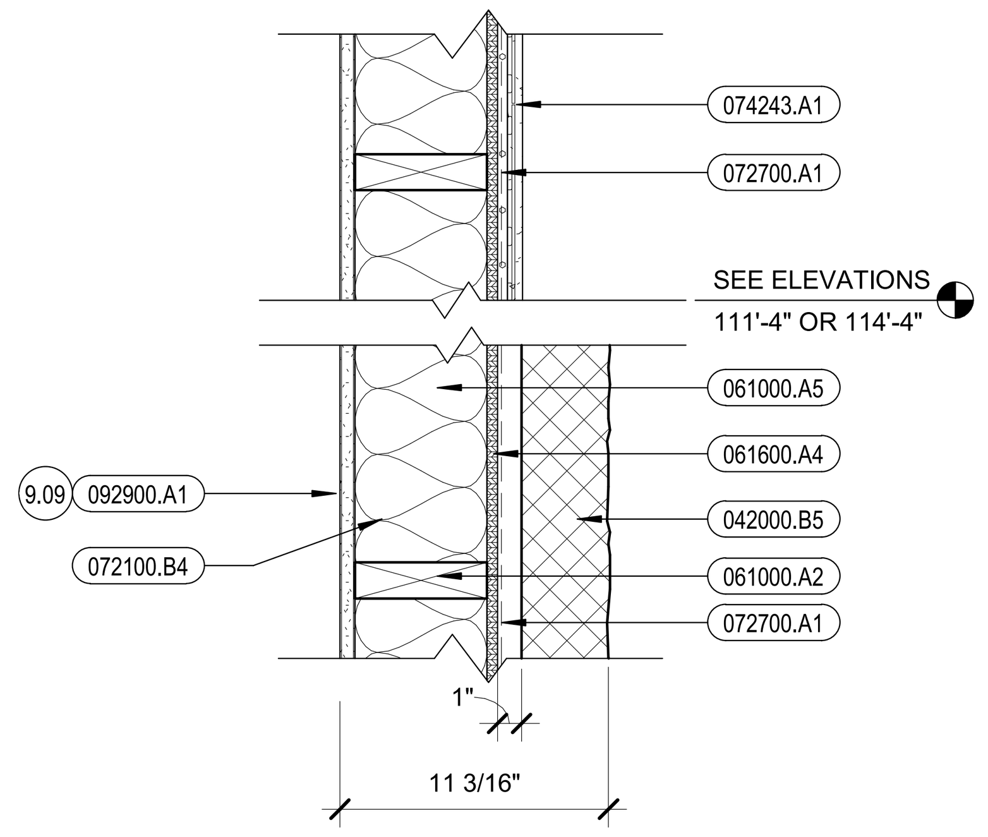
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: Author
CHECKED BY: Checker

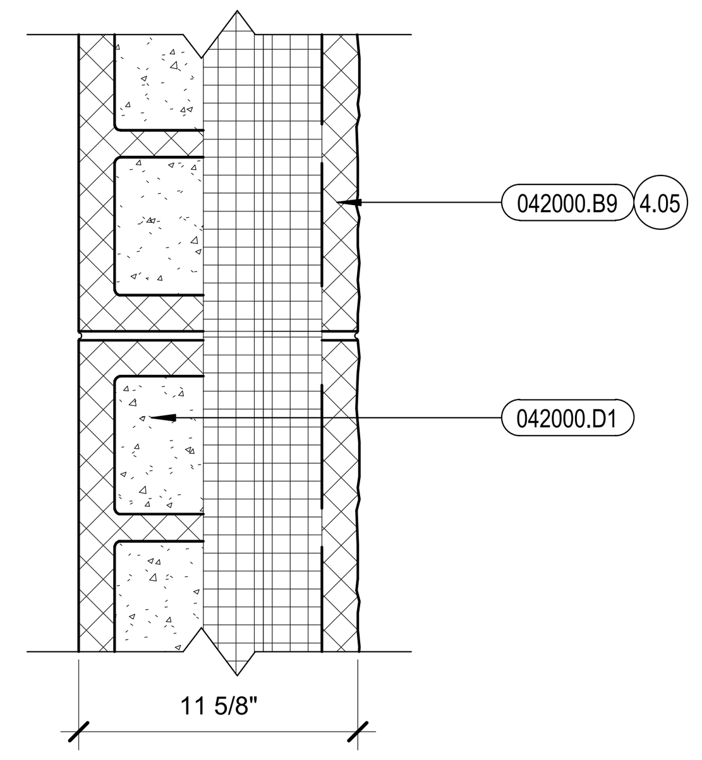
BID SET

DRAWING NO.:

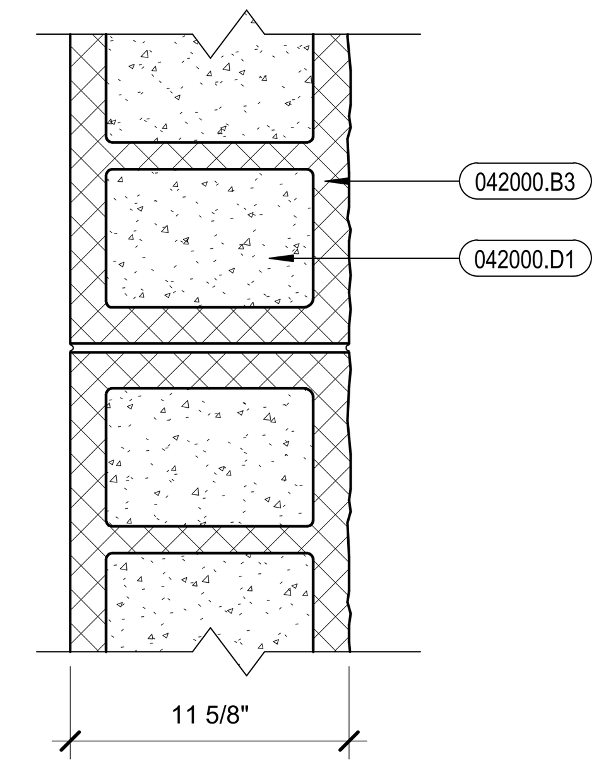
A3.16
STAIR SECTIONS



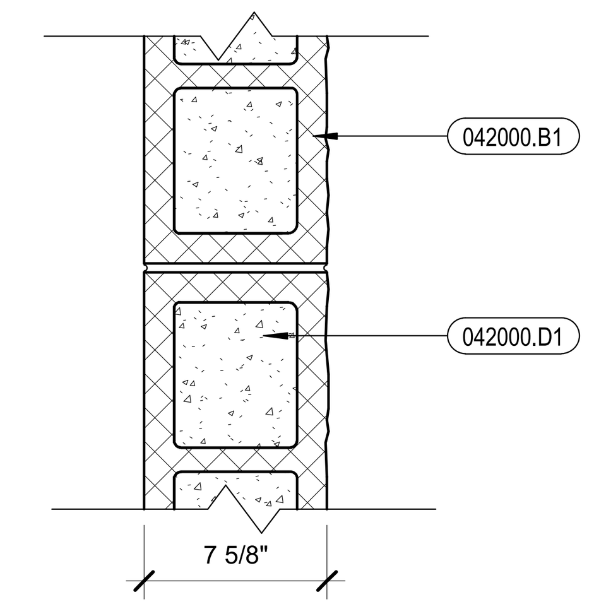
1 EWT-1
1 1/2" = 1'-0"



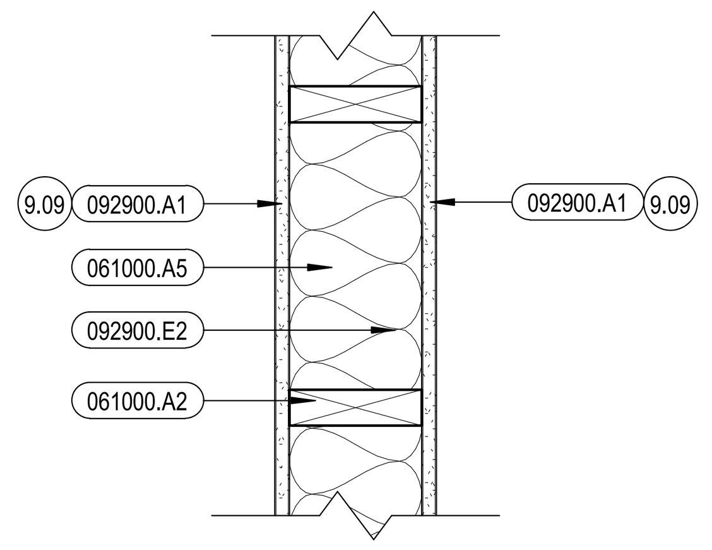
2 EWT-2
1 1/2" = 1'-0"



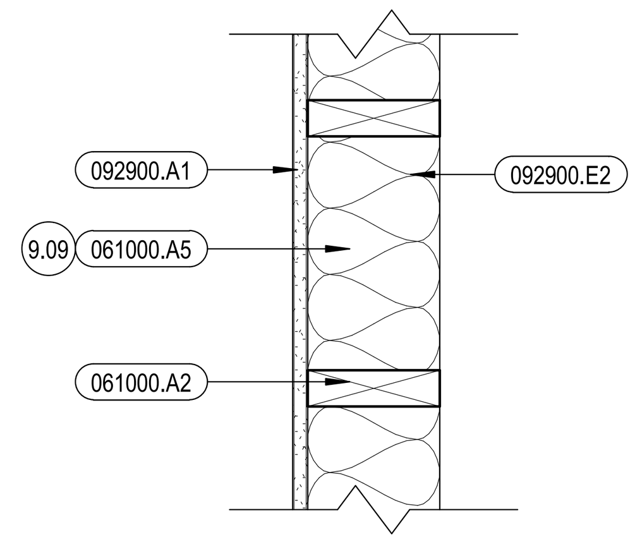
3 EWT-3
1 1/2" = 1'-0"



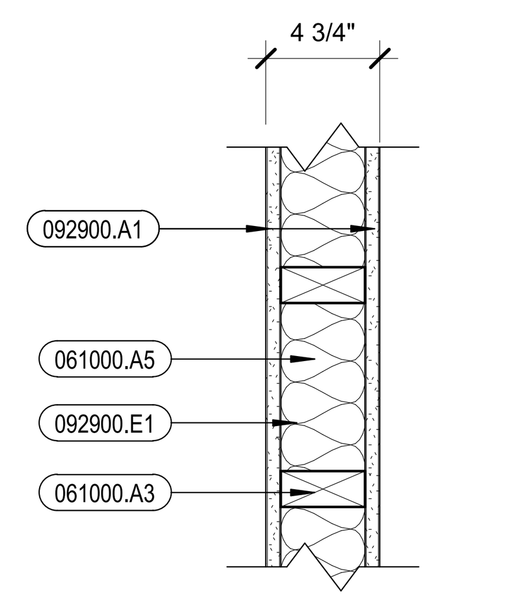
4 EWT-4
1 1/2" = 1'-0"



5 IWT-1
1 1/2" = 1'-0"



6 IWT-1.1
1 1/2" = 1'-0"



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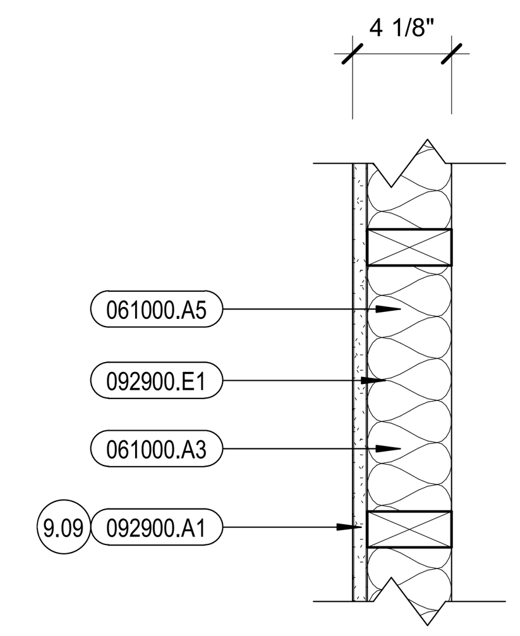
1 1/2" = 1'-0"



8 IWT-2.1
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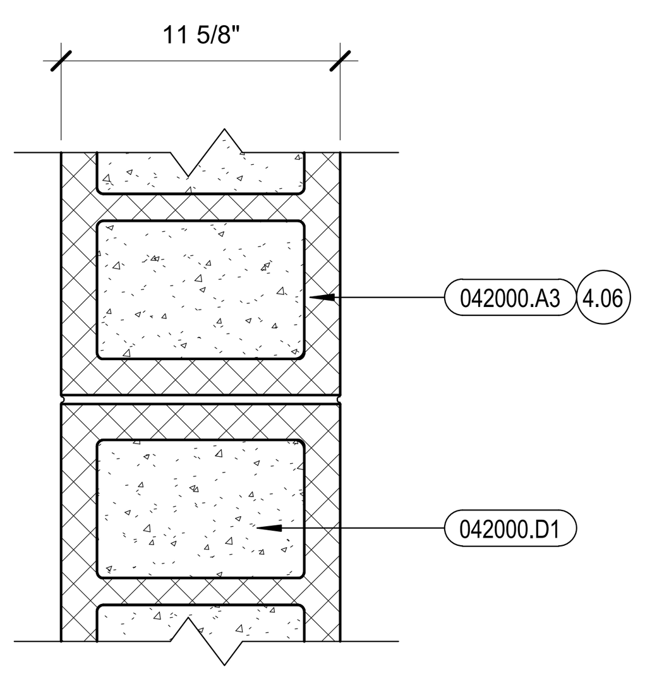
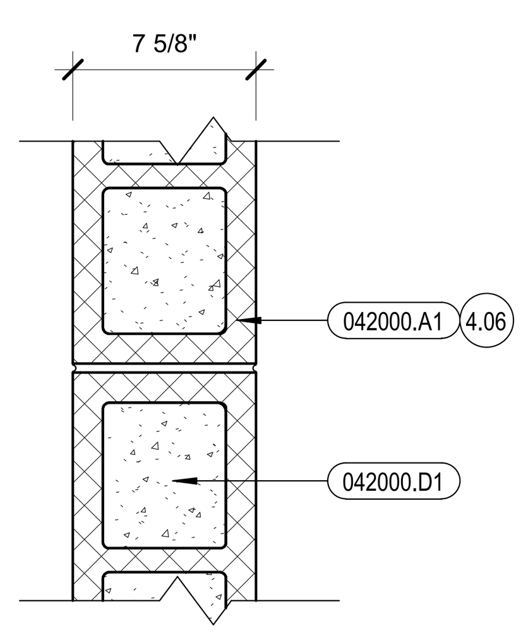
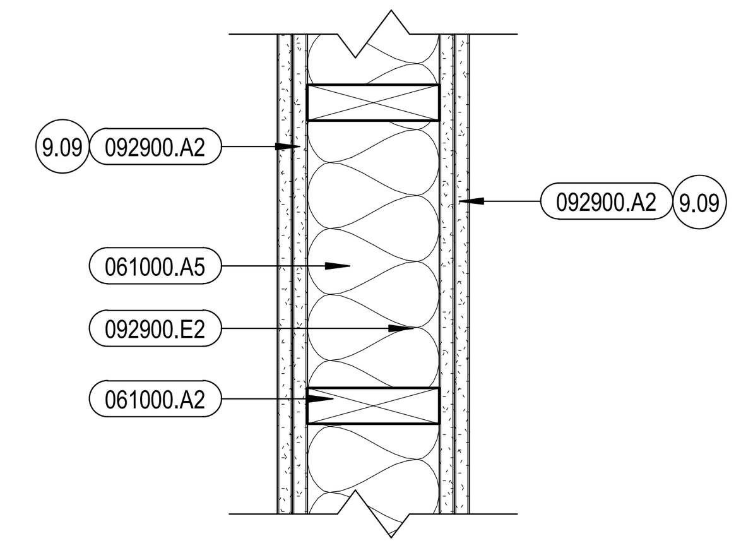


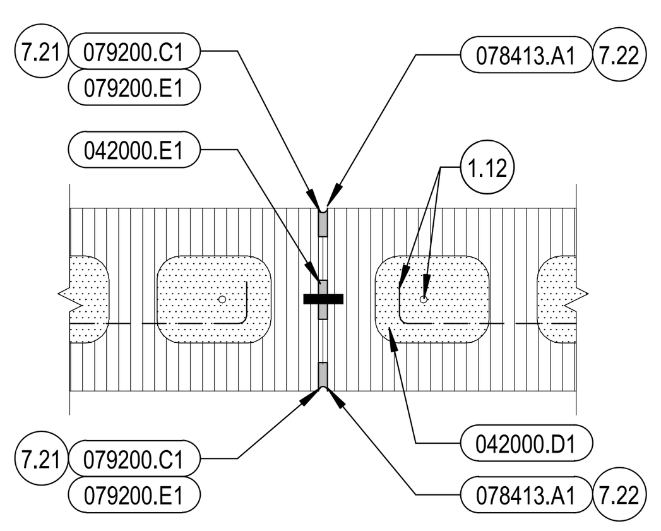
9 IWT-3 - FIREWALL
1 1/2" = 1'-0"



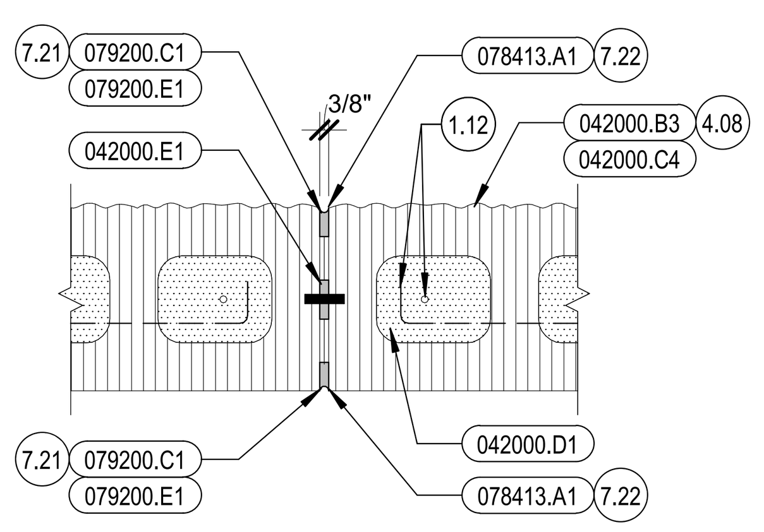
10 IWT-4 - FIREWALL
1 1/2" = 1'-0"



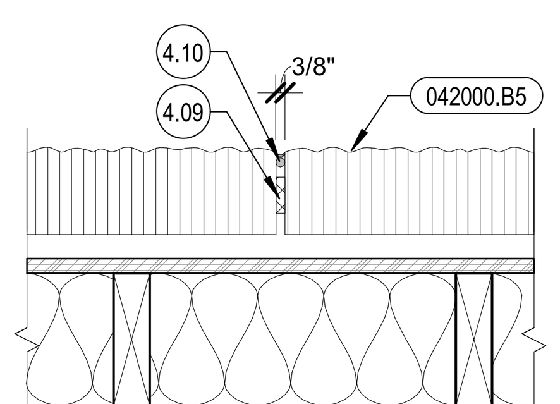
11 IWT-5 - FIREWALL
1 1/2" = 1'-0"



INTERIOR CMU CONTROL JOINT



EXTERIOR CMU CONTROL JOINT



CMU VENEER CONTROL JOINT

12 CMU CONTROL JOINT
1 1/2" = 1'-0"

General Notes

1. PROVIDE 2x FIRE BLOCKING IN ALL WALL ASSEMBLIES (EXCEPT SHAFT WALL ASSEMBLIES) IN ACCORDANCE WITH IBC REQUIREMENTS.
2. PROVIDE 2x SOLID F.R.T. BLOCKING AT ALL WALL MOUNTED ITEMS INCLUDING BUT NOT LIMITED TO WHITE BOARDS, TACK BOARDS, AND MILLWORK. COORDINATE LOCATIONS WITH FLOOR PLANS AND INTERIOR ELEVATIONS.
3. SEE STRUCTURAL DRAWINGS FOR FULL EXTENT OF SHEAR WALL REQUIREMENTS.
4. SEE STRUCTURAL DRAWINGS FOR STRUCTURAL CMU BLOCK LOCATIONS.
5. FURNISH AND INSTALL THROUGH-PENETRATION FIRESTOP SYSTEMS IN 2 HOUR FIREWALL IN ACCORDANCE WITH LISTED U.L. ASSEMBLIES AND WITH SPECIFICATION SECTION 078413, PENETRATION FIRE STOPPING.
6. AT SLOPED ROOF AREAS, RUN INTERIOR WALL FULL HEIGHT TO UNDERSIDE OF DECK. TYP U.N.O.
7. ABUSE RESISTANT GYPSUM BOARD UP TO 4'-0" A.F.F. AT ALL HALLWAYS, COORIDORS, ALCOVES, AND VESTIBULES. ABUSE RESISTANT GYPSUM BOARD FULL HEIGHT IN RESTROOMS.

Reference Notes

1.12	SEE STRUCTURAL DRAWINGS.
4.05	REFER TO SECTIONS AND ELEVATIONS FOR COURSE LOCATIONS.
4.06	FIRE WALL - REFER TO CODE SHEET A1.2 FOR ASSEMBLIES.
4.08	SEE WALL SECTIONS AND ELEVATIONS FOR 12X4X16 COURSE LOCATIONS.
4.09	COMPRESSIBLE FILLER.
4.10	SEALANT AND BACKER ROD.
7.21	NON-FIRE RATED WALL CONTROL JOINT.
7.22	FIRE RATED WALL CONTROL JOINT. 'METACAULK'
9.09	PROVIDE ABUSE RESISTANT GYPSUM BOARD WHEN REQUIRED BY ROOM FINISH SCHEDULE.

Keyed Notes

042000.A1	CONCRETE MASONRY UNIT(S) SMOOTH FACE, 8X8X16
042000.A3	CONCRETE MASONRY UNIT(S) SMOOTH FACE, 12X8X16
042000.B1	CONCRETE MASONRY UNIT(S) SPLIT FACE, 8X8X16
042000.B3	CONCRETE MASONRY UNIT(S) SPLIT FACE, 12X8X16
042000.B5	CONCRETE MASONRY UNIT(S) SPLIT FACE, 4X4X16
042000.B9	CONCRETE MASONRY UNIT(S) SPLIT FACE, 12X8X16 (HI-R)
042000.C4	CONCRETE MASONRY UNIT(S) GROUND FACE, 12X4X16
042000.D1	SOLID GROUT
042000.E1	CONTROL JOINT WITH PREFORMED GASKETING
061000.A2	WOOD STUD(S) 2X6 @ 16" O.C., U.N.O.
061000.A3	WOOD STUD(S) 2X4 @ 16" O.C., U.N.O.
061000.A5	2X P.T. WOOD SILL PLATE TO MATCH STUD WIDTH, U.N.O.
061600.A4	WALL SHEATHING, SEE STRUCTURAL DRAWINGS.
072100.B4	THERMAL & ACOUSTICAL FIBER GLASS INSULATION, UNFACED 5 1/2
072700.A1	BUILDING WRAP
074243.A1	FIBER CEMENT SIDING PANELS.
078413.A1	PENETRATION FIRESTOPPING
079200.C1	LATEX JOINT SEALANT
079200.E1	FOAM BACKER ROD
092900.A1	SINGLE LAYER GYPSUM BOARD, 5/8" TYPE "X" U.N.O.
092900.A2	DOUBLE LAYER GYPSUM BOARD, 5/8" TYPE "X" U.N.O.
092900.E1	SOUND ATTENUATION BATT(S) 3 1/2"
092900.E2	SOUND ATTENUATION BATT(S) 5 1/2"

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#	Description	Date
1	Addendum 1	04/01/2022

Revisions

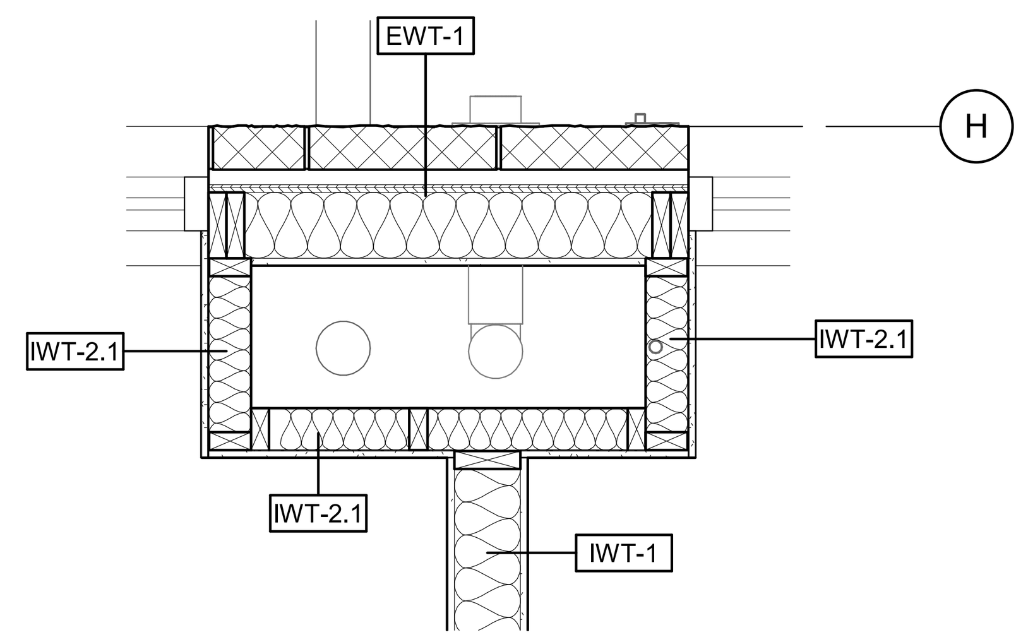
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

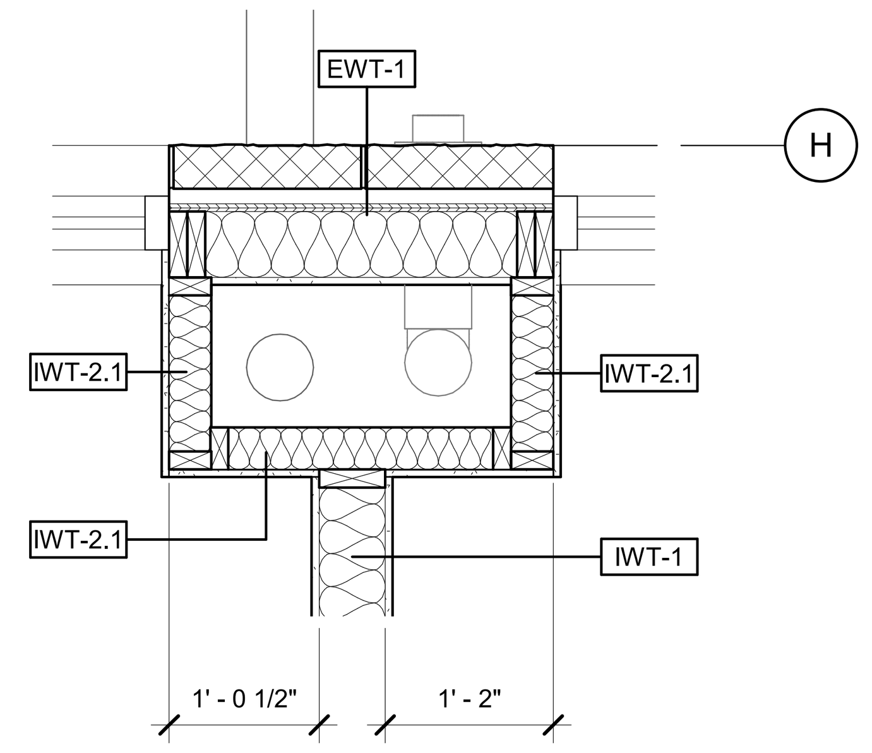
DRAWN BY: KB
CHECKED BY: BT

BID SET

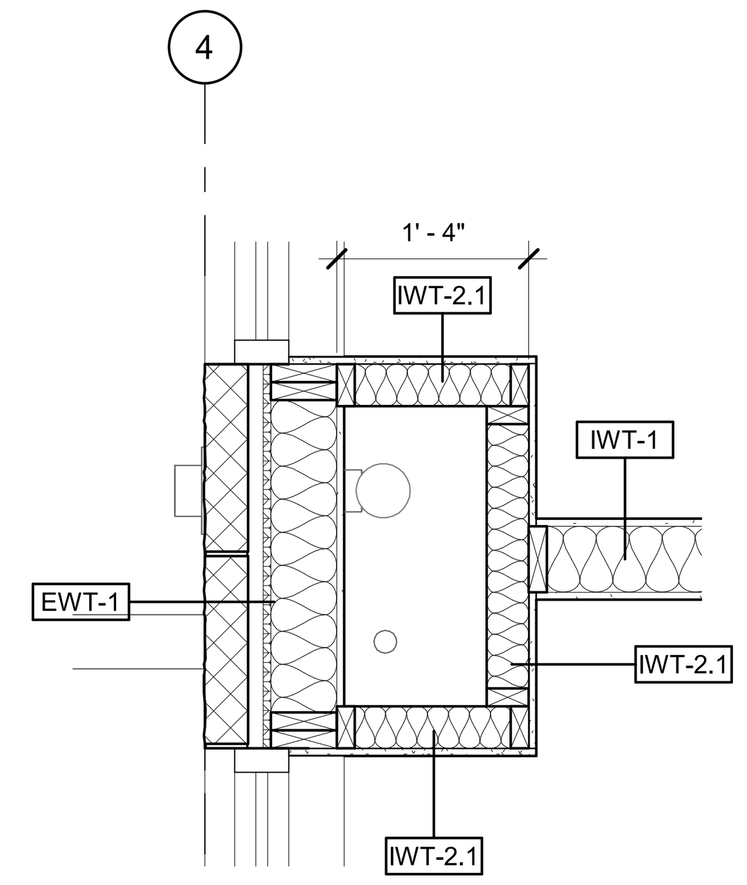
DRAWING NO.:
A8.1
WALL TYPES / DETAILS



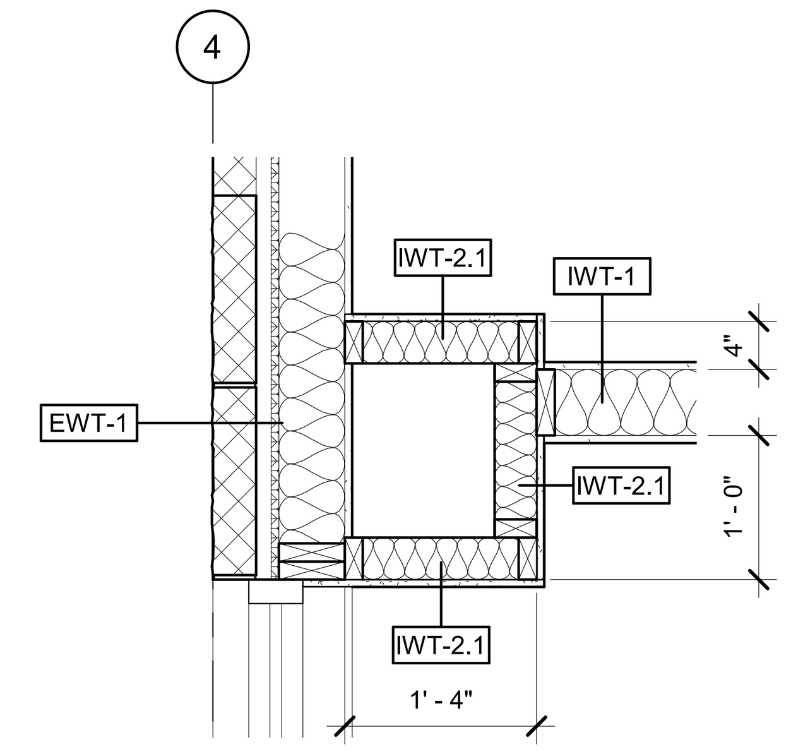
(1) ROOF DRAIN CHASE 1
3/4" = 1'-0"



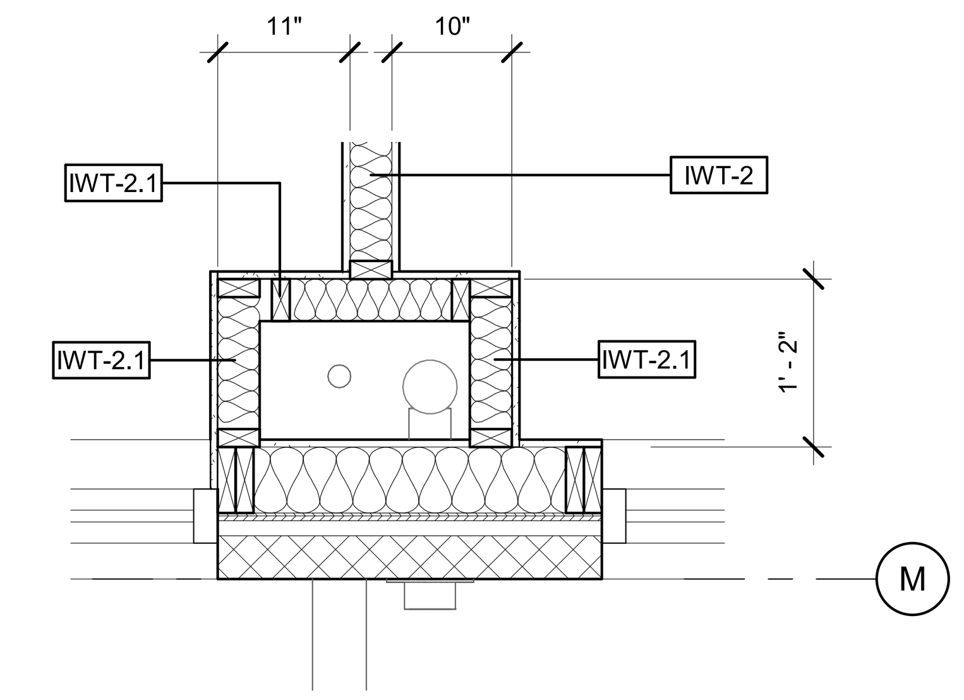
(2) ROOF DRAIN CHASE 2
3/4" = 1'-0"



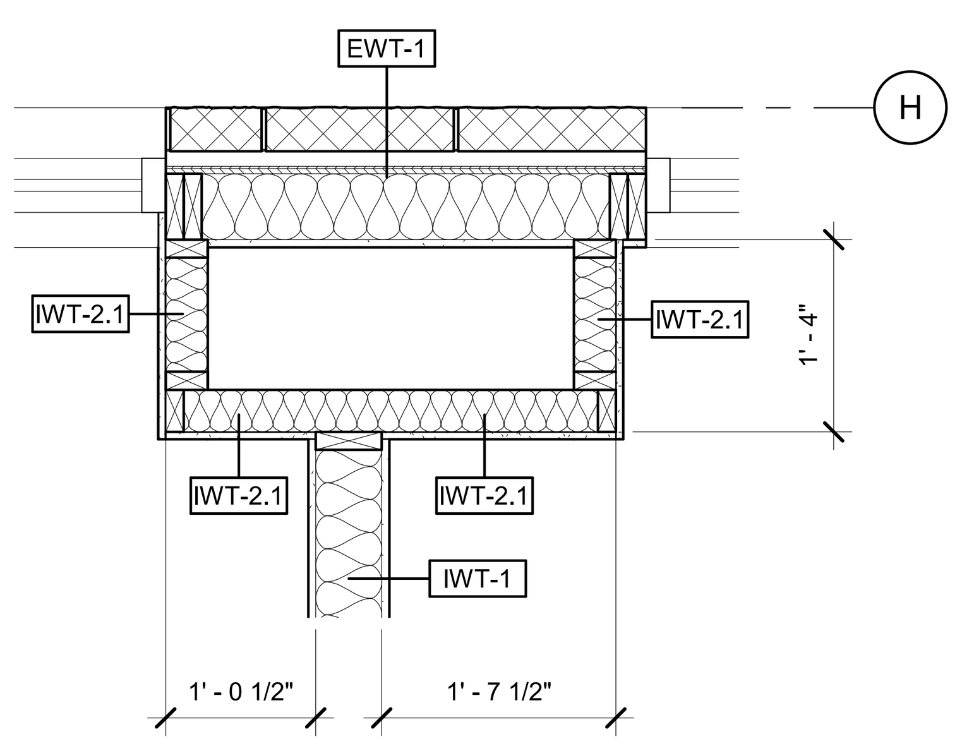
(3) ROOF DRAIN CHASE 3
3/4" = 1'-0"



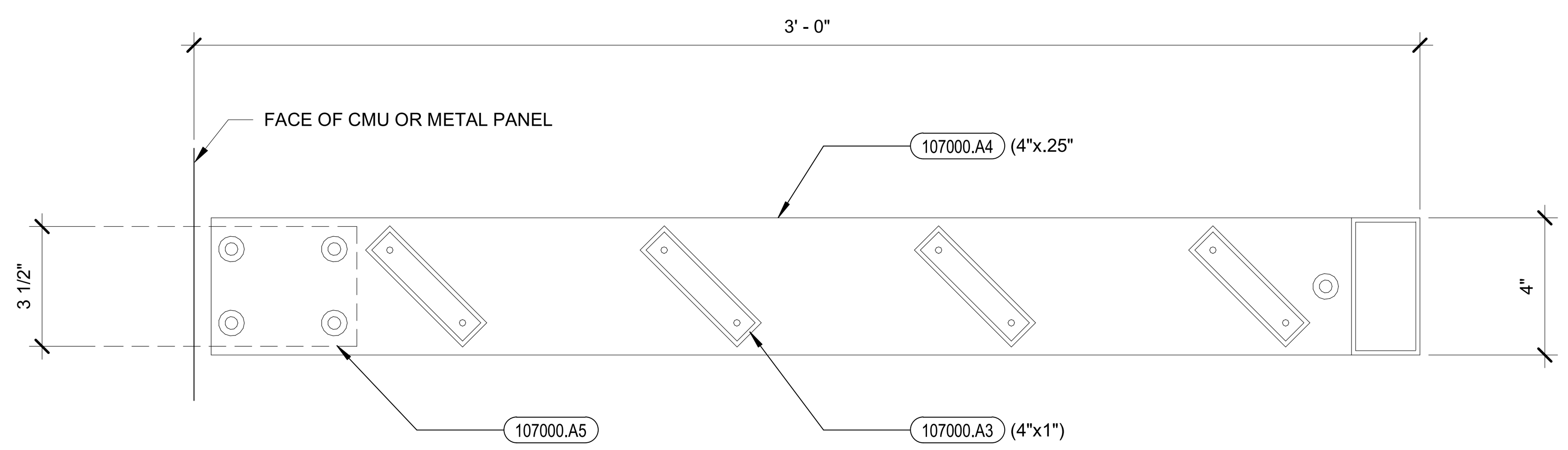
(4) ROOF DRAIN CHASE 4
3/4" = 1'-0"



(5) ROOF DRAIN CHASE 5
3/4" = 1'-0"

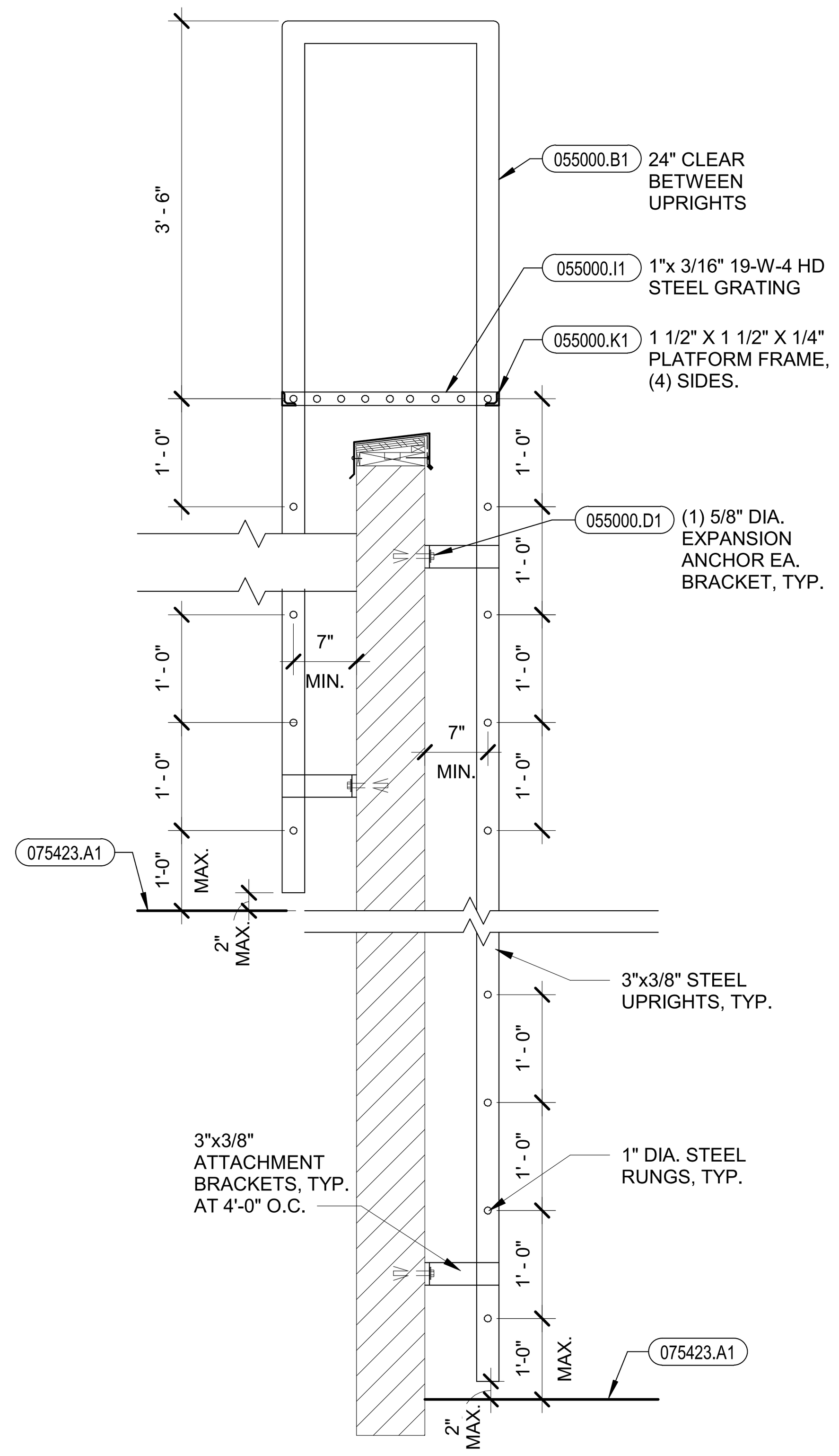


(6) ROOF DRAIN CHASE - ALT 1
3/4" = 1'-0"

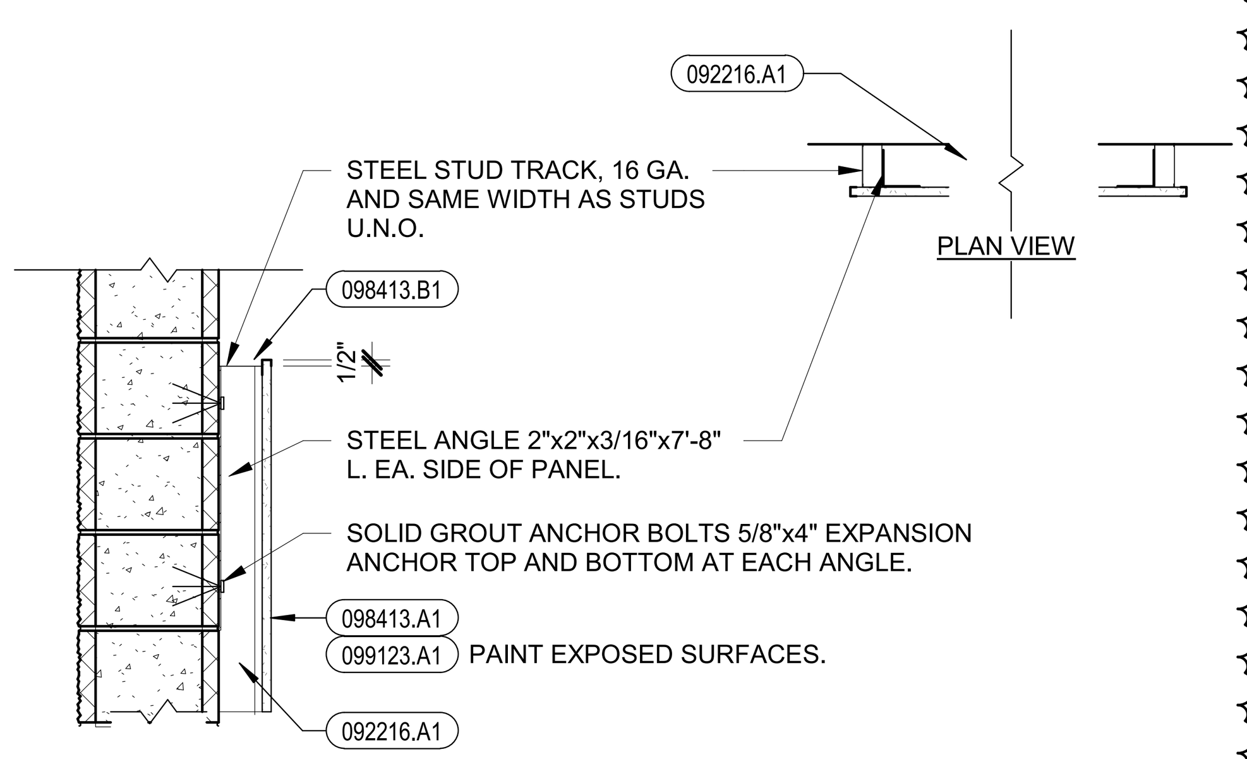


NOTE: BRACKETS TO BE PART OF THE SUNSHADE MANUFACTURER'S SCOPE OF WORK. BRACKETS TO MATCH SUNSHADE MATERIAL AND COLOR.

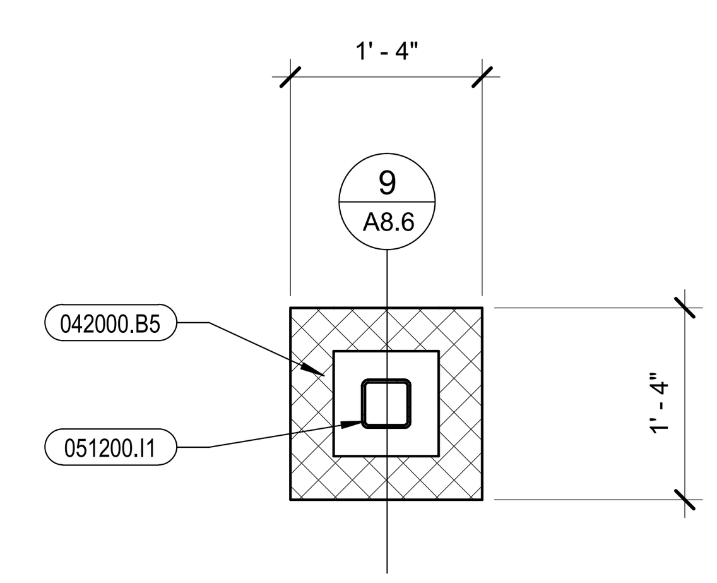
(7) SUNSHADE
3" = 1'-0"



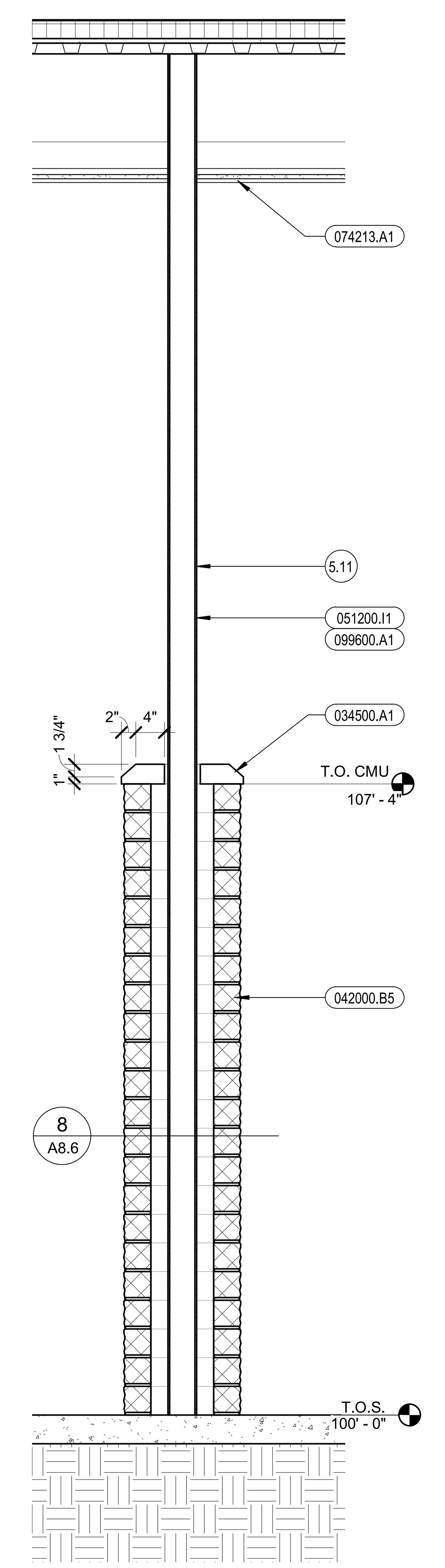
(10) ROOF LADDER
3/4" = 1'-0"



1 (11) TECTUM SOUND PANEL DETAIL
3/4" = 1'-0"



(8) COLUMN DETAIL - PLAN
3/4" = 1'-0"



(9) COLUMN DETAIL - SECTION
3/4" = 1'-0"

General Notes

1. FIELD VERIFY EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING WORK.

Reference Notes

5.11	EXPOSED STRUCTURAL STEEL TO BE GROUND SMOOTH AT WELDS, FREE FROM BURRS, ETC.

Keyed Notes

034500.A1	CONCRETE SILL
042000.B5	CONCRETE MASONRY UNIT(S) SPLIT FACE, 4X4X16
051200.I1	STEEL TUBE
055000.B1	STEEL LADDER
055000.D1	BOLT(S)
055000.I1	STEEL GRATING
055000.K1	STEEL ANGLE
074213.A1	METAL WALL PANEL(S)
075423.A1	SINGLE-PLY ROOFING MEMBRANE - MECH. FASTENED TPO
092216.A1	STEEL STUD(S) 3 5/8" 20 GA. @ 16" O.C. U.N.O.
098413.A1	FIXED SOUND ABSORBING TECTUM WALL PANELS
098413.B1	EDGE BANDING
099123.A1	PAINT-INTERIOR
099600.A1	HIGH PERFORMANCE COATING
107000.A3	SUNSHADE LOUVER
107000.A4	SUNSHADE OUT-RIGGER
107000.A5	SUNSHADE SUPPORT BRACKET

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2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

Revisions

#	Description	Date
1	Addendum 1	04/01/2022

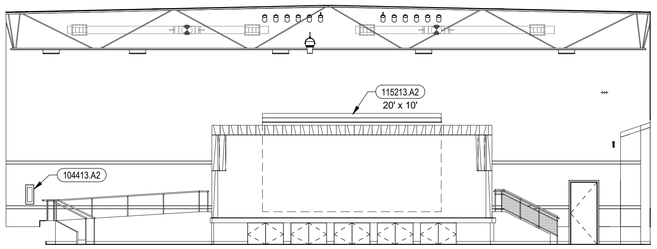
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

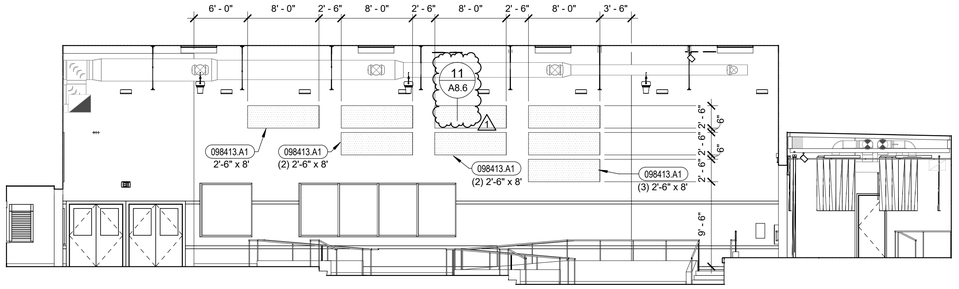
DRAWN BY: Author
CHECKED BY: Checker

BID SET

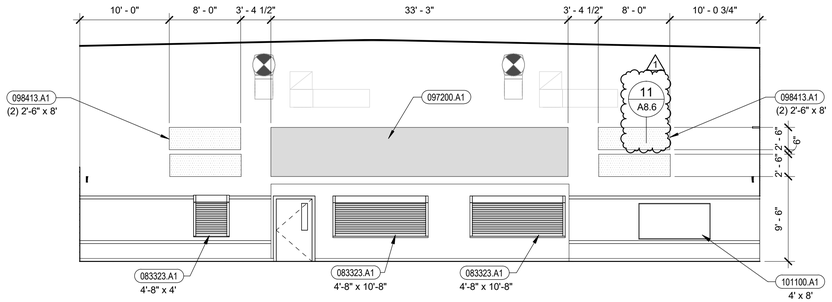
DRAWING NO.:
A8.6
ARCHITECTURAL DETAILS



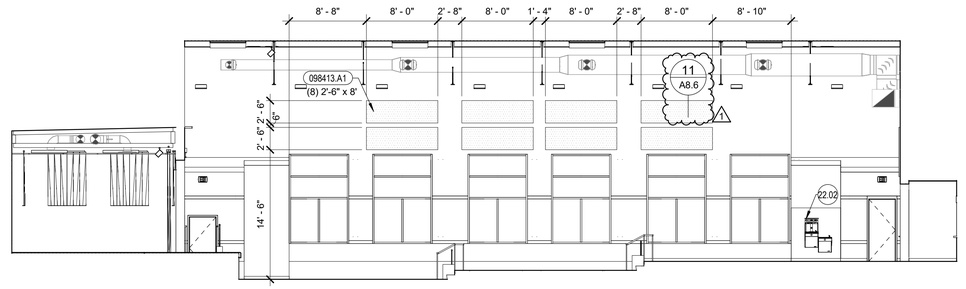
1 CAFETORIUM - NORTH
1/8" = 1'-0"



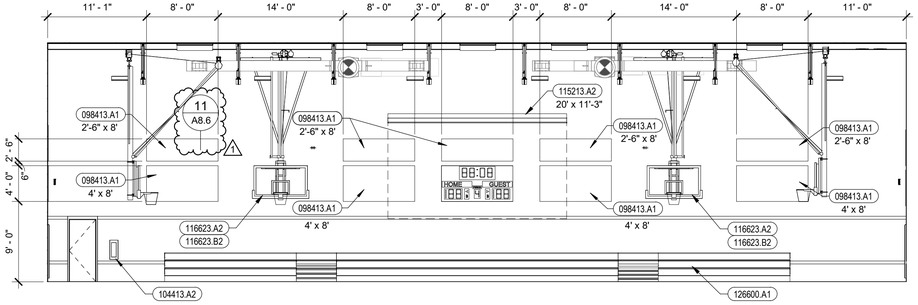
2 CAFETORIUM - WEST
1/8" = 1'-0"



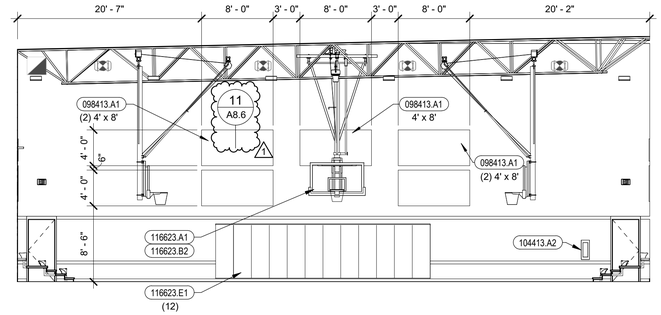
3 CAFETORIUM - SOUTH
1/8" = 1'-0"



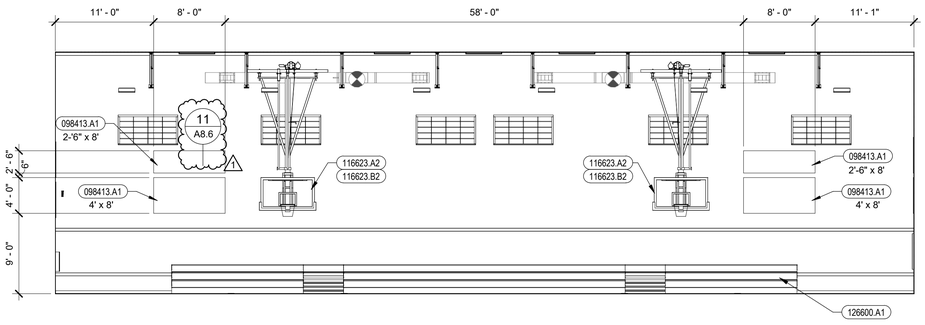
4 CAFETORIUM - EAST
1/8" = 1'-0"



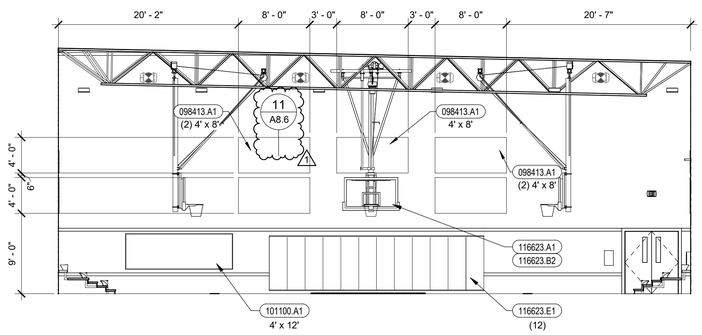
5 GYMNASIUM - NORTH
1/8" = 1'-0"



6 GYMNASIUM - EAST
1/8" = 1'-0"



7 GYMNASIUM - SOUTH
1/8" = 1'-0"



8 GYMNASIUM - WEST
1/8" = 1'-0"

General Notes

1. FIELD VERIFY ALL ROOM DIMENSIONS PRIOR TO FABRICATION OF MILLWORK AND ADJUST MILLWORK DIMENSIONS ACCORDINGLY.
2. ALL COUNTERTOP SPLASHES SHALL BE 4" HIGH UNLESS NOTED OTHERWISE.
3. ALL TOE KICK SPACES SHALL BE 4" HIGH UNLESS NOTED OTHERWISE. FURNISH AND INSTALL 4" BASE MATERIAL TO MATCH ROOM, TYPICAL.
4. FURNISH AND INSTALL SOLID WOOD BLOCKING, MINIMUM 1 1/2" THICK, AT STUD WALLS AND PARTITIONS FOR ATTACHMENT OF CABINETS, COUNTERTOPS, AND SHELVING UNITS.
5. DEPTH OF UNIT DESIGNATION D=X" VERIFY SINK / LAVATORY SIZE REQUIREMENTS.
6. TYPICAL CABINET CONSTRUCTION SHALL BE MIN. 3/4" MELAMINE COATED PARTICLE BOARD EXCEPT AT EXPOSED EXTERIOR SURFACES. EXPOSED EXTERIOR SURFACES SHALL HAVE HIGH PRESSURE DECORATIVE LAMINATE IN LIEU OF MELAMINE COATING UNLESS NOTED OTHERWISE. BACK PANELS SHALL BE MINIMUM 1/2" MELAMINE COATED PARTICLE BOARD UNLESS NOTED OTHERWISE. WHERE ALL CABINETS / SHELVING (W/O A COUNTER ABOVE) MEET AT AN INSIDE CORNER OF A ROOM, A HORIZONTAL CLOSURE PANEL SHALL BE PROVIDED AT THE TOP TO CLOSE OFF VOID SPACE BELOW.
7. TYPICAL COUNTERTOP CONSTRUCTION SHALL BE MINIMUM 3/4" PARTICLE BOARD WITH HIGH PRESSURE DECORATIVE LAMINATE AT TOPS AND BACKSPLASHES WITH 1 1/2" FRONT SELF EDGE UNLESS NOTED OTHERWISE. PVC EDGE BANDING, 0.12", (3mm) THICK, MATCHING LAMINATE COLOR, PATTERN, AND FINISH, TO BE AT VERTICAL COUNTER TOP SURFACES. RADIUS OUTSIDE COUNTER CORNERS WITH 1" RADIUS.
8. FURNISH AND INSTALL 3mm PVC EDGE BANDING (64023.K1) AS REQUIRED AT ALL EXPOSED CABINET FACE FRAME, SHELF, DOOR, AND DRAWER EDGES.
9. SEE TYPICAL ACCESSORY MOUNTING HEIGHT DETAIL ON SHEET A1.2.

Reference Notes

22.02	DUAL HEIGHT DRINKING FOUNTAIN. SEE PLUMBING DOCUMENTS.

Keyed Notes

083323.A1	OVERHEAD COILING DOOR
097200.A1	VINYL WALL COVERING
098413.A1	FIXED SOUND ABSORBING TECTUM WALL PANELS
101100.A1	PORCELAIN ENAMEL MARKERBOARD, FIXED
104413.A2	FIRE EXTINGUISHER CABINET, SURFACED MOUNTED
115213.A2	PROJECTION SCREEN, ELECTRIC, SIZE AS NOTED
116623.A1	BASKETBALL BACKSTOP - GLASS
116623.A2	BASKETBALL BACKSTOP - FIBERGLASS
116623.B2	BASKETBALL BACKSTOP SUPPORT - FORWARD FOLDING
116623.E1	GYMNASIUM WALL PADS (2' X 6')
126600.A1	TELESCOPING BLEACHERS, WALL ATTACHED, FORWARD FOLD

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2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

LICENSED ARCHITECT
Brock Thrust
02/11/2022
STATE OF IDAHO

Revisions		
#	Description	Date
1	Addendum 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: KB
CHECKED BY: BT

BID SET

DRAWING NO.:

A9.2
INTERIOR ELEVATIONS

BHB STRUCTURAL
390 E. Corporate
Drive Ste. 104
Meridian, ID 83642

p. 208 891 7157
bhbengineers.com

April 1, 2022

Brook Thornton
LKV Architects

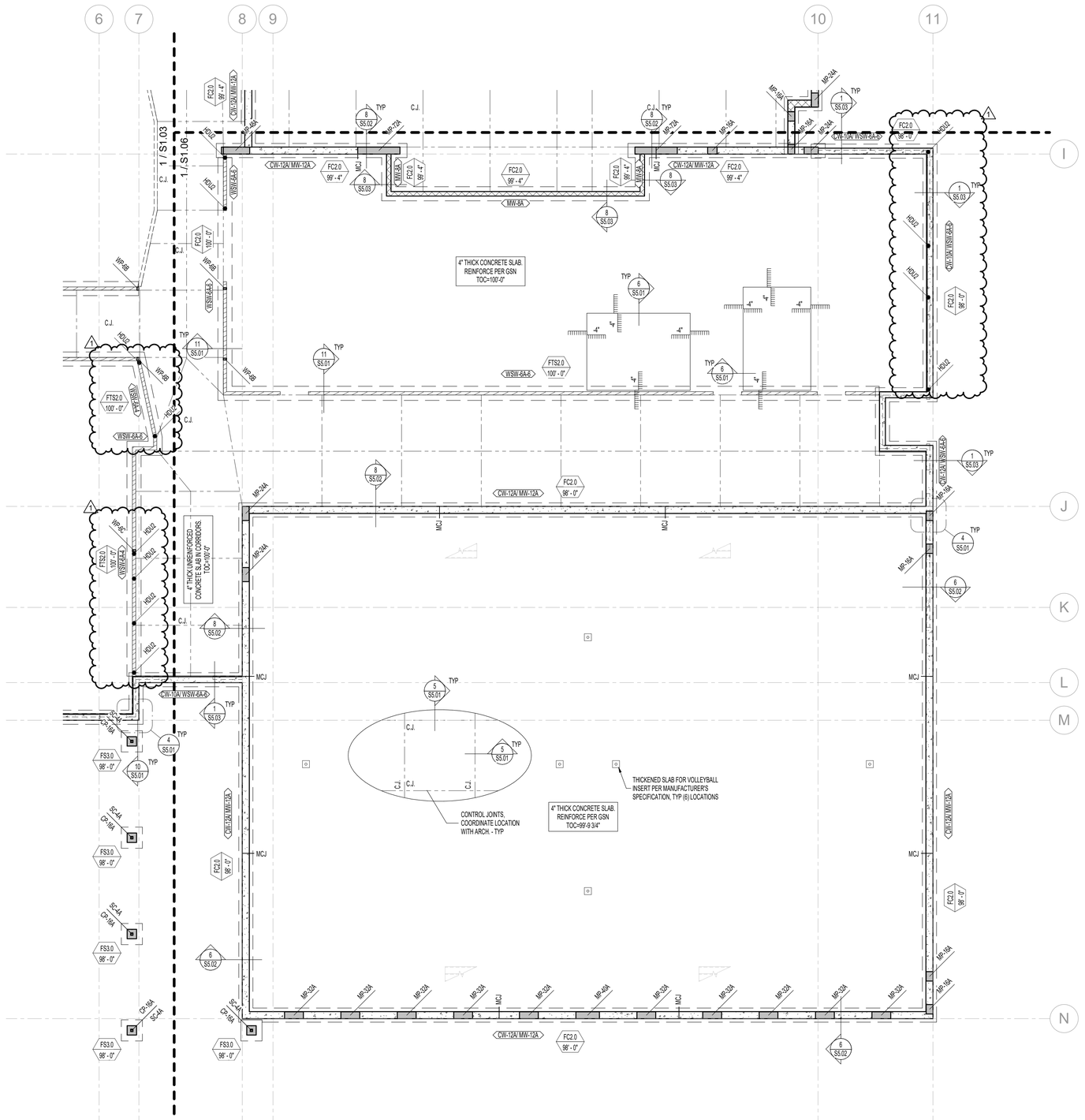
RE: Jerome ES – Addendum #1 Structural Narrative

Following are the changes to the structural sheets in Addendum #1:

- S1.05
  - Revised holdowns on grids 7 and 11
- S1.11 through S1.16
  - Revised snow loading
- S5.12
  - Revised detail 13
- S5.13
  - Revised detail 6
- S6.02
  - Revised the masonry wall and masonry pier schedules

Sincerely,

Drew Morgan, SE
Associate, BHB Consulting Engineers, P.C.



1 FOOTING AND FOUNDATION PLAN - AREA E

1/8" = 1'-0" 0" 4'-0" 8'-0" 16'-0"

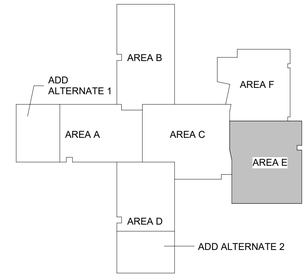
WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-6A	(2) 2x6	
WP-6B	(3) 2x6	
WP-6C	6x6 DFL NO. 2	

FOOTING AND FOUNDATION PLAN NOTES

1. COORDINATE LOCATION OF DEPRESSED SLABS, SLOPED SLABS, AND FLOOR DRAINS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR EXTERIOR CONCRETE WORK AT DOORS, SIDEWALKS, ETC.
3. SEE ARCHITECTURAL DRAWINGS FOR CONTROL JOINT LOCATIONS.
4. SEE "EARTHWORK" NOTES ON GSN AND DETAIL 9/S5.02 FOR MINIMUM FILL REQUIRED BENEATH FOOTINGS.
5. ALL SPOT FOOTINGS SHALL BE CENTERED UNDER COLUMNS (UNO).
6. SEE DETAILS 1/S5.01 AND 2/S5.01 FOR CONDITION WHERE BURIED PIPES RUN PARALLEL AND PERPENDICULAR TO FOOTINGS.
7. SEE DETAIL 5/S5.01 FOR TYPICAL CONTROL/CONSTRUCTION JOINTS IN CONCRETE SLAB ON GRADE.
8. SEE DETAIL 7/S5.01 FOR SLAB REINFORCING WHERE CONTROL JOINTS ARE DISCONTINUOUS.
9. SEE DETAIL 9/S5.01 FOR ADDITIONAL REINFORCING AT MISCELLANEOUS OPENINGS IN CONCRETE WALLS.
10. SEE DETAIL 2/S5.01 FOR ADDITIONAL REINFORCING AT MISCELLANEOUS OPENINGS IN MASONRY WALLS.
11. SEE DETAIL 9/S5.01 FOR SILL PLATE FASTENER DETAIL.
12. SEE DETAIL 3/S5.02 FOR CONDITION AT RECESSES IN MASONRY WALLS.
13. SEE DETAIL 4/S5.02 FOR TYPICAL CONTROL JOINTS IN MASONRY WALLS.
14. SEE DETAIL 5/S5.02 FOR TERMINATION OF HORIZONTAL REINFORCING IN MASONRY WALLS.
15. SEE DETAIL 7/S5.03 FOR ANCHORAGE OF HOUSEKEEPING PADS.
16. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS TO ALL STEEL COLUMNS.

Key Plan



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4-1-22

BHB STRUCTURAL
390 East Corporate Drive, Ste. 104
Meridian, Idaho 83642
1-208-891-7157
bhb@bhbengineers.com

Revisions		
#	Description	Date
1	Addendum #1	4/1/22

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

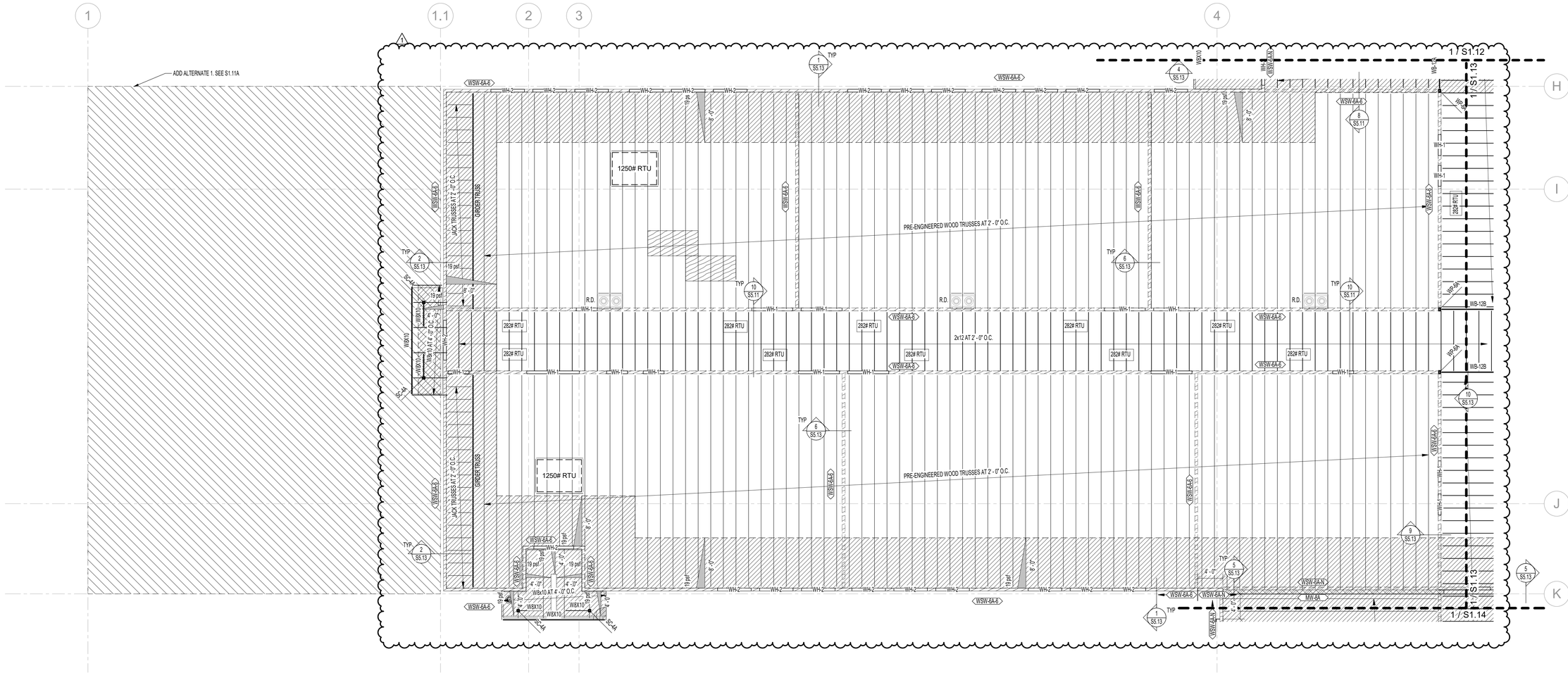
DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:

S1.05
FOOTING AND FOUNDATION PLAN – AREA E



1 ROOF FRAMING PLAN - AREA A

1/8" = 1'-0" 0" 4'-0" 8'-0" 16'-0"

WOOD BEAM SCHEDULE (WB-x)

MARK	DESIGNATION	CONNECTION
WB-12A	(2) 2x12	
WB-12B	(3) 2x12	
WB-12C	(3) 1.3/4"x11.1/4" LVL	

WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-8A	(2) 2x6	
WP-8B	(3) 2x6	
WP-8C	6x6 DFL NO. 2	

ROOF FRAMING DESIGN LOADS

1

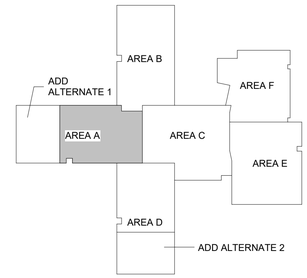
ROOF LOADS:

DEAD LOAD	20 psf
SNOW LOAD	23 psf
TOTAL LOAD	43 psf

ROOF FRAMING PLAN NOTES

1. VERIFY ALL ROOF OPENINGS FOR MECHANICAL SHAFTS, DRAINS, ETC. WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. ALL JOISTS SHALL HAVE 5" DEEP BEARING ENDS (UNO).
3. ALL ROOF OPENINGS GREATER THAN, OR EQUAL TO, 12" x 12" SHALL BE FRAMED AS INDICATED IN DETAILS 1/SS.12 AND 2/SS.12 FOR OPENINGS WHICH CUT LESS THAN TWO DECK FLUTES. SEE DETAIL 3/SS.12.
4. SEE DETAIL 10/SS.12 FOR STEEL BRACE DETAIL CONNECTIONS AND LOCATIONS.
5. SEE DETAIL 4/SS.12 WHEN CONCENTRATED LOADS ARE LOCATED MORE THAN 6" FROM JOIST PANEL POINT.
6. SEE DETAIL 5/SS.12 WHEN MECHANICAL UNITS ARE HUNG BELOW JOISTS.
7. VERIFY SIZE, WEIGHT, AND LOCATION OF ALL ROOF TOP MECHANICAL UNITS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. SEE DETAIL 6/SS.12 FOR STEEL FRAMES AT ALL ROOF TOP EQUIPMENT. COORDINATE OPENINGS WITH MECHANICAL, ELECTRICAL, AND GENERAL CONTRACTORS.
8. COORDINATE LOCATION OF MECHANICAL DUCTWORK WITH MECHANICAL DRAWINGS. CONFIGURE TRUSS WEBBING TO ALLOW FOR DUCTWORK AS REQUIRED.
9. JOIST SUPPLIER SHALL DESIGN ALL ROOF JOIST BEARING ENDS AT WALLS TO TRANSFER 1250lbs (ALLOWABLE) AXIAL LOAD THROUGH JOIST BEARING ENDS.
10. OPEN WEB STEEL JOISTS SHALL BE DESIGNED BY THE MANUFACTURER TO SUPPORT THE MECHANICAL AND LATERAL LOADS SHOWN ON THE ROOF FRAMING PLANS IN ADDITION TO THE UNIFORM AND POINT LOADS SHOWN.
11. JOIST BRIDGING SHOWN ON PLANS IS FOR REPRESENTATION ONLY; ACTUAL SIZE, QUANTITY, AND LOCATION WILL BE DETERMINED BY THE JOIST SUPPLIER PER 'SJI' REQUIREMENTS. ALL BRIDGING AND BRIDGING ANCHORS NEED TO BE IN PLACE BEFORE APPLYING ANY LOADS. WHERE SKYLIGHT OR MECHANICAL UNITS/DUCTS INTERRUPT HORIZONTAL BRIDGING, PROVIDE CROSS BRIDGING AT JOIST SPACES ON EACH SIDE OF THE OPENING. WHERE DIAGONAL BRIDGING CONFLICTS WITH MECHANICAL DUCTS, REMOVE DIAGONAL BRIDGING AND REPLACE WITH HORIZONTAL BRIDGING AFTER ROOF DECK IS IN PLACE.
12. SEE DETAIL 1/SS.11 FOR FRAMING AROUND ALL OPENINGS IN TRUSS ROOF FRAMING
13. SEE DETAIL 5/SS.11 FOR TYPICAL BUILT-UP BEAM DETAIL.
14. SEE DETAIL 2/SS.11 FOR TYPICAL TOP PLATE SPLICE DETAIL.
15. SEE DETAIL 3/SS.11 FOR TYPICAL TOP PLATE SPLICE SCHEDULE AT PIPE.
16. SEE DETAIL 3/SS.02 FOR CONDITION AT RECESSES IN MASONRY WALLS.
17. SEE DETAIL 4/SS.02 FOR TYPICAL CONTROL JOINTS IN MASONRY WALLS.
18. SEE DETAIL 5/SS.02 FOR TERMINATION OF HORIZONTAL REINFORCING IN MASONRY WALLS.
19. SEE ARCHITECTURAL PLANS FOR DIMENSIONS TO ALL STEEL COLUMNS.
20. JOIST DESIGNER SHALL DESIGN JOISTS AND SUPPLY ADDITIONAL BRIDGING AS REQUIRED FOR UPLIFT DUE TO WIND. ASSUME:
    - 0.6DL + 1Qpsf
    - 0.6WL = 21psf (UPLIFT)
    - 9psf NET UPLIFT (ASD)
    - NO 1/3 STRESS INCREASE ALLOWED.

Key Plan



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Revisions		
#	Description	Date
1	Addendum #1	4/1/22

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

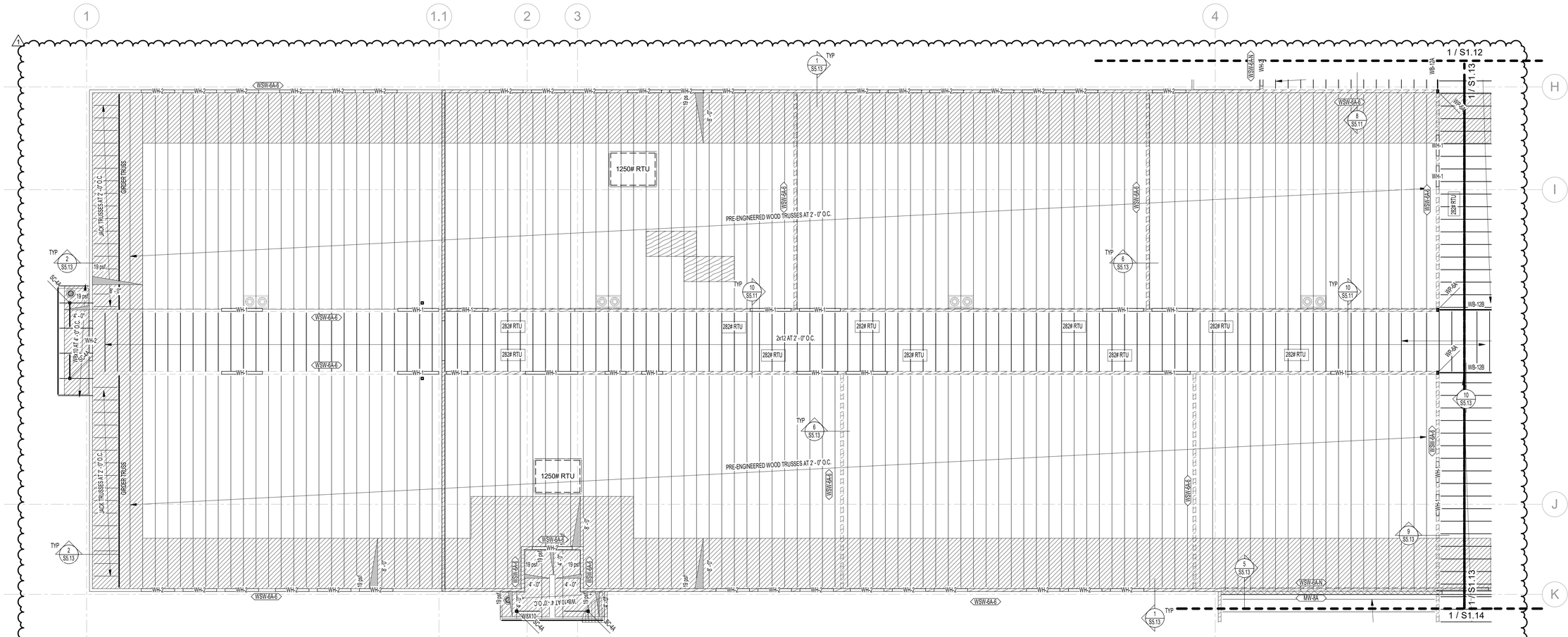
DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:

S1.11
ROOF FRAMING PLAN – AREA A



1 ROOF FRAMING PLAN - ADD ALTERNATE 1

1/8" = 1'-0" 0" 4'-0" 8'-0" 16'-0"

WOOD BEAM SCHEDULE (WB-x)

MARK	DESIGNATION	CONNECTION
WB-12A	(2) 2x12	
WB-12B	(3) 2x12	
WB-12C	(3) 1.3/4"x11.1/4" LVL	

WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-6A	(2) 2x6	
WP-6B	(3) 2x6	
WP-8C	6x6 DFL NO. 2	

ROOF FRAMING DESIGN LOADS

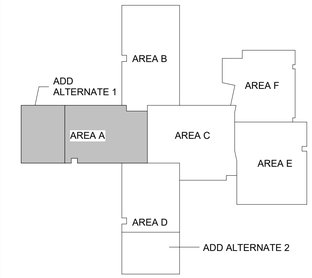
1

ROOF LOADS:	
DEAD LOAD	20 psf
SNOW LOAD	23 psf
TOTAL LOAD	43 psf

ROOF FRAMING PLAN NOTES

1. VERIFY ALL ROOF OPENINGS FOR MECHANICAL SHAFTS, DRAINS, ETC. WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. ALL JOISTS SHALL HAVE 5" DEEP BEARING ENDS (UNO).
3. ALL ROOF OPENINGS GREATER THAN, OR EQUAL TO, 12" x 12" SHALL BE FRAMED AS INDICATED IN DETAILS 1/SS.12 AND 2/SS.12 FOR OPENINGS WHICH CUT LESS THAN TWO DECK FLUTES. SEE DETAIL 3/SS.12
4. SEE DETAIL 10/SS.12 FOR STEEL BRACE DETAIL CONNECTIONS AND LOCATIONS.
5. SEE DETAIL 4/SS.12 WHEN CONCENTRATED LOADS ARE LOCATED MORE THAN 6" FROM JOIST PANEL POINT.
6. SEE DETAIL 5/SS.12 WHEN MECHANICAL UNITS ARE HUNG BELOW JOISTS.
7. VERIFY SIZE, WEIGHT, AND LOCATION OF ALL ROOF TOP MECHANICAL UNITS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. SEE DETAIL 6/SS.12 FOR STEEL FRAMES AT ALL ROOF TOP EQUIPMENT. COORDINATE OPENINGS WITH MECHANICAL, ELECTRICAL, AND GENERAL CONTRACTORS.
8. COORDINATE LOCATION OF MECHANICAL DUCTWORK WITH MECHANICAL DRAWINGS. CONFIGURE TRUSS WEBBING TO ALLOW FOR DUCTWORK AS REQUIRED.
9. JOIST SUPPLIER SHALL DESIGN ALL ROOF JOIST BEARING ENDS AT WALLS TO TRANSFER 1250lbs (ALLOWABLE) AXIAL LOAD THROUGH JOIST BEARING ENDS.
10. OPEN WEB STEEL JOISTS SHALL BE DESIGNED BY THE MANUFACTURER TO SUPPORT THE MECHANICAL AND LATERAL LOADS SHOWN ON THE ROOF FRAMING PLANS IN ADDTION TO THE UNIFORM AND POINT LOADS SHOWN.
11. JOIST BRIDGING SHOWN ON PLANS IS FOR REPRESENTATION ONLY; ACTUAL SIZE, QUANTITY, AND LOCATION WILL BE DETERMINED BY THE JOIST SUPPLIER PER 'SJI' REQUIREMENTS. ALL BRIDGING AND BRIDGING ANCHORS NEED TO BE IN PLACE BEFORE APPLYING ANY LOADS. WHERE SKYLIGHT OR MECHANICAL UNITS/DUCTS INTERRUPT HORIZONTAL BRIDGING, PROVIDE CROSS BRIDGING AT JOIST SPACES ON EACH SIDE OF THE OPENING. WHERE DIAGONAL BRIDGING CONFLICTS WITH MECHANICAL DUCTS, REMOVE DIAGONAL BRIDGING AND REPLACE WITH HORIZONTAL BRIDGING AFTER ROOF DECK IS IN PLACE.
12. SEE DETAIL 1/SS.11 FOR FRAMING AROUND ALL OPENINGS IN TRUSS ROOF FRAMING
13. SEE DETAIL 5/SS.11 FOR TYPICAL BUILT-UP BEAM DETAIL.
14. SEE DETAIL 2/SS.11 FOR TYPICAL TOP PLATE SPLICE DETAIL.
15. SEE DETAIL 3/SS.11 FOR TYPICAL TOP PLATE SPLICE SCHEDULE AT PIPE.
16. SEE DETAIL 3/SS.02 FOR CONDITION AT RECESSES IN MASONRY WALLS.
17. SEE DETAIL 4/SS.02 FOR TYPICAL CONTROL JOINTS IN MASONRY WALLS.
18. SEE DETAIL 5/SS.02 FOR TERMINATION OF HORIZONTAL REINFORCING IN MASONRY WALLS.
19. SEE ARCHITECTURAL PLANS FOR DIMENSIONS TO ALL STEEL COLUMNS.
20. JOIST DESIGNER SHALL DESIGN JOISTS AND SUPPLY ADDITIONAL BRIDGING AS REQUIRED FOR UPLIFT DUE TO WIND. ASSUME:
    - 0.6DL = 12psf
    - 0.6WL = 21psf (UPLIFT)
    - 9psf NET UPLIFT (ASD)
    - NO 1/3 STRESS INCREASE ALLOWED.

Key Plan



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Boise, Idaho 83706
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208.336.3443

PROFESSIONAL ENGINEER LICENSED 16702 STATE OF IDAHO ANDREW S. MORGAN
4-1-22

BHB STRUCTURAL
390 East Corporate Drive, Ste. 104
Meridian, Idaho 83642
1-208-891-7157
bhb@bhbengineers.com

Revisions		
#	Description	Date
1	Addendum #1	4/1/22

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

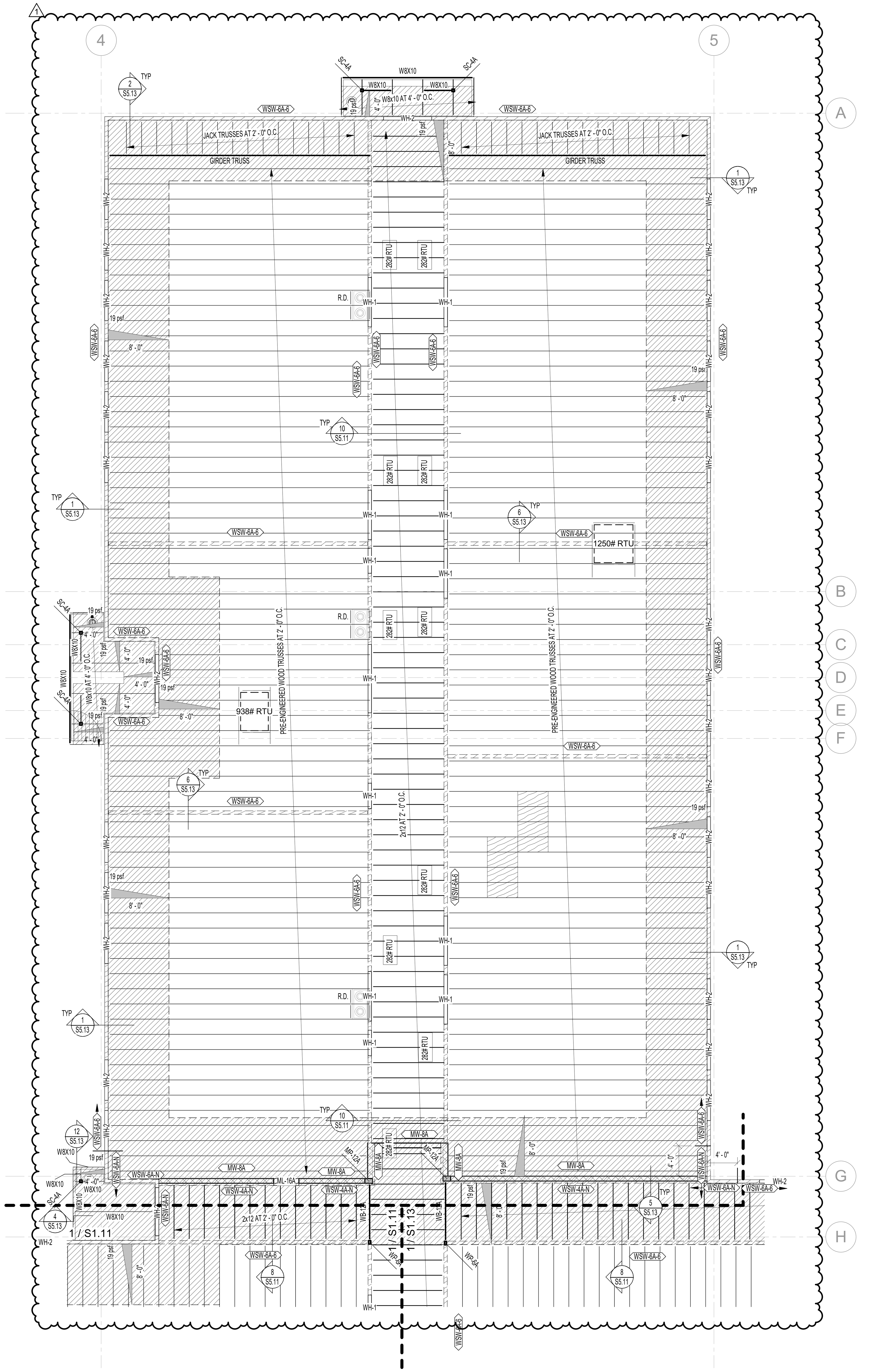
DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:

S1.11A
ADD ALTERNATE 1



1 ROOF FRAMING PLAN - AREA B

1/8" = 1'-0"   0"   4'-0"   8'-0"   16'-0"

WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-6A	(2) 2x6	
WP-6B	(3) 2x6	
WP-6C	6x6 DFL NO. 2	

ROOF FRAMING DESIGN LOADS

ROOF LOADS:
DEAD LOAD 20 psf
SNOW LOAD 23 psf
TOTAL LOAD 43 psf

ROOF FRAMING PLAN NOTES

1. VERIFY ALL ROOF OPENINGS FOR MECHANICAL SHAFTS, DRAINS, ETC. WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. ALL JOISTS SHALL HAVE 5" DEEP BEARING ENDS (UNO).
3. ALL ROOF OPENINGS GREATER THAN, OR EQUAL TO, 12" x 12" SHALL BE FRAMED AS INDICATED IN DETAILS 1/S5.12 AND 2/S5.12 FOR OPENINGS WHICH CUT LESS THAN TWO DECK FLUTES, SEE DETAIL 3/S5.12.
4. SEE DETAIL 10/S5.12 FOR STEEL BRACE DETAIL CONNECTIONS AND LOCATIONS.
5. SEE DETAIL 4/S5.12 WHEN CONCENTRATED LOADS ARE LOCATED MORE THAN 6" FROM JOIST PANEL POINT.
6. SEE DETAIL 5/S5.12 WHEN MECHANICAL UNITS ARE HUNG BELOW JOISTS.
7. VERIFY SIZE, WEIGHT, AND LOCATION OF ALL ROOF TOP MECHANICAL UNITS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. SEE DETAIL 6/S5.12 FOR STEEL FRAMES AT ALL ROOF TOP EQUIPMENT. COORDINATE OPENINGS WITH MECHANICAL, ELECTRICAL, AND GENERAL CONTRACTORS.
8. COORDINATE LOCATION OF MECHANICAL DUCTWORK WITH MECHANICAL DRAWINGS. CONFIGURE TRUSS WEBBING TO ALLOW FOR DUCTWORK AS REQUIRED.
9. JOIST SUPPLIER SHALL DESIGN ALL ROOF JOIST BEARING ENDS AT WALLS TO TRANSFER 1250lbs (ALLOWABLE) AXIAL LOAD THROUGH JOIST BEARING ENDS.
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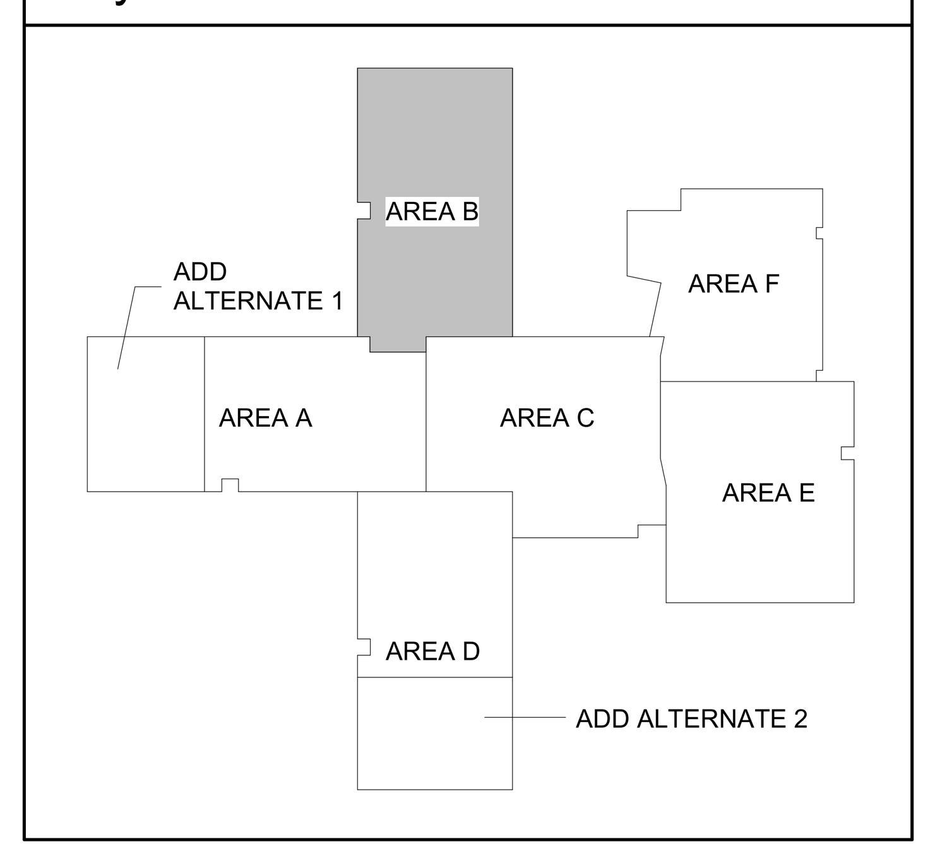
Key Plan



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Revisions

#	Description	Date
1	Addendum #1	4/1/22

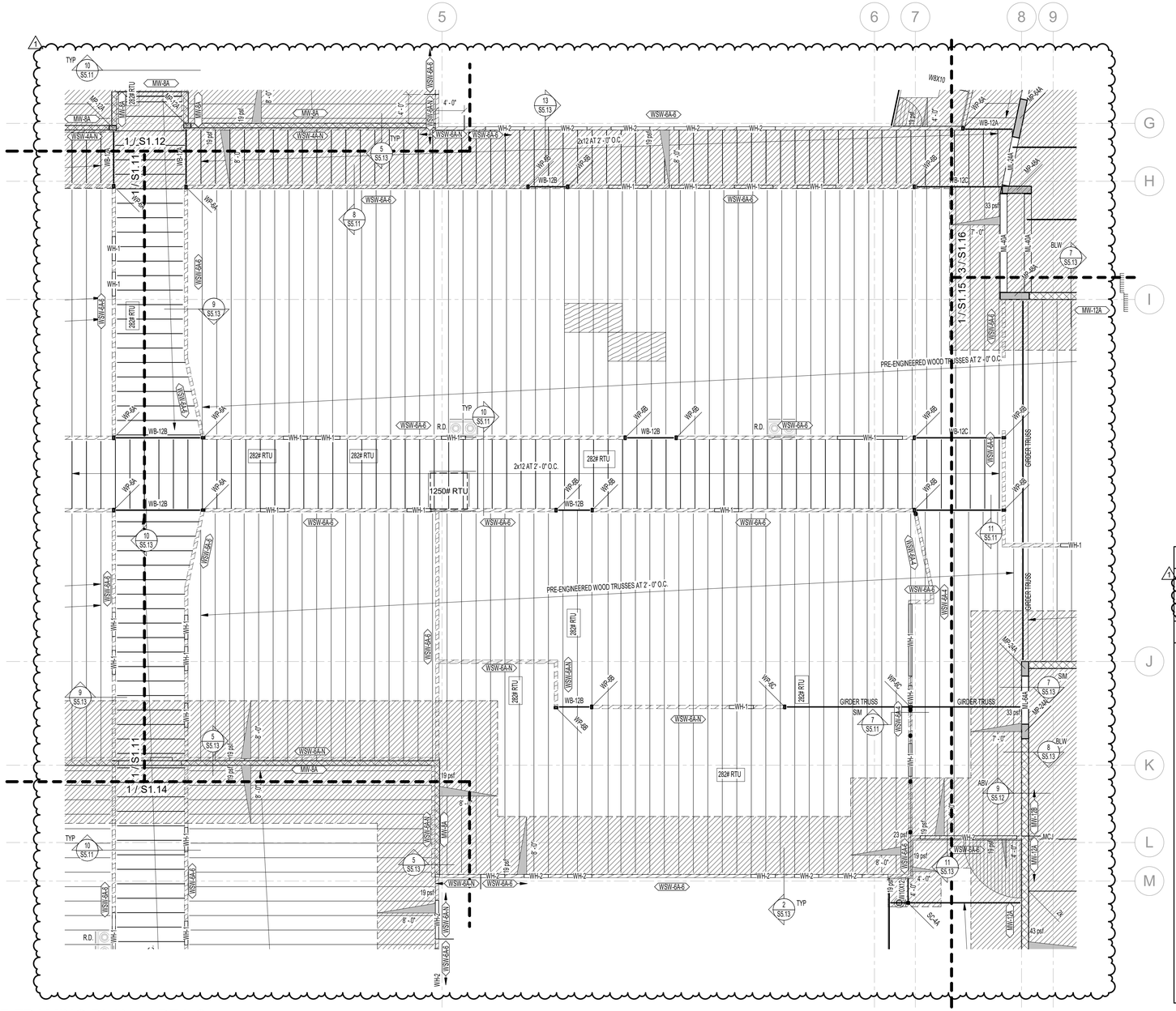
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:
S1.12
ROOF FRAMING PLAN – AREA B



1 ROOF FRAMING PLAN - AREA C

1/8" = 1'-0" 0" 4'-0" 8'-0" 16'-0"

WOOD BEAM SCHEDULE (WB-x)

MARK	DESIGNATION	CONNECTION
WB-12A	(2) 2x12	
WB-12B	(3) 2x12	
WB-12C	(3) 1.3/4"x11.1/4" LVL	

WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-6A	(2) 2x6	
WP-6B	(3) 2x6	
WP-6C	6x6 DFL NO. 2	

ROOF FRAMING DESIGN LOADS

1

ROOF LOADS:	
DEAD LOAD	20 psf
SNOW LOAD	23 psf
TOTAL LOAD	43 psf

ROOF FRAMING PLAN NOTES

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2. ALL JOISTS SHALL HAVE 5" DEEP BEARING ENDS (UNO).
3. ALL ROOF OPENINGS GREATER THAN, OR EQUAL TO, 12" x 12" SHALL BE FRAMED AS INDICATED IN DETAILS 1/S5.12 AND 2/S5.12. FOR OPENINGS WHICH CUT LESS THAN TWO DECK FLUTES. SEE DETAIL 3/S5.12.
4. SEE DETAIL 10/S5.12 FOR STEEL BRACE DETAIL CONNECTIONS AND LOCATIONS.
5. SEE DETAIL 4/S5.12 WHEN CONCENTRATED LOADS ARE LOCATED MORE THAN 6" FROM JOIST PANEL POINT.
6. SEE DETAIL 5/S5.12 WHEN MECHANICAL UNITS ARE HUNG BELOW JOISTS.
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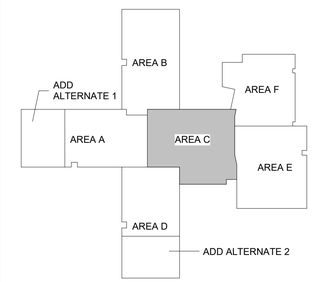
    - 0.6WL = 21psf (UPLIFT)
    - 9psf NET UPLIFT (ASD)
    - NO 1/3 STRESS INCREASE ALLOWED.

Key Plan



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#	Revisions Description	Date
1	Addendum #1	4/1/22

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

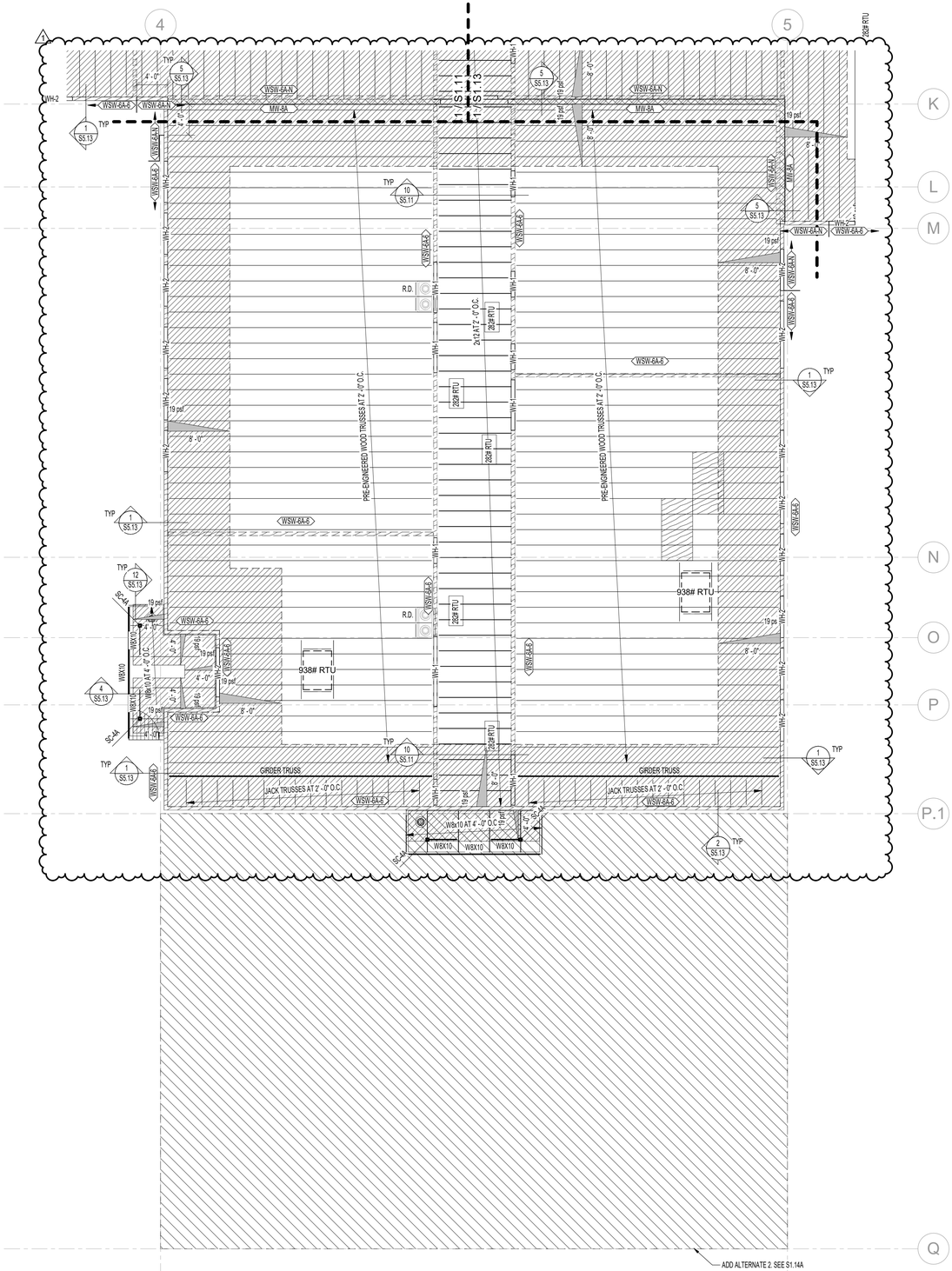
DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:

S1.13
ROOF FRAMING PLAN – AREA C



WOOD BEAM SCHEDULE (WB-x)

MARK	DESIGNATION	CONNECTION
WB-12A	(2) 2x12	
WB-12B	(3) 2x12	
WB-12C	(3) 1.3/4"x11.1/4" LVL	

WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-6A	(2) 2x6	
WP-6B	(3) 2x6	
WP-8C	6x6 DFL NO. 2	

ROOF FRAMING DESIGN LOADS

ROOF LOADS:

DEAD LOAD	20 psf
SNOW LOAD	23 psf
TOTAL LOAD	43 psf

ROOF FRAMING PLAN NOTES

1. VERIFY ALL ROOF OPENINGS FOR MECHANICAL SHAFTS, DRAINS, ETC. WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
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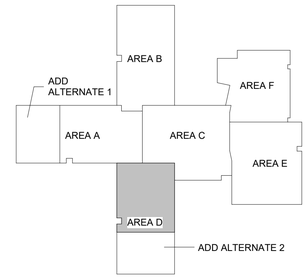
    - 0.6WL = 21psf (UPLIFT)
    - 9psf NET UPLIFT (ASD)
    - NO 1/3 STRESS INCREASE ALLOWED.

Key Plan



1 ROOF FRAMING PLAN - AREA D

1/8" = 1'-0" 0" 4'-0" 8'-0" 16'-0"

LKV ARCHITECTS
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Revisions		
#	Description	Date
1	Addendum #1	4/1/22

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Jerome School District No. 261
N. 100 E. Jerome, Idaho

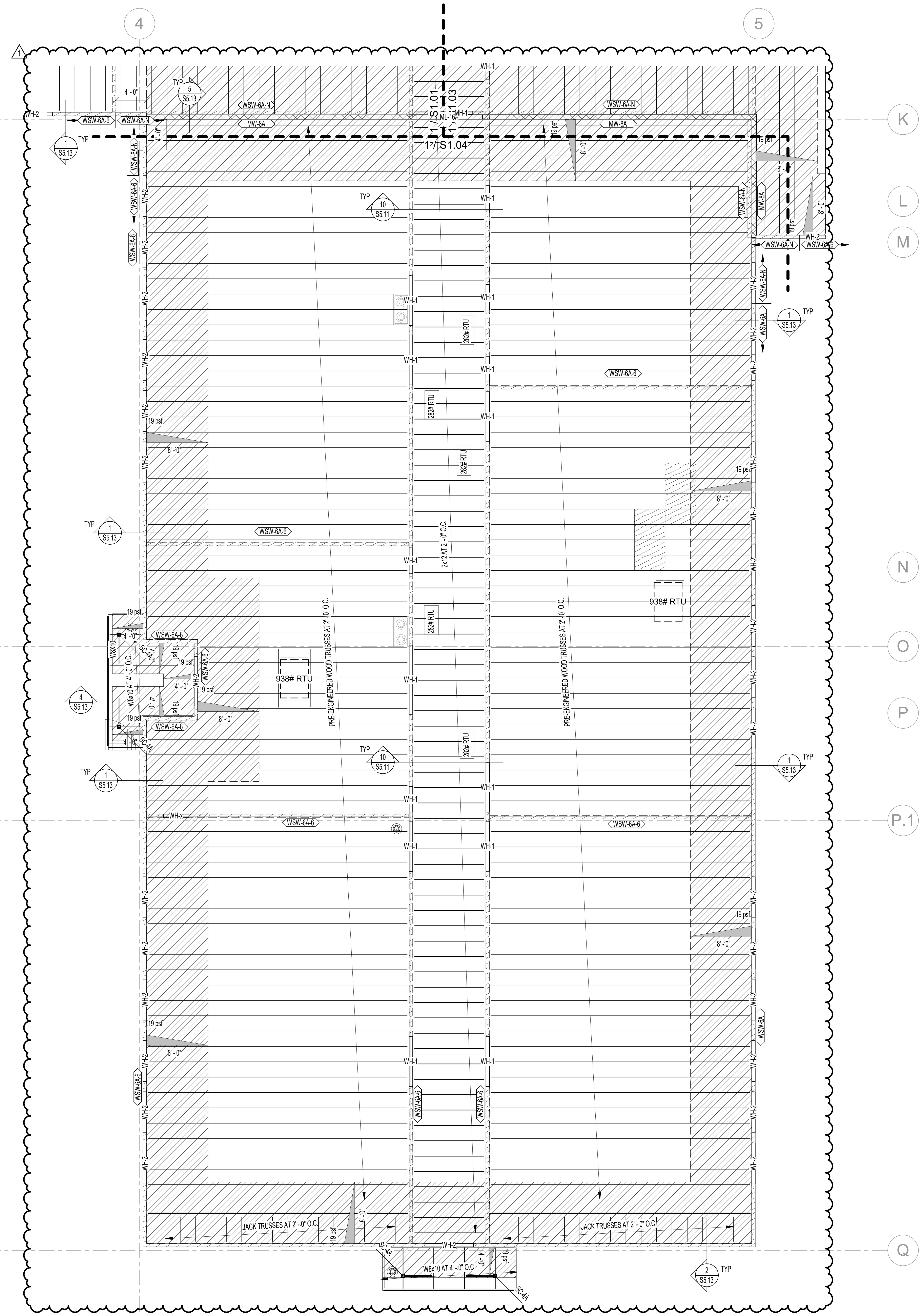
DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:

S1.14
ROOF FRAMING PLAN – AREA D



2 ROOF FRAMING PLAN - ADD ALTERNATE 2

1/8" = 1'-0"

WOOD BEAM SCHEDULE (WB-x)

MARK	DESIGNATION	CONNECTION
WB-12A	(2) 2x12	
WB-12B	(3) 2x12	
WB-12C	(3) 1.3/4"x11.1/4" LVL	

WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-6A	(2) 2x6	
WP-6B	(3) 2x6	
WP-6C	6x6 DFL NO. 2	

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ROOF LOADS:

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TOTAL LOAD	43 psf

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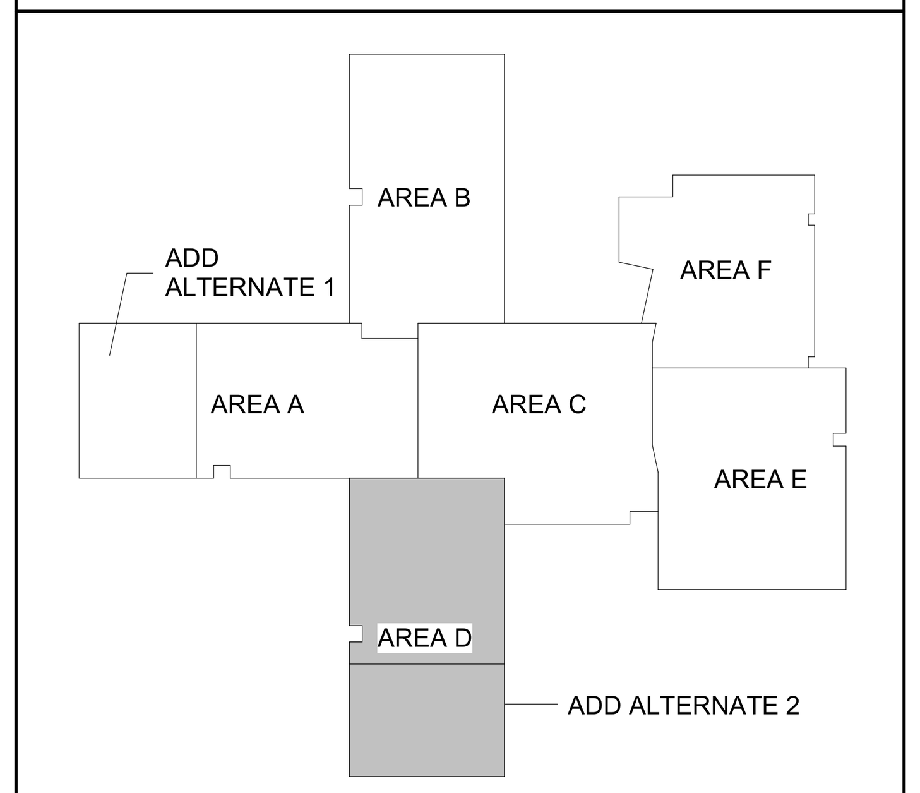
Key Plan



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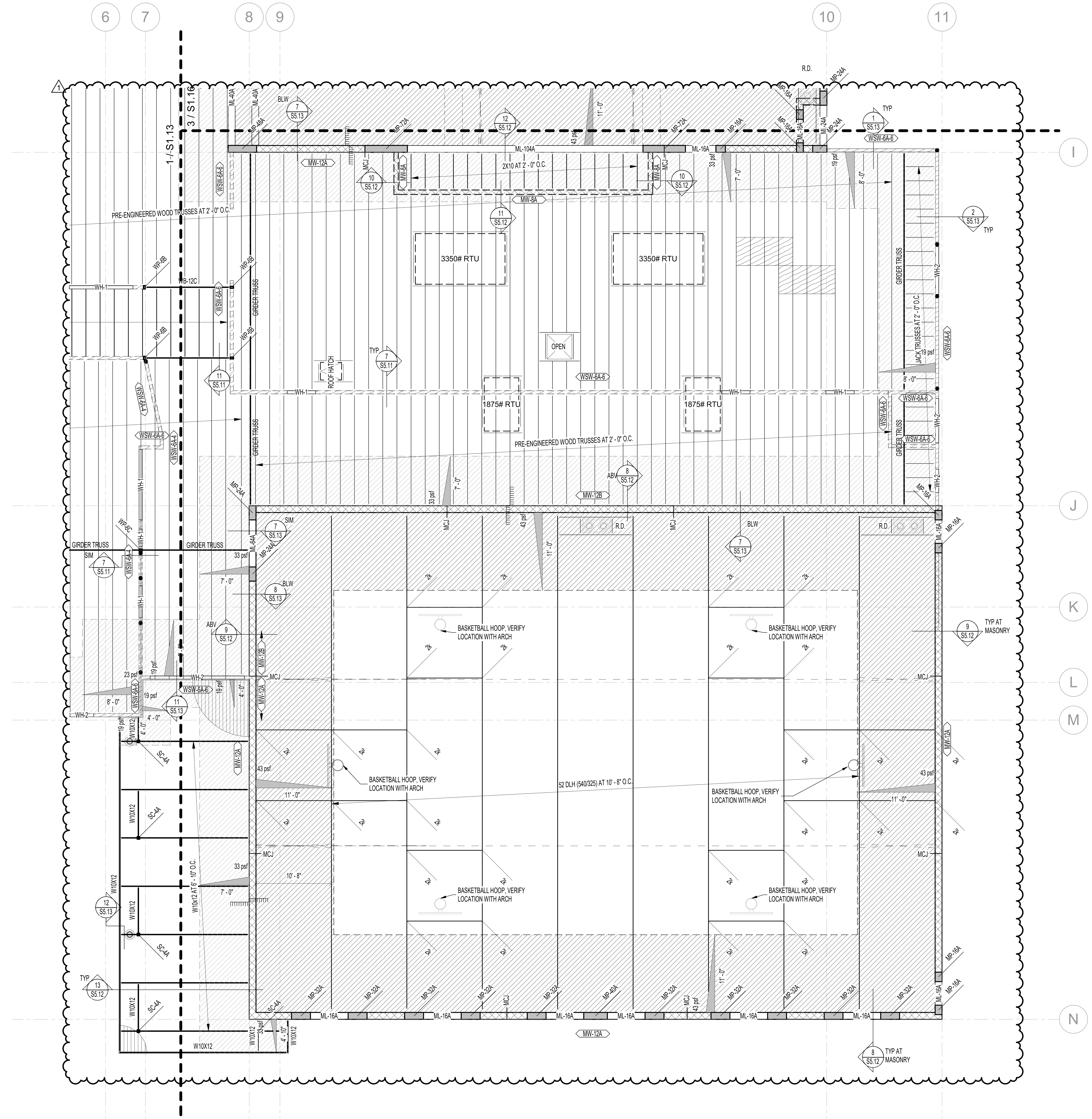
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:
S1.14A
ADD ALTERNATE 2



ROOF FRAMING PLAN - AREA E

1/8" = 1'-0" 0" 4'-0" 8'-0" 16'-0"

WOOD BEAM SCHEDULE (WB-x)

MARK	DESIGNATION	CONNECTION
WB-12A	(2) 2x12	
WB-12B	(3) 2x12	
WB-12C	(3) 1.3/4"x11.1/4" LVL	

WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-6A	(2) 2x6	
WP-6B	(3) 2x6	
WP-6C	6x6 DFL NO. 2	

ROOF FRAMING DESIGN LOADS

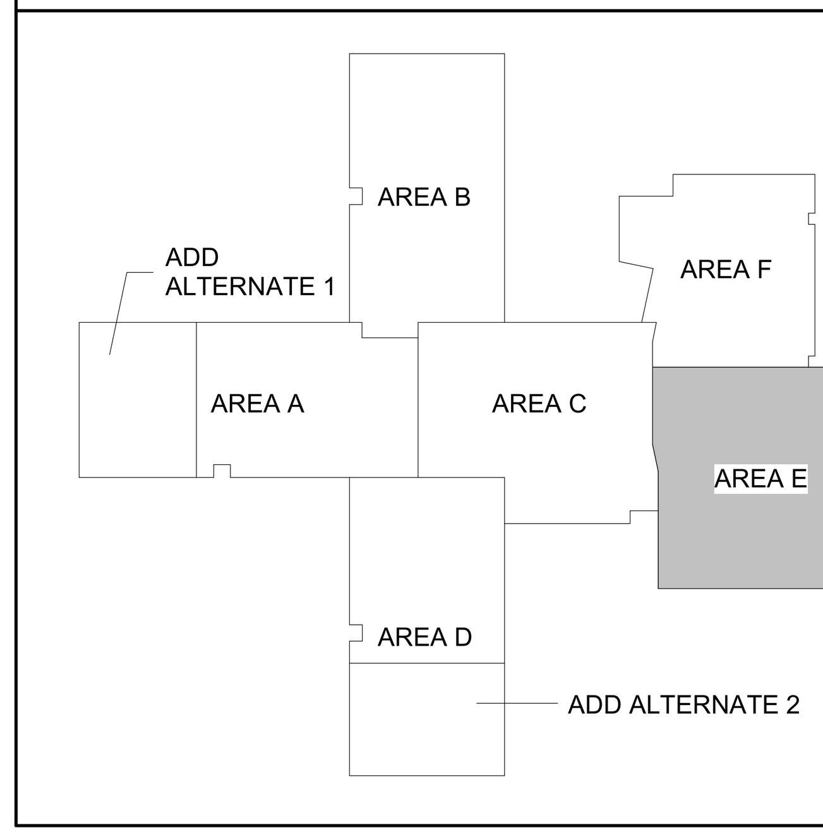
ROOF LOADS:

DEAD LOAD	20 psf
SNOW LOAD	23 psf
TOTAL LOAD	43 psf

ROOF FRAMING PLAN NOTES

1. VERIFY ALL ROOF OPENINGS FOR MECHANICAL SHAFTS, DRAINS, ETC. WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. ALL JOISTS SHALL HAVE 5" DEEP BEARING ENDS (UNO).
3. ALL ROOF OPENINGS GREATER THAN, OR EQUAL TO, 12" x 12" SHALL BE FRAMED AS INDICATED IN DETAILS 1/S5.12 AND 2/S5.12 FOR OPENINGS WHICH CUT LESS THAN TWO DECK FLUTES, SEE DETAIL 3/S5.12.
4. SEE DETAIL 10/S5.12 FOR STEEL BRACE DETAIL CONNECTIONS AND LOCATIONS.
5. SEE DETAIL 4/S5.12 WHEN CONCENTRATED LOADS ARE LOCATED MORE THAN 6" FROM JOIST PANEL POINT.
6. SEE DETAIL 5/S5.12 WHEN MECHANICAL UNITS ARE HUNG BELOW JOISTS.
7. VERIFY SIZE, WEIGHT, AND LOCATION OF ALL ROOF TOP MECHANICAL UNITS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. SEE DETAIL 6/S5.12 FOR STEEL FRAMES AT ALL ROOF TOP EQUIPMENT. COORDINATE OPENINGS WITH MECHANICAL, ELECTRICAL, AND GENERAL CONTRACTORS.
8. COORDINATE LOCATION OF MECHANICAL DUCTWORK WITH MECHANICAL DRAWINGS. CONFIGURE TRUSS WEBBING TO ALLOW FOR DUCTWORK AS REQUIRED.
9. JOIST SUPPLIER SHALL DESIGN ALL ROOF JOIST BEARING ENDS AT WALLS TO TRANSFER 1250lbs (ALLOWABLE) AXIAL LOAD THROUGH JOIST BEARING ENDS.
10. OPEN WEB STEEL JOISTS SHALL BE DESIGNED BY THE MANUFACTURER TO SUPPORT THE MECHANICAL AND LATERAL LOADS SHOWN ON THE ROOF FRAMING PLANS IN ADDITION TO THE UNIFORM AND POINT LOADS SHOWN.
11. JOIST BRIDGING SHOWN ON PLANS IS FOR REPRESENTATION ONLY; ACTUAL SIZE, QUANTITY, AND LOCATION WILL BE DETERMINED BY THE JOIST SUPPLIER PER 'SJI' REQUIREMENTS. ALL BRIDGING AND BRIDGING ANCHORS NEED TO BE IN PLACE BEFORE APPLYING ANY LOADS. WHERE SKYLIGHT OR MECHANICAL UNITS/DUCTS INTERRUPT HORIZONTAL BRIDGING, PROVIDE CROSS BRIDGING AT JOIST SPACES ON EACH SIDE OF THE OPENING. WHERE DIAGONAL BRIDGING CONFLICTS WITH MECHANICAL DUCTS, REMOVE DIAGONAL BRIDGING AND REPLACE WITH HORIZONTAL BRIDGING AFTER ROOF DECK IS IN PLACE.
12. SEE DETAIL 1/S5.11 FOR FRAMING AROUND ALL OPENINGS IN TRUSS ROOF FRAMING
13. SEE DETAIL 5/S5.11 FOR TYPICAL BUILT-UP BEAM DETAIL.
14. SEE DETAIL 2/S5.11 FOR TYPICAL TOP PLATE SPLICE DETAIL.
15. SEE DETAIL 3/S5.11 FOR TYPICAL TOP PLATE SPLICE SCHEDULE AT PIPE.
16. SEE DETAIL 3/S5.02 FOR CONDITION AT RECESSES IN MASONRY WALLS.
17. SEE DETAIL 4/S5.02 FOR TYPICAL CONTROL JOINTS IN MASONRY WALLS.
18. SEE DETAIL 5/S5.02 FOR TERMINATION OF HORIZONTAL REINFORCING IN MASONRY WALLS.
19. SEE ARCHITECTURAL PLANS FOR DIMENSIONS TO ALL STEEL COLUMNS.
20. JOIST DESIGNER SHALL DESIGN JOISTS AND SUPPLY ADDITIONAL BRIDGING AS REQUIRED FOR UPLIFT DUE TO WIND. ASSUME:
   - 0.6DL = 12psf
   - 0.6WL = 21psf (UPLIFT)
   - 9psf NET UPLIFT (ASD)
   - NO 1/3 STRESS INCREASE ALLOWED.

Key Plan



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2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

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4-1-22

BHB STRUCTURAL
390 East Corporate Drive, Ste. 104
Meridian, Idaho 83642
1-208-891-7157
bhb@bhbengineers.com

Revisions

#	Description	Date
1	Addendum #1	4/1/22

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:
S1.15
ROOF FRAMING PLAN – AREA E

LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

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4-1-22

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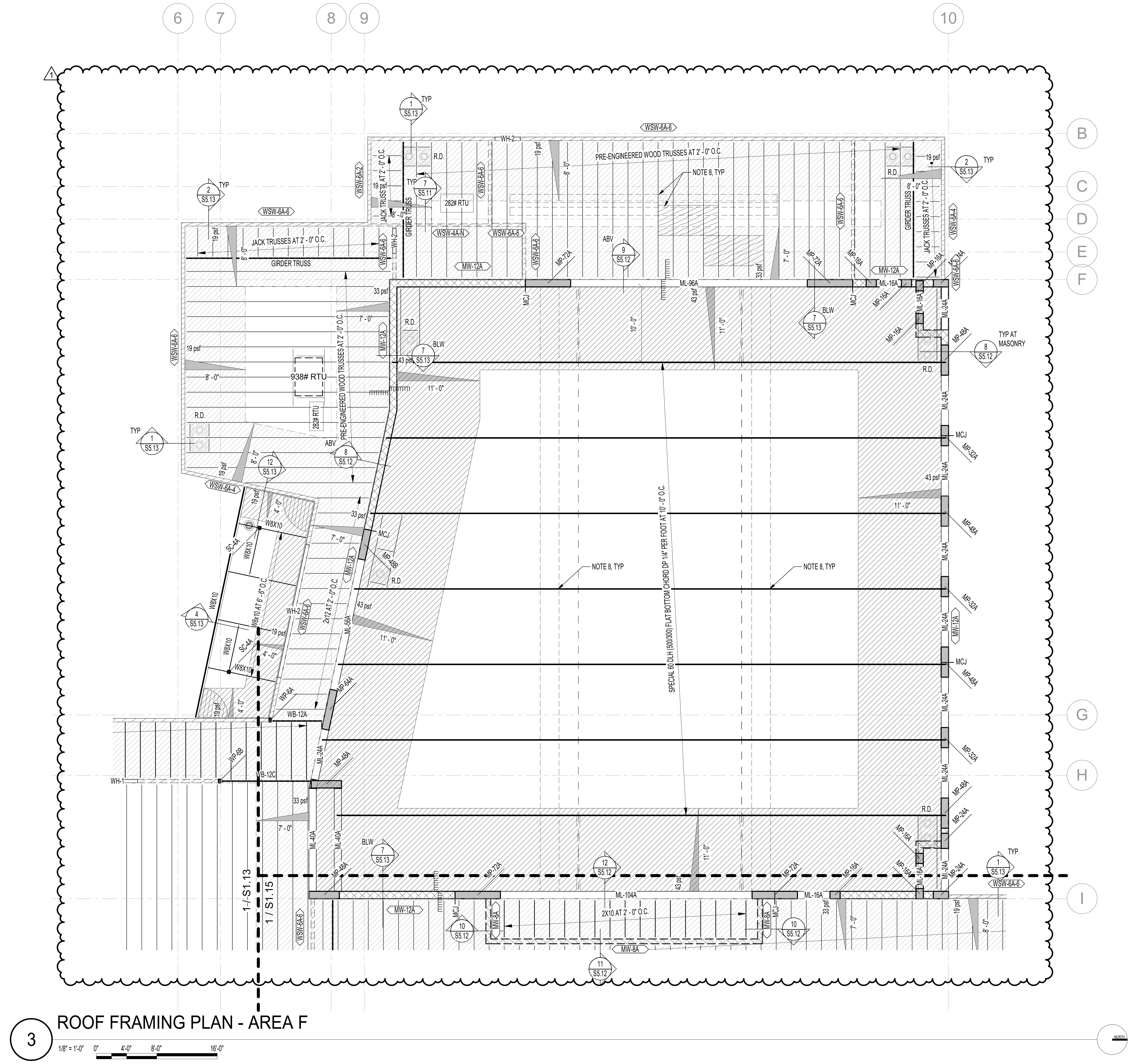
Revisions #	Description	Date
1	Addendum #1	4/1/22



3 ROOF FRAMING PLAN - AREA F
1/8" = 1'-0"

WOOD BEAM SCHEDULE (WB-x)

MARK	DESIGNATION	CONNECTION
WB-12A	(2) 2x12	
WB-12B	(3) 2x12	
WB-12C	(3) 1.3/4"x11.1/4" LVL	

WOOD POST SCHEDULE (WP-x)

MARK	DESIGNATION	CONNECTION
WP-6A	(2) 2x6	
WP-6B	(3) 2x6	
WP-6C	6x6 DFL NO. 2	

ROOF FRAMING DESIGN LOADS

ROOF LOADS:

DEAD LOAD	20 psf
SNOW LOAD	23 psf
TOTAL LOAD	43 psf

ROOF FRAMING PLAN NOTES

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3. ALL ROOF OPENINGS GREATER THAN, OR EQUAL TO, 12" x 12" SHALL BE FRAMED AS INDICATED IN DETAILS 1/S5.12 AND 2/S5.12 FOR OPENINGS WHICH CUT LESS THAN TWO DECK FLUTES, SEE DETAIL 3/S5.12.
4. SEE DETAIL 10/S5.12 FOR STEEL BRACE DETAIL CONNECTIONS AND LOCATIONS.
5. SEE DETAIL 4/S5.12 WHEN CONCENTRATED LOADS ARE LOCATED MORE THAN 6" FROM JOIST PANEL POINT.
6. SEE DETAIL 5/S5.12 WHEN MECHANICAL UNITS ARE HUNG BELOW JOISTS.
7. VERIFY SIZE, WEIGHT, AND LOCATION OF ALL ROOF TOP MECHANICAL UNITS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. SEE DETAIL 6/S5.12 FOR STEEL FRAMES AT ALL ROOF TOP EQUIPMENT. COORDINATE OPENINGS WITH MECHANICAL, ELECTRICAL, AND GENERAL CONTRACTORS.
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12. SEE DETAIL 1/S5.11 FOR FRAMING AROUND ALL OPENINGS IN TRUSS ROOF FRAMING
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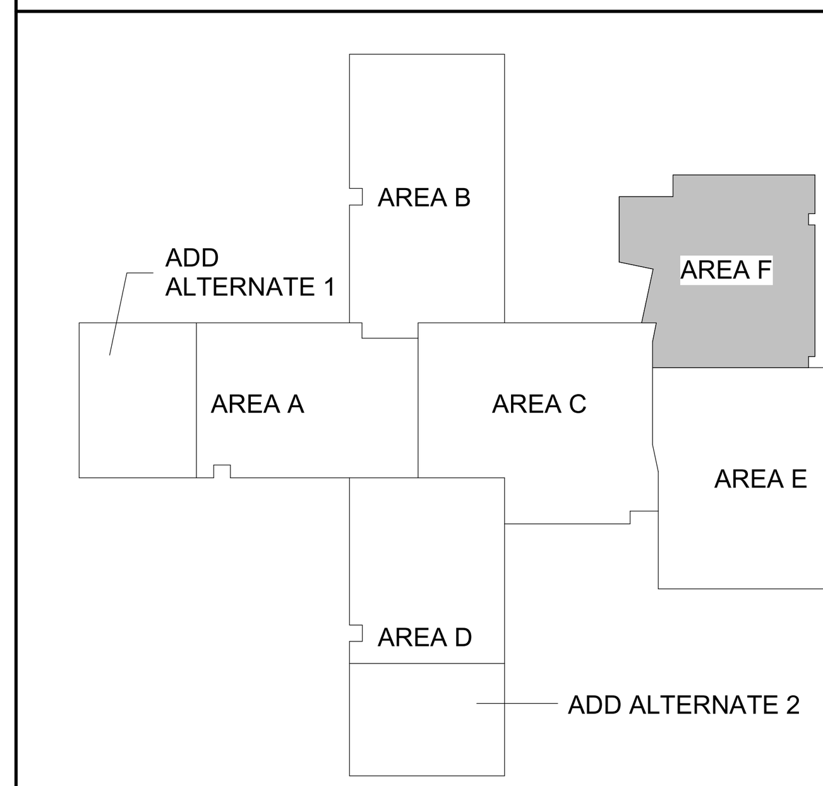
    - 0.6WL = 21psf (UPLIFT)
    - 9psf NET UPLIFT (ASD)
    - NO 1/3 STRESS INCREASE ALLOWED.

Key Plan



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Jerome School District No. 261
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DATE: February 11 2022
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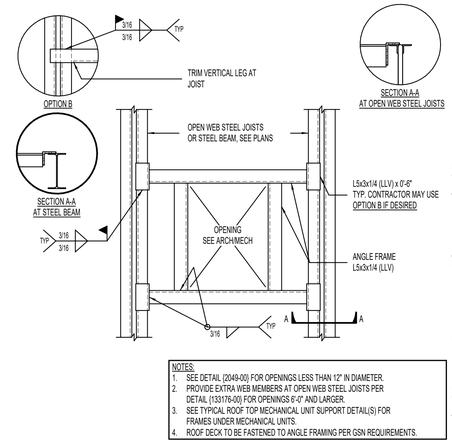
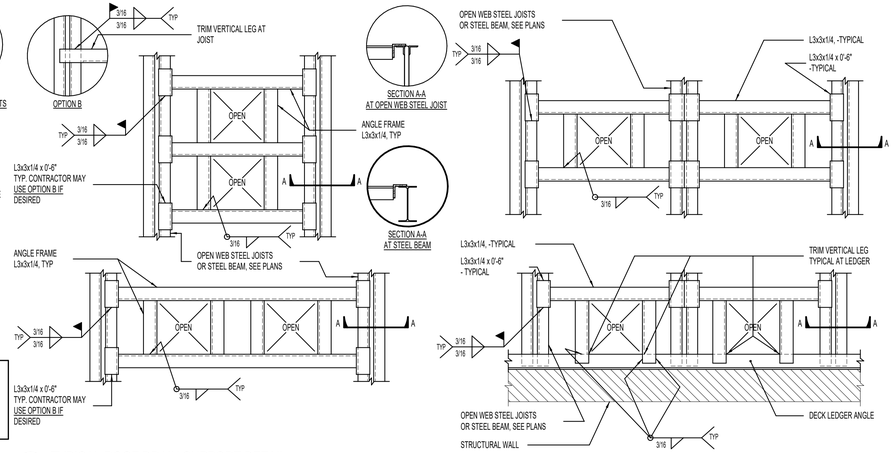
DRAWING NO.:

S1.16

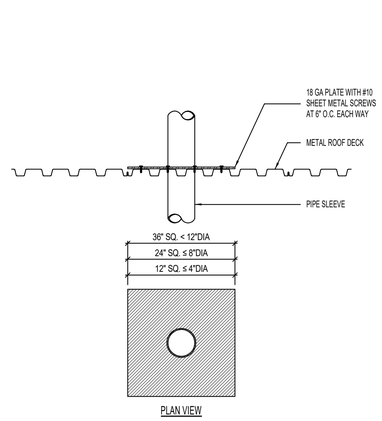
ROOF FRAMING PLAN – AREA F



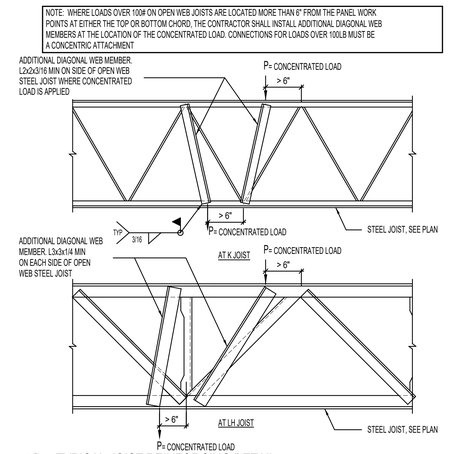
1 TYPICAL ROOF OPENING DETAIL [PLAN VIEW] — NO SCALE



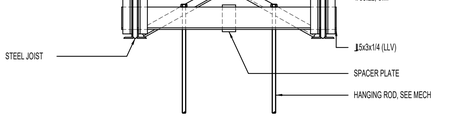
2 TYPICAL ROOF DRAIN SUPPORT DETAIL [PLAN VIEW] — NO SCALE



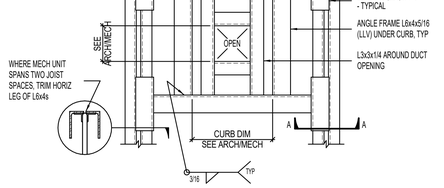
3 TYPICAL PIPE SLEEVE THROUGH ROOF DECK — NO SCALE



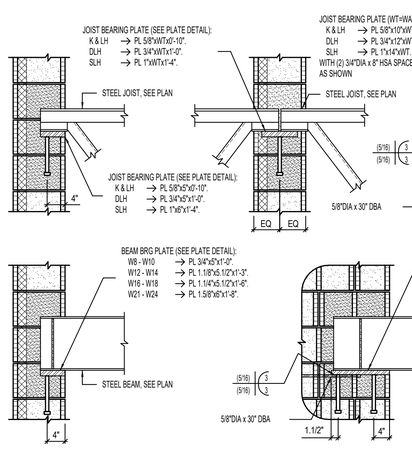
4 TYPICAL JOIST REINFORCING DETAIL FOR LOADS GREATER THAN 100 POUNDS — NO SCALE



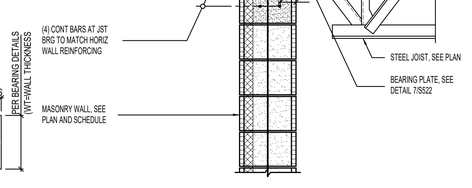
5 TYPICAL HANGING MECHANICAL UNIT SUPPORT DETAIL — NO SCALE



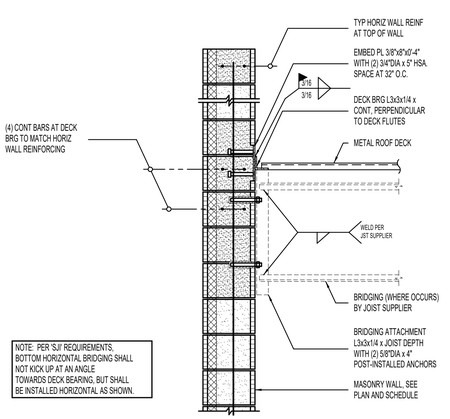
6 TYPICAL ROOF TOP MECHANICAL UNIT SUPPORT DETAIL [PLAN VIEW] — NO SCALE



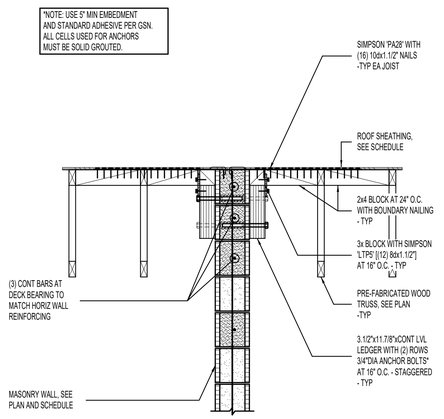
7 BEARING PLATE SCHEDULE FOR ROOF JOIST/BEAM BEARING AT MASONRY WALLS — NO SCALE



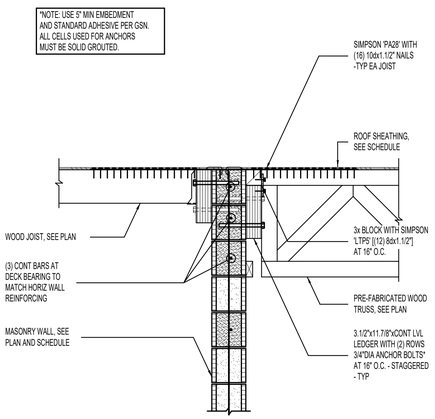
8 TYPICAL 'LH' JOIST BEARING AT 12" MASONRY WALL — NO SCALE



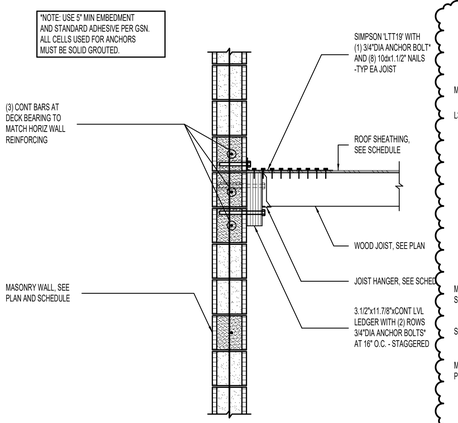
9 TYPICAL DECK BEARING WITH BRIDGING ATTACHMENT AT 12" MASONRY WALLS — NO SCALE



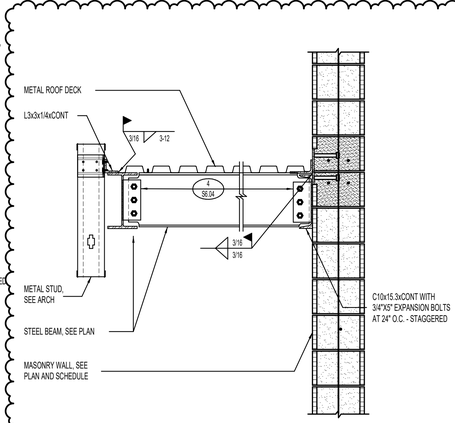
10 WOOD DECK BEARING AT MASONRY WALL — NO SCALE



11 WOOD TRUSS/JOIST BEARING AT MASONRY WALL — NO SCALE



12 WOOD JOIST BEARING AT MASONRY WALL — NO SCALE



13 CANOPY DETAIL — NO SCALE

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2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

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Revisions		
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1	Addendum #1	4/1/22

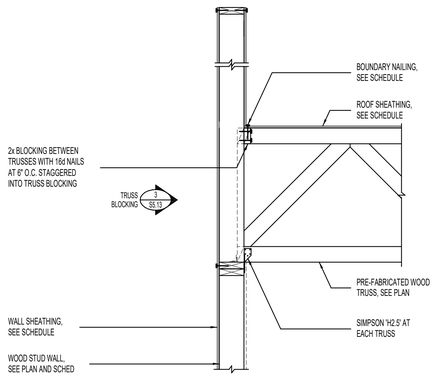
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

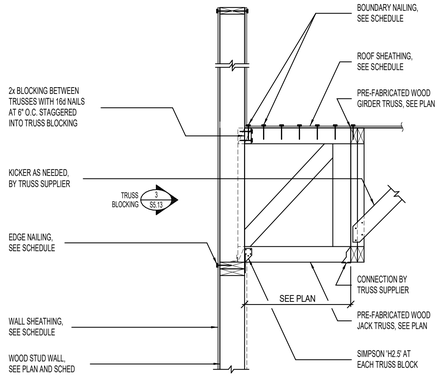
Bid Set

DRAWING NO.:
S5.12
DETAILS



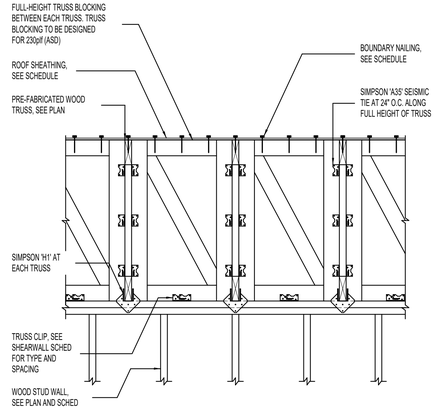
1 TYPICAL TRUSS BEARING ON WOOD STUD WALL [TRUSS PERPENDICULAR TO WALL]

NO SCALE



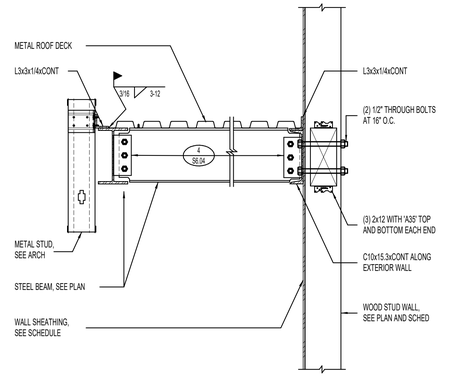
2 TYPICAL TRUSS BLOCKING BEARING ON WOOD STUD WALL [TRUSS PARALLEL TO WALL]

NO SCALE



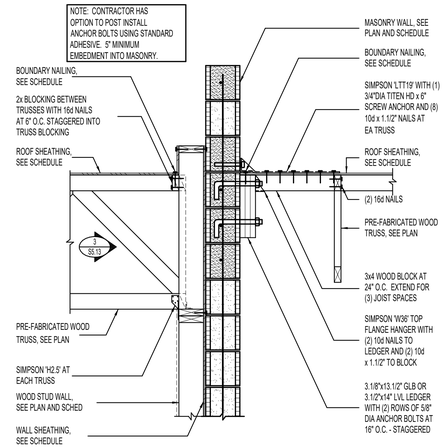
3 TYPICAL TRUSS BLOCKING ELEVATION

NO SCALE



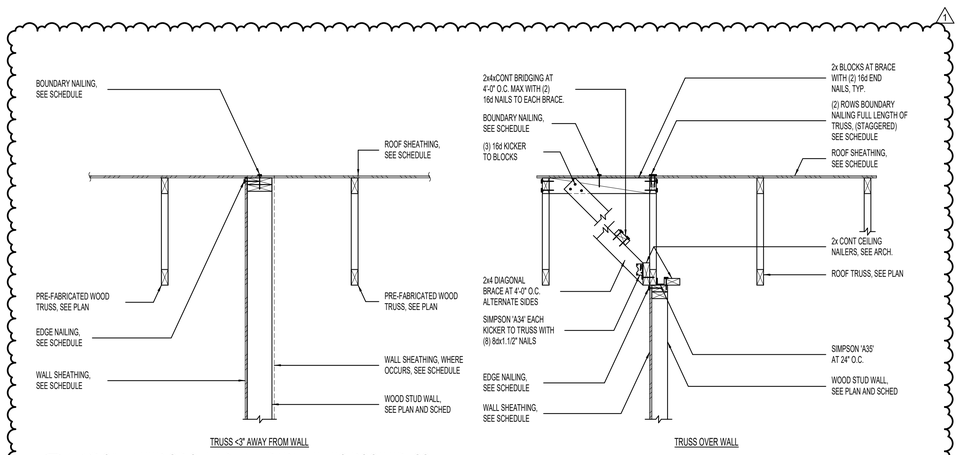
4 CANOPY DETAIL

NO SCALE



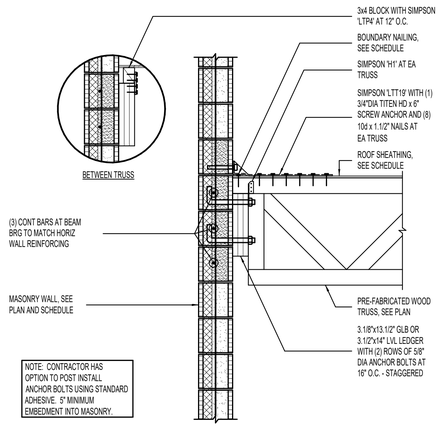
5 TYPICAL WOOD TRUSS PARALLEL TO MASONRY WALL

NO SCALE



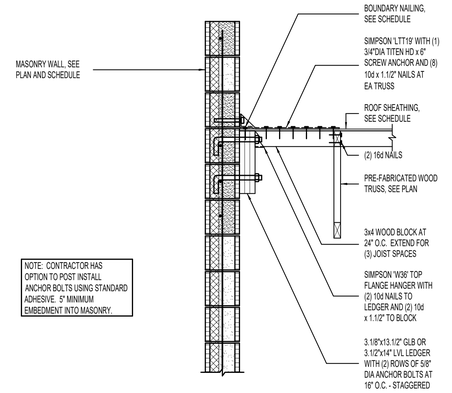
6 TYPICAL INTERIOR SHEARWALL PARALLEL TO ROOF TRUSS

NO SCALE



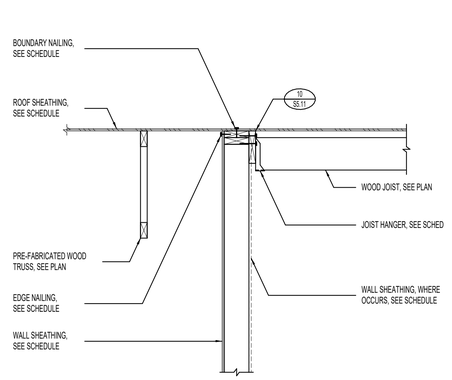
7 TYPICAL WOOD TRUSS BEARING ON MASONRY WALL

NO SCALE



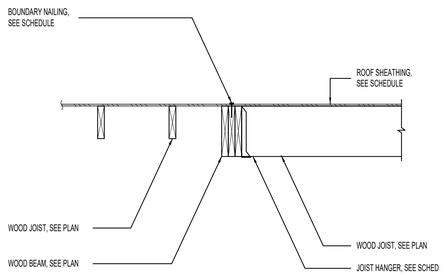
8 TYPICAL WOOD TRUSS PARALLEL TO MASONRY WALL

NO SCALE



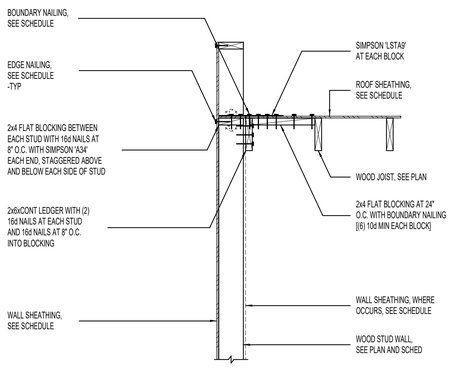
9 DECK BEARING ON INTERIOR WOOD STUD WALL

NO SCALE



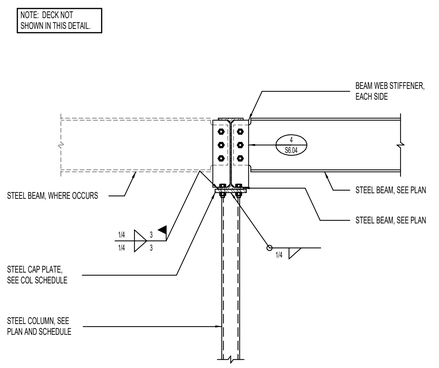
10 WOOD JOIST/DECK BEARING AT INTERIOR WOOD BEAM

NO SCALE



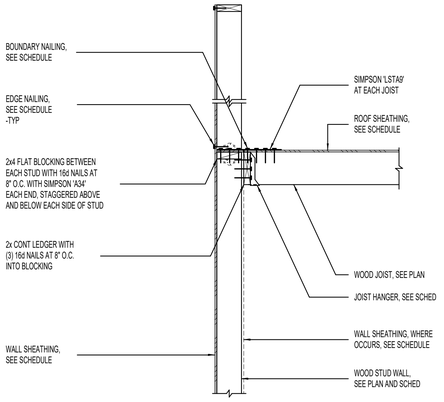
11 WOOD JOIST BEARING AT EXTERIOR WOOD STUD WALL WITH PARAPET

NO SCALE



12 BEAM BEARING AT STEEL COLUMN

NO SCALE



13 WOOD JOIST BEARING AT EXTERIOR WOOD STUD WALL WITH PARAPET

NO SCALE

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1	Addendum #1	4/1/22

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Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:
S5.13
DETAILS

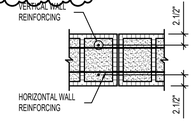
MASONRY WALL SCHEDULE

MARK	THICKNESS	MATERIAL	SOLID	TYPICAL REINFORCING (SEE NOTE 1)		COMMENTS
				VERTICAL	HORIZONTAL	
MW-8A	8"	CMU	YES	#5 AT 32" O.C.	#4 AT 24" O.C.	
MW-12A	12"	CMU	NO	(2) #5 AT 24" O.C.	(2) #5 AT 48" O.C.	USE HI-R BLOCK AT EXTERIOR WALLS
MW-12B	12"	CMU	YES	(2) #5 AT 24" O.C.	(2) #4 AT 24" O.C.	SOLID GROUT BLW ROOF, USE HI-R BLOCK ABV ROOF

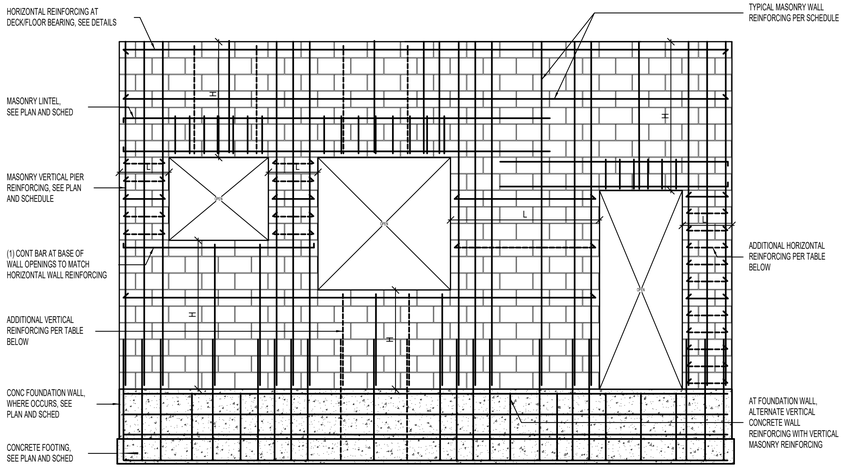
MASONRY WALLS NOT DESIGNATED IN PLAN

THICKNESS	REINFORCING		
	VERTICAL	HORIZONTAL (NOT SOLID GROUTED)	HORIZONTAL (SOLID GROUTED)
6"	#5 AT 32" O.C.	#4 AT 48" O.C.	#4 AT 24" O.C.
8"	#5 AT 32" O.C.	#5 AT 48" O.C.	#4 AT 24" O.C.
10"	#5 AT 24" O.C.	#6 AT 48" O.C.	#5 AT 24" O.C.
12"	#5 AT 24" O.C.	(2) #5 AT 48" O.C.	(2) #4 AT 24" O.C.

MASONRY WALL NOTES:
1. SPACING OF MASONRY WALL REINFORCING SHALL NOT EXCEED TYPICAL SCHEDULED REINFORCING. SEE ELEVATION AND MASONRY WALL SECTION REINFORCING TABLE BELOW FOR LOCATIONS WHERE TIGHTER SPACING IS REQUIRED.
2. COORDINATE WALL FINISHES, MATERIALS, COURSING, ETC. WITH ARCHITECTURAL DRAWINGS.
3. DO NOT SOLID GROUT WALLS UNLESS REQUIRED BY SCHEDULE, NOTES, OR DETAILS.
4. SOLID GROUT ALL MASONRY COURSES BELOW GRADE.
5. SINGLE LAYER OF VERTICAL REINFORCING SHALL BE CENTERED IN WALL (UNO).
6. VERTICAL REINFORCING SHALL EXTEND INTO FOOTINGS AND TERMINATE WITH STANDARD HOOK. FOR CONCRETE FOUNDATION WALLS 4'-0" OR TALLER, VERTICAL WALL REINFORCING SHALL DOWEL 3'-0" MINIMUM INTO THE FOUNDATION WALL (UNO).
7. PROVIDE TWO VERTICAL BARS (MIN) AT ALL CORNERS AND END OF WALLS.
8. HORIZONTAL WALL REINFORCING SHALL BE PLACED BETWEEN A DOUBLE LAYER OF VERTICAL MASONRY REINFORCING.
9. HORIZONTAL WALL REINFORCING SHALL CONTINUE THROUGH MASONRY LINTELS. WHERE BOTH HORIZONTAL WALL REINFORCING AND LINTEL REINFORCING OCCUR IN THE SAME COURSE, USE THE LARGER REINFORCING.
10. SEE DETAIL S/SS.02 FOR WHERE HORIZONTAL REINFORCING TERMINATES AT EDGE OF OPENINGS.
11. IN CONCRETE FOUNDATION WALL BELOW, ALTERNATE VERTICAL CONCRETE WALL REINFORCING WITH VERTICAL MASONRY REINFORCING.
12. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.



DOUBLE VERTICAL LAYER WALL REINFORCING AT 12" MASONRY



MARKS AND SYMBOLS LEGEND

———	INDICATES SCHEDULED MASONRY WALL, PIER, OR LINTEL REINFORCING
- - - - -	INDICATES ADDITIONAL REINFORCING AS REQUIRED PER MASONRY WALL SECTION REINFORCING TABLE
L	INDICATES LENGTH OF WALL SECTION
H	INDICATES HEIGHT OF WALL SECTION

MASONRY WALL SECTION REINFORCING TABLE

HEIGHT OR LENGTH	MAXIMUM SPACING
H OR L ≤ 4'-0"	8" O.C.
4'-0" < H OR L < 6'-0"	16" O.C.
6'-0" < H OR L < 8'-0"	24" O.C.
8'-0" < H OR L < 10'-0"	32" O.C.
10'-0" < H OR L < 12'-0"	40" O.C.
H OR L > 12'-0"	48" O.C.

NOTES:
1. ADDITIONAL VERTICAL AND HORIZONTAL REINFORCING SHALL MATCH BAR SIZE OF SCHEDULED WALL REINFORCING AT SPACING INDICATED IN TABLE ABOVE.
2. WHERE 8" SPACING IS REQUIRED, #3 BAR MAY BE USED FOR HORIZONTAL REINFORCING.
3. WHERE SPACING OF SCHEDULED WALL REINFORCING IS LESS THAN TABLE ABOVE, SCHEDULED SPACING SHALL GOVERN.

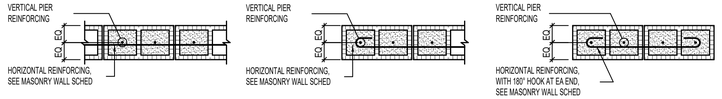
1 MASONRY WALL SCHEDULE — NO SCALE

MASONRY PIER SCHEDULE

MARK	SIZE	VERTICAL REINFORCING	VERTICAL REINFORCING SCHEMATIC	COMMENTS
MP-16A	WT x 16"	(4) #5		
MP-24A	WT x 24"	(6) #5		
MP-32A	WT x 32"	(8) #5		
MP-40A	WT x 40"	(10) #5		
MP-48A	WT x 48"	(12) #5		
MP-48B	WT x 48"	(12) #6		
MP-56A	WT x 56"	(14) #6		
MP-64A	WT x 64"	(16) #6		
MP-72A	WT x 72"	(18) #6		

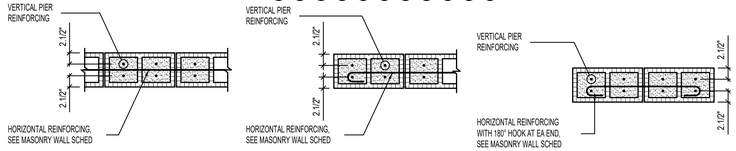
MASONRY PIER NOTES:
1. SEE MASONRY WALL SCHEDULE FOR HORIZONTAL REINFORCING REQUIREMENTS FOR ALL PIERS.
2. VERTICAL REINFORCING AND TIES SHALL EXTEND FULL HEIGHT OF WALL (UNO).
3. VERTICAL MASONRY PIER REINFORCING SHALL EXTEND INTO THE FOOTING AND TERMINATE WITH A STANDARD 90° HOOK. FOR CONCRETE FOUNDATION WALLS 4'-0" OR TALLER, VERTICAL PIER REINFORCING SHALL DOWEL 3'-0" MINIMUM INTO THE FOUNDATION WALL (UNO).
4. IN CONCRETE FOUNDATION WALLS, VERTICAL REINFORCING AT TYPE 'B' MASONRY PIERS SHALL BE TIED WITH #3 TIES AT TOP AND BOTTOM OF FOUNDATION WALL. SEE DETAILS.
5. HORIZONTAL REINFORCING OF ADJACENT WALLS SHALL RUN CONTINUOUS THROUGH MASONRY PIERS.
6. WHERE HORIZONTAL REINFORCING TERMINATES AT PIER, PROVIDE 180° HOOK, SEE SCHEMATICS BELOW.
7. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

SINGLE LAYER CONFIGURATION SCHEMATICS



BELOW OR ABOVE OPENING | ADJACENT TO OPENING OR END OF WALL | ISOLATED BETWEEN ADJACENT OPENINGS

DOUBLE LAYER CONFIGURATION SCHEMATICS



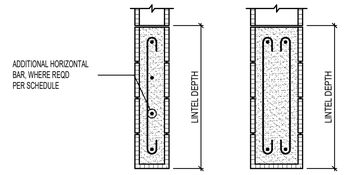
BELOW OR ABOVE OPENING | ADJACENT TO OPENING OR END OF WALL | ISOLATED BETWEEN ADJACENT OPENINGS

2 MASONRY PIER SCHEDULE — NO SCALE

MASONRY LINTEL SCHEDULE

MARK	DEPTH	REINFORCING		TYPE	COMMENTS
		HORIZONTAL	STIRRUPS		
ML-16A	16"	(1) #5 x CONT TOP AND BOTTOM	NONE	-	
ML-24A	24"	(1) #6 x CONT TOP AND BOTTOM	NONE	-	
ML-40A	40"	(2) #7 x CONT TOP AND BOTTOM	#4 AT 16" O.C.	-	
ML-64A	64"	(2) #7 x CONT TOP AND BOTTOM	#4 AT 16" O.C.	-	
ML-96A	96"	(2) #8 x CONT TOP AND BOTTOM	#4 AT 16" O.C.	-	
ML-104A	104"	(2) #8 x CONT TOP AND BOTTOM	#4 AT 16" O.C.	-	

MASONRY LINTEL NOTES:
1. LINTEL WIDTH AND MATERIAL TYPE SHALL BE THE SAME AS THE WALL IN WHICH THE LINTEL IS CONSTRUCTED.
2. GROUT MASONRY LINTELS MONOLITHICALLY WITH THE SUPPORT WALL OR PIER AT EACH END.
3. MASONRY LINTEL ML-8A SHALL BE USED OVER OPENINGS IN MASONRY WALLS WHEN A SPECIFIC MASONRY LINTEL IS NOT OTHERWISE SPECIFIED. WHEN A LINTEL IS SPECIFIED ON THE PLANS, THE MAXIMUM SPAN AS NOTED IN THIS SCHEDULE SHALL NOT APPLY. CONSULT THE STRUCTURAL ENGINEER FOR LINTELS NOT SPECIFIED ON THE PLANS WHICH HAVE A SPAN GREATER THAN 3'-4".
4. MASONRY LINTEL ML-8A SHALL NOT BE LOCATED DIRECTLY BELOW FLOOR OR ROOF BEAMS OR GIRDERS UNLESS NOTED OTHERWISE ON THE PLANS. JOISTS SHALL NOT BEAR ON ANY LINTEL LESS THAN 16" DEEP. CONSULT THE STRUCTURAL ENGINEER FOR LINTELS NOT SHOWN ON THE PLANS WHICH ARE LOCATED DIRECTLY BELOW FLOOR OR ROOF BEAMS OR GIRDERS.
5. EXTEND ALL HORIZONTAL REINFORCING 48 BAR DIAMETERS MINIMUM BEYOND THE EDGE OF ALL OPENINGS. IF HORIZONTAL REINFORCING CANNOT EXTEND 48 BAR DIAMETERS BEYOND EDGE OF OPENING, PROVIDE 90° STANDARD HOOK.
6. SPLICE TOP BARS AT MIDSPAN OF LINTEL ONLY AND BOTTOM BARS OVER SUPPORTS ONLY.
7. HORIZONTAL WALL REINFORCING SHALL CONTINUE THROUGH MASONRY LINTELS. WHERE BOTH HORIZONTAL WALL REINFORCING AND LINTEL REINFORCING OCCUR IN THE SAME COURSE, USE THE LARGER REINFORCING.
8. DOWEL VERTICAL REINFORCING OF WALL ABOVE LINTEL INTO THE FULL DEPTH OF LINTEL OR 48 BAR DIAMETERS, WHICHEVER IS LESS.
9. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.



TYPE "A" | TYPE "B"

3 MASONRY LINTEL SCHEDULE — NO SCALE

MASONRY REINFORCING LAP SPLICE SCHEDULE

BAR SIZE	8" MASONRY		10" MASONRY		12" MASONRY	
	(1) BAR PER CELL	(2) BARS PER CELL	(1) BAR PER CELL	(2) BARS PER CELL	(1) BAR PER CELL	(2) BARS PER CELL
#3	12"	12"	12"	12"	12"	12"
#4	13"	21"	12"	20"	12"	20"
#5	20"	35"	16"	32"	13"	32"
#6	38"	SEE NOTE 1	29"	60"	24"	60"
#7	52"	SEE NOTE 1	40"	SEE NOTE 1	33"	63"
#8	SEE NOTE 1	SEE NOTE 1	61"	SEE NOTE 1	50"	SEE NOTE 1

2018 IBC

NOTES:
1. WHERE INDICATED, USE MECHANICAL SPLICE COUPLER. SEE GSN FOR REQUIREMENTS.
2. WHERE VERTICAL BARS HAVE A SPECIFIED LAP SPLICE GREATER THAN THE HEIGHT OF THE GROUT POUR, USE MECHANICAL SPLICE COUPLER.

4 MASONRY REINFORCING LAP SPLICE SCHEDULE (f'm=2000psi) — NO SCALE

VENEER LINTEL SCHEDULE

CLEAR OPENING	SIZE OF ANGLE
UP TO 5'-0"	L3.1/2x3.1/2x1/4 (LLH)
5'-1" TO 7'-0"	L3.1/2x3.1/2x1/4
7'-1" TO 9'-0"	L5x3.1/2x1/4 (LLV)
9'-1" TO 10'-0"	L5x3.1/2x5/16 (LLV)
10'-1" TO 11'-0"	L5x3.1/2x3/8 (LLV)
11'-1" TO 12'-0"	L6x4x3/8 (LLV)
12'-1" AND OVER	REQUIRES SPECIAL ANALYSIS

NOTE:
LINTELS CARRY VENEER ONLY. WHERE FLOORS, ROOFS, OR CONCENTRATED LOADS OCCUR, FURTHER ANALYSIS IS NECESSARY. PROVIDE 1" OF BEARING AT EACH END FOR EACH FOOT OF SPAN. MINIMUM BEARING OF 6" EACH SIDE OF OPENING. USE THIS SCHEDULE UNLESS NOTED OTHERWISE. STEEL ANGLES SHALL BE GALVANIZED AT EXTERIOR CONDITIONS.

5 VENEER LINTEL SCHEDULE — NO SCALE

LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER LICENSED 16702 STATE OF IDAHO ANDREW S. MORGAN
4-1-22

BHB STRUCTURAL
390 East Corporate Drive, Ste. 104
Meridian, Idaho 83642
1-208-891-7157
bhb@bhbengineers.com

#	Revisions Description	Date
1	Addendum #1	4/1/22

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: February 11 2022
LKV PROJECT #: 210947

DRAWN BY: TNT
CHECKED BY: DM

Bid Set

DRAWING NO.:
S6.02
SCHEDULES

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Boise, ID 83709
Phone: 208.384.0585
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Addendum #1

(MECHANICAL/PLUMBING)

Date:	04-01-2022	To:	LKV Architects
Job Number:	21-422		2400 E. Riverside Drive
Prepared By:	Chris Dyke		Boise, ID 83706
Sheet:	1 of 3	Attention:	Brook Thornton

Project: **Jerome Elementary School**

Mechanical/Plumbing:

Mechanical Specifications:

1. A specification section for variable frequency drives has been added to 230100-2.13.
2. A specification section for energy recovery units has been added to 230100-2.14.
3. Added motor requirements for base-mounted end-suction pumps in 230100-2.6-A-9.

Equipment Approvals:

The following manufacturers shall be approved for bidding only. Final approval shall be based on requirements of plans and specifications. These manufactures are to be approved along with approved manufacturers listed on equipment schedules.

Energy Recovery Units: American Aldes

Water Softener System: Marlo

Drainage & Carrier Products: Josam

Plan Revisions:

1. Sheet M2.5 – HVAC FLOOR PLAN – AREA E
    a. Flipped spaces Toilet E108 & Janitor E109.
    b. Updated EF-E1 location in Janitor E109.
    c. Updated R-2 return grille location in Toilet E108.
2. Sheet M2.7 – HVAC FLOOR PLAN – ADD ALTERNATE 1 & 2
    a. Added fire dampers to rectangular fresh air and exhaust ductwork penetrating fire wall.
3. Sheet M3.7 – HYDRONIC PIPING FLOOR PLAN – ADD ALTERNATE 1 & 2
    a. Added keyed note #2 to hydronic pipes penetrating fire wall: “FIRE CAULK AROUND HYDRONIC PIPE PENETRATIONS THROUGH FIRE WALL.”

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4. Sheet M4.5 – HVAC ROOF PLAN – AREA E
    a. Relocated EF-E1 roof cap.
    b. Shifted EF-E3 to maintain 10' requirement from edge of roof.
5. Sheet M5.1 – ENLARGED MECHANICAL PLAN
    a. Well water piping rerouted to East wall of mechanical room.
    b. Relocated EF-E3 exhaust duct opening
    c. Modified hydronic piping schematic.
        i. 2" line to bypass filter at 30-gpm.
    d. Added gas regulator and shutoff valve from 1" MPG to 2" LPG line feeding kitchen.
    e. Well pump VFD and filter have been shown for coordination.
6. Sheet M7.1 –MECHANICAL SCHEDULES
    a. ENERGY RECOVERY UNITS:
        i. Do NOT include bypass dampers on the energy recovery units (ERU-A1, ERU-A2, ERU-B1, ERU-B2, ERU-C1, ERU-D1, ERU-D2, & ERU-F1).
        ii. Units shall include DC link choke on fan VFD's.
7. Sheet M7.2 –MECHANICAL SCHEDULES
    a. PUMPS
        i. Replace remark #2 on pumps P-1 & P-2 with remark #5.
            1. Remark #5: "PROVIDE UNIT WITH SHAFT GROUNDING & PREMIUM EFFICIENCY MOTOR RATED PER NEMA MG1 PART 31."
    b. VARIABLE FREQUENCY DRIVES
        i. Updated basis of design model to ABB Model ACH 580.
        ii. Add "5% INTERNAL IMPEDANCE, AND 3% LINE REACTOR." to remark #2.

Plumbing:

Plan Revisions:

1. Sheet P1.5 – FOUNDATION PLUMBING PLAN AREA E
    a. Added floor sink FS-3.
    b. Flipped spaces Toilet E108 & Janitor E109.
2. Sheet P2.5 – PLUMBING PLAN AREA E
    a. Relocated building water service and fire riser area in Southeast area of mechanical room.
    b. Flipped spaces Toilet E108 & Janitor E109.
    c. Added Keyed Note #11.
3. Sheet P4.1 – ENLARGED PLUMBING PLAN
    a. Added gas piping to Steam Kettles, Double Stack Convection Ovens, and Single Stack Combi Oven.
    b. Added water connection and RPBP-1 to Single Stack Combi Oven.
    c. Added gas solenoid shutoff valve tied to kitchen hood panel.
4. Sheet P5.1 –PLUMBING DETAILS

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   a. Added note to Detail #3: "GAS CONNECTION TO KITCHEN EQUIPMENT: PLUMBING CONTRACTOR SHALL BE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FINAL GAS CONNECTIONS TO KITCHEN EQUIPMENT. PLUMBING CONTRACTOR SHALL COORDINATE FLEXIBLE PIPING REQUIREMENTS WITH KITCHEN EQUIPMENT SUPPLIER."

5. Sheet P6.2 – PLUMBING RISER DIAGRAMS
   a. Modified Waste & Vent Riser Diagram "E" to match floor plan changes.
   b. Modified Water Piping Riser Diagram "E" to match floor plan changes
6. Sheet P7.2 – PLUMBING SCHEDULES
   a. Updated Kitchen Equipment Schedule to include gas and water connections to select kitchen equipment.
   b. Updated gas sizing chart to include kitchen equipment.

Attachments

Sheet M2.5 – HVAC FLOOR PLAN – AREA E
Sheet M2.7 – HVAC FLOOR PLAN – ADD ALTERNATE 1 & 2
Sheet M3.7 – HYDRONIC PIPING FLOOR PLAN – ADD ALTERNATE 1 & 2
Sheet M4.5 – HVAC ROOF PLAN – AREA E
Sheet M5.1 – ENLARGED MECHANICAL PLAN
Sheet M7.1 – MECHANICAL SCHEDULES
Sheet M7.2 – MECHANICAL SCHEDULES
Sheet P1.5 – FOUNDATION PLUMBING PLAN AREA E
Sheet P2.5 – PLUMBING PLAN AREA E
Sheet P4.1 – ENLARGED PLUMBING PLAN
Sheet P5.1 – PLUMBING DETAILS
Sheet P6.2 – PLUMBING RISER DIAGRAMS
Sheet P7.2 – PLUMBING SCHEDULES

End of Addendum

SECTION 230100 - HEATING, VENTILATING, AND AIR CONDITIONING

PART 1 - GENERAL

1.1 SCOPE

A. This section covers the work necessary for the heating, ventilating, and air conditioning system, complete. The HVAC General Requirements, Section 230000, is to be included as a part of this section of the specifications.

1.2 CODES & STANDARDS

A. The heating, ventilating, and air conditioning system shall be installed in accordance with the latest edition of the following codes and standards:

1. International Mechanical Code (IMC)

2. International Building Code (IBC)

3. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)

4. National Fire Protection Association (NFPA)

5. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

PART 2 - PRODUCTS

2.1 AIR HANDLING UNITS AND APPURTENANCES

A. Packaged Rooftop Air Conditioning Unit:

1. General:
   a. The packaged unit shall consist of condensing section, evaporator section, heating section, blower, filter, and controls, all contained in weatherproof casing suitable for installation on the roof. The entire unit is to be factory wired, piped, and tested. Unit shall bear the UL label for the intended application.

2. Casing:
   a. Casing shall consist of welded steel reinforced framework with 18-gauge zinc grip steel finished with weatherproof baked enamel paint. Cooling section shall be insulated with minimum 1" thick, 1.5 density coated sound absorbing insulation. Easily removable panels shall be provided for access to internal components.

3. Condensing Section:
   a. Condensing section shall include spring mounted hermetic compressors; air cooled condenser and fans, evaporator coil, and refrigeration piping and specialties.

Compressors shall be furnished with current and temperature overload protection, oil sight glass, and shall carry a 5-year guarantee. Condenser fans shall be upflow propeller type with direct or belt drive motors with overload protection. Propeller fans shall be coated with weather resistant finish and protected by fan guard. Evaporator coils shall be direct expansion coils complete with thermostatic expansion valves. Furnish galvanized drain under coil. Refrigerant piping system shall be completely factory piped with a full operating charge of R-410a. Suction line to be insulated. Units shall be furnished with low ambient control, for operation down to 0 degrees F (not required on units furnished with economizers).

4. Gas Heating Section:
   a. Gas heating section shall be AGA certified and include gas fired furnace with steel heat exchanger and burners, power vent, manual main and pilot shutoff valves, automatic gas valve, electronic ignition, and flame proving controls. Entire unit shall be tested and certified for operation down to -30 degrees F. outdoor temperature.

5. Blower:
   a. Blower section shall consist of heavy duty, centrifugal blower wheels, balanced to eliminate vibration. Furnish adjustable motor mount and v-belt drive. Motors shall be furnished with overload protection.

6. Filters:
   a. Filter frames shall be metal and accommodate the BSD filter media. See equipment schedule for additional information and requirements.

7. Control Section:
   a. Controls shall be as noted on the plans.

8. Manufacturer, Capacity and Accessories:
   a. See drawings.

2.2 HEAT GENERATION

A. Condensing High Efficiency Boilers

1. General:
   a. Quality Assurance
      1) Listing and Labeling: Provide electrically operated components specified in this Section that are listed and labeled.
         a) The Terms “Listed” and “Labeled”: As defined in NFPA 70, Article 100.
         b) Listing and Labeling Agency Qualifications: A “Nationally Recognized Testing Laboratory” as defined in OSHA Regulation 1910.7.
      2) ASME Compliance: Boilers shall bear ASME “H” stamp and be National-Board listed.
      3) FM Compliance: Control devices and control sequences according to requirements of FM.
      4) Comply with NFPA 70 for electrical components and installation.
      5) IRI Compliance: Control devices and control sequences according to requirements of IRI (GE GAP).
      6) CSD-1.

7) SCAQMD Rule 1146.1 & 1146.2 for low NOx equipment.

2. Warranty:
   a. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents. Installing contractor shall provide one year of warranty parts and labor.
   b. Special Warranty: Submit a written warranty, executed by the contractor for the heat exchanger.
      1) Warranty Period: Manufacturer's standard, but not less than 10 years from date of Substantial Completion on the heat exchanger. Warranty shall be non-prorated and not limited to thermal shock. Additional 21 year thermal shock warranty on heat exchanger.
         Standard Warranty is pro-rated after 5 years for commercial products.

3. Manufacturers:
   a. Available Manufacturers: Manufacturer shall be a company specializing in manufacturing the products specified in this section with minimum five (5) years' experience. Subject to compliance with requirements, manufacturers offering boilers that may be incorporated into the Work include, but are not limited to, the following:
   b. Design: Boilers shall be CSA design certified as a condensing boiler. Boilers shall be designed for a minimum of 5:1 continuous turn down with constant CO2 over the turndown range. The boiler shall operate with natural or propane gas and have a CSA International certified input rating as noted on the drawings, and a thermal efficiency rating up to 99% at minimum input. The boiler shall be symmetrically air-fuel coupled such that changes in combustion air flow or flue flows affect the BTUH input without affecting combustion quality. The boiler will automatically adjust input for altitude and temperature induced changes in air density. The boiler will use a proven pilot interrupted spark ignition system. The boiler shall use a UL approved flame safeguard ignition control system using UV detection flame sensing. The UV detector shall be air cooled to prevent condensate formation and so designed as to prevent misalignment. The design shall provide for silent burner ignition and operation. The boiler shall be down fired counter flow such that formed condensate always moves toward a cooler zone to prevent re-evaporation. An aluminum corrosion resistant condensate drain designed to prevent pooling and accessible condensate trap shall be provided. A means of neutralizing the condensate Ph levels shall be required. Boiler shall be able to vent a horizontal distance of 80 equivalent feet with a vent diameter equivalent to the combustion chamber outlet diameter.
   c. Service Access: The boilers shall be provided with access covers for easily accessing all serviceable components. The boilers shall not be manufactured with large enclosures, which are difficult to remove and reinstall. All accesses must seal completely as not to disrupt the sealed combustion process. All components must be accessible and able to adjust with the removal of a single cover or cabinet component.
   d. Indicating lights: Each boiler shall include a diagnostic control panel with a full text display indicating the condition of all interlocks and the BTUH input percentage. Access to the controls shall be through a completely removable cover leaving diagnostic panel intact and not disrupted.

4. Components
   a. Combustion Chamber: The combustion chamber shall be constructed of cast-iron. It

shall be a down-fired design utilizing light weight refractory around the burner housing.

b. Heat Exchanger: Boilers shall be a cast iron sectional unit designed for pressure firing and shall be constructed and tested for 100 P.S.I water working pressure, in accordance with the A.S.M.E. Section IV Rules for the Construction of Heating Boilers. Individual sections will have been subjected to a hydrostatic pressure test of 250 PSIG at the factory before shipment and they shall be marked, stamped or cast with the A.S.M.E. Code symbol. Boilers with less than 250-psi pressure test will not be acceptable for this project. The sections shall be of a down fired counter flow single-pass design. Water ports will be sealed with steel push nipple connectors. The sections will be fully machined for metal-to-metal sealing of the gas side surfaces. The design will provide for equal temperature rise through all sections. The iron shall have a minimum thickness of 1⁄4". The heat exchanger design should have no limitations on temperature rise or restrictions to inlet water temperature.

c. Jacket: Durable Insulated SS

d. Gas Burner: The burner shall be metal fiber mesh construction, allowing high turndown of the fuel-air mixture. The burner flame shall burn horizontally and be of the pre-mix type with a forced draft fan. Burner shall fire to provide equal distribution of heat throughout the entire heat exchanger. The burner shall be easily removed for maintenance without the disruption of any other major component of the boiler. A window view port shall be provided for visual inspection of the boiler during firing. The gas distribution components and burner shall be enclosed with a cast-aluminum housing.

e. Ignition components: The ignition hardware shall consist of Alumina ceramic insulated ignition electrodes and UV sensing tube permanently arranged to ensure proper ignition electrode and UV alignment.

f. Rated Capacity: The boiler shall be capable of operating at rated capacity with gas pressures as low as 3" W.C. at the inlet to the burner gas valve.

g. The burner shall be capable of 99% efficiency without exceeding a NOx reading above 11ppm.

h. The burner and gas train shall be provided with the following trim and features:
   1) Burner Firing: Full modulation with 5:1 turndown @ Continuous CO2
   2) Burner Ignition: Intermittent spark
   3) Safety Controls: Energize ignition, limit time for establishing flame, prevent opening of gas valve until pilot flame is proven, stop gas flow on ignition failure, and allow gas valve to open.
   4) Flue-Gas Collector: Enclosed combustion chamber with integral combustion-air blower and single venting connection.
   5) Gas Train: Manual ball type gas valves (2), main gas valve (solenoid), manual test and check valves, pilot gas pressure regulator, and automatic pilot gas valve. All components to be factory mounted and CSD-1 compliant.
   6) Safety Devices: Low gas pressure switch, air-flow switch, and blocked flue detection switch, low water cutoff (manual reset), high temperature manual reset. All safeties to be factory mounted.
   7) Individual gas regulator provided by factory, shipped loose for field installation, one per boiler.

5. Boiler Trim:
   a. Controls: The boiler control package shall be a MTI HeatNet or equivalent, integrated boiler management system. The control system must be integral to each boiler, creating a control network that eliminates the need for a "wall mount" stand-

alone boiler system control. Additional stand-alone control panels, independent of a Building Management System (BMS), shall not be allowed to operate the boiler network.

The HeatNet control shall be capable of operating in the following ways:

1) As a stand-alone boiler control system using the Heat-Net protocol, with one "Master" and multiple "Member" units.
2) As a boiler network, enabled by a Building Management System (BMS), using the Heat-Net protocol, with one "Master" and multiple "Member" units.
3) As "Member" boilers to a Building Management System (BMS) with multiple input control methods.
4) Failsafe mode – When a Building Automation System is controlling set point, if communications are lost, the boiler/system will run off the Local set point.
5) Adaptive Modulation – Lowers the modulation rate of all currently operating boilers before a newly added boiler enters operation.
6) Priority Firing – Allows mixing of condensing, non-condensing base-load and/or other combination of (2) functional boiler types utilizing (2) priority levels.
7) Available priority start/stop qualifiers shall be done using any combination of: A) Modulation Percentage B) Outdoor Air Temperature or C) Return Water Temperature.
8) Base Loading – Provides the ability to control (1) base load boiler with enable/disable and 4-20mA modulating signal (if required

b. Safety-Relief Valve: ASME rated, factory set to protect boiler and piping as per schedule/drawings. 100 psi maximum allowable working pressure.
c. Gauge: Combination water pressure and temperature shipped factory installed. LCD outlet temperature readout to be an integral part of the front boiler control panel display to allow for consistent easy monitoring of temperatures factory mounted and wired.
d. Burner Controls: Boiler shall be provided with a Honeywell RM7800 series digital flame safe guard with UV rectification. The flame safe guard shall be capable of both pre and post purge cycles.
e. High Limit: Temperature control with manual-reset limits boiler water temperature in series with the operating control. High Limit shall be factory mounted and sense the outlet temperature of the boiler through a dry well.
f. PROVIDE THE FOLLOWING STANDARD TRIM:
    1) Aluminum Condensate Receiver Pan
    2) Low Air Pressure Switch
    3) Blocked Flue Detection Switch
    4) Modulation Control
    5) Temperature/Pressure Gauge
    6) Manual Reset High Limit
    7) Low Gas Pressure Safety Switch
    8) Low Water Cutoff with Manual Reset (CSD-1 Factory mounted and wired))
    9) Gas Pressure Regulator to provide 6" Incoming Pressure to Main Gas Valve – Shipped Loose for Field Installation.
    10) Air inlet filter
    11) Supply Outlet Temperature Display
    12) Full Digital Text Display for all Boiler Series of Operation and Failures
    13) Variable Frequency Drive (not required on KN-26 & 30) and Combustion Air Fan with Safety Interlock
    14) Condensate Drain

15) High Gas Pressure Switch and Valve Proving Switch for IRI Compliant GasTrain.
16) Flow Switch mounted and wired.
17) Isolation Valve wiring with mounted J box in rear of boiler.
18) Pump relay mounted and wired.

6. Motors:
   a. Boiler Blower Motor: Blower motor shall be externally mounted for ease of service. There shall be no requirement to remove covers or gas train components to remove the blower motor.

7. Source Quality Control:
   a. Test and inspect boilers according to the ASME Boiler and Pressure Vessel Code, Section IV. Boilers shall be test fired in the factory with a report attached permanently to the exterior cabinet of the boiler for field reference.

8. Examination:
   a. Examine area to receive boiler for compliance with requirements for installation tolerances and other conditions affecting boiler performance. Do not proceed with installation until unsatisfactory conditions have been corrected.

9. Installation:
   a. Install boilers level and plumb, according to manufacturer's written instructions and referenced standards.
   b. Install gas-fired boilers according to NFPA 54.
   c. Install electrical devices furnished with boiler, but not specified to be factory mounted.

10. Connections:
   a. Connect gas piping and individual regulator, full size, to boiler gas-train inlet with union.
   b. Connect hot water piping to supply and return boiler tappings with shutoff valve and union or flange at each connection.
   c. Install piping from safety-relief valves to nearest floor drain.
   d. Connect breeching to boiler outlet, full size of outlet. The boiler shall operate under positive (Category IV) or negative (Category II) stack pressure. Vent material must be listed UL 1738 Stainless Double Wall Stack for condensing appliances.
   e. Electrical: Comply with applicable requirements in the electrical specifications.
   f. Ground equipment.
      1) Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

11. Field Quality Control:
   a. Manufacturer's Field Service: Engage a factory-authorized service representative to supervise the field assembly of components and installation of boilers, including piping and electrical connections. Report results in writing.
      1) Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment. Boiler shall be commissioned by factory authorized technician. Contact local representative for factory authorized technician information.

b. Manufacturer's representative shall supply a factory authorized service technician to start up the boilers.

12. Cleaning:
    a. Flush and clean boilers on completion of installation, according to manufacturer's written instructions.
    b. After completing boiler installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finishes including chips, scratches, and abrasions with manufacturer's stainless-steel polish.

13. Start Up
    a. Engage a factory-authorized service representative to provide startup service. Start up to be performed only after complete boiler room operation is field verified to offer a substantial load, and complete system circulation. One-year warranty shall be handled by factory authorized tech.
    b. Complete manufacturer's installation and startup checklist are complete.

2.3 PLATE AND FRAME HEAT EXCHANGER

1. Design:
    a. To reduce installation and maintenance cost, units should be designed as single pass units unless thermal and hydraulic conditions require multi-pass arrangement.
    b. For single pass units all connections should be located on the fixed head, frame plate, allowing the movable head, pressure plate, to slide back and plates added, removed, or replaced from the plate pack without disturbing the connections or associated piping.
    c. The design should allow for the removal of interior plates without the removal of the preceding plates.
    d. The unit shall be designed and hydro-tested in accordance with People's Republic of China National Standard GB 16409 – 1996.

2. Frame:
    a. The frame plate and pressure plate should be carbon steel in accordance with GB 16409.
    b. The frame and pressure plate shall be of sufficient thickness to meet the GB 16409 design pressure. Stiffeners or support brackets are not allowed.
    c. Carbon steel frame components shall be painted with gray epoxy paint.
    d. Units with 3-inch or greater connections shall be unlined or alloy lined studded ports to mate with raised face or flat faced flanges. Rubber liners are not allowed.
    e. Units with 2 or 2 1/2-inch connections shall have carbon steel female tapped or male tapped connections if an alloy material is required.
    f. Units with 1-inch ports shall have carbon steel or 316 stainless steel female tapped or alloy material male tapped connections.
    g. Units with connections greater than 50mm (2-inch) require that the thermal plates be supported by the carry bar, top bar. The guide bar, bottom bar, shall only help properly align the plates.
    h. The pressure plate shall be supported by a roller assembly from the carry bar for units with 65mm (2 1/2-inch) or greater port sizes.
    i. The carry and guide bar plate contact surfaces shall be corrosion resistant.

j. The design for units with 2-inch connections or smallerallow the plates be supported by the guide bar, bottom bar, and the carry bar, top bar, shall help properly align the plates. Carry and guide bars are to be steel with a zinc chromate coating.

3. Tightening Bolts:
   a. Tightening bolts shall comply with GB 16409.
   b. The tightening bolt assemblies shall include captive working nuts at the pressure plate, rear head, such that the unit can be opened and closed with one wrench from the front of the unit.

4. Plates:
   a. Plates shall be pressed in a one step stamping process.
   b. Plates shall use an integral rolled edge hanging system to provide a rigid hanger device between the plate and carry bar and guide bar. Welded on hanging brackets or stiffeners are not acceptable.
   c. The plate pack shall use a positive plate to plate alignment system to ensure proper plate to gasket seals throughout the plate pack. The positive alignment system shall either be a gasket lug which fits within a plate recess on the proceeding plate (tongue in groove) to align successive plates or an extended rolled edge hanger which nests successive plates through direct contact around the entire plate hanger. Plate designs, which only offer alignment through contact with the carry and guide bar, are unacceptable.
   d. Plates shall be permanently marked to indicate plate material and thickness.

5. Gaskets:
   a. All gaskets except the gasket on the first plate shall be identical.
   b. The gaskets shall be a one-piece construction with a double gasket barrier at the port region. The area isolated by the double gasket shall be vented to the atmosphere, so that a gasket failure is detected by leakage to the exterior prior to any possible cross contamination.
   c. Gasket attachment methods, which break during gasket removal or plate maintenance thus destroying the gasket, are not allowed.
   d. Care should be taken in the selection of gasket materials to insure compatibility with the fluids and operating temperatures.

6. Thermal/Hydraulic Design, Certification and Testing:
   a. The manufacturer shall provide written guarantee to the accuracy of the heat exchanger thermal design.
   b. The manufacturer shall be certified with the Air-Conditioning and Refrigeration Institute’s Liquid to Liquid Heat Exchanger Certification program ARI Standard 400 for the Model being supplied.
   c. Should the Heat Exchanger not perform to the specified conditions as defined in the ARI Standard 400, the manufacturer is responsible to replace or repair the exchanger to achieve the stated performance.
   d. If the manufacturer is not certified with the Air-Conditioning and Refrigeration Institute’s Liquid to Liquid Heat Exchanger certification program ARI Standard 400, a witnessed factory performance test must be completed per the testing specification of ARI 400.

2.4 REFRIGERATION

A. Ductless Split System - Wall-Mounted Units
¾ to 3 ton nominal cooling only or heat pump outdoor unit

1. General:
   a. Indoor, direct-expansion, wall-mounted fan coil. Unit shall be complete with cooling/heating coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral temperature sensing. Unit shall be furnished with integral wall mounting bracket and mounting hardware. Unit shall be rated per ARI Standards 210/240 and UL labeled.

2. Unit Cabinet:
   a. Cabinet discharge and inlet grilles shall be attractively styled, high-impact polystyrene. Cabinet shall be fully insulated for improved thermal and acoustic performance.

3. Fans:
   a. Fan shall be tangential direct-drive blower type with air intake at the top of the unit and discharge at the bottom front. Automatic, motor-driven vertical air sweep shall be provided standard.
   b. Air sweep operation shall be user selectable. The vertical sweep may be adjusted (using the remote control) and the horizontal air direction may be set manually.

4. Coil:
   a. Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins shall be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a drain connection for hose attachment to remove condensate. Condensate pan shall have internal trap.

5. Motors:
   a. Motors shall be open drip-proof, permanently lubricated ball bearing with inherent overload protection. Fan motors shall be 3-speed.

6. Controls:
   a. Controls shall consist of a microprocessor-based control system which shall control space temperature, determine optimum fan speed, and run self-diagnostics. The temperature control range shall be from 62° F to 84° F.
   b. The unit shall have the following functions as a minimum:
      1) An automatic restart after power failure at the same operating conditions as at failure.
      2) A timer function, to provide a minimum 24-hour timer cycle for system Auto Start/Stop.
      3) Temperature-sensing controls shall sense return air temperature.
      4) Indoor coil freeze protection.
      5) Wireless infrared remote control to enter set points and operating conditions.
      6) Automatic air sweep control to provide on or off activation of air sweep louvers.
      7) Dehumidification mode shall provide increased latent removal capability by modulating system operation and set point temperature.
      8) Fan-only operation to provide room air circulation when no cooling is required.
      9) Diagnostics shall provide continuous checks of unit operation and warn of

possible malfunctions. Error messages shall be displayed at the unit.

10) Fan speed control shall be user-selectable: high, medium, low, or microprocessor controlled automatic operation during all operating modes.
11) Automatic heating-to-cooling changeover in heat pump mode. Control shall include deadband to prevent rapid mode cycling between heating and cooling.
12) Indoor coil high temperature protection shall be provided to detect excessive indoor discharge temperature when unit is in heat pump mode.

7. Filters:
   a. Unit shall have filter track with factory-supplied cleanable filters.

8. Electrical Requirements:
   a. Power is supplied from outdoor unit.

9. Special Features (Field Installed, if necessary):
   a. Condensate Pump: The condensate pump shall remove condensate from the drain pan when gravity drainage cannot be used. Pump shall be designed for quiet operation. Pump shall consist of two parts; an internal reservoir/sensor assembly, and a remote sound-shielded pump assembly. A liquid level sensor in the reservoir shall stop cooling operation if the liquid level in the reservoir is unacceptable.

10. Warranty:
    a. Minimum 1-year parts limited warranty.

11. Outdoor Units:
    ¾ to 3 Ton Nominal Cooling Capacity / ¾ to 3 Ton Nominal Heating Capacity
    a. General:
       1) Factory assembled, single piece, air-cooled outdoor unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and the compressor.
       2) Units shall consist of a rotary compressor, an air-cooled coil, propeller-type draw-through outdoor fan, reversing valve (HP), accumulator (HP units), metering device(s), and control box. Units shall discharge air horizontally as shown on the contract drawings. Units shall function as the outdoor component of an air-to-air cooling only, or heat pump system.
       3) Units shall be used in a refrigeration circuit matched to duct-free cooling only or heat pump fan coil units.
    b. Unit Cabinet:
       1) Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a baked-enamel finish on inside and outside.
       2) Unit access panels shall be removable with minimal screws and shall provide full access to the compressor, fan, and control components.
       3) Outdoor compartment shall be isolated and have an acoustic lining to assure quiet operation.
    c. Fans:
       1) Outdoor fans shall be direct-drive propeller type, and shall discharge air horizontally. Fans shall draw air through the outdoor coil.
       2) Outdoor fan motors shall be totally-enclosed, single phase motors with class B insulation and permanently-lubricated ball bearings. Motor shall be protected by internal thermal overload protection.
       3) Shaft shall have inherent corrosion resistance.
       4) Fan blades shall be non-metallic and shall be statically and dynamically

balanced.

5) Outdoor fan openings shall be equipped with PVC metal/mesh coated protection grille over fan.

d. Compressor:
   1) Compressor shall be fully hermetic rotary type.
   2) Compressor shall be equipped with oil system, operating oil charge, and motor. Internal overloads shall protect the compressor from over-temperature and over-current.
   3) Motor shall be NEMA rated class F, suitable for operation in a refrigerant atmosphere.
   4) Compressor assembly shall be installed on rubber vibration isolators.

e. Outdoor Coil:
   1) Coil shall be constructed of aluminum fins mechanically bonded to seamless copper tubes, which are cleaned, dehydrated, and sealed.

f. Refrigeration Components:
   1) Refrigerant circuit components shall include brass external liquid line service valve with service gage port connections, suction line service valve with service gage connection port, service gage port connections on compressor suction and discharge lines with Schrader type fittings with brass caps, accumulator, reversing valve. Provide tamper proof port caps.

g. Controls and Safeties:
   1) Operating controls and safeties shall be factory selected, assembled, and tested. The minimum control functions shall include the following:
      a) A time delay control sequence is provided standard through the fan coil board.
      b) Automatic outdoor-fan motor protection.
      c) System diagnostics.
      d) Compressor motor current and temperature overload protection.
      e) Outdoor fan failure protection.

h. Electrical Requirements:
   1) Unit electrical power shall be a single point connection.
   2) Unit control voltage to the indoor-fan coil shall be 24 VDC.
   3) All power and control siring must be installed per NEC and all local electrical codes.
   4) Unit shall have high-and low-voltage terminal block connections.

i. Special Features (Field Installed):
   1) Low-Ambient Kit: Control shall regulate fan-motor cycles in response to saturated condensing temperature of the unit. The control shall be capable of maintaining a condensing temperature of 100° F ± 10° F, with outdoor temperatures to 20° F. Installation of kit shall not require changing the outdoor fan motor.
   2) Crankcase Heater.

j. Warranty:
   1) 1-Year parts and 5-Year compressor warranty.

2.5 EXHAUST FANS

A. Kitchen Hood Exhaust (up-blast)

1. Description:

a. Fan shall be a spun aluminum, roof mounted, belt driven, up-blast centrifugal exhaust ventilator.

2. Certifications:
   a. Fan shall be listed by Underwriters Laboratories (UL 762) and UL listed for Canada (Power Ventilator for Restaurant Exhaust Appliances). Fan shall bear the AMCA certified ratings seal for sound and air performance.

3. Construction:
   a. The fan shall be of bolted and welded construction utilizing corrosion resistant fasteners. The spun aluminum structural components shall be constructed of minimum 16 gauge marine alloy aluminum, bolted to a rigid aluminum support structure. The windband shall have a rolled bead for added strength. A wiring compartment with chase shall be provided into the motor compartment to facilitate wiring connections. The motor, bearings and drives shall be mounted on a minimum 14 gauge steel power assembly. These components shall be enclosed in a weather-tight compartment, separated from the exhaust airstream. Unit shall bear an engraved aluminum nameplate and shall be shipped in ISTA certified transit tested packaging.

4. Wheel:
   a. Wheel shall be centrifugal backward inclined, constructed of 100 percent aluminum, including a precision machined cast aluminum hub. Wheel inlet shall overlap an aerodynamic aluminum inlet cone to provide maximum performance and efficiency. Wheel shall be balanced in accordance with AMCA Standard 204-96.

5. Motor:
   a. Motor shall be heavy duty type with permanently lubricated sealed ball bearings and furnished at the specified voltage, phase and enclosure.

6. Bearings:
   a. Bearings shall be designed and individually tested specifically for use in air handling applications. Construction shall be heavy duty regreasable ball type in a pillow block housing selected for a minimum L10 life in excess of 100,000 hours at maximum cataloged operating speed.

7. Belts and Drives:
   a. Belts shall be oil and heat resistant, non-static type. Drives shall be precision machined cast iron type, keyed and securely attached to the wheel and motor shafts. Drives shall be sized for 150 percent of the installed motor horsepower. The variable pitch motor drive must be factory set to the specified fan RPM.

8. Manufacturer, Capacity & Accessories:
   a. See Drawings.

B. Ceiling Cabinet Exhaust Fan (Standard):

1. Description:
   a. Fan shall be ceiling, wall, or inline mounted, direct driven, centrifugal exhaust fan.

2. Certifications:
   a. Fan shall be listed by Underwriters Laboratories (UL 705) and UL listed for Canada

(cUL 705). Fan shall bear the AMCA certified ratings seal for sound and air performance.

3. Construction:
   a. The fan housing shall be minimum 20 gauge galvanized steel and acoustically insulated housing above 200 cfm. Blower and motor assembly shall be mounted to a minimum 14 gauge reinforcing channel and shall be easily removable from the housing. Motor shall be mounted on vibration isolators. Unit shall be supplied with integral wiring box and disconnect receptacle shall be standard. Discharge position shall be convertible from right angle to straight through by moving interchangeable panels. The outlet duct collar shall include a reinforced aluminum damper with continuous aluminum hinge rod and brass bushings. To accommodate different ceiling thickness, an adjustable prepunched mounting bracket shall be provided. A powder painted white steel grille shall be provided as standard.

4. Wheel:
   a. Wheel shall be centrifugal forward curved type, constructed of galvanized steel. Wheel shall be balanced in accordance with AMCA Standard.

5. Motor:
   a. Motor shall be open drip proof type with permanently lubricated sealed bearings, built-in thermal overload protection and disconnect plug. Motor shall be furnished at the specified voltage.

6. Manufacturer, Capacity & Accessories:

a. See Drawings

2.6 PUMPS

A. Base Mounted Centrifugal Pumps

1. General – Pumps shall be base mounted, single stage, end suction design with true back pull-out, capable of being serviced without disturbing the piping connections, electrical motor connections or the pump-to-motor alignment. The pump volute shall be Class 30 cast iron with integrally-cast pedestal support feet. The volute shall be supplied with plugged vent, drain and gauge tappings. The pump casing shall be Class 30 cast iron, suitable for 175 PSI working pressure. Flanges shall be ANSI 125 PSI.

2. The pumps shall be sized for a non-overloading condition, whether it is a single pump installation, lead-lag installation or parallel pumping installation. In a parallel installation, one pump must be able to operate in a non-overload condition while the other pump is turned off. The pump submittals must show this situation, complete with parallel pumping and system curves.

3. The dimensions of the suction and discharge connections of each pump shall not be less than those of the scheduled pumps shown on the plans.

4. Impeller – The impeller shall be a cast bronze, enclosed type, dynamically balanced to ANSI grade G6.3. The impeller shall be keyed to the shaft and secured by a locking

capscrew.

5. Seal – The internal cavity shall be sealed off at the pump shaft by an internally –flushed mechanical seal with ceramic seat and carbon seal ring, suitable for continuous operation at 225°F. A replaceable bronze shaft sleeve shall completely cover the wetted area under the seal. The seal shall be capable of being serviced without disconnecting the pump from the piping.

6. Bearings – The pump bearings shall be of the re-greasable camlock ball bearing type with provisions for purging or flushing through the bearing surface, and capable of being inspected by removing the bearing covers. The pump shaft shall be constructed of 18-8 stainless steel.

7. Coupling – A flexible type, center drop-out design coupler, capable of absorbing torsional vibration, shall be employed between the pump and motor. Pumps for variable speed applications shall be furnished with an EPDM coupler sleeve. The coupling shall be shielded by an OSHA rated coupling guard, complete with inspection windows for viewing of the coupler.

8. Motor – Motors shall meet scheduled horsepower, speed, voltage, and enclosure design. Pump and motors shall be factory aligned, and shall be realigned after installation by the manufacturer's representative. Motors shall be non-overloading at any point on the pump curve and shall meet NEMA specifications and conform to standards outlined in EISA 2007. The motor alignment company shall be approved by the Engineer prior to alignment. A copy of the final alignment shall be included on the O&M manuals. Motor(s) are Premium Efficient, Class F insulated, 1.15 service factor design, rated per NEMA MG1 Part 31.4.4.2 and suitable for variable torque applications and constant torque speed range with properly sized and adjusted variable frequency drives.

9. Base – The pump and motor shall be mounted on a common baseplate, constructed of structural steel, with fully enclosed sides and ends, and securely welded cross members. The grouting area shall be fully open. The combined pump and motor baseplate shall be sufficiently stiff as to limit the susceptibility of vibration. The minimum baseplate stiffness shall conform to ANSI/HI 1.3.4-1997 for Horizontal Baseplate Design standards.

2.7 AIR DISTRIBUTION

A. Ductwork:

1. Low pressure ductwork shall be fabricated from galvanized sheet metal, unless otherwise indicated. Construction requirements shall be in accordance with SMACNA - HVAC Duct Construction Standards, metal and flexible, latest edition. All sheet metal ductwork shall be sealed with McGill United Sheet Duct Sealer or equal, in accordance with the International Energy Compliance Code, latest edition. Adjustable (twist) elbows are not allowed. Low pressure ductwork shall be constructed to the following SMACNA static pressure standards:
   a. Supply air ductwork = 2" W.G.
   b. Return, Exhaust, Outside Air Intake ductwork = 1" W.G.

1. Low pressure ductwork located exposed in exposed ceiling areas, shall be spiral type ducts with a "paint-grip" finish, on ductwork and associated fittings that can be painted. Joints

shall be sealed evenly and in a professional manner with silver silicon. Discolored or damaged ductwork unacceptable to the Engineer shall be replaced at the Contractors expenses.

a. Joints: 0" to 20" diameter, interior slip coupling beaded at center, fastened to duct with screws and with sealing compound applied continuously around joint before assembling and after fastening. Sealing compound shall be applied in an evenly and professional manner.
b. Joints 22" – 72" diameter, use 3-piece, gasketed, flanged joints consisting of 2 internal flanges (with integral mastic sealant) split to accommodate minor differences in duct diameter, and one external closure band designed to compress gasketing between internal flanges. Manufacturer shall be Ductmate Spiralmate or equal.
c. All takeoff or branch entrances shall be by means of factory-fabricated fittings. Field taps shall not be allowed.

2. Low pressure ductwork which is exposed or located in mechanical rooms shall be fabricated from galvanized sheet metal. Construction requirements shall be in accordance with SMACNA HVAC Duct Construction Standards, metal and flexible, latest edition.

3. Type – 1 Kitchen Hood exhaust ductwork shall be fabricated from minimum 16 gauge welded steel, and shall be constructed in strict accordance with the latest edition of the International Mechanical Code.

   Type – 2 Kitchen Hood exhaust ductwork shall be fabricated from aluminum sheet metal, in accordance with SMACNA Standards

4. Ductwork penetrating protective elements of fire-rated corridor walls, with no openings into corridor, shall be constructed of minimum 26 gauge galvanized steel.

5. Exterior exposed ductwork shall be fabricated from galvanized sheets. All joints and seams shall be standing-seam type with sealing mastic to provide watertight construction. All ductwork shall be internally insulated as hereinafter specified. All exposed surfaces shall be primed and painted two coats of exterior enamel paint, color as selected by the Architect.

6. Shower and locker room exhaust ductwork shall be constructed of galvanized sheet metal, in accordance with SMACNA standards.

7. Flexible ducts shall be listed per UL-181 standard as Class 1 flexible, acoustical insulated air duct and complying with NFPA Standards 90A and 90B. Ducts shall be insulated with a minimum R-5 value, and shall have a maximum vapor transmission value of .05 perms. Ducts shall be factory made with and composed of: a PE liner duct permanently bonded to a coated spring steel wire helix. Duct shall be chlorine free and carry a ten-year warranty for the labor to replace the duct should there be a factory defect. Low permeability outer vapor barrier of fiberglass bidirectional reinforced metalized laminate shall complete the composite. Pressure rating shall be 6" w.g. and maximum length shall be 6 feet. Attach to duct take-off, diffuser, register, or grille only, with nylon or stainless steel duct clamp or tie. Flexmaster 1-M, or approved equal.

B. Duct Accessories:

1. Turning vanes shall be installed in all rectangular or square elbows. Vanes shall be installed in vane side rails. Vanes shall be single wall vanes, and be fabricated and installed per

SMACNA standards.

2. Volume dampers shall be fabricated from galvanized steel in accordance with SMACNA standards. Dampers shall have a continuous galvanized steel shaft on ducts 13" diameter or larger, with damper regulators and end bearings. Dampers located above inaccessible ceilings (hard ceilings) shall be furnished with concealed ceiling damper regulators. Dampers shall be pressure rated equal to the design duct pressure rating. Dampers shall be provided at all diffuser and supply/exhaust grille takeoffs, regardless if indicated on the plans. Dampers are not required on the return air takeoffs unless specifically indicated.

3. Flexible connections shall be provided at all rotating fan equipment. Connectors shall be of fire, water, and weather resistant material.

4. Fire dampers shall be UL-labeled with frame, locking assembly, accordion style folded blades, and fusible link. Dampers shall be Style B with blades stored outside of the air stream. Provide duct inspection door at each fire damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a steel frame with gasketing around periphery, and a hinged panel. Dampers located in moisture laden air conditions shall have all metal parts made of stainless steel.

5. Combination smoke and fire dampers are to be fusible link type with factory sleeve and electric operator located exterior to duct 120 V. operator to be spring return, fail closed with 212 degrees F link and UL label. Provide duct inspection door at each damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a steel frame with gasketing around periphery, and a hinged panel. Dampers located in moisture laden air conditions shall have all metal parts made of stainless steel. Belimo operators/actuators only.

6. Smoke dampers are to be ultra-low leakage (less than 4CFM/ft^2) type with factory sleeve and electric operator located exterior to duct 120 V. operator to be spring return, fail closed and UL label. Provide duct inspection door at each damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a steel frame with gasketing around periphery, and a hinged panel. Dampers located in moisture laden air conditions shall have all metal parts made of stainless steel. Belimo operators/actuators only.

7. A plastic flex elbow support by Flexible Technologies Inc., Titus FlexRight, or approved equal, is required at all flex duct elbows supplying ceiling diffusers & return grilles. Elbow support shall be fully adjustable, or be of universal design, to support flexible diameters 6" – 16", sized to fit flex duct. Elbow supports shall be UL rated for use in return air plenum spaces. At the Contractor's option, a hard elbow may be used in lieu of a flexible elbow.

C. Diffusers, Registers, Louvers, Grilles, Weathercaps:

1. See Drawings for requirement.

D. Duct Cleanliness:

1. Ductwork Delivery To Site
   a. During ductwork being delivered from the premises of the manufacturer, care must be taken to prevent damage during transportation and off-loading.

2. Temporary Storage

a. Job site duct material storage areas should be clean, dry, and located away from high dust generating processes such as masonry or tile cutters, cutoff saws, drywall sanding, mortar and plaster mixers, roof pitch kettles, portable electric generators, and main walkways that will be constantly broom swept. The general contractor should designate a suitable area for temporary storage.
b. To prevent ductwork material damage from standing water, storage locations should include pallets or blocking to keep fabricated metal ductwork above the floor surface. If there is a risk of water runoff from above or dusty areas cannot be avoided, coverage should be used to protect stored materials.

3. Installation
   a. Before the installation of individual duct sections, they are to be inspected to ensure that they are free from all debris.
   b. All ductwork risers must be covered to prevent the entry of debris into the duct.
   c. Downward facing and horizontal ductwork openings will not be required to be covered.
   d. Access covers shall be firmly fitted in position on completion of each section of the work. Open ends on completed ductwork and overnight work-in-progress shall be sealed.
   e. The working area should be clean and dry and protected from the elements.
   f. The internal surfaces of the uninsulated ductwork shall be wiped to remove excess dust immediately prior to installation.

2.8 PIPING SYSTEMS

A. Condenser Water Piping and Fittings:

1. Piping shall be standard weight (schedule 40), ASTM A53 black steel pipe with 125 pound black, screwed or welded, malleable iron fittings.

2. At the contractor's option Victaulic, Shurjoint, or Anvil Gruvlock grooved, schedule 40, black steel piping with ASTM A536 ductile iron; ASTM A234 forged steel; or ASTM A53 fabricated steel fittings and couplings may be used. Carbon Steel, A-53B/A-106B with roll grooved-ends may be used in lieu of welded systems. Grooved products must conform to ASTM A536 ductile iron may be used. Carbon Steel, A-538/A-1068 – Roll or cut grooved-ends as appropriate to pipe material, wall thickness, pressure, size and method of joining. Pipe ends to be grooved in accordance with the current listed standards conforming to ANSI/AWWA C-606.

   Grooved Mechanical Couplings

   Manufactured in two segments of cast ductile iron, conforming to ASTM A-536, Grade 65-45-12. Gaskets shall be pressure-responsive synthetic rubber, grade to suit the intended service, conforming to ASTM D-2000. Mechanical Coupling bolts shall be zinc plated (ASTM B-633) heat treated carbon steel track head conforming to ASTM A-449 and ASTM A-183, minimum tensile strength 110,000 psi.
   a. Rigid Type: Coupling housings with offsetting, angle-pattern bolt pads shall be used to provide system rigidity and support and hanging in accordance with ANSI 831.1, 831.9, and NFPA 13.
      1) 2" through 12": Installation ready rigid coupling for direct stab installation

without field disassembly. Gasket shall be Grade "EHP" EPDM compound with red color code designed for operating temperatures from -30 deg F (-34 deg C) to +250 deg F (+120 deg C) without the need for high temperature lubricants. Basis of design: Victaulic Style 107 or approved equal.

b. Flexible Type: Use in locations where vibration attenuation and stress relief are required. Flexible couplings may be used inlieu of flexible connectors at pump connections. Three couplins for each connector shall be placed in close proximity to the vibration source. Please note this applies only to pumps and not other pieces of equipment.
   1) 2" through 8": Installation ready flexible coupling for direct stab installation without field disassembly. Gasket shall be Grade "EHP" EPDM compound with red color code designed for operating temperatures from -30 deg F (-34 deg C) to +250 deg F (+120 deg C) without the need for high temperature lubricants. Basis of design: Victaulic Style 177.
   2) 10" through 12": Standard flexible couplings. Gasket shall be Grade "E" EPDM compound with green color code designed for operating temperatures from -30 deg F (-34 deg C) to +230 deg F (+110 deg C).

3. At the contractor's option, piping may be Type L hard drawn copper, ASTM B88. Fittings shall be cast brass, ANSI/ASME B16.23, or solder wrought copper, ANSI/ASME B16.29. Joints shall be ASTM B32 solder, grade 95TA.

   At the contractor's option copper tube may be installed with grooved mechanical joints in lieu of soldering. 2"-8" for copper tubing consisting of ductile iron cast housings, complete with a synthetic rubber gasket of a pressure-responsive design, with plated nuts and bolts to secure unit together. Couplings shall be manufactured to connect copper tubing sized tube and fittings. (Flaring of tube and fitting ends to IPS dimensions is not allowed).
   a. Coupling Housings: Ductile iron conforming to ASTM A-536, Grade 65-45-12, coated with copper colored alkyd enamel. Housings cast with offsetting, angle-pattern bolt pads to provide rigidity.
   b. Coupling Gaskets: Gasket shall be Grade "EHP" EPDM compound with red color code designed for operating temperatures form -30 deg F to +250 deg F.
   c. Basis of design: Victaulic Style 607.

4. Piping underground or below slab shall be Schedule 80 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.

B. Refrigerant Piping:

1. Refrigerant piping shall be manufacturer's standard line sets, in lengths as required for proper installation. Coiling of excess tubing will not be acceptable.

2. Provide factory wall outlet Airex Titan Outlet by Airex Manufacturing Inc. or equal. Wall outlet shall be provided with compression gasket and seal and fastened with non-corrosive screws with pre-loaded neoprene washers. Wall outlet shall be provided with an integrated over-molded flexible elastomeric sleeve for sealing, isolating and supporting refrigerant pipes from vibration. The wall outlet must provide for expansion and contraction wall protection features with gaskets and seals. A stainless-steel clamp must be provided and installed to provide a watertight seal.

C. Condensate Drain Piping:

1 Exterior: Piping shall be Schedule 40 PVC. A union shall be installed directly at the roof top equipment for ease of replacement in the future. All piping connections shall be friction fit only, no glue. Provide trap in accordance with manufacturer's requirements.

3 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. Provide trap in accordance with manufacturer's requirements.

1. Inside Mechanical Rooms: On all non-condensing systems, piping shall be Type L hard drawn copper, ASTM B88, with solder joints, grade 95TA, for durability reasons.

D. Pipe Hangers and Supports:

1. See Section 220000 for hanger and support requirements for piping systems.

E. Piping Accessories:

1. Piping Hydronic Thermometer: Thermometer shall be 3" bimetal dial thermometers with recalibrator with a 0°F to 250°F range and 2°F scale and accurate within 1% of scale range. Thermometer shall be provided with an Vari-angle Form angle stem and thermowell. Thermometers shall be installed in the hydronic system in a neat workman like manner, aligned vertically and horizontally with other thermometers in the system. The thermometers shall be installed no higher than 9'-0" above finish floor and be readable from finish floor. Weiss instrument or approved equal.

2. Piping Hydronic Pressure Gauges: Pressure gauges shall be 4½" diameter, liquid filled gauges with ranges to meet 1.5 times the pressure ratings of the system its serving. Pressure gauges shall be provided with quarter turn ball valve isolation valves on the source side and on the bleed off line. Pressure gauges shall be installed in the hydronic system in a neat workman like manner, aligned vertically and horizontally with other pressure gauges in the system. The pressure sensors shall be installed no higher than 9'-0" above finish floor and be readable from finish floor. Weiss instrument or approved equal.

3. Air Vent: Non-modulating, high capacity, automatic type designed to purge free air from the system and provide positive shutoff at pressures up to 150 psig at a maximum temperature of 250°F. Vent shall be constructed of cast iron body and bonnet with stainless steel, brass, EPDM, and silicon rubber internal components.

J. Valves:

1. See Section 220000 for valve requirements.

K. Grooved Piping Requirements:

1. Grooved Pipe Valves:
   a. Butterfly Valves – 2" through 12" Sizes: 300 psi CWP suitable for bidirectional and dead-end service at full rated pressure. Body shall be grooved end black enamel coated ductile iron conforming to ASTM A536. Disc shall be electroless nickel plated ductile

iron with blowout proof 416 stainless steel stem. Disc shall be offset from the stem centerline to allow full 360 degree circumferential seating. Seat shall be pressure responsive EPDM. Basis of design: Victaulic Vic®-300 MasterSeal™ or approved equal.

b. Check Valves – 2" through 3" Sizes Spring Assisted: Black enamel coated ductile iron body, ASTM A-536, Grade 65-45-12, stainless steel non-slam tilting disc, stainless steel spring and brass shaft, nickel-plated seat surface, 365 psi. Victaulic Series 716H / 779 or approved equal.

c. General Duty Valves – Tri-Service Valve Assembly: Combination shut-off, throttling and non-slam check valve.

1) 2-1/2" through 12" Sizes: Butterfly valve with memory stop feature assembled with spring assisted, non-slam check valve. Check valve may include venture-like taps for flow measurement. Working pressures to 300 psi. Basis of design: Victaulic Series 761 butterfly valve in combination with Victaulic series 716 or 779 Check valve or approved equal.

2. Grooved Pipe Specialties:

a. Strainers – Grooved-End

1) T-Type Strainer: 2" through 12" sizes, 300 PSI T-Type Strainer shall consist of ductile iron (ASTM A-536, Grade 65-14-12) body, Type 304 stainless steel frame and mesh removable basket with No. 12 mesh, 2"-3" strainer sizes, or No. 6 mesh, 4"-12" strainer sizes, 57% free open area. Basis of design: Victaulic Style 730 / W730 or approved equal.

2) Y-Type Strainer, 2" through 18" sizes, 300 PSI, Y-Type Strainer shall consist of ductile iron body, ASTM A-536, Grade 65-45-12, Type 304 stainless steel perforated metal removable baskets with 1/16" (1,6mm) diameter perforations 2"-3" strainer sizes, 1/8" (3.2mm) diameter perforations 4"-12" strainer sizes, and 0.156" (4mm) diameter perforations 14"-18" basis of design strainer sizes. Basis of design: Victaulic Style 732 / W732 or approved equal.

b. Suction Diffuser – Flanged outlet with grooved inlet connections, rated to 300 psi. Ductile iron (ASTM A-536) body, 304 stainless steel frame and perforated sheet diffuser with 5/32" (4,0mm) diameter holes. Removable 20 mesh 304 stainless steel start-up pre-filter, outlets for pressure/temperature drain connections, and base support boss. Basis of design: Victaulic Series 731-G and W731-G or approved equal.

3. Quality Assurance

a. To assure uniformity and compatibility of piping components in grooved end piping systems, all grooved products utilized shall be supplied by one manufacturer. Grooving tools shall be supplied by the same manufacturer as the grooved components.

4. Execution:

a. Installation:

1) Pipe ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove for proper gasket sealing.

2) The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified.

3) Couplings installation shall be complete when visual metal-to-metal contact is reached.

b. Training:

1) A factory trained representative (direct employee) of the grooved product manufacturing company shall provide on-site training for contractor's field

personnel in the use of grooving tools, application of groove, and product installation.

c. Application:
   1) A representative of the grooved system supplier shall periodically visit the job site and review installation. Contractor shall fix and/or replace any improperly installed products.
   2) Grooved mechanical pipe couplings, fittings, valves and other grooved components may be used as an option to welding, threading or flanged methods.
   3) All grooved components shall conform to local code approval and/or as listed by ANSI-B-31.1, B-31.3, B-31.9, ASME, UL/ULC, FM, IAPMO or BOCA.
   4) Grooved end product manufacturer to be ISO-9001 certified.

2.9 PIPING SYSTEMS CLEANING & CHEMICAL TREATMENT

A. Condenser Water Closed Loop Cleaning & Chemical Treatment:

1. The Mechanical Contractor shall fill each hydronic system with clean fresh water prior to cleaning and thoroughly leak check system piping. A qualified water treatment contractor shall be utilized to furnish the cleaning material and supervise the flushing and treatment of the system. Approved water treatment contractors must show proof of similar service for not less than 3 years, and shall have full-time service personnel located within one hour from the job site. A cleaning and passivating agent supplied by the Chemical Treatment Contractor shall be added to the system at the direction of the Treatment Contractor during the leak check process to minimize initial corrosion. If the system is filled multiple times during the leak check and repair process the Mechanical Contractor shall coordinate with the Treatment Contractor to maintain this initial protection. The Treatment Contractor is responsible for providing chemical for up to two refills of the system. If additional chemical is required due to multiple re-fillings the Mechanical Contractor shall be responsible for the additional time and chemical.

2. The Mechanical Contractor shall close isolation valves at each heat pump and open the bypass valve to prevent flow through the strainer, flow control device and heat pump during the initial flushing and subsequent cleaning. The side stream filter bag shall be removed during the initial flushing process.

3. Following leak check the closed system shall be flushed by the Mechanical Contractor until the leaving water runs clear. All primary runs shall be flushed at their ends to obtain maximum sweep of debris from the system. The inlet screens on the circulating pumps must be kept clear during this initial cleaning process and inspected following cleaning. When flushing is complete the system is to be left full.

4. Prior to flushing the Mechanical Contractor shall coordinate with Treatment Contractor so that the Treatment Contractor can be available immediately following flush to add cleaning chemical within 4 hours to prevent initial corrosion.

5. Following initial flushing the Chemical Treatment Contractor shall refill all systems with cleaning and passivating agents raising the PH to a minimum of 10, circulate for a minimum of 8 hours and flush until thoroughly clean. All primary piping runs shall be flushed at the ends during this cleaning process. The side stream filter bags shall be inspected during cleaning and changed as required. Cleaning shall continue until these

bags no longer show signs of debris.

6. Following cleaning process, the Treatment Contractor shall close the bypass valves at each heat pump and open isolation valves for normal operation and check for leaks. The bypass valve handle shall be removed and tied to the valve. A clean bag filter shall be installed in the system.

   The water treatment contractor shall refill system with a mixture of clean water and chemical inhibitor. Add nitrite to system to maintain a nitrite level of 800-1000 ppm. Test for nitrite using a "Drop Test" kit.

7. The Treatment Contractor shall provide final inspection report for inclusion in the Operation and Maintenance Manual. Additionally, the Treatment Contractor shall take loop samples approximately 12 months following completion, add or adjust chemical as required and provide a post construction report to the owner prior to warranty closeout. Chemical required is the responsibility of the Treatment Contractor.

B. Chemical Treatment Station:

1. A chemical treatment station shall be provided by the Treatment Contractor in a 24" x 24" locked cabinet. Station shall include LMI DC4000-1-1 conductivity meter with sensor and A-17-1-1351S chemical pump, or approved equal. The chemical station shall be located inside the mechanical room. Mechanical Contractor shall provide ¾" PVC piping from the discharge of the spray pump of the fluid cooler to the station enclosure with T's for installation of the conductivity sensor and for chemical injection. Return piping shall be piped back to the fluid cooler sump at the opposite end from the spray pump pickup. The Treatment Contractor shall install the conductivity sensor and injection fitting in the T's provided and set up initial treatment.

2.10 INSULATION

A. General:

1. All insulation shall have composite fire and smoke hazard ratings, as tested by ASTM E-84, NFPA 255, and UL 723, not exceeding:

Flame Spread	25
Smoke Developed	50

B. Ductwork - External Insulation:

1. Insulation shall be fiberglass insulation with aluminum foil scrim kraft facing. All joints shall be taped with UL listed tape to provide a continuous vapor barrier. The following ducts shall be externally insulated:
   a. Supply ducts in unconditioned spaces (unless internally insulated)
   b. Return ducts in unconditioned spaces (unless internally insulated)
   c. Combustion air ducts
   d. Outside air intake ducts
   e. Exposed ductwork located within conditioned spaces shall not be externally insulated

2. Insulation thickness & "R" values shall be as follows:
   a. R-6 – ducts located in unconditioned spaces (such as above ceiling, but below roof insulation) and outside air intake ducts.
   b. R-12 – ducts located outside of the building's insulation envelope (such as above the attic insulation).

C. Ductwork - Internal Insulation:

1. Insulation shall be flexible fiberglass duct liner. Liner shall be attached with 100% coverage of manufacturers recommended adhesive and welded or mechanically fastened galvanized steel pins. All exposed edges of liner shall be coated with adhesive. Duct dimensions shown are net air side face-to-face of duct liner. The following ducts shall be internally insulated:
   a. Supply and Return ducts within 15'-0" of air handler
   b. Supply and Return ducts in mechanical rooms
   c. 15'-0" downstream of VAV terminal units.
   d. 15'-0" downstream of fan coil units.
   e. Exterior ducts (located outdoors)
   f. Buried ductwork below concrete slab
   g. Ducts as indicated on plans

2. Insulation thickness & "R" values shall be as follows:
   a. R-6 – ducts located in unconditioned spaces (such as above ceiling, but below roof insulation, or buried ductwork) and outside air ducts located outside of the building envelope.
   b. R-12 – ducts located outside of the building's insulation envelope (such as above the roof).

D. Piping Insulation - Refrigerant Piping:

1. Insulation on refrigerant suction piping shall be one-piece preformed flexible formed tubing with built-in closed cell vapor barrier. Seal laps and butt joints with moisture resistant adhesive to provide a continuous vapor seal. Cover all insulated suction lines exposed on the exterior of the building with E-Flex Guard by Airex Manufacturing, Inc. At exterior wall penetration provide Titan outlet by Airex Manufacturing, Inc. or equal with an Insulation thickness as follows:

	Nominal Pipe Diameter		
Refrigerant line set type	1" and less	1" to < 1½"	1 ½" and above
Located with-in the conditioned spaces			
Suction	½"	1"	1"
Liquid	not required		
Discharge (hi/low pressure)	1"	1"	1"
Located outside the conditioned spaces			
Suction	½"	1"	1"
Liquid	not required		
Discharge (hi/low pressure)	1 ½"	1 ½"	2"

F. Piping Insulation - Exterior (Outdoor) Piping:

1. Piping located outdoors shall be insulated as specified above. In-addition piping shall be covered with a weather-proof aluminum alloy 3003 or 3105 jacket meeting ASTM standard B209, minimum 0.016" think, installed per the manufacturers installation requirements. At a minimum the following installation shall occur. The jacketing overlap shall be a minimum of 2". Horizontal piping shall have the jacket seams located at the 3 o'clock or 9 o'clock position with the seam joint openings point downward to shed moisture. Vertical piping shall have the upper jacket seams overlap the lower seam to shed moisture. Valve handles and gauges shall be positioned on the bottom to help prevent water penetration. Banding shall be used to secure the jacketing; screws, rivets, and all other fasteners capable of penetrating the underlying vapor retarder shall be prohibited. Jacketing sealant shall be applied to all longitudinal and circumferential joints and the sealant shall be located between the aluminum jacket, not at the outer lip.

G. VIBRATION ISOLATION

A. General:

1. All rotating equipment and appurtenances connected to rotating equipment shall be vibration isolated from the supporting structure. No metal to metal contact will be permitted between fixed and floating parts. All metal isolators exposed to weather shall be hot dipped galvanized after fabrication. Piping connected to rotating equipment shall be hung with spring hangers for first 50 pipe diameters.

B. Floor Mounted Spring Isolators:

1. Isolators shall be free standing, laterally stable, and include acoustical friction pads and leveling bolts. Isolators shall have a minimum ratio of spring diameter to operating spring height of 1.0 and an additional travel to solid equal to 50% of rated deflection.

C. Floor Mounted Neoprene Pads:

1. Isolators shall be neoprene waffle or combination neoprene and cork sandwich. Pads shall be sized and selected as per manufacturers loading requirements.

D. Spring Hangers:

1. Vibration hanger shall contain a spring and double deflection neoprene element in series. Spring shall have a diameter not less than 0.8 of compressed operating spring height. Spring shall have a minimum additional spring travel of 50 percent between design height and solid height. Spring shall permit a 15 degree angular misalignment without rubbing on hanger box.

2.11 SEISMIC SUPPORTS

A. All equipment, ductwork, and piping shall be seismically supported as required by the International Building Code, latest edition.

2.12 CONTROL SYSTEM

A. General:

1. The Control Contractor shall be responsible for a complete and operable control system, including equipment, installation, and accessories required to perform the functions specified on the drawings. The Control Contractor shall supervise the installation of all control equipment and accessories and shall submit shop drawings of the proposed system for approval.

2. The Control Contractor shall furnish and install all control conduit and wiring. All wiring shall be installed in EMT in accordance with the section Electrical. Provide plastic covered wires of not less than 18-gauge (16-gauge if longer than 50'), with at least one spare circuit at each control device. Control voltage shall not exceed 30 volts, except in starter pilot circuits.

3. The Mechanical Contractor shall be responsible for installing all control valves, water flow switches, temperature wells, control dampers, and related equipment which is furnished by the Control Contractor.

4. The control system shall be basically electric, with supplementary electronic devices as required.

5. The Control Contractor shall be Climatech.

B. Control Equipment and Accessories:

1. Control Dampers:
   a. All control dampers are to be furnished under this section, except those specified to be furnished with the air handling units. Damper blades shall be fabricated of 22-gauge galvanized sheet steel and frames shall be not less than 16-gauge galvanized steel. Blades shall be maximum 10 inches wide, 50 inches long, and shall be provided with neoprene gasketed edges and oilite bronze or nylon bearings. Dampers shall be ultra-low leakage, opposed blade type for proportional action and parallel blade type for two-position action. Leakage performance shall be a maximum of 3 cfm per sq, ft. @ a pressure differential of 1" w.g. Provide damper operators for all motorized dampers and louvers. Belimo or approved equal. Submittals shall include leakage and pressure drop data for all control dampers. All outside air dampers shall fail closed.

2. Control Valves:
   a. Control valves 2-1/2" and smaller shall be screwed, 3" and larger shall be grooved or flanged. Screwed valves shall be bronze or cast brass, grooved valves shall be ductile iron, and flanged valves shall be cast iron or cast steel. Three way valves shall have contoured plugs for linear flow characteristics and constant total flow throughout the stem travel. Straight-thru valves shall be single seated and have equal percentage characteristics for water service. Flat discs shall be used for on-off control only. All valves shall be stainless steel stems, replaceable seats, and self-adjusting Teflon or rubber packing. All heating control valves shall fail open. Belimo or approved equal.

3. Air Duct Smoke Detector:
   a. Smoke detector shall be products of combustion detector and shall be UL listed. The unit shall be designed for detection of combustion gases, fire, and smoke in air ducts in compliance with NFPA Pamphlet 90A. The sheet metal contractor shall provide a

minimum 18”x18” hinged access door, in inaccessible ceilings, for each detector that is furnished. The sheet metal contractor is also responsible for providing all necessary transitions in the ductwork for mounting of the duct detector.

4. Equipment Control Schematics:
   a. See Drawings for schematics and sequence of operations.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. General:

1. Install all materials and equipment as shown and in strict accordance with the applicable codes for the State and/or city. Plans do not attempt to show exact details of all piping and ductwork, and no extra payment will be allowed for offsets required due to obstructions by other trades. All work shall be done in a neat and orderly fashion and left in a condition satisfactory to the Architect/Engineer.

2. All piping shall be run parallel or perpendicular to established building lines. Install piping so as to allow for expansion. Install all valves with stems horizontal or above. Install air vents at all high points. Provide all piping which passes through walls, floors, or ceilings with standard weight pipe sleeves.

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 the grooved coupling manufacturer. Verify gasket grade is suitable for the intended service. The grooved coupling manufacturer’s factory trained representative shall provide on-site training for the contractor’s field personnel in the use of grooving tools, application of groove, and installation of groove end products.

4. Install the grooved piping and fittings in accordance with the latest recommendations as published by the manufacturer. Pipe shall be square cut, +/-0.030”, 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 proper sized jaw for pressing.

B. Insulation:

1. All piping insulation shall be applied over clean, dry surfaces after system has been pressure tested and any leaks corrected. Finished appearance of all insulation shall be smooth and continuous. Provide coat of insulating cement where needed to obtain this result.

2. Flexible duct insulation shall be secured to duct surface with 4-inch wide bands of adhesive applied on maximum 18-inch centers. Additional galvanized tie-wire support shall be furnished as required and recommended by the insulation manufacturer.

C. Diffusers, Registers and Grilles:

1. All diffusers, grilles, and registers shall be installed tight on their respective mounting surfaces and shall be accurately centered on ceiling tile, recesses, windows, or doors.

D. Ductwork:

1. All sheet metal work shall be done by qualified, experienced mechanics in accordance with the requirements of ASHRAE and the latest edition of the applicable SMACNA Manual. All ductwork shall be installed in a neat and orderly manner, and shall be adequately supported to prevent vibration or sagging. All sheet metal ductwork shall be sealed with United-Sheet Metal Duct Sealer or equal.

E. Air Conditioning Units:

1. Units shall be installed approximately where shown on the plans to provide access space for filter changing, motor, drive and bearing servicing, and fan shaft and coil removing. Pipe drain pan connection through a running trap to floor drain. Unit shall not be operated until filters are installed. Isolate sheet metal ducts from all fans with flexible connectors.

F. Condensing Units/ Heat Pumps:

1. Units located at grade shall be positioned such that they are beyond the roof drip line. Units shall be installed on a 6" concrete pad.

2. Units located on flat rooftops shall be provided with Miro Industries Model HD, or equal, heavy duty galvanized roof support with adjustable legs, sized 6 inches larger, in each direction, than equipment footprint.

2.13 VARIABLE FREQUENCY DRIVES

A. General:

1. Description:
   a. This specification is to cover a complete Variable Frequency Drive (VFD aka: VSD, AFD, ASD, Inverter, AC Drive, et al) consisting of a pulse width modulated (PWM) inverter designed for use with a standard NEMA Design B induction motor.
   b. The drive manufacturer shall supply the drive and all necessary options as herein specified. The manufacturer shall have been engaged in the production of this type of equipment for a minimum of twenty years. VFDs that are manufactured by a third party and "brand labeled" shall not be acceptable. Drive manufacturers who do not build their own power boards and assemblies, or do not have full control of the power board manufacturing and quality control, shall be considered as a "brand labeled" drive. All VFDs installed on this project shall be from the same manufacturer.

2. Quality Assurance:
   a. Referenced Standards and Guidelines:
      1) Institute of Electrical and Electronic Engineers (IEEE)
         a) IEEE 519-2014, IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems.
      2) Underwriters Laboratories (as appropriate)
         a) UL 508A
         b) UL 61800-5-1

3) National Electrical Manufacturer's Association (NEMA)
   a) ICS 7.0, AC Adjustable Speed Drives
4) CSA Group
   a) CSA C22.2 No. 274
5) International Electrotechnical Commission (IEC)
   a) EN/IEC 61800-3
6) National Electric Code (NEC)
   a) NEC 430.120, Adjustable-Speed Drive Systems
7) International Building Code (IBC)
   a) IBC 2018 Seismic – referencing ASC 7-16 and ICC AC-156

b. Qualifications:
1) VFDs and options shall be UL508 listed as a complete assembly. The base VFD shall be UL listed for 100 kA SCCR without the need for external input fuses.
2) CE Mark – The base VFD shall conform to the European Union Electromagnetic Compatibility directive, a requirement for CE marking. The VFD shall meet product standard EN 61800-3 for the First Environment restricted level (Category C2). Base drives that only meet the Second Environment (Category C3, C4) shall be supplied with filters to bring the drive in compliance with the First Environment levels.
3) The entire VFD assembly, including the bypass (if specified), shall be seismically certified and labeled as such in accordance with the 2018 International Building Code (IBC):
   a) VFD manufacturer shall provide Seismic Certification and Installation requirements at time of submittal.
   b) Seismic importance factor of 1.5, and minimum 2.5 S_{DS} rating is required.
   c) Ratings shall be based upon actual shake test data as defined by ICC AC-156, via all three axis of motion.
   d) Seismic certification of equipment and components shall be provided by HCAI (formerly OSHPD) preapproval.
4) Acceptable Manufacturers
   a) See plans for acceptable manufacturers.
   b) Alternate manufacturer's requests must be submitted in writing prior to bid per the specifications. Approval does not relieve the supplier of specification requirements.
5) Factory authorized start up and owner training should be provided locally upon request.

3. Submittals:
a. Submittals shall include the following information:
1) Outline dimensions, conduit entry locations and weight.
2) Customer connection and power wiring diagrams.
3) Complete technical product description includes a complete list of options provided. Any portions of this specification not met must be clearly indicated or the supplier and contractor shall be liable to provide all additional components required to meet this specification.

4. Building Information Modeling (Bim):
a. BIM objects shall contain IFC parameters and associated data applicable to building system requirements. These elements shall support the analytic process including

size, clearance, location, mounting heights, and system information where applicable.

b. VFD BIM models shall contain as a minimum the following attributes:
   1) Input voltage
   2) Current rating
   3) Model number
   4) Manufacturer
   5) Enclosure type

B. Products:

1. Variable Frequency Drives:
   a. The VFD package as specified herein and defined on the VFD schedule shall be enclosed in a UL Type enclosure (enclosures with only NEMA ratings are not acceptable), completely assembled and tested by the manufacturer in an ISO9001 facility.
   b. The drive shall provide full rated output from a line of +10% to -15% of nominal voltage. The drive shall continue to operate without faulting from a line of +25% to -35% of nominal voltage.
      1) VFDs shall be capable of continuous full load operation under the following environmental operating conditions:
         a) -15 to 40° C (5 to 104° F) ambient temperature. Operation to 50° C shall be allowed with a 10% reduction from VFD full load current.
         b) Altitude 0 to 3300 feet above sea level. Operation to 6600 shall be allowed with a 10% reduction from VFD full load current.
         c) Humidity 5 to 95%, non-condensing.
   c. All VFDs shall have the following standard features:
      1) Plain English text
         a) The display shall be in complete English words for programming and fault diagnostics (alpha-numeric codes are not acceptable).
         b) Safety interlock and run permissive status shall be displayed using predetermined application specific nomenclature, such as: Damper end switch, smoke alarm, vibration trip, and overpressure.
         c) Safety interlock, run permissive, Supervisory, external fault status, drive name, drive fault contact info and override shall have the option of additional customized project specific terms, such as: AHU-1 End Switch, Office Smoke Alarm, CT-2 Vibration.
      2) The control panel shall include at minimum the followings controls:
         a) Four navigation keys (Up, Down, Left, Right) and two soft keys to simplify operation and programming.
         b) Hand-Off-Auto selections and manual speed control without having to navigate to a parameter.
         c) Fault Reset and Help keys. The Help key shall include assistance for programming and troubleshooting.
      3) Multiple Home View screens shall be capable of displaying up to 21 points of information. Customizable modules shall include bar charts, graphs, meters, and data lists. Displays shall provide real time graphical trending of output power, frequency, and current within selectable intervals of 15/30/60 minutes and 24 hours.
      4) The control panel shall display the following items on a single screen; output frequency, output current, reference signal, drive name, time, and operating

mode (Hand vs Auto, Run vs Stop). Bi-color (red/green) status LED shall be included. Drive (equipment) name shall be customizable.

5) There shall be a built-in time clock in the control panel. The clock shall have a battery backup with 10 years minimum life span. Daylight savings time shall be selectable.
6) I/O Summary display with a single screen shall indicate and provide:
    a) The status/values of all analog inputs, analog outputs, digital inputs, and relay outputs. Drives that require access to internal or live components to measure these values, are not acceptable.
    b) The programmed function of all analog inputs, analog outputs, digital inputs, and relay outputs.
    c) The ability to force individual digital I/O high or low and individual analog I/O to desired value, for increased personal protection during drive commissioning and troubleshooting. Drives that require access to internal or live components to perform these functions, are not acceptable.
7) The drive shall automatically backup parameters to the control panel. In addition to the automatic backup, the drive shall allow two additional unique backup parameter sets to be stored. Backup files shall include a time and date stamp. In the event of a drive failure, the control panel of the original drive can be installed on the replacement drive, and parameters from that control panel can be downloaded into the replacement drive.
8) The control panel shall display local technical support contact information as part of drive fault status.
9) The control panel shall be removable, capable of remote mounting.
10) The control panel shall have the ability to store screen shots, which are downloadable via USB.
11) The drive shall generate a QR code, which contains drive identification data, information on the latest events, and values of status and counter parameters.
12) The LCD screen shall be backlit with the ability to adjust the screen brightness and contrast, with inverted contrast mode. A user-selectable timer shall dim the display and save power when not in use.
13) The control panel shall include assistants specifically designed to facilitate start-up. Assistants shall include: First Start Assistant, Basic Operation, Basic Control, and PID Assistant.
14) Primary settings for HVAC shall provide quick set-up without the use of alpha-numerical parameters, for commissioning the drive and customer interfaces to reduce programming time.
15) The drive shall be able to operate with the control panel removed.
16) The drive shall be able to support a Bluetooth Advanced Control Panel. The Bluetooth control panel shall be FCC and QDL (Qualified Design Listing) certified.
    a) A free app (iOS and Android) shall replicate the control panel on a mobile device or tablet. The control panel's programming and control functionality shall function on the device. Customizing text, such as AHU-1 End Switch, shall be supported by the device's keyboard.
    b) Bluetooth connectivity shall allow uploading, downloading, and emailing of parameter sets.
    c) Bluetooth connectivity shall include two pairing modes: Always discoverable with a fixed passcode, and manual discovery with a unique generated passcode every pairing.

d) Bluetooth connectivity shall be capable of being switched.

d. All VFDs shall have the following standard features:
   1) Two (2) programmable analog inputs shall accept current or voltage signals. Current or Voltage selection configured via control panel. Drives that require access to internal components to perform these functions, are not acceptable.
   2) Two (2) programmable analog outputs. At least one of the analog outputs shall be adjustable for current or voltage signal, configured via control panel. Drives that require access to internal components to perform these functions, are not acceptable.
   3) Six (6) programmable digital inputs. All digital inputs shall be programmable to support both active high and active low logic, and shall include adjustable on/off time delays. The digital input shall be capable of accepting both 24 VDC and 24 VAC.
   4) Three (3) programmable Form-C relay outputs. The relay outputs shall include programmable on/off time delays. The relays shall be rated for a continuous current rating of 2 Amps. Maximum switching voltage of 250 VAC / 30 VDC. Open collector and Form-A relays are not acceptable. Drives that have less than (3) Form-C relay outputs shall provide an option card to provide additional relay outputs.
   5) Drive terminal blocks shall be color coded for easy identification of function.
   6) The drive shall include an isolated USB port for interface between the drive and a laptop. A non-isolated USB port is not acceptable.
   7) An auxiliary power supply rated at 24 VDC, 250 mA shall be included.
   8) At a minimum, the drives shall have internal impedance equivalent to 5% to reduce the harmonics to the power line. 5% impedance may be from dual (positive and negative DC link) chokes, or AC line reactor. Drives with only one DC link choke shall add an AC line choke integral to the drive enclosure. Reference the drive schedule to determine if additional harmonic mitigation is required for the system to comply with IEEE 519-2014.
   9) The drive shall have cooling fans that are designed for field replacement. The primary cooling fan shall operate only when required and be variable speed for increased longevity and lower noise levels. Drives whose primary cooling fans are not variable speed, shall include a spare cooling fan.
   10) The overload rating of the drive shall be 110% of its normal duty current rating for 1 minute every 10 minutes, 135% overload for 2 seconds every minute. The minimum current rating shall meet or exceed the values in the NEC/UL table 430.250 for 4-pole motors.
   11) The input current rating of the drive shall not be greater than the output current rating. Per NFPA 70 430.122, drives with higher input current ratings may require the upstream wiring, protection devices, and source transformers to be upsized.
   12) Circuit boards shall be coated per IEC 60721-3-3; Chemical gasses Class 3C2 and Solid particles Class 3S2.
   13) Earth (ground) fault detection shall function in both modulating (running) and non-modulating modes.
   14) Coordinated AC transient surge protection system consisting of 4 MOVs (phase-to-phase and phase-to-ground), a capacitor clamp, and internal chokes. The MOVs shall comply with UL 1449 4th Edition. Drives that do not include coordinated AC transient surge protection shall include an external TVSS/SPD (Transient Voltage Surge Suppressor/Surge Protection Device).

15) The drive shall include a robust DC bus to provide short term power-loss ride through. The DC bus Joule to drive kVA ratio shall be 4.5 J/kVA or higher. An inertia-based ride through function should help maintain the DC bus voltage during power loss events. Drives with control power ride through only, are not acceptable

e. All drives shall have the following software features as standard:
   1) A Fault Logger that stores the last 16 faults in non-volatile memory
      a) The most recent 5 faults save at least 9 data points, including but not limited to: Time/date, frequency, DC bus voltage, motor current, DI status, temperature, and status words.
      b) The date and time of each fault and fault reset attempt shall be stored in the Fault Logger.
   2) A Fault Logger that stores the last 16 faults in non-volatile memory
      a) Events shall include, but not limited to: Warning messages, checksum mismatch, run permissive open, start interlock open, automatic reset of a fault, power applied, auto start command, auto stop command, modulating started, and modulating stopped.
      b) The date and time of each event's start and completion points shall be stored in the Event Logger.
      c) The drive shall also provide the user the ability to configure what events to log for application specific requirements.
   3) Programmable start method. Start method shall be selectable based on the application and function even if the motor was freewheeling in the reverse direction: Flying-start, Normal-start, and Brake-on-start
   4) Programmable loss-of-load (broken belt / coupling) indication. Indication shall be selectable as a control panel warning, relay output, or over network communications. This function to include a programmable time delay to eliminate false loss-of-load indications.
   5) The following three-phase AC motor technologies shall be compatible:
      a) Asynchronous induction motors
      b) Permanent magnet synchronous (non-salient pole) motor
      c) Synchronous reluctance motor (SynRM)
      d) Permanent magnet assisted synchronous reluctance motor (PMaSynRM)
   6) Motor heating function to prevent condensation build up in the motor. Motor heating adjustment, via parameter, shall be in "Watts." Heating functions based only on "percent current" are not acceptable.
   7) Motor disconnect detection function enables the drive to detect when an output disconnect is opened, disable the drive output, and provide an indication message. Drives without this functionality shall have a disconnect switch auxiliary contact wired through dedicated conduit back to the drive enable control circuit.
   8) Motor phase order shall be changeable through software interface.
   9) Advanced power metering abilities shall be included in the drive and must be available over network communications. Drives without these data points, must include a separate power meter with each drive.
      a) Instantaneous output power (kW)
      b) Total power, broken down by kWh, MWh, and GWh units of measurement. Power meters that only display kWh and roll over or "max out" once the maximum kWh value is reached, are not acceptable. There

shall be resettable and non-resettable total power meters within the drive.

c) Time based kWh metering for: current hour, previous hour, current day, and previous day.

d) Energy saving calculation shall be included that shows the energy and dollars saved by the drive.

10) The drive shall include a motor flux optimization circuit that will automatically reduce applied motor voltage to the motor to optimize energy consumption and reduce audible motor noise.

11) DC bus voltage ripple function shall provide a DC voltage reference for troubleshooting AC line issues or bus capacitor health.

12) Run permissive circuit - There shall be a run permissive circuit for damper or valve control. The drive shall provide a relay output to the damper actuator, monitor end-switch status, and start running the motor based on application requirements. Damper control shall include the following configurable features fully functional in both Hand and Auto modes:

a) A timeout function that identifies and annunciates a specific warning message when a damper has not opened or closed within the allotted time.

b) Ability to interface with both damper open and damper closed end-switches on a single damper actuator.

c) Sequence control that runs the fan initially at a fixed speed before commanding a discharge air damper to open. Required for all applications feeding a common plenum/space to prevent the fan from freewheeling backwards while damper strokes open.

d) Multiple damper sequence control to support units with discharge air and outside air dampers. The drive shall command and verify the outside air damper is open before ramping the fan to a fixed speed, and then commanding the outside air damper open.

e) Time based damper control for when an end-switch is not provided. For units with outside air and discharge air dampers, both dampers should have independent time based control capability.

13) Start interlock circuit - Four separate start interlock (safety) inputs shall be provided. When any safety is opened, the motor shall be commanded to stop. The control panel will display the specific safety(s) that are open. The status of each safety shall be transmitted over the network communications. Wiring multiple safeties in series is not acceptable.

14) External fault circuit – Three separate external fault inputs shall be provided. This circuit shall have the same features and functionality as the start interlock circuit, except it shall require a manual reset before the drive is allowed to operate the motor.

15) The drive shall provide automatic protections to allow uninterrupted operations at a reduced speed or switching frequency:

a) Switching frequency control circuit, that reduces the switching frequency based on actual drive temperature and allows higher switching frequency settings without derating the drive. It shall be possible to set a minimum and a target switching frequency.

b) The drive shall include a temperature limit that when exceeded will reduce the drive output current.

c) Input phase loss protection shall be provided, whereas the output current is automatically derated by 50% if an input phase loss is detected by the drive.

16) Visual function block adaptive programming allowing custom control schemes, minimizing the need for external controllers. I.e. cooling tower staging logic. A free software tool shall be used to configure adaptive programming
17) The ability to automatically restart after an over-current, over-voltage, under-voltage, external fault, or loss of input signal protective trip. The number of restart attempts, trial time, and time between attempts shall be programmable. Each of these faults may have automatic restart individually disabled via a parameter selection.
18) Three (3) programmable critical frequency lockout ranges to prevent the drive from operating the load continuously at an unstable speed/load.
19) The drive shall have three methods to control constant frequency/speed references.
    a) Seven (7) programmable preset frequencies/speeds using (3) inputs.
    b) Six (6) different programable preset frequencies/speed tied to 6 independent control inputs and requires an additional start command.
    c) Six (6) different programable preset frequencies/speed tied to 6 independent control inputs and does not require any additional start command input.
20) Two independently adjustable accel and decel ramps sets with 1 – 1800 seconds adjustable time ramps.
21) PID functionality shall be included in the drive.
    a) Programmable “Sleep” and “Wake up” functions to allow the drive to be started and stopped based on the level of a process feedback signal.
    b) The drive shall include an independent PID loop for customer use, assigned to an Analog Output. This PID loop may be used for cooling tower bypass valve control, chilled water valve, etc.
22) At least 4 parameter user sets that can be saved to the permanent memory and recalled using a digital input, timed function, or supervision function.
23) Drive shall be compatible with an accessory that allows the control board to be powered from an external 24 VDC/VAC source, allowing the drive control to remain powered by a UPS during an extended power outage.
24) A computer-based software tool shall be available to allow a laptop to program the drive. The drive shall be able to support programming without the need for line voltage. All necessary power shall be sourced via the laptop USB port.
25) The drive shall include a fireman’s override mode. Upon receipt of a contact closure from the Fire Alarm Life Safety system, the drive shall operate in a dedicated Override mode distinct and separate from the drive’s Normal operation mode. The following features will be available in the drive override function:
    a) The Override mode shall be secured by passcode to prevent changes once programmed.
    b) The drive shall ignore external inputs and commands not defined as part of the override function.
    c) Override operation mode shall be selectable between: single frequency, multiple fixed frequencies, follow an analog input signal, PID control, or come to a forced stop.

d) High priority safeties shall stop the drive and lower priority safeties shall be ignored in Override mode.
e) Drive faults shall be defined in Critical and Low priority groups. Critical faults shall stop the drive. Low priority faults shall be reset. Reset trials and timing shall be programmable.
f) The drive shall be configurable to receive from 1 to 3 discrete digital input signals and operate at up to three discrete speeds.

26) The drive shall have multi-pump functionality and an intelligent floating leader/follower configuration, so no one drive takes down the system, for controlling up to 8 parallel pumps equipped with drives. The drive shall have a parameter synchronization feature to program the PID, multi-pump, and AI parameters in all parallel drives. The functionality to start and stop the pumps based on capacity, operating time or efficiency of the pump to ensure each pump is operated regularly.
a) The multi-pump functionality shall control:
1) Flow Control
2) Pressure Control
3) Pump Alternation

27) The drive shall have pump protection functions for flow and pressure to avoid damages to the pump such as dry pump protection, min/max flow and pressure protection.

f. Security Features
1) The drive manufacture shall clearly define cybersecurity capabilities for their products.
2) The drive shall include passcode protection against parameter changes.
a) There shall be multiple levels of passcode protection including: End User, Service, Advanced, and Override.
b) The drive shall support a customer generated unique passcode between 0 and 99,999,999.
c) The drive shall log an event whenever the drive passcode has been entered.
d) The drive shall provide a security selection that prevents any “back door” entry. This selection even prevents the drive manufacturer from being able to bypass the security of that drive.
e) A security level shall be available that prevents the drive from being flashed with new firmware.
3) A checksum feature shall be used to notify the owner of unauthorized parameter changes made to the drive. The checksum feature includes two unique values assigned to a specific programming configuration.
a) One checksum value shall represent all user editable parameters in the drive except communication setup parameters. A second checksum value shall represent all user editable parameters except communication setup, energy, and motor data parameters.
b) Once the drive has been commissioned the two values can be independently saved in the drive.
c) The drive shall be configurable to either: Log an Event, provide a Warning, or Fault upon a parameter change when the current checksum value does not equal the saved checksum value.
4) The “Hand” and “Off” control panel buttons shall have the option to do the following:

a) Be individually disabled (via parameter) for drives mounted in public areas to prevent unauthorized changes.
b) Require a second button press of “Hand” or “Off” within 5 seconds of the original selection to confirm the change and prevent accidental transition out of “Auto” mode.

g. Network Communications
1) The drive shall have an EIA-485 port with removable terminal blocks. The onboard protocols shall be BACnet MS/TP, Modbus, and Johnson Controls N2. Optional communication cards for BACnet/IP, LonWorks, Profibus, Profinet, EtherNet/IP, Modbus TCP, and DeviceNet shall be available. The use of third party gateways are not acceptable.
2) The drive shall have independent end of line (EOL) termination and biasing switches for EIA-485 networks.
3) The drive shall contain EIA-485 network self-diagnostics to assist in troubleshooting issues such as incorrect polarity, incorrect baud rate, noise on the wire or addressing errors.
4) The drive shall have the ability to communicate via two protocols at the same time, one onboard protocol and one option card based protocol. Once installed, the drive shall automatically recognize any optional communication cards without the need for additional programming
5) The drive shall not require a power cycle after communication parameters have been updated.
6) The embedded BACnet connection shall be a MS/TP interface. The drive shall be BTL Listed to Revision 14 or later. Use of non-BTL Listed drives are not acceptable.
7) The drive shall be classified as an Applications Specific Controller (B-ASC). The interface shall support all BIBBs defined by the BACnet standard profile for a B-ASC including, but not limited to:
a) Data Sharing: Read Property Multiple-B, Write Property Multiple-B, COV-B
b) Device Management: Time Synchronization-B
c) Object Type Support: MSV, Loop.
8) The drive’s relay output status, digital input status, analog input/output values, Hand-Auto status, warning and fault information shall be capable of being monitored over the network. The drive’s start/stop command, speed reference command, relay outputs and analog outputs shall be capable of being controlled over the network. Remote drive fault reset shall be possible.

h. Disconnect – A circuit breaker or disconnect switch shall be provided when indicated on the drive schedule. The disconnect shall be door interlocked and padlockable. Drive input fusing shall be included on all packaged units that include a disconnecting means. All disconnect configurations shall be UL Listed by the drive manufacturer as a complete assembly and carry a UL508A label. Disconnect packages manufactured by anyone other than the drive manufacturer, are not acceptable.

C. Execution:

1. Installation
a. Installation shall be the responsibility of the mechanical contractor. The contractor shall install the drive-in accordance with the recommendations of the VFD manufacturer as outlined in the VFD installation manual.

b. Power wiring shall be completed by the electrical contractor, to NEC code 430.122 wiring requirements based on the VFD input current. The contractor shall complete all wiring in accordance with the recommendations of the VFD manufacturer as outlined in the installation manual.

2. Start-Up
   a. Factory start-up shall be provided for each drive by a factory authorized service center. A start-up form shall be filled out for each drive with a copy provided to the owner, and a copy kept on file at the manufacturer.

3. Product Support
   a. Factory trained application engineering and service personnel that are thoroughly familiar with the VFD products offered shall be locally available at both the specifying and installation locations. A toll free 24/365 technical support line connected to factory support personnel located in the US shall be available. Technical support offered only through the local sales office is not acceptable.
   b. Training shall include installation, programming, and operation of the VFD, bypass and serial communication. Factory authorized start up and owner training to be provided locally upon request.

4. Warranty
   c. The VFD Product Warranty shall be 30 months from the date of factory shipment. The warranty shall include all parts, labor, travel time and expenses. A toll free 24/365 technical support line shall be available.

2.14 ENERGY RECOVERY UNITS

A. Energy Recovery Units (Plate Type)

1. General:
   a. Unit manufacturer shall have a minimum of 20 years experience in the heat recovery market.
   b. The system shall deliver the specified air volume at the static pressure scheduled.
   c. The unit shall be constructed to provide smooth interior surfaces and to limit the casing leakage at less than 1% of the specified air volume at operating static.
   d. Unit shall be constructed in accordance with CSA C22.2 and UL 1812 and shall carry the ETL label of approval.
   e. Unit shall be constructed in accordance with industrial design practices.
   f. Insulation shall comply with NFPA 90 A requirements for flame spread and smoke generation.
   g. Air flow data shall comply with AMCA 210 method of testing.
   h. Cabinet and exterior components shall be tested and certified weatherproof.
   i. All units shall be 100% factory tested.
   j. All effectiveness data of heat and energy recovery components shall be certified by the ARI 1060 certification program directory.
   k. Unit shall be stored and handled per manufacturer’s recommendations. See manufacturer installation procedures, maintenance and operation manuals for an adequate installation. Manufacturer is not responsible for any damage done to the unit caused by poor rigging or installation operation.
   l. Unit outside air intake hood shall not be installed in front of the prevailing winds.

2. Equipment:
    a. Factory assembled, consisting of fan and motor assemblies (supply and exhaust), heat recovery device (flat plate heat exchanger), all necessary dampers, plenums, filters, drain pans, wiring and controls. Unit shall have single point power connection.
    b. Unit Cabinet:
        1) Materials: Formed double wall insulated metal cabinet, fabricated to permit access to internal components for maintenance.
            a) Outside casing: 18 gauge, galvanized (G90) steel meeting ASTM A653 for components that do not receive a painted finish. Pre-painted components as supplied by the factory shall have polyester urethane paint on 18-gauge G60 galvanized steel.
        2) Access doors shall be hinged.
        3) Shall have factory-installed duct flanges on duct openings.
        4) Cabinet Insulation: Comply with NFPA 90A and NFPA 90B and erosion requirements of UL 181.
            a) Materials: Fiberglass insulation. If insulation other than fiberglass is used, it must also meet the Fire Hazard Classification shown below.
                1) Thickness: 1 inch (25 mm)
                2) Fire Hazard Classification: Maximum flame spread of 25 and smoke developed of 50, when tested in accordance with ASTM C 411.
                3) Location and application: Full coverage of entire cabinet exterior to include walls, roof, and floor of unit. Insulation shall be of semi-rigid type and installed between inner and outer shells of all cabinet exterior components.
        5) Energy Core: Energy core shall be of total enthalpy and shall be removable from the cabinet. The core media shall be a polymer membrane in a galvanized steel framework and can be removable for servicing. The energy core is to have a five-year warranty. Performance criteria are to be as specified in AHRI Standard 1060.
        6) Supply Air and Exhaust Air blower assemblies: Blower assemblies consist of an electric motor as specified by A/E and a direct driven belt driven blower. Assembly shall be mounted on heavy gauge galvanized rails and further mounted on 1.125-inch-thick neoprene vibration isolators.
        7) Control panel /connections: Energy Core Ventilator shall have an electrical control center where all high and low voltage connections are made. Control center shall be constructed to permit single-point high voltage power supply connections.
        8) Timed exhaust shall be provided for frost control of the energy core.
        9) Motorized Dampers: Motorized dampers of low leakage type and leakage rate of 3 CFM/ft^2 @ 1 in. wg shall be factory installed.
        10) A curb assembly made of 18-gauge galvanized steel shall be provided by the factory for assembly and installation as part of this division. The curb assembly shall provide perimeter support of the entire unit. Curb assembly shall enclose the underside of the unit and shall be sized to fit into a recess in the bottom of the unit. Contractor shall be responsible for coordinating with roofing contractor to ensure curb unit is properly flashed to provide protection against weather/moisture penetration. Contractor shall provide and install appropriate insulation for the curb assembly.
    c. Blower:
        1) Blower section construction, Supply Air and Exhaust Air: Direct drive motor

and blower shall be assembled with neoprene vibration isolation devices.

2) Blower assemblies: Shall be statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and horsepower.

3) Centrifugal blower housing: Formed and reinforced steel panels to make curved scroll housing with shaped cutoff.

4) Forward curved blower (fan) wheels: Galvanized or aluminum construction with inlet flange and shallow blades curved forward in direction of airflow. Mechanically attached to shaft with set screws.

5) Blower performance shall be factory tested for flow rate, pressure, power, air density, rotation speed and efficiency. Ratings are to be established in accordance with AMCA 210, "Laboratory Methods of Testing Fans for Rating".

d. Motor:

1) General: Blower motors greater than ¾ horsepower shall be "NEMA Premium™" unless otherwise indicated. Minimum compliance with EPAct minimum energy-efficiency standards for single speed ODP and TEFC enclosures is not acceptable. Motors shall be heavy-duty, permanently lubricated type to match the fan load and furnished at the specified voltage, phase, and enclosure. Drives shall be sized for a minimum of 150% of driven horsepower and pulleys shall be fully machined cast-type, keyed and fully secured to the fan wheel and motor shafts. Electric motors of ten horsepower or less shall be supplied with an adjustable drive pulley. Comply with requirements in Division 23 05 13, matched with fan load.

2) Motors shall include shaft grounding.

e. Unit controls:

1) Unit shall include factory integral controls.

2) DDC system shall control on/off functions.

3) Unit shall have factory installed variable frequency drive for modulation of the blower motors. The VFDs shall be factory-programmed for unit-specific requirements and shall not require additional field programming to operate.

4) VFD Fan Motors shall be MG1 Part 31 Compliant.

5) VFD shall include internal DC link choke.

f. Filters:

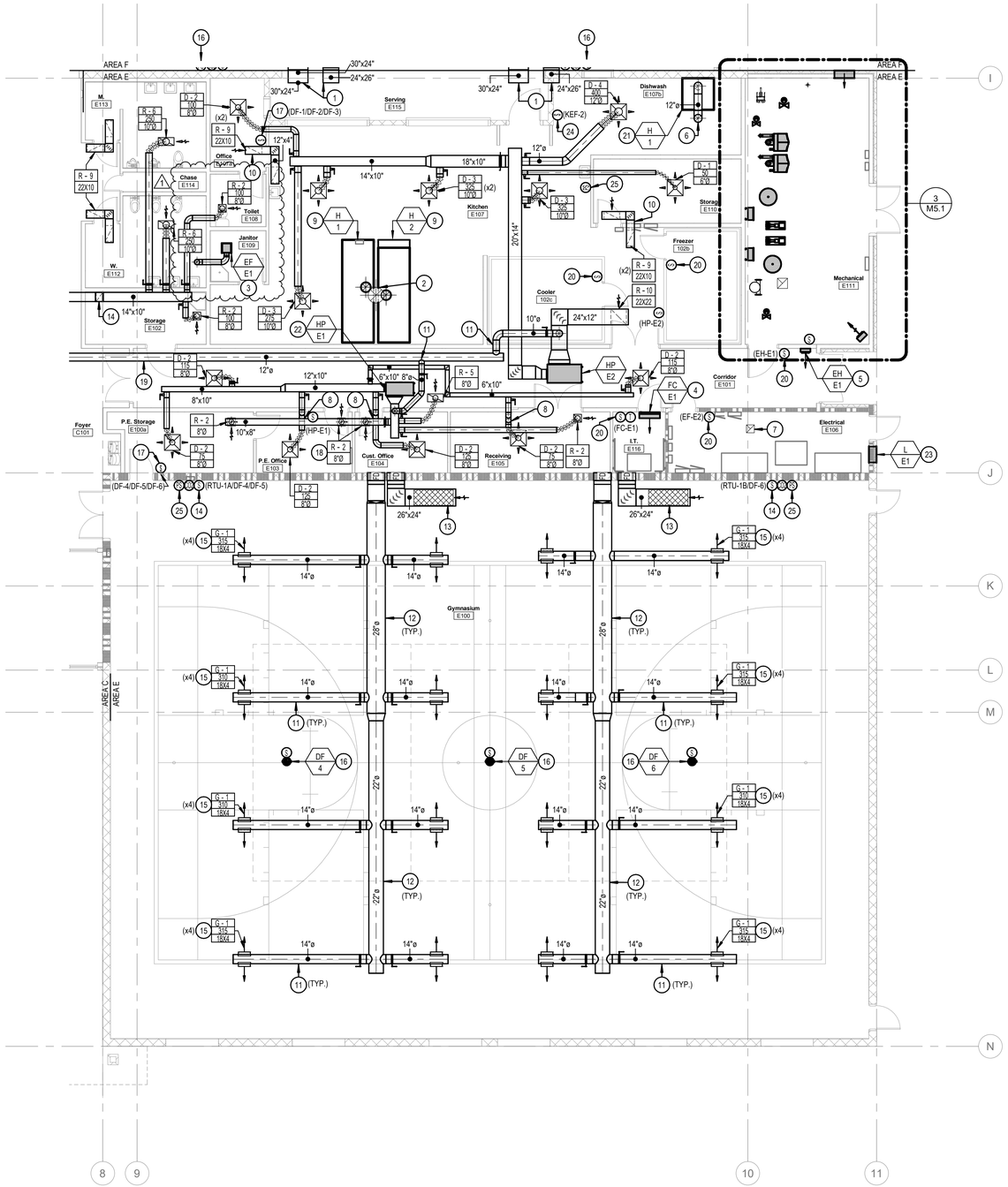
1) Units shall include MERV 8 filters.

2) Contractor shall provide 4 sets of additional filters for owner's stock at the completion of the project.

g. Startup:

1) Engage an authorized service representative to perform startup service. Clean entire unit and install clean filters. Measure and record electrical values for voltage and amperage. Refer to Division 23 "Testing, Adjusting, and Balancing" and comply with provisions therein:

END OF SECTION 230100



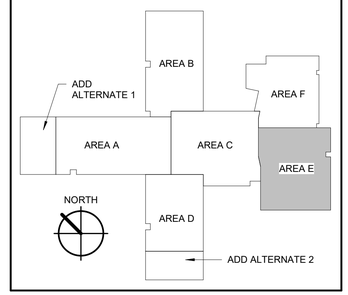
1 HVAC FLOOR PLAN - AREA E
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. ROUTE 24"X36" SUPPLY DUCT AND 30"X24" RETURN DUCT THROUGH GYM WALL. SEE SHEET SHEET M4.5 FOR CONTINUATION.
2. COMBINED (2) 16" EXHAUST DUCTS TO (1) 22" EXHAUST DUCT. ROUTE TO ROOF-MOUNTED EXHAUST FAN. SEE SHEET M4.5 FOR CONTINUATION.
3. CEILING CABINET EXHAUST FAN WITH HANGING VIBRATION ISOLATORS AND FLEXIBLE CONNECTION AT OUTLET. ROUTE 8" EXHAUST DUCT TO ROOF THROUGH STRUCTURE. SEE SHEET M4.5 FOR CONTNIUATION.
4. MOUNT DUCTLESS SPLIT FAN COIL ABOVE DOOR. ROUTE REFRIGERANT LINES FROM ROOF ABOVE. SEE SHEET M4.5 FOR CONTINUATION.
5. RECESSED ELECTRIC HEATER MOUNTED 24" A.F.F.
6. ROUTE 12" DUCT TO ROOF MOUNTED EXHAUST FAN. SEE SHEET M4.5 FOR CONTINUATION.
7. EXTEND A FULL SIZE DUCT FROM THE ROOF-MOUNTED EXHAUST FAN THROUGH THE CEILING. TERMINATE THE DUCT WITH AN EXPANDED METAL SCREEN WITH A 1" FRAME. PAINT THE EXPANDED METAL AND ALL VISIBLE DUCTWORK THE SAME COLOR AS THE CEILING.
8. ROUTE 8" SUPPLY DUCT UNDER RETURN DUCT.
9. SEE TYPE 1 KITCHEN HOOD DETAIL #6 ON SHEET M6.6.
10. SEE TRANSFER DUCT DETAIL #5 ON SHEET M6.6.
11. ROUTE SPIRAL BRANCH DUCTWORK THROUGH JOIST WEBBING. COORDINATE LOCATIONS WITH STRUCTURAL PRIOR TO INSTALLATION. (TYPICAL)
12. ROUTE SPIRAL MAIN DUCTWORK TIGHT TO STRUCTURE NEXT TO JOIST WEBBING. (TYPICAL)
13. 60"X22" EXPANDED METAL OPENING COVER ON TOP SIDE OF DUCTWORK.
14. COMBINATION CO2 AND TEMPERATURE SENSOR. PROVIDE WITH CLEAR PROTECTIVE COVER.
15. ANGLE GRILLES AT 45DEG DOWNWARD. SEE SPIRAL DUCT SUPPORT DETAIL #3 ON SHEET M6.6.
16. SEE DESTRATIFICATION FAN MOUNTING DETAIL #4 ON SHEET M6.1.
17. DESTRATIFICATION FAN OVERRIDE SWITCH.
18. PROVIDE GRILLE WITH BALANCE DAMPER.
19. ROUTE 12" OA DUCT THROUGH JOIST WEBBING. COORDINATE WITH STRUCTURAL PRIOR TO INSTALLATION
20. STAINLESS STEEL BLANK WALLPLATE TEMPERATURE SENSOR.
21. SEE TYPE 2 KITCHEN HOOD DETAIL #3 ON SHEET M6.3.
22. AVOID CABLE TRAY AND MAINTAIN CLEARANCE REQUIREMENTS FOR HEAT PUMP. COORDINATE FINAL LOCATION WITH ELECTRICIAN PRIOR TO INSTALLATION.
23. MOUNT LOUVER 10' A.F.F. COORDINATE FINAL INSTALLATION LOCATION WITH ELECTRICIAN.
24. DISHWASHER EXHAUST FAN WALL SWITCH.
25. SPACE PRESSURE SENSOR.

Keyed Plan



LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER LICENSED Christopher D. Dyke 16683 3/31/2022 STATE OF IDAHO CHRISTOPHER DYKE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

BID SET

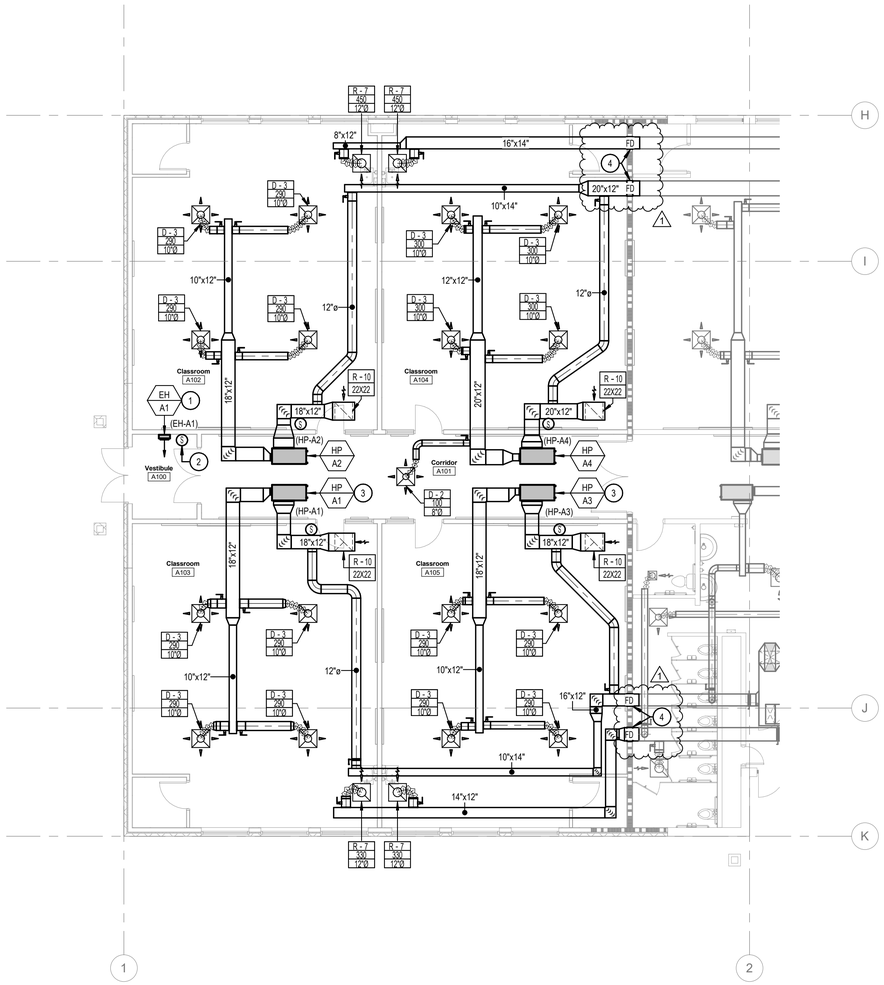
DRAWING NO.:

M2.5
HVAC FLOOR PLAN – AREA E

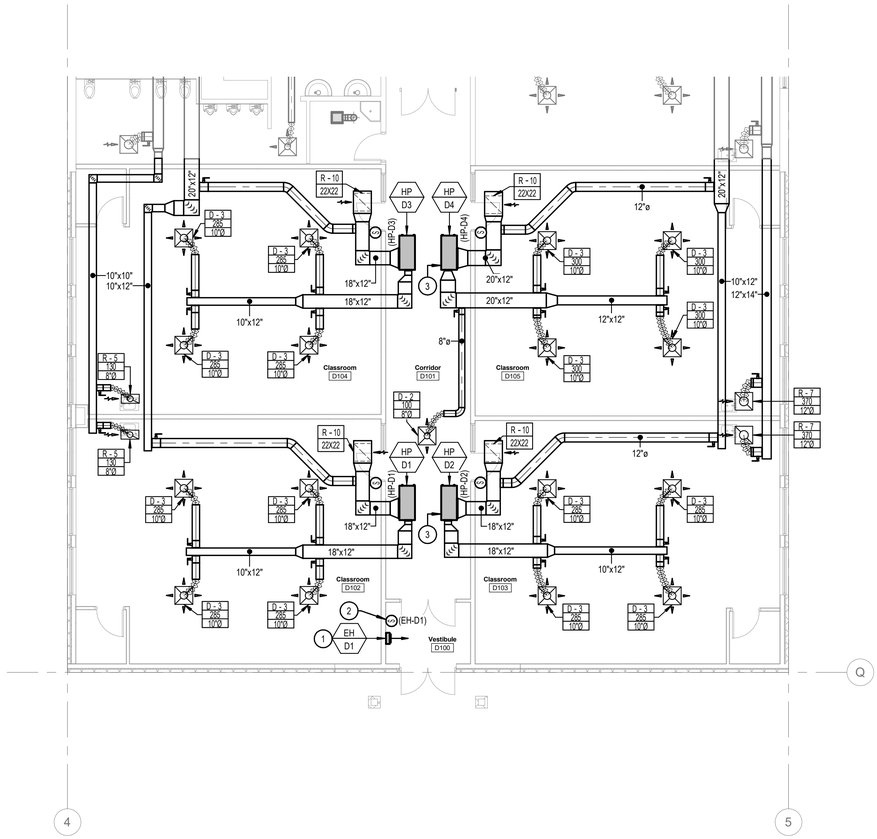
KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. RECESSED ELECTRIC HEATER MOUNTED 24" A.F.F.
2. STAINLESS STEEL BLANK WALLPLATE TEMPERATURE SENSOR.
3. AVOID CABLE TRAY AND MAINTAIN CLEARANCE REQUIREMENTS FOR HEAT PUMP. COORDINATE FINAL LOCATION WITH ELECTRICIAN PRIOR TO INSTALLATION.
4. PROVIDE FIRE DAMPER AT WALL PENETRATION. SEE DETAIL #2 ON SHEET M6.8 FOR DAMPER INSTALLATION REQUIREMENTS.

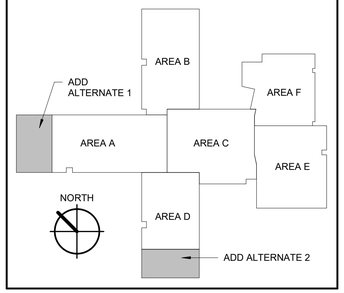


1 HVAC FLOOR PLAN - ALTERNATE 1
1/8" = 1'-0"



2 HVAC FLOOR PLAN - ALTERNATE 2
1/8" = 1'-0"

Keyed Plan



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2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER LICENSED 16683 3/31/2022 STATE OF IDAHO CHRISTOPHER DYKE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

BID SET

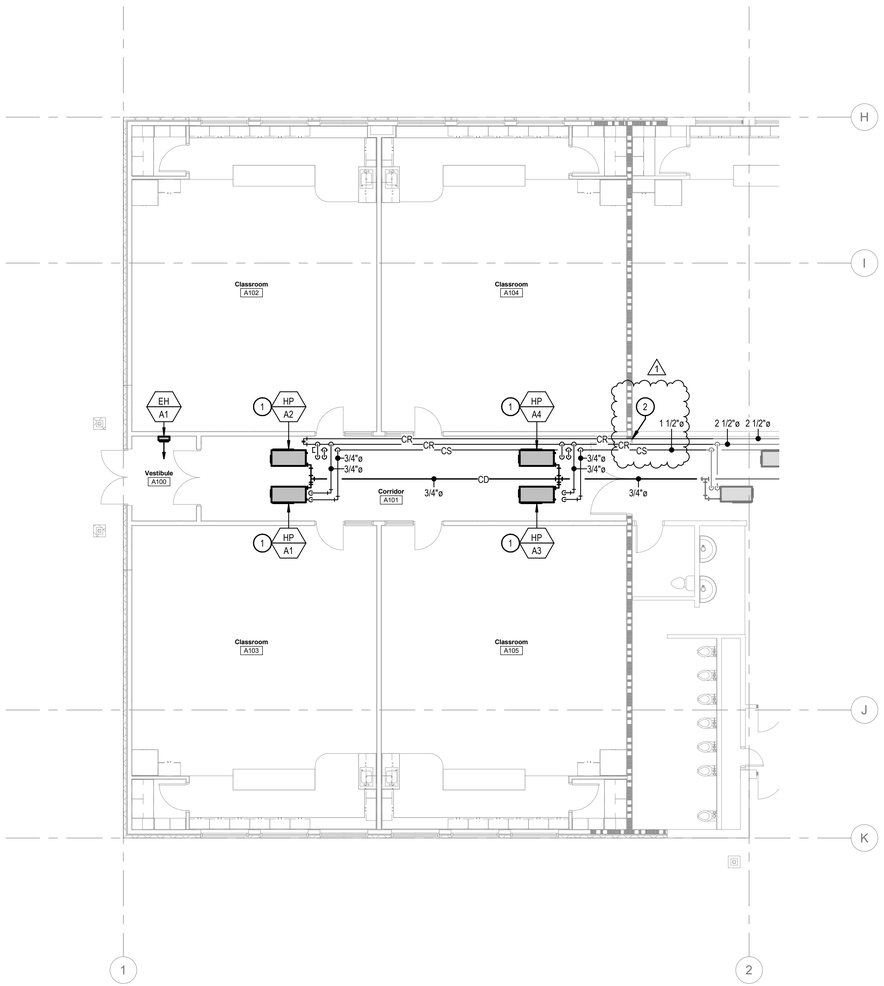
DRAWING NO.:

M2.7
HVAC FLOOR PLAN – ADD ALTERNATE 1 & 2

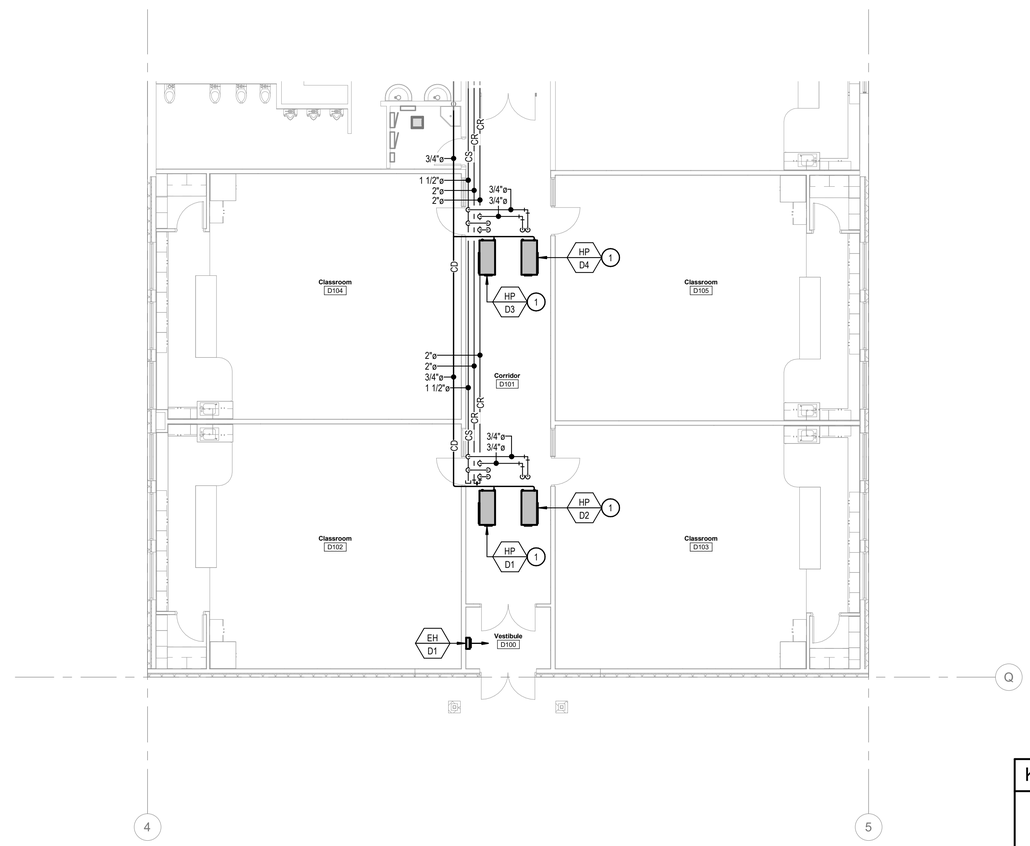
KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. SEE HEAT PUMP PIPING AND MOUNTING DETAIL #1 & #2 ON SHEET M5.6 AND DETAIL #5 ON SHEET M5.3.
2. FIRE CAULK AROUND HYDRONIC PIPE PENETRATIONS THROUGH FIRE WALL.

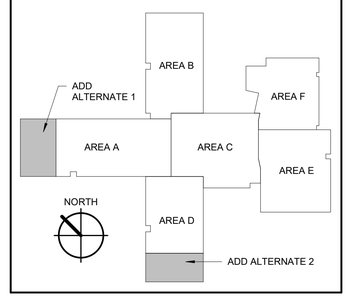


1 HYDRONIC PIPING FLOOR PLAN - ADD ALTERNATE 1
1/8" = 1'-0"



2 HYDRONIC PIPING FLOOR PLAN - ADD ALTERNATE 2
1/8" = 1'-0"

Keyed Plan



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2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER
LICENSED
Christopher L. Duke
16683
4/1/2022
STATE OF IDAHO
CHRISTOPHER DUKE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

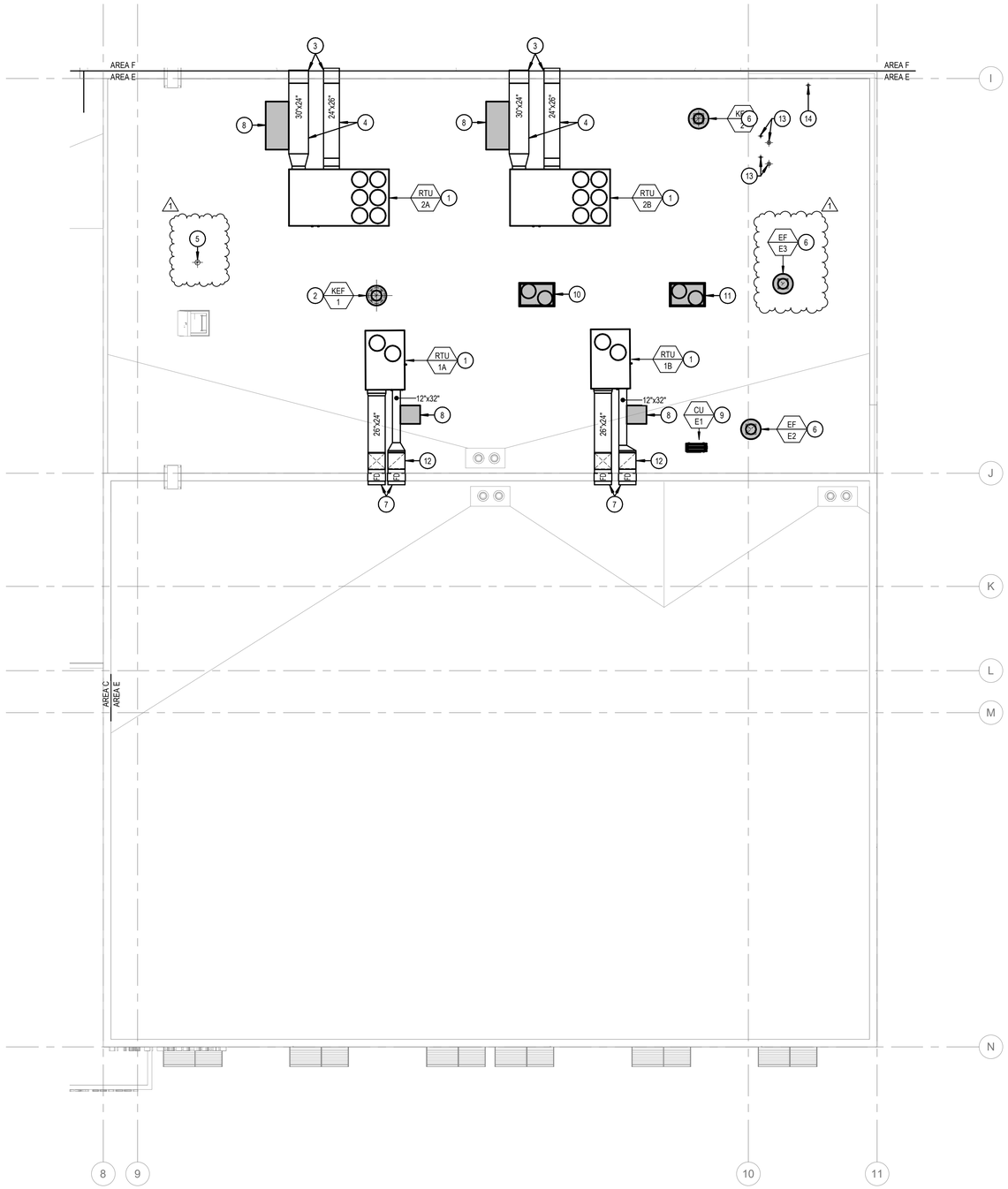
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: Author
CHECKED BY: Checker

BID SET

DRAWING NO.:

M3.7
HYDRONIC PIPING FLOOR PLAN – ADD ALT 1 & 2



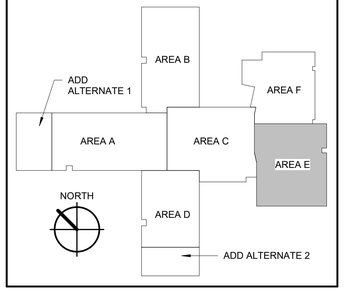
1 HVAC ROOF PLAN - AREA E
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. SEE ROOFTOP UNIT WITH SPRING RAIL MOUNTING DETAIL #1 ON SHEET M6.3 FOR INSTALLATION REQUIREMENTS.
2. SEE TYPE 1 KITCHEN EXHAUST FAN DETAIL #4 ON SHEET M6.2 FOR INSTALLATION REQUIREMENTS.
3. ROUTE DUCTWORK THROUGH WALL. SEE SHEET M2.6 FOR CONTINUATION.
4. SEE ROOF MOUNTED DUCTWORK SUPPORT DETAIL #4 ON SHEET M6.5 FOR INSTALLATION REQUIREMENTS.
5. EXHAUST FAN ROOF CAP.
6. SEE EXHAUST FAN DETAIL #7 ON SHEET M6.1 FOR INSTALLATION REQUIREMENTS.
7. ROUTE DUCTWORK THROUGH WALL AND PROVIDE WITH FIRE DAMPER. SEE SHEET M2.6 FOR CONTINUATION. SEE DETAIL #2 ON SHEET M6.8 FOR DAMPER INSTALLATION REQUIREMENTS.
8. DUCT MOUNTED POWER EXHAUST. SEE DETAIL #3 ON SHEET M6.8 FOR SUPPORT REQUIREMENTS.
9. SEE HEAT PUMP PLATFORM DETAIL #3 ON SHEET M6.2 FOR INSTALLATION REQUIREMENTS.
10. ROOF MOUNTED COOLER CONDENSER SHOWN FOR COORDINATION ONLY.
11. ROOF MOUNTED FREEZER CONDENSER SHOWN FOR COORDINATION ONLY.
12. ROUTE 26"X24" SUPPLY AND RETURN DUCTWORK UP TIGHT TO EXTERIOR WALL.
13. ROUTE 4" COMBUSTION AIR INTAKE AND 6" FLUE VENT FROM MECHANICAL ROOM BELOW. INSTALL FLUE VENT A MINIMUM OF 12" ABOVE COMBUSTION AIR INTAKE. SEE SHEET M5.1 FOR CONTINUATION. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
14. ROUTE 4" CONCENTRIC VENT FROM MECHANICAL ROOM BELOW AND PROVIDE TERMINATION KIT.

Keyed Plan



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Boise, Idaho 83706
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PROFESSIONAL ENGINEER LICENSED Christopher D. Dyke 16683 3/31/2022 STATE OF IDAHO CHRISTOPHER DYKE

MUSGROVE ENGINEERING, P.A.
project number: **21-422**

#	Description	Date
1	Addendum No. 1	04/01/2022

Revisions

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

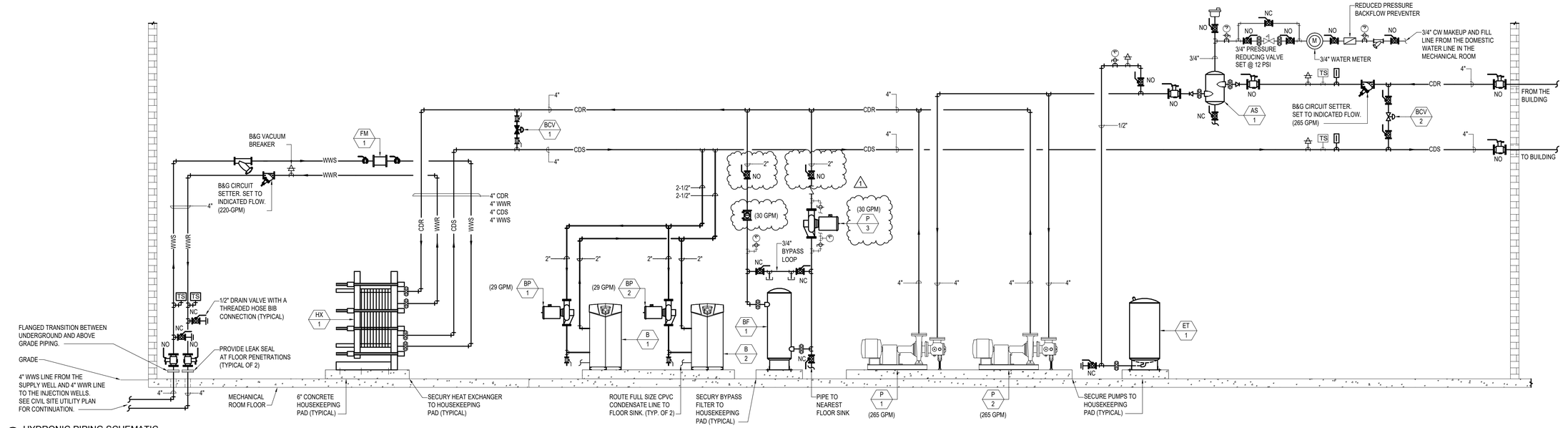
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

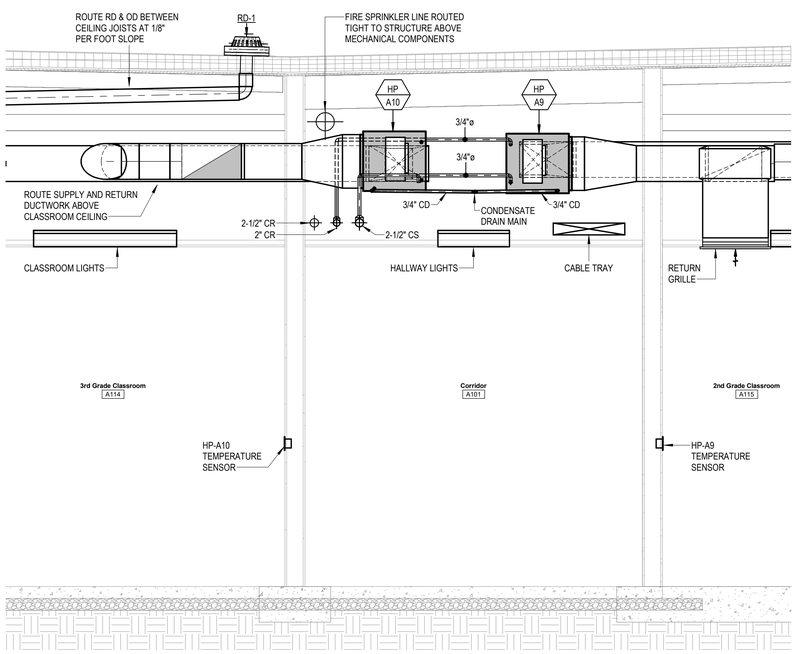
BID SET

DRAWING NO.:

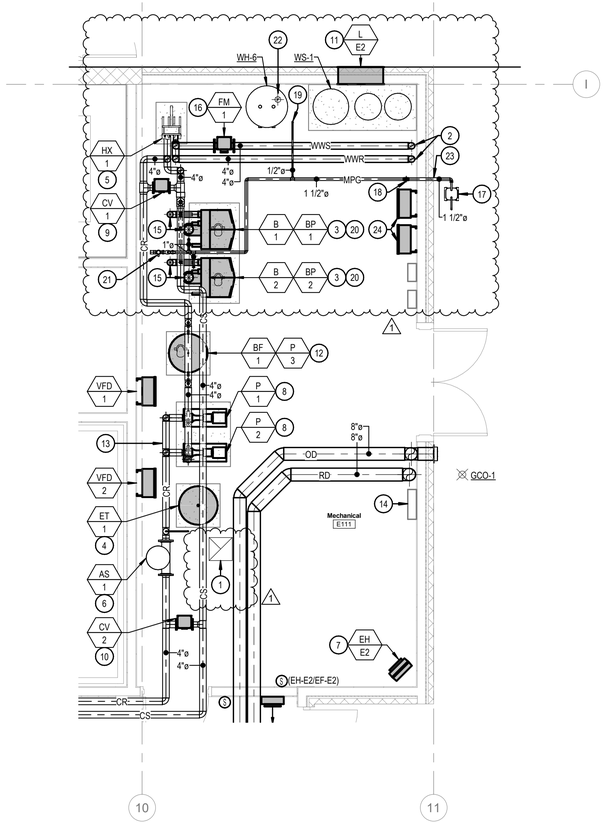
M4.5
HVAC ROOF PLAN - AREA E



1 HYDRONIC PIPING SCHEMATIC
NTS



2 HALLWAY SECTION 1
1/2" = 1'-0"



3 ENLARGED MECHANICAL ROOM PLAN
1/4" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. EXTEND A FULL SIZE DUCT FROM THE ROOF-MOUNTED EXHAUST FAN THROUGH THE CEILING. TERMINATE THE DUCT WITH AN EXPANDED METAL SCREEN WITH A 1" FRAME. PAINT THE EXPANDED METAL AND ALL VISIBLE DUCTWORK THE SAME COLOR AS THE CEILING.
2. ROUTE 4" WWS & WWR PIPING BELOW GROUND IN SLEEVES. SEE CIVIL UTILITIY PLANS FOR CONTINUATION.
3. SEE BOILER AND BOILER PUMP PIPING DETAIL #1 ON SHEET M6.4.
4. SEE FLOOR MOUNTED DIAPHGRAM EXPANSION TANK PIPING DETAIL #5 ON SHEET M6.4.
5. SEE HEAT EXCHANGER PIPING DETAIL #3 ON SHEET M6.4.
6. SEE SEDIMENT AIR SEPARATOR PIPING DETAIL #4 ON SHEET M6.4.
7. HANG ELECTRIC HEATER FROM CEILING PER MANUFACTURERS RECOMMENDATIONS.
8. SEE BASE-MOUNTED PUMP PIPING DETAIL #4 ON SHEET M6.3.
9. BYPASS CONTROL VALVE (BCV-1). SEE PIPING SCHEMATIC DETAIL #1 ON THIS SHEET.
10. BYPASS CONTROL VALVE (BCV-2). SEE PIPING SCHEMATIC DETAIL #1 ON THIS SHEET.
11. MOUNT LOUVER 8' A.F.F. AVOID INSTALLING DIRECTLY IN FRONT OF PIPING INSIDE MECHANICAL ROOM.
12. BYPASS FILTER AND INLINE PUMP. SEE PIPING SCHEMATIC DETAIL #1 ON THIS SHEET FOR PIPING REQUIREMENTS.
13. AVOID ROUTING HYDRONIC PIPING OVER VARIABLE FREQUENCY DRIVES.
14. DDC CONTROL PANEL.
15. ROUTE 4" VENT AND 6" FLUE TO ROOF. SEE SHEET M4.3 FOR CONTINUATION
16. WELL WATER FLOW METER. SEE PIPING SCHEMATIC DETAIL #1 ON THIS SHEET.
17. GAS SERVICE AND GAS METER FURNISHED AND INSTALLED BY INTERMOUNTAIN GAS COMPANY. CONNECT 1-1/2" MPG LINE TO METER. PROVIDE A PIPE SLEEVE AND SEALANT AROUND GAS PIPE PENETRATION THROUGH EXTERIOR WALL. PAINT ALL GAS PIPING OUTSIDE THE BUILDING TO MATCH WALL COLOR. SEE GAS SIZING CHART ON SHEET P7.2 FOR LOAD INFORMATION.
18. ROUTE 1-1/4" MPG LINE TO ROOF. SEE SHEET P3.5 FOR CONTINUATION.
19. ROUTE 1/2" MPG LINE DOWN TO WH-6. PROVIDE SHUTOFF VALVES AND PRESSURE REGULATOR.
20. ROUTE 1" MPG DOWN TO BOILER. PROVIDE WITH SHUTOFF VALVES AND PRESSURE REGULATOR.
21. PROVIDE GAS SHUT-OFF VALVE AND GAS PRESSURE REGULATOR FROM 1" MPG LINE TO 2" LPG INTO KITCHEN. SEE ENLARGED KITCHEN PLAN ON SHEET P4.1 FOR CONTINUATION.
22. COMBINE 3" FLUE AND 3" VENT WITH CONCENTRIC VENT KIT. SEE DETAIL #3 ON SHEET M6.1 FOR INSTALLATION REQUIREMENTS. SEE SHEET M4.5 FOR CONTINUATION.
23. PROVIDE SLEEVE AND SEALANT AROUND GAS PIPING PENETRATION THROUGH EXTERIOR WALL. ALL EXTERIOR GAS PIPING SHALL BE COATED PER SPECIFICATIONS.
24. WELL PUMP VFD AND LOAD FILTER. SEE ELECTRICAL DRAWINGS FOR CONTINUATION. COORDINATE WITH WELL PUMP SYSTEM PROVIDED PRIOR TO INSTALLATION.

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Boise, Idaho 83706
www.lkvarchitects.com
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PROFESSIONAL ENGINEER LICENSED Christopher L. Duke 16683 4/1/2022 STATE OF IDAHO CHRISTOPHER DUKE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

BID SET

DRAWING NO.:

M5.1
ENLARGED MECHANICAL PLANS

PACKAGED AIR CONDITIONING SCHEDULE

SYMBOL	AREA SERVED	NOM. TONS	SUPPLY FAN				COOLING CAPACITY 95°OSA, 80°EDB, 62°EWB		GAS HEATING CAPACITY		RTU ELECTRICAL			ELECTRICAL POWER EXHAUST				OSA CFM	MIN. EER RATING	OPER. WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	ESP	MOTOR HP	DRIVE	TOTAL MBH	SENSIBLE MBH	INPUT MBH	OUTPUT MBH	MCA	MOCP	V/Ø	STATIC	MCA	MOCP	V/Ø					
RTU-1A	GYMNASIUM E100	12.5	5,000	0.75	(1) 5.0	DIRECT ECM	159.0	121.0	198.0	160.4	34.0	40.0	460/3	0.5	8.1	14.6	460/3	1,360	10.8	1,500	DAIKIN MPSA12D	1 , 2 , 3 , 4 , 5
RTU-1B	GYMNASIUM E100	12.5	5,000	0.75	(1) 5.0	DIRECT ECM	159.0	121.0	198.0	160.4	34.0	40.0	460/3	0.5	8.1	14.6	460/3	1,360	10.8	1,500	DAIKIN MPSA12D	1 , 2 , 3 , 4 , 5
RTU-2A	CAFETORIUM F100	15.0	6,000	0.75	(2) 3-HP	DIRECT ECM	187.5	141.2	220.0	178.2	38.0	45.0	460/3	0.5	8.1	14.6	460/3	2,680	11.1	2,200	DAIKIN MPS015B	1 , 2 , 3 , 4 , 5
RTU-2B	CAFETORIUM F100	15.0	6,000	0.75	(2) 3-HP	DIRECT ECM	187.5	141.2	220.0	178.2	38.0	45.0	460/3	0.5	8.1	14.6	460/3	2,680	11.1	2,200	DAIKIN MPS015B	1 , 2 , 3 , 4 , 5

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: CARRIER, TRANE, LENNOX, AND YORK.
2. PROVIDE UNIT WITH TERMINAL STRIP FOR DDC CONTROL. SEE CONTROLS SHEET M8.4 FOR SEQUENCE OF OPERATION.
3. PROVIDE UNIT WITH MICROMETL WELDED SPRING ISOLATION CURB (SEE DETAIL FOR SEISMIC RESTRAINTS), FLUE EXTENDER, HAIL GUARDS, HIGH ALTITUDE KIT, THRU-THE-BOTTOM OF CURB ELECTRICAL CONNECTION KIT, HINGED ACCESS PANELS, MICROMETL GEAR DRIVEN INTEGRATED DRY BULB ECONOMIZER WITH BELIMO LOGIC ACTUATORS AND AUX END SWITCH, MICROMETL MODULATING POWER EXHAUST WITH VARIABLE SPEED MOTOR CONTROLLER (100% RELIEF) WIRING HARNESS, PRESSURE SENSOR SET TO .02 POSITIVE PRESSURE. ELECTRICAL CONTRACTOR TO PROVIDE THE POWER CONNECTION BETWEEN RTU AND THE POWER EXHAUST AND PROVIDE FUSED DISCONNECT AS REQUIRED.
4. PROVIDE 2" PLEATED MERV 8 FILTER AND FILTER RACK WITH 4 EXTRA SETS PER UNIT.
5. MAXIMUM "A-WEIGHTED" SUPPLY AIR SOUND RATINGS FOR UNITS 2-18 TONS = 95 DB @ 125 HZ, 90 DB @ 250 HZ, PER ARI STANDARDS 270 & 370.

EXHAUST FAN SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	BLOWER				ELECTRICAL		MAXIMUM SONES	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	ESP	MAXIMUM RPM	DRIVE	HP/W	V/Ø				
EF-A1	JAN. A107	CEILING CABINET	150	.375	1,160	DIRECT	57.7 W	115/1	3.5	15.0	COOK MODEL GC-186	1 , 2 , 4
EF-B1	JAN. B110	CEILING CABINET	150	.375	1,160	DIRECT	57.7 W	115/1	3.5	15.0	COOK MODEL GC-186	1 , 2 , 4
EF-D1	JAN. D110	CEILING CABINET	150	.375	1,160	DIRECT	57.7 W	115/1	3.5	15.0	COOK MODEL GC-186	1 , 2 , 4
EF-E1	JAN. E109	CEILING CABINET	150	.375	1,160	DIRECT	57.7 W	115/1	3.5	15.0	COOK MODEL GC-186	1 , 2 , 4
EF-E2	ELECTRICAL E106	ROOF MOUNTED UPBLAST	600	0.25	1,550	DIRECT	1/8 HP	115/1	9.7	75.0	COOK MODEL ACRUD 101R15D	1 , 3 , 4
EF-E3	MECHANICAL E111	ROOF MOUNTED UPBLAST	1,000	0.25	1,550	DIRECT	1/4 HP	115/1	9.0	75.0	COOK MODEL ACRUD 120R15D	1 , 3 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: ACME, GREENHECK, PENNBARRY, TWIN CITY FAN COMPANY, SOLER & PALAU.
2. PROVIDE UNIT WITH MANUFACTURER'S ALUMINUM ROOF CAP (FLAT ROOF) EQUAL TO COOK MODEL PR (W/ INTEGRAL BIRD SCREEN AND ROOF CURB), BACKDRAFT DAMPER, OUTLET FLEX DUCT CONNECTION, STANDARD PLUG DISCONNECT, PRE-WIRED FAN SPEED CONTROLLER, THERMAL OVERLOAD PROTECTION, HANGING VIBRATION ISOLATORS, PILOT LIGHT WALL SWITCH, AND ALUMINUM GRILLE. COORDINATE GRILLE COLOR WITH ARCHITECT.
3. PROVIDE UNIT WITH MANUF. ROOF CURB W/ DAMPER TRAY, MOTORIZED BACKDRAFT DAMPER, INLET FLEX DUCT CONNECTION, INTEGRAL BIRD SCREEN, PRE-WIRED NEMA 3R ELECTRICAL DISCONNECT SWITCH, AND THERMAL OVERLOAD PROTECTION.
4. SEE CONTROLS SHEET M8.3 FOR SEQUENCE OF OPERATION.

ELECTRIC HEATER SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	FAN			ELECTRICAL				MANUFACTURER AND MODEL	REMARKS
			CFM	RPM	HP	KW	STEPS	V/Ø	AMPS		
EH-A1	VESTIBULE A100	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-A2	VESTIBULE A109	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-A3	TOILET A111	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3 , 4
EH-A4	GIRLS A108	CEILING MOUNTED	245	1400	1/8	3.0	1	277/1	10.8	QMARK CDF SERIES WITH RECESSED ENCLOSURE	1 , 3 , 4
EH-B1	VESTIBULE B100	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-B2	VESTIBULE B111	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-B3	VESTIBULE B120A	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-C1	SECURITY VESTIBULE C100	CEILING MOUNTED	245	1400	1/8	3.0	1	277/1	10.8	QMARK CDF SERIES WITH RECESSED ENCLOSURE	1 , 3
EH-D1	VESTIBULE D100	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-D2	VESTIBULE D107	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-D3	JAN. D110	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3 , 5
EH-D4	BOYS D108	CEILING MOUNTED	245	1400	1/8	3.0	1	277/1	10.8	QMARK CDF SERIES WITH RECESSED ENCLOSURE	1 , 3 , 5
EH-E1	CORRIDOR E101	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3
EH-E2	MECHANICAL E111	WALL HUNG	400	1,400	N/A	5.0	1	277/1	18.1	MARKEL MODEL 5100 SERIES	1 , 2 , 3
EH-F1	HALLWAY F102	CEILING MOUNTED	245	1400	1/8	2.0	1	277/1	7.2	QMARK CDF SERIES WITH RECESSED ENCLOSURE	1 , 3
EH-F2	STORAGE F100A	RECESSED	245	1400	1/8	2.0	1	277/1	7.2	MARKEL MODEL 3420 SERIES	1 , 2 , 3

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: MARKEL, QMARK, INDEECO, OUELLET, AND CHROMALOX.
2. MOUNT BOTTOM OF HEATER 24" ABOVE FINISH FLOOR.
3. SEE CONTROLS SHEET M8.3 FOR SEQUENCE OF OPERATION.
4. PROVIDE UNDER BID ALTERNATE #1.
5. PROVIDE UNDER BID ALTERNATE #2.

ENERGY RECOVERY UNIT SCHEDULE (FIXED CORE)

SYMBOL	SUPPLY FAN			EXHAUST FAN			WINTER DESIGN						SUMMER DESIGN						ELECTRICAL			MIN EFFECTIVENESS SUMMER / WINTER	WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
							SUPPLY			EXHAUST			SUPPLY			EXHAUST									
	CFM	ESP	HP	CFM	ESP	HP	EDB	EWB	LDB	EDB	EWB	LDB	EDB	EWB	LDB	EDB	EWB	LDB	MCA	MOCP	V/Ø				
ERU-A1	3,575	1.0	1.5	3,220	1.0	1.5	7.6	5.2	45.2	70.0	55.0	61.9	92.2	66.3	82.2	75.0	61.9	86.2	8.9	15.0	460/3	61.7% / 58.6%	1,000	GREENHECK ECV-30-PM-H	1 , 2 , 3
ERU-A2	3,510	1.0	1.5	3,160	1.0	1.5	7.6	5.2	45.1	70.0	55.0	30.1	92.2	66.3	82.2	75.0	61.9	86.1	8.9	15.0	460/3	61.3% / 58.2%	1,000	GREENHECK ECV-30-PM-H	1 , 2 , 3
ERU-B1	2,040	1.0	1.5	1,840	1.0	1.5	7.6	5.2	43.3	70.0	55.0	29.8	92.2	66.3	82.0	75.0	61.9	86.2	4.7	15.0	460/3	70.3% / 59.5%	750	GREENHECK ECV-30-FM-H	1 , 2 , 3
ERU-B2	2,775	1.0	1.0	2,500	1.0	0.75	7.6	5.2	44.1	70.0	55.0	28.9	92.2	66.3	81.8	75.0	61.9	86.4	6.2	15.0	460/3	71.5% / 60.9%	1,000	GREENHECK ECV-30-FM-H	1 , 2 , 3
ERU-C1	2,820	1.0	1.0	2,540	1.0	0.75	7.6	5.2	44.1	70.0	55.0	28.9	92.2	66.3	81.8	75.0	61.9	86.4	6.2	15.0	460/3	71.5% / 60.9%	1,000	GREENHECK ECV-30-FM-H	1 , 2 , 3
ERU-D1	1,875	1.0	1.5	1,690	1.0	1.5	7.6	5.2	43.9	70.0	55.0	29.0	92.2	66.3	81.8	75.0	61.9	86.4	4.7	15.0	460/3	71.4% / 60.7%	750	GREENHECK ECV-20-FM-H	1 , 2 , 3
ERU-D2	2,220	1.0	1.5	2,000	1.0	2.0	7.6	5.2	45.6	70.0	55.0	29.8	92.2	66.3	82.1	75.0	61.9	86.3	5.9	15.0	460/3	62.2% / 59.1%	750	GREENHECK ECV-20-PM-H	1 , 2 , 3
ERU-F1	1,400	1.0	1.0	1,260	1.0	1.0	7.6	5.2	46.3	70.0	55.0	27.1	92.2	66.3	81.3	75.0	61.9	87.0	3.5	15.0	460/3	74.9% / 64.5%	700	GREENHECK ECV-20-FM-H	1 , 2 , 3

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: COOK (MODEL ERVX), RENEWAIRE (MODEL HE), AND CARNES (MODEL WP).
2. PROVIDE WITH EXHAUST ONLY FROST PREVENTION CONTROLS, SINGLE POINT POWER CONNECTION, NEMA 3R DISCONNECT SWITCH, MOTOR STARTERS, 2" MERV 8 FILTERS IN EACH AIR STREAM, VIBRATION ISOLATORS ON EACH FAN, INTAKE AND EXHAUST WEATHER HOODS, MANUFACTURERS ROOF CURB, HINGED ACCESS PANELS, FIXED CORE POLYMER HEAT EXCHANGER W/ 5 YEAR WARRANTY, DOUBLE WALL CABINET CONSTRUCTION, & VFD'S WITH FAN MOTORS THAT INCLUDE A DC LINK CHOKE. FAN MOTORS SHALL MEET NEMA MG1 PART 31 REQUIREMENTS. PROVIDE UNIT WITH UL APPROVAL LISTING.
3. PROVIDE WITH MICROPROCESSOR UNIT CONTROLS AND NETWORK CONNECTION. COORDINATE AND VERIFY REQUIREMENTS WITH CONTROLS CONTRACTOR. SEE CONTROL SEQUENCE AS OUTLINED ON CONTROLS SHEET M8.2 FOR ADDITIONAL REQUIREMENTS.

DIFFUSER SCHEDULE

SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
D-1 CFM 6"Ø	6X6	6"Ø	0 - 90	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
D-2 CFM 8"Ø	9X9	8"Ø	90 - 200	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
D-3 CFM 10"Ø	12X12	10"Ø	200 - 350	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
D-4 CFM 12"Ø	15X15	12"Ø	300 - 500	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
D-5 CFM 14"Ø	15X15	14"Ø	400 - 650	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
D-6 CFM 16"Ø	18X18	16"Ø	600 - 900	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
D-7 CFM 21X21	21X21	21X21	900 - 1400	1 , 2 , 3 , 4 , 5 , 6 , 7 , 8
D-8 CFM 10"Ø	12X12	10"Ø	200 - 350	1 , 3 , 4 , 5 , 6 , 7 , 8 , 9

REMARKS:

1. ALTERNATE MANUFACTURERS: ANEMOSTAT, J&J REGISTER, NAILOR, METAL-AIRE, TUTTLE & BAILEY, KRUEGER, PRICE, AND UNITED ENERTECH.
2. SIZES BASED ON TITUS MODEL TDC SERIES.
3. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
4. ALL DIFFUSERS LOCATED IN LAY-IN CEILING AREAS SHALL BE BORDER TYPE 3 AND BE MOUNTED IN MANUFACTURER PROVIDED 24"x24" PANELS. ALL DIFFUSERS LOCATED IN HARD CEILING AREAS SHALL BE BORDER TYPE 6 (BEVELED) SURFACE MOUNTED. SEE ARCHITECTURAL PLANS FOR LOCATIONS OF VARIOUS CEILING TYPES.
5. SEE HVAC FLOOR PLANS FOR DIRECTIONAL THROW REQUIREMENTS FOR EACH DIFFUSER.
6. ALL OF THE DIFFUSERS SHOWN IN THIS SCHEDULE MAY NOT BE USED. REFERENCE THE HVAC PLAN FOR DIFFUSER CALL-OUTS AND THE QUANTITY OF EACH SIZE REQUIRED.
7. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
8. COLOR TO BE SELECTED BY ARCHITECT.
9. SIZES BASED ON TITUS MODEL TDC-A SERIES.

SUPPLY GRILLE SCHEDULE

SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
G-1 CFM SIZE	18X4	18X4	0-350	1 , 2 , 3 , 4
G-2 CFM SIZE	12X8	12X8	0-400	1 , 2 , 3 , 4

REMARKS:

1. APPROVED MANUFACTURERS: ANEMOSTAT, J&J REGISTER, TUTTLE & BAILEY, NAILOR, METAL-AIRE, KRUEGER, PRICE, AND UNITED ENERTECH.
2. DRUM LOUVER, SIZES BASED ON TITUS MODEL DL. ADJUSTABLE VERTICAL AND HORIZONTAL THROW - HIGH DISCHARGE FOR LONG THROWS, WHITE FINISH. PROVIDE WITH OPPOSED BLADE DAMPER.
3. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
4. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.

RETURN & EXHAUST GRILLE SCHEDULE

SYMBOL	NOMINAL SIZE	NECK / RUNOUT SIZE	CFM RANGE	REMARKS
R-1 6"Ø	8X8	6"Ø	0-80	1 , 2 , 3 , 4 , 5 , 6 , 7
R-2 8"Ø	10X10	8"Ø	80-180	1 , 2 , 3 , 4 , 5 , 6 , 7
R-3 10"Ø	12X12	10"Ø	180-300	1 , 2 , 3 , 4 , 5 , 6 , 7
R-4 6"Ø	22X10	6"Ø	0-80	1 , 2 , 3 , 4 , 5 , 6 , 7
R-5 8"Ø	22X10	8"Ø	80-180	1 , 2 , 3 , 4 , 5 , 6 , 7
R-6 10"Ø	22X10	10"Ø	180-300	1 , 2 , 3 , 4 , 5 , 6 , 7
R-7 12"Ø	22X22	12"Ø	300-500	1 , 2 , 3 , 4 , 5 , 6 , 7
R-8 14"Ø	22X22	14"Ø	500-750	1 , 2 , 3 , 4 , 5 , 6 , 7
R-9 22X10	22X10	22X10	500-1100	1 , 2 , 3 , 4 , 5 , 6 , 7
R-10 22X22	22X22	22X22	1100-2000	1 , 2 , 3 , 4 , 5 , 6 , 7
R-11 18X18	18X18	18X18	0-820	1 , 3 , 4 , 5 , 6 , 7 , 8

REMARKS:

1. ALTNERNATE MANUFACTURERS: ANEMOSTAT, CARNES, PRICE, NAILOR, METAL-AIRE, TUTTLE & BAILEY, KRUEGER, J&J REGISTER, AND UNITED ENERTECH.
2. SIZES BASED ON TITUS MODEL 50F, ALUMINUM EGGCRATE RETURN GRILLE, 1/2" x 1/2" x 1" SPACING (SINGLE CORE). PROVIDE SQUARE TO ROUND TRANSITION (WHERE ROUND RUN-OUT INDICATED).
3. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
4. ALL GRILLES LOCATED IN LAY-IN CEILING AREAS SHALL HAVE BORDER #3, UNLESS OTHERWISE INDICATED. ALL GRILLES LOCATED IN HARD CEILING AREAS SHALL HAVE BORDER #1, UNLESS OTHERWISE INDICATED. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF VARIOUS CEILING TYPES. SHEET METAL DUCTWORK VISIBLE BEHIND GRILLE SHALL BE PAINTED FLAT BLACK.
5. ALL OF THE GRILLES SHOWN IN THIS SCHEDULE MAY NOT BE USED. REFERENCE THE HVAC PLAN FOR GRILLE CALL-OUTS AND THE QUANTITY OF EACH SIZE REQUIRED.
6. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
7. COLOR TO BE SELECTED BY ARCHITECT.
8. HIGH WALL GRILLE SIZES BASED ON TITUS MODEL 355 RL, STEEL BAR GRILLE, FIXED BLADES, 1/2" SPACING, 35° DEFLECTION, ADJUSTABLE OPPOSED BLADE DAMPER.

LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER LICENSED 16683 4/1/2022 STATE OF IDAHO CHRISTOPHER D. KEE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

Revisions

#	Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

BID SET

DRAWING NO.:

M7.1
MECHANICAL SCHEDULES

CONDENSING HOT WATER BOILER SCHEDULE

SYMBOL	AREA SERVED	THERMAL EFFICIENCY	FUEL	EWT (°F)	LWT (°F)	BOILER FLOW (GPM)	MAX P.D. (FT H$_2$O)	CAPACITY		MANUFACTURER AND MODEL	REMARKS
								INPUT MBH	OUTPUT MBH		
B-1	CONDENSER WATER LOOP	96%	NATURAL GAS	55.0	105.0	29.0	3.0	725.0	705.0	LOCHINVAR FTX725	1 , 2 , 3 , 4
B-2	CONDENSER WATER LOOP	96%	NATURAL GAS	55.0	105.0	29.0	3.0	725.0	705.0	LOCHINVAR FTX725	1 , 2 , 3 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: FULTON, KN, & AERCO.
2. PROVIDE BOILER VENTING KIT, BMS GATEWAY TO BACNET, NEUTRALIZING KIT, COMBUSTION AIR INTAKE KIT, LOW WATER CUT-OFF, FLOW SWITCH, MODULATING GAS BURNER, CONDENSATE TRAP, 316L STAINLESS STEEL COMBUSTION CHAMBER, EXHAUST PIPE, CSD-1 AND OSA RESET, 150-PSI WORKING PRESSURE.
3. BOILER SHALL BE PROVIDED W/FACTORY START-UP, START-UP IS NOT COMPLETE UNTIL ALL BURNERS AND BLOWER ARE CALIBRATED FOR PEAK PERFORMANCE AND AT COMPLETION OF PROJECT ALL BURNERS, BLOWERS, HEAT EXCHANGERS, AND OTHER INTERNAL PARTS SHALL BE THOROUGHLY CLEANED OF CONSTRUCTION DEBRIS.
4. SEE CONTROLS SHEET M8.5 FOR SEQUENCE OF OPERATION.

PUMP SCHEDULE

SYMBOL	AREA SERVED	TYPE	CAPACITY			MOTOR			SUCTION DIFFUSER	TRIPLE DUTY VALVE	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			FLOW (GPM)	HEAD (FT)	MIN EFF	HP	RPM	V/Ø					
BP-1	BOILER PUMP (B-1)	INLINE	29.0	10.0	-	1/3	-	115/1	N/A	N/A	40.0	GRUNDFOS MAGNA3 40-80	1 , 2 , 4
BP-2	BOILER PUMP (B-2)	INLINE	29.0	10.0	-	1/3	-	115/1	N/A	N/A	40.0	GRUNDFOS MAGNA3 40-80	1 , 2 , 4
P-1	CONDENSER WATER LOOP	BASE MOUNTED	265.0	110.0	77.5%	15.0	3,600	460/3	EE-3X	3DS-4S	350.0	B&G SERIES E-1510 2.5AC	1 , 3 , 4 , 5
P-2	CONDENSER WATER LOOP	BASE MOUNTED	265.0	110.0	77.5%	15.0	3,600	460/3	EE-3X	3DS-4S	350.0	B&G SERIES E-1510 2.5AC	1 , 3 , 4 , 5
P-3	BYPASS FILTER	INLINE	30.0	15.0	45.0%	0.5	1,750	115/1	N/A	N/A	50.0	B&G SERIES PL-36	1 , 2 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: ARMSTRONG, GRUNDFOS, TACO, WILO, PACO, PEERLESS, PATTERSON.
2. PROVIDE UNIT WITH PREMIUM EFFICIENCY MOTOR.
3. PROVIDE WITH VFD. SEE VFD SCHEDULE.
4. SEE CONTROLS SHEET M8.5 FOR SEQUENCE OF OPERATION.
5. PROVIDE UNIT WITH SHAFT GROUNDING & PREMIUM EFFICIENCY MOTOR RATED PER NEMA MG1 PART 31.

VARIABLE FREQUENCY DRIVE SCHEDULE

SYMBOL	SYSTEM LOCATION	SERVICE HORSEPOWER	V/Ø	PURPOSE	MANUFACTURER AND MODEL	REMARKS
VFD-1	MECHANICAL E111	15.0	460/3	HYDRONIC LOOP PUMP (P-1)	ABB MODEL ACH 580	1 , 2 , 3 , 4
VFD-2	MECHANICAL E111	15.0	460/3	HYDRONIC LOOP PUMP (P-2)	ABB MODEL ACH 580	1 , 2 , 3 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: MAGNETEK, RELIANCE, MITSUBISHI, SQUARE D, AND YASKAWA.
2. PROVIDE W/PRESSURE SENSORS, INTERNAL FUSED DISCONNECT (W/FUSES), NEMA 1 ENCLOSURE, WALL MOUNTING BRACKET, FACTORY AUTHORIZED START-UP, 5% INTERNAL IMPEDANCE, & 3% LINE REACTOR.
3. EQUIPMENT PROVIDED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR.
4. SEE CONTROLS SHEET M8.5 FOR SEQUENCE OF OPERATION.

KITCHEN EXHAUST FAN SCHEDULE

SYMBOL	AREA SERVED	UNIT TYPE	BLOWER				ELECTRICAL		MAXIMUM SONES	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
			CFM	ESP	MAXIMUM RPM	DRIVE	HP/W	V/Ø				
KEF-1	KITCHEN HOODS (H-1 & H-2)	UPBLAST	3,750	1.8	1,000	DIRECT	5.0	208/3	21.0	500	CAPTIVE AIRE MODEL DU240HFA	1 , 2 , 3 , 4 , 6
KEF-2	DISHWASHER HOOD (H-3)	UTILITY SET	600	0.5	1,400	DIRECT	1/3	208/1	13.1	125	CAPTIVE AIRE MODEL DU33HFA	1 , 2 , 5 , 6

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: ACME, GREENHECK, PENNBARRY, TWIN CITY FAN COMPANY, SOLER & PALAU AND COOK.
2. PROVIDE UNIT WITH MANUFACTURER'S ROOF CURB (VENTED ROOF CURB IF EXHAUST DUCT IS SHAFTED RATHER THAN WRAPPED), PRE-WIRED NEMA 3R ELECTRICAL DISCONNECT SWITCH, HINGED SUB BASE, GREASE TERMINATOR, AND U.L. 762 RATING.
3. PROVIDE WITH PREWIRED WITH VFD.
4. CONTROL FAN WITH KITCHEN HOOD CONTROL PANEL.
5. CONTROL FAN WITH WALL SWITCH.
6. SEE CONTROLS SHEET M8.3 FOR SEQUENCE OF OPERATION.

LOUVER SCHEDULE

SYMBOL	SERVICE	TYPE	NOMINAL SIZE	MINIMUM FREE AREA (SQ.FT.)	FINISH	MANUFACTURER AND MODEL	REMARKS
L-E1	INTAKE (ELECTRICAL E106)	FIXED DRAINABLE	24"X19"	1.4	AAMA 2604	RUSKIN ELF375DX	1 , 2 , 3 , 4
L-E2	INTAKE (MECHANICAL E116)	FIXED DRAINABLE	30"X21"	2.1	AAMA2604	RUSKIN ELF375DX	1 , 2 , 3 , 4

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: GREENHECK, AMERICAN WARMING, AIROLITE, SAFE-AIR/DOWCO, LOUVERS & DAMPERS, ARROW UNITED, CESCO, NCA MANUFACTURING, NAILOR, POTTORFF, AND UNITED ENERTECH.
2. COLOR TO BE SELECTED BY ARCHITECT.
3. PROVIDE WITH FLANGED FRAME AND BIRD SCREEN, AND 120V/Ø LOW LEAKAGE MOTORIZED DAMPER.
4. SEE CONTROLS SHEET M8.3 FOR SEQUENCE OF OPERATION.

MECHANICAL SPECIALTY EQUIPMENT SCHEDULE

SYMBOL	EQUIPMENT DESCRIPTION	SYSTEM SERVED	DESCRIPTION	MANUFACTURER AND MODEL
AS-1	AIR SEDIMENT SEPARATOR	HYDRONIC SYSTEM	DESIGN FLOW IS 265.0 GPM WITH A DESIGN PD OF 1.0 FT-H $_2$O.	B & G MODEL SRS -4F ALTERNATE APPROVED MANUFACTURERS: TACO, ARMSTRONG, AND PACO
ET-1	EXPANSION TANK (HORIZONTAL DIAPHRAGM TYPE)	HYDRONIC SYSTEM	12.2 GALLON CAPACITY, ACCEPTANCE 2.6 GALLONS-BLADDER TYPE EXPANSION TANK. (PRE-CHARGED TO 12 PSI)	B & G MODEL D-40V ALTERNATE APPROVED MANUFACTURERS: TACO, ARMSTRONG, AND PACO
BF-1	BYPASS FILTER	CONDENSER WATER LOOP	SIDE STREAM CONDENSER WATER FILTER ASSEMBLY WITH FLOOR MOUNTING LEGS.	ROSEDALE MODEL 8-30-2F-2-150-C-BS-M100
FM-1	FLOW METER	WELL WATER LOOP	ELECTROMAGNETIC FLOW METER	ONICON FT-3000

HEAT EXCHANGER SCHEDULE

SYMBOL	SYSTEM	TYPE	HEATING MODE				COOLING MODE				HX FLOW (GPM)		MAX PRESSURE LOSS (PSI)		MANUFACTURER & MODEL	REMARKS
			WELL SIDE (°F)		CONDENSER SIDE (°F)		WELL SIDE (°F)		CONDENSER SIDE (°F)		WELL SIDE	CONDENSER SIDE	WELL SIDE	CONDENSER SIDE		
			ENT	LVG	ENT	LVG	ENT	LVG	ENT	LVG						
HX-1	CONDENSER LOOP	PLATE AND FRAME	55.0	45.0	42.0	52.0	55.0	69.5	85.0	70.5	220.0	220.0	5.0	5.0	B&G AP47	1 , 2 , 3

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: ALFA LAVAL, TRANTER, TACO, AND ARMSTRONG
2. PIPING CONNECTIONS TO HEAT EXCHANGER AS SHOWN ON PIPING SCHEMATICS MAY NOT REFLECT EACH MANUFACTURER'S ACTUAL CONNECTION ORDER.
3. EPDM GASKET MATERIAL AND 316 STAINLESS STEEL PLATE MATERIAL.

DUCTLESS SPLIT HIGH WALL COOLING & HEATING UNIT SCHEDULE

SYMBOL	AREA SERVED	NOMINAL TONS	UNIT TYPE	SUPPLY FAN			COOLING REQUIRED AT 95°F OSA, 80°F EDB, 62°F EWB		HEATING REQUIRED AT 32°F OSA, 69°F EDB.	ELECTRICAL OUTDOOR UNIT			MINIMUM SEER / HSPF	INDOOR/ OUTDOOR OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
				CFM	HP	V/Ø	TOTAL MBH	SENSIBLE MBH	TOTAL MBH	MCA	MOCP	V/Ø				
FC-A1 / CU-A1	DATA A107A	1.0	HIGH WALL COOL/HEAT UNIT	212-353	.027	THROUGH OUTDOOR UNIT	13.5	9.0	10.50	10	15	208/1	19.8/9.6	25/65	CARRIER INDOOR UNIT MODEL 40MHHQ12 CARRIER OUTDOOR UNIT MODEL 38MHRBQ12	1 , 2 , 3 , 4 , 5 , 6 , 7
FC-C1 / CU-C1	IT C124	1.5	HIGH WALL COOL/HEAT UNIT	353-559	.037	THROUGH OUTDOOR UNIT	19.0	15.0	15.50	15	20	208/1	19.0/10.6	35/75	CARRIER INDOOR UNIT MODEL 40MHHQ18 CARRIER OUTDOOR UNIT MODEL 38MHRBQ18	1 , 2 , 3 , 4 , 5 , 6 , 7
FC-E1 / CU-E1	I.T. E116	1.0	HIGH WALL COOL/HEAT UNIT	212-353	.027	THROUGH OUTDOOR UNIT	13.5	9.0	10.50	10	15	208/1	19.8/9.6	25/65	CARRIER INDOOR UNIT MODEL 40MHHQ12 CARRIER OUTDOOR UNIT MODEL 38MHRBQ12	1 , 2 , 3 , 4 , 5 , 6 , 7
FC-F1 / CU-F1	STORAGE F100A	1.0	HIGH WALL COOL/HEAT UNIT	212-353	.027	THROUGH OUTDOOR UNIT	13.5	9.0	10.50	10	15	208/1	19.8/9.6	25/65	CARRIER INDOOR UNIT MODEL 40MHHQ12 CARRIER OUTDOOR UNIT MODEL 38MHRBQ12	1 , 2 , 3 , 4 , 5 , 6 , 7

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: LENNOX, MITSUBISHI, PANASONIC, SAMSUNG, LG, DAIKIN , OR APPROVED EQUAL BY ENGINEER.
2. CONTROL UNIT WITH MANUFACTURER'S HARD-WIRED WALL MOUNTED 7 DAY PROGRAMMABLE THERMOSTAT WITH AUTO CHANGE OVER.
3. PROVIDE MANUFACTURERS CRANKCASE HEATER, LOW AMBIENT CONTROLS & (TO -0°F COOLING TO -0°F HEATING) WIND BAFFLES, REFRIGERATION LINE SET SIZED BY MANUFACTURER, AND TAMPER PROOF PORT CAPS.
4. PROVIDE WITH MIRO INDUSTRIES HEAVY DUTY MECHANICAL GALVANIZED ROOF SUPPORT WITH ADJUSTABLE SUPPORT LEGS. SUPPORT SHALL EXTEND A MINIMUM OF 6" BEYOND EQUIPMENT IN EACH DIRECTION. BOLT EQUIPMENT TO MECHANICAL SUPPORT.
5. PROVIDE WITH MANUFACTURER'S CONDENSATE PUMP, OR LITTLE GIANT MINI CONDENSATE PUMP, CONCEAL PUMP BEHIND UNIT WITHIN MOUNTING BRACKET ASSEMBLY. ELECTRICAL CIRCUIT FOR PUMP SHALL BE INTEGRATED TO FAN COIL.
6. ELECTRICAL TO PROVIDE DISCONNECT AND HEAT TRACE BENEATH UNIT AND TO ROOF DRAIN.
7. SEE CONTROLS SHEET M8.1 FOR SEQUENCE OF OPERATION.

EXHAUST HOOD SCHEDULE

SYMBOL	TYPE	HOOD DIMENSIONS		EXHAUST AIR			MAKE-UP AIR			MANUFACTURER AND MODEL	REMARKS
		LENGTH	WIDTH	AIRFLOW CFM	DUCT CONNECITON	MAX S.P. LOSS	AIRFLOW CFM	DUCT CONNECTION	MAX S.P. LOSS		
H-1	KITCHEN EXHAUST HOOD	13'	54"	1,950	14"	-0.731"	PROVIDED BY RTU-2A & RTU-2B			CAPTIVE AIRE MODEL 5424 ND-2	1 , 2 , 3 , 4 , 5
H-2	KITCHEN EXHAUST HOOD	12'	54"	1,800	14"	-0.623"	PROVIDED BY RTU-2A & RTU-2B			CAPTIVE AIRE MODEL 5424 ND-2	1 , 2 , 3 , 4 , 5 , 7
H-3	DISHWASHER HOOD	4'	4'	600	10"	-0.090"	PROVIDED BY RTU-2A & RTU-2B			CAPTIVE AIRE MODEL 4824 VHB-G	1 , 6

REMARKS:

1. APPROVED ALTERNATE MANUFACTURERS: GREENHECK, E-CON AIR, AND DUO-AIRE.
2. PROVIDE WITH PRE-WIRED REMOTE MOUNTED HOOD CONTROL PANEL (INCLUDING ALL STARTERS, CONTACTORS, EXHAUST, LIGHTS, AND SURFACE-MOUNTED SWITCHES). PROVIDE REMOTE SURFACE-MOUNTED SWITCHES FOR FANS, LIGHTS AND ENERGY MANAGEMENT SYSTEM OVERRIDE.
3. PROVIDE WITH EXHAUST COLLARS AND INTERIOR LIGHTS.
4. PROVIDE HOOD WITH MANUFACTURER'S CHEMICAL FIRE SUPPRESSION SYSTEM INCLUDING MECHANICAL GAS VALVE FOR SHUTDOWN OF MAIN GAS LINE TO COOKING EQUIPMENT. SYSTEM SHALL BE CONNECTED TO BUILDING FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR. THE FIRE SUPPRESSION SYSTEM SHALL BE DESIGNED FOR A UNIVERSAL CONFIGURATION AND SHALL ALLOW EQUIPMENT UNDER THE HOOD TO BE RECONFIGURED WITHOUT ALTERATIONS TO THE SPRINKLER HEAD LOCATIONS OR STYLES, OR REQUIRE ADDITIONAL HEADS TO BE ADDED.
5. CONTROL H-1 & H-2 WITH WALL MOUNTED KITCHEN HOOD CONTROL PANEL.
6. CONTROL H-3 WITH WALL MOUNTED SWITCH.
7. UTILITY CABINET MOUNTED ON SIDE OF HOOD. SEE FLOOR PLANS FOR LOCATION.

LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER LICENSED Christopher D. Dyke 16683 4/1/2022 STATE OF IDAHO CHRISTOPHER DYKE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Description	Date
1	Addendum No. 1	04/01/2022

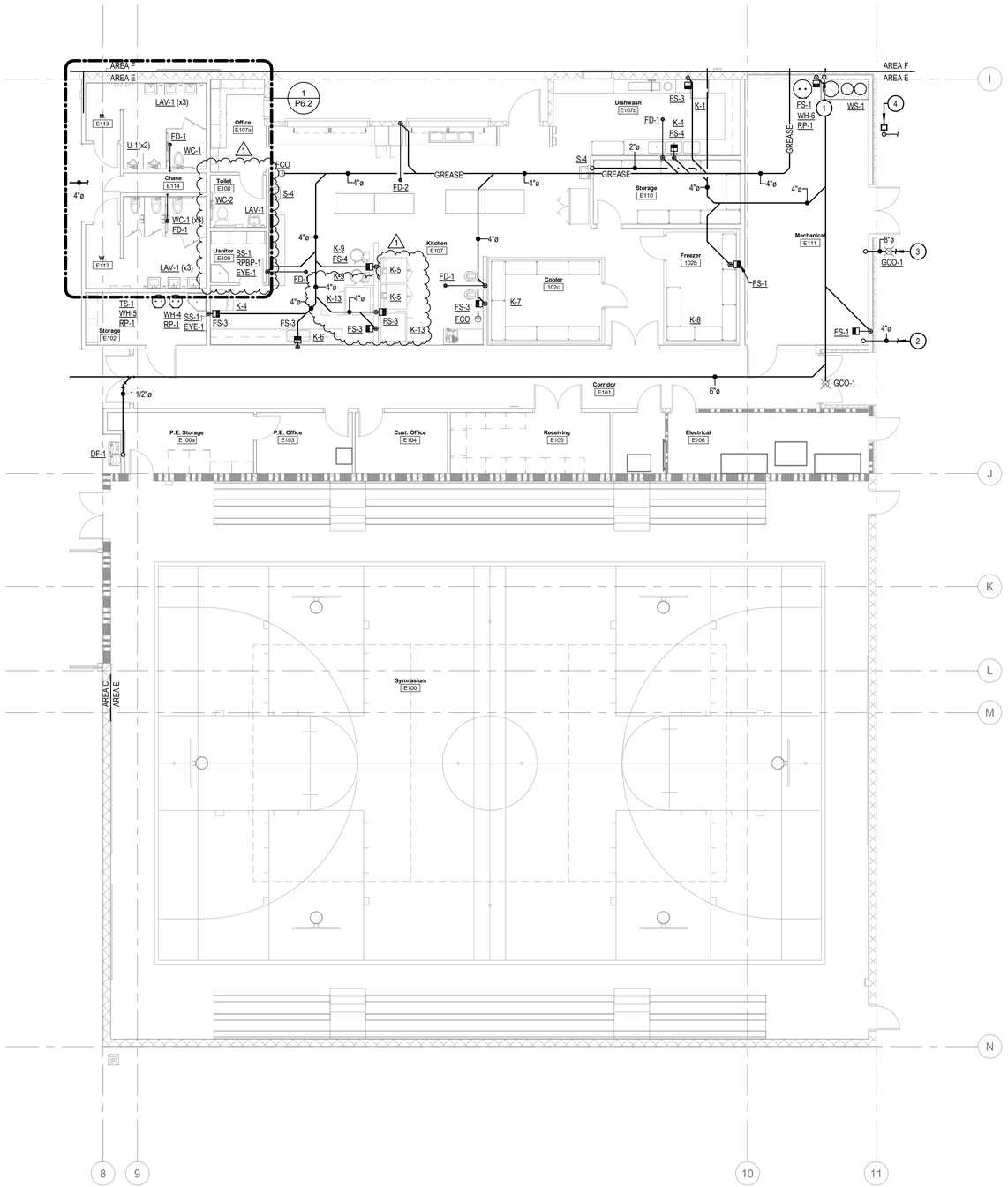
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

BID SET

DRAWING NO.:
M7.2
MECHANICAL SCHEDULES



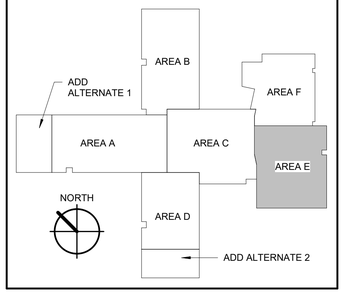
1 FOUNDATION PLUMBING FLOOR PLAN - AREA E
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. ROUTE 3" GREASE VENT UP THROUGH WALL TO ROOF. STARTING POINT OF 18" BFF WITH A LINE SLOPE OF 1/4" PER FOOT. THE INVERT IS SEE CIVIL SITE PLAN FOR CONTINUATION
2. 4" CW OUT TO (2) NEW 2" METERS. SEE UTILITY PLAN FOR CONTINUATION.
3. SEE CIVIL PLANS FOR CONTINUATION OF RD.
4. SEE UTILITY PLANS FOR GAS CONNECTION.

Keyed Plan



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PROFESSIONAL ENGINEER
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16683
3/31/2022
STATE OF IDAHO
CHRISTOPHER DYKE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

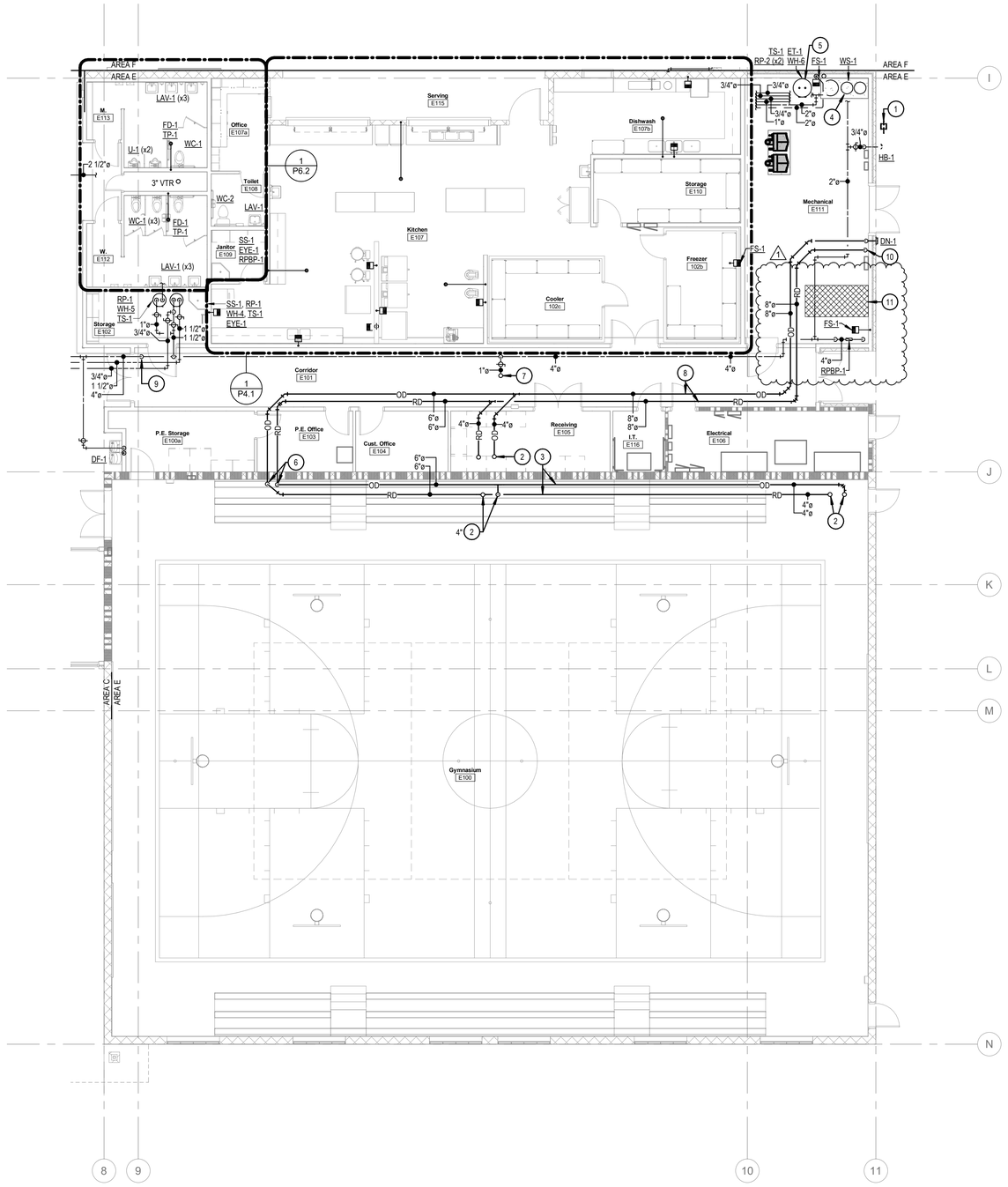
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

BID SET

DRAWING NO.:

P1.5
FOUNDATION PLUMBING PLAN – AREA E



1 PLUMBING FLOOR PLAN - AREA E
1/8" = 1'-0"

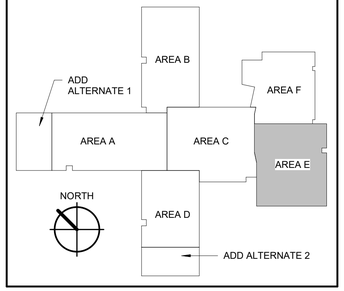
KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. GAS SERVICE AND GAS METER FURNISHED AND INSTALLED BY INTERMOUNTAIN GAS COMPANY. CONNECT 1-1/2" MPG LINE TO METER. PROVIDE A PIPE SLEEVE AND SEALANT AROUND GAS PIPE PENETRATION THROUGH EXTERIOR WALL. PAINT ALL GAS PIPING OUTSIDE THE BUILDING TO MATCH WALL
2. 4" RD & OD LINES FROM ABOVE. SEE SHEET P3.5 FOR CONTINUATION.
3. ROUTE 4" RD AND OD LINES TIGHT TO ROOF ABOVE DUCTWORK AND THROUGH JOIST WEBBING AS REQUIRED.
4. SEE WATER SOFTENER PIPING DETAIL #2 ON SHEET P5.2.
5. SEE WATER HEATER DETAIL #1 ON P5.3. STARTING POINT OF 18" BFF WITH A LINE SLOPE OF 1/4" PER FOOT. THE INVERT IS SEE CIVIL SITE PLAN FOR CONTINUATION
6. ROUTE 6" RD AND OD DOWN WALL AND PENETRATE INTO JOIST SPACE OF CEILING IN PE OFFICE E103..
7. ROUTE 1" CW LINE UP TO ROOF HYDRANT. SEE SHEET P3.5 FOR CONTINUATION.
8. ROUTE 8" RD AND OD THROUGH JOIST WEBBING.
9. ROUTE 4" CW LINE UP INTO CEILING ON FOYER C101.
10. ROUTE RD DOWN INSIDE SPACE TO BELOW GRADE. SEE SHEET P1.5 FOR CONTINUATION. PROVIDE CLEANOUT BEFORE FLOOR PENETRATION.
11. FIRE RISER AREA. SEE SHEET FS1.0 FOR MORE INFORMATION.

1

Keyed Plan



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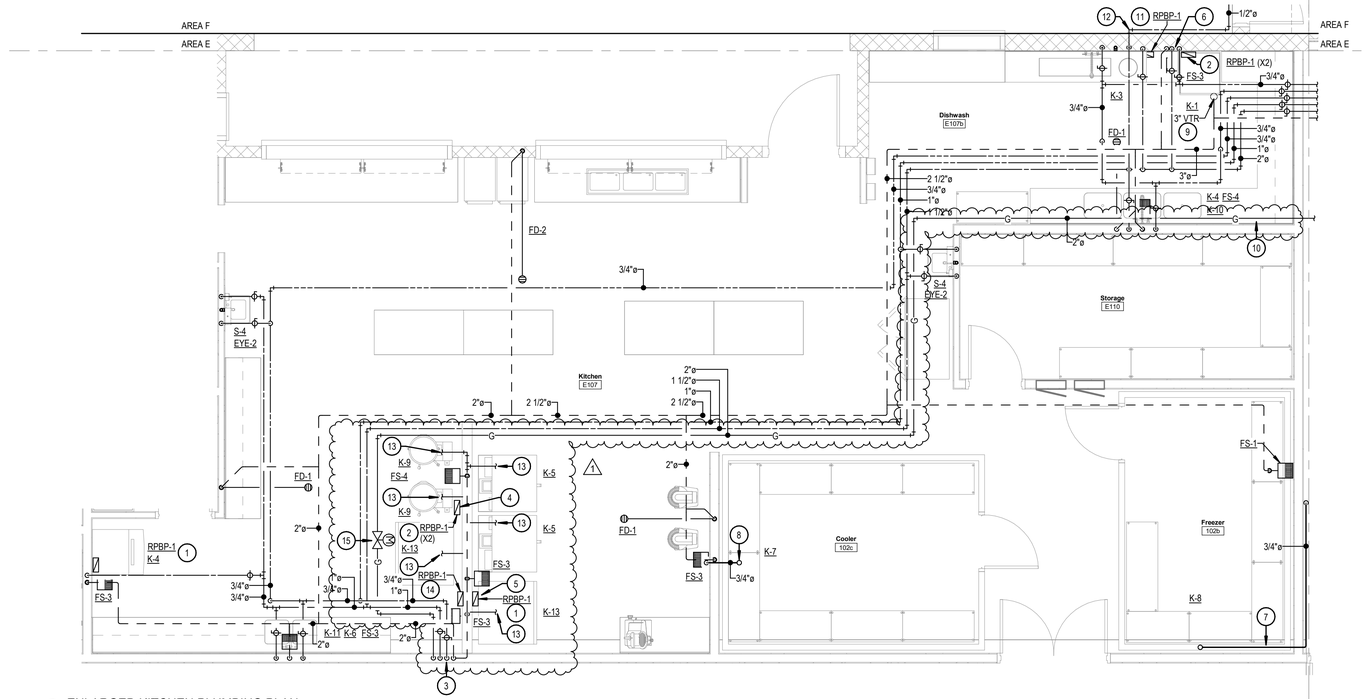
CHECKED BY: WAC

BID SET

DRAWING NO.:

P2.5
PLUMBING PLAN AREA E



1 ENLARGED KITCHEN PLUMBING PLAN
1/4" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. SEE REDUCED PRESSURE BACKFLOW PREVENTOR (POINT OF USE) DETAIL #8 ON P5.3. ROUTE TO NEAREST APPROVED DRAIN. ROUTE THROUGH WALL IF REQUIRED.
2. SEE REDUCED PRESSURE BACKFLOW PREVENTOR (STACKED) DETAIL #2 ON P5.3. ROUTE TO NEAREST APPROVED DRAIN.
3. ROUTE 3/4" HW, 1" CW, 2" GAS AND 2" VENT PIPE DOWN IN FULL HEIGHT WALL. PERPENDICULAR TO HALF HEIGHT WALL. ROUTE ALL PIPING HORIZONTALY THROUGH HALF WALL AND CONNECT TO RPBP'S AND EQUIPMENT AS SCHEDULED IN KITCHEN EQUIPMENT SCHEDULE.
4. PROVIDE RPBP-1 FOR HOT WATER AND COLD WATER CONNECTION TO STEAM KETTLES. ROUTE 3/4" HW AND 3/4" CE LINE THROUGH RPBP-1'S THEN SPLIT INTO (2) 1/2" CW AND (2) 1/2" HW FOR CONNECTION TO EACH STEAM KETTLE.
5. ROUTE 3/4" CW LINE THROUGH RPBP-1 THEN SPLIT INTO (2) 3/4" CW LINES FOR CONNECTION TO EACH K-5. ROUTE 3/4" LINES THROUGH WATER FILTER AND CONNECTION TO EQUIPMENT PER MANUFACTURER'S RECOMMENDATION.
6. ROUTE 3/4" HW LINE THROUGH BOOST HEATER BEFORE CONNECTING TO DISHWASHER. CONNECT TO DISHWASHER PER MANUFACTURER'S RECOMMENDATION. 1/2" CW LINE FOR COOL DOWN KIT ON DISHWASHER.
7. ROUTE 3/4" CD FROM FREEZER THROUGH WALL AND SLOPED ALONG WALL IN MECHANICAL ROOM TO FLOOR SINK.
8. ROUTE 3/4" CD FROM COOLER THROUGH WALL TO FLOOR SINK.
9. ROUTE 3" VTR UP NEAR EXHAUST FAN ON ROOF. COORDINATE EXACT LOCAITON OF VTR WITH FAN LOCATION.
10. SEE ENLARGED MECHANICAL ROOM PLAN FOR CONTINUATION OF GAS PIPING.
11. ROUTE 1/2" CW LINE THROUGH RBPB-1 AND THEN CONNECTION TO DISPOSER PER MANUFACTURER'S RECOMMENDATION.
12. ROUTE 1/2" CW LINE THROUGH WALL TO DRINKING FOUNTAIN IN CAFETORIUM. SEE SHEET P2.6 FOR CONTINUATION.
13. PROVIDE GAS CONNECTION AT EACH PIECE OF EQUIPMENT SPECIFIED IN KITCHEN EQUIPMENT SCHEDULE. SEE GAS EQUIPMENT CONNECTION DETAIL #3 ON SHEET P5.1 FOR CONNECTION REQUIREMENTS.
14. ROUTE 3/4" CW LINE THROUGH RPBP-1 THEN SPLIT INTO (2) 3/4" CW LINES FOR CONNECTION TO EACH K-13. ROUTE 3/4" LINES THROUGH WATER FILTER AND CONNECTION TO EQUIPMENT PER MANUFACTURER'S RECOMMENDATION.
15. GAS SOLINOID SHUT-OFF VALVE. VALVE TO BE CONNECTED TO HOOD CONTROL PANEL.

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Boise, Idaho 83706
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PROFESSIONAL ENGINEER LICENSED Christopher M. Dyke 16683 3/31/2022 STATE OF IDAHO CHRISTOPHER DYKE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

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1	Addendum No. 1	04/01/2022

Revisions

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Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

BID SET

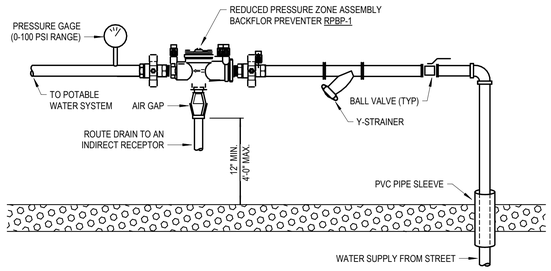
DRAWING NO.:

P4.1

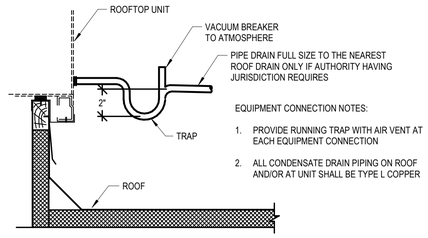
ENLARGED PLUMBING PLANS

NOTE:

1. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL BACKFLOW DEVICES TO BE INSPECTED BY A CERTIFIED BACKFLOW TECHNICIAN BEFORE THE USE OF THE BUILDING POTABLE WATER SYSTEM.
2. THIS SYSTEM IS FOR INDOOR INSTALLATIONS ONLY. THIS VALVE SHALL BE EASILY ACCESSIBLE TO FACILITATE TESTING AND SERVICING. DO NOT INSTALL IN A CONCEALED LOCATION.



1 BUILDING WATER SERVICE DETAIL
NTS



EQUIPMENT CONNECTION NOTES:

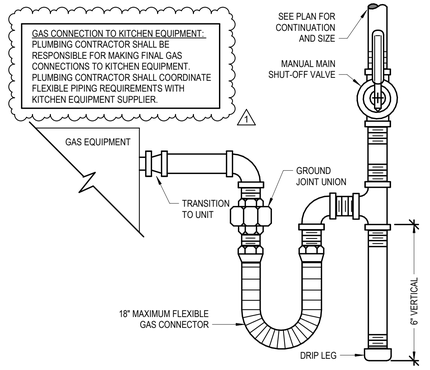
1. PROVIDE RUNNING TRAP WITH AIR VENT AT EACH EQUIPMENT CONNECTION
2. ALL CONDENSATE DRAIN PIPING ON ROOF AND/OR AT UNIT SHALL BE TYPE L COPPER

APPROVED PIPE SUPPORT SYSTEMS:

- MIRO MODEL 1.5 WITH SPACERS
- ADVACNED SUPPORT PRODUCTS
- VERSABLOCK BY FREEDOM INC.

PIPE SUPPORT REQUIREMENTS	
SIZE OF PIPE	SUPPORT REQUIRED
1/2"	6' O.C.
3/4" - 1"	8' O.C.
1-1/4" OR LARGER	10' O.C.

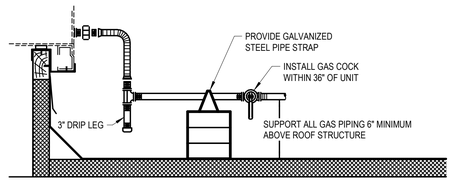
2 CONDENSATE DRAIN DETAIL - ROOFTOP UNIT
NTS



3 GAS EQUIPMENT CONNECTION DETAIL
NTS

EQUIPMENT CONNECTION NOTES:

1. INSTALL FLEX CONNECTION AT ALL ROOF TOP UNITS WHICH HAVE SPRING ISOLATION CURBS (36" MAXIMUM)
2. INSTALL SOLID PIPE CONNECTION TO ALL ROOF TOP UNITS WHICH DO NOT HAVE SPRING ISOLATION CURBS
3. PAINT PIPE WITH RUST RESISTANT PRIMER, RED OR GRAY. SHERWIN WILLIAMS PRO INDUSTRIAL DTM OR APPROVED EQUAL.



APPROVED PIPE SUPPORT SYSTEMS:

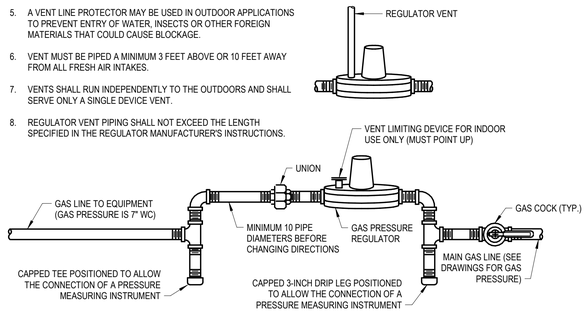
- MIRO MODEL 1.5 WITH SPACERS
- ADVANCED SUPPORT PRODUCTS
- VERSABLOCK BY FREEDOM INC

PIPE SUPPORT REQUIREMENTS	
SIZE OF PIPE	SUPPORT REQUIRED
1/2"	6' O.C.
3/4" - 1"	8' O.C.
1-1/4" OR LARGER	10' O.C.

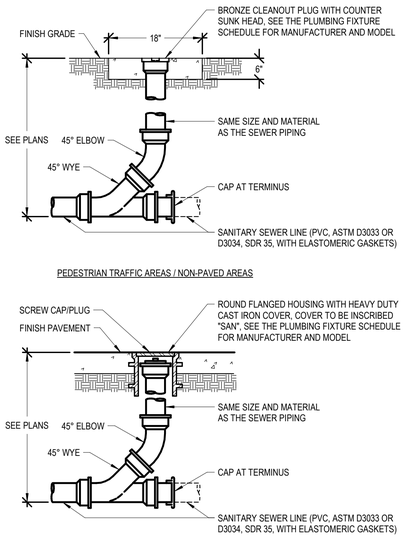
4 GAS EQUIPMENT CONNECTION DETAIL (ROOFTOP UNIT)
NTS

VENTING NOTES:

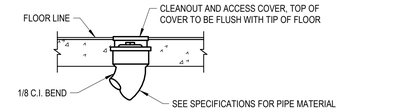
1. VENT REGULATORS PER MANUFACTURER'S AND LOCAL GAS COMPANY'S REQUIREMENTS.
2. DO NOT REDUCE THE VENT PIPE SIZE FROM THE REGULATOR.
3. TO LIMIT THE CONSEQUENCES OF RAIN, SNOW OR DEBRIS GETTING INTO THE VENT, ALWAYS TURN THE OUTLET OF THE VENT DOWN AND ABOVE POTENTIAL WATER OR SNOW LINES.
4. PROVIDE A BUG SCREEN ON THE VENT OUTLET TO DETER INSECTS FROM NESTING IN THE LINE. NEVER PAINT OVER THE BUG SCREEN.
5. A VENT LINE PROTECTOR MAY BE USED IN OUTDOOR APPLICATIONS TO PREVENT ENTRY OF WATER, INSECTS OR OTHER FOREIGN MATERIALS THAT COULD CAUSE BLOCKAGE.
6. VENT MUST BE PIPED A MINIMUM 3 FEET ABOVE OR 10 FEET AWAY FROM ALL FRESH AIR INTAKES.
7. VENTS SHALL RUN INDEPENDENTLY TO THE OUTDOORS AND SHALL SERVE ONLY A SINGLE DEVICE VENT.
8. REGULATOR VENT PIPING SHALL NOT EXCEED THE LENGTH SPECIFIED IN THE REGULATOR MANUFACTURER'S INSTRUCTIONS.



5 GAS PRESSURE REGULATOR DETAIL
NTS

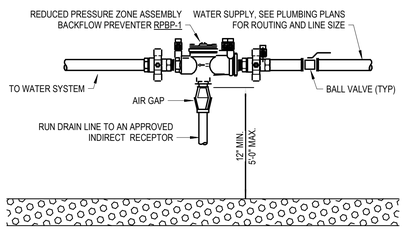


6 GRADE CLEANOUT (GCO) DETAIL
NTS



NOTE:
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 THIRTY-FIVE DEGREES, PER APPLICABLE PLUMBING CODE. THIS SHALL BE PROVIDED REGARDLESS OF WHAT IS SHOWN ON THE DRAWINGS.

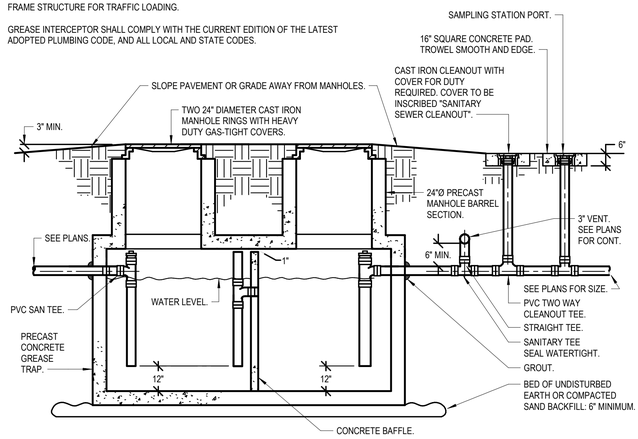
7 FLOOR CLEANOUT (FCO) DETAIL
NTS



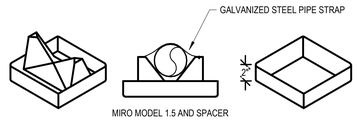
8 REDUCED PRESSURE BACKFLOW PREVENTER DETAIL (POINT OF USE)
NTS

NOTES:

1. ALL DIMENSIONS SHOWN SHALL BE VERIFIED WITH LOCAL AUTHORITY HAVING JURISDICTION.
2. INTERCEPTOR EXCEEDING 6'-6" IN DEPTH MUST BE CONSTRUCTED OF REINFORCED CONCRETE.
3. ALL SURFACE WATER TO DRAIN AWAY FROM INTERCEPTOR.
4. FRAME STRUCTURE FOR TRAFFIC LOADING.
5. GREASE INTERCEPTOR SHALL COMPLY WITH THE CURRENT EDITION OF THE LATEST ADOPTED PLUMBING CODE, AND ALL LOCAL AND STATE CODES.



9 GREASE INTERCEPTOR DETAIL (1500 GALLONS)
NTS



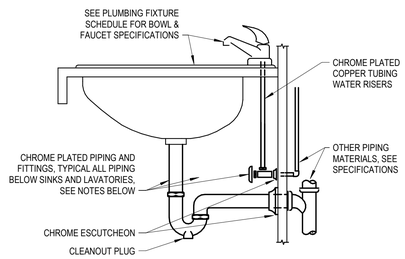
NOTE: ALL GAS PIPING SHALL BE SUPPORTED 6" MINIMUM ABOVE ROOF STRUCTURE

APPROVED PIPE SUPPORT SYSTEMS:

- MIRO MODEL 1.5 WITH SPACERS
- ADVANCED SUPPORT PRODUCTS
- VERSABLOCK BY FREEDOM INC

PIPE SUPPORT REQUIREMENTS	
SIZE OF PIPE	SUPPORT REQUIRED
1/2"	6' O.C.
3/4" - 1"	8' O.C.
1-1/4" OR LARGER	10' O.C.

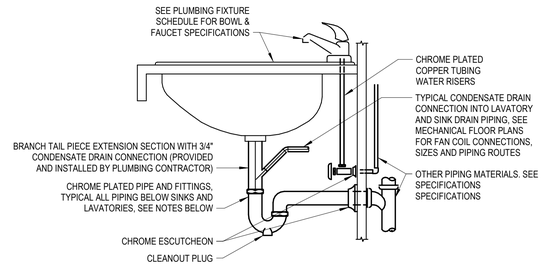
10 ROOF MOUNTED PIPING SUPPORT DETAIL
NTS



NOTES:

A. INTERIOR EXPOSED PIPE, VALVES AND FIXTURE TRIM, INCLUDING TRIM BEHIND CASEWORK DOORS SHALL BE CHROME PLATED.
B. ALL PIPING PENETRATIONS THROUGH FINISHED WALLS SHALL BE PROVIDED WITH CHROME ESCUTCHEONS.
C. ALL SINK TRAPS SHALL BE PROVIDED WITH A CLEANOUT PLUG IN THE BOTTOM OF THE TRAP.
D. ALL PLUMBING FIXTURES SHALL BE CAULKED AND SEALED TO SURROUNDING SURFACES.

11 SINK/LAVATORY TAILPIECE & TRAP DETAIL
NTS



NOTES:

1. INTERIOR EXPOSED PIPE, VALVES AND FIXTURE TRIM, INCLUDING TRIM BEHIND CASEWORK DOORS, SHALL BE CHROME PLATED.
2. ALL PIPING PENETRATIONS THROUGH FINISHED WALLS SHALL BE PROVIDED WITH CHROME ESCUTCHEONS.
3. ALL SINK AND LAVATORY TRAPS SHALL BE PROVIDED WITH A CLEANOUT PLUG IN THE BOTTOM OF THE TRAP.
4. ALL PLUMBING FIXTURES SHALL BE CAULKED AND SEALED TO SURROUNDING SURFACES.
5. PLUMBING CONTRACTOR SHALL VERIFY THE LOCATION OF ALL LAVATORIES AND SINKS THAT NEED TO BE INSTALLED WITH THE BRANCH TAIL PIECE SECTION WITH 3/4" DRAIN CONNECTION. THE PLUMBING CONTRACTOR WILL BE RESPONSIBLE TO VERIFY THE PLUMBING ROUGH-IN DIMENSIONS AND SHALL TAKE INTO ACCOUNT THE TAIL PIECE EXTENSION DIMENSIONS.

12 SINK/LAVATORY TAILPIECE & TRAP DETAIL (W/ CONDENSATE)
NTS

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PROFESSIONAL ENGINEER LICENSED 16683 3/31/2022 STATE OF IDAHO CHRISTOPHER DYKE

MUSGROVE ENGINEERING, P.A.

project number: 21-422

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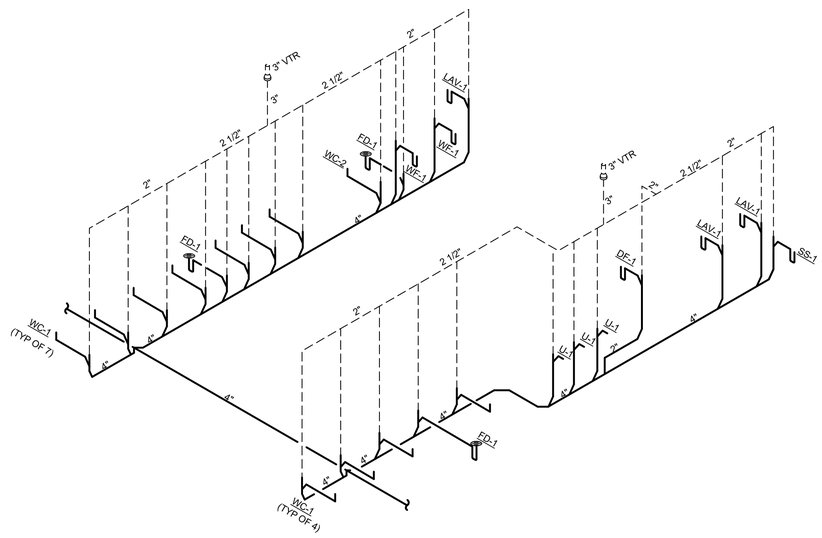
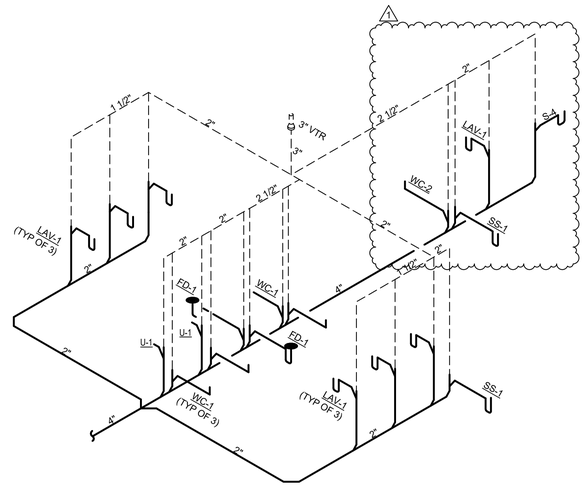
P5.1

PLUMBING DETAILS



WASTE AND VENT RISER DIAGRAM 'D'

N.T.S.



WASTE AND VENT RISER DIAGRAM 'E'

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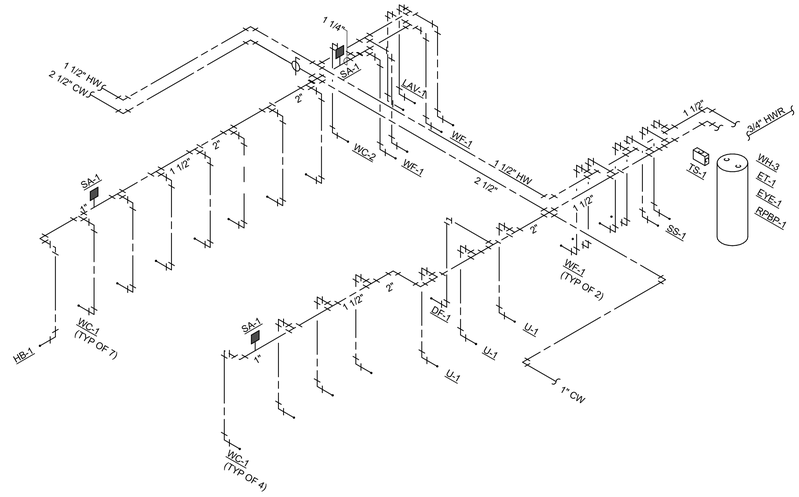
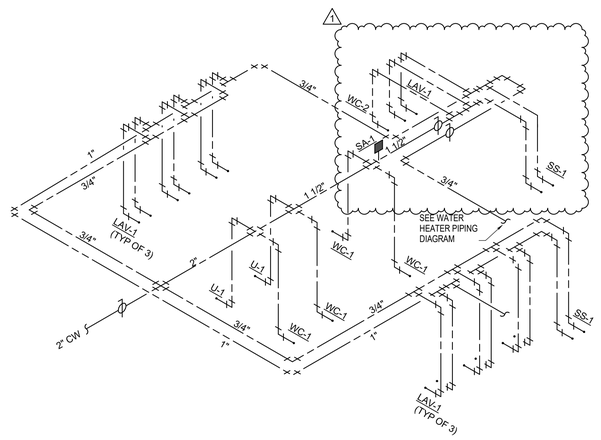


WATER PIPING RISER DIAGRAM 'D'

N.T.S.



WATER PIPING RISER DIAGRAM 'E'

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P6.2

PLUMBING RISER DIAGRAMS

KITCHEN PLUMBING EQUIPMENT SCHEDULE

SYMBOL	EQUIPMENT REFERENCE	FIXTURE DESCRIPTION	CONNECTION SIZE						MANUFACTURER / MODEL NUMBER / DESCRIPTION / ADDITIONAL COMMENTS	REMARKS
			WASTE	VENT	TRAP	CW	HW	GAS		
K-1	#1	DISHWASHER WITH BOOST HEATER	INDIRECT TO FS-3			1/2"	3/4"	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	1 , 3
K-2	#2	DISHTABLE WITH 3-COMP SINK	INDIRECT TO FS-4			--	--	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	---
K-3	#4	PRE-RINSE UNIT	--	--	--	1/2"	1/2"	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	---
K-4	#8	ICE MAKER	INDIRECT TO FS-3			1/2"	--	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	1
K-5	#9	DOUBLE STACK COMBI OVEN	INDIRECT TO FS-3			3/4" 3/8"	--	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	1 , 2
K-6	#14	DISH TABLE WITH DOUBLE SINK AND DOUBLE WASTE HOLE	INDIRECT TO FS-3			--	--	1"	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	---
K-7	#16	WALK-IN COOLER	INDIRECT TO FS-3			--	--	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	
K-8	#17	WALK-IN FREEZER	INDIRECT TO FS-3			--	--	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	
K-9	#19	STEAM KETTLE	INDIRECT TO FS-3			1/2"	1/2"	3/4"	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	1
K-10	#27	PRE-RINSE UNIT	--	--	--	1/2"	1/2"	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	---
K-11	#28	DOUBLE SINK MIXING FAUCET	--	--	--	1/2"	1/2"	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	---
K-12	#3	FOODWASTE DISPOSER (2-HP)	--	--	--	1/2"	--	--	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	1
K-13	#18	SINGLE STACK COMBI OVEN	--	--	--	3/4"	--	1"	PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR ROUGH-IN & INSTALLED BY PLUMBING CONTRACTOR. SEE KITCHEN EQUIPMENT PLANS FOR DETAILS AND REQUIREMENTS OF KITCHEN EQUIPMENT.	1

NOTES:

1. PROVIDE WITH LINE-SIZED REDUCED PRESSURE BACKFLOW PREVENTER. CONNECT WATER LINE TO EQUIPMENT WITH FLEXIBLE CONNECTION FOR FUTURE UNIT MAINTENANCE.
2. KITCHEN EQUIPMENT SUPPLIER TO PROVIDE WITH WATER FILTER.
3. ROUTE HOT WATER THROUGH BOOST HEATER THEN TO DISHWASHER.

GAS SIZING CHART

SYMBOL	INPUT (MBH)	RUNOUT SIZE (2PSI) (INCHES)	EQUIPMENT CONNECTION SIZES (7" WC) (INCHES)
KITCHEN EQUIPMENT - DOUBLE STACK CONVECTION OVEN (K-9)	100	-	1"
KITCHEN EQUIPMENT - DOUBLE STACK CONVECTION OVEN (K-9)	100	-	1"
KITCHEN EQUIPMENT - SINGLE STACK CONVECTION OVEN (K-18)	159.5	-	1"
KITCHEN EQUIPMENT - SINGLE STACK CONVECTION OVEN (K-18)	159.5	-	1"
KITCHEN EQUIPMENT - STEAM KETTLE (K-19)	53	-	3/4"
KITCHEN EQUIPMENT - STEAM KETTLE (K-19)	53	-	3/4"
ROOFTOP UNIT (RTU-1A)	198	3/4"	3/4"
ROOFTOP UNIT (RTU-1B)	198	3/4"	3/4"
ROOFTOP UNIT (RTU-2A)	220	3/4"	3/4"
ROOFTOP UNIT (RTU-2B)	220	3/4"	3/4"
BOILER (B-1)	725	1"	1-1/4"
BOILER (B-2)	725	1"	1-1/4"
KITCHEN WATER HEATER WH-6	199	1/2"	3/4"
TOTAL	3,110	EQUIVALENT LENGTH = 150 FT PRESSURE = 2 PSI MAIN SIZE = 1-1/2"Ø	

NOTE: GAS SIZES TO EQUIPMENT ARE AS NOTED IN SCHEDULE ABOVE. ROUTE NOTED (2PSI) 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 P5.1.

PLUMBING CALCULATIONS SUMMARY

Musgrove Engineering, P.A.
234 S. Whisperwood Way, Boise, Idaho 83709
Plumbing Calculations Summary

Date: 2/18/2022
Job #: 21-422 Computed By: CD
Job Name: Jerome Elementary School Checked By: BC

Quantity	Fixture	Description	FU per Fixture Drainage	Water	HW GPH per Fixture
5	DF-1	Drinking Fountain	0.5	0.5	--
3	DW-1	Dishwasher	2	1.5	75
5	EYE-1	Emergency Eyewash	2	1	--
	EYE-2	Emergency Shower			
10	FD-1	Floor Drain (2")	2	--	--
3	FD-2	Floor Drain (4")	8	--	--
	FS-1	Floor Sink (6")			
4	FS-2	Floor Sink (10")	8	--	--
8	HB-1	Hose Bibb	--	2.5	--
29	LAV-1	Lavatory	2	1	15
36	S-1	Sink (kitchen/laundry/bar)	2	2	10
10	S-2	Sink (food waste/spec. purpose)	3	2	20
2	SHR-1	Shower	2	2	225
5	SS-1	Service Sink	3	3	20
	TD-1	Trench Drain (6" wide)			
	TD-2	Trench Drain (10" wide)			
	TUB-1	Bath tub or combo shower			
12	U-1	Urinal	2	See Note 4	--
2	WB-1	Wall Box - Ice Maker	--	1	--
1	WB-2	Wall Box - Wash Machine	3	4	20
5	WC-1	Water Closet (Flush Tank)5	4	2.5	--
41	WC-2	Water Closet (Flush Valve)5	4	See Note 4	--
8	YH-1	Yard Hydrant	--	2.5	--
	Other	Other			

Hot Water Building Usage Type: School

Water Main Sizing

P = Pressure in street main (PSI)	62	(PSI)
H = Height to highest fixture above street (ft.)	15	(ft.)
F = Minimum pressure required at fixture (PSI)	22	(PSI)
Flush Valves in system?	Yes	
Total Water Fixture units	763.5	
Total GPM for building	177.62	(GPM)
Pressure loss in meter (PSI)	4	(PSI)
Pressure loss in backflow device (PSI)	0	(PSI)
M = Pressure loss in meter and Backflow device (PSI)	4	(PSI)
Length from meter to furthest fixture (ft.)	450	(ft.)
L = Total equivalent length + 50% safety factor (ft.)	675	(ft.)
Q = Friction loss (PSI)	4.4	(PSI)
Water Service Main Size:	**3**	
Water Meter Size:	**3**	(in.)

Water Heater Sizing

a. Total GPH	1790	(GPH)
b. Demand Factor (Table 10)	0.4	
c. Demand (a x b)	716	(GPH)
d. Storage Capacity Factor (Table 10)	1	
e. Storage (c x d)	716	(gal.)
f. Cold Water Temperature, standard = 40 (°F)	40	(°F)
g. Water Heater Output Temperature, standard = 120 (°F)	120	(°F)
h. Temperature Difference (°F)	80	(°F)
i. BTUH Output (if gas water heater)	477715.2	(BTUH)
j. KW Output (if electric water heater)	140	(KW)
Selection: Manufacturer	0	
Model	0	
k. Storage (Gallons)	0	(gal.)
l. Heat Output (BTUH or KW)	0	
m. Recovery (GPH)	0	(GPH)
Pipe Size: Total hot water fixture units	113.5	
Hot water GPM	46.4	(GPM)
Hot Water Branch Size	2	

Waste Line

Depth of first fixture (in.)	18	(in.)
Distance from furthest fixture to civil connection (ft.)	500	(ft.)
Additional drop in elevation at OI-1 or other fixture (in.)	0	(in.)
Slope (in./ft.)	1/8	(in./ft.)
Drainage F.U. total	484 1/2	
Size of main waste line	**6**	
Invert elevation at civil connection (in.)	**80 1/2**	(in.)

Storm Drainage

Slope of storm drain piping (in./ft.)	1/8	(in./ft.)
Rainfall rate (in./hr.)	2	(in./hr.)

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PROFESSIONAL ENGINEER LICENSED Christopher D. Dyke 16683 3/31/2022 STATE OF IDAHO CHRISTOPHER DYKE

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: CJD
CHECKED BY: WAC

BID SET

DRAWING NO.:
P7.2
PLUMBING SCHEDULES

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ENGINEERING, P.A.

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Boise, ID 83709
Phone: 208.384.0585
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OVER 45 YEARS OF ENGINEERING EXCELLENCE

Addendum #1

(ELECTRICAL)

Date:	04-01-2022	To:	LKV Architects
Job Number:	21-422		2400 E. Riverside Drive
Prepared By:	Angelo Neglia		Boise, ID 83706
Sheet:	1 of 2	Attention:	Brook Thornton

Project: **Jerome Elementary School**

Plan Revisions:

1. Sheet E1.0 – ELECTRICAL SITE PLAN
    a. Add connection at well head for well pump, Provide circuit and conduit routed to VFD located
    b. Added keynotes #7 and #8

    .
2. Sheet E3.5 – FIRE ALARM PLAN – AREA E
    a. Move fire alarm horn and horn strobe to accommodate room swap of Toilet E108 and Janitor E109.

3. Sheet E3.7 – FIRE ALARM PLAN – ADD ALTERNATES 1 & 2
    a. Add horn strobes, smoke detectors, door holds, relay and command module with circuit at new fire door A101, Corridor A101.

4. Sheet E4.5 – LIGHTING PLAN – AREA E
    a. Move lighting fixtures and controls to accommodate room swap of Toilet E108 and Janitor E109.

5. Sheet E4.7 – LIGHTING PLANS – ADD ALTERNATES 1& 2
    a. Add keyed 3-way switch and override switch with keynote #6 at new fire door A101, Corridor A101.

6. Sheet E5.5 – MECHANICAL POWER PLAN – AREA E
    a. Move exhaust fan EF-E1 to accommodate room swap of Toilet E108 and Janitor E109.
    b. Add VFD and VFD in-line DV/DT filter for well system pump. RE: Sheet E1.0 – ELECTRICAL SITE PLAN.
    c. Added keynotes #19 and #20.

7. Sheet E6.8 – ENLARGED KITCHEN PLAN
    a. Move receptacles to accommodate room swap of Toilet E108 and Janitor E109.
    b. Remove direct connect, 208volt circuits for kitchen equipment K9, K18 and K19.
    c. Add 120volt receptacle circuits, with shunt trip, for kitchen equipment K9, K18 and K19 with keynotes #15 and #16.

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   d. Updated connection types and electrical data for KITCHEN EQUIPMENT SCHEDULE, items #K9, K18 and K19

8. Sheet E7.5 – SPECIAL SYSTEMS PLAN – AREA E
   a. Move ceiling speaker to accommodate room swap of Toilet E108 and Janitor E109.
9. Sheet E8.5 – ELECTRICAL ROOF PLAN – AREA E
   a. Move connection and circuit for KEF-1 to accommodate equipment move.

10. Sheet E10.1 – ELECTRICAL SCHEDULES
    a. Panel K1: Remove 208volt, 35Amp, 3-pole breaker with shunt trip for steam kettles K19, circuits (37,39,41,43) and (45,47,49,51).
    b. Panel K1: Remove 208volt, 50Amp, 3-pole breaker for convection oven K9, circuits (30,32,34), (36,38,40), (42,44,46), and (48,50,52).
    c. Panel K1: Add 120volt 20Amp single pole breakers for gas kitchen equipment K9, K18 and K19.

11. Sheet E10.3 – ELECTRICAL SCHEDULES
    a. Panel HA1: Remove 208volt, 3-pole, 60Amp breakers for single floor combi ovens K18, circuits (66,68,70), (72,74,76) and replace with spare 120volt, single pole, 20Amp breakers.
    b. Add 480volt, 3-pole, 40Amp breaker for well system pump.

Attachments

Sheet E1.0 – ELECTRICAL SITE PLAN
Sheet E3.5 – FIRE ALARM PLAN – AREA E
Sheet E3.7 – FIRE ALARM PLANS – ADD ALTERNATES 1 & 2
Sheet E4.5 – LIGHTING PLAN – AREA E
Sheet E4.7 – LIGHTING PLANS – ADD ALTERNATES 1 & 2
Sheet E5.5 – MECHANICAL POWER PLAN – AREA E
Sheet E6.8 – ENLARGED KITCHEN PLAN
Sheet E7.5 – SPECIAL SYSTEMS PLAN – AREA E
Sheet E10.1 – ELECTRICAL SCHEDULES
Sheet E10.3 – ELECTRICAL SCHEDULES

End of Addendum

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. PAD MOUNTED TRANSFORMER, PAD AND METER BY IDAHO POWER COMPANY.
2. UNDERGROUND SECONDARY. RE: ONE-LINE DIAGRAM.
3. (1)4" CONDUIT FOR PHONE SERVICE, (1)2" CONDUIT FOR CATV SERVICE AND (1)4" CONDUIT FOR FIBER OPTIC CABLE SERVICE. COORDINATE INSTALLATIONS REQUIREMENTS WITH UTILITIES. STUB CONDUITS 12' ABOVE FLOOR AT 'TTB' AND STUB CONDUITS TO NEAREST TELEPHONE UTILITY PEDESTAL. COORDINATE UTILITY LOCATION PRIOR TO ROUGH-IN. PROVIDE CONDUIT AS REQUIRED. MARK LOCATION WITH MONUMENT MARKER. PROVIDE PULL-LINE WITH EACH CONDUIT.
4. ROUTE CIRCUIT THROUGH THE BUILDING MANAGEMENT SYSTEM (DDC) TIME OF DAY BASED LIGHTING CONTROL SYSTEM CONTACTORS. COORDINATE WITH THE BMS CONTRACTOR. RE:LIGHTING CONTROL ZONE SCHEDULE.
5. FLOOD LIGHT FOR MAIN ENTRANCE BUILDING CANOPY SIGNAGE MOUNTED ON LIGHT POLE. COORDINATE FLOOD LIGHT MOUNTING WITH LIGHT POLE SUPPLIER TO BE COMPATIBLE WITH MOUNTING TYPE.
6. FLOOD LIGHT FOR FLAG POLE MOUNTED ON LIGHT POLE. COORDINATE FLOOD LIGHT MOUNTING WITH LIGHT POLE SUPPLIER TO BE COMPATIBLE WITH MOUNTING TYPE.
7. APPROXIMATE LOCATION OF WELL STATION CONNECTION. COORDINATE LOCATION WITH CIVIL PLANS AND WELL STATION INSTALLER.
8. PROVIDE CONDUIT AND CONDUCTORS FROM WELL HEAD TO CIRCUITS INDICATED. CIRCUIT TO BE ROUTED THROUGH DV/DT FILTER AND VFD LOCATED IN MECHANICAL E111. COORDINATE WITH WELL SYSTEM INSTALLER/PROVIDER. RE: MECHANICAL POWER PLAN - AREA E.

1 ELECTRICAL SITE PLAN
1" = 40'-0"

NORTH

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Boise, Idaho 83706
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208.336.3443

PROFESSIONAL ENGINEER REGISTERED 10389 4/1/2022 STATE OF IDAHO KURT L. ECHTENBERG

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

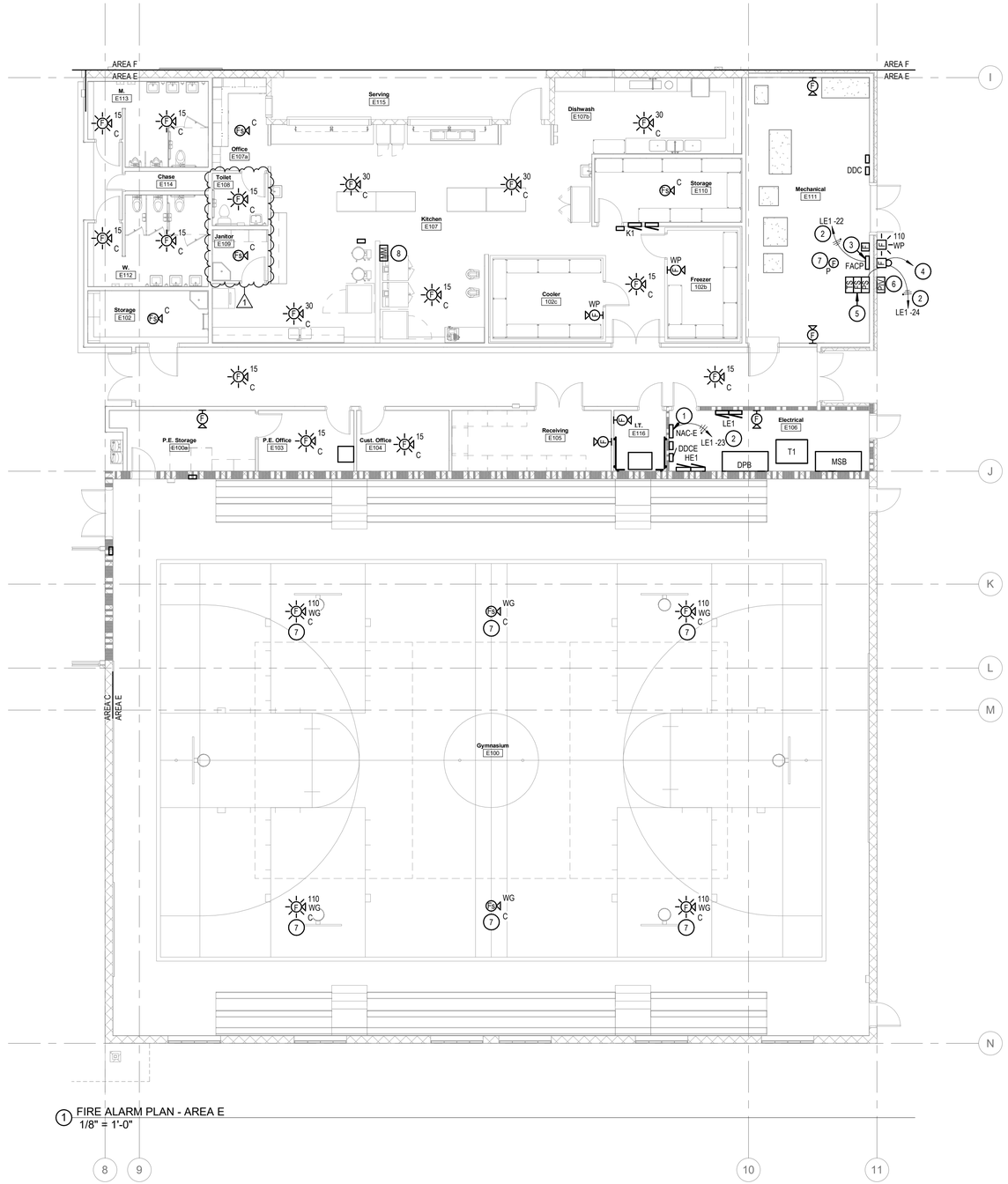
Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

DRAWING NO.:
E1.0
ELECTRICAL SITE PLAN



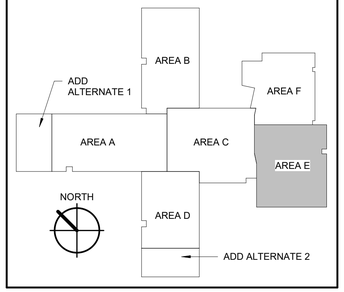
1 FIRE ALARM PLAN - AREA E
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. PROVIDE NAC EXTENDER AND AMPLIFIER(S) AS REQUIRED.
2. PROVIDE RED HANDLED LOCKABLE TYPE CIRCUIT BREAKER IN PANEL AT POSITION INDICATED.
3. FIRE ALARM CONTROL PANEL WITH COMMAND STATION.
4. TO FIRE ALARM CONTROL PANEL.
5. COORDINATE QUANTITY OF TAMPER SWITCHES, FLOW SWITCHES AND PRESSURE SWITCHES WITH FIRE SPRINKLER CONTRACTOR. PROVIDE ALL REQUIRED MONITOR MODULES.
6. COORDINATE LOCATION OF PIV WITH SPRINKLER CONTRACTOR.
7. FIRE ALARM DEVICE TO BE MOUNTED TO BOTTOM OF ROOF JOIST.
8. PROVIDE MONITOR MODULE AS REQUIRED AT THE TYPE-1 HOOD CONTROL PANEL. RE: KITCHEN HOOD CONTACTOR CABINET DETAIL.

Keyed Plan



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MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

DRAWING NO.:

E3.5
FIRE ALARM PLAN – AREA E

KEYED NOTES:

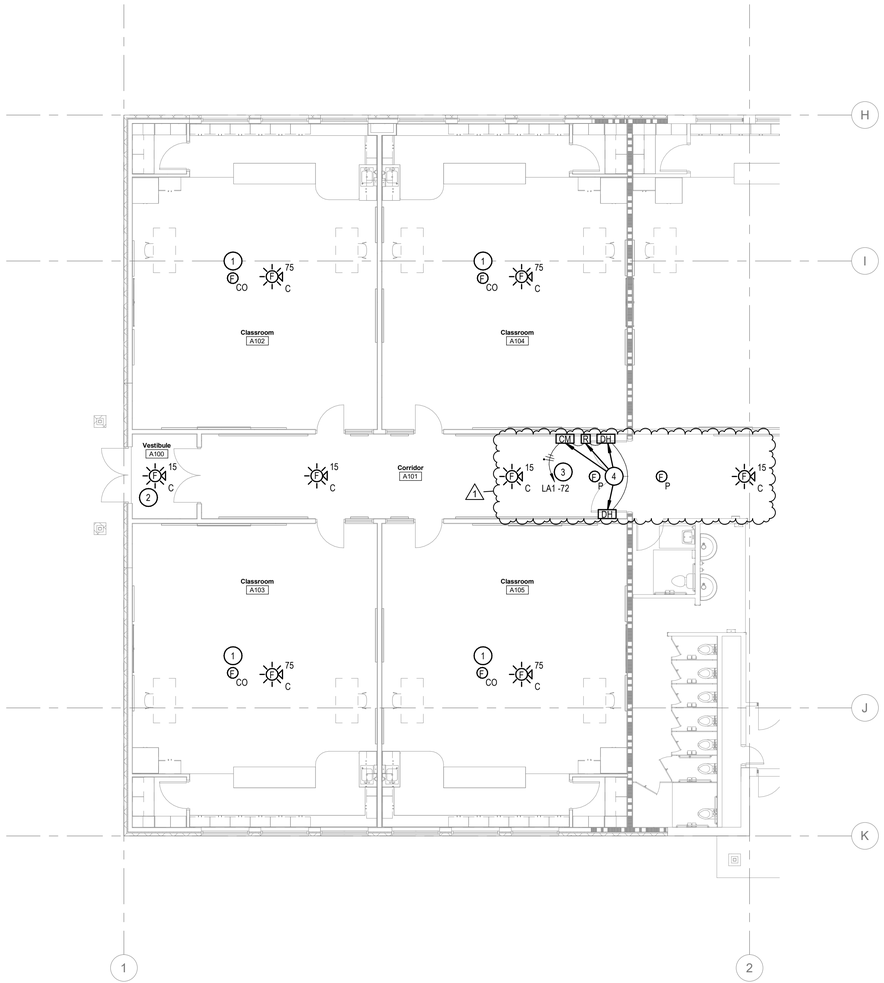
(#) SYMBOL USED FOR CALLOUT

1. CARBON MONOXIDE SENSOR. PROVIDE AND INSTALL A SYSTEM SENSOR C01224 CARBON MONOXIDE SENSOR WITH REAL TEST TECHNOLOGY OR APPROVED EQUAL. CONNECT SENSORS TO THE FIRE ALARM SYSTEM AND PROGRAM FOR MONITORING. ACTUATION OF THE CO DETECTOR SHALL CAUSE THE DEVICE TO SOUND ALERT, AND A SUPERVISORY SIGNAL ON THE FIRE ALARM SYSTEM. PROVIDE AND INSTALL ALL CABLING, HARDWARE, RELAYS, AND PROGRAMMING FOR A COMPLETE SYSTEM. SENSOR SHALL NOT BE A COMBINED SMOKE/CO DETECTION DEVICE.

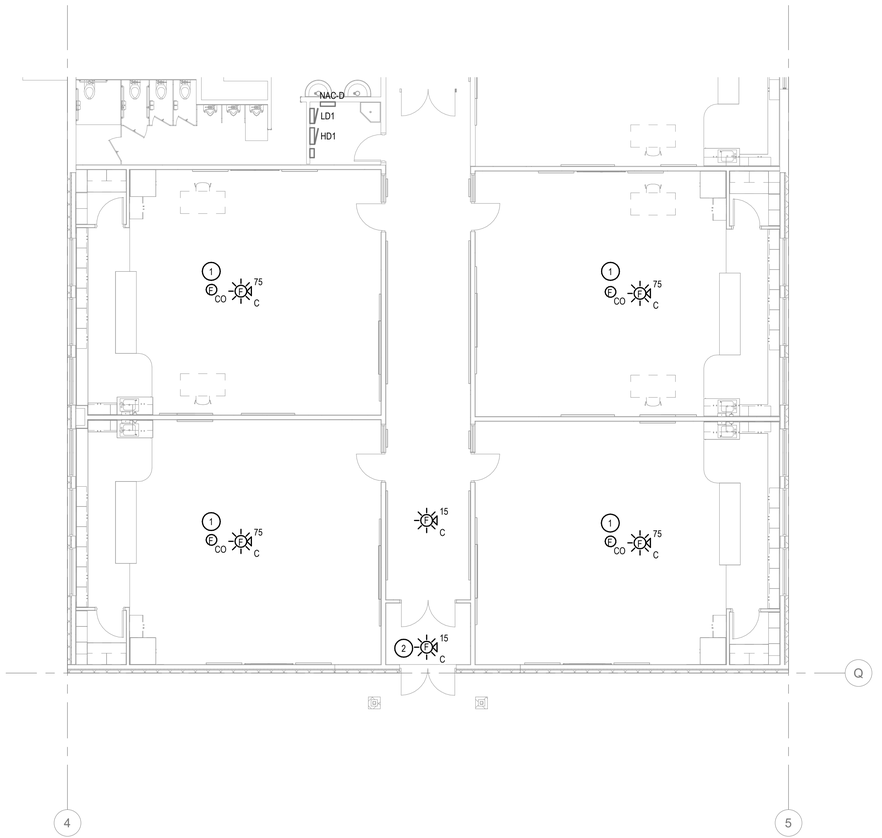
2. DEVICE IN THIS LOCATION UNDER ADD ALTERNATE CONDITIONS. REFER TO BASE BID CONDITIONS FOR LOCATION UNDER BASE BID CONDITIONS

1 3. PROVIDE RED HANDLED LOCKABLE TYPE CIRCUIT BREAKER IN PANEL AT POSITION INDICATED.

4. PROVIDE MONITOR MODULE AND RELAY FOR DOOR HOLDS. PROGRAM AS REQUIRED TO ALLOW THE FIRE ALARM SYSTEM TO RELEASE FIRE DOORS UPON ACTIVATION OF ADJACENT SMOKE DETECTORS. PROVIDE BACK BOXES, CONDUIT, CONDUCTORS AND ANY ASSOCIATED MATERIALS AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.

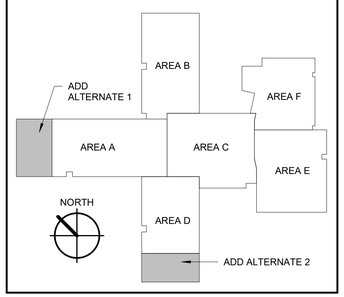


1 FIRE ALARM PLAN - ADD ALTERNATE 1
1/8" = 1'-0"



2 FIRE ALARM PLAN - ADD ALTERNATE 2
1/8" = 1'-0"

Keyed Plan



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PROFESSIONAL ENGINEER REGISTERED 10389 4/1/2022 STATE OF IDAHO KURT LECHTENBERG

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

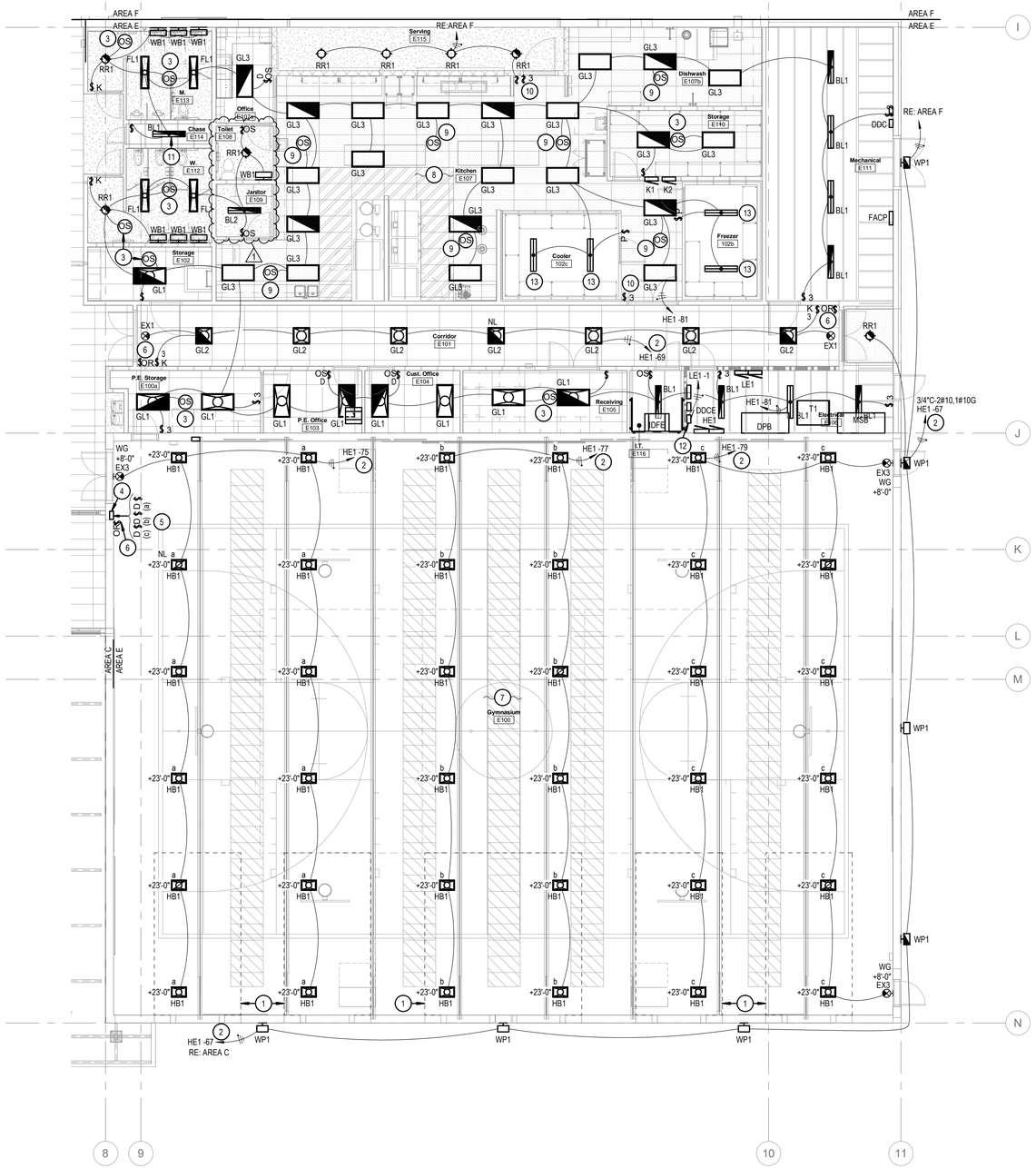
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

DRAWING NO.:

E3.7
FIRE ALARM PLANS – ADD ALTERNATES 1 & 2



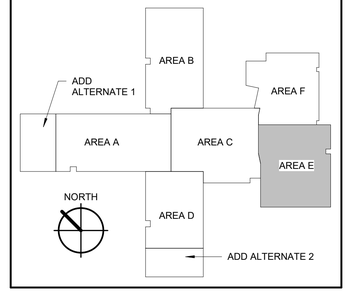
1 LIGHTING PLAN - AREA E
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. DAYLIGHT ZONE PERIMETER PER 2018 IECC. SHOWN FOR REFERENCE.
2. ROUTE CIRCUIT THROUGH THE BUILDING MANAGEMENT SYSTEM (DDC) TIME OF DAY BASED LIGHTING CONTROL SYSTEM CONTACTORS. COORDINATE WITH THE BMS CONTRACTOR. RE:LIGHTING CONTROL ZONE SCHEDULE.
3. NON-DIGITAL, DUAL TECHNOLOGY OCCUPANCY SENSOR. CONNECT SUCH THAT DETECTION OF OCCUPANCY BY ANY SENSOR IN THE ROOM WILL ACTIVATE ALL LIGHTING IN THE ROOM AND TURN OFF THE LIGHTING AFTER 20 MINUTES OF NO OCCUPANCY DETECTION. LOCATE SENSORS PER MANUFACTURER'S RECOMMENDATION TO ENSURE MOTION IS DETECTED WITHIN 2FT OF ENTERING ROOM. PROVIDE AND INSTALL ALL POWER PACKS AND RELAYS AS REQUIRED.
4. DIGITAL, 0-10V DIMMING LIGHTING SWITCHES FOR THE GYMNASIUM LIGHTING TO BE LOCATED IN A FLUSH MOUNTED ENCLOSURE (HOFFMAN 'ASE' SERIES OR EQUAL) WITH A LOCKABLE HINGED COVER (HOFFMAN 'AFDF' SERIES WITH AN 'ACLFDF' LOCK KIT OR EQUAL). SIZE ENCLOSURE AS REQUIRED TO ACCOMMODATE ALL LIGHT SWITCHES INDICATED. THE CENTER OF THIS BOX IS TO BE MOUNTED 46" AFF. SWITCHES SHALL BE COMPATIBLE WITH THE ASSOCIATED LIGHT FIXTURES AND PROVIDE RAISE / LOWER AS WELL AS ON / OFF FUNCTIONS. PROVIDE ALL REQUIRED CABLING. PROVIDE JUNCTION BOXES IN THE ENCLOSURE FOR THE SWITCHES. ALL CONDUCTORS AND CABLING WITHIN THE ENCLOSURE ARE TO BE CONCEALED IN CONDUIT SO THEY ARE NOT EXPOSED TO THE USER. PROVIDE (2) 3/4" SPARE CONDUITS FROM THE ENCLOSURE TO THE BUILDING STRUCTURE. LOCK SHALL BE KEYED TO MATCH THE SCHOOL MASTER KEY SYSTEM. RE: CAFETERIA LIGHT SWITCH ENCLOSURE DETAIL.
5. 3 BUTTON DIGIAL SWITCH(ES) WITH / LOWER AND ON / OFF CONTROL. SWITCHES ARE TO BE COMPATIBLE WITH LIGHTING ROOM CONTROLLER IN THIS SPACE. PROVIDE SEPARATE SWITCH FOR EACH CONTROL ZONE BY SUBSCRIPTS INDICATED. RE: CLASSROOM LIGHTING CONTROL DETAIL.
6. MOMENTARY LOW-VOLTAGE LIGHTING CONTROL OVER-RIDE SWITCH. SWITCH AND CABLING FURNISHED AND INSTALLED BY THE DDC CONTRACTOR. ELECTRICAL CONTRACTOR TO PROVIDE JUNCTION BOX WITH A SINGLE-GANG MUD-RING AT 46" AFF AND PROVIDE 3/4" CONDUIT FROM THE JUNCTION BOX TO THE NEAREST ACCESSIBLE CEILING SPACE. VERIFY THE SWITCH LOCATION AND THE BOX AND CONDUIT REQUIREMENTS WITH THE DDC CONTRACTOR PRIOR TO ROUGH-IN. LABEL SWITCH "LIGHTING OVER-RIDE".
7. LIGHTING IN THIS ROOM TO BE CONTROLLED USING DIGITAL ROOM CONTROLLER AND ASSOCIATED DIGITAL DIMMING SWITCHES COMPATIBLE WITH LIGHT FIXTURES. A SINGLE CONTROLLER MAY BE UTILIZED FOR MULTIPLE ZONES AS LONG AS EACH ZONE CAN BE CONTROLLED INDEPENDANTLY. PROVIDE POWER PACKS, RELAYS, CABLING AND PROGRAMMING AS REQUIRED FOR A COMPLETE SYSTEM. TERMINATE AN TEST ALL CABLING.
8. LIGHTING IN THIS ROOM TO BE CONTROLLED USING DIGITAL ROOM CONTROLLER AND ASSOCIATED DIGITAL SWITCHES COMPATIBLE WITH LIGHT FIXTURES. A SINGLE CONTROLLER MAY BE UTILIZED FOR MULTIPLE ZONES AS LONG AS EACH ZONE CAN BE CONTROLLED INDEPENDANTLY. PROVIDE POWER PACKS, RELAYS, CABLING AND PROGRAMMING AS REQUIRED FOR A COMPLETE SYSTEM. TERMINATE AN TEST ALL CABLING. RE: CLASSROOM LIGHTING CONTROL DETAIL AS APPLICABLE.
9. DIGITAL, DUAL TECHNOLOGY OCCUPANCY SENSOR COMPATIBLE WITH THE ROOMS DIGITAL LIGHTING SYSTEM ROOM CONTROLLER. CONNECT SUCH THAT DETECTION OF OCCUPANCY BY ANY SENSOR IN THE ROOM WILL ACTIVATE ALL LIGHTING IN THE ROOM AND TURN OFF THE LIGHTING AFTER 20 MINUTES OF NO OCCUPANCY DETECTION. LOCATE SENSORS PER MANUFACTURER'S RECOMMENDATION TO ENSURE MOTION IS DETECTED WITHIN 2FT OF ENTERING ROOM. PROVIDE AND INSTALL ALL POWER PACKS AND RELAYS AS REQUIRED.
10. DIGITAL WALL SWITCH(ES) WITH ON / OFF CONTROL. SWITCHES ARE TO BE COMPATIBLE WITH THE ROOM LIGHTING CONTROL SYSTEM.
11. LIGHT FIXTURE LOCATED IN THE PLUMBING CHASE. COORDINATE FINAL LOCATION AND MOUNTING WITH PIPING IN THIS AREA.
12. LIGHTING CONTROL SYSTEM CONTACTOR / RELAY PANEL. PANEL PROVIDED AND PROGRAMMED BY THE DDC CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH THE DDC CONTRACTOR PRIOR TO ROUGH-IN.
13. LIGHT FIXTURE FURNISHED WITH WALK-IN COOLER OR FREEZER. INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE CONDUIT, BOXES AND CONDUCTORS AS REQUIRED. VERIFY FIXTURE VOLTAGE PRIOR TO ROUGH-IN.

Keyed Plan



LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER REGISTERED 10389 4/1/2022 STATE OF IDAHO KURT LECHTENBERG

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

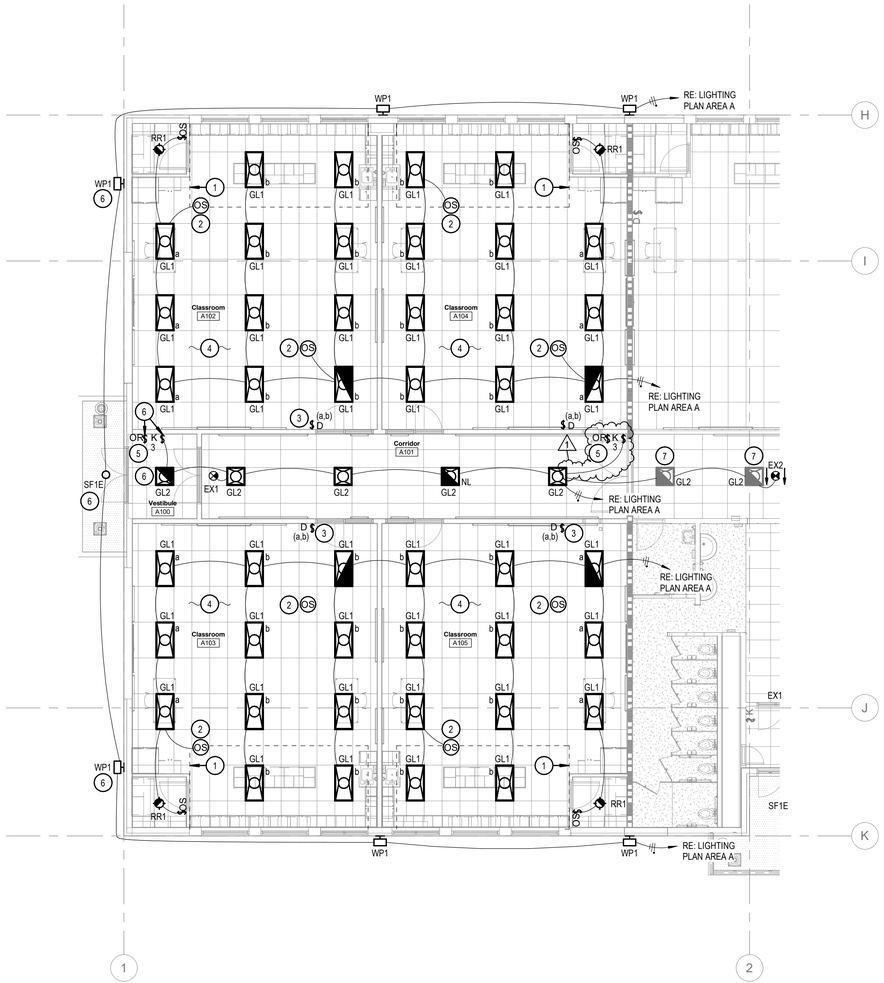
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

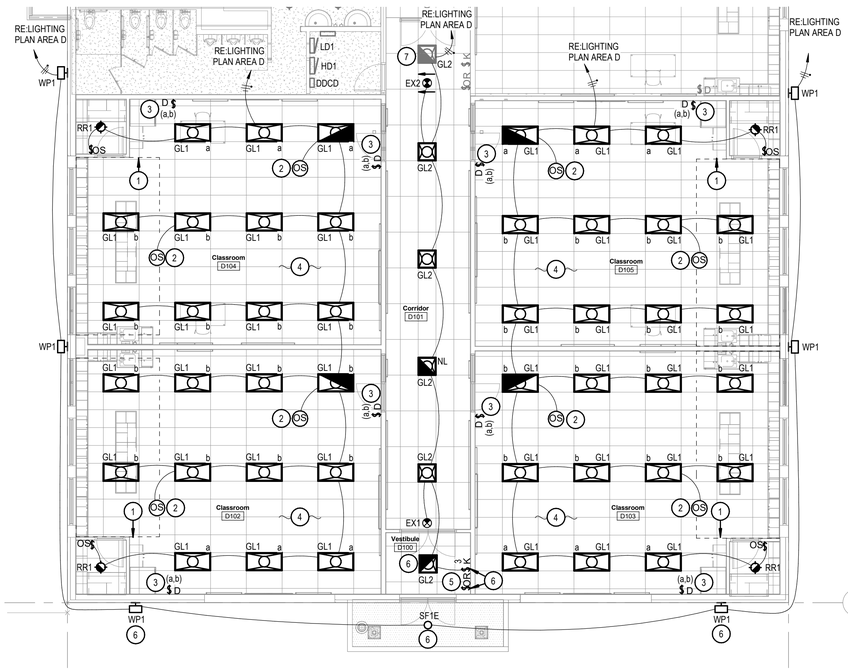
BID SET

DRAWING NO.:

E4.5
LIGHTING PLAN – AREA E



1 LIGHTING PLAN - ADD ALTERNATE 1
1/8" = 1'-0"



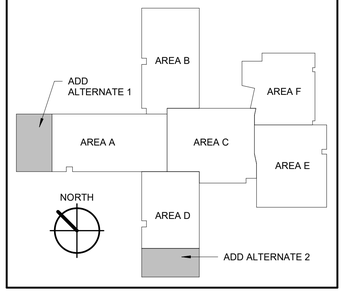
2 LIGHTING PLAN - ADD ALTERNATE 2
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. DAYLIGHT ZONE PERIMETER PER 2018 IECC. SHOWN FOR REFERENCE.
2. DIGITAL, DUAL TECHNOLOGY OCCUPANCY SENSOR COMPATIBLE WITH THE ROOMS DIGITAL LIGHTING SYSTEM ROOM CONTROLLER. CONNECT SUCH THAT DETECTION OF OCCUPANCY BY ANY SENSOR IN THE ROOM WILL ACTIVATE ALL LIGHTING IN THE ROOM AND TURN OFF THE LIGHTING AFTER 20 MINUTES OF NO OCCUPANCY DETECTION. LOCATE SENSORS PER MANUFACTURER'S RECOMMENDATION TO ENSURE MOTION IS DETECTED WITHIN 2FT OF ENTERING ROOM. PROVIDE AND INSTALL ALL POWER PACKS AND RELAYS AS REQUIRED.
3. 3 BUTTON DIGITAL SWITCH(ES) WITH / LOWER AND ON / OFF CONTROL. SWITCHES ARE TO BE COMPATIBLE WITH LIGHTING ROOM CONTROLLER IN THIS SPACE. PROVIDE SEPARATE SWITCH FOR EACH CONTROL ZONE BY SUBSCRIPTS INDICATED. RE: CLASSROOM LIGHTING CONTROL DETAIL.
4. LIGHTING IN THIS ROOM TO BE CONTROLLED USING DIGITAL ROOM CONTROLLER, ASSOCIATED DIGITAL DIMMING SWITCHES AND DIGITAL OCCUPANCY SENSORS. OCCUPANCY SENSOR(S) TO TURN LIGHTING ROOM TO 50% AUTOMATICALLY. AFTER OCCUPANCY SENSOR TIME OUT, ALL FIXTURES ARE TO BE OFF. RE: CLASSROOM LIGHTING CONTROL DETAIL.
5. MOMENTARY LOW-VOLTAGE LIGHTING CONTROL OVER-RIDE SWITCH. SWITCH AND CABLING FURNISHED AND INSTALLED BY THE DDC CONTRACTOR. ELECTRICAL CONTRACTOR TO PROVIDE JUNCTION BOX WITH A SINGLE-GANG MUD-RING AT 46" AFF AND PROVIDE 3/4" CONDUIT FROM THE JUNCTION BOX TO THE NEAREST ACCESSIBLE CEILING SPACE. VERIFY THE SWITCH LOCATION AND THE BOX AND CONDUIT REQUIREMENTS WITH THE DDC CONTRACTOR PRIOR TO ROUGH-IN. LABEL SWITCH "LIGHTING OVER-RIDE".
6. DEVICE IN THIS LOCATION UNDER ADD ALTERNATE CONDITIONS. REFER TO BASE BID CONDITIONS FOR LOCATION UNDER BASE BID CONDITIONS
7. DEVICE IN THIS LOCATION PART OF BASE BID.

Keyed Plan



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Boise, Idaho 83706
www.lkvarchitects.com
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MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

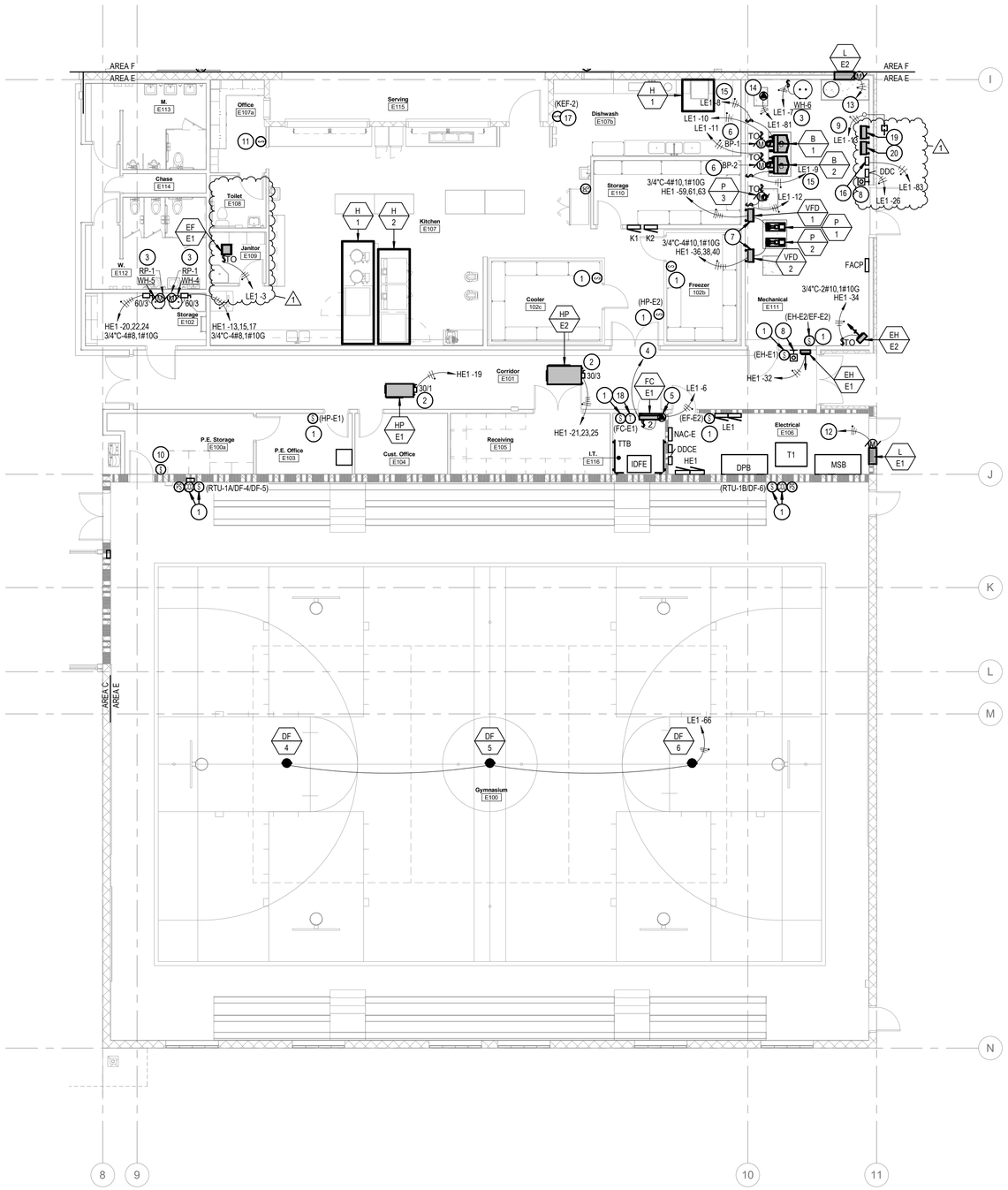
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

DRAWING NO.:

E4.7
LIGHTING PLANS – ADD ALTERNATES 1 & 2



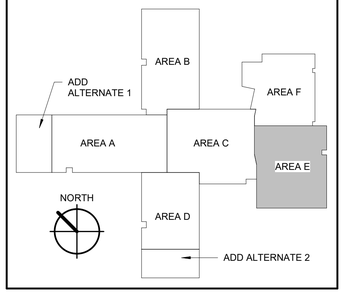
1 MECHANICAL POWER PLAN - AREA E
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. HVAC SYSTEM SENSOR(S). BOX(ES) AND CONDUIT TO BE PROVIDED BY ELECTRICAL CONTRACTOR. SENSOR AND ALL CABLING TO BE FURNISHED AND INSTALLED BY THE DDC CONTRACTOR. PROVIDE A JUNCTION BOX AT 46" AFF FOR EACH SENSOR INDICATED AND 1/2" CONDUIT FROM THE SENSOR JUNCTION BOX TO ABOVE THE NEAREST ACCESSIBLE CEILING. COORDINATE BOX SIZE AND LOCATION AND THE CONDUIT REQUIREMENTS WITH DDC CONTRACTOR.
2. FIELD COORDINATE DISCONNECT AND MECHANICAL UNIT LOCATION WITH MECHANICAL CONTRACTOR TO MAINTAIN ALL REQUIRED CLEARANCES.
3. CONNECT WATER HEATER, RECIRC PUMP, AND ALL ASSOCIATED DEVICES AND EQUIPMENT. COORDINATE WITH PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
4. PROVIDE AND INSTALL LINE VOLTAGE AND CONTROL CABLING TO THE CORRESPONDING OUTDOOR UNIT. COORDINATE REQUIREMENTS WITH THE MECHANICAL CONTRACTOR.
5. CONNECTION FOR CONDENSATION PUMP. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITHMECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
6. BOILER PUMP TO BE CONTROLLED BY CORRESPONDING BOILER. ROUTE CIRCUIT(S) THROUGH BOILER AND PROVIDE CONTACTORS/RELAYS AS REQUIRED. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
7. VFD PROVIDED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
8. PROVIDE MUSHROOM BUTTON FOR BOILER SHUTDOWN. BUTTON SHALL SHUT DOWN BOTH BOILER AND BOILER PUMP ELECTRICAL GAS FOR EACH BOILER UNIT AS WELL AS THE MAIN GAS SERVICE INSIDE THE BUILDING. PROVIDE SOLINOIDS AND RELAYS AS REQUIRED. MUSHROM BUTTON SHALL BE PUSH TO STOP, PULL TO START WITH 40MM RED BUTTON. PROVIDE NON-LOCKABLE GLASS BREAK COVER. PROVIDE A RED MACHINE ENGRAVED LABEL WITH 1" HIGH LETTERS THAT STATES "BOILER EMERGENCY SHUTDOWN". PROVIDE CONDUIT BETWEEN BUTTON AND EACH BOILER AND BOILER PUMP WITH CABLING AS REQUIRED. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
9. CONNECTION FOR MAIN GAS SERVICE SOLENOID FOR BOILER SHUTDOWN. SOLENOID PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR AND ENERGIZED BY ELECTRICAL CONTRACTOR. PROVIDE CONDUIT, CONDUCTORS AND RELAYS AS REQUIRED FOR A COMPLETE SYSTEM. COORDINATE WITH PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
10. OVERRIDE SWITCH FOR DESTRATIFICATION FANS IN GYMNASIUM E100. 1/2" CONDUIT TO CORRESPONDING MECHANICAL ULNIT. SWITCH PROVIDED BY MECHANICAL CONTRACTOR. BOX, CONDUIT, AND CONDUCTORS TO BE PROVIDED BY ELECTRICAL CONTRACTOR. LEAVE 12" SLACK AT BOX AND MECHANICAL UNIT. MECHANICAL CONTRACTOR TO MAKE FINAL CONNECTIONS. COORDINATE BOX SIZE AND QUANTITY OF CONDUCTOR(S) WITH MECHANICAL CONTRACTOR. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
11. OVERRIDE SWITCH FOR DESTRATIFICATION FANS IN CAFETORIUM F100. 1/2" CONDUIT TO CORRESPONDING MECHANICAL ULNIT. SWITCH PROVIDED BY MECHANICAL CONTRACTOR. BOX, CONDUIT, AND CONDUCTORS TO BE PROVIDED BY ELECTRICAL CONTRACTOR. LEAVE 12" SLACK AT BOX AND MECHANICAL UNIT. MECHANICAL CONTRACTOR TO MAKE FINAL CONNECTIONS. COORDINATE BOX SIZE AND QUANTITY OF CONDUCTOR(S) WITH MECHANICAL CONTRACTOR. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
12. INTERLOCK LOUVER WITH EXHAUST FAN EF-E2 LOCATED ON ROOF, AREA E. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
13. INTERLOCK LOUVER WITH EXHAUST FAN EF-E3 LOCATED ON ROOF, AREA E. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
14. CONNECTION FOR FLOW METER 'FM-1'. PROVIDE TRANSFORMER, CONDUIT AND CABLING AS REQUIRED FOR A COMPLETE SYSTEM. COORDINATE WITH MECHANICAL CONTRACTOR FOR CONNECTION REQUIREMENTS PRIOR TO ROUGH-IN.
15. ROUTE CIRCUIT THROUGH BOILER SHUTDOWN CONTACTOR.
16. PROVIDE 2-POLE CONTACTOR IN A NEMA 1 ENCLOSURE FOR BOILER EMERGENCY SHUT DOWN CONTROL. CONTACTOR SHALL BE MECHANICALLY HELD, FAIL SAFE TYPE. CONTACTOR SHALL OPEN, WHEN THE BOILER EMERGENCY STOP BUTTON IS PRESSED.
17. SWITCH FOR KEF-2 AND H-1. RE: ENLARGED KITCHEN PLAN
18. 1/2" CONDUIT TO CORRESPONDING MECHANICAL UNIT. BOX, CONDUIT, AND CONDUCTORS TO BE PROVIDED BY ELECTRICAL CONTRACTOR. LEAVE 12" SLACK AT BOX AND MECHANICAL UNIT. MECHANICAL CONTRACTOR TO MAKE FINAL CONNECTIONS. COORDINATE BOX SIZE AND QUANTITY OF CONDUCTOR(S) WITH MECHANICAL CONTRACTOR. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
19. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL DV/DT FILTER FOR THE WELL SYSTEM. FILTER TO BE INSTALLED IN-LINE ON THE VFD LOAD SIDE. UTILIZE 20HP, 480V, 3-PHASE AS THE BASIS. COORDINATE FINAL SELECTION AND INSTALLATION WITH WELL SYSTEM PROVIDER/INSTALLER PRIOR TO ROUGH-IN. RE: ELECTRICAL SITE PLAN.
20. VFD PROVIDED AS PART OF THE WELL SYSTEM, INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE WITH THE WELL SYSTEM INSTALLER PRIOR TO ROUGH-IN. RE: ELECTRICAL SITE PLAN.

Keyed Plan



LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER REGISTERED 10389 4/1/2022 STATE OF IDAHO KURT LECHTENBERG

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

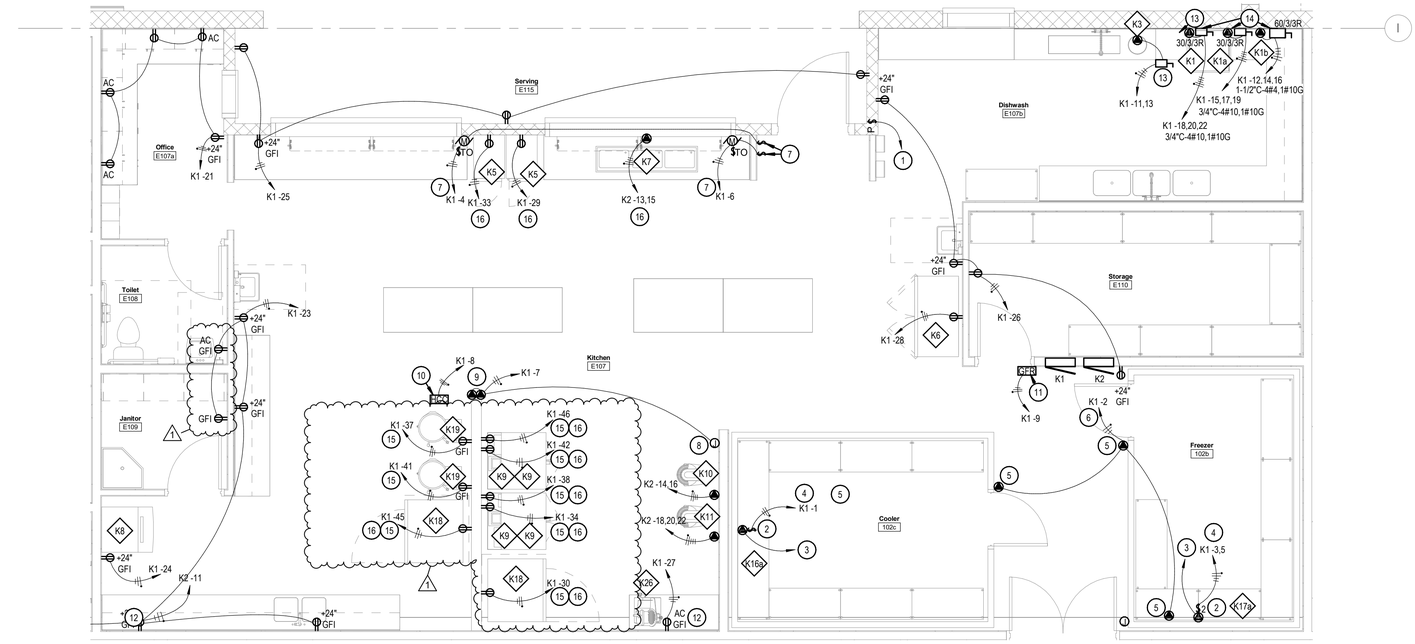
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

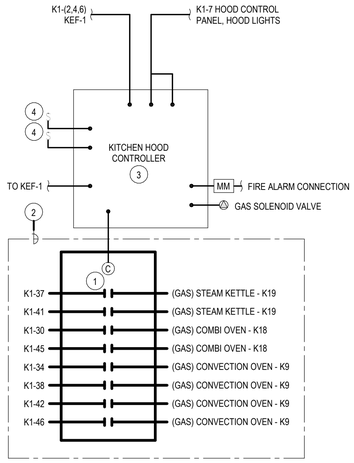
DRAWING NO.:

E5.5
MECHANICAL POWER PLAN – AREA E



1 ENLARGED KITCHEN PLAN
1/4" = 1'-0"

KITCHEN EQUIPMENT SCHEDULE				
ITEM #	DESCRIPTION	MANUFACTURER	CONNECTION TYPE	ELECTRICAL DATA
K1	DISHWASHER	HOBART	DIRECT CONNECT	208V/3P - 27A
K1a	DISHWASHER (INTERNAL BOOSTER)	HOBART	DIRECT CONNECT	208V/3P - 26A
K1b	BOOSTER (EXTERNAL)	HATCO	DIRECT CONNECT	208V/3P - 15kW
K3	DISPOSER	HOBART	DIRECT CONNECT	208V/2P
K5	HOT FOOD CABINET	METRO	PLUG	120V - 2kW
K5	HOT FOOD CABINET	METRO	PLUG	120V - 2kW
K6	FRIDGE	BEVERAGE-AIR	PLUG	120V
K7	STEAM TABLE	TABCO	PLUG	208V/2P - 2.5kW
K8	ICE MAKER	AVANTO	PLUG	120V
K9	DBL. STACK CONVECTION OVEN	VULCAN	PLUG	120V - 7.7A
K9	DBL. STACK CONVECTION OVEN	VULCAN	PLUG	120V - 7.7A
K9	DBL. STACK CONVECTION OVEN	VULCAN	PLUG	120V - 7.7A
K9	DBL. STACK CONVECTION OVEN	VULCAN	PLUG	120V - 7.7A
K10	60 QT MIXER	HOBART	DIRECT CONNECT	208V/3P - 1.7HP
K11	60 QT MIXER	HOBART	DIRECT CONNECT	208V/3P - 2.7HP
K16	WALK-IN COOLER (ROOF CONDENSER)		DIRECT CONNECT	208V/3P
K16a	WALK-IN COOLER (FAN COIL)		DIRECT CONNECT	120V
K17	WALK-IN FREEZER (ROOF CONDENSER)		DIRECT CONNECT	208V/3P
K17a	WALK-IN FREEZER (FAN COIL)		DIRECT CONNECT	208V/2P
K18	SINGLE STACK COMBI OVEN	RATIONAL	PLUG	120V - 16A
K18	SINGLE STACK COMBI OVEN	RATIONAL	PLUG	120V - 16A
K19	STEAM KETTLE	CLEVELAND	PLUG	120V - 5A
K19	STEAM KETTLE	CLEVELAND	PLUG	120V - 5A
K26	FOOD SLICER	CLEVELAND	PLUG	120V



DETAIL NOTES:

1. 8-POLE, 20AMP, 240V RATED CONTACTOR, NORMALLY OPEN WITH 120V COIL.
2. HOOD CONTACTOR CABINET 'HCC.' PROVIDE NEMA 1 ENCLOSURE SIZED TO ACCOMMODATE ALL COMPONENTS AS REQUIRED. PROVIDE A 240V RATED CABINET WITH 120V COIL, GE OR EQUAL. MAXIMUM WIDTH 24", MAXIMUM DEPTH 12". RE: ENLARGED KITCHEN PLAN
3. HOOD CONTROLLER WITH REMOTE MOUNTED SWITCHES INSTALLED BY ELECTRICAL CONTRACTOR FOR HOOD EXHAUST FAN AND LIGHTING CONTROL. CONTROL PANEL PROVIDED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR. FIELD VERIFY LOCATION PRIOR TO ROUGH-IN. RE: ENLARGED KITCHEN PLAN.
4. SWITCHES FOR HOOD LIGHTS AND FAN CONTROL TO BE REMOTE MOUNTED BY ELECTRICAL CONTRACTOR. VERIFY SWITCH TYPE AND LOCATION WITH HOOD INSTALLER PRIOR TO ROUGH-IN.

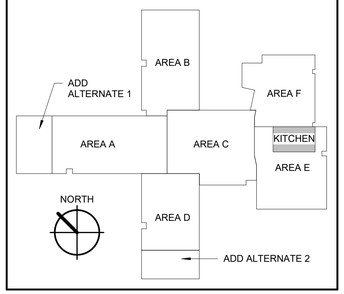
2 KITCHEN HOOD CONTRACTOR CABINET DETAIL
NTS

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. 2-POLE PILOT SWITCH FOR DISHWASHER HOOD FAN. SWITCH LIT IN ON POSITION. ROUTE TO DISHWASHER HOOD FAN LOCATED ON ROOF. VERIFY SWITCH LOCATION PRIOR TO ROUGH-IN. LABEL SWITCH "DISHWASHER EXHAUST". RE: ELECTRICAL ROOF PLAN – AREA E.
2. CONNECTION FOR COOLER/FREEZER FAN COILS. COORDINATE CONNECTION REQUIREMENTS WITH EQUIPMENT SUPPLIER/INSTALLER PRIOR TO ROUGH-IN. PROVIDE DISCONNECTING MEANS AS REQUIRED.
3. PROVIDE 3/4" CONDUIT AND CONTROL CONDUCTORS AS NECESSARY BETWEEN THE INTERIOR AND EXTERIOR MECHANICAL UNITS. COORDINATE WITH MECHANICAL CONTRACTOR AND KITCHEN WALK-IN COOLER/FREEZER SUPPLIER.
4. PROVIDE LOCKOUT BREAKER IN PANEL AT POSITION INDICATED.
5. FURNISH AND INSTALL HEAT TAPE FOR WALK-IN DOOR AND CONDENSATE LINE DEFROST. COORDINATE CONNECTION AND HEAT TAPE REQUIREMENTS FOR BOTH FREEZER AND COOLER WITH WALK-IN SUPPLIER/INSTALLER PRIOR TO ROUGH-IN.
6. PROVIDE GFEP BREAKER IN PANEL FOR EQUIPMENT PROTECTION (30mA).
7. PROVIDE CONNECTION FOR MOTORIZED ROLLUP DOOR AND CONTROL SWITCH. VERIFY SWITCH LOCATION PRIOR TO ROUGH-IN.
8. JUNCTION BOX FOR HOOD LIGHTS AND FAN CONTROLS MOUNTED AT 46" AFF. VERIFY CONTROL INTERFACE LOCATION AND BOX REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
9. CONNECTION FOR HOOD CONTROL PANEL AND LIGHTS. COORDINATE CONNECTION LOCATIONS WITH HOOD INSTALLER PRIOR TO ROUGH-IN. RE:KITCHEN HOOD CONTACTOR CABINET DETAIL. GROUND FAULT RELAY CABINET 'GFR' TO BE FLUSH MOUNTED NEXT TO PANEL 'K'.
10. HOOD CONTACTOR CABINET 'HCC'. CABINET TO BE LOCATED ABOVE ACCESSIBLE CEILING OR IN HOOD. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH HOOD INSTALLER/SUPPLIER PRIOR TO ROUGH-IN.
11. GROUND FAULT RELAY CABINET 'GFR'. CABINET TO BE LOCATED ABOVE ACCESSIBLE CEILING NEAR PANEL 'K'. RE: GROUND FAULT RELAY CABINET DETAIL.
12. ABOVE COUNTER RECEPTACLE. COORDINATE HEIGHT WITH COUNTER SUPPLIER TO ENSURE RECEPTACLE IS ABOVE STAINLESS BACKSPLASH PRIOR TO ROUGH-IN.
13. CONNECTION FOR FOOD WASTE DISPOSAL. PROVIDE WITH HOBART CONTROL GROUP 5 OR 6, NEMA4 DISPOSER CONTROL BOX. COORDINATE WITH PLUMBING CONTRACTOR PRIOR TO ROUGH-IN AND ORDERING CONTROL BOX BASED ON WATER TIMER SELECTION CIRCUIT.
14. DISCONNECTING MEANS TO BE LOCATED BELOW THE COUNTER. COORDINATE LOCATION TO ENSURE ACCESSIBILITY.
15. ROUTE CIRCUIT THROUGH HOOD CONTACTOR CABINET 'HCC'. RE: HOOD CONCATOR CABINET DETAIL.
16. ROUTE CIRCUIT THROUGH THE GROUND FAULT RELAY PANEL 'GFR'. RE: GROUND FAULT REALAY CABINET DETAIL.

Keyed Plan



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www.lkvarchitects.com
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PROFESSIONAL ENGINEER REGISTERED 10389 4/1/2022 STATE OF IDAHO KURT LECHTENBERG

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

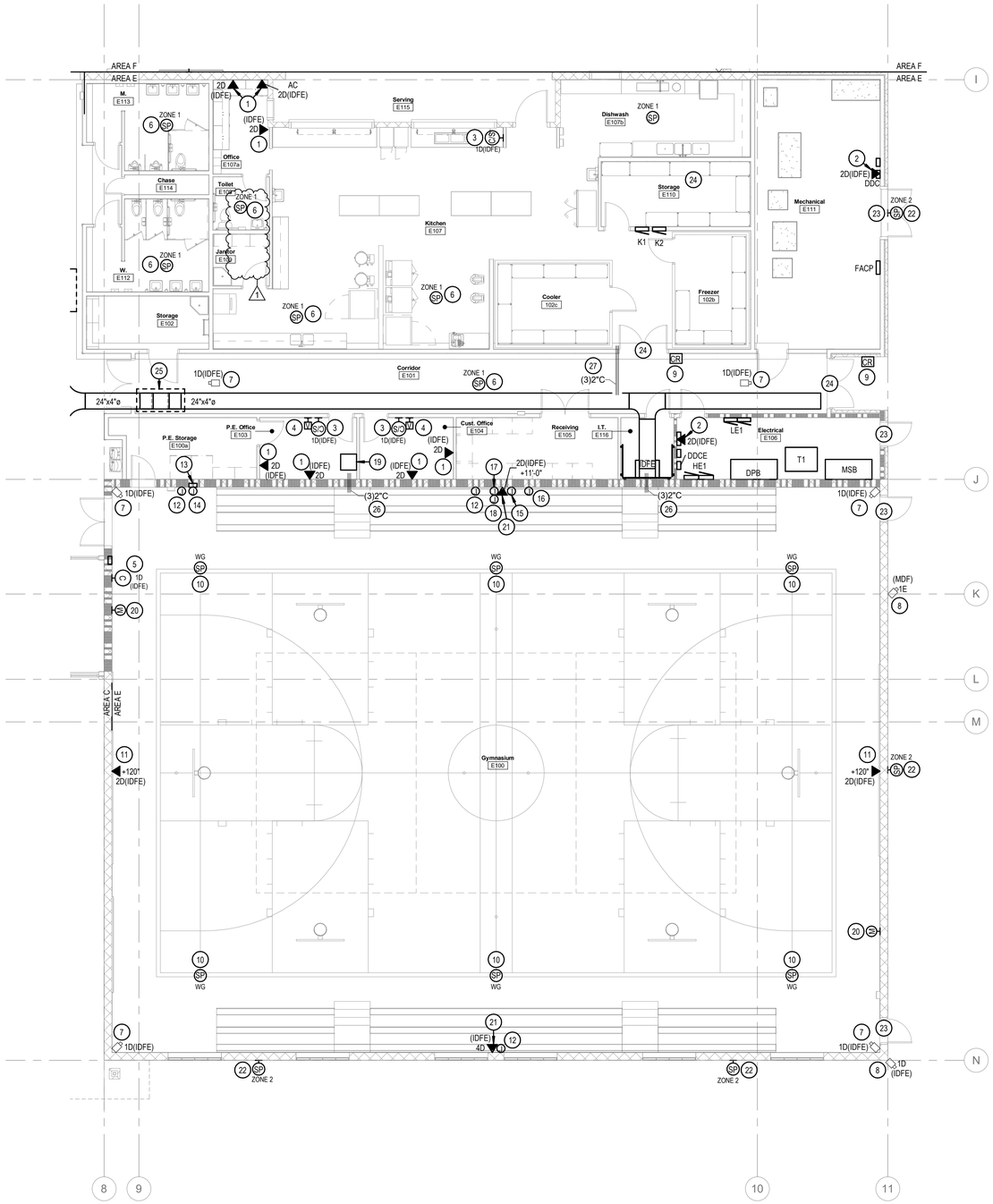
DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

DRAWING NO.:

E6.8
ENLARGED KITCHEN PLAN



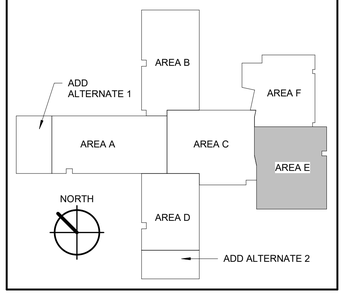
1 SPECIAL SYSTEMS PLAN - AREA E
1/8" = 1'-0"

KEYED NOTES:

(#) SYMBOL USED FOR CALLOUT

1. PROVIDE 1" CONDUIT FROM DATA OUTLET TO VOID ABOVE ACCESSIBLE CEILING. PROVIDE DATA CABLING; QUANTITY AS INDICATED, FROM DATA OUTLET TO THE DATA RACK INDICATED. ROUTE VIA CABLE TRAY. TERMINATE AND TEST ALL CABLING.
2. PROVIDE DATA OUTLET FOR THE DDC SYSTEM CONTROL PANEL. VERIFY PANEL LOCATION WITH THE CONTROLS CONTRACTOR PRIOR TO ROUGH-IN. PROVIDE 1" CONDUIT FROM DATA OUTLET TO VOID ABOVE ACCESSIBLE CEILING. PROVIDE DATA CABLING; QUANTITY AS INDICATED, FROM DATA OUTLET TO THE DATA RACK INDICATED. ROUTE VIA CABLE TRAY. TERMINATE AND TEST ALL CABLING.
3. PROVIDE SURFACE MOUNTED IP CLOCK AND SPEAKER COMBINATION UNIT FOR INTERCOM SYSTEM AT +8'-0' UNO. PROVIDE 2-GANG MUDRING AND STUB 1" CONDUIT FROM MUDRING TO THE VOID ABOVE THE ACCESSIBLE CEILING. TERMINATE WITH INSULATED THROAT BUSHINGS. PROVIDE DATA CABLE FROM COMBO UNIT TO THE DATA RACK INDICATED. TERMINATE AND TEST CABLING. VERIFY COMBO UNIT LOCATION PRIOR TO ROUGH-IN. PROVIDE MATERIALS AND LABOR REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
4. VOLUME CONTROL FOR CLOCK AND SPEAKER COMBINATION UNIT. PROVIDE VOLUME BUTTON AND CABLING COMPATIBLE WITH INTERCOM SYSTEM AS REQUIRED. COORDINATE SYSTEM REQUIREMENTS WITH INTERCOM SYSTEM INSTALLER.
5. PROVIDE SURFACE MOUNTED IP CLOCK READERBOARD UNIT AT +8'-0' UNO. PROVIDE 2-GANG MUDRING AND STUB 1" CONDUIT FROM MUDRING TO THE VOID ABOVE THE ACCESSIBLE CEILING. TERMINATE WITH INSULATED THROAT BUSHINGS. PROVIDE DATA CABLE FROM READERBOARD UNIT TO THE DATA RACK INDICATED. TERMINATE AND TEST CABLING. VERIFY COMBO UNIT LOCATION PRIOR TO ROUGH-IN. PROVIDE MATERIALS AND LABOR REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
6. ANALOG INTERCOM ZONE SPEAKER TO BE CONNECTED TO THE INTERCOM SYSTEM VIA ZONE CONTROLLER. CONNECT TO PAGING ZONE INDICATED. PROVIDE SPEAKER, BACKBOX, AND CABLING. PROVIDE ZONE CONTROL AMPLIFIER IN THE 'MDF' DATA RACK. OWNER TO PROVIDE DATA RACK SWITCHS IN 'MDF' DATA RACK.
7. INTERIOR SECURITY CAMERA PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE SURFACE MOUNTED DATA BOX (BISCUIT) WITH QUANTITY OF DATA PORTS AS INDICATED, ABOVE THE ACCESSIBLE CEILING, OR AT THE BUILDING STRUCTURE FOR SECURITY CAMERA CONNECTION. COORDINATE THE DATA OUTLET AND CAMERA LOCATION WITH THE SCHOOL DISTRICT PRIOR TO INSTALLATION. PROVIDE DATA CABLES; QUANTITY AS INDICATED, TO A DEDICATED PATCH PANEL IN DATA RACK INDICATED.
8. EXTERIOR WALL MOUNTED SECURITY CAMERA PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE A JUNCTION BOX AT 12'-0" AFG AND 3/4" CONDUIT FROM THE JUNCTION BOX TO THE NEAREST ACCESSIBLE CEILING SPACE. PROVIDE SURFACE MOUNTED DATA BOX (BISCUIT) WITH QUANTITY OF DATA PORTS AS INDICATED, IN THE JUNCTION BOX. COORDINATE THE DATA OUTLET AND CAMERA LOCATION WITH THE SCHOOL DISTRICT PRIOR TO INSTALLATION. PROVIDE DATA CABLES; QUANTITY AS INDICATED, TO A DEDICATED PATCH PANEL IN THE DATA RACK INDICATED.
9. PROVIDE JUNCTION BOX FOR CARD READER AT +46" AFG AND 3/4" CONDUIT TO ABOVE ACCESSIBLE CEILING. PROVIDE CABLING PER SPECIFICATION REQUIREMENTS. REFER TO DOOR ACCESS CONTROL DETAIL.
10. ROOM SOUND SYSTEM SPEAKER MOUNTED AT THE BUILDING STRUCTURE. PROVIDE CONDUIT AND CABLING BETWEEN EACH SPEAKER THEN TO THE CORRESPONDING GYM OR CAFETERIA SOUND SYSTEM HEAD-END EQUIPMENT LOCATED IN P.E. OFFICE 103. COORDINATE LOCATION AND AIMING OF THE SPEAKER TO PROVIDE OPTIMAL PERFORMANCE WITHIN THE SPACE.
11. PROVIDE JUNCTION BOX IN WALL AT +12' AFF, UNO, FOR A WIRELESS ACCESS POINT (WAP). COORDINATE THE DATA OUTLET LOCATION WITH THE SCHOOL DISTRICT I.T. STAFF PRIOR TO INSTALLATION. PROVIDE 1" CONDUIT WITH DATA CABLES, QUANTITY AS INDICATED TO DATA RACK INDICATED. PROVIDE 18" OF SLACK IN THE BOX FOR CONNECTION TO OWNER PROVIDED WAP. THE WAP DEVICE WILL BE FURNISHED AND CALIBRATED BY THE SCHOOL DISTRICT I.T. STAFF AND INSTALLED BY THE ELECTRICAL CONTRACTOR PER THE MANUFACTURE'S RECOMMENDATIONS. PROVIDE ALL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.
12. MICROPHONE AND AUXILIARY INPUT JACKS FOR GYM MOUNTED AT 1'-6" AFF. PROVIDE 3/4" CONDUIT AND CABLING AS REQUIRED TO THE GYM HEAD-END SOUND SYSTEM LOCATED IN P.E. OFFICE E103.
13. FLUSH MOUNTED REMOTE SOUND SYSTEM CONTROL PANEL MOUNTED AT 46" AFF. PROVIDE ENCLOSURE (HOFFMAN ASE SERIES OR EQUAL) WITH A LOCKABLE HINGED COVER (HOFFMAN AFDF SERIES WITH AN ACLFDF LOCK KIT OR EQUAL). SIZE ENCLOSURE AS REQUIRED TO ACCOMMODATE ALL CONTROLS. CONTROL DEVICES SHALL BE INSTALLED IN JUNCTION BOXES. ALL CONDUCTORS AND CABLING WITHIN THE ENCLOSURE ARE TO BE CONCEALED SO THEY ARE NOT EXPOSED TO THE USER. PROVIDE (2) 3/4" SPARE CONDUITS FROM ENCLOSURE TO BUILDING STRUCTURE. PROVIDE (2)1" CONDUIT WITH CABLING AS REQUIRED TO SOUND SYSTEM HEAD-END UNIT LOCATED IN P.E. OFFICE E103. LOCK SHALL BE KEYED TO MATCH THE SCHOOL MASTER KEY SYSTEM.
14. REMOTE SOUND SYSTEM VOLUME CONTROLS. PROVIDE 3-GANG BOX FOR REMOTE SOUND SYSTEM HEAD END CONTROLS AND BLUETOOTH CONTROLS. CONTROLS ARE TO BE LOCATED IN FLUSH MOUNTED LOCKABLE ENCLOSURE.
15. REMOTE SOUND SYSTEM ANTENNA WITH WIRE GUARD FOR SOUND SYSTEM IN THIS ROOM MOUNTED AT BOTTOM OF ROOF DECK. PROVIDE 1" CONDUIT AND CABLING AS REQUIRED TO SOUND SYSTEM HEAD-END EQUIPMENT LOCATED IN P.E. OFFICE E103.
16. REMOTE ALS SOUND SYSTEM ANTENNA WITH WIRE GUARD FOR SOUND SYSTEM IN THIS ROOM MOUNTED AT BOTTOM OF ROOF DECK. PROVIDE 1" CONDUIT AND CABLING AS REQUIRED TO SOUND SYSTEM HEAD-END EQUIPMENT LOCATED IN P.E. OFFICE E103.
17. JUNCTION BOX FOR SCOREBOARD CONTROL CABLING MOUNTED AT 1'-6" AFF. PROVIDE 1" CONDUIT FROM SCOREBOARD CONTROLS TO JUNCTION BOX AT SCOREBOARD. PROVIDE BLANK COVER PLATE.
18. PROVIDE JUNCTION BOX WITH BLANK COVER PLATE AT 11'-0" FOR SCOREBOARD CONTROLS. VERIFY SCOREBOARD LOCATION AND MOUNTING HEIGHT PRIOR TO ROUGH-IN.
19. GYM SOUND SYSTEM HEAD-END EQUIPMENT FOR GYMNASIUM MOUNTED ON THE WALL SUCH THAT THE TOP OF THE RACK IS 6'-0" AFF.
20. WALL MOUNTED MOTION SENSOR. PROVIDE JUNCTION BOX AND COVER PLATE AT 10'-0" AFF AND STUB 3/4" CONDUIT TO THE BUILDING STRUCTURE. COORDINATE WITH ACCESS CONTROLS CONTRACTOR FOR BACKBOX HEIGHT AND LOCATION PRIOR TO ROUGH-IN.
21. PROVIDE 1" CONDUIT FROM DATA OUTLET TO STRUCTURE AND ROUTE TO NEAREST ACCESSIBLE CEILING. PROVIDE DATA CABLING; QUANTITY AS INDICATED, FROM DATA OUTLET TO THE DATA RACK INDICATED. ROUTE VIA CABLE TRAY. TERMINATE AND TEST ALL CABLING.
22. EXTERIOR ANALOG, FLUSH MOUNTED, INTERCOM SPEAKER WITH VANDAL RESISTANT COVER. SPEAKER TO BE CONNECTED TO THE BUILDING INTERCOM SYSTEM VIA A ZONE CONTROLLER. CONNECT TO PAGING ZONE INDICATED. PROVIDE SPEAKER, 4x4 BACKBOX, AND CABLING. PROVIDE ZONE CONTROL AMPLIFIER IN THE 'MDF' DATA RACK. OWNER TO PROVIDE DATA RACK SWITCHS IN 'MDF' DATA RACK. MOUNT SPEAKER AT 11'-0" AFF. VERIFY MOUNTING HEIGHT PRIOR TO ROUGH IN.
23. STUB (1)3/4" CONDUITS FROM THE DOOR FRAME TO ABOVE NEAREST ACCESSIBLE CEILING FOR DOOR ACCESS CONTROL CABLING. STUB ONE CONDUIT INTO THE TOP OF THE FRAME ON THE LATCH SIDE OF THE DOOR. PROVIDE CABLING TO THE SECURITY AND ACCESS CONTROL HEAD-END EQUIPMENT. VERIFY REQUIREMENTS WITH THE OWNER'S SECURITY CONTRACTOR PRIOR TO ROUGH-IN.
24. STUB (3) 3/4" CONDUITS FROM DOOR FRAME TO ABOVE NEAREST ACCESSIBLE CEILING. STUB ONE CONDUIT FROM TOP OF DOOR FRAME ON LATCH SIDE AND ONE INTO DOOR FRAME AT MIDDLE HINGES ON EACH SIDE OF DOUBLE DOOR. ACCESS CONTROL CABLING TO BE FURNISHED BY EDNETICS. RE: DOOR ACCESS CONTROL DETAIL
25. CABLE TRAY IN THIS LOCATION AT DIFFERING HEIGHTS. COORDINATE CABLE TRAY ROUTING WITH OTHER DISCIPLINES AND WALL PENETRATIONS ABOVE ACCESSIBLE CEILING. PROVIDE TRANSITION FROM CABLE TRAY ABOVE TO CABLE TRAY BELOW TO SUPPORT CABLES.
26. PROVIDE CONDUIT SLEEVES, QUANTITY AND SIZE INDICATED, FROM AT STRUCTURE, INSIDE CMU WALL AND STUBBED INTO ABOVE 'IDFE' CABLE TRAY ABOVE DATA RACK.
27. PROVIDE CONDUIT SLEEVES, QUANTITY AND SIZE AS INDICATED, FROM WALL ABOVE THE ACCESSIBLE CEILING AND EXTEND TO THE CABLE TRAY. TERMINATE WITH INSULATED THROAT BUSHINGS.

Keyed Plan



LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER REGISTERED 10389 4/1/2022 STATE OF IDAHO KURT LECHTENBERG

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

DRAWING NO.:

E7.5
SPECIAL SYSTEMS PLAN - AREA E

LIGHTING FIXTURE SCHEDULE

TYPE MARK	DESCRIPTION	MOUNTING	WATTAGE	LAMP	MANUFACTURER	MODEL	OR EQUAL BY	NOTES
BL1	CHAIN HUNG 4FT LED STRIP		34.8	LED, 5000 LUMENS, 4000K	LITHONIA	CLX-L48-5000LM-SEF-RDL-MVOLT-GZ10-40K-80CRI-WH-THCLXWH (PROVIDE WITH 'PSD1050-SPD' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	
BL1A	CHAIN HUNG 4FT LED STRIP, MATTE BLACK 1% DIMMING	CHAIN HUNG +11'-0"	34.8	LED, 5000 LUMENS, 4000K	LITHONIA	CLX-L48-5000LM-SEF-RDL-MVOLT-EZ1-40K-80CRI-MB-THCLXMB (PROVIDE WITH 'PSD1050-SPD' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
BL2	SURFACE MOUNTED 4FT LED STRIP	SURACE MOUNTED	34.8	LED,5000 LUMENS, 4000K	LITHONIA	CLX-L48-5000LM-SEF-RDL-MVOLT-GZ10-40K-80CRI-WH-HC36 (PROVIDE WITH 'PSD1050-SPD' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
EX1	SINGLE FACED, THERMOPLASTIC EXIT SIGN, GREEN LETTERING WITH CADMIUM BATTERY AND SELF DIAGNOSTIC	CEILING MOUNTED	0.7	LED	LITHONIA	LQM-S-W-3-G-MVOLT-ELN-SD	COMPASS/MULE/H. E. WILLIAMS	1
EX2	DUAL FACED, THERMOPLASTIC EXIT SIGN, GREEN LETTERING WITH CADMIUM BATTERY AND SELF DIAGNOSTIC	CEILING MOUNTED	0.7	LED	LITHONIA	LQM-S-W-3-G-MVOLT-ELN-SD	COMPASS/MULE/H. E. WILLIAMS	1
EX3	WALL MOUNTED SINGLE FACED, THERMOPLASTIC EXIT SIGN, GREEN LETTERING WITH CADMIUM BATTERY, SELF DIAGNOSTIC AND WIRE GUARD	AS INDICATED ON PLANS	0.7	LED	LITHONIA	LQM-S-W-3-G-MVOLT-ELN-SD-ELA WG1	COMPASS/MULE/H. E. WILLIAMS	1
F1	EXTERIOR SIGNAGE, POLE MOUNTED	AS INDICATED ON PLANS	42	LED, 4,693 LUMENS, 4000K	LITHONIA	DSXF1 LED-P2-40K-HMF-MVOLT-IS-DMG-FV-DDBXD-FSPB-DDBXD U		1
FL1	RECESSED 1X4 FLANGED LED WITH ACRYLIC LENS	CEILING RECESSED	35	LED, 3300 LUMENS, 4000K	LITHONIA	GTL-4-F-33L-GZ10-LP840-DGA14 (PROVIDE WITH 'EL14L' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
GL1	RECESSED GRID 2X4 WITH BATTERY PACK AND SELF DIAGNOSTIC	GRID RECESSED	31.7	LED, 3000 LUMENS, 4000K	LITHONIA	2BLT4-30L-ADP-GZ1-LP840 (PROVIDE WITH 'EL14LSD' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
GL1A	TUNABLE WHITE RECESSED GRID 2X4 WITH BATTERY PACK AND SELF DIAGNOSTIC	GRID RECESSED	31.7	LED, 3000 LUMENS, 4000K	LITHONIA	2BLT4-30L-ADP-GZ1-LP840 (PROVIDE WITH 'EL14LSD' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
GL2	RECESSED GRID 2X2 WITH BATTERY PACK AND SELF DIAGNOSTICS	GRID RECESSED	31.7	LED, 4000 LUMENS, 4000K	LITHONIA	2BLT2-40L-ADP-GZ1-LP840 (PROVIDE WITH 'EL14LSD' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
GL3	RECESSED GRID 2X4 WITH ACRYLIC LENS WITH BATTERY PACK AND SELF DIAGNOSTICS	GRID RECESSED	32.36	LED, 4000 LUMENS, 4000K	LITHONIA	2GTL4-40L-GZ1-LP840 (PROVIDE WITH 'EL10WLCP' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
HB1	HIGH BAY, CABLE HUNG, LED, WIRE GUARD WITH BATTERY PACK AND SELF DIAGNOSTICS	CABLE HUNG	105	LED, 15000 LUMENS, 4000K	LITHONIA	IBE-L24-15000LM-SD080-MD-MVOLT-GZ10-40K-80CRI-DWH-IBAC120M20-WGIBE (PROVIDE WITH 'E15WCP' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
P1	4FT PENDANT RING WITH EMERGENCY BATTERY	CEILING PENDANT	181	LED, 9350 LUMENS, 4000K	PRUDENTIAL	O-40-LED4-HO-FWA-**-D9-SC-UNV-CA-48"-X1-DM01-EMH	IMPACT / LUMOS	1,2
PL1	EXTERIOR POLE LIGHT WITH SINGLE HEAD R3 TYPE DISTRIBUTION AND HOUSESIDE SHIELD	POLE MOUNTED +25'-0" AFF	69	LED, 8360 LUMENS, 4000K	LITHONIA	KAD LED-40C-700-40K-R4-MVOLT-SPD-04-DDBXD (POLE: SSS-25-4C-DM19-DDBXD)	HUBBELL / COOPER	1
PL2	EXTERIOR POLE LIGHT WITH DUAL HEAD R3 TYPE DISTRIBUTION.	POLE MOUNTED +25'-0" AFF	138	LED, 16720 LUMENS, 4000K	LITHONIA	KAD LED-40C-700-40K-R4-MVOLT-SPD-04-DDBXD (POLE: SSS-25-DM28-DDBXD)	HUBBELL / COOPER	1
RR1	ROUND RECESSED, 6" APERTURE, LED	CEILING RECESSED	10.4	LED, 1000 LUMENS, 4000K	LITHONIA	LDN6-40/10-L06AR-LSS-MVOLT-GZ1 (PROVIDE WITH 'ELSD' OPTION FOR EMERGENCY FIXTURES)	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
SF1	EXTERIOR ROUND SURFACE MOUNT LED	SURFACE	24	LED, 1023 LUMENS, 4000K	LUMINAIRE	APX13-MIN10-15W-40K-MVOLT-FCL-BRZ	KENALL, HUBBELL, COOPER	1
SF1E	EXTERIOR ROUND SURFACE MOUNT LED WITH EMERGENCY BATTERY PACK	SURFACE	24	LED, 1023 LUMENS, 4000K	LUMINAIRE	APX13-MIN10-15W-40K-MVOLT-FCL-BRZ-EMB310	KENALL, HUBBELL, COOPER	1
TL1	8' TRACK LIGHTING, 2-CIRCUIT, 2-NEAUTRALS, (6) DIMMABLE LED FIXTURES, (3) COLOR FILTERS, 24-DEGREE FOCAL BEAM, BLACK FINISH	CEILING MOUNTED	15W PER HEAD	LED, 4000K	JUNO	TRACK: TEK412-BL FIXTURE HEAD: T254L-TEK-G2-40K-80CRI-PDIM-NFL-BL		1,3
WB1	2FT WALL BRACKET, LED	WALL MOUNTED ABOVE VANITY	12.2	LED, 1311 LUMENS, 4000K	LITHONIA	WL2-18L-EZ1-LP840	LIGHTOLIER/METAL UX/H.E. WILLIAMS	1
WP1	EXTERIOR WALL PACK WITH EMERGENCY BATTERY PACK	WALL MOUNTED +10'-6" UNO	10	LED, 1227 LUMENS, 4000K	LITHONIA	WDGE1 LED-P1-40K-80CRI-VF-MVOLT-DDBXD (PROVIDE WITH 'E4WH' OPTION FOR EMERGENCY FIXTURES)	HUBBELL, COOPER	1

LIGHTING FIXTURE SCHEDULE NOTES

1. SUBSTITUTIONS WILL BE ALLOWED IF SUBMITTED PRIOR TO BID DATE BY THE GREATER OF 7 BUSINESS DAYS OR THE TIME PERIOD SPECIFIED BY DIVISION 1 SPECIFICATIONS, AND IF DEEMED EQUAL BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING SUBSTITUTED FIXTURES MEET OR EXCEED THE SPECIFICATIONS OF THE FIXTURES SPECIFIED.
2. **COORDINATE FINISH WITH ARCHITECT PRIOR TO ORDERING.
3. PROVIDE WITH PHASED DIMMING PACK CAPABLE OF DIMMING 3-WIRE LINE VOLTAGE BALLASTS DOWN TO 1% WITH OUT FLICKER SUCH AS nLight 'nSP5 PCD' OR EQUAL. REFER TO TRACK HEAD COMPATIBLE DIMMER LIST TO PROVIDE RECOMMENDED DIMMER WITH OUT FLICKER DOWN TO 1%

LIGHTING CONTROL ZONE SCHEDULE - AREA A

SCHEDULE CIRCUIT NOTES	LOAD NAME	PANEL	CIRCUIT NUMBER
HALLWAY AREA A	LTS-HALL AREA A	HA1	51
EXTERIOR BUILDING	LTS-EXTERIOR BUILDING, AREA A	HA1	49

LIGHTING CONTROL ZONE SCHEDULE NOTES

1. PROVIDE UNSWITCHED LEG TO EGRESS FIXTURES.
2. PROVIDE TIMECLOCK PROGRAMMING AS REQUIRED. COORDINATE TIME SCHEDULE WITH OWNER.

LIGHTING CONTROL ZONE SCHEDULE - AREA B

SCHEDULE CIRCUIT NOTES	LOAD NAME	PANEL	CIRCUIT NUMBER
EXTERIOR BUILDING	LTS-EXTERIOR BUILDING, AREA B	HB1	46
HALLWAY AREA B	LTS-HALL AREA B	HB1	48

LIGHTING CONTROL ZONE SCHEDULE NOTES

1. PROVIDE UNSWITCHED LEG TO EGRESS FIXTURES.
2. PROVIDE TIMECLOCK PROGRAMMING AS REQUIRED. COORDINATE TIME SCHEDULE WITH OWNER.

LIGHTING CONTROL ZONE SCHEDULE - AREA D

SCHEDULE CIRCUIT NOTES	LOAD NAME	PANEL	CIRCUIT NUMBER
EXTERIOR PARKING LOT	LTS-EXTERIOR PARKING N.W.	HD1	39
HALLWAY AREA d	LTS-EXTERIOR BUILDING, AREA D	HD1	41

LIGHTING CONTROL ZONE SCHEDULE NOTES

1. PROVIDE UNSWITCHED LEG TO EGRESS FIXTURES.
2. PROVIDE TIMECLOCK PROGRAMMING AS REQUIRED. COORDINATE TIME SCHEDULE WITH OWNER.

LIGHTING CONTROL ZONE SCHEDULE - AREA C, E, F

SCHEDULE CIRCUIT NOTES	LOAD NAME	PANEL	CIRCUIT NUMBER
HALLWAY AREA C	LTS-HALL AREA C	HE1	65
EXTERIOR BUILDING	LTS-EXTERIOR BUILDING, AREA C/E/F	HE1	67
GYMNASIUM	LTS-GYM E100	HE1	75
GYMNASIUM	LTS-GYM E100	HE1	77
GYMNASIUM	LTS-GYM E100	HE1	79
CAFETORIUM	LTS-CAFETORIUM F100	HE1	83
CAFETORIUM	LTS-CAFETORIUM F100	HE1	85
CAFETORIUM	LTS-CAFETORIUM F100	HE1	87
CAFETORIUM	LTS-CAFETORIUM F100	HE1	89

LIGHTING CONTROL ZONE SCHEDULE NOTES

1. PROVIDE UNSWITCHED LEG TO EGRESS FIXTURES.
2. PROVIDE TIMECLOCK PROGRAMMING AS REQUIRED. COORDINATE TIME SCHEDULE WITH OWNER.

IECC 2018 DAYLIGHT-RESPONSIVE CONTROL CALCULATION

IS DAYLIGHT-RESPONSIVE CONTROL REQUIRED ON THIS PROJECT?	=	NO DRC REQUIRED
TCLP	<	**LPA_{ADJ}**
9,139	<	46,439

IECC C405.3.1 (EQUATION 4-10)
TOTAL CONNECTED INTERIOR LIGHTING POWER (W)
TCLP = LVL+BLL+LED+TRK+OTHER — TCLP = 9,139

IECC C405.2.3 Exception 4 (EQUATION 4-9)
ADJUSTED BUILDING INTERIOR LIGHTING POWER ALLOWANCE (W)
LPA_{ADJ} =[LPA NORM * (1.0-(0.4*(UDZFA/TBFA)))] — LPA_{ADJ} = 46,439

REDUCED LIGHTING POWER ALLOWANCE (W)
LPA_{NORM} = 90% of (LPD*SqFt*.90) — LPA_{NORM} = 48,573
INTERIOR LIGHTING POWER ALLOWANCE **(IECC TABLE C405.3.2(1)) LPD** — A = 0.73
BUILDING AREA — B = 73,932
REDUCED LIGHTING POWER **(IECC C406.3)** — R = 0.90

UDZFA = UNCONTROLLED DAYLIGHT ZONE FLOOR AREA
THE SUM OF ALL SIDE LIT AND TOPLIT ZONES CALCULATED BY IECC C405.2.3.2 AND IECC C405.2.3.3 — UDZFA = 8,121

TBFA = TOTAL BUILDING FLOOR AREA — TBFA = 73,932

UNCONTROLLED DAYLIGHTING ZONE FLOOR AREA	ROOM SQFT OF DAY LIGHT ZONE
AREA A	1384
AREA B	1686
AREA C	719
AREA D	880
AREA E	1240
AREA F	724
AREA A - ADD ALTERNATE	725
AREA D - ADD ALTERNATE 2	763

Branch Panel: K1

Location: KITCHEN E107 — **Volts:** 120/208 Wye — **A.I.C. Rating:** 22,000
Supply From: DPB — **Phases:** 3 — **Mains Type:** MLO
Mounting: FLUSH — **Wires:** 4 — **Mains Rating:** 400 A
Enclosure: Type 1 — **MCB Rating:**

Notes:
60CKT SINGLE SECTION PANELBOARD
1) GFEP FOR EQUIPMENT PROTECTION (30mA); 2) SHUNT TRIP BREAKER FOR GROUND FAULT SHUTDOWN; 3) BREAKER WITH LOCKOUT HASP

CKT	Circuit Description	Ckt Notes	Trip	Poles	A	B	C	Poles	Trip	Ckt Notes	Circuit Description	CKT
1	K16a - COOLER FAN COIL		20 A	1	500 VA	900 VA		1	20 A	1	WALK-IN HEAT TAPE	2
3	K17a - FREEZER FAN COIL		20 A	2			250 VA	500 VA	1	20 A	MOTORIZED ROLLUP DOOR	4
5	--		--	--				250 VA	500 VA	1	20 A	MOTORIZED ROLLUP DOOR	6
7	HOOD LIGHTS/CONTROL PANEL		20 A	1	1400 VA	500 VA				1	20 A	HOOD CONCACTOR	8
9	GROUND FAULT RELAY CABINET		20 A	1			500 VA	0 VA		1	20 A	Spare	10
11	K3 - DISPOSER		20 A	2					915 VA	5000 VA	3	60 A	K1b - BOOSTER HEATER	12
13	--		--	--	915 VA	5000 VA					--	--	--	14
15	K1a - DISWASHER BOOSTER		30 A	3			3072 VA	5000 VA			--	--	--	16
17	--		--	--					3072 VA	3228 VA	3	30 A	K1 - DISHWASHER	18
19	--		--	--	3072 VA	3228 VA					--	--	--	20
21	REC-OFFICE E307a		20 A	1			900 VA	3228 VA			--	--	--	22
23	REC-KITCHEN E107/108/109		20 A	1					1080 VA	1200 VA	1	20 A	K8 - ICE MACHINE	24
25	REC-KITCHEN E107		20 A	1	720 VA	720 VA					1	20 A	REC-KITCHEN E107/E107b/E110	26
27	K26 - SLICER		20 A	1			1200 VA	720 VA			1	20 A	REC-K6, FRIDGE	28
29	K5 - WARMING CABINET	2	20 A	1					2000 VA	1920 VA	1	20 A	2	REC-K18, KITCHEN E107	30
31	SHUNT TRIP (K5)	2	--	1	--	--					1	--	2	SHUNT TRIP (K18)	32
33	K5 - WARMING CABINET	2	20 A	1			2000 VA	924 VA			1	20 A	2	REC-K9, KITCHEN E107	34
35	SHUNT TRIP (K5)	2	--	1					--	--	1	--	2	SHUNT TRIP (K9)	36
37	REC-K19, KITCHEN E107	2	20 A	1	600 VA	924 VA					1	20 A	2	REC-K9, KITCHEN E107	38
39	SHUNT TRIP (K19)	2	--	1			--	--			1	--	2	SHUNT TRIP (K9)	40
41	REC-K19, KITCHEN E107	2	20 A	1					600 VA	924 VA	1	20 A	2	REC-K9, KITCHEN E107	42
43	SHUNT TRIP (K19)	2	--	1	--	--					1	--	2	SHUNT TRIP (K9)	44
45	REC-K18, KITCHEN E107	2	20 A	1			1920 VA	924 VA			1	20 A	2	REC-K9, KITCHEN E107	46
47	SHUNT TRIP (K18)	2	--	1					--	--	1	--	2	SHUNT TRIP (K9)	48
49	Spare		20 A	1	0 VA	0 VA					1	20 A		Spare	50
51	Spare		20 A	1			0 VA	0 VA			1	20 A		Spare	52
53	Spare		20 A	1					0 VA	0 VA	1	20 A		Spare	54
55	Spare		20 A	1	0 VA	0 VA					1	20 A		Spare	56
57	Spare		20 A	1			0 VA	0 VA			1	20 A		Spare	58
59	Spare		20 A	1					0 VA	0 VA	1	20 A		Spare	60
			Total Load:		18479 VA		21138 VA				20689 VA				
			Total Amps:		154 A		179 A				175 A				

Legend:

Branch Panel: K2

Location: KITCHEN E107 — **Volts:** 120/208 Wye — **A.I.C. Rating:** 22,000
Supply From: DPB — **Phases:** 3 — **Mains Type:** MLO
Mounting: FLUSH — **Wires:** 4 — **Mains Rating:** 200 A
Enclosure: Type 1 — **MCB Rating:**

Notes:
60CKT SINGLE SECTION PANELBOARD
1) GFEP FOR EQUIPMENT PROTECTION (30mA); 2) SHUNT TRIP BREAKER FOR GROUND FAULT SHUTDOWN; 3) BREAKER WITH LOCKOUT HASP

CKT	Circuit Description	Ckt Notes	Trip	Poles	A	B	C	Poles	Trip	Ckt Notes	Circuit Description	CKT
1	KEF-2 (H-3), ROOF		20 A	2	250 VA	1272 VA		3	20 A		KEF-1 (H-1), ROOF	2
3	--		--	--		250 VA	1272 VA	--	--		--	4
5	K16 - WALK-IN COOLER...		20 A	3			2880 VA	1272 VA	--	--		--	6
7	--		--	--	2880 VA	2880 VA			3	20 A		K17 - WALK-IN FREEZER...	8
9	--		--	--	2880 VA	2880 VA			--	--		--	10
11	REC-MICROWAVE		20 A	1			1200 VA	2880 VA	--	--		--	12
13	K7 - STEAM TABLE	2	20 A	2	1238 VA	967 VA			2	20 A		K10 - 40QT MIXER	14
15	--	2	--	--	1238 VA	967 VA			--	--		--	16
17	SHUNT TRIP (K7)	2	--	1			--	1200 VA	3	20 A		K11 - 60QT MIXER	18
19	Spare		20 A	1	0 VA	1200 VA			--	--		--	20
21	Spare		20 A	1	0 VA	1200 VA			--	--		--	22
23	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	24
25	Spare		20 A	1	0 VA	0 VA			1	20 A		Spare	26
27	Spare		20 A	1	0 VA	0 VA			1	20 A		Spare	28
29	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	30
31	Spare		20 A	1	0 VA	0 VA			1	20 A		Spare	32
33	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	34
35	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	36
37	Spare		20 A	1	0 VA	0 VA			1	20 A		Spare	38
39	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	40
41	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	42
43	Spare		20 A	1	0 VA	0 VA			1	20 A		Spare	44
45	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	46
47	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	48
49	Spare		20 A	1	0 VA	0 VA			1	20 A		Spare	50
51	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	52
53	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	54
55	Spare		20 A	1	0 VA	0 VA			1	20 A		Spare	56
57	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	58
59	Spare		20 A	1			0 VA	0 VA	1	20 A		Spare	60
			Total Load:		10687 VA		10687 VA		9432 VA				
			Total Amps:		91 A		91 A		79 A				

Legend:

LKV ARCHITECTS
2400 E. Riverwalk Drive
Boise, Idaho 83706
www.lkvarchitects.com
208.336.3443

PROFESSIONAL ENGINEER REGISTERED 10389 4/1/2022 STATE OF IDAHO KURT LECHTENBERG

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Revisions Description	Date
1	Addendum No. 1	04/01/2022

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

DRAWING NO.:

E10.1
ELECTRICAL SCHEDULES

Branch Panel: LE1

Location: ELEC. E106
Supply From: DPB
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 35,000
Mains Type: MLO
Mains Rating: 400 A
MCB Rating:

Notes:
120CKT 2 SECTION PANELBOARD
1) GFCI FOR PERSONNEL PROTECTION (5mA); 2) RED HANDLE, LOCKABLE BREAKER

CKT	Circuit Description	Ckt Notes	Trip	Poles	A	B	C	Poles	Trip	Ckt Notes	Circuit Description	CKT
1	DDCE, ELECTRICAL E106		20 A	1	1000 VA 58 VA			1	20 A		EF-A1, JAN.A107	2
3	EF-E1, JANITOR E109		20 A	1		58 VA 120 VA		1	20 A		CONDENSATE(FC-F1), STORAGE...	4
5	EH-F1, HALLWAY F102		20 A	1			58 VA 120 VA	1	20 A		CONDENSATE(FC-E1), I.T. E116	6
7	WH-6, MECHANICAL E111		20 A	1	300 VA 720 VA			1	20 A		B-1, MECHANICAL E111	8
9	B-2, MECHANICAL E111		20 A	1		720 VA 864 VA		1	20 A		BP-1, MECHANICAL E111	10
11	BP-2, MECHANICAL E111		20 A	1			864 VA 1176 VA	1	20 A		P-3, MECHANICAL E111	12
13	GAS SERVICE SOLENOID,MECH...		20 A	1	120 VA 1040 VA			2	15 A		CU-F1, ROOF AREA F	14
15	REC-ROOF, AREA F		20 A	1		360 VA 1040 VA		--	--		--	16
17	CU-E1, ROOF AREA E		15 A	2			1040 VA 900 VA	1	20 A		REC-ROOF, AREA E	18
19	--		--	--	1040 VA 1198 VA			1	20 A		EF-E1, ROOF	20
21	EF-E3, ROOF		20 A	1		1028 VA 0 VA		1	20 A	2	FACP, MECH E111	22
23	NAC-E, ELEC. E106	2	20 A	1			500 VA 0 VA	1	20 A	2	BELL/TAMPER/PRESSURE/FLOW	24
25	NAC-F, STORAGE F101a	2	20 A	1	500 VA 180 VA			1	20 A		DDC, MECHANICAL E111	26
27	LTS-TACK LTS, STAGE F101		20 A	1		180 VA 720 VA		1	20 A		REC-OFFICE C110	28
29	REC-OFFICE C108		20 A	1			720 VA 900 VA	1	20 A		REC-PRINCIPLE C107	30
31	REC-T.O. C109/111/112, ST C106		20 A	1	1260 VA 1000 VA			1	20 A		REC-PRINTER, WORKROOM C105	32
33	REC-WORKROOM C105		20 A	1		720 VA 720 VA		1	20 A		REC-WORKROOM C105, ST. C105a	34
35	REC-FRIDGE, NURSE C104	1	20 A	1			720 VA 1080 VA	1	20 A		REC-NURSE C104, RR C104a	36
37	REC-CONFERENCE C103		20 A	1	720 VA 900 VA			1	20 A		REC-RECEPTION C102, CORR....	38
39	REC-CONFERENCE C103		20 A	1		720 VA 720 VA		1	20 A		REC-FOYER C101, VEST C100	40
41	REC-DESK, RECEPTIONI C102		20 A	1			1260 VA 1000 VA	1	20 A		ACCESS CONTROLS, VEST. C100	42
43	ADA DOOR OPERATORS, VEST....		20 A	1	1720 VA 720 VA			1	20 A		REC-GYM E100	44
45	REC-GYM E100		20 A	1		720 VA 500 VA		1	20 A		MOTORIZED BACKBOARD, GYM...	46
47	MOTORIZED BACKBOARD, GYM...		20 A	1			500 VA 900 VA	1	20 A		REC-P.E. E100a/E103	48
49	REC-ELEC E106/E105/E116		20 A	1	900 VA 360 VA			1	20 A		REC-TTB, I.T. E116	50
51	REC-CUST. OFICE E104		20 A	1		720 VA 720 VA		1	20 A		REC-MECH. E111	52
53	REC-SERVER, I.T. E116		20 A	2			600 VA 540 VA	1	20 A		REC-W. E112, M.E113, ST. E102	54
55	--		--	--	600 VA 1440 VA			1	20 A		REC-CAFETORIUM F100/HALL F102	56
57	REC-WATER FOUNTAIN, F100	1	20 A	1		500 VA 1080 VA		1	20 A		REC-MUSIC F103	58
59	REC-CAFETORIUM F100		20 A	1			900 VA 540 VA	1	20 A		REC-MUSIC F103	60
61	LTS-TACK LTS, STAGE F101		20 A	1	180 VA 1260 VA			1	20 A		REC-STAGE F101	62
63	REC-MUSIC F103, TV/AMP		20 A	1		680 VA 180 VA		1	20 A		REC-SOUND, P.E. OFFICE 103	64
65	REC-STAGE F101/ST. F101a		20 A	1			1080 VA 111 VA	1	20 A		DF-4/5/6, GYMNASIUM E100	66
67	REC-SOUND, ST. F100a		20 A	1	180 VA 0 VA			1	20 A		Spare	68
69	KITCHEN DOOR CHIME		20 A	1		300 VA 0 VA		1	20 A		Spare	70
71	DF-1/2/3, CAFETORIUM F100		20 A	1			111 VA 0 VA	1	20 A		Spare	72
73	SCOREBOARD, GYM E100		20 A	1	500 VA 0 VA			1	20 A		Spare	74
75	MOTORIZED SCREEN, GYM E100		20 A	1		500 VA 0 VA		1	20 A		Spare	76
77	REC-PROJECTOR, GYM E100		20 A	1			360 VA 0 VA	1	20 A		Spare	78
79	IRRIGATION CONTR., ELEC E106		20 A	1	120 VA 0 VA			1	20 A		Spare	80
81	FLOW METER, MECHANICAL E111		20 A	1		500 VA 0 VA		1	20 A		Spare	82
83	BOILER CONTACTOR CABINET		20 A	1			180 VA 0 VA	1	20 A		Spare	84
85	ACCESS CONTROLS, CORRIDOR...		20 A	1	240 VA 0 VA			1	20 A		Spare	86
87	ACCESS CONTROLS, HALL F102		20 A	1		120 VA 0 VA		1	20 A		Spare	88
89	MOTORIZED SCREEN,...		20 A	1			500 VA 0 VA	1	20 A		Spare	90
91	REC-PROJECTOR, CAFETORIUM...		20 A	1	360 VA 0 VA			1	20 A		Spare	92
93	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	94
95	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	96
97	Spare		20 A	1	0 VA 0 VA			1	20 A		Spare	98
99	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	100
101	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	102
103	Spare		20 A	1	0 VA 0 VA			1	20 A		Spare	104
105	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	106
107	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	108
109	Spare		20 A	1	0 VA 0 VA			1	20 A		Spare	110
111	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	112
113	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	114
115	Spare		20 A	1	0 VA 0 VA			1	20 A		Spare	116
117	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	118
119	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	120
			Total Load:		18616 VA	14490 VA	16660 VA					
			Total Amps:		158 A	121 A	142 A					

Legend:

Branch Panel: HE1

Location: ELEC. E106
Supply From: MSB
Mounting: Surface
Enclosure: Type 1

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 22,000
Mains Type: MLO
Mains Rating: 600 A
MCB Rating:

Notes:
120CKT TWO SECTION PANELBOARD
1) GFEP FOR EQUIPMENT PROTECTION (30mA)

CKT	Circuit Description	Ckt Notes	Trip	Poles	A	B	C	Poles	Trip	Ckt Notes	Circuit Description	CKT
1	HP-C5, FACULTY C113		25 A	1	4238 VA 2465 VA			1	15 A		HP-C6, CORRIDOR C102a	2
3	HP-C7, CORRIDOR C102b		15 A	1		2465 VA 5014 VA		1	25 A		HP-C8, FOYER C101	4
5	HP-C9, CORRIDOR C116		15 A	1			3186 VA 1828 VA	3	15 A		HP-C10, RECEPTION C102	6
7	HP-C11, CORRIDOR C116		15 A	3	3712 VA 1828 VA			--	--		--	8
9	--		--	--			3712 VA 1828 VA	--	--		--	10
11	--		--	--			3712 VA 7479 VA	3	40 A		WELL PUMP, EAST	12
13	WH-4, STORAGE C105a		40 A	3	8000 VA 7479 VA			--	--		--	14
15	--		--	--		8000 VA 7479 VA		--	--		--	16
17	--		--	--			8000 VA 1081 VA	1	15 A		HP-C13, CORRIDOR C116	18
19	HP-E1, CUST. OFFICE E104		15 A	1	3186 VA 8000 VA			3	40 A		WH-5, JANITOR E109	20
21	HP-E2, CORRIDOR E101		20 A	3		4626 VA 8000 VA		--	--		--	22
23	--		--	--			4626 VA 8000 VA	--	--		--	24
25	--		--	--	4626 VA 3712 VA			3	15 A		HP-F1, STORAGE F101a	26
27	HP-F2, MUSIC F103		15 A	3		3130 VA 3712 VA		--	--		--	28
29	--		--	--			3130 VA 3712 VA	--	--		--	30
31	--		--	--	3130 VA 2000 VA			1	20 A		EH-E1, CORRIDOR E101	32
33	EH-C1, VESTIBULE C100		20 A	1		3000 VA 5000 VA		1	25 A		EH-E2, MECHANICAL E111	34
35	EH-F2, STORAGE F100a		20 A	1			2000 VA 5817 VA	3	20 A		VFD-2 (P-2), MECHANICAL E111	36
37	RTU-1A, ROOF AREA E		60 A	3	11662 VA 5817 VA			--	--		--	38
39	--		--	--		11662 VA 5817 VA		--	--		--	40
41	--		--	--			11662 VA 1717 VA	3	15 A		ERU-C1, ROOF	42
43	RTU-2A, ROOF AREA E		60 A	3	12770 VA 1717 VA			--	--		--	44
45	--		--	--		12770 VA 1717 VA		--	--		--	46
47	--		--	--			12770 VA 11662 VA	3	60 A		RTU-1B, ROOF AREA E	48
49	LTS-EXTERIOR PARKING E. & N.E.		20 A	1	1242 VA 11662 VA			--	--		--	50
51	ROOF DRAIN HEAT TAPE, AREA...	1	20 A	1		1750 VA 11662 VA		--	--		--	52
53	CANOPY HEAT TAPE, AREA C	1	20 A	1			700 VA 12770 VA	3	60 A		RTU-2B, ROOF AREA E	54
55	ROOF DRAIN HEAT TAPE, AREA F	1	20 A	1	1400 VA 12770 VA			--	--		--	56
57	ROOF/CANOPY HEAT TAPE, ARE...	1	20 A	1		1400 VA 12770 VA		--	--		--	58
59	VFD-1 (P-1), MECHANICAL E111		30 A	3			5817 VA 970 VA	3	15 A		ERU-F1, ROOF	60
61	--		--	--	5817 VA 970 VA			--	--		--	62
63	--		--	--			5817 VA 970 VA	--	--		--	64
65	LTS-HALL AREA C		20 A	1			1061 VA 0 VA	1	20 A		Spare	66
67	LTS-EXTERIOR BUILDING, AREA...		20 A	1	264 VA 0 VA			1	20 A		Spare	68
69	LTS-HALL AREA E		20 A	1		165 VA 0 VA		1	20 A		Spare	70
71	LTS- AREA C		20 A	1			2025 VA 0 VA	1	20 A		Spare	72
73	LTS- AREA C		20 A	1	1437 VA 0 VA			1	20 A		Spare	74
75	LTS-GYM E100		20 A	1		1260 VA 0 VA		1	20 A		Spare	76
77	LTS-GYM E100		20 A	1			1260 VA 0 VA	1	20 A		Spare	78
79	LTS-GYM E100		20 A	1	1260 VA 0 VA			1	20 A		Spare	80
81	LTS- AREA E		20 A	1		1169 VA 0 VA		1	20 A		Spare	82
83	LTS-CAFETORIUM F100		20 A	1			1050 VA 0 VA	1	20 A		Spare	84
85	LTS-CAFETORIUM F100		20 A	1	1050 VA 0 VA			1	20 A		Spare	86
87	LTS-CAFETORIUM F100		20 A	1		1050 VA 0 VA		1	20 A		Spare	88
89	LTS-CAFETORIUM F100		20 A	1			1050 VA 0 VA	1	20 A		Spare	90
91	LTS-AREA F		20 A	1	1156 VA 0 VA			1	20 A		Spare	92
93	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	94
95	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	96
97	Spare		20 A	1	0 VA 0 VA			1	20 A		Spare	98
99	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	100
101	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	102
103	Spare		20 A	1	0 VA 0 VA			1	20 A		Spare	104
105	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	106
107	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	108
109	Spare		20 A	1	0 VA 0 VA			1	20 A		Spare	110
111	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	112
113	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	114
115	Spare		20 A	1	0 VA 0 VA			1	20 A		Spare	116
117	Spare		20 A	1		0 VA 0 VA		1	20 A		Spare	118
119	Spare		20 A	1			0 VA 0 VA	1	20 A		Spare	120
			Total Load:		122753 VA	124830 VA	116412 VA					
			Total Amps:		447 A	454 A	420 A					

Legend:

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Boise, Idaho 83706
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PROFESSIONAL ENGINEER REGISTERED 10389 4/1/2022 STATE OF IDAHO KURT LECHTENBERG

MUSGROVE ENGINEERING, P.A.
project number: 21-422

#	Description	Date
1	Addendum No. 1	04/01/2022

Revisions

Jerome Elementary School
Jerome School District No. 261
N. 100 E. Jerome, Idaho

DATE: 02/11/2022
LKV PROJECT #: 2120

DRAWN BY: AN
CHECKED BY: KL

BID SET

DRAWING NO.:
E10.3
ELECTRICAL SCHEDULES