Horty Elving®

Planning
Architecture
Engineering
Interior Design

Bid Package 2 | Addendum No. 2
for
Construction of
St. Croix County Health Center Additions and Renovation
Project No. 146038

Date: July 14, 2015

Bids for Bid Package 2 due: Monday, July 21, 2015 at 2:00 p.m. (CST)

NOTE: This Addendum may apply to any or all contracts and/or subcontracts.

ATTACHMENTS

The following document(s) hereby become a part of this Addendum, the Bidding Documents, and the Contract Documents for the Project.

SHEET S101, rev. #2
SHEET S406, rev. #2
SHEET S501, rev. #1
SHEET S503, rev. #1
SHEET A001, rev. #2
SHEET A101, rev. #2
SHEET A104, rev. #1
SHEET A105, rev. #1
SHEET A107, rev. #2
SHEET A109, rev. #1
SHEET A201, rev. #1
SHEET A205, rev. #2
SHEET A206, rev. #1
SHEET A301, rev. #1
SHEET A302, rev. #1
SHEET A401, rev. #1
SHEET A404, rev. #1
SHEET A504, rev. #2
SHEET A506, rev. #1
SHEET A601, rev. #1
SHEET A603, rev. #1
SHEET A801, rev. #1
SHEET A802, rev. #2
SHEET I101, rev. #1
SHEET I102, rev. #1
SHEET I104, rev #1
SHEET I201, rev #1
SHEET I202, rev #1

SHEET PD104, rev. #2
SHEET P104, rev. #1
SHEET P404, rev. #1
SHEET MD101, rev. #1
SHEET MD105, rev. #1
SHEET M103, rev. #1
SHEET M104, rev. #1
SHEET M105, rev. #1
SHEET M109, rev. #1
SHEET M110, rev. #1
SHEET M112, rev. #1
SHEET M201, rev. #1
SHEET M204, rev. #1
SHEET M302, rev. #1
SHEET M303, rev. #1
SHEET M305, rev. #1
SHEET M306, rev. #1
SHEET M401, rev. #1
SHEET E101, rev. #2
SHEET E102, rev. #2
SHEET E103, rev. #2
SHEET E201, rev. #2
SHEET E202, rev. #2
SHEET E204, rev. #2
SHEET E205, rev. #1
SHEET E206, rev. #1
SHEET E300, rev. #1
SHEET E401, rev. #2
SHEET E402, rev. #2
SHEET E403, rev. #2
SHEET E404, rev. #2
SHEET E500, rev. #1

SECTION 00 23 00 – WORK CATEGORIES – 64 pages
SECTION 00 41 00 – BID FORM – 3 pages
SECTION 01 77 00 – CLOSEOUT PROCEDURES – 5 pages
SECTION 03 30 00 – CAST-IN-PLACE CONCRETE – 16 pages
SECTION 23 09 93 – SEQUENCE OF OPERATIONS FOR HVAC – 20 pages
SECTION 23 31 13 – METAL DUCTS – 13 pages
SECTION 28 31 11 – DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM– 18 pages

DRAWINGS

SHEET G201, G202 (not reissued)

Applicable codes include DHS 83 Community-Based Residential Facility and DHS 132 Nursing Homes

SHEET S101 (reissued)

Revise stoop location near grid A8 as shown on revised sheet S101.

SHEET S406 (reissued)

Add section 25/S406 as shown on revised sheet S406.

SHEET S501 (reissued)

Revise L4 lintels to be part of Alternate 2 as shown on revised sheet S501.

SHEET S503 (reissued)

Revise the RTU frame to add a platform, stair, and railing as shown on revised sheet S503.

SHEET A001 (reissued)

Revised wall types as indicated

SHEET A101 (reissued)

Detail 1/A101 - revised location of exterior door at Mech. room A161.

SHEET A104 (reissued)

Detail 1/A104 - revised locations of half-height walls at columns and added a detail reference for column.

SHEET A105 (reissued)

Detail 1/A105 - added a detail reference for columns in Living Room 1D104.

SHEET A107 (reissued)

Detail 2/A107 - added 5/8" gypsum board at existing masonry wall in Corridor 1E107.

Detail 2/A107 – added keynote for handrails.

SHEET A109 (reissued)

Detail 5/A109 - revised dimensions at Staff T room A119 as indicated.

SHEET A201 (reissued)

Detail 1/A201 – revised ceiling heights as indicated.

SHEET A205 (reissued)

Detail 1/A205 - revised ceiling types to ACT-3 in CL 1D109, SL 1D111 and Laundry 1D144.

SHEET A206 (reissued)

Detail 1/A206 - revised ceiling types to ACT-3 in CL 2D109, SL 2D111 and Laundry 2D144.

SHEET A301 (reissued)

Detail 2A/A301 - revised trim sizes as indicated.

SHEET A302 (reissued)

Detail 4C/A302 – revised tile material at fireplace as indicated.

Detail 6B/A302 – revised as indicated for ironing board.

SHEET A401 (reissued)

Detail 5D/A401 – revised dimensions and clearances as indicated.

SHEET A404 (reissued)

Detail 2D/A404 – revised planter materials as indicated.

SHEET A504 (reissued)

Added details 4.5 and 6/A504 to sheet.

SHEET A506 (reissued)

Detail 4/A506 - added note to patch exterior wall as indicated.

SHEET A601 (reissued)

Detail 1/A601 – revised truss bearing elevations as indicated.

Detail 3/A601 - revised truss bearing elevations as indicated.

SHEET A603 (reissued)

Detail 1/A603 – revised finish floor elevations as indicated.

Detail 2/A603 - revised finish floor elevations as indicated.

Detail 6/A603 – revised detail as indicated.

SHEET A801 (reissued)

Door Panel Types – revised K panel as indicated in door panel types

SHEET A802 (reissued)

Door Schedule – Therapy Pool Add Alternate 1 – Added to Sheet.

SHEET I101 (reissued)

Revised plan as indicated.

SHEET I102 (reissued)

Revised plan as indicated.

SHEET I104 (reissued)

Reissued sheet

SHEET I201 (reissued)

Revised schedule as indicated.

SHEET I202 (reissued)

Revised schedule as indicated.

SHEET PD101 (reissued)

Add storm water piping demolition to basement of Area E as shown on 2/PD104.

SHEET P104 (reissued)

Add storm water piping to basement of Area E as shown on 2/P104.

Add 1-1/4" ASSE 1013 backflow device and piping.

SHEET P404 (reissued)

Add isometric diagram 4/P404.

SHEET MD101 (reissued)

Misc. demolition work added in Mechanical Room.

SHEET MD105 (reissued)

Add Roof Plan for Area E

SHEET M103 (reissued)

Revise piping as indicated

SHEET M104 (reissued)

Revise piping and flow information

SHEET M105 (reissued)

Add existing Heating Plant Schematic

Add Boiler Pumps P-11 and P-12

Revise piping in and near existing Storage/Boiler Room

SHEET M109 (reissued)

Add Boiler Pump P-13

Revise/Add misc. notes and piping

SHEET M110 (reissued)

Add sound attenuators

SHEET M112 (reissued)

Revise misc. notes

Revised Floor plans updated

SHEET M201 (reissued)

Add sound attenuators

SHEET M204 (reissued)

Indicated existing laundry HVAC to remain

Revise misc. notes.

SHEET M302 (reissued)

Delete detail M302/3

Revise detail M302/8

Revise detail M302/11

SHEET M303 (reissued)

Revise detail M303/9

Revise detail M303/10

Revise detail M303/11

SHEET M305 (reissued)

Revise detail M305/3

Add detail M305/5

Add detail M305/10

SHEET M306 (reissued)

Add Boiler Pump P-13

Revise misc. piping and notes

SHEET M401 (reissued)

Revise all schedules as indicated

SHEET ED103 (not reissued)

Add to General Note F:

Provide disconnection and reconnection of Area E rooftop equipment.

SHEET E101 (reissued)

Note that the lights and receptacle circuits in A137, A154, and A157 are serving patient treatment areas and reuire at redundant ground as defined in NEC 517. Install EMT or hospital grade MC cable.

Note bubbled changes

SHEET E102 (reissued)

Note bubbled changes

SHEET E103 (reissued)

Note bubbled changes.

SHEET E104 (not reissued)

Connect exterior speaker strobe alarm to local sprinkler flow switch. The exterior shall alarm on a water flow.

Note that the data racks are to be located in MECH OD141.

SHEET E105 (not reissued)

Delete wiring for "RP-5" and thermostat in Spa 1D177.

Note that the data racks are to be located in 1D220

SHEET E106 (not reissued)

Delete wiring for "RP-5" and thermostat in Spa 2D177.

Note that the data racks are to be located in 2D220.

Note that the Addendum One references to "2.4/B/5," "2.5/2," and 2.15/A in Section 27 52 23 Nurse call Code Blue apply to section 27 15 00 Communication Horizontal Cabling.

SHEET E107 (not reissued)

Add Boiler Pumps P-11 and P-12 in OE/130.

Provide a manual motor starter for a chemical pump in OE/130 and connect it to a dedicated 120V., 20A circuit breaker in Panel CC.

SHEET E201 (reissued)

Note bubbled changes.

SHEET E202 (reissued)

Note bubbled changes.

SHEET E204 (reissued)

Note bubbled changes.

SHEET E205 (reissued)

Note bubbled changes.

SHEET E206 (reissued)

Note bubbled changes.

SHEET E300 (reissued)

Note bubbled changes.

SHEET E400 (not reissued)

Add the following to the list of approved equals:

B1 – Hinkley Lighting
B2 – Hinkley Lighting
B3 – Hinkley Lighting
D1 – Ohyama Lights
EA – H.E. Williams
AB – H.E. Williams
EC – H.E. Williams
EM – H.E. Williams
NW – New Star Custom Lighting Company
OA – Juno Lighting
OD – Prescolite
OF – National Lighting Solutions
OP1– Juno Lighting
OP2 – Juno Lighting
OP3 – National Lighting Solutions
P2 – Spectrum Lighting

SHEET E401 (reissued)

Note bubbled changes.

SHEET E402 (reissued)

Note bubbled changes.

SHEET E403 (reissued)

Note bubbled changes

SHEET E404 (reissued)

Note bubbled changes.

SHEET E500 (reissued)

Note bubbled changes.

PROJECT MANUAL

SECTION 00 23 00 WORK CATEGORIES (reissued)

SECTION 00 41 00 BID FORM (reissued)

SECTION 01 77 00 CLOSE OUT PROCEDURES (reissued)

Add to 1.2 SUMMARY:

6. Submittal of Focus on Energy Documentation.

Add 1.9 SUBMITTAL OF FOCUS ON ENERGY DOCUMENTATION, paragraph A.

SECTION 03 30 00 CAST-IN-PLACE CONCRETE (issued)

Issued this addendum.

SECTION 05 50 00 METAL FABRICATIONS (not reissued)

Add to 1.2 SUMMARY A.:

8. Metal Ships Ladders

Add to PART 2-PRODUCTS:
2.12 METAL SHIPS' LADDERS

A. Provide metal ships' ladders where indicated. Fabricate of open-type construction with channel or plate stringers and pipe and tube railings unless otherwise indicated. Provide brackets and fittings for installation.
   1. Fabricate ships' ladders, including railings from steel.
   2. Fabricate treads and platforms from abrasive-surface floor plate.
B. Prime steel ships' ladders, including treads, railings, brackets, and fasteners.

SECTION 08 41 13 ALUMINUM-FRAMED ENTRANCE AND STOREFRONTS (not reissued)

2.4 ENTRANCE DOOR SYSTEMS
Revise A. 2. To read: Door Design: Medium stile; 6-inch nominal width.

SECTION 08 71 00 DOOR HARDWARE (not reissued)

Add following groups.

SET 2.3: PRIVACY FUNCTION WITH INDICATOR

Hinges as specified US32D

1	Continuous Hinge	MCK-14HD	CL	MK
1	Privacy Lockset w/ Indicator	ML2060 PSA x M19V x M34	626C	RU
1	Stop	as required		
1	Coat Hook	796	US26D	RO
1	Gasket	S88 D		PE
1	Automatic Door Bottom	411 ANBL		PE

Functions:

- Door normally closed and latched.
- Outside lever active unless locked by turning inside thumbturn.
- Turning inside thumbturn secures outside lever and changes occupancy indicator to "OCC".
- Outside lever unlocked by emergency key outside.

- Rotating inside lever retracts latchbolt, allowing **free egress at all times**, and changes occupancy indicator to "VAC".

SET 13.3: CLASSROOM FUNCTION - CLOSER

1	Continuous Hinge	MCK-14HD	CL	MK
1	Classroom Lockset	CL3355 PZD x CT	6626C	RU
1	Permanent Core	as specified	626	RU
1	Closer x SRI	7500	600 x 689	NO
1	Stop	as required		
1	Gasket	S88 D		PE

Functions:

- Door normally closed and latched.
- Outside lever active unless locked by key in outside cylinder.
- Rotating inside lever retracts latch, allowing **free egress at all times**.

SET 14.8: STOREROOM FUNCTION - CLOSER

1	Continuous Hinge	MCK-14HD	CL	MK
1	Storeroom Lockset	CL3357 PZD x CT6	626C	RU
1	Permanent Core	as specified	626	RU
1	Closer x SRI	7500	600 x 689	NO
1	Stop	as required		
1	Gasket	S88 D		PE

Functions:

- Door normally closed, latched and outside lever is secured.
- Outside lever always locked.
- Rotating key in outside cylinder retracts latchbolt.
- Key can only be removed in locked position.
- Rotating inside lever **always allows free egress**.

SET 260.1: EXTERIOR - RIM EXIT DEVICE - EXIT ONLY FUNCTION - CLOSER

1	Continuous Hinge	MCK-14HD	CL	MK
1	Rim Exit Device (exit only)	ED4200S x M51 x M110	630C	RU
1	Concealed Overhead Stop	1-X36	630	RF
1	Closer	PR7500 x 7788 x 6890 x 6891	689	NO
1	Threshold	273x3 AFG x Pemkote		PE
1	Set Weatherstrip	(door manufacturer's heavy duty standard)		
1	Sweep	315	CN	PE
1	Rain Drip	346 C		PE
1	Door Position Switch	DPS Series		SU

Electrical Boxes, Conductors, and Final Connections to door position switch shall be the responsibility of Division 26.

Interfacing of Access Control equipment with hardware specified in this section shall be the responsibility of the Access Control System Supplier.

Functions:

- Door normally closed, latched and outside is secured.
- Depressing the exit device touchpad retracts the latch and allows **free egress at all times**.
- No outside operation. Exit only.

SECTION 09 30 13 – CERAMIC TILING (not reissued)

2.3 TILE PRODUCTS:

Add to A. Ceramic Tile Type CT-1B-3.f.

"Install at Lobby planter edge, install with 1x6 quarter round trim on each side."

Add to A. Ceramic Tile Type CT-1B

g. Edge Trim: 1 by 6 quarter round trim – Product code: A-106, color to match Raffia Noce.
(1) Locations: Trim at both sides of planter ledge as Lobby A108.

Add to A. Ceramic Tile Type CT-1:

4. CT-1C: SW93

a. Tile Size: 2 x 2, mesh-mounted.
b. Tile Color: SW93 Raffia Noce.
c. Grout Color: As selected by Architect from manufacturer's full range.
d. Location: household fireplace surrounds where noted in elevations, install with CT-8, as noted on elevation.

SECTION 09 65 13 – RESILIENT BASE AND ACCESSORIES (not reissued)

Add to PART 2 - PRODUCTS:

2.6 RUBBER STAIR ACCESSORIES (RST)

A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Roppe Corporation, USA.

C. Stair Treads: ASTM F 2169.

1. Type: TP (rubber, thermoplastic).
2. Class: 2 (pattern; embossed, grooved, or ribbed).
3. Group: 1 (embedded abrasive strips).
4. Nosing Style: Square, adjustable to cover angles between 60 and 90 degrees.
5. Nosing Height: 2 inches.
6. Thickness: 1/4 inch and tapered to back edge.
7. Size: Lengths and depths to fit each stair tread in one piece.
8. Integral Risers: Smooth, flat; in height that fully covers substrate.

D. Separate Risers: Smooth, flat; in height that fully covers substrate; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.

1. Style: Coved toe, 7 inches high by length matching treads.
2. Thickness: Manufacturer's standard.

E. Stringers: Height and length after cutting to fit risers and treads and to cover stair stringers; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.

1. Thickness: Manufacturer's standard.

F. Landing Tile: Install SF-2 at landings.

G. Colors and Patterns: Roppe 182 Toffee

SECTION 23 05 15 – VARIABLE-FREQUENCY MOTOR CONTROLLERS (not reissued)

At Section 2.1, delete item P.

SECTION 23 09 00 – INSTRUMENTATION AND CONTROL FOR HVAC (not reissued)

At Section 2.4.A, Add item 8 to read:
"8. Each manufacturer shall furnish Fanwall array controls (on/off, ramping, etc) based on the sequence desired in 23 09 93. The BAS contractor shall tie-into refan controls. All other unit controls field installed by BAS contractor"

Add section 3.10 to read:
"3.10 DEMOLITION OF EXISTING CONTROL SYSTEM
A. Contractor shall remove 100% of the existing control system of which the majority is pneumatic. This work shall include, but not be limited to, all air compressors, controllers, valves, actuators, wiring, pneumatic tubing, control panels, and all associated conduits. Patch and repair any openings as required below finished ceiling height and in all rated walls. Pneumatic tubing shall be removed to its fullest extent. Individual cases where tubing is encased in concrete walls shall be coordinated with the Engineer."

SECTION 23 09 93 – SEQUENCE OF OPERATIONS FOR HVAC (pages 19-38 reissued)

Additions to this section are indicated in italics, deletions are strike through.

SECTION 23 21 13 – HYDRONIC PIPING (not reissued)

At Section 2.3, delete item A.

At Section 2.4.G, delete item 1.

Add section 2.11 to read:
"2.11 BUFFER TANKS
A. Buffer tanks shall be ASME rated, constructed from Carbon Steel at a design pressure of 125psi, capable of temperatures up to 250°F, include an integral ring stand for vertical installation, and have a top air vent connection."

At Section 3.1.B, delete item 3.

Add the following sentence to the end of 3.8.B.3, item a:
"This includes both the existing building and the new addition."

At Section 3.8.B.3, add item d. to read:
"d. Existing Building Heating Hot Water: Minimum 35% Propylene Glycol. It is estimated that approximately 300 gallons of glycol are required to bring the existing building system to 35% PG."

SECTION 23 31 13 – METAL DUCTS (reissued)

Additions to this section are indicated in italics.

SECTION 23 74 13 – INDOOR/OUTDOOR CUSTOM AIR-HANDLING UNITS (not reissued)

At Section 2.1, add item B to read:

"B. Manufacturer's listed below are acceptable such that, in addition to meeting all requirements defined here-in, they shall also specifically match the number of fans in each wall/array, meet sound power levels as scheduled at each fan section, have VFDs at every fan, similar backdraft dampers, and have isolation of all fans or as a wall/array. The unit shall also be of similar dimension and weight.

1. Haakon
2. Air Flow Equipment
3. Climatecraft
4. Energy Labs

Add section 2.6 to read:

"2.6 ROOF CURBS

A. Materials: Galvanized steel with corrosion-protection coating, watertight gaskets, and factory-installed wood nailer; complying with NRCA standards.
   1. Curb Insulation and Adhesive: Comply with NFPA 90A or NFPA 90B.
   2. Materials: ASTM C 1071, Type I or II; Thickness: 2-inches.

B. Application: Factory applied with adhesive and mechanical fasteners to the internal surface of curb.
   1. Liner Adhesive: Comply with ASTM C 916, Type I.
   2. Mechanical Fasteners: Galvanized steel, suitable for adhesive attachment, mechanical attachment, or welding attachment to duct without damaging liner when applied as recommended by manufacturer and without causing leakage in cabinet.
   3. Liner materials applied in this location shall have air-stream surface coated with a temperature-resistant coating or faced with a plain or coated fibrous mat or fabric depending on service air velocity.
   4. Liner Adhesive: Comply with ASTM C 916, Type I.

C. Curb Height: 14 inches."

SECTION 26 05 19 –LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (not reissued)

Add to 1.2 Summary:

C. Note that multiwire branch circuits are not allowed. Provide a neutral for each 120V connector.

SECTION 26 05 33 – RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS (not reissued)

Add to H./1./b.:

Compression or set-screw fittings are both approved.

Add to 3.1 Raceway Application A.:

6. PVC may be used in the slab where a redundant ground is not required.

Add to 3.1 Raceway Application A./3.:

"Provide metal elbows for underground PVC conduit."

Add to 3.1 Raceway Application C.:

½" inch trade size may be used for non-homerun branch feeders.

SECTION 26 05 73 – OVER CURRENT PROTECTION DEVICE COORDINATION STUDY

Add to 1.2/A:

5. Provide a study based on .01 second values.

SECTION 26 09 23 – LIGHTING CONTROL DEVICES (not reissued)

Add to 2.2 Daylight-Harvesting Switching Controls A.:

10. Lutron.
11. Douglas.

Add to 2.3 Daylight-Harvesting Dimming Controls A.:

10. Lutron.
11. Douglas.

Add to 2.5 Switchbox-Mounted Occupancy Sensors C.:

8. 0- 10 V Wall Dimmer Occupancy Sensors; Lutron Maestro 0- 10 Dimmer Sensor Series.
   General Requirements;
   a. Compatible with sourcing electronic 0-10 V ballasts/drivers, as per IEC 60929 Annex E.2 0- 10 V protocol.
   b. Adjustable sensitivity (high, medium, low, and minimum presets).
   c. Adjustable high/low end trims.
   d. Selectable dimming curve (linear or square law).
   e. Dimmer Features: Locked preset, fade-to-on, fade-to-off.
   f. Turns off lighting after reasonable and adjustable time delay once the last person to occupy the space vacates a room or area. Provide adjustable timeout settings of 1, 5, 15, and 30 minutes.
   g. Selectable option to enable low light feature (automatic-on when ambient light is below thresholds). Ambient light threshold to be selectable as either adaptive utilizing occupant feedback (Lutron Smart Ambient Detection) or as fixed (high, medium, low, and minimum presets).
   h. Fades lights to off over period of 10 seconds to warn occupant of impending load turn-off.
   i. Provides visual alert for miswire and incompatible load.
9. Passive Infrared 0- 10 V Wall Dimmer Combination Occupancy/Vacancy Sensors:
   a. programmable to operate as an occupancy sensor (automatic-on and automatic-off) or a vacancy sensor (manual-on and automatic-off).
   b. Product(s):
      1) Passive Infrared 0- 10 V Wall Dimmer Occupancy/Vacancy Sensor; Lutron Maestro 0- 10 V Dimmer Sensor Series, Model MS-Z101: 0- 10 V control for 0- 10 V fluorescent ballasts/LED drivers (8 A load at 120-277 V, 50 mA max control current); coverage of 900 square feet (81 sq m) with mounting height of 4 feet (1.2 m); 180 degree field of view; multi-location capability using standard 3-way or companion switch (up to 9 companion switches may be connected).

SECTION 26 09 43.16 – ADDRESSABLE-FIXTURE LIGHTING CONTROLS (not reissued)

Revise 1.2 Summary to read:

1. Controllers shall not be the “DAL1” type. Provide a standard control system.

Delete 1.5 Information Submittals

Add to 2.3 Bus Power Supply 1.:

6. Lutron
7. Douglas

Add to 2.4 Controller/Gateways 1.:
6. Lutron
7. Douglas

SECTION 26 24 13 –SWITCHBOARDS (not reissued)

Add to 2.1 Manufactured Units A.:
2. General Electric
3. Siemens
4. Eaton

Change 2.1 Manufactured Units B. to read:
"Nominal System Voltage: 480/277V."

SECTION 26 27 26 – WIRING DEVICES (not reissued)

Add to 1.14 Wall-box Dimmers:
"E. Provide screw-in LED lamp dimmer switches: modular, capable of dimming mixed loads; with compatible dimmer driver; trim potential meter to adjust low-end dimming."

SECTION 27 15 00 COMMUNICATION HORIZONTAL CABLING (not reissued)

Add notes to 1.2/A:
7. Note that standard Cat 6 cabling shall be installed.
8. Note that all low voltage cabling and coax shall be non-plenum rated unless otherwise noted on plans.
9. Note that all data and analog drops to their respective patch panels shall be four pairs.
10. Note that all the area D and E low voltage cabling and coax is being replaced.

SECTION 28 31 11 – DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM (reissued)

Section Reissued.

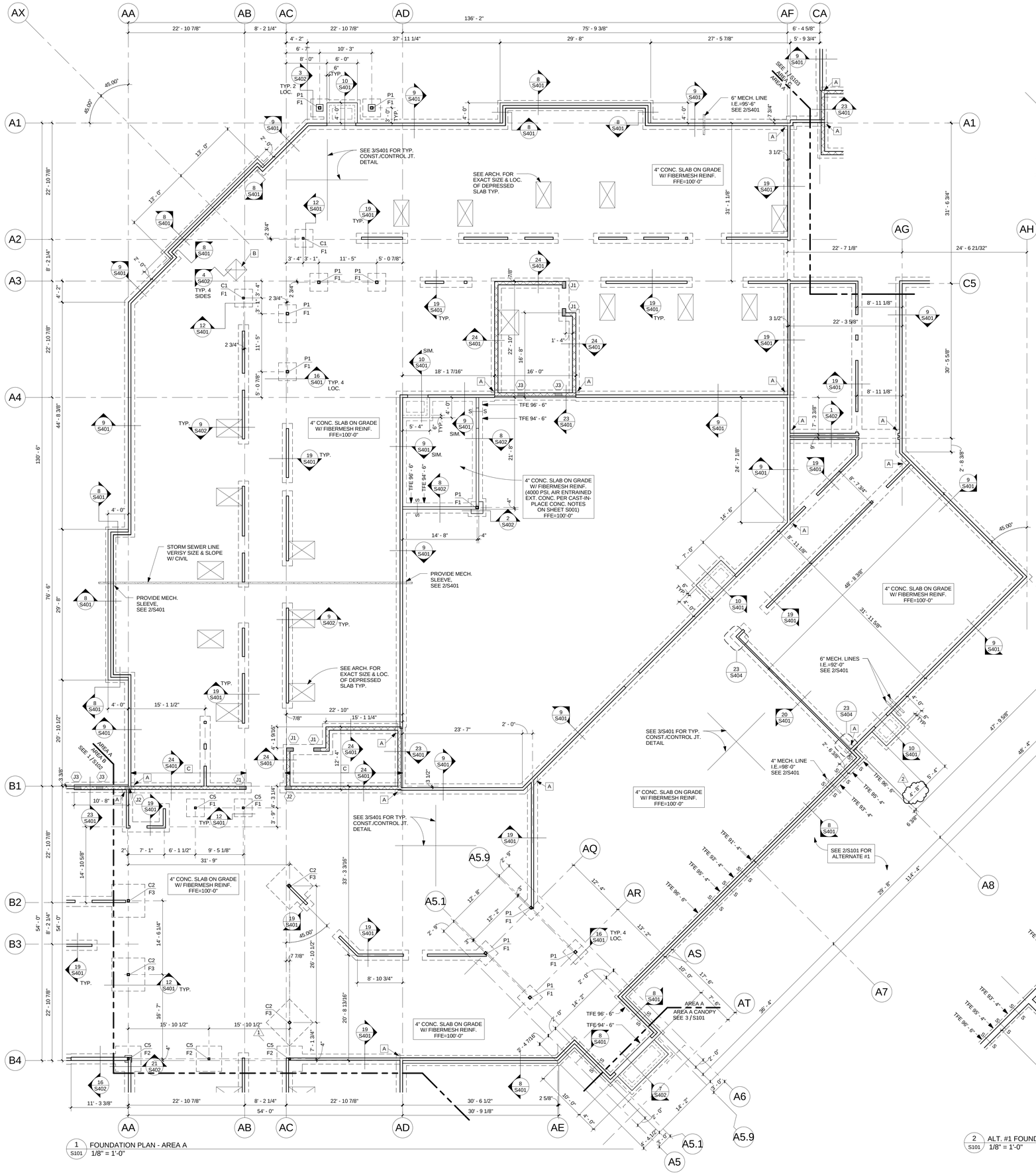
APPROVED EQUALS

The following manufacturers have applied for "or equal" approval and their quotation(s) may be used by contractors when bidding the Project. It is the duty of the contractor to ascertain that the equipment, workmanship, and products offered do indeed meet the specifications in all respects since this approval does not waive any part of the specification, but indicates that the Bidder has shown he understands the specification and is able to provide equipment, workmanship, and products to fulfill those requirements and can adapt to building dimensions.

Section No.	Item	Manufacturer
08 41 13	2.2.A	YKK-AP America
22 31 00	2.1.A	Marlo
23 34 23	2.1.A	Twin City Fan
	2.2.A	Twin City Fan
23 52 16	2.1.A	Harsco Patterson-Kelley (Sonic)
		Laars (Magnatherm)
		Cleaver Brooks (Clearfire)
23 62 00	2.2.A.	Energy Labs
23 74 13	2.1.A	Haakon
		Air Flow Equipment
		Climatecraft

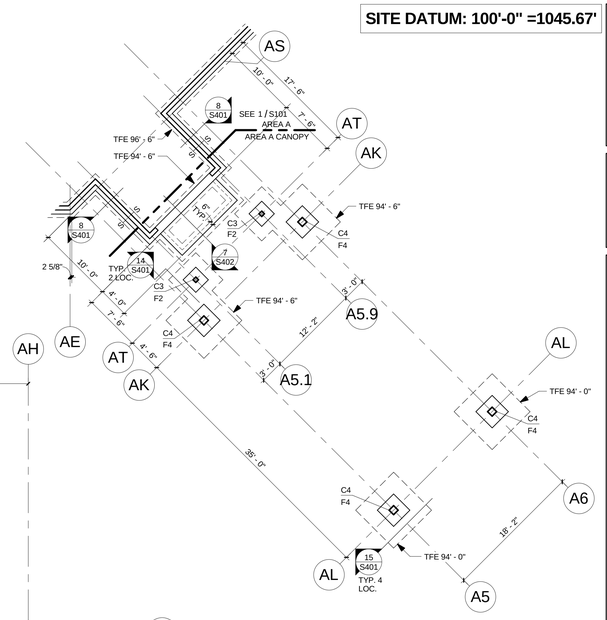
		Energy Labs
23 82 33	2.1.A	Sterling
23 84 13	2.1.A	Pure Humidifier
		Neptronic

End



1 S101 FOUNDATION PLAN - AREA A
1/8" = 1'-0"

2 S101 ALT. #1 FOUNDATION PLAN - AREA A
1/8" = 1'-0"



3 S101 CANOPY FOUNDATION PLAN - AREA A
1/8" = 1'-0"

WOOD POST SCHEDULE (BID PACKAGE 2)		
MARK	SIZE	REMARKS
P1	6x6	

STEEL COLUMN SCHEDULE (BID PACKAGE 2)			
MARK	SIZE	BASE PLATE	REMARKS
C1	HSS 4x4x1/4	3/4"x10"x10"	
C2	HSS 5x5x1/2	3/4"x11"x11"	
C3	HSS 6x6x3/8	1"x13"x13"	
C4	HSS 10x10x3/8	1 1/4"x18"x18"	
C5	HSS 4x4x1/2	3/4"x10"x10"	

FOOTING SCHEDULE			
MARK	SIZE	REINF. EW	REMARKS
F1	3'-6"x3'-6"x12"	4-#5 BOT.	
F2	5'-0"x5'-0"x14"	5-#5 BOT.	
F3	6'-6"x6'-6"x16"	7-#6 BOT.	
F4	7'-0"x7'-0"x16"	7-#6 TOP & BOT.	

JAMB REINFORCING SCHDULE (BID PACKAGE 2)							
				TERMINATING REINF.			
MARK	VERT. REINF.	WALL LENGTH	START	VERTS.	LOCATION	END	REMARKS
J1	2-#5	16"	TFE	--	--	TWE	
J2	2-#5	16"	TFE	1	BM. BRG.	TWE	
J3	2-#5	16"	T/O FDN. WALL	--	--	TWE	
J4	2-#5	16"	T/O EXIST. FDN. WALL	--	--	EXIST. BOND BM.	DRILL & EPOXY VERT. REINF. 6" INTO EXIST. BOND BM. TOP & BOT.

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/08/15	a/1	MISC. REVISIONS
2	7/14/15	a/2	STOOP & MECH. PLATFORM

FOUNDATION PLAN NOTES:

1. SEE 1/S103 FOR LAYOUT FROM EXISTING BUILDING.
2. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
3. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
4. FINISHED FLOOR ELEVATION (FFE) = SEE PLAN. VERIFY ALL DEPRESSED SLABS W/ ARCH. DRAWINGS AND MECH./ELEC. CONTRACTORS.
5. ALL INTERIOR AND EXTERIOR CONTINUOUS WALL FOOTINGS SHALL BE 2'-0"W x 1'-0"D W/ 2-#5 CONT. BOT. UNO.
6. TOP OF EXTERIOR FOOTING ELEVATION (TFE) = 96'-6" UNO.
7. S----S ON PLAN DENOTES STEPPED FOOTING. SEE DETAIL 1/S401.
8. SEE SECTION 2/S401 FOR DROPPED FOOTING AT ALL UNDERGROUND MECHANICAL LINES ENTERING BUILDING.
9. SEE DETAILS 4/S401, 5/S401 AND 6/S401 FOR TYPICAL FOUNDATION WALL JOINTS AND CORNER REINFORCING.
10. "PX" ON PLAN DENOTES WOOD POST SIZE. SEE WOOD POST SCHEDULE ON THIS SHEET.
11. "CX" ON PLAN DENOTES STEEL COLUMN SIZE. SEE STEEL COLUMN SCHEDULE ON THIS SHEET.
12. "FX" ON PLAN DENOTES FOOTING SIZE. SEE FOOTING SCHEDULE ON THIS SHEET.
13. (J) ON PLAN DENOTES MASONRY JAMB. SEE JAMB REINFORCING SCHEDULE ON THIS SHEET.
14. CONCRETE BLOCK WALL VERTICAL REINFORCING SHALL BE #5 @ 32" O.C. UNO ON PLAN OR IN SECTIONS AND DETAILS.
15. EXTERIOR DIMENSIONS ARE TO THE OUTSIDE FACE OF THE FOUNDATION WALL AND THE OUTSIDE FACE OF THE EXTERIOR WALL SHEATHING.
16. EXTEND ALL INTERIOR FOOTINGS MINIMUM 1'-0" BEYOND END OF WALLS UNO.

1'-0" TYP.

FOUNDATION KEYNOTES:

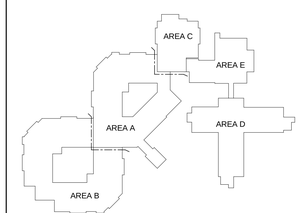
A. PLACE INTERIOR FOOTINGS OVER TESTED/INSPECTED COMPACTED FILL OR STEP INTERIOR FOOTINGS DOWN TO EXTERIOR FOOTING PER 1/S401.

B. RECESS SLAB FOR IN-FLOOR SCALE, SEE ARCH. FOR SIZE AND LOCATION. TOP OF SLAB ELEVATION (TSE) = 99'-8 3/8", VERIFY W/ SCALE SUPPLIER.

C. CONCRETE BLOCK WALL VERTICAL REINFORCING SHALL BE #5 @ 24" O.C.

D. 3'-0" THICK CAST-IN-PLACE CONCRETE PAD FOOTING W/ #4 @ 12" O.C. EW TOP & BOT. TFE=94'-8". VERIFY SIZE AND LOCATION W/ POOL SUPPLIER. FINISH TOP OF FOOTING PER POOL SUPPLIER REQUIREMENTS.

E. 4" CONCRETE SLAB ON GRADE W/ FIBERMESH REINF. TOP OF SLAB ELEVATION (TSE) = 92'-0"



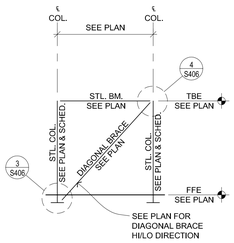
ISSPA ISSMN INNOVATIVE STRUCTURAL SOLUTIONS, P.A.
5279 Kyler Avenue NE Albertville, MN 55301
Phone: 763.425.9960 Fax: 763.425.9958
Email: isspa@isseng.com Web: www.isseng.com

© COPYRIGHT This drawing is the copyrighted work product of the Architect and must, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

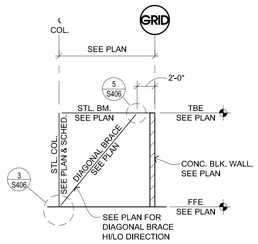
FOUNDATION PLAN - AREA A

Scale	Date	Project Number
As indicated	6/23/15	146038

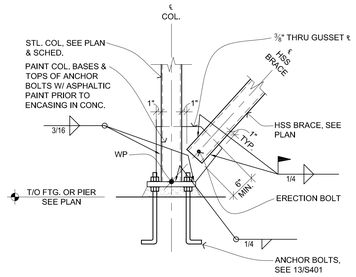
S101



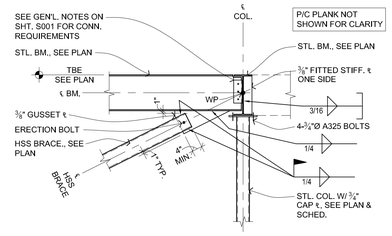
1 S406 ELEVATION
DIAGONAL BRACED FRAME — NO SCALE



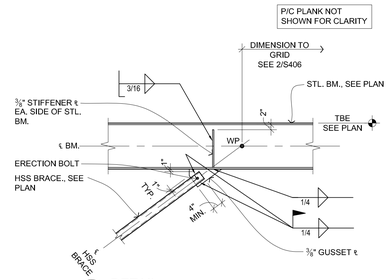
2 S406 ELEVATION
DIAGONAL BRACED FRAME — NO SCALE



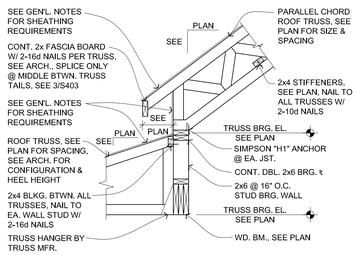
3 S406 DETAIL
BRACED FRAME CONN. — 1"=1'-0"



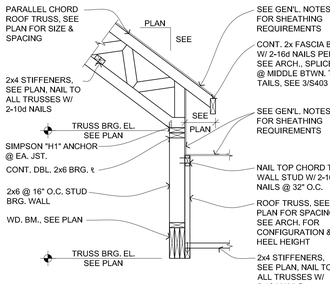
4 S406 DETAIL
DIAG. BRACED FRAME CONN. — 1/2"=1'-0"



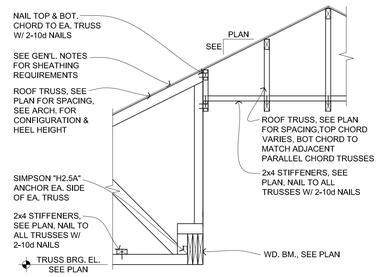
5 S406 DETAIL
DIAG. BRACED FRAME CONN. — 1/2"=1'-0"



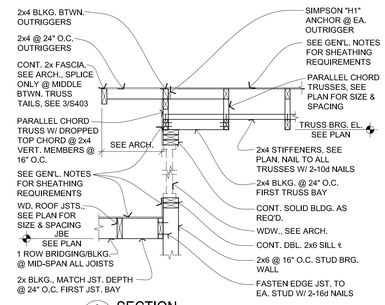
6 S406 SECTION
PARALLEL CHORD TRUSS BRG. — 1/2"=1'-0"



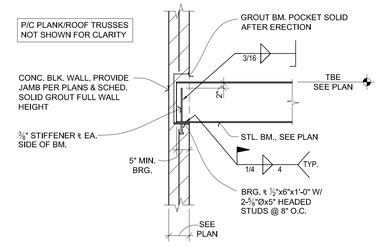
7 S406 SECTION
PARALLEL CHORD TRUSS BRG. — 1/2"=1'-0"



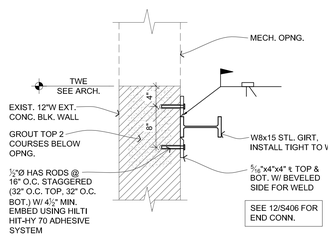
8 S406 SECTION
ROOF TRUSS BRG./LAP @ WD. BM. — 1/2"=1'-0"



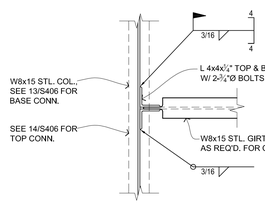
9 S406 SECTION
GABLE ROOF TRUSS LAP — 1/2"=1'-0"



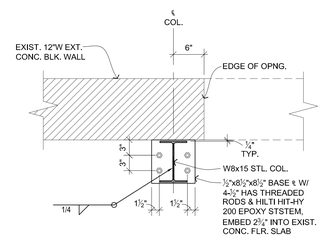
10 S406 SECTION
BM. BRG. @ CONC. BLK. WALL — 1/2"=1'-0"



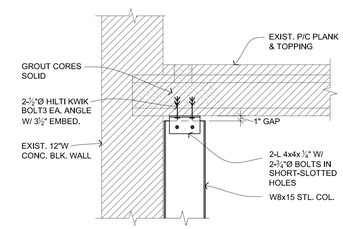
11 S406 PLAN VIEW
GIRT ANCHORAGE TO WALL — 1"=1'-0"



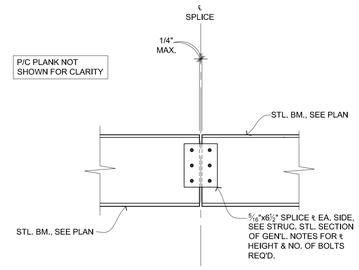
12 S406 SECTION
STL. GIRT TO STL. COL. CONN. — 1"=1'-0"



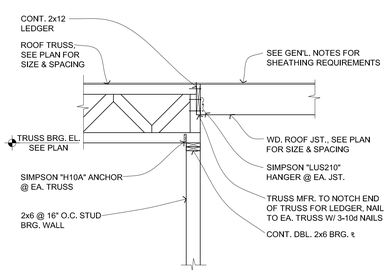
13 S406 PLAN VIEW
NEW STL. COL. @ EXIST. — 1"=1'-0"



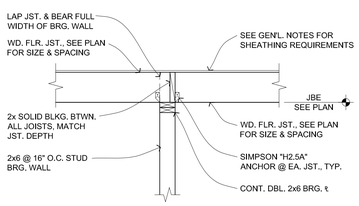
14 S406 SECTION
NEW STL. COL. @ EXIST. P/C PLANK — 1"=1'-0"



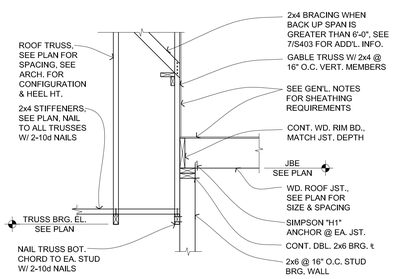
15 S406 DETAIL
STL. BM. TO STL. BM. SPLICE — 1"=1'-0"



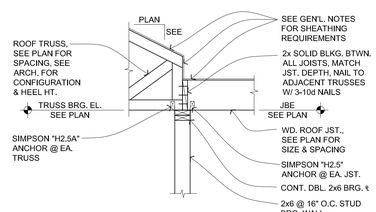
16 S406 SECTION
ROOF JST./TRUSS BRG. @ INT. BRG. WALL — 1/2"=1'-0"



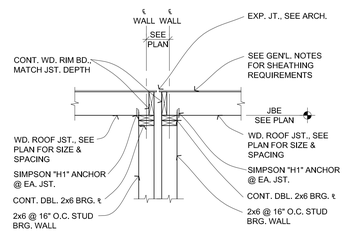
17 S406 SECTION
WD. ROOF JOISTS BRG. @ STUD BRG. WALL — 1/2"=1'-0"



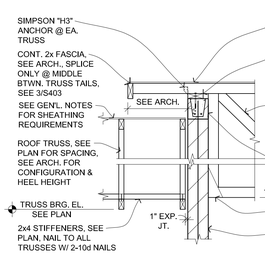
18 S406 SECTION
ROOF JST. BRG./TRUSS LAP @ INT. WALL — 1/2"=1'-0"



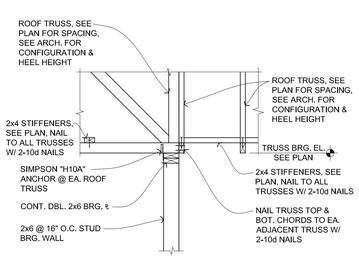
19 S406 SECTION
ROOF JST. BRG./TRUSS BRG. @ INT. WALL — 1/2"=1'-0"



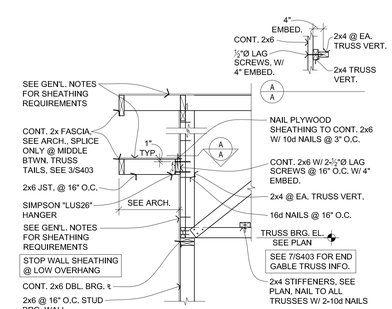
20 S406 SECTION
ROOF JST. BRG. @ EXP. JT. — 1/2"=1'-0"



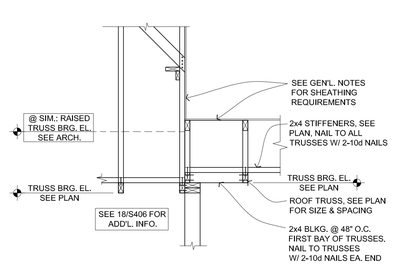
21 S406 SECTION
ROOF TRUSSES @ CONC. BLK. WALL — 1/2"=1'-0"



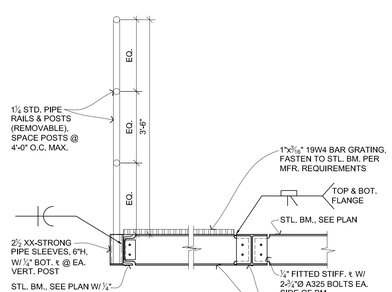
22 S406 SECTION
ROOF TRUSS, BRG./LAP @ STUD BRG. WALL — 1/2"=1'-0"



23 S406 SECTION
OVERHANG @ GABLE END TRUSS — 1/2"=1'-0"



24 S406 SECTION
ROOF JST. LAP @ INT. WALL — 1/2"=1'-0"



25 S406 DETAIL
PLATFORM @ RTU FRAME — 1"=1'-0"

Horty Elving℠

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/08/15	a/1	MISC. REVISIONS
2	7/14/15	a/2	STOOP & MECH. PLATFORM

ISS PA | INNOVATIVE STRUCTURAL SOLUTIONS, P.A.
5279 Kyler Avenue NE Albertville, MN 55301
Phone: 763.425.9960 Fax: 763.425.9958
Email: isspa@isseng.com Web: www.isseng.com

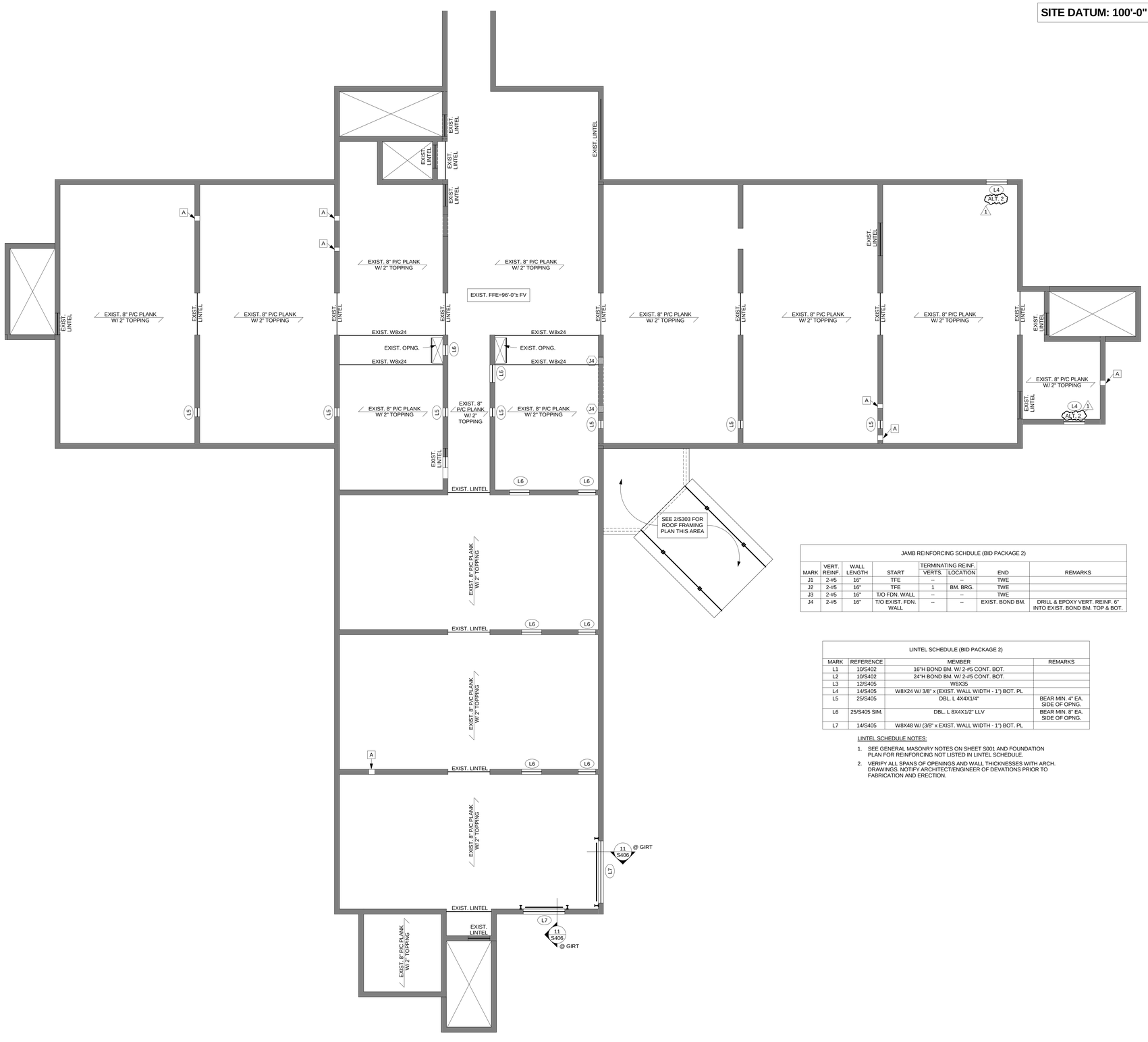
© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

SECTIONS AND DETAILS

Scale	Date	Project Number
	6/23/15	146038

S406

SITE DATUM: 100'-0" =1045.67'



JAMB REINFORCING SCHDULE (BID PACKAGE 2)							
MARK	VERT. REINF.	WALL LENGTH	START	TERMINATING REINF. VERTS.	TERMINATING REINF. LOCATION	END	REMARKS
J1	2-#5	16"	TFE	--	--	TWE	
J2	2-#5	16"	TFE	1	BM. BRG.	TWE	
J3	2-#5	16"	T/O FDN. WALL	--	--	TWE	
J4	2-#5	16"	T/O EXIST. FDN. WALL	--	--	EXIST. BOND BM.	DRILL & EPOXY VERT. REINF. 6" INTO EXIST. BOND BM. TOP & BOT.

LINTEL SCHEDULE (BID PACKAGE 2)			
MARK	REFERENCE	MEMBER	REMARKS
L1	10/S402	16"H BOND BM. W/ 2-#5 CONT. BOT.	
L2	10/S402	24"H BOND BM. W/ 2-#5 CONT. BOT.	
L3	12/S405	W8X35	
L4	14/S405	W8X24 W/ 3/8" x (EXIST. WALL WIDTH - 1") BOT. PL	
L5	25/S405	DBL. L 4X4X1/4"	BEAR MIN. 4" EA. SIDE OF OPNG.
L6	25/S405 SIM.	DBL. L 8X4X1/2" LLV	BEAR MIN. 8" EA. SIDE OF OPNG.
L7	14/S405	W8X48 W/ (3/8" x EXIST. WALL WIDTH - 1") BOT. PL	

LINTEL SCHEDULE NOTES:

1. SEE GENERAL MASONRY NOTES ON SHEET S001 AND FOUNDATION PLAN FOR REINFORCING NOT LISTED IN LINTEL SCHEDULE.
2. VERIFY ALL SPANS OF OPENINGS AND WALL THICKNESSES WITH ARCH. DRAWINGS. NOTIFY ARCHITECT/ENGINEER OF DEVATIONS PRIOR TO FABRICATION AND ERECTION.

1 / S501 FIRST FLOOR FRAMING PLAN - AREA D
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

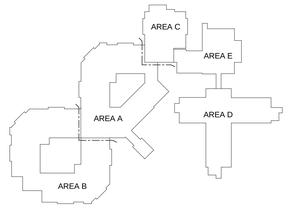
Rev. #	Date	Revision	Description
1	7/14/15	a/2	STOOP & MECH. PLATFORM

FIRST FLOOR FRAMING PLAN NOTES - AREA D:

1. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
2. (J_) ON PLAN DENOTES MASONRY JAMB. SEE JAMB REINFORCING SCHEDULE ON THIS SHEET.
3. (L_) ON PLAN DENOTES LINTEL. SEE LINTEL SCHEDULE ON THIS SHEET.

FIRST FLOOR FRAMING KEYNOTES - AREA D:

A SAW-CUT AND REMOVE EXISTING CONCRETE BLOCK FOR NEW MECHANICAL OPENING UNDER EXISTING BOND BM. DO NOT OVERCUT AT CORNERS. DO NOT DAMAGE BOND BEAM. NO NEW LINTEL REQUIRED.



ISSPA INNOVATIVE STRUCTURAL SOLUTIONS, P.A.
5279 Kyler Avenue NE Albertville, MN 55301
Phone: 763.425.9960 Fax: 763.425.9958
Email: isspa@isseng.com Web: www.isseng.com

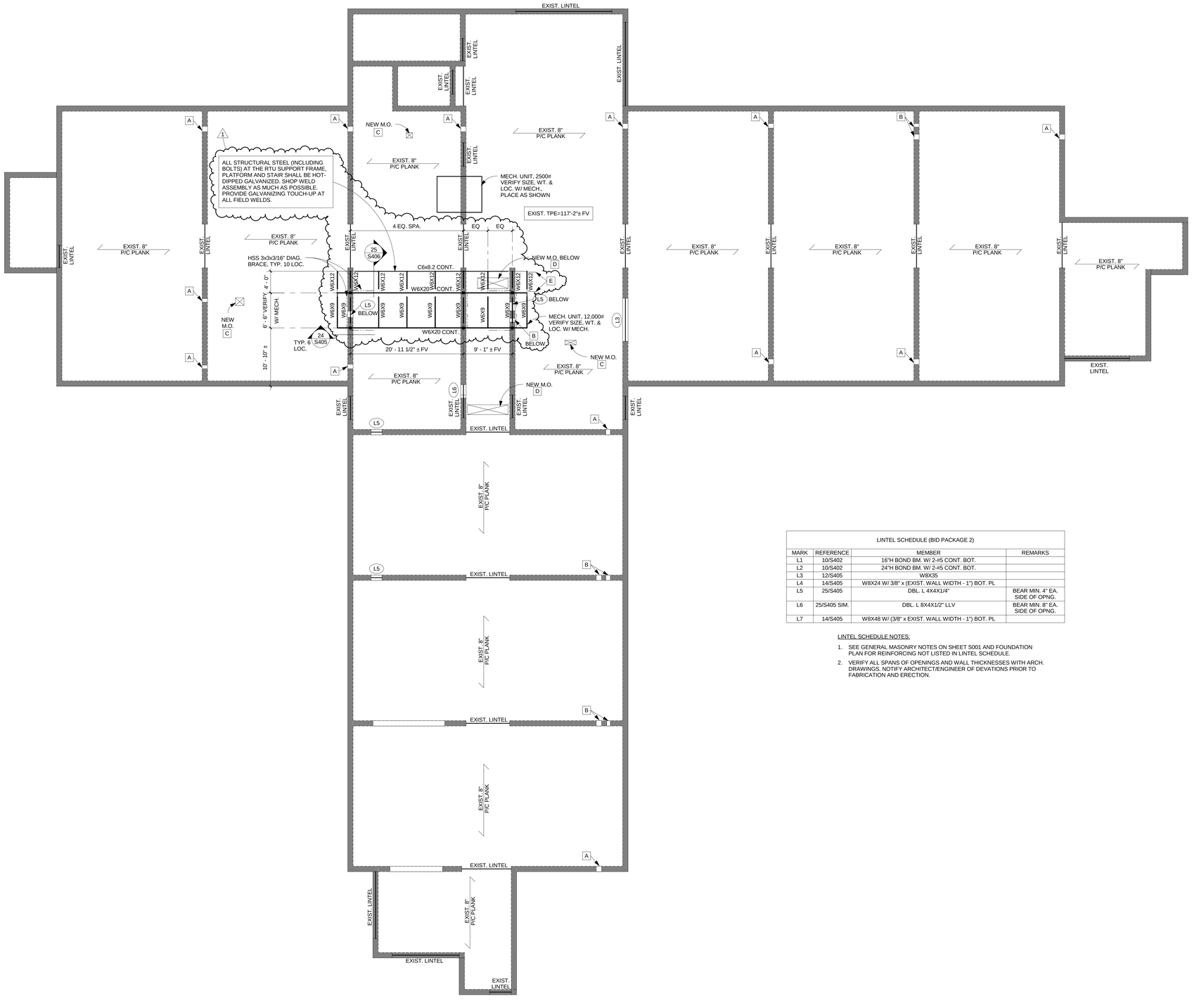
© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR FRAMING PLAN - AREA D

Scale	Date	Project Number
As indicated	6/23/15	146038

S501

SITE DATUM: 100'-0" =1045.67'



LINTEL SCHEDULE (BID PACKAGE 2)			
MARK	REFERENCE	MEMBER	REMARKS
L1	10/S402	16"H BOND BM. W/ 2-#5 CONT. BOT.	
L2	10/S402	24"H BOND BM. W/ 2-#5 CONT. BOT.	
L3	12/S405	W8X35	
L4	14/S405	W8X24 W/ 3/8" x (EXIST. WALL WIDTH - 1") BOT. PL	
L5	25/S405	DBL. L 4X4X1/4"	BEAR MIN. 4" EA. SIDE OF OPNG.
L6	25/S405 SIM.	DBL. L 8X4X1/2" LLV	BEAR MIN. 8" EA. SIDE OF OPNG.
L7	14/S405	W8X48 W/ (3/8" x EXIST. WALL WIDTH - 1") BOT. PL	

LINTEL SCHEDULE NOTES:

1. SEE GENERAL MASONRY NOTES ON SHEET S001 AND FOUNDATION PLAN FOR REINFORCING NOT LISTED IN LINTEL SCHEDULE.
2. VERIFY ALL SPANS OF OPENINGS AND WALL THICKNESSES WITH ARCH. DRAWINGS. NOTIFY ARCHITECT/ENGINEER OF DEVATIONS PRIOR TO FABRICATION AND ERECTION.

1 / S503 ROOF FRAMING PLAN - AREA D
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	a/2	STOOP & MECH. PLATFORM

ROOF FRAMING PLAN NOTES - AREA D:

1. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
2. L ON PLAN DENOTES LINTEL. SEE LINTEL SCHEDULE ON THIS SHEET.

ROOF FRAMING KEYNOTES - AREA D:

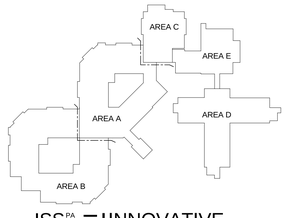
A SAW-CUT AND REMOVE EXISTING CONCRETE BLOCK FOR NEW MECHANICAL OPENING UNDER EXISTING BOND BM. DO NOT OVERCUT AT CORNERS. DO NOT DAMAGE BOND BEAM. NO NEW LINTEL REQUIRED.

B SAW-CUT AND REMOVE EXISTING CONCRETE BLOCK FOR NEW MECHANICAL OPENING UNDER EXISTING BOND BM. DO NOT OVERCUT AT CORNERS. DO NOT DAMAGE BOND BEAM. NO NEW LINTEL REQUIRED. LEAVE 8" MINIMUM CONCRETE BLOCK BETWEEN OPENINGS. DO NOT DAMAGE.

C SAW-CUT EXISTING P/C PLANK FOR NEW MECHANICAL OPENING. DO NOT OVERCUT AT CORNERS. CENTER OPENING EITHER AT CENTER OF EXISTING PLANK OR CENTER OPENING ON EXISTING PLANK JOINT. VERIFY OPENING SIZES AND LOCATIONS W/ MECHANICAL CONTRACTOR.

D SAW-CUT EXISTING P/C PLANK FOR NEW MECHANICAL OPENING. REMOVE ENTIRE WIDTH OF PRECAST PLANK ALONG CORRIDOR. SEE ARCH. FOR ROOF INFILL BETWEEN DUCTWORK.

E C6X8.2 STAIR STRINGERS W/ 1"x3/16" 19W4 BAR GRATING STAIR TREADS. BEAR ONE END ON ROOF PAD. SEE ARCH. CONNECT OTHER END TO STEEL PLATFORM W/ 1/4" SHEAR TAB. 1



ISS PA SSI INNOVATIVE STRUCTURAL SOLUTIONS, P.A.
5279 Kyler Avenue NE Albertville, MN 55301
Phone: 763.425.9960 Fax: 763.425.9958
Email: isspa@isseng.com Web: www.isseng.com

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

ROOF FRAMING PLAN - AREA D

Scale	Date	Project Number
As indicated	6/23/15	146038

S503

ABBREVIATIONS

A

@ At
A/C Air Conditioning
ACC Accessory/Accessories
ACC Accessible
ACT Acoustical Ceiling Tile
ADA Americans with Disabilities Act
ADD Addendum
ADJ Adjustable
ADO Automatic Door Operator
AFF Above Finish Floor
AHU Air Handling Unit
AL Assisted Living
AL Aluminum
ALT Alternate
ALUM Aluminum
ARCH Architectural
ASI Architect's Supplemental Instructions
A/V Audio Visual
AWC Acoustical Wall Covering

B

B Blinds - Horizontal
BATH Bathroom
BD Board
BFE Bottom of Footing Elevation
BITUM Bituminous
BLDG Building
BLK Block
BLKG Blocking
BM Beam
BM Benchmark
BO Bottom Of
BOT Bottom
BR Bedroom
BRG Bearing
BSMT Basement
BSP Bedspread

C

CL Center Line
CA Carpet
CAB Cabinet
CFT Ceramic Floor Tile
CG Corner Guard
CJ Control Joint
CL Clean Linen
CLG Ceiling
CLR Clear
CM Cultured Marble
CMU Concrete Masonry Unit
CO Cleanout
COL Column
CONC Concrete
CONF Conference
CONT Continuous
CORD Cooridinate
CORR Corridor
CP Cultured Polymer
CR Chair Rail
CSR Central Sterile Room
CT Ceramic Tile
CT Computer Aided Tomography
CTP Countertop
CU Clean Utility
CUH Cabinet Unit Heater
CWT Ceramic Wall Tile

D

D Drapery
D Depth
D Dryer
DBL Double
DEMO Demolition / Demolish
DF Door Frame
DIA Diameter
DIFF Diffuser
DIM Dimension
DIST Distance
DIV Specification Division
DP Door Protection
DR Door
DRWG Drawing
DS Downspout
DTL Detail

E

E East
EA Each
EIFS Exterior Insulation & Finish System
EJ Expansion Joint
ELEC Electrical
ELEV Elevator
ELEV Elevation
EMERG Emergency
EPF Epoxy Flooring
EPDM Ethylene Propylene Diene Monomer
EQ Equal
EQUIP Equipment
ER Emergency
ES Engineered Interior Surface
ES Each Side
EXST Existing
EXP Expansion
EXT Exterior

F

F Interior Window Type
FB Fire Barrier
FCB Fiber Cement Board
FCIC Furnished by Contractor Installed by Contractor
FD Floor Drain
FDN Foundation
FE Fire Extinguisher
FEC Fire Extinguisher Cabinet
FFE Finished Floor Elevation
FF&E Furniture, Fixtures & Equipment
FGP Fiberglass Panel
FIN Finished
FIN FLR Finished Floor
FLR Floor
FLUORO Fluoroscopy or Fluoroscopic
FOIC Furnished by Owner Installed by Contractor
FOIO Furnished by Owner Installed by Owner
FP Fireproof or Fireproofing
FP Fire Partition
FR Fire Retardant
FRS Flushing Rim Sink
FS Floor Sink
FURN Furniture
FV Field Verify
FW Fire Wall

G

GA Gauge
GB Gypsum Board
GC General Contractor
GEN General
GF Glazing Film
GL Glazing
GYP Gypsum
GYP BD Gypsum Board

H

H Height
HD Heavy Duty
HDBD Hardboard
HDWE Hardware
HM Hollow Metal
HR Handrail
HR Hour
HSKP Housekeeping
HT Height
HVAC Heating Ventilating Air Conditioning
HSS Hollow Structural Steel

I

ICB Integrally Coved Base
ICU Intensive Care Unit
ID Inside Diameter
IL Independent Living
INFO Information
INSUL Insulation
INT Interior

J

JAN Janitor
JT Joint

K

KD Knock Down
KITCH Kitchen
KO Knock Out

L

L Length
L Louver
LAV Lavatory
LDR Labor/Delivery/Recovery
LDRP Labor/Delivery/Recovery/Post-Partum
LN Linoleum
LNDRY Laundry
LP Plastic Laminate or Laminate Plastic
LT Light
LVL Level
LVL Laminated Veneer Lumber

M

M Mat Flooring
MAMMO Mammography
MATL Material
MAX Maximum
MB Marker Board
MECH Mechanical
MED Med Room
MFR Manufacturer
MIN Minimum
MIR Mirror
MISC Miscellaneous
MLDG Molding
MO Masonry Opening
MOD Modular
MTD Mounted
MTL Metal

N

N North
NC Normally Closed
NEC Necessary
NIC Not In Contract
NO Normally Open
NOM Nominal
NS Nurse Station
NTS Not To Scale

O

OC On Center
OB Obstetrics
OD Outside Diameter
OFF Office
OH Overhead
OR Operating Room
ORD Overflow Roof Drain
OS Overflow Scupper
OSB Oriented Strand Board
OT Occupational Therapy
OP Outpatient
OXY Oxygen

P

P/C Precast Concrete
PAR Post-Anesthesia Recovery
PAT RM Patient Room
PERP Perpendicular
PHARM Pharmacy
PLUMB Plumbing
PLYWD Plywood
PR Pair
PR Proposal Request
PREFIN Prefinished
PSI Pounds per Square Inch
PT Paint
PT Physical Therapy
PTD Paper Towel Dispenser
PWP Plastic Wall Panel
PV Porcelain Paver
PVC Polyvinyl Chloride

Q

QT Quarry Tile
QTY Quantity

R

R Radius
R Rubber
RAD Radiology
REC Recessed
REV Reverse
RCP Reflected Ceiling Plan
RD Roof Drain
RECP Reception
REF Refrigerator
RFS Room Finish Schedule
RM Room
RO Rough Opening
RP Resin Panel
RS Rubber Stair Tread
RF Resinous Flooring
RT Resilient Tile
RTU Roof Top Unit
RV Roof/Ridge Vent
RWL Rain Water Leader

S

S South
SAF Safety Floor
SB Smoke Barrier
SC Sealed Concrete
SCHED Schedule
SD Soap Dispenser
SF Sheet Flooring
SF Square Feet
SHWR Shower
SIM Similar
SP Solid Polymer
SP Smoke Partition
SPEC Specifications
SL Soiled Linen
SL Sidelight Frame
SN Skilled Nursing
SQ Square
SQ FT Square Foot
SQ IN Square Inch
SS Stainless Steel
ST Stain
STL Steel
STR Stair
STOR Storage
STRUC Structural
SU Soiled Utility
SURG Surgery
SWS Special Wall Surfacing
SYM Symmetrical

T

T Toilet
TBD Tackboard
TBE Top of Beam Elevation
TDE Top of Deck Elevation
TER Terrazzo
TEMP Temporary
TFE Top of Footing Elevation
TO Top Of
TPH Toilet Paper Holder
TR Trim
TREAT Treatment
TSE Top of Slab Elevation
TV Television
TWE Top of Wall Elevation
TYP Typical

U

U/C Under Counter or Under Cabinet
UL Underwriters' Laboratory
UNO Unless Noted Otherwise

V

V Vinyl
VAC Vacuum
VB Vertical Blind
VCT Vinyl Composite Tile
VCW Vinyl Clad Wood
VEST Vestibule
VFY Verify
VIF Verify In Field
VS Vinyl Stair Tread

W

W West
W Width
W Window
WO Without
WC Wallcovering
WCH Wheelchair
WD Wood
WG Wall Guard
WP Wall Protection
WS Working Scupper
WSCT Wainscot
WT Weight
WWF Welded Wire Fabric

EXPLANATION OF DOCUMENT NOMENCLATURE

In order to avoid an unnecessary amount of lettering and a confusing number of lines on the Contract Documents, the Architect/Engineer has used certain devices, abbreviations, conventions, symbols, diagrams and schedules, the meaning and use of which are herein illustrated and explained. The Contract Documents cannot be fully and correctly interpreted without reference to these explanatory sheets and to the specifications contained in the Project Manual.

Combinations of abbreviations consistent with the following abbreviations list may occur. When any feature of the building occurs more than once, it is drawn in full only once, and repetitions of the same feature are indicated in outline; it is the intention that all of such features indicated in outline shall be complete in every detail as shown in the typical instance. Features which are shown in detail at a larger scale will be indicated in outline only on the smaller scale drawings. Where plans or elevations are symmetrical, one-half will be drawn in full, and the other indicated in outline only; and when any feature is continuous, a portion only will be shown in full and the remainder in outline.

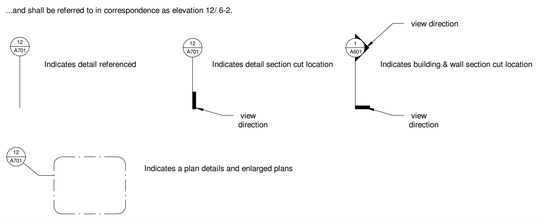
Information shown on plans will not be repeated on elevations and sections and vice versa. Where notes are indefinite, reference must be made to the specifications. When practical, notes upon the plans are eliminated, and information is condensed in the form of schedules which appear in the Project Manual.

DETAIL AND SECTION REFERENCING

Where double numbers appear in a circle on scale drawings or elevations, the upper number is the number of the section or elevation on the sheet so numbered... the lower number indicates the sheet on which a section or elevation of the part in question may be found;

Vis: 12 / A701 — Indicates detail number on that sheet; Indicates number of sheet where section, elevation, or detail appears

...and shall be referred to in correspondence as elevation 12/ 6-2.



SYMBOLS

TAGS

1A101 — Indicates door number; see door schedule.

4C — Indicates wall type. The wall type number is described in the wall type legend found on all floor plan sheets

1 — Indicates note described elsewhere on documents

2 — Indicates demolition note described elsewhere on documents

a/1 — Indicates revision's to issued documents

202 — Indicates equipment item; see equipment schedule

W1 — Indicates window number; see window types

CW1 — Indicates curtain wall frame number; see curtain wall frame types

S1 — Indicates storefront frame number; see storefront frame types

1 / A501 — detail number; sheet number — Indicates building exterior elevation

1 / A401 — detail number; sheet number — Indicates building interior elevation

GRID LINES

Grid lines are traces of imaginary vertical planes, identified by number and/or letter, used to facilitate the location of materials. Where no dimensions are shown and the materials are shown to occur with some definite relationship to the grid lines, then these materials shall be installed in this relationship.

ROOM AND DOOR NUMBERS

Rooms are numbered in the following manner:

Vis: 2R17 or 2R174

The first digit refers to the level on which the room occurs in a multi-level building. In a one-level building, this digit may be omitted.

The second digit refers to the area of that particular level where the room occurs when the campus is divided into different areas or buildings. If only one area or building exist, this digit may be omitted.

The last two or three digits identify the room.

WALL GRAPHICS

Existing Walls to Remain (shown shaded)

Walls to be Removed (shown dotted)

New Walls (shown solid)

WALL RATING LINES

SP — SMOKE PARTITION

SB — SMOKE BARRIER

FP — FIRE PARTITION (1 HR RATED)

FBX — FIRE BARRIER (1 HR, 2HR RATED x INDICATES HOUR RATING)

FWX — FIRE WALL (1 HR, 2HR RATED x INDICATES HOUR RATING)

LD — LEAD LINED WALL

ARCHITECTURAL SYMBOLS

Accordian Door

Cubicle Curtain Track

Drapery

Corner Guard

(XXX.XX) — (Existing Spot Elevation)
XXX.XX — New Spot Elevation

Note, Description
XXX.XX — Elevation of Building Component(s) Relative to the Base Elevation

EQUIPMENT LIST

St. Croix Equipment List				rev 06.20.15	
Eq.. #	Type of Equipment	Specification Section	By	Notes	
	Series 100 - General				
101	Security Camera	282300	FCIC		
102	Computer systems & equipment	-	FOIO		
103	T.V.	-	FOIO		
	Series 200 - CBRF (2 total)				
201	Smoke Guard	083483	FCIC		
202A	Fireplace (one sided)	103100	FCIC		
202B	Fireplace (two sided)	103100	FCIC		
203	Induction Range	113100	FCIC		
204	Toaster	113100	FCIC		
205	Ice Machine	113100	FCIC		
206	Coffee Machine	-	FVIV		
207	Juice Machine	-	FVIV		
208	Refrigerator	113100	FOIC		
209	Dishwasher	114100	FCIC		
210	Range	113100	FOIC		
211	Range Hood	113100	FCIC		
212	Garbage Disposal	113100	FCIC		
213	Microwave	113100	FOIC		
214	Spa Tub (no reservoir)	-	FOIO		
215	Washing Machine	113100	FCIC	existing stacked	
216	Dryer	113100	FCIC	existing stacked	
	Series 300 - CBRF Apartments				
301	Refrigerator/Freezer Microwave	113100	FOIC		
	Series 400 - Town Center				
401	Vending Machine	-	FVIV		
402	Copier	-	FOIO		
403	Printer	-	FOIO		
404	Shredder	-	FOIO		
405	Refrigerator (staff lounge)	113100	FCIC		
406	Dishwasher (staff lounge)	113100	FCIC		
407	Garbage Disposal (staff lounge)	113100	FCIC		
408	Coffee Machine (staff lounge)	-	FVIV		
409	Toaster (staff lounge)	-	FOIO	existing	
410	Microwave (staff lounge)	-	FOIO	existing	
411	Hair Dryer - Floor Type	-	FOIO	existing	
412	Compact Refrigerator (large group room and lactation)	113100	FCIC		
413	A/V - Comm Station	-	FCIC		
414	A/V - Projector	-	FCIC		
415	A/V - Projection Screen	-	FCIC		
416	A/V - Speakers	-	FCIC		
417	A/V - Camera	-	FCIC		
418	Therapy Equipment	-	FOIO		
418	Therapy Refrigerator	113100	FCIC		
419	Therapy Range	113100	FCIC		
420	Therapy Microwave Range Hood	113100	FCIC		
421	Therapy Washer	113100	FCIC		
422	Therapy Dryer	113100	FCIC		
423	Therapy Dishwasher	113100	FCIC		
	Series 500 - Households (4 total)				
501	Refrigerator	113100	FOIC		
502	Garbage Disposal	113100	FCIC		
503	Microwave	113100	FOIC		
504	Coffee	-	FVIV		
505	Juice Machine	-	FVIV		
506	Ice Machine	113100	FCIC		
507	Dishwasher	113100	FCIC		
508	Range	113100	FOIC		
509	Range Hood	113100	FCIC		
510	Induction Range	113100	FCIC		
511	Toaster	113100	FCIC		
512	Med Fridge	113100	FCIC		
513	Washing Machine	113100	FCIC		
514	Dryer	113100	FCIC		
515	Spa Tub (no reservoir)	-	FOIO		
516	Fireplace (two sided)	103100	FCIC		
517	In-floor Scale	113100	FCIC		
518	Time Clock	-	FOIO		
519	Care Lift (Bariatric Room only)	-	FCIC		
520	Hoyer Lift	-	FOIO		
521	Waloe Chafing Dishes	-	FOIO		
522	Ironing Board	102800	FCIC		
	Series 600 - Core Services				
601	Commercial Dryers	-	FCIC		
602	Commercial Washer	-	FCIC		
603	Commercial Kitchen Equipment (burners)	-	FOIO		
	FOIO-Furnished by Owner, Installed by owner				
	FOIC-Furnished by Owner, Installed by contractor				
	FCIC-Furnished by Contractor, Installed by contractor (included in project bid)				
	FVIV-Furnished by Vendor, Installed by Vendor				

STUD THICKNESS

STEEL

1. 7/8"
2. 1 5/8"
3. 2 1/2"
4. 3 5/8"
6. 6"
8. 8"

WOOD

2. 2X2 (1 1/2")
4. 2X4 (3 1/2")
6. 2X6 (5 1/2")
8. 2X8 (7 1/4")
10. 2X10 (9 1/4")

4C — STUD SIZE AND STANDARD WALL ASSEMBLY

NOTE: ALL INTERIOR WALLS TO BE TYPE "4C" UNLESS NOTED OTHERWISE.

J — SPECIAL WALL ASSEMBLY

TYPICAL WALLS:

6D INTERIOR BEARING WALLS
4E UNIT SEPARATION WALLS
K FIRE WALLS

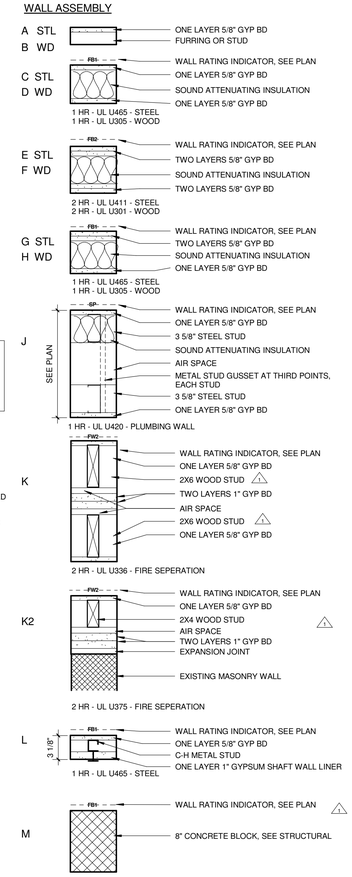
WALL RATING LEGEND

SP — SMOKE PARTITION
SB — SMOKE BARRIER
FP — FIRE PARTITION (1 HR RATED)
FBX — FIRE BARRIER (1 HR, 2HR RATED x INDICATES HOUR RATING)
FWX — FIRE WALL (1 HR, 2HR RATED x INDICATES HOUR RATING)
LD — LEAD LINED WALL

SMOKE BARRIER TO BE CONTINUOUS FROM FLOOR TO STRUCTURE ABOVE. REFER TO PLANS FOR LOCATIONS AND EXTENTS.

PASSAGE OF PIPES, CONDUITS, DUCTS, CABLES AND SIMILAR EQUIPMENT SHALL BE SEALED WITH A MATERIAL CAPABLE OF MAINTAINING FIRE AND SMOKE RESISTANCE - REFER TO SEC 078413 AND 078448

WALL ASSEMBLY



WALL TYPES
1 1/2" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

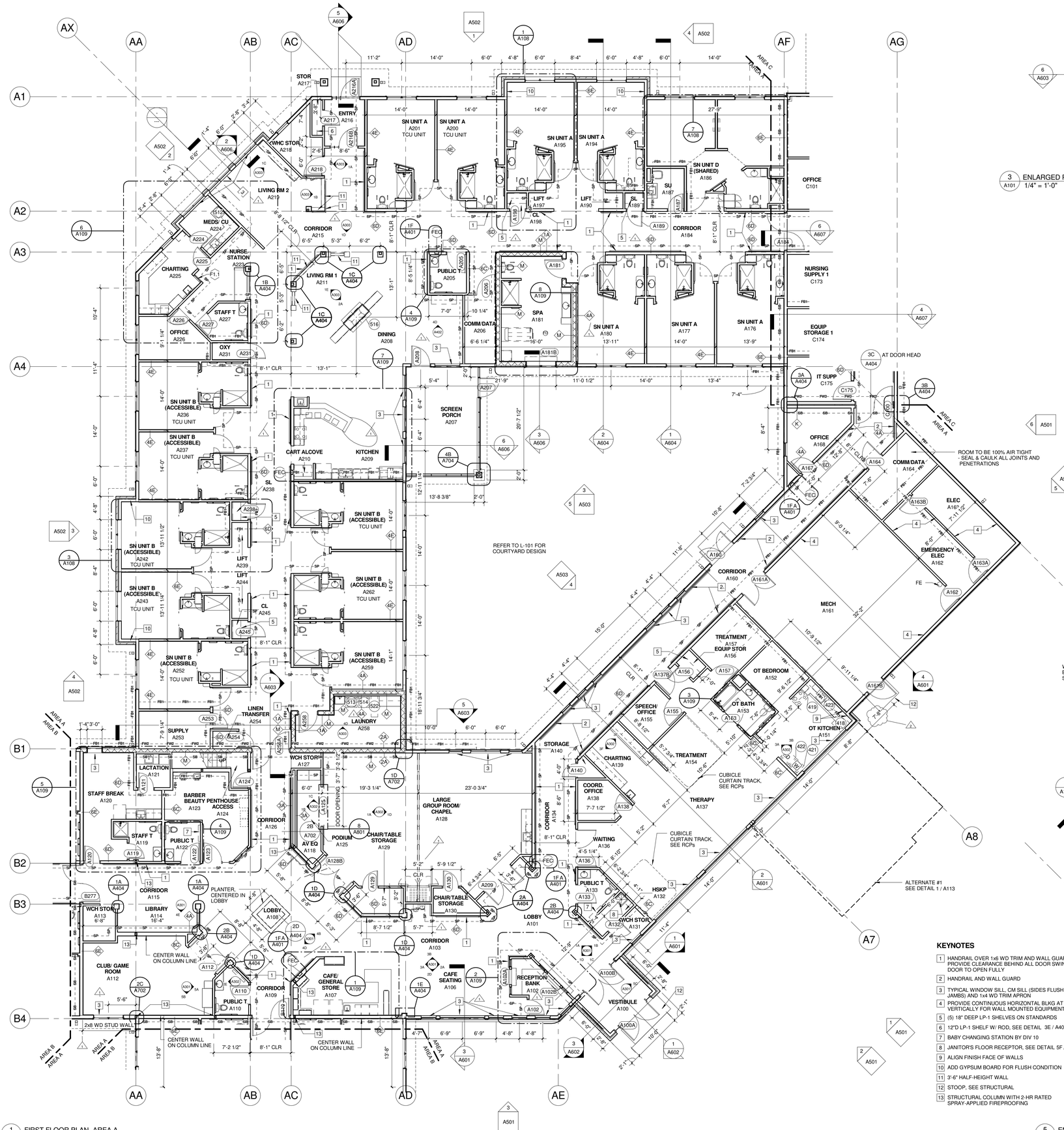
Rev. #	Date	Revision	Description
1	7/8/15	Addendum 1	Bid Package 2 - Addendum 1
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

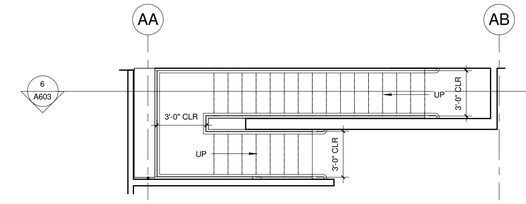
SYMBOLS, ABBREVIATIONS & EQUIPMENT LIST

Scale	Date	Project Number
As indicated	6/23/15	146038

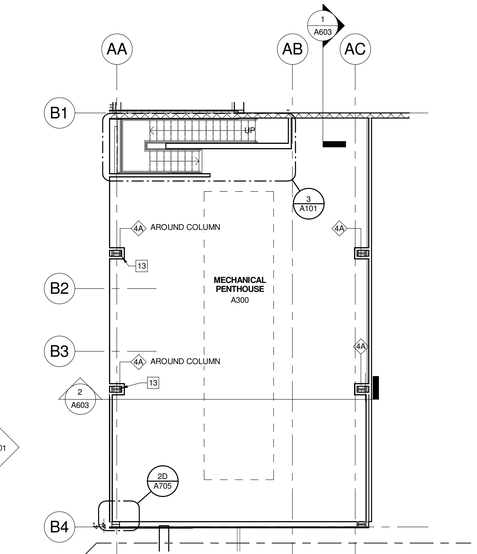
A001



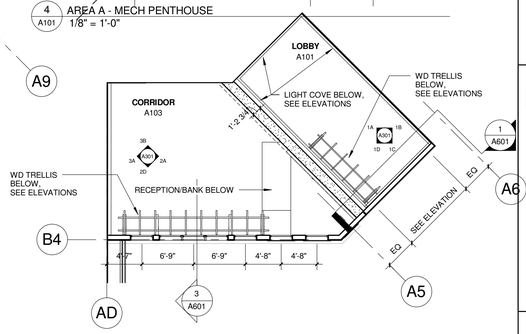
1 A101 FIRST FLOOR PLAN- AREA A
1/8" = 1'-0"



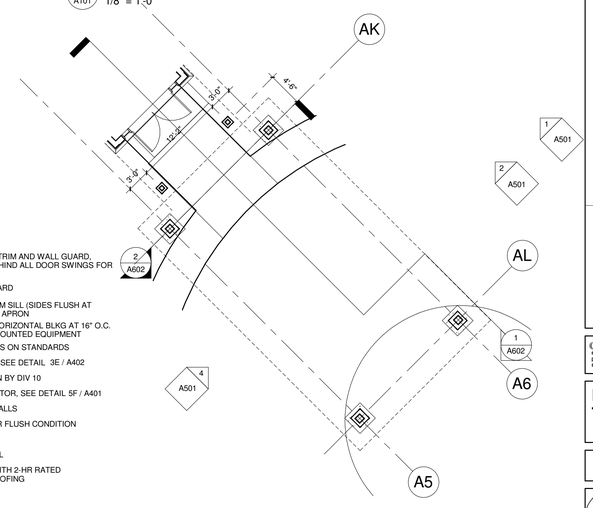
3 A101 ENLARGED PLAN - PENTHOUSE STAIR
1/4" = 1'-0"



4 A101 AREA A - MECH PENTHOUSE
1/8" = 1'-0"



2 A101 FIRST FLOOR CLERESTORY PLAN
1/8" = 1'-0"



5 A101 ENLARGED PLAN - AREA A CANOPY
1/8" = 1'-0"

KEYNOTES

1. HANDRAIL OVER 1x6 WD TRIM AND WALL GUARD, PROVIDE CLEARANCE BEHIND ALL DOOR SWINGS FOR DOOR TO OPEN FULLY
2. HANDRAIL AND WALL GUARD
3. TYPICAL WINDOW SILL, CM SILL (SIDES FLUSH AT JAMBS) AND 1x4 WD TRIM APRON
4. PROVIDE CONTINUOUS HORIZONTAL BLKG AT 16" O.C. VERTICALLY FOR WALL MOUNTED EQUIPMENT
5. (5) 18" DEEP LP-1 SHELVES ON STANDARDS
6. 12"D LP-1 SHELF W/ ROD, SEE DETAIL 3E / A402
7. BABY CHANGING STATION BY DIV 10
8. JANITOR'S FLOOR RECEPTOR, SEE DETAIL 5F / A401
9. ALIGN FINISH FACE OF WALLS
10. ADD GYPSUM BOARD FOR FLUSH CONDITION
11. 3'-6" HALF-HEIGHT WALL
12. STOOP, SEE STRUCTURAL
13. STRUCTURAL COLUMN WITH 2-HR RATED SPRAY-APPLIED FIREPROOFING

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/8/15	Addendum 1	Bid Package 2 - Addendum 1
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

GENERAL NOTES:

1. FINISH FLOOR ELEVATION (FFE) = 100'-0" = 1045.67'
2. EXTERIOR DIMENSION TO EXTERIOR FACE OF SHEATHING.
3. SEE SPECIFICATION FOR TYPE AND LOCATION OF GYPSUM BOARD; "X", "C", ETC.
4. INTERIOR CORRIDOR WALLS DIMENSIONED TO FINISH FACE OF WALL, SPECIFIED CLEAR
5. INTERIOR WALLS DIMENSIONED TO CENTER OF WALL
6. STANDARD WALL ASSEMBLY IS TYPE 4C, ALL NON-BEARING TO BE STEEL STUD UNLESS NOTED OTHERWISE, ALL INTERIOR BEARING WALLS TO BE WOOD STUD.
7. (XX) INDICATED EQUIPMENT, SEE EQUIPMENT SCHEDULE.
8. AT AREA D & E BUILDINGS, FIELD VERIFY ALL WINDOW OPENINGS.
9. REPAINT ALL EXISTING RADIATORS IN AREA D & E.
10. ALL FURNITURE (SHOWN DASHED) BY FF&E OR RESIDENT PROVIDED.

1-HR PROTECTION OF BEARING WALLS

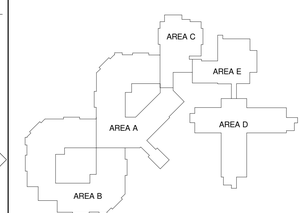
WALL TYPES VARY

FIRE PROTECTION OF RATED WALLS IS TO BE CONTINUOUS. UNRATED PARTITIONS ARE NOT ALLOWED TO INTERRUPT THIS CONTINUOUS PROTECTION.

RATED WALLS SUCH AS FIRE BARRIERS, SMOKE BARRIERS, FIRE PARTITIONS, AND FIRE WALLS ARE NOTED ON THE PLANS.

RATED WALLS SUCH AS BEARING WALLS ARE NOT NOTED ON THE PLANS - SEE STRUCTURAL. ALL STRUCTURAL WALLS ARE 1-HR RATED, AND THEIR FIRE PROTECTION IS TO BE CONTINUOUS, INCLUDING PIPE AND CONDUIT PENETRATIONS. PENETRATIONS IN STRUCTURAL WALLS BY OPENINGS FOR DOORS OR DUCTWORK REQUIRE A MEANS OF 1-HR PROTECTION. THIS CAN BE ACHIEVED BY WRAPPING THE OPENING WITH 5/8" GYPSUM BOARD, OR BY PROVIDING A RATED FRAME FOR DOORS AND FIRE DAMPERS FOR DUCT WORK.

KEY PLAN

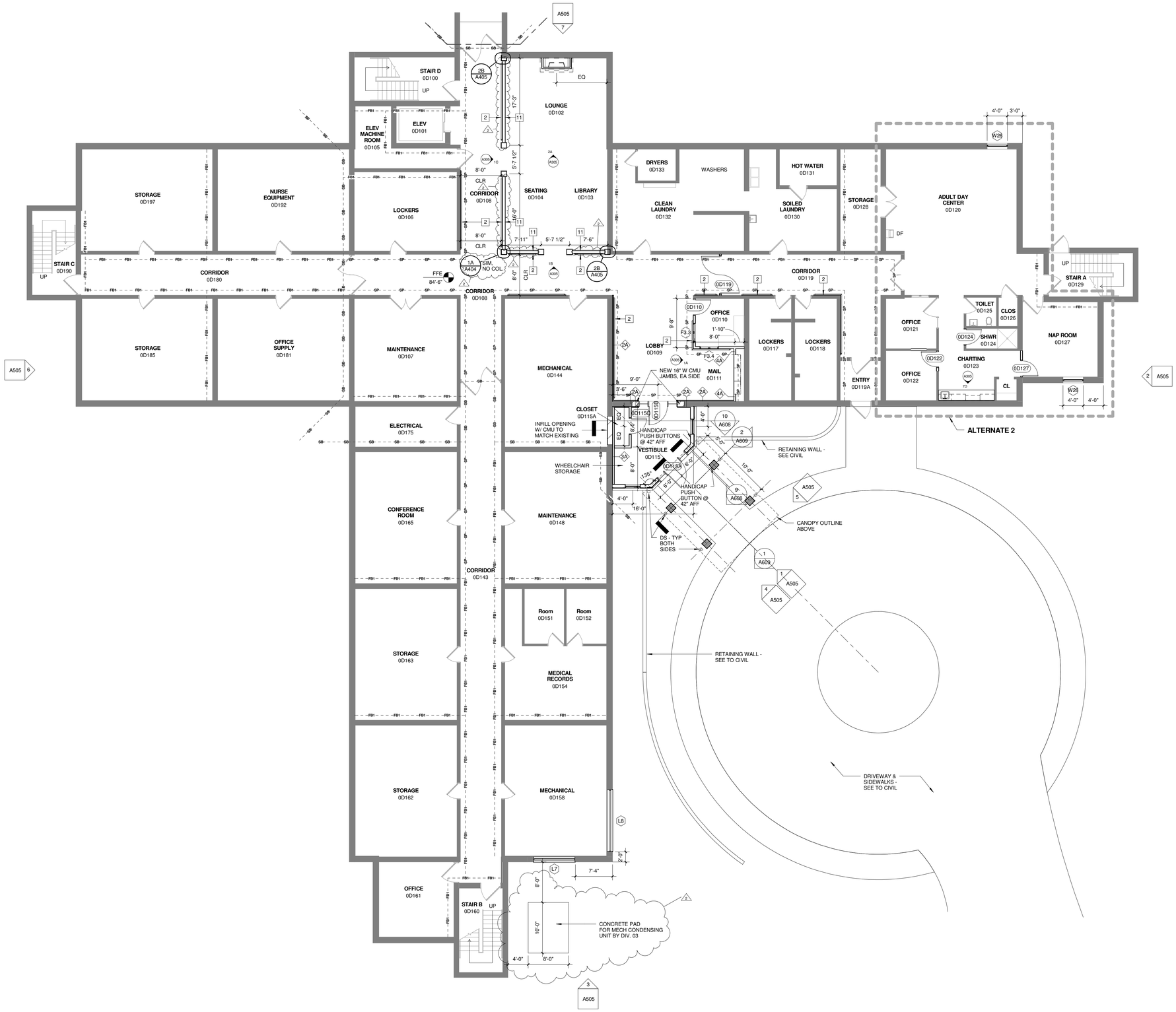


© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR PLAN - AREA A - TOWN CENTER & SN HOUSEHOLD

Scale	Date	Project Number
As indicated	6/23/15	146038

A101



1 / A104 00 LEVEL 0 - AREA D CBRF
1/8" = 1'-0"

KEYNOTES

1. HANDRAIL OVER 1x6 WD TRIM AND WALL GUARD, PROVIDE CLEARANCE BEHIND ALL DOOR SWINGS FOR DOOR TO OPEN FULLY
2. HANDRAIL AND WALL GUARD
3. TYPICAL WINDOW SILL, CM SILL (SIDES FLUSH AT JAMBS) AND 1x4 WD TRIM APRON
4. PROVIDE CONTINUOUS HORIZONTAL BLKG AT 16" O.C. VERTICALLY FOR WALL MOUNTED EQUIPMENT
5. (5) 18" DEEP LP-1 SHELVES ON STANDARDS
6. 12"D LP-1 SHELF W/ ROD, SEE DETAIL 3E / A402
7. BABY CHANGING STATION BY DIV 10
8. JANITOR'S FLOOR RECEPTOR, SEE DETAIL 5F / A401
9. ALIGN FINISH FACE OF WALLS
10. ADD GYPSUM BOARD FOR FLUSH CONDITION
11. 3'-6" HALF-HEIGHT WALL
12. STOOP, SEE STRUCTURAL
13. STRUCTURAL COLUMN WITH 2-HR RATED SPRAY-APPLIED FIREPROOFING

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

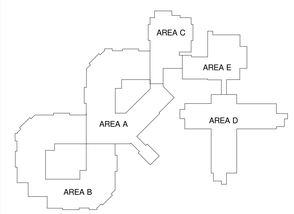
Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

GENERAL NOTES:

1. AREA D FINISH FLOOR ELEVATIONS (FFE)
   BASEMENT = 84'-6" = 1030.17'
   FIRST FLOOR = 96'-0" = 1041.67'
   SECOND FLOOR = 106'-8" = 1051.837'
2. EXTERIOR DIMENSION TO EXTERIOR FACE OF SHEATHING.
3. SEE SPECIFICATION FOR TYPE AND LOCATION OF GYPSUM BOARD; "X", "C", ETC.
4. INTERIOR CORRIDOR WALLS DIMENSIONED TO FINISH FACE OF WALL, SPECIFIED CLEAR
5. INTERIOR WALLS DIMENSIONED TO CENTER OF WALL
6. STANDARD WALL ASSEMBLY IS TYPE 4C, ALL NON-BEARING TO BE STEEL STUD UNLESS NOTED OTHERWISE.
7. (XX) INDICATED EQUIPMENT, SEE EQUIPMENT SCHEDULE.
8. AT AREA D & E BUILDINGS, FIELD VERIFY ALL WINDOW OPENINGS.
9. REPAINT ALL EXISTING RADIATORS IN AREA D & E.
10. ALL FURNITURE (SHOWN DASHED) BY FF&E OR RESIDENT PROVIDED.

KEY PLAN

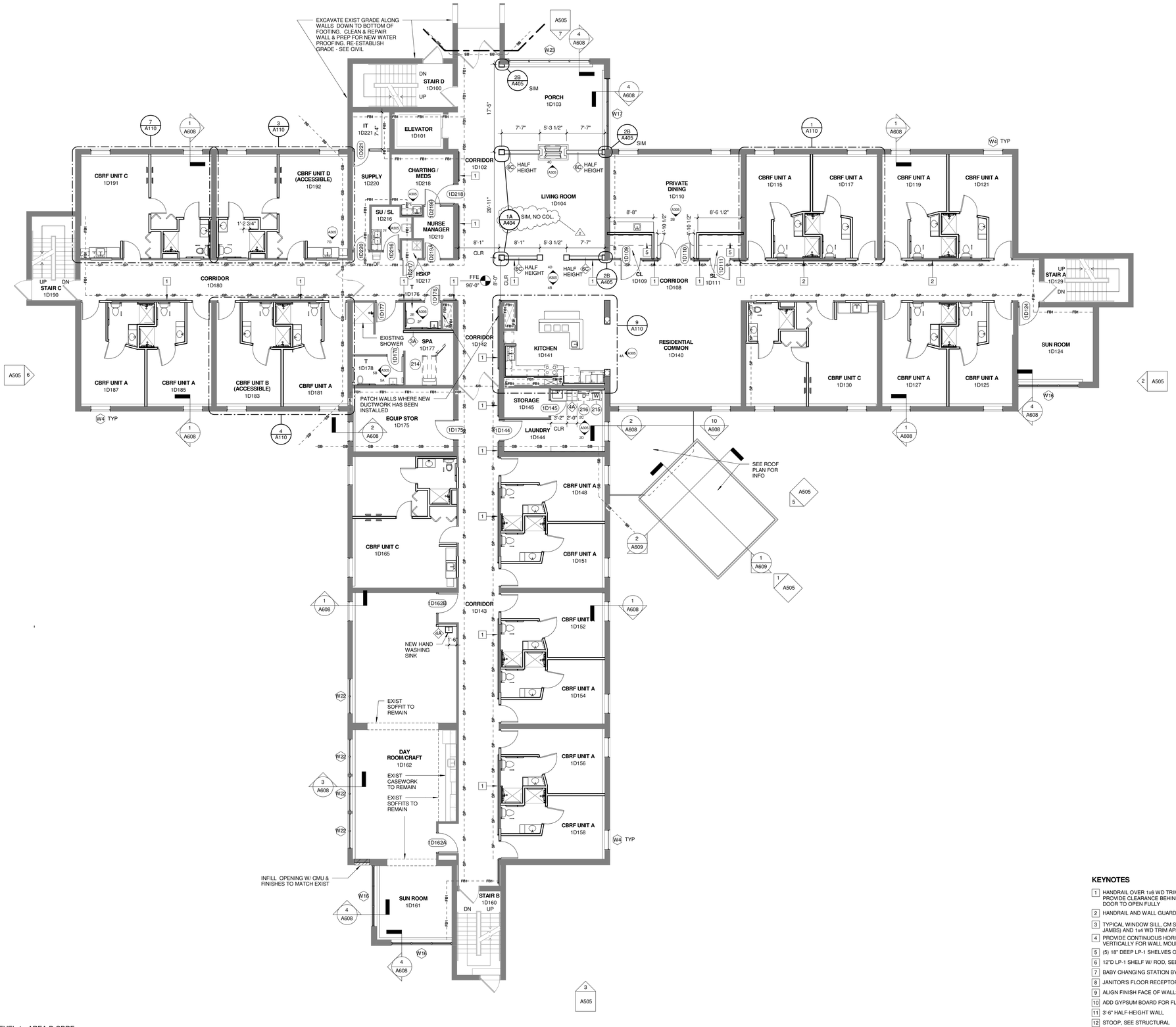


© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

BASEMENT FLOOR PLAN - AREA D CBRF

Scale	Date	Project Number
As indicated	6/23/15	146038

A104



1 / A105 01 LEVEL 1 - AREA D CBRF
1/8" = 1'-0"

KEYNOTES

1. HANDRAIL OVER 1x6 WD TRIM AND WALL GUARD, PROVIDE CLEARANCE BEHIND ALL DOOR SWINGS FOR DOOR TO OPEN FULLY
2. HANDRAIL AND WALL GUARD
3. TYPICAL WINDOW SILL, CM SILL (SIDES FLUSH AT JAMBS) AND 1x4 WD TRIM APRON
4. PROVIDE CONTINUOUS HORIZONTAL BLKG AT 16" O.C. VERTICALLY FOR WALL MOUNTED EQUIPMENT
5. (5) 18" DEEP LP-1 SHELVES ON STANDARDS
6. 12"D LP-1 SHELF W/ ROD, SEE DETAIL 3E / A402
7. BABY CHANGING STATION BY DIV 10
8. JANITOR'S FLOOR RECEPTOR, SEE DETAIL 5F / A401
9. ALIGN FINISH FACE OF WALLS
10. ADD GYPSUM BOARD FOR FLUSH CONDITION
11. 3'-6" HALF-HEIGHT WALL
12. STOOP, SEE STRUCTURAL
13. STRUCTURAL COLUMN WITH 2-HR RATED SPRAY-APPLIED FIREPROOFING

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

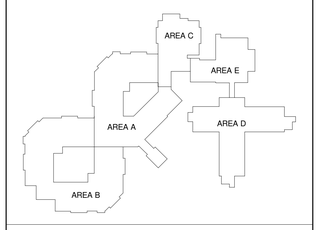
Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

GENERAL NOTES:

1. AREA D FINISH FLOOR ELEVATIONS (FFE)
   BASEMENT = 84'-6" = 1030.17'
   FIRST FLOOR = 96'-0" = 1041.67'
   SECOND FLOOR = 106'-8" = 1051.837'
2. EXTERIOR DIMENSION TO EXTERIOR FACE OF SHEATHING.
3. SEE SPECIFICATION FOR TYPE AND LOCATION OF GYPSUM BOARD; "X", "C", ETC.
4. INTERIOR CORRIDOR WALLS DIMENSIONED TO FINISH FACE OF WALL, SPECIFIED CLEAR
5. INTERIOR WALLS DIMENSIONED TO CENTER OF WALL
6. STANDARD WALL ASSEMBLY IS TYPE 4C, ALL NON-BEARING TO BE STEEL STUD UNLESS NOTED OTHERWISE.
7. (XX) INDICATED EQUIPMENT, SEE EQUIPMENT SCHEDULE.
8. AT AREA D & E BUILDINGS, FIELD VERIFY ALL WINDOW OPENINGS.
9. REPAINT ALL EXISTING RADIATORS IN AREA D & E.
10. ALL FURNITURE (SHOWN DASHED) BY FF&E OR RESIDENT PROVIDED.

KEY PLAN

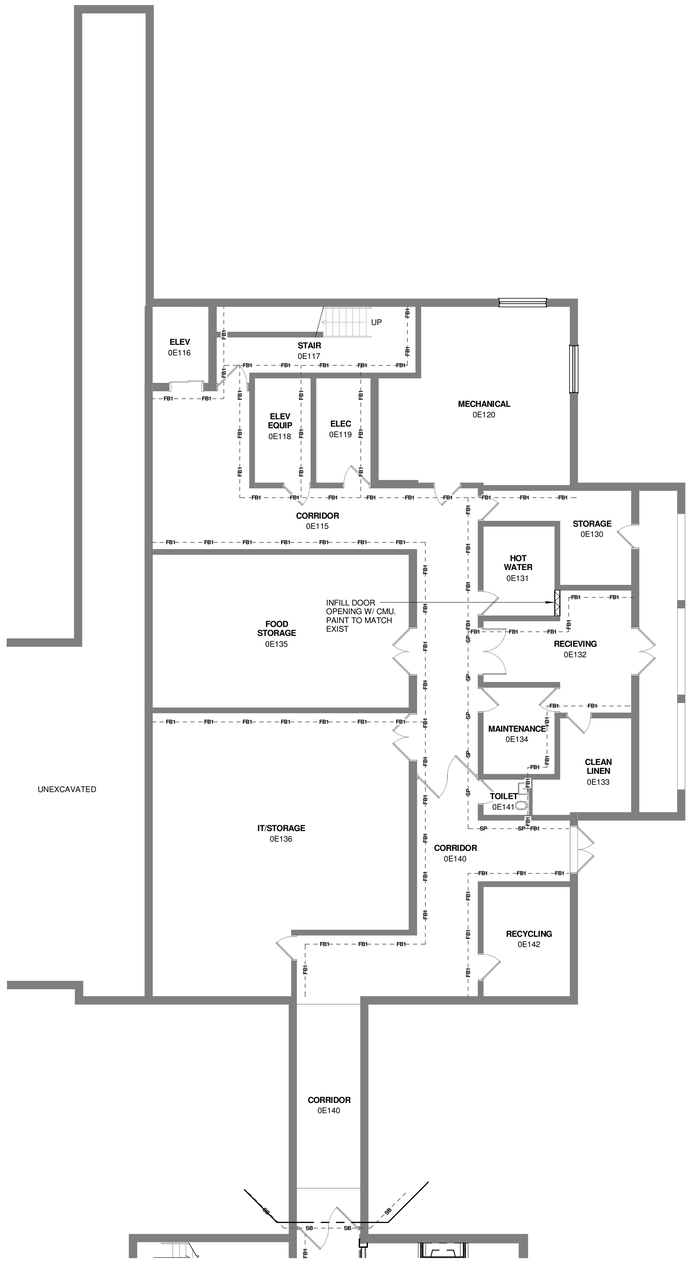


© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

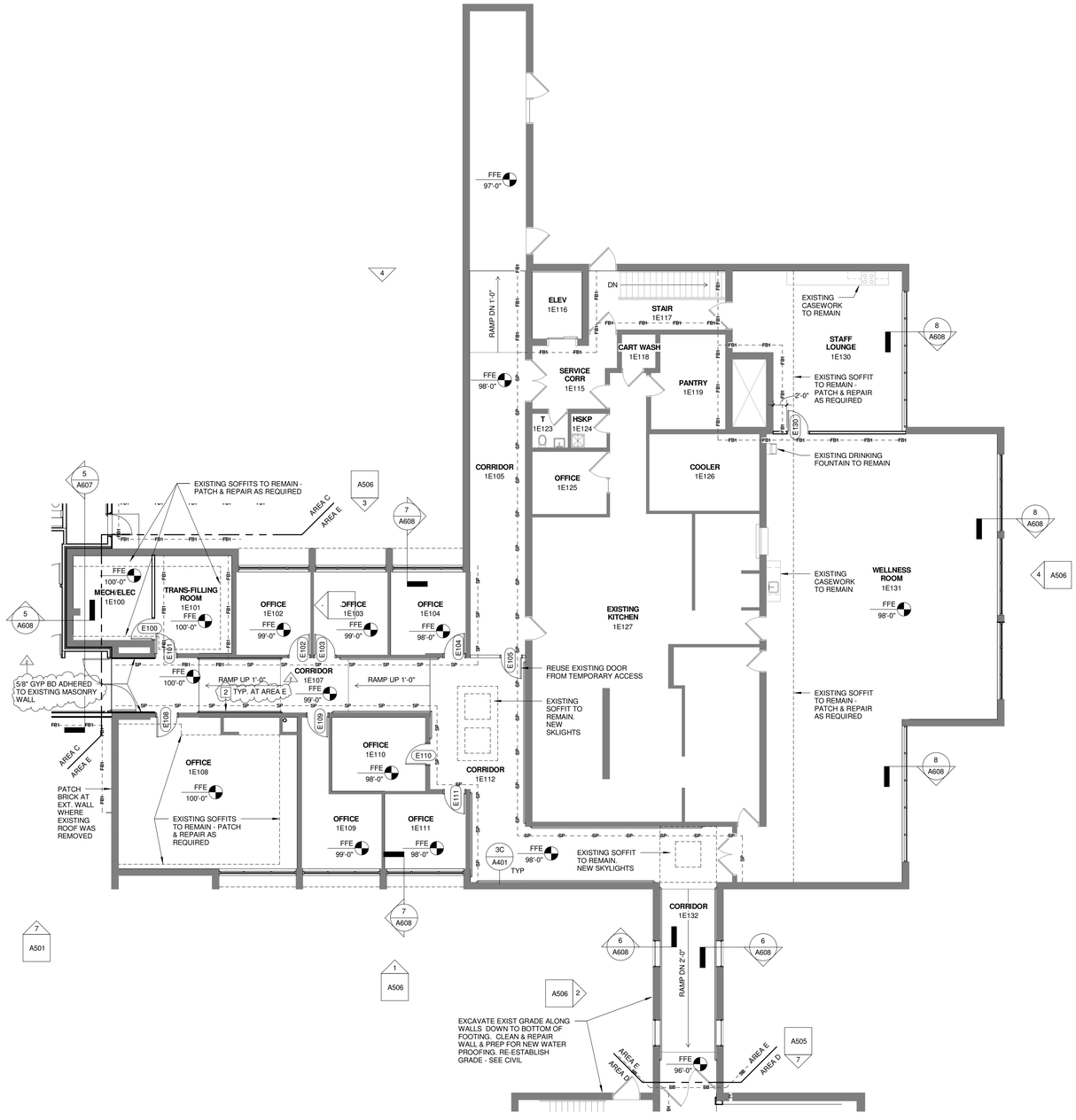
FIRST FLOOR PLAN - AREA D CBRF

Scale	Date	Project Number
As indicated	6/23/15	146038

A105



1 / A107 00 LEVEL 0 - AREA E
1/8" = 1'-0"



2 / A107 FIRST FLOOR PLAN- AREA E
1/8" = 1'-0"

KEYNOTES

1. HANDRAIL OVER 1x6 WD TRIM AND WALL GUARD. PROVIDE CLEARANCE BEHIND ALL DOOR SWINGS FOR DOOR TO OPEN FULLY
2. HANDRAIL AND WALL GUARD
3. TYPICAL WINDOW SILL, CM SILL (SIDES FLUSH AT JAMBS) AND 1x4 WD TRIM APRON
4. PROVIDE CONTINUOUS HORIZONTAL BLKG AT 16" O.C. VERTICALLY FOR WALL MOUNTED EQUIPMENT
5. (5) 18" DEEP LP-1 SHELVES ON STANDARDS
6. 12"D LP-1 SHELF W/ ROD, SEE DETAIL 3E / A402
7. BABY CHANGING STATION BY DIV 10
8. JANITOR'S FLOOR RECEPTOR, SEE DETAIL 5F / A401
9. ALIGN FINISH FACE OF WALLS
10. ADD GYPSUM BOARD FOR FLUSH CONDITION
11. 3'-6" HALF-HEIGHT WALL
12. STOOP, SEE STRUCTURAL
13. STRUCTURAL COLUMN WITH 2-HR RATED SPRAY-APPLIED FIREPROOFING

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

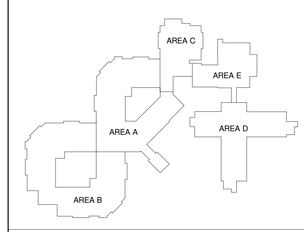
Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

GENERAL NOTES:

1. AREA D FINISH FLOOR ELEVATIONS (FFE)
   BASEMENT = 84'-6" = 1030.17'
   FIRST FLOOR = 96'-0" = 1041.67'
   SECOND FLOOR = 106'-8" = 1051.837'
2. EXTERIOR DIMENSION TO EXTERIOR FACE OF SHEATHING.
3. SEE SPECIFICATION FOR TYPE AND LOCATION OF GYPSUM BOARD; "X", "C", ETC.
4. INTERIOR CORRIDOR WALLS DIMENSIONED TO FINISH FACE OF WALL, SPECIFIED CLEAR
5. INTERIOR WALLS DIMENSIONED TO CENTER OF WALL
6. STANDARD WALL ASSEMBLY IS TYPE 4C, ALL NON-BEARING TO BE STEEL STUD UNLESS NOTED OTHERWISE.
7. (XX) INDICATED EQUIPMENT, SEE EQUIPMENT SCHEDULE.
8. AT AREA D & E BUILDINGS, FIELD VERIFY ALL WINDOW OPENINGS.
9. REPAINT ALL EXISTING RADIATORS IN AREA D & E.
10. ALL FURNITURE (SHOWN DASHED) BY FF&E OR RESIDENT PROVIDED.

KEY PLAN

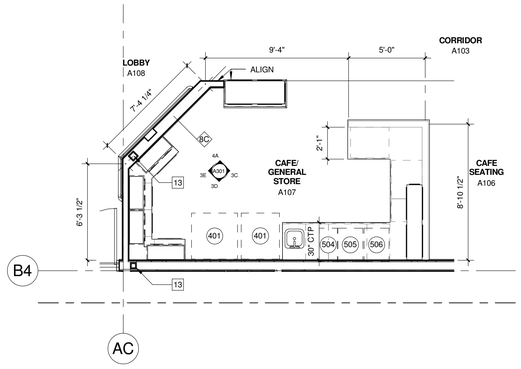


© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with the services.

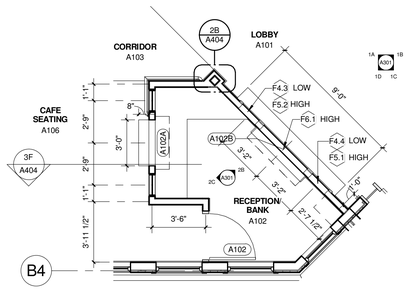
BASEMENT & FIRST FLOOR PLAN - AREA E CORE SERVICES

Scale	Date	Project Number
As indicated	6/23/15	146038

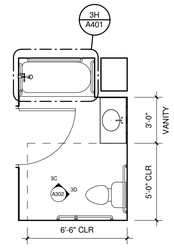
A107



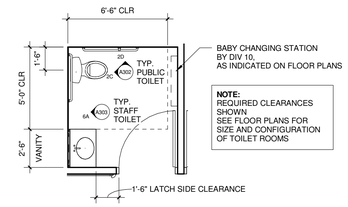
1 A109 ENLARGED PLAN - CAFE/GENERAL STORE
1/4" = 1'-0"



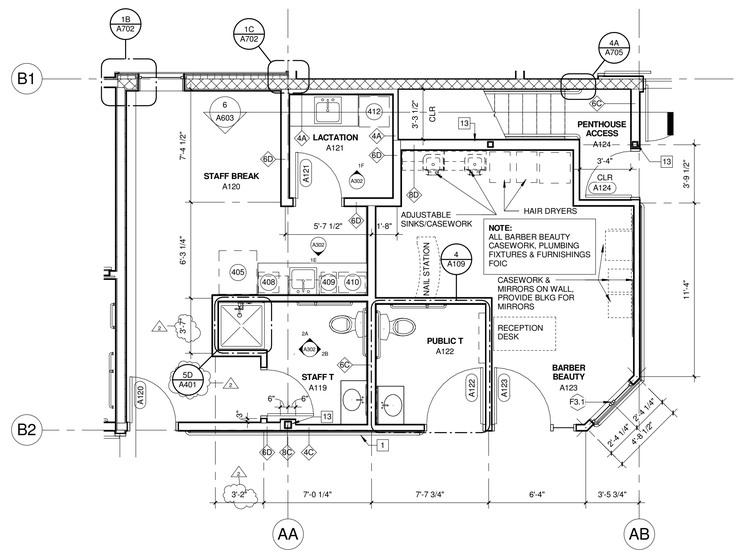
2 A109 ENLARGED PLAN - AREA A - RECEPTION/BANK
1/4" = 1'-0"



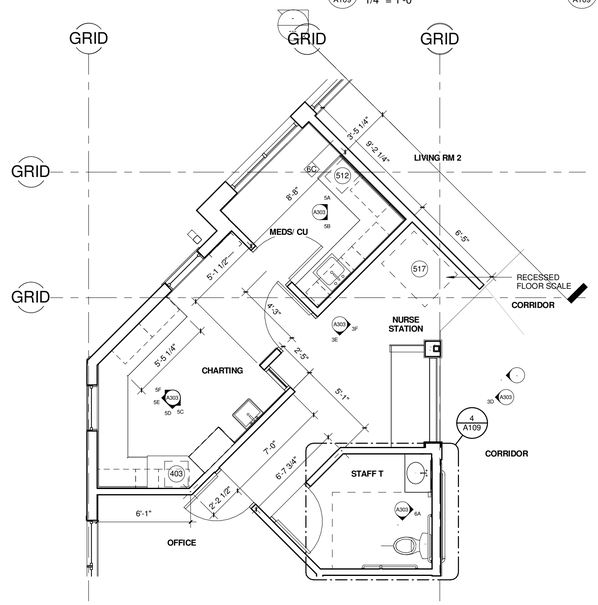
3 A109 ENLARGED PLAN - OT BATHROOM
1/4" = 1'-0"



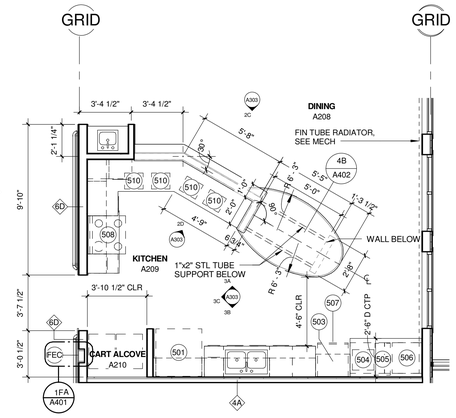
4 A109 ENLARGED PLAN - AREA A TYP. PUBLIC TOILET
1/4" = 1'-0"



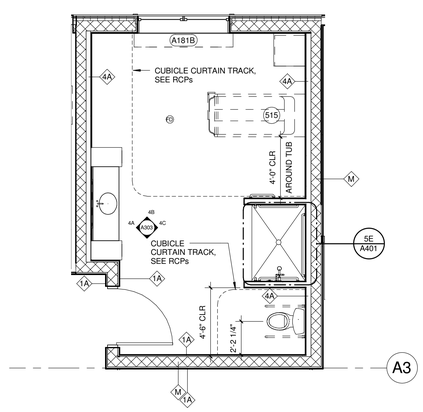
5 A109 ENLARGED PLAN - BARBER BEAUTY/STAFF BREAK/TOILET ROOMS
1/4" = 1'-0"



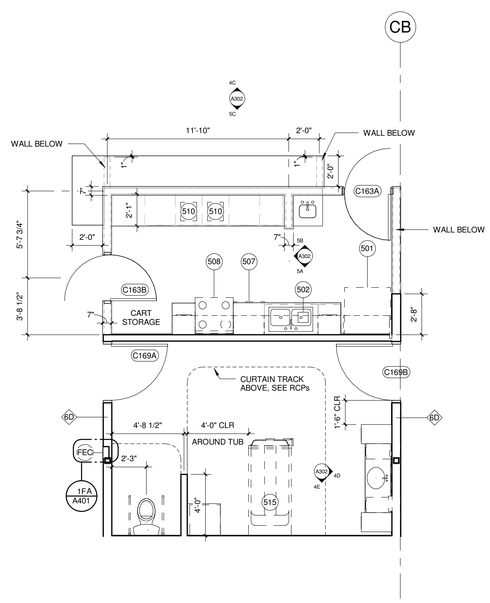
6 A109 ENLARGED PLAN - AREA A & B - NURSE STATION & CHARTING
1/4" = 1'-0"



7 A109 ENLARGED PLAN - TYPICAL SN HOUSEHOLD KITCHEN
1/4" = 1'-0"



8 A109 ENLARGED PLAN - SN SPA
1/4" = 1'-0"



9 A109 ENLARGED PLAN - AREA C KITCHEN/SPA
1/4" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

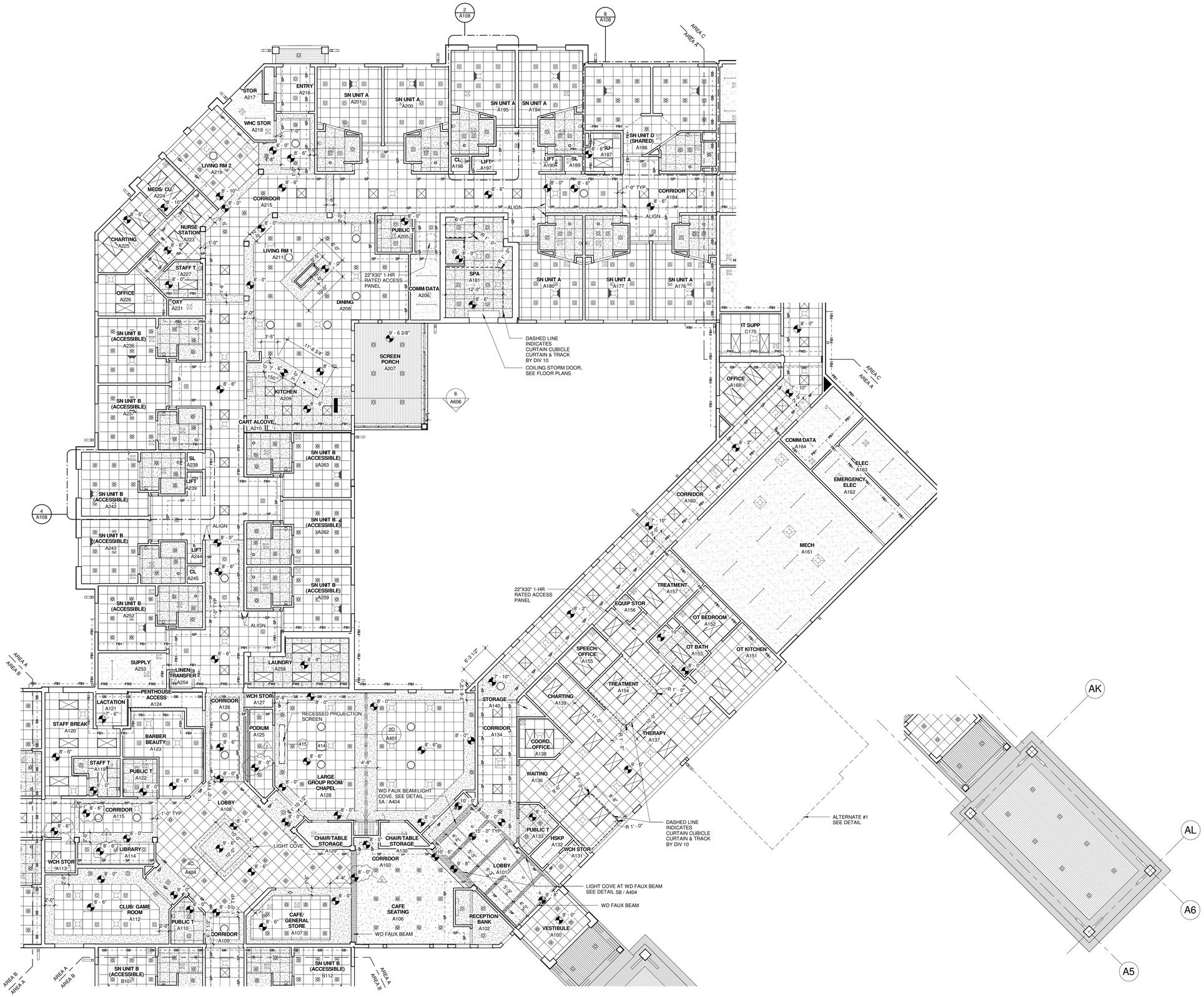
Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

ENLARGED PLANS - AREA A, B & C

Scale	Date	Project Number
1/4" = 1'-0"	6/23/15	146038

A109



1 A201 BUILDING A - REFLECTED CEILING PLAN
1/8" = 1'-0"

2 A201 AREA A RCP - MAIN ENTRY CANOPY & VESTIBULE
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

CEILING PLAN GENERAL NOTES:

1. GYPSUM BOARD CEILINGS AND SOFFITS CAN BE FRAMED OR HUNG (MEANS AND METHODS) - FOR HUNG INSTALLATIONS, FOLLOW MANUFACTURER RECOMMENDED DETAILS.

2. GYPSUM BOARD CEILING AND SOFFIT CONTROL JOINTS ARE NOT SHOWN. PROVIDE CONTROL JOINTS ON THE FOLLOWING SCHEDULE:
-WHERE CEILINGS OF DISSIMILAR CONSTRUCTION MEET.
-WHERE CEILINGS/SOFFITS CHANGE DIRECTION. THIS INCLUDES "L", "U", AND "T" SHAPES
-EVERY 30 LINEAR FEET.
AT THE VERTICAL FACE OF SOFFITS, CONTROL JOINTS ARE CONTINUOUS FROM HORIZONTAL TO VERTICAL.

3. ALL SOFFIT AND CEILING FRAMING SHALL BE STEEL STUD AT ALL CONSTRUCTION TYPES.

4. AT "EJ" EXPANSION JOINTS, FOLLOW THE EXPANSION CONTROL SPECIFICATION SCHEDULE FOR EXPANSION JOINT COVERS AT THE RATED FLOOR AND ROOF ASSEMBLIES.

CEILING HATCH PATTERNS

FINISHED GYP. BD. ON SUSPENDED METAL FRAMING

2x2 ACT ON SUSPENDED METAL FRAMING

2x2 VINYL FACED GYPSUM ON SUSPENDED METAL FRAMING

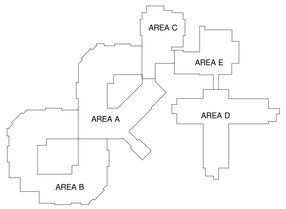
UN-FINISHED GYP. BD. ATTACHED TO UNDERSIDE OF STRUCTURE, 1-HR ROOF ASSEMBLY

FINISHED GYP. BD. ATTACHED TO UNDERSIDE OF STRUCTURE, 1-HR ROOF ASSEMBLY

EXISTING CEILING AND LIGHTS TO REMAIN

METAL SOFFIT

KEY PLAN



© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

REFLECTED CEILING PLAN - AREA A

Scale	Date	Project Number
As indicated	6/23/15	146038

A201

1 A205 FIRST FLOOR REFLECTED CEILING PLAN - AREA D
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/8/15	Addendum 1	Bid Package 2 - Addendum 1
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

CEILING PLAN GENERAL NOTES:

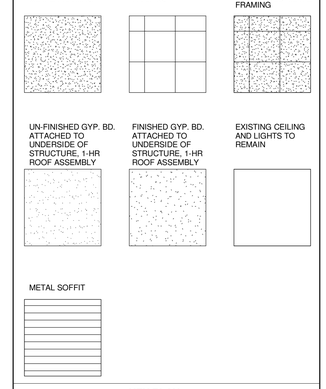
1. GYPSUM BOARD CEILINGS AND SOFFITS CAN BE FRAMED OR HUNG (MEANS AND METHODS) - FOR HUNG INSTALLATIONS, FOLLOW MANUFACTURER RECOMMENDED DETAILS.

2. GYPSUM BOARD CEILING AND SOFFIT CONTROL JOINTS ARE NOT SHOWN. PROVIDE CONTROL JOINTS ON THE FOLLOWING SCHEDULE:
-WHERE CEILINGS OF DISSIMILAR CONSTRUCTION MEET.
-WHERE CEILINGS/SOFFITS CHANGE DIRECTION. THIS INCLUDES "L", "U", AND "T" SHAPES
-EVERY 30 LINEAR FEET.
AT THE VERTICAL FACE OF SOFFITS, CONTROL JOINTS ARE CONTINUOUS FROM HORIZONTAL TO VERTICAL.

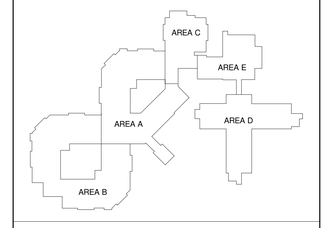
3. ALL SOFFIT AND CEILING FRAMING SHALL BE STEEL STUD AT ALL CONSTRUCTION TYPES.

4. AT "EJ" EXPANSION JOINTS, FOLLOW THE EXPANSION CONTROL SPECIFICATION SCHEDULE FOR EXPANSION JOINT COVERS AT THE RATED FLOOR AND ROOF ASSEMBLIES.

CEILING HATCH PATTERNS



KEY PLAN



© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR REFLECTED CEILING PLAN - AREA D

Scale	Date	Project Number
As indicated	6/23/15	146038

A205

SPOT ELEVATIONS, NOTES AND CEILING TYPES SIMILAR TO FIRST FLOOR - AREA D SHEET A205

1 / A206 SECOND FLOOR REFLECTED CEILING PLAN - AREA D
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

CEILING PLAN GENERAL NOTES:

1. GYPSUM BOARD CEILINGS AND SOFFITS CAN BE FRAMED OR HUNG (MEANS AND METHODS) - FOR HUNG INSTALLATIONS, FOLLOW MANUFACTURER RECOMMENDED DETAILS.

2. GYPSUM BOARD CEILING AND SOFFIT CONTROL JOINTS ARE NOT SHOWN. PROVIDE CONTROL JOINTS ON THE FOLLOWING SCHEDULE:
-WHERE CEILINGS OF DISSIMILAR CONSTRUCTION MEET.
-WHERE CEILINGS/SOFFITS CHANGE DIRECTION. THIS INCLUDES "L", "U", AND "T" SHAPES
-EVERY 30 LINEAR FEET.
AT THE VERTICAL FACE OF SOFFITS, CONTROL JOINTS ARE CONTINUOUS FROM HORIZONTAL TO VERTICAL.

3. ALL SOFFIT AND CEILING FRAMING SHALL BE STEEL STUD AT ALL CONSTRUCTION TYPES.

4. AT "EJ" EXPANSION JOINTS, FOLLOW THE EXPANSION CONTROL SPECIFICATION SCHEDULE FOR EXPANSION JOINT COVERS AT THE RATED FLOOR AND ROOF ASSEMBLIES.

CEILING HATCH PATTERNS

FINISHED GYP. BD. ON SUSPENDED METAL FRAMING

2x2 ACT ON SUSPENDED METAL FRAMING

2x2 VINYL FACED GYPSUM ON SUSPENDED METAL FRAMING

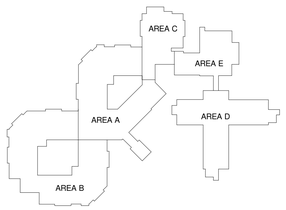
UN-FINISHED GYP. BD. ATTACHED TO UNDERSIDE OF STRUCTURE, 1-HR ROOF ASSEMBLY

FINISHED GYP. BD. ATTACHED TO UNDERSIDE OF STRUCTURE, 1-HR ROOF ASSEMBLY

EXISTING CEILING AND LIGHTS TO REMAIN

METAL SOFFIT

KEY PLAN

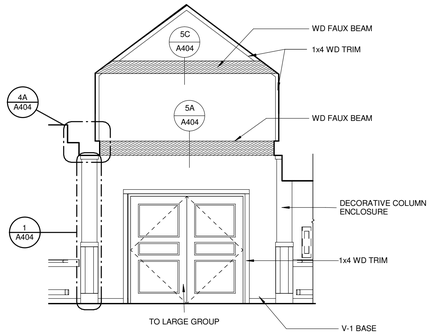


© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with the services.

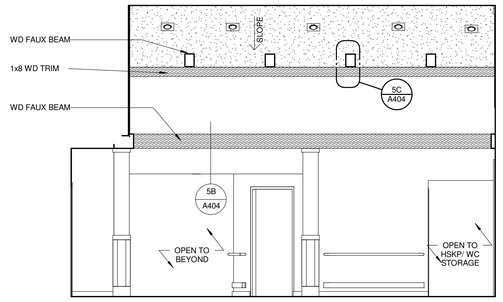
SECOND FLOOR REFLECTED CEILING PLAN - AREA D

Scale	Date	Project Number
As indicated	6/23/15	146038

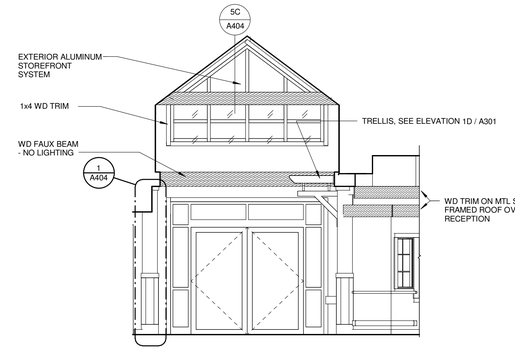
A206



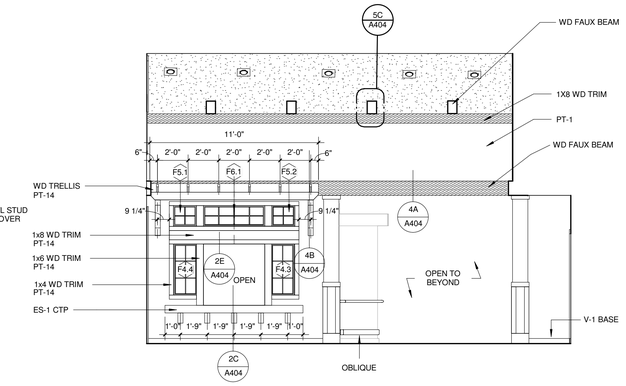
1A A301 AREA A - LOBBY FACING LARGE GROUP
1/4" = 1'-0"



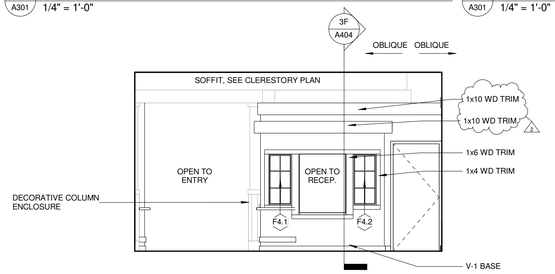
1B A301 AREA A - LOBBY
1/4" = 1'-0"



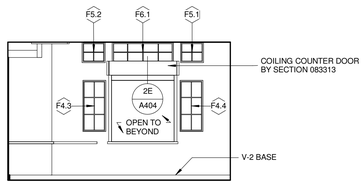
1C A301 AREA A - LOBBY FACING ENTRANCE
1/4" = 1'-0"



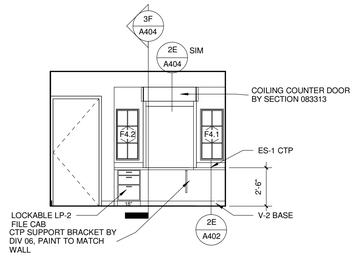
1D A301 AREA A - LOBBY FACING RECEPTION
1/4" = 1'-0"



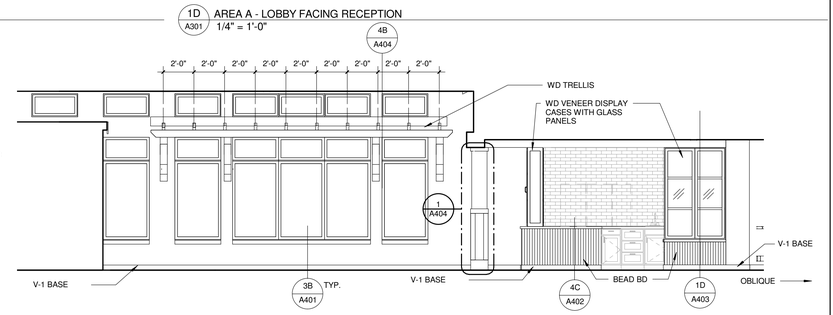
2A A301 AREA A - CAFE FACING RECEPTION/ BANK
1/4" = 1'-0"



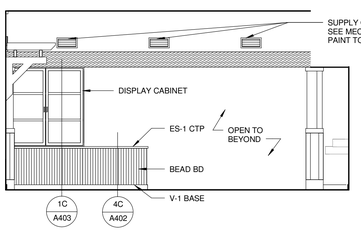
2B A301 AREA A - RECEPTION 3
1/4" = 1'-0"



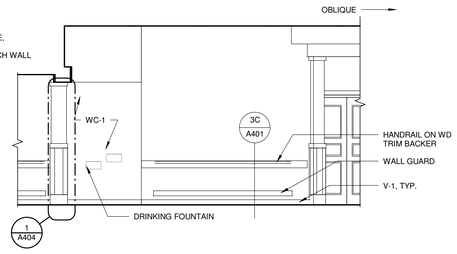
2C A301 AREA A - RECEPTION
1/4" = 1'-0"



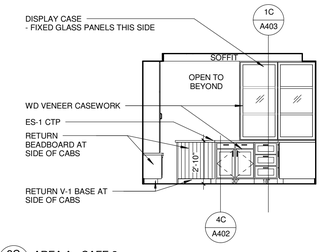
2D A301 AREA A - CAFE SEATING
1/4" = 1'-0"



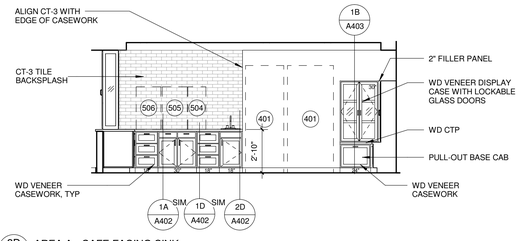
3A A301 AREA A - CAFE SEATING FACING CAFE COUNTER
1/4" = 1'-0"



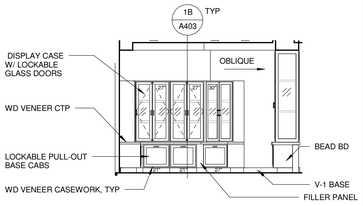
3B A301 AREA A - DRINKING FOUNTAINS + GENERAL STORE
1/4" = 1'-0"



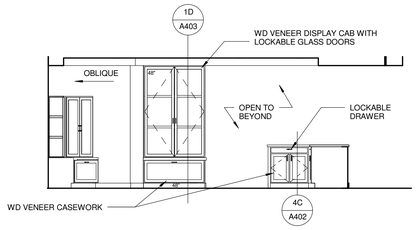
3C A301 AREA A - CAFE 2
1/4" = 1'-0"



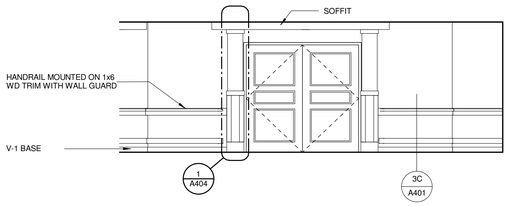
3D A301 AREA A - CAFE FACING SINK
1/4" = 1'-0"



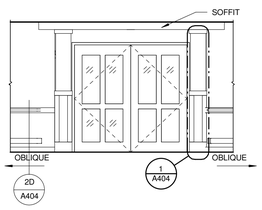
3E A301 AREA A - GENERAL STORE
1/4" = 1'-0"



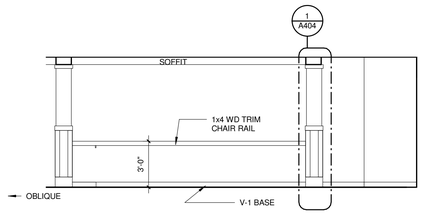
4A A301 AREA A - GENERAL STORE 2
1/4" = 1'-0"



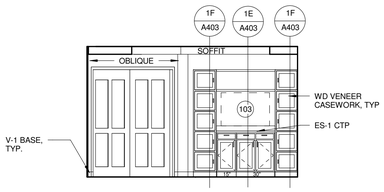
4B A301 AREA A - LOBBY A108 FACING LARGE GROUP ROOM
1/4" = 1'-0"



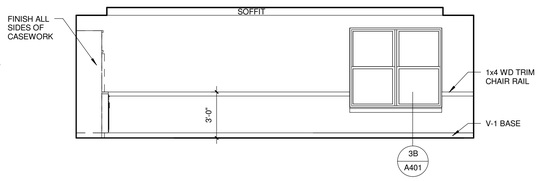
4D A301 AREA A - LOBBY A108 FACING CLUB/GAME ROOM
1/4" = 1'-0"



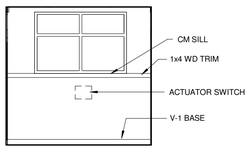
4E A301 AREA A - LIBRARY (A114)
1/4" = 1'-0"



5A A301 AREA A - CLUB/ GAME RM
1/4" = 1'-0"



5B A301 AREA A - CLUB/ GAME RM 2
1/4" = 1'-0"



5C A301 AREA A - ENTRY VESTIBULE
1/4" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

GENERAL NOTES

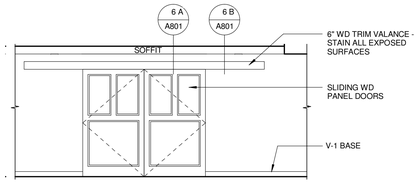
1. WD TRIM, BEAD BOARD AND TRELLIS BY SECTION 062023
   - TRIM & BEAD BOARD STAIN TO BE ST-1 U.N.O.
   - TRELLIS TO BE PT-14 U.N.O.
2. LP CASEWORK BY SECTION 064116
3. WD VENEER CASEWORK BY SECTION 064113
4. WD RESIDENTIAL CASEWORK BY SECTION 123530
5. BARBER/BEAUTY, SPA, PUBLIC TOILET, AND SKILLED CARE RESIDENT TOILET ROOM MIRRORS TO BE POLYSTYRENE, TYP. SEE DIVISION 10.
6. ADD 2" MINIMUM CABINETRY FILLER STRIP TO SIDES OF ALL CABINETS AGAINST WALLS.

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

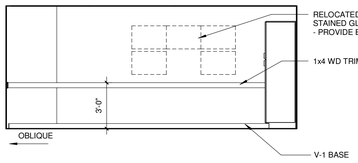
INTERIOR ELEVATIONS - AREA A

Scale	Date	Project Number
1/4" = 1'-0"	6/23/15	146038

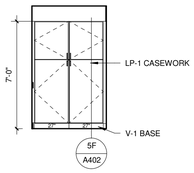
A301



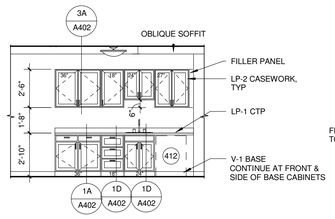
1A A302 AREA A - LARGE GROUP RM (A128) PODIUM DOORS
1/4" = 1'-0"



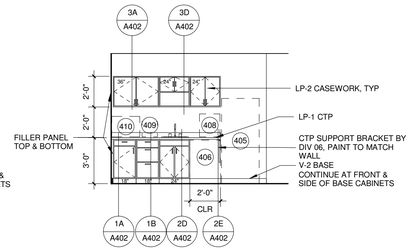
1B A302 AREA A - PODIUM (A125) BACK WALL
1/4" = 1'-0"



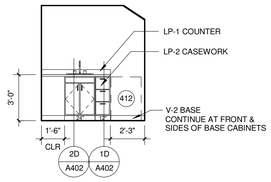
1C A302 AREA A - POCIUM (A125) CASEWORK
1/4" = 1'-0"



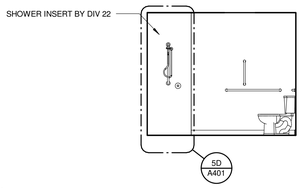
1D A302 AREA A - LARGE GROUP RM (A128) BUFFET CASEWORK
1/4" = 1'-0"



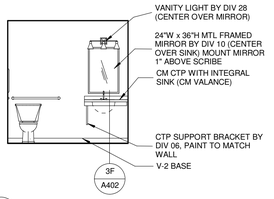
1E A302 AREA A - STAFF BREAK RM (A120) KITCHEN 2
1/4" = 1'-0"



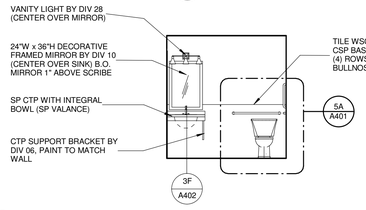
1F A302 AREA A - LACTATION RM (A121)
1/4" = 1'-0"



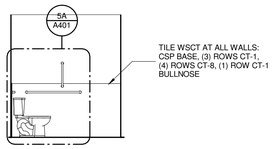
2A A302 AREA A - STAFF SHOWER FACING GRAB BARS
1/4" = 1'-0"



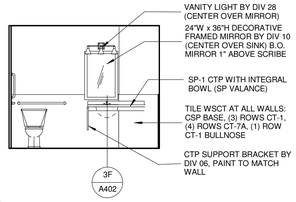
2B A302 AREA A - STAFF SHOWER RM FACING VANITY
1/4" = 1'-0"



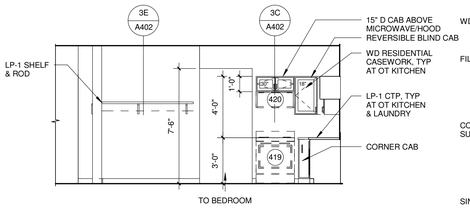
2C A302 AREA A - TYPICAL PUBLIC TOILET AT VANITY
1/4" = 1'-0"



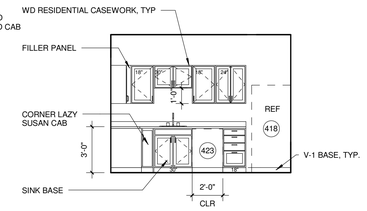
2D A302 AREA A - TYPICAL PUBLIC TOILET
1/4" = 1'-0"



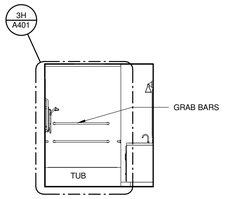
2E A302 AREA A - PUBLIC TOILET (A110)
1/4" = 1'-0"



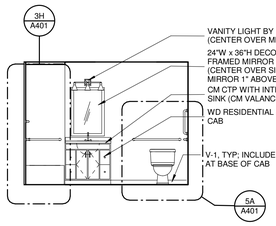
3A A302 AREA A - OT KITCHEN
1/4" = 1'-0"



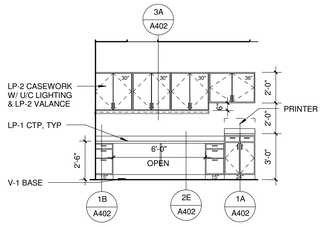
3B A302 AREA A - OT KITCHEN FACING LAUNDRY
1/4" = 1'-0"



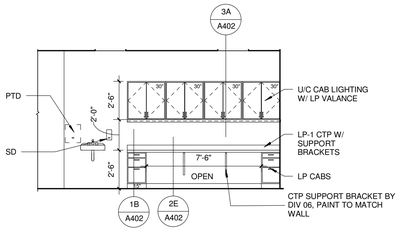
3C A302 AREA A - OT BATH FACING TUB
1/4" = 1'-0"



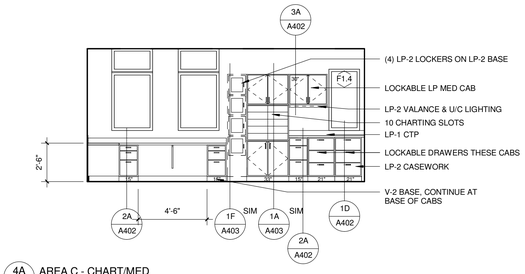
3D A302 AREA A - OT BATH FACING VANITY
1/4" = 1'-0"



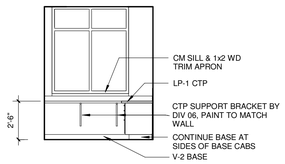
3E A302 AREA A - THERAPY CHARTING FACING PRINTER
1/4" = 1'-0"



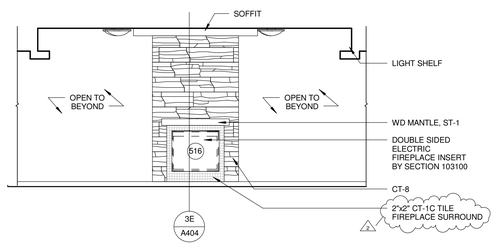
3F A302 AREA A - THERAPY CHARTING
1/4" = 1'-0"



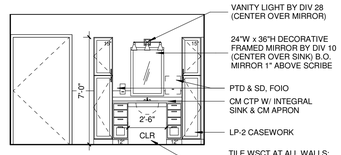
4A A302 AREA C - CHART/MED
1/4" = 1'-0"



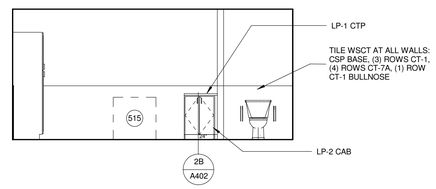
4B A302 AREA C - CHART/MED C138 2
1/4" = 1'-0"



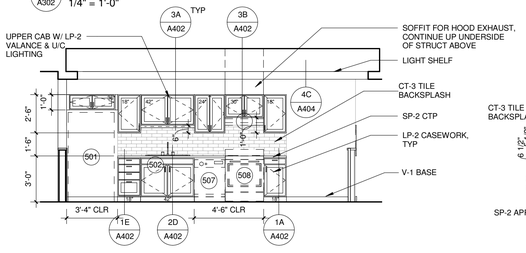
4C A302 AREA C - DINING
1/4" = 1'-0"



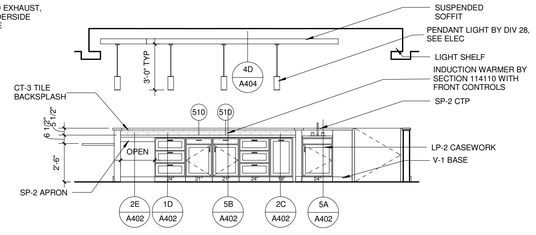
4D A302 AREA C - SPA
1/4" = 1'-0"



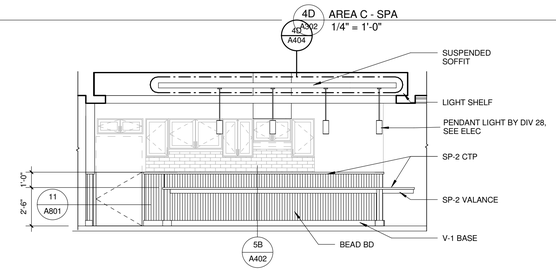
4E A302 AREA C - SPA C169 2
1/4" = 1'-0"



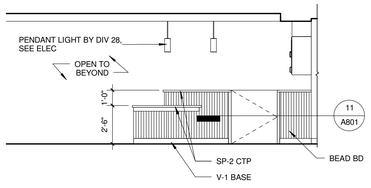
5A A302 AREA C - KITCHEN 1
1/4" = 1'-0"



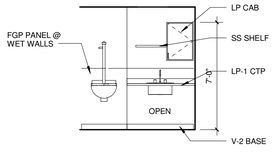
5B A302 AREA C - KITCHEN 2
1/4" = 1'-0"



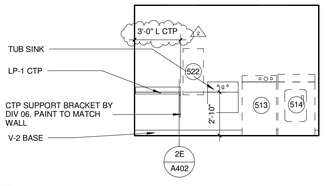
5C A302 AREA C - KTICHEN 3
1/4" = 1'-0"



5D A302 AREA C - FACING COMMON SPACES
1/4" = 1'-0"



6A A302 AREA C - SU
1/4" = 1'-0"



6B A302 AREA C - RES LAUNDRY 1
1/4" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

GENERAL NOTES

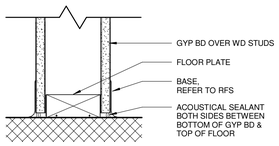
1. WD TRIM, BEAD BOARD AND TRELLIS BY SECTION 062023
   - TRIM & BEAD BOARD STAIN TO BE ST-1 U.N.O.
   - TRELLIS TO BE PT-14 U.N.O.
2. LP CASEWORK BY SECTION 064116
3. WD VENEER CASEWORK BY SECTION 064113
4. WD RESIDENTIAL CASEWORK BY SECTION 123530
5. BARBER/BEAUTY, SPA, PUBLIC TOILET, AND SKILLED CARE RESIDENT TOILET ROOM MIRRORS TO BE POLYSTYRENE, TYP. SEE DIVISION 10.
6. ADD 2" MINIMUM CABINETRY FILLER STRIP TO SIDES OF ALL CABINETS AGAINST WALLS.

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

INTERIOR ELEVATIONS - AREA A & C

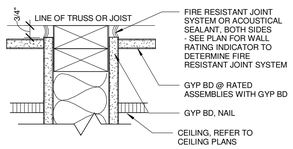
Scale	Date	Project Number
1/4" = 1'-0"	6/23/15	146038

A302

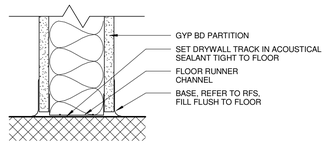


1A A401 INT DTL - PARTITION - @ FLOOR, WD STUD
3" = 1'-0"

NOTE: ONLY EQUALLY RATE FIRE ASSEMBLIES ARE ALLOWED TO BREAK THE CONTINUOUS COVERAGE OF GYP. BD. ON A FIRE ASSEMBLY. THIS INCLUDES WALL, FLOOR AND ROOF ASSEMBLIES. NON-RATED WALL PARTITIONS ARE NOT ALLOWED TO BREAK THE CONTINUOUS GYP. BD. COVERAGE OF FIRE ASSEMBLIES.

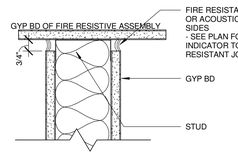


1B A401 INT DTL - BEARING WALL @ TOP - WOOD STUD, TYP
3" = 1'-0"

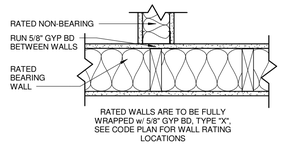


2 A401 INT DTL - PARTITION - @ FLOOR, STL STUD, TYP.
3" = 1'-0"

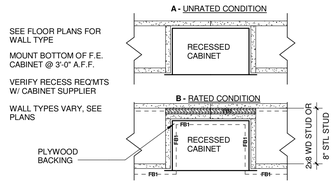
NOTE: ONLY EQUALLY RATE FIRE ASSEMBLIES ARE ALLOWED TO BREAK THE CONTINUOUS COVERAGE OF GYP. BD. ON A FIRE ASSEMBLY. THIS INCLUDES WALL, FLOOR AND ROOF ASSEMBLIES. NON-RATED WALL PARTITIONS ARE NOT ALLOWED TO BREAK THE CONTINUOUS GYP. BD. COVERAGE OF FIRE ASSEMBLIES.



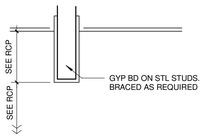
1D A401 INT DTL - NON-BEARING WALL @ TOP - STL STUD, TYP.
3" = 1'-0"



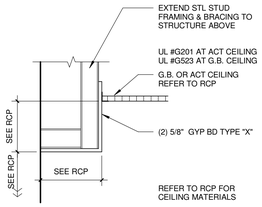
1E A401 INT DTL - PARTITION - RATED CONNECTION
1 1/2" = 1'-0"



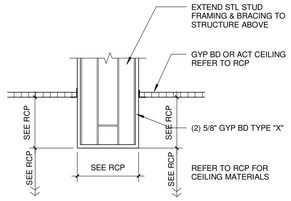
1F A401 INT DTL - FP - FIRE EXTINGUISHER CAB, SEMI-RECESSED
1 1/2" = 1'-0"



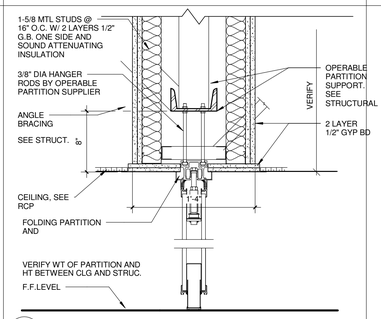
2A A401 INT DTL - RCP - SOFFIT, BULKHEAD
1" = 1'-0"



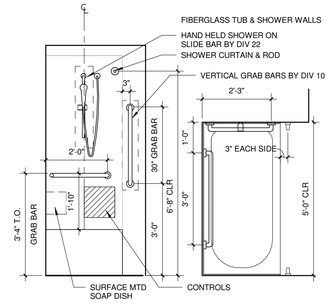
2B A401 INT DTL - RCP - SOFFIT AT WALL
1" = 1'-0"

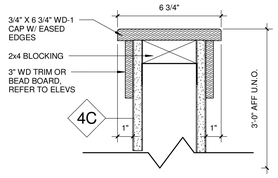


2C A401 INT DTL - RCP - SOFFIT
1" = 1'-0"

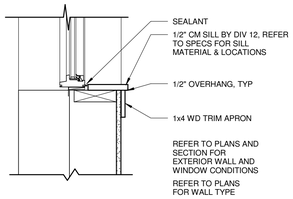


2D A401 INT DTL - PARTITION - FOLDING PARTITION HEAD & SUPPORT
1 1/2" = 1'-0"

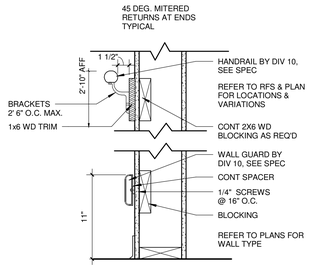




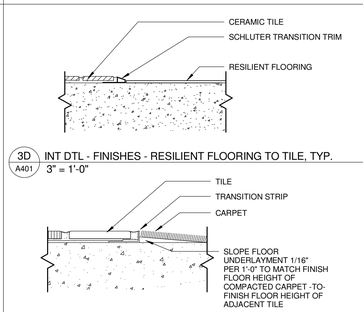
3A A401 INT DTL - PARTITION - TRIM @ HALF HEIGHT WALL
3" = 1'-0"



3B A401 INT DTL - FINISHES - SILL, CM
1 1/2" = 1'-0"

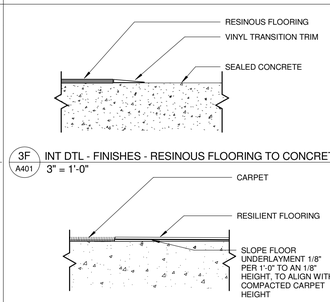


3C A401 INT DTL - RAILING - HANDRAIL w/ BUMPER
1 1/2" = 1'-0"



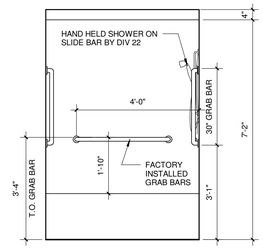
3D A401 INT DTL - FINISHES - RESILIENT FLOORING TO TILE, TYP.
3" = 1'-0"

3E A401 INT DTL - FINISHES - CARPET TO TILE, TYP.
3" = 1'-0"

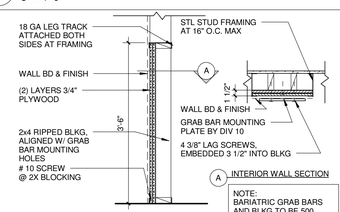


3F A401 INT DTL - FINISHES - RESINOUS FLOORING TO CONCRETE, TYP.
3" = 1'-0"

3G A401 INT DTL - FINISHES - RESILIENT FLOORING TO CARPET, TYP.
3" = 1'-0"

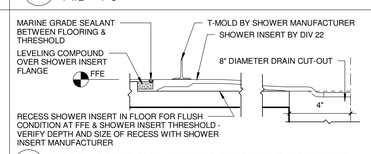


3H A401 INT DTL - TOILET RMS - TUB, THERAPY
1/2" = 1'-0"

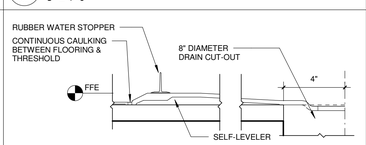


NOTE:
BARIATRIC GRAB BARS AND BLKG TO BE 500 LBS. CAPICITY MINUMUM

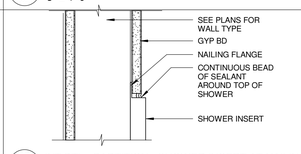
4A A401 INT DTL - WALL - SWING-UP GRAB BAR BLKG
3/4" = 1'-0"



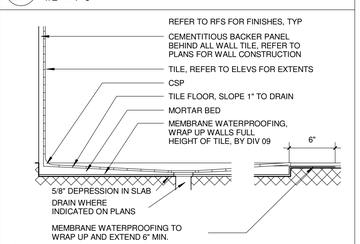
4C A401 INT DTL - TOILET RMS - SHOWER THRESHOLD (RECESSED)
3" = 1'-0"



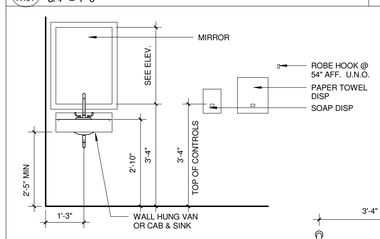
4D A401 INT DTL - TOILET RMS - SHOWER INSERT THRESHOLD
3" = 1'-0"

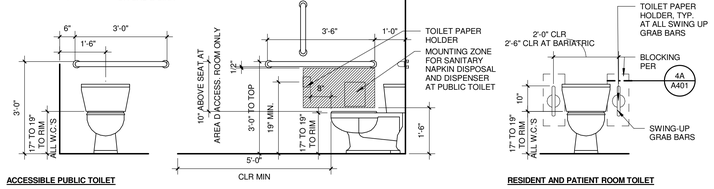


4E A401 INT DTL - PARTITION - SHOWER INSERT AT NAILING FLANGE
3" = 1'-0"



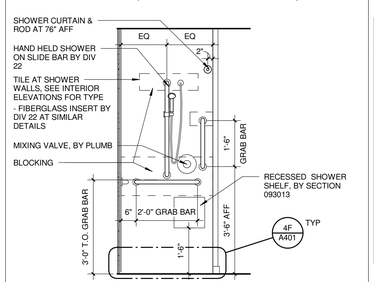
4F A401 INT DTL - SHOWER WATERPROOFING
1 1/2" = 1'-0"



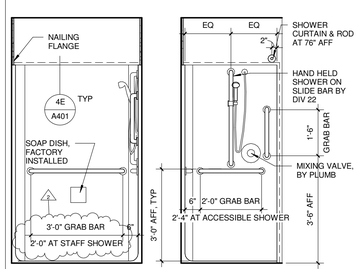


NOTE:
PROVIDE BLOCKING AS REQ'D FOR ALL WALL MOUNTED ITEMS. PLUMBER TO INSTALL W.C. BASE, SWING UP GRAB BAR TO BE MOUNTED, W.C. TANK TO BE INSTALLED.

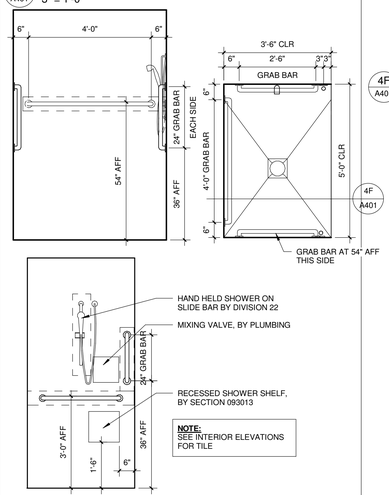
5A A401 INT DTL - TOILET ROOM FIXTURE DIMENSIONS, TYP
1/2" = 1'-0"



5C A401 INT DTL - TOILET ROOMS - SN AND DCS UNIT SHOWERS
1/2" = 1'-0"

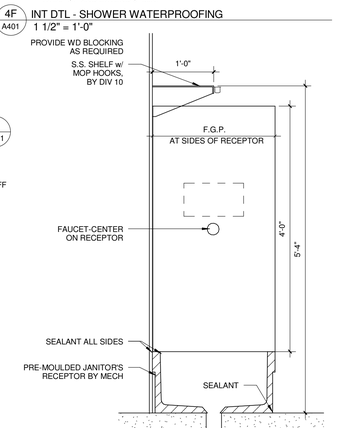


5D A401 INT DTL - TOILET RMS - FIBERGLASS SHOWER INSERT
1/2" = 1'-0"



NOTE:
SEE INTERIOR ELEVATIONS FOR TILE

5E A401 INT DTL - TOILET RMS - SPA SHOWER
1/2" = 1'-0"



5F A401 INT DTL - PLMB DTL - JANITOR'S FLOOR RECEPTOR
1" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

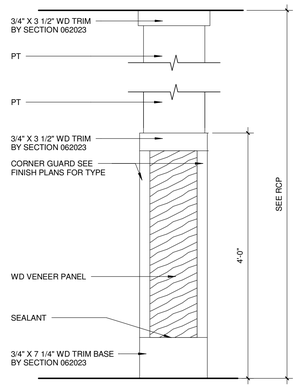
Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

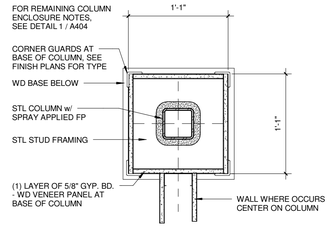
INTERIOR DETAILS - GENERAL

Scale	Date	Project Number
As indicated	6/23/15	146038

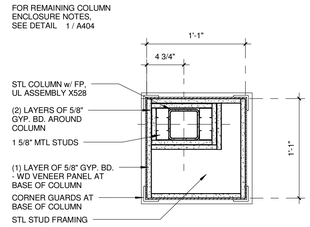
A401



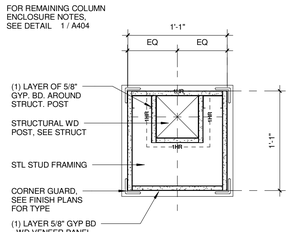
1 A404 INT DTL - TYP. COLUMN ENCLOSURE ELEVATION
1" = 1'-0"



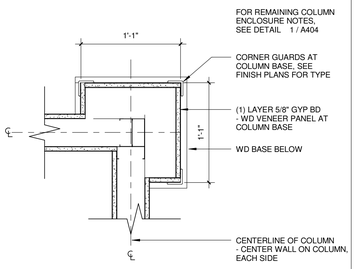
1A A404 INT DTL - COLUMN - ENCLOSURE AT STEEL COLUMN W/ SPRAY APPLIED FP
1 1/2" = 1'-0"



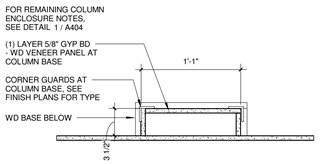
1B A404 INT DTL - COLUMN - ENCLOSURE AT STEEL COLUMN W/ GYP BD FP
1 1/2" = 1'-0"



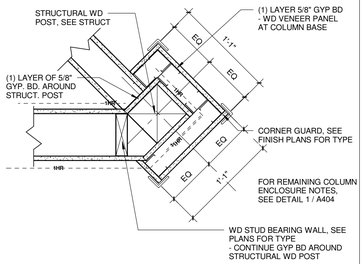
1C A404 INT DTL - COLUMN - ENCLOSURE AT WOOD POST W/ GYP BD FP
1 1/2" = 1'-0"



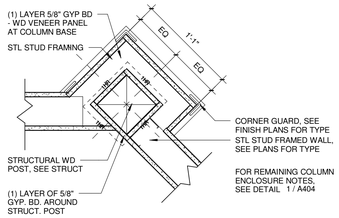
1D A404 INT DTL - COLUMN - DECORATIVE COLUMN AT CORNER
1 1/2" = 1'-0"



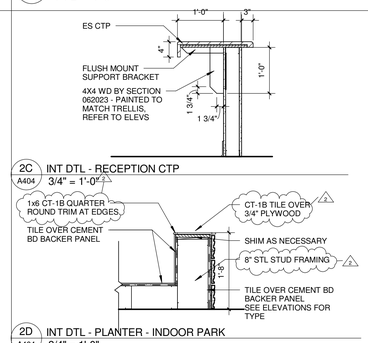
1E A404 INT DTL - COLUMN - DECORATIVE ENCLOSURE PILASTER
1 1/2" = 1'-0"



2A A404 INT DTL - COLUMN - ENCLOSURE AT STRUCTURAL WD POST AT LARGE GROUP RM
1 1/2" = 1'-0"

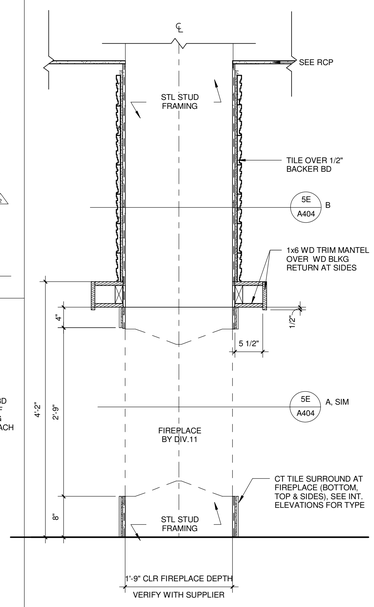


2B A404 INT DTL - COLUMN - ENCLOSURE AT STRUCTURAL WD POST AT AREA A LOBBY
1 1/2" = 1'-0"

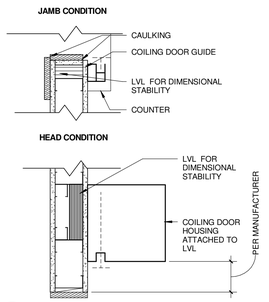


2C A404 INT DTL - RECEPTION CTP
3/4" = 1'-0"

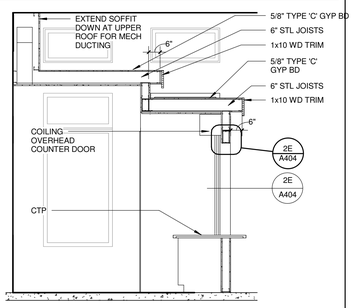
2D A404 INT DTL - PLANTER - INDOOR PARK
3/4" = 1'-0"



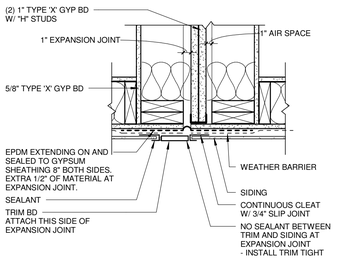
3E A404 INT DTL - SPECIALTY - DCS FIREPLACE SECTION
1" = 1'-0"



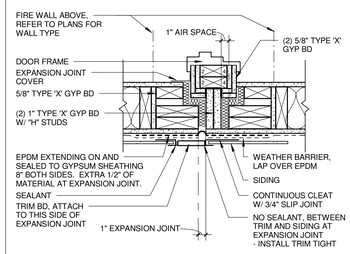
2E A404 INT DTL - RECEPTION COIILING DOOR JAMB AND HEAD
1 1/2" = 1'-0"



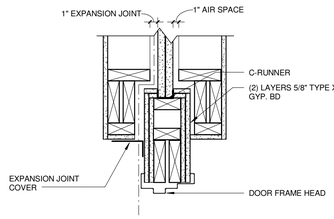
3F A404 INT DTL - SPECIALTY - SECTION AT RECEPTION/BANK
3/8" = 1'-0"



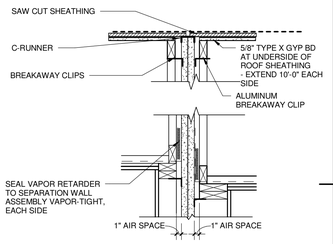
3A A404 FP DTL -FIRE WALL - WALL TYPE K AT EXT WALL
1 1/2" = 1'-0"



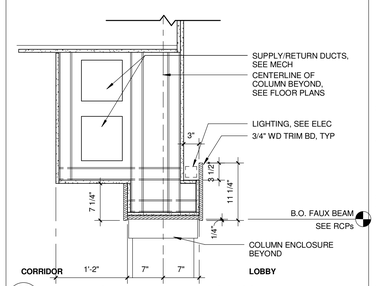
3B A404 FP DTL - FIRE WALL - WALL TYPE K DOOR JAMB AT EXT WALL
1 1/2" = 1'-0"



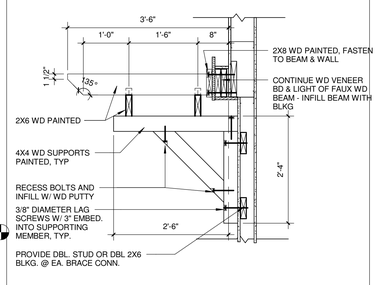
3C A404 FP DTL - FIRE WALL - WALL TYPE K AT DOOR HEAD
1 1/2" = 1'-0"



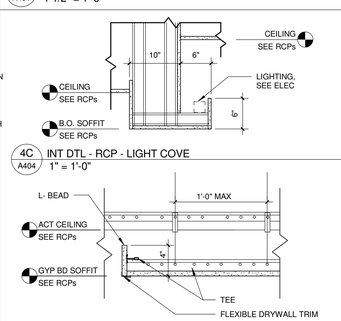
3D A404 FP DTL - FIRE WALL - AREA A AT FLAT ROOF
1" = 1'-0"



4A A404 INT DTL - RCP - WD FAUX BEAM/LIGHT COVE
1" = 1'-0"

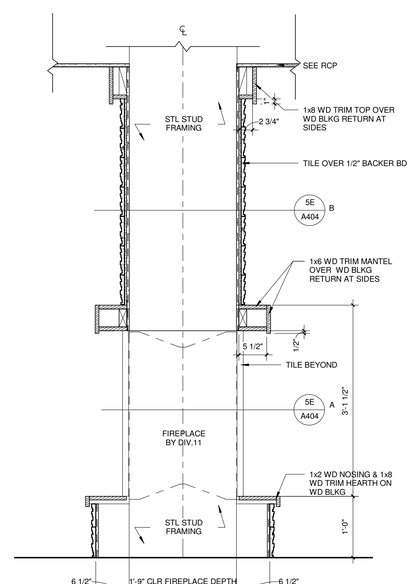


4B A404 INT. DTL - WALL PERGOLA
3/4" = 1'-0"

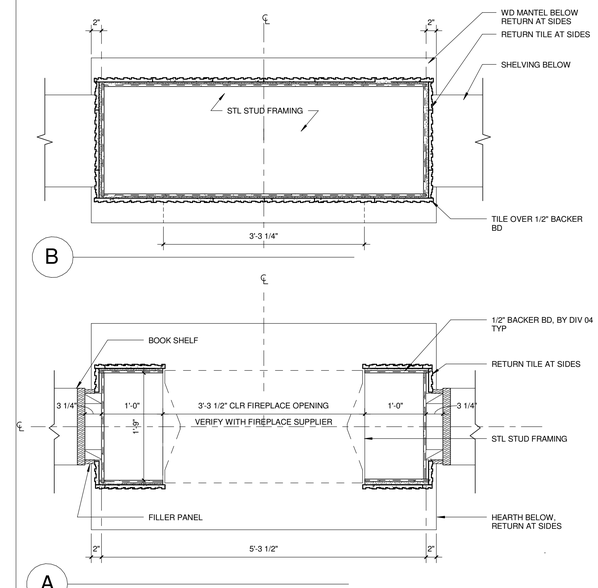


4C A404 INT DTL - RCP - LIGHT COVE
1" = 1'-0"

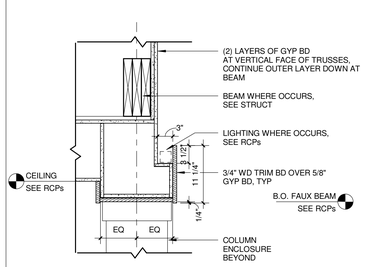
4D A404 INT DTL - RCP - HANGING GYPSUM BOARD CEILING SOFFIT
1 1/2" = 1'-0"



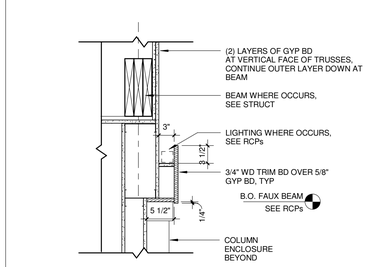
5D A404 INT DTL - SPECIALTY - S.N. FIREPLACE SECTION
1" = 1'-0"



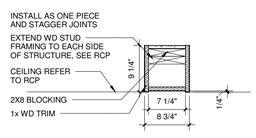
5E A404 INT DTL - SPECIALTY - S.N. FIREPLACE PLAN
1" = 1'-0"



5A A404 INT DTL - RCP - WD FAUX BEAM/LIGHT COVE 3
1" = 1'-0"



5B A404 INT DTL - RCP - WD FAUX BEAM/LIGHT COVE 2
1" = 1'-0"



5C A404 INT DTL - RCP - WD VENEER BEAM
1" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

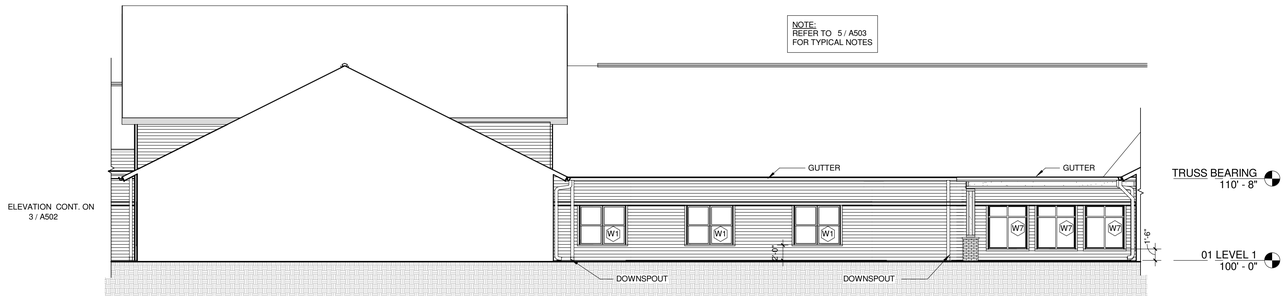
Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

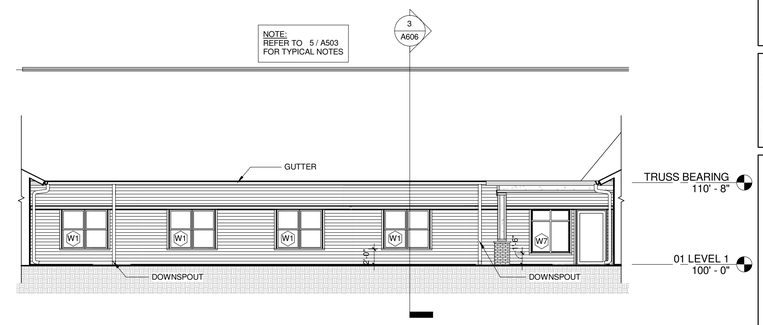
INTERIOR DETAILS - SPECIALTY

Scale	Date	Project Number
As indicated	6/23/15	146038

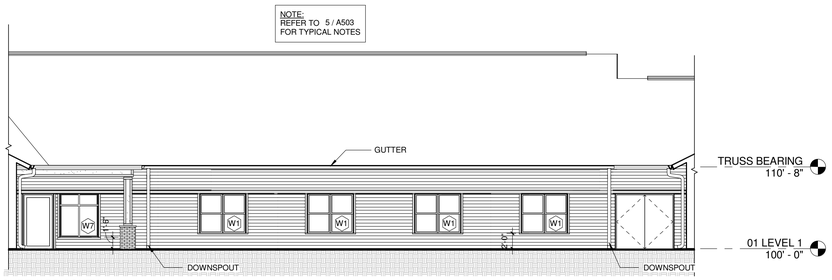
A404



1 A504 AREA B - COURTYARD EAST
1/8" = 1'-0"



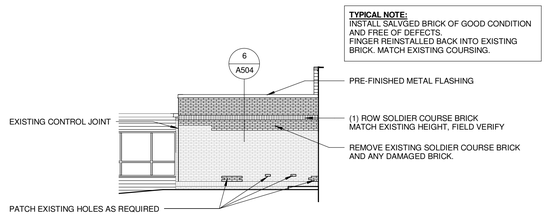
2 A504 AREA B - COURTYARD WEST
1/8" = 1'-0"



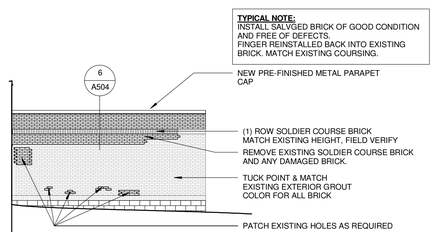
3 A504 AREA B - COURTYARD SOUTH
1/8" = 1'-0"

NOTE: REFER TO 1/A502 FOR TYPICAL ELEVATION NOTES

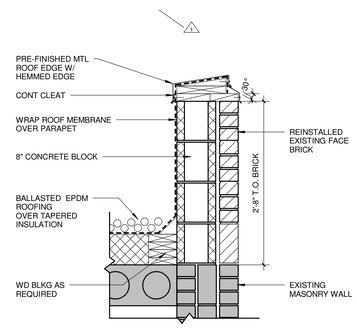
NOTE: REFER TO 8/A502 FOR TYPICAL ELEVATION NOTES



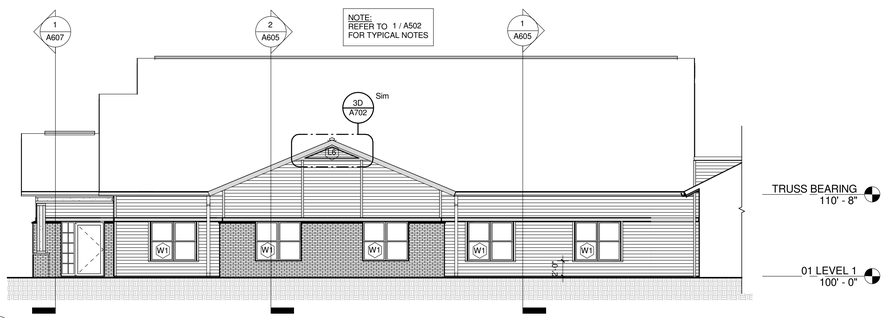
4 A504 AREA E - EXISTING NORTH WALL AT AREA C
1/8" = 1'-0"



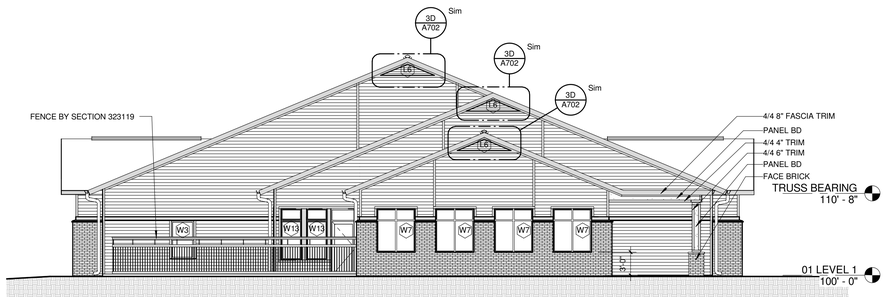
5 A504 AREA E - EXISTING WEST WALL AT AREA C
1/8" = 1'-0"



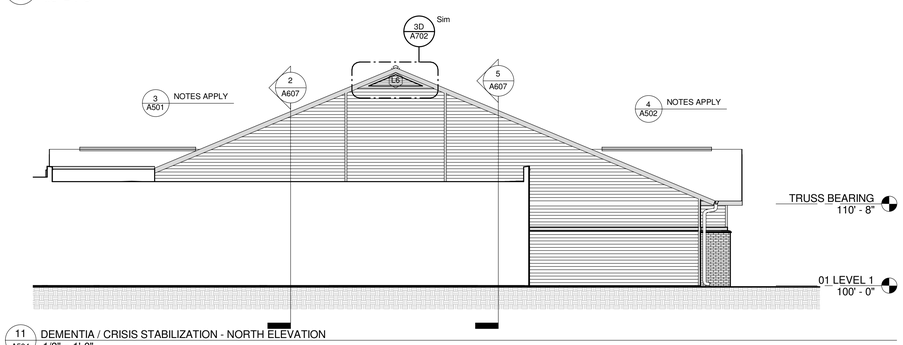
6 A504 EXT DTL - ROOF EDGE, NEW MASONRY PARAPET AT AREA E
1" = 1'-0"



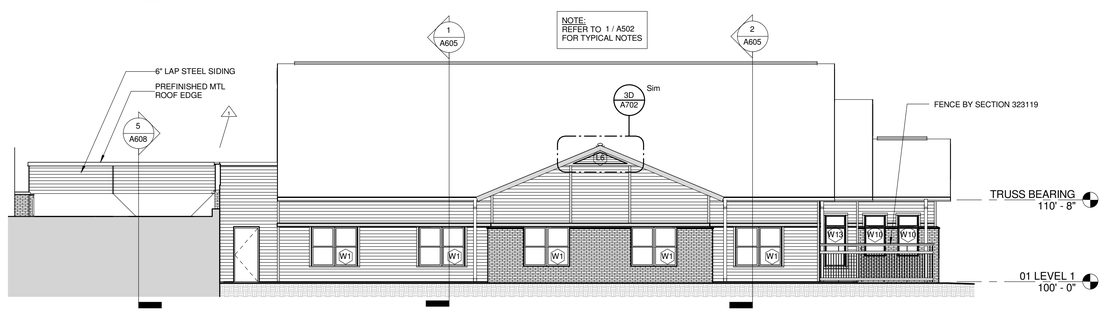
7 A504 DEMENTIA / CRISIS STABILIZATION - EAST ELEVATION
1/8" = 1'-0"



8 A504 DEMENTIA / CRISIS STABILIZATION - SOUTH ELEVATION
1/8" = 1'-0"



11 A504 DEMENTIA / CRISIS STABILIZATION - NORTH ELEVATION
1/8" = 1'-0"



9 A504 DEMENTIA / CRISIS STABILIZATION - WEST ELEVATION
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/8/15	Addendum 1	Bid Package 2 - Addendum 1
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

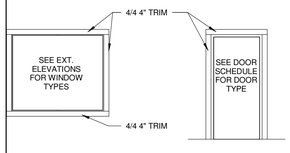
EXTERIOR ELEVATION GENERAL NOTES

1. EXTERIOR TRIM BOARD AND PANEL SIDING BY DIV 07, FIBER SUBSTRATE SIDING

SIDING LEGEND

MATERIAL ID	MATERIAL DESCRIPTION	MATERIAL HATCH PATTERN
A	4" STEEL SIDING	
B	6" STEEL SIDING: COLOR 1	
C	6" STEEL SIDING: COLOR 2	
D	6" STEEL SIDING: COLOR 3	
E	PRE-FINISHED METAL TRIM : COLOR 1	

TYPICAL EXTERIOR WINDOW AND DOOR TRIM SURROUND

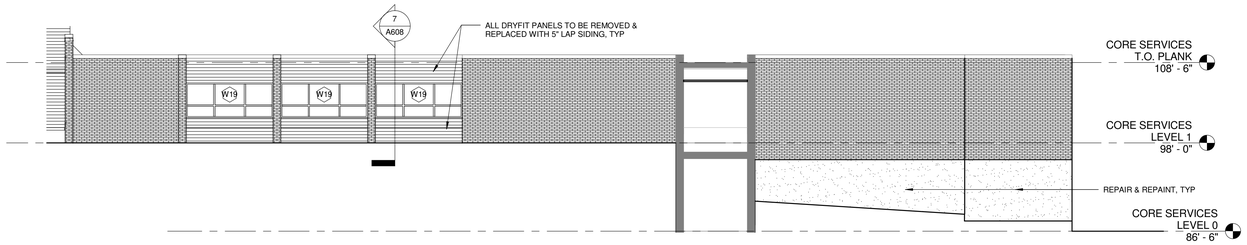


© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

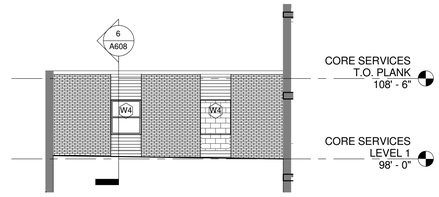
EXTERIOR ELEVATIONS - AREA B COURTYARD & AREA C

Scale	Date	Project Number
As indicated	6/23/15	146038

A504

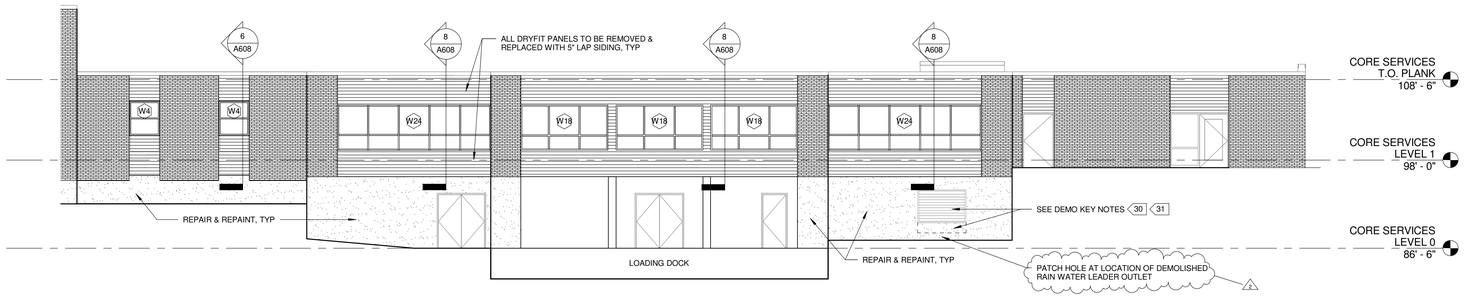


1 A506 SOUTH ELEVATION - AREA E
1/8" = 1'-0"



2 A506 WEST ELEVATION - AREA E
1/8" = 1'-0"

3 A506 NORTH ELEVATION - AREA E
1/8" = 1'-0"



4 A506 EAST ELEVATION - AREA E
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

EXTERIOR ELEVATION GENERAL NOTES

1. EXTERIOR TRIM BOARD AND PANEL SIDING BY DIV 07, FIBER SUBSTRATE SIDING

SIDING LEGEND

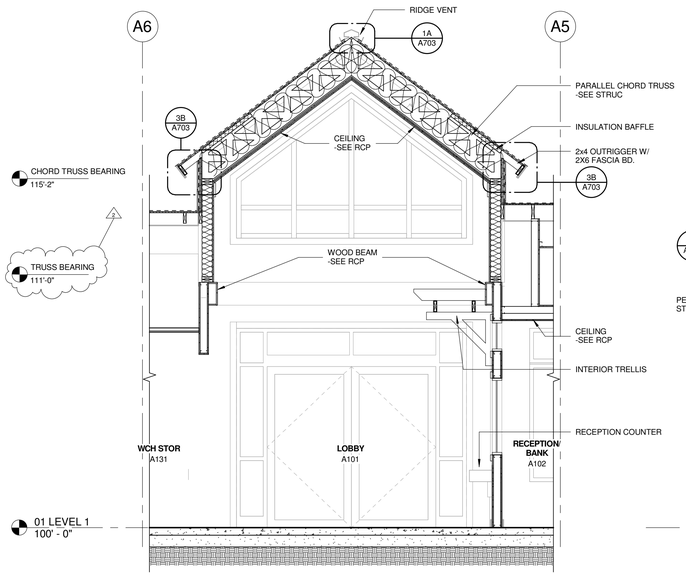
MATERIAL ID	MATERIAL DESCRIPTION	MATERIAL HATCH PATTERN
A	4" STEEL SIDING	
B	6" STEEL SIDING: COLOR 1	
C	6" STEEL SIDING: COLOR 2	
D	6" STEEL SIDING: COLOR 3	
E	PRE-FINISHED METAL TRIM : COLOR 1	

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

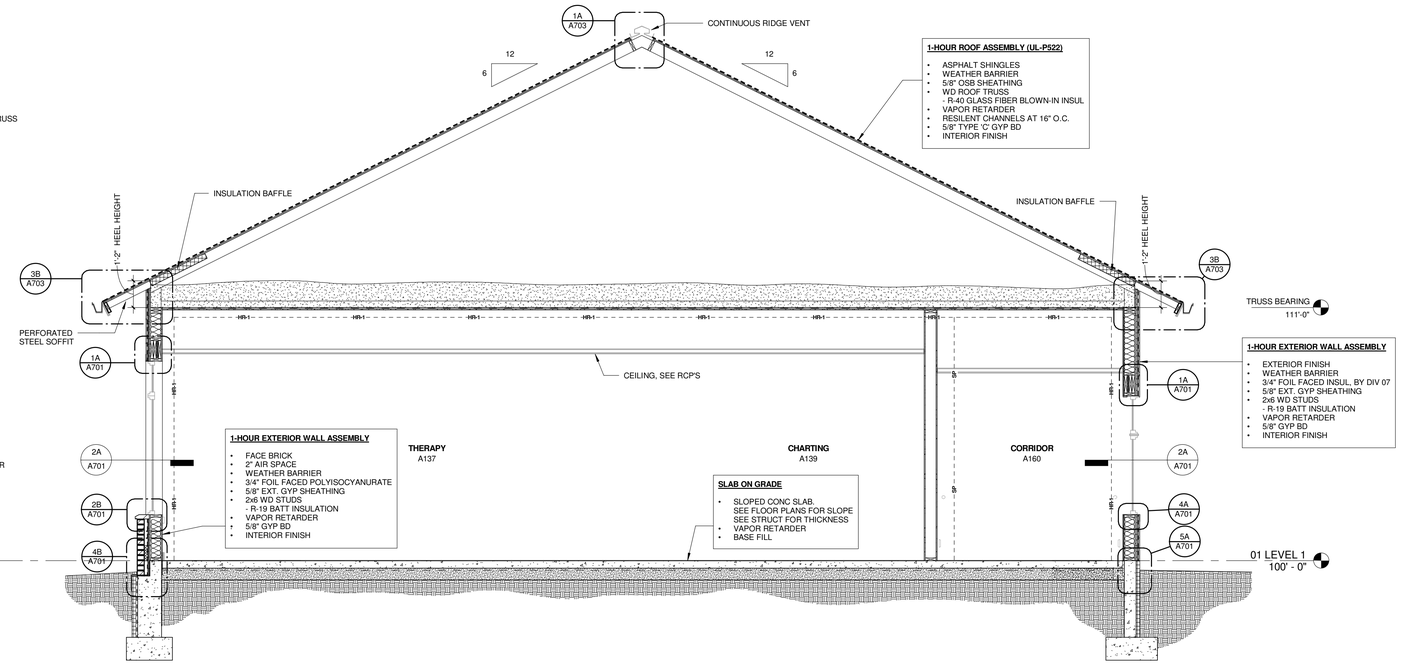
EXTERIOR ELEVATIONS - AREA E

Scale	Date	Project Number
As indicated	6/23/15	146038

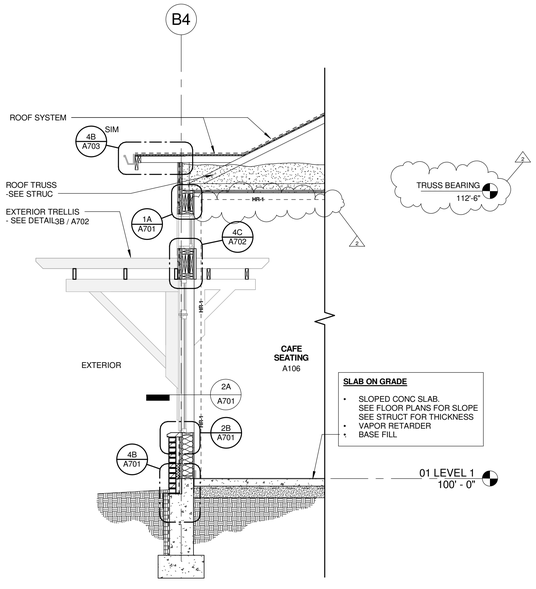
A506



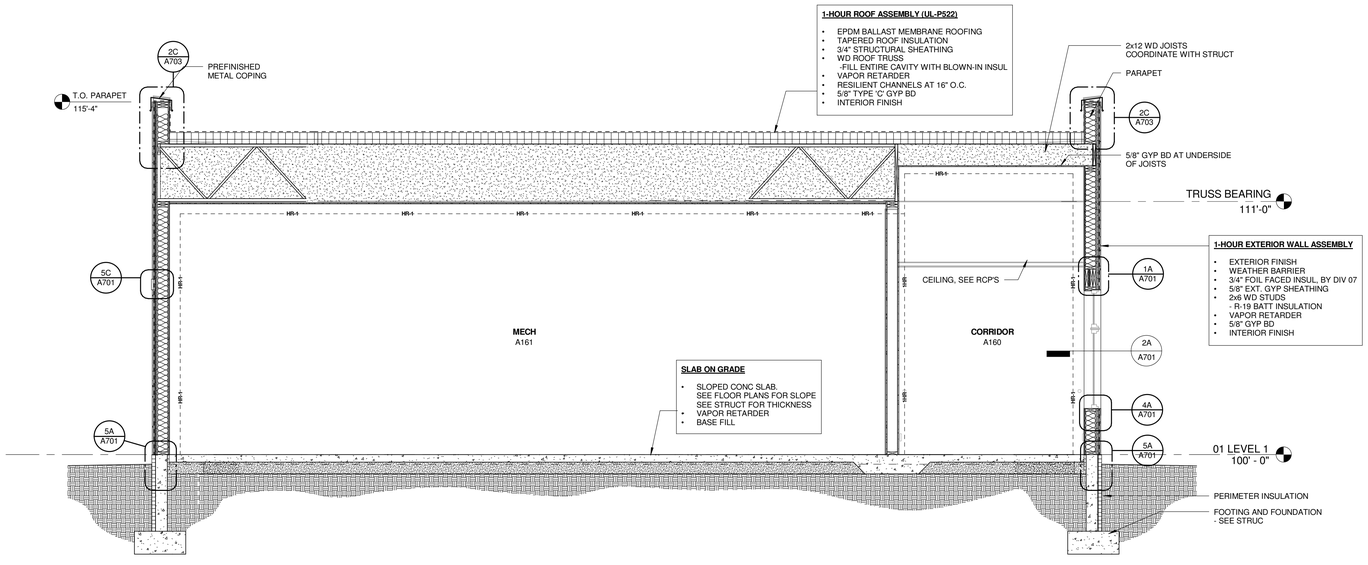
1 A601 MAIN ENTRY CROS SECTION
3/8" = 1'-0"



2 A601 AREA A - BUILDING SECTION - TOWN CENTER AT SLOPED ROOF
3/8" = 1'-0"



3 A601 AREA A - WALL SECTION AT CAFE
3/8" = 1'-0"



4 A601 AREA A - BUILDING SECTION - TOWN CENTER AT FLAT ROOF
3/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

WALL RATING LEGEND

– – – SP – – –	SMOKE PARTITION
– – – SB – – –	SMOKE BARRIER
– – – FP – – –	FIRE PARTITION (1 HR RATED)
– – – FBX– – –	FIRE BARRIER (1 HR, 2HR RATED x INDICATES HOUR RATING)
– – – FWX– – –	FIRE WALL (1 HR, 2HR RATED x INDICATES HOUR RATING)
– – – LD – – –	LEAD LINED WALL

SMOKE BARRIER TO BE CONTINUOUS FROM FLOOR TO STRUCTURE ABOVE. REFER TO PLANS FOR LOCATIONS AND EXTENTS.

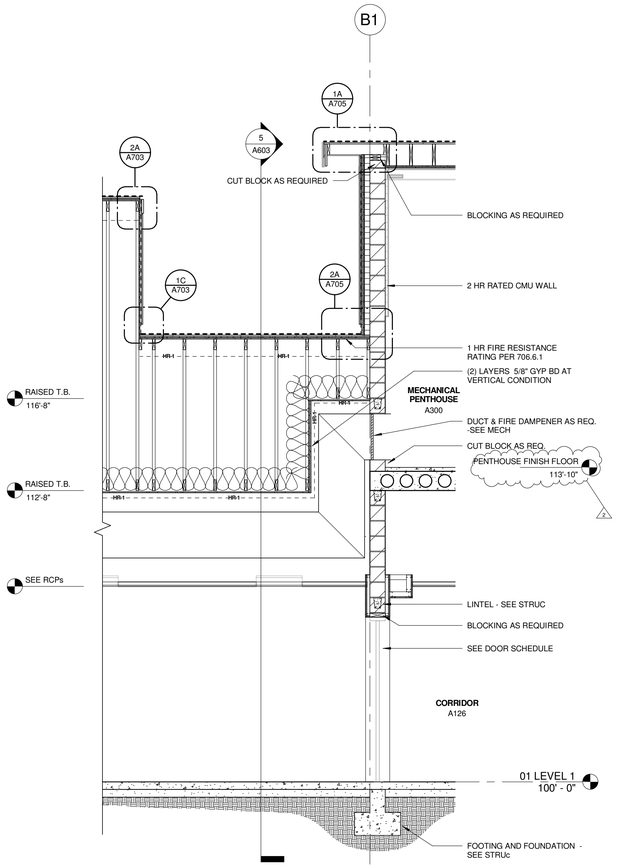
PASSAGE OF PIPES, CONDUITS, DUCTS, CABLES AND SIMILAR EQUIPMENT SHALL BE SEALED WITH A MATERIAL CAPABLE OF MAINTAINING FIRE AND SMOKE RESISTANCE - REFER TO SEC 078413 AND 078448

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

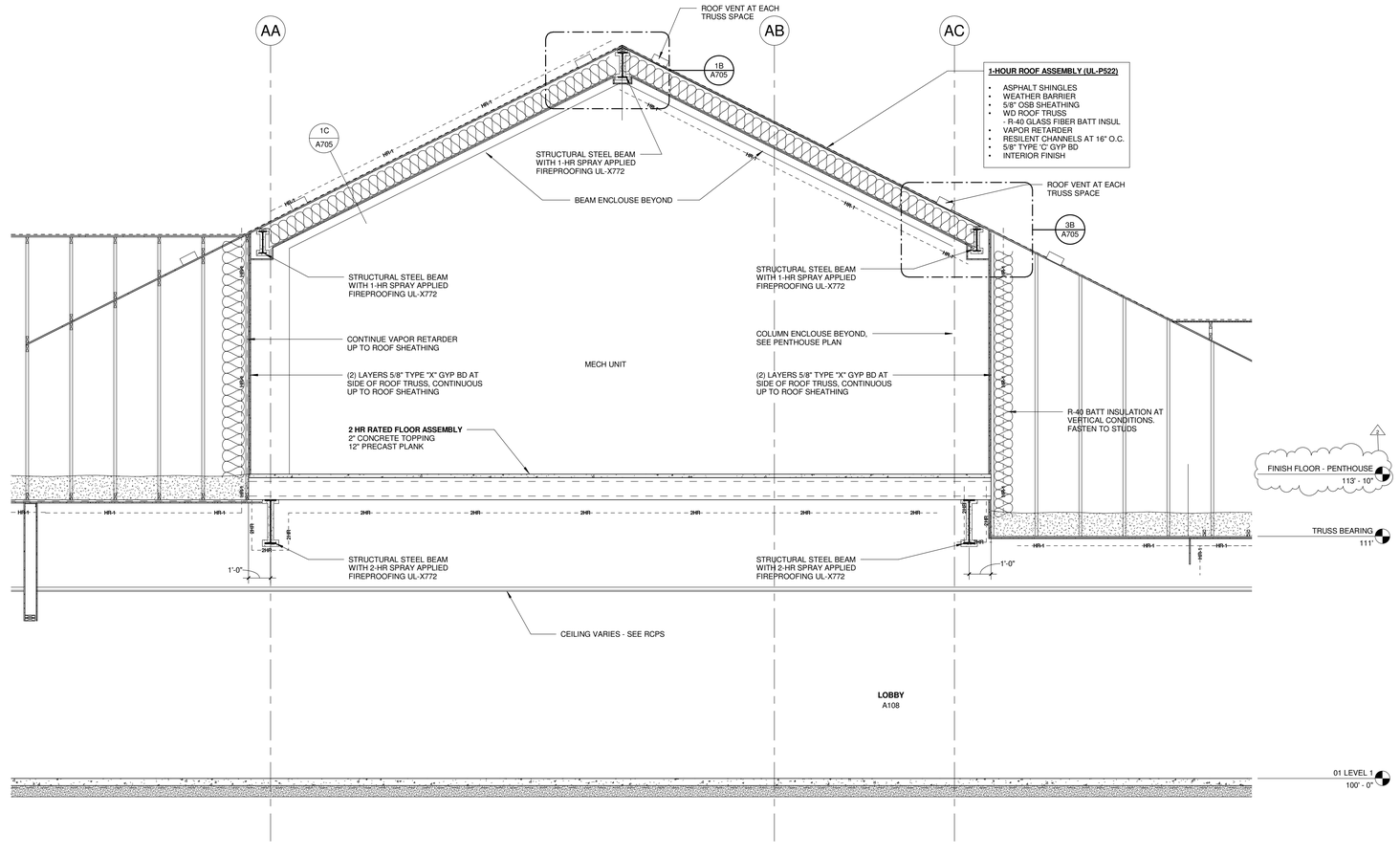
BUILDING & WALL SECTIONS - TOWN CENTER

Scale	Date	Project Number
As indicated	6/23/15	146038

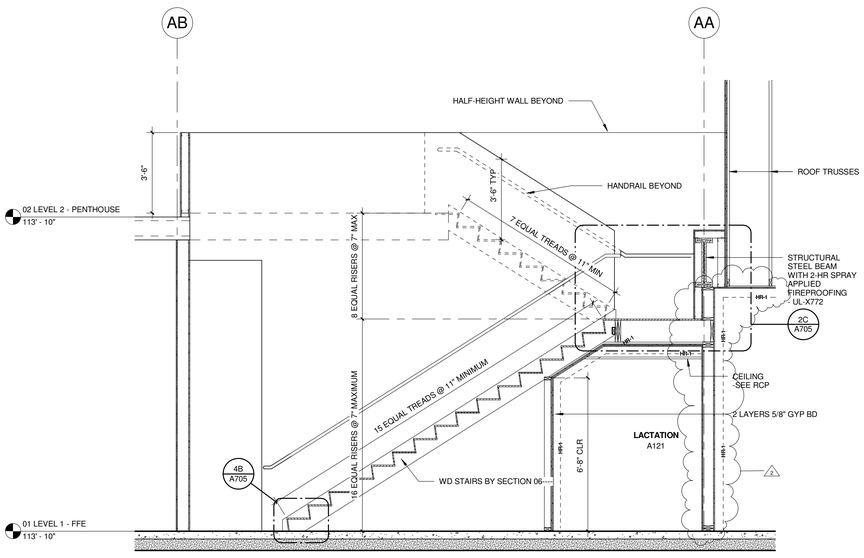
A601



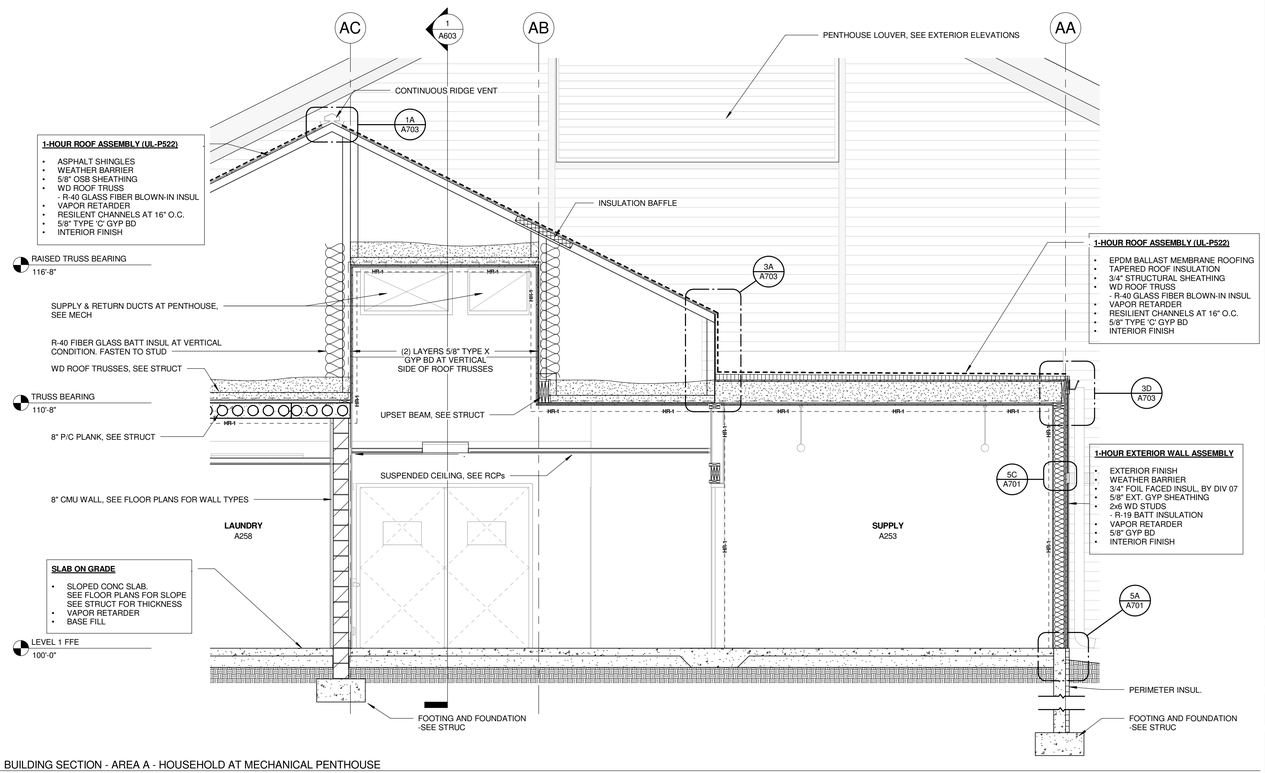
1 A603 PENTHOUSE @ BLOCK WALL SECTION
3/8" = 1'-0"



2 A603 MECHANICAL PENTHOUSE SECTION
3/8" = 1'-0"



6 A603 PENTHOUSE STAIR SECTION
3/8" = 1'-0"



5 A603 BUILDING SECTION - AREA A - HOUSEHOLD AT MECHANICAL PENTHOUSE
3/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

WALL RATING LEGEND

SP	SMOKE PARTITION
SB	SMOKE BARRIER
FP	FIRE PARTITION (1 HR RATED)
FBX	FIRE BARRIER (1 HR, 2HR RATED x INDICATES HOUR RATING)
FWX	FIRE WALL (1 HR, 2HR RATED x INDICATES HOUR RATING)
LD	LEAD LINED WALL

SMOKE BARRIER TO BE CONTINUOUS FROM FLOOR TO STRUCTURE ABOVE. REFER TO PLANS FOR LOCATIONS AND EXTENTS.

PASSAGE OF PIPES, CONDUITS, DUCTS, CABLES AND SIMILAR EQUIPMENT SHALL BE SEALED WITH A MATERIAL CAPABLE OF MAINTAINING FIRE AND SMOKE RESISTANCE - REFER TO SEC 078413 AND 078448

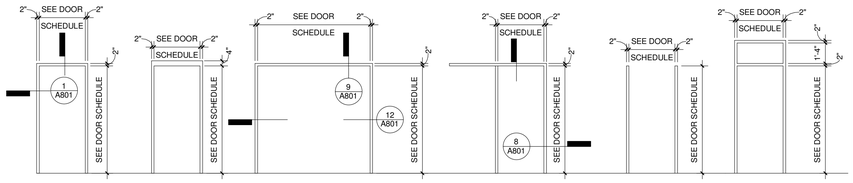
© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

BUILDING SECTIONS - AREA A - TOWN CENTER PENTHOUSE

Scale	Date	Project Number
As indicated	6/23/15	146038

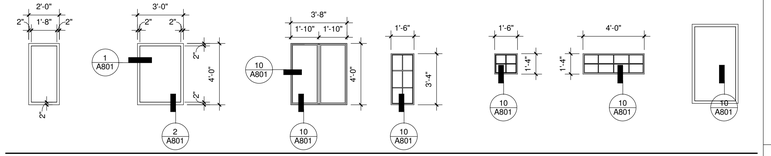
A603

DOOR FRAME TYPES



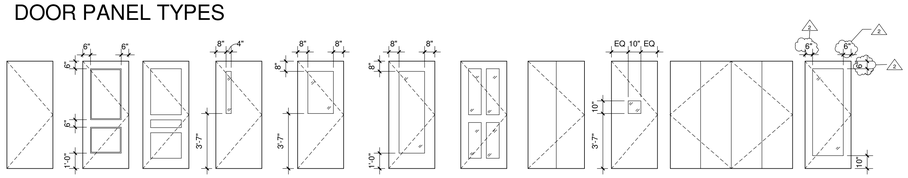
DF1 STANDARD FRAME
DF4 EXTERIOR FRAME
DF5 DOUBLE EGRESS FRAME
DF7 SLIDING DOOR FRAME
DF9 HEADLESS FRAME
DF10 FRAME W/ TRANSOM

INTERIOR WINDOW TYPES



F1 BORROWED LIGHT HM
F2 BORROWED LIGHT HM
F3 BORROWED LIGHT WD FRAME
F4 BORROWED LIGHT WD FRAME WITH WD GRILLE
F5 BORROWED LIGHT WD FRAME WITH WD GRILLE
F6 BORROWED LIGHT WD FRAME WITH WD GRILLE
F7 BORROWED LIGHT AL FRAME (ADD ALT. 1)

DOOR PANEL TYPES

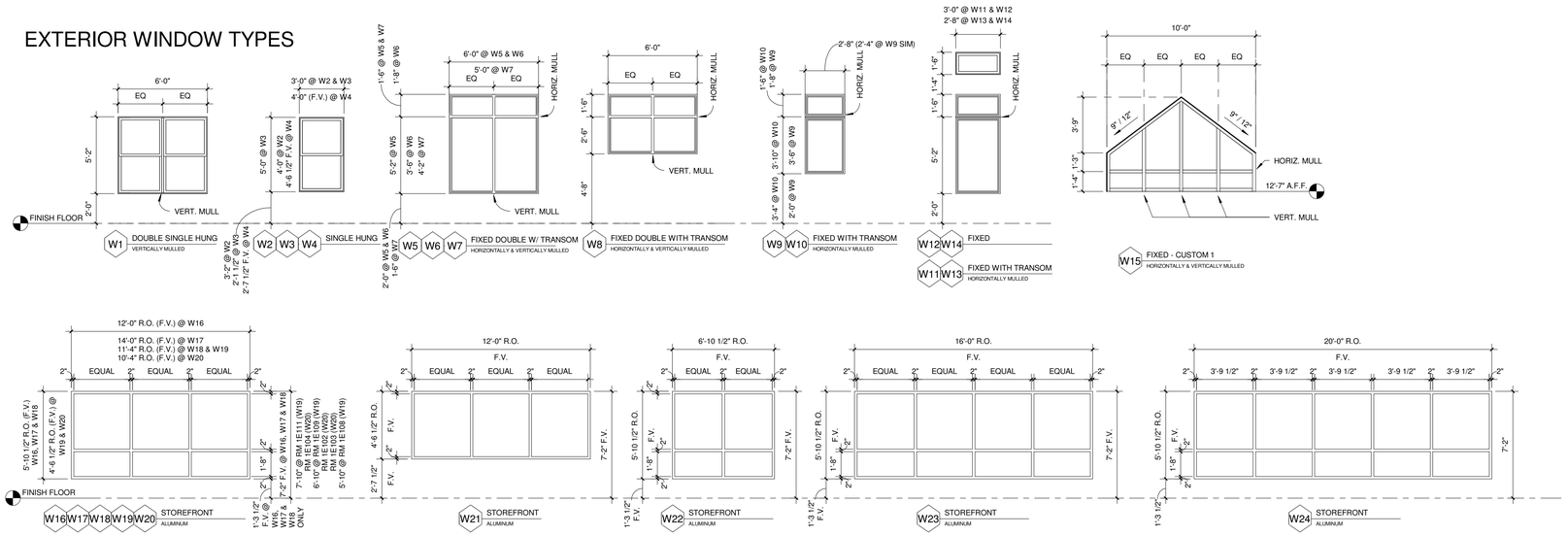


A FLUSH
A2 FLUSH WITH MOLDING APPLIED. SEE DETAIL ?????
A3 STILE AND RAIL EGGERS E105
B VISION LIGHT
C BORROWED LIGHT
D FULLY GLAZED
D4 BORROWED LITE STILE AND RAIL EGGERS E215
E BIFOLD
F VISION LIGHT
G FOLDING
K FULLY GLAZED

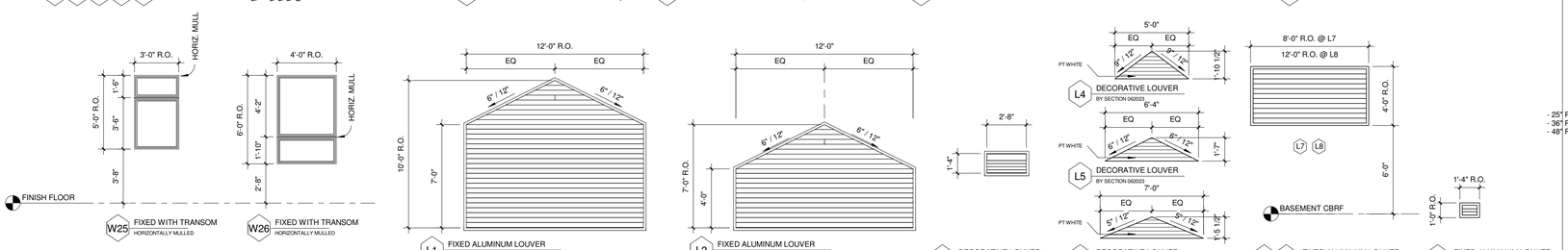
INTERIOR BORROWED LIGHT SCHEDULE

Mark	Type Mark	Glazing Material	Sill Height	Frame Material	Comments
F1.1	F1	GL-1	3' - 0"	HM	
F1.2	F1	GL-1	3' - 0"	HM	
F1.3	F1	GL-1	3' - 0"	HM	
F1.4	F1	GL-1	3' - 4"	HM	
F1.5	F1	GL-1	3' - 4"	HM	
F2.1	F2	GL-1	3' - 0"	HM	
F3.1	F3	GL-1	3' - 0"	WD	
F3.3	F3	GL-1	3' - 2"	WD	
F3.4	F3	GL-1	3' - 2"	WD	
F4.1	F4	GL-1	3' - 0"	WD	
F4.2	F4	GL-1	3' - 0"	WD	
F4.3	F4	GL-1	3' - 2"	WD	
F4.4	F4	GL-1	3' - 2"	WD	
F5.1	F5	GL-1	7' - 8"	WD	
F5.2	F5	GL-1	7' - 8"	WD	
F6.1	F6	GL-1	7' - 8"	WD	
F7.1	F7	GL-10	2' - 0"	AL	
F7.2	F7	GL-10	2' - 0"	AL	
F7.3	F7	GL-10	2' - 0"	AL	

EXTERIOR WINDOW TYPES



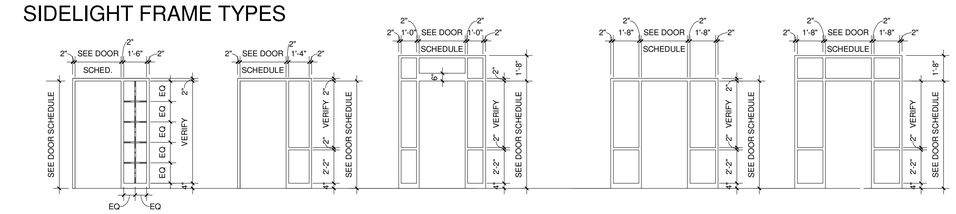
W1 DOUBLE SINGLE HUNG VERTICALLY MULLED
W2 W3 W4 SINGLE HUNG
W5 W6 W7 FIXED DOUBLE W/ TRANSOM HORIZONTALLY & VERTICALLY MULLED
W8 FIXED DOUBLE WITH TRANSOM HORIZONTALLY & VERTICALLY MULLED
W9 W10 FIXED WITH TRANSOM HORIZONTALLY MULLED
W12 W14 FIXED
W11 W13 FIXED WITH TRANSOM HORIZONTALLY MULLED
W15 FIXED - CUSTOM 1 HORIZONTALLY & VERTICALLY MULLED
W16 W17 W18 W19 W20 STOREFRONT ALUMINUM
W21 STOREFRONT ALUMINUM
W22 STOREFRONT ALUMINUM
W23 STOREFRONT ALUMINUM
W24 STOREFRONT ALUMINUM



W25 FIXED WITH TRANSOM HORIZONTALLY MULLED
W26 FIXED WITH TRANSOM HORIZONTALLY MULLED
L1 FIXED ALUMINUM LOUVER BY SECTION 089119
L2 FIXED ALUMINUM LOUVER BY SECTION 089119
L3 DECORATIVE LOUVER BY SECTION 062023
L4 DECORATIVE LOUVER BY SECTION 062023
L5 DECORATIVE LOUVER BY SECTION 062023
L6 DECORATIVE LOUVER BY SECTION 062023
L7 L8 FIXED ALUMINUM LOUVER BY SECTION 089119
L9 FIXED ALUMINUM LOUVER BY SECTION 089119

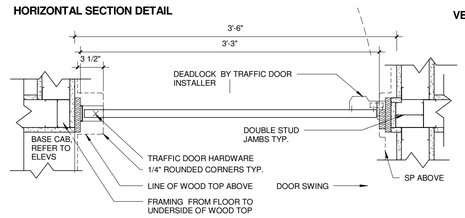
7 A801 EXTERIOR LOUVER TYPES
1/4" = 1'-0"

SIDELIGHT FRAME TYPES

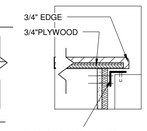


SL1A DOOR FRAME W/SIDELIGHT & APPLIED GRID
SL1B DOOR FRAME W/SIDELIGHT
SL2A DOOR FRAME W/SIDELIGHTS
SL2B DOOR FRAME W/SIDELIGHTS
SL3 DOOR FRAME W/SIDELIGHTS

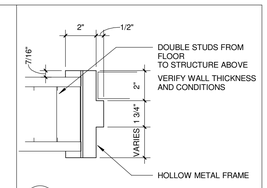
HORIZONTAL SECTION DETAIL



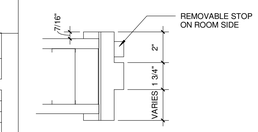
VERTICAL SECTION DETAIL



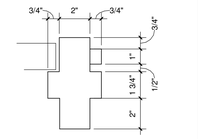
11 A801 INT DTL - TRAFFIC DOOR - AREA D
1 1/2" = 1'-0"



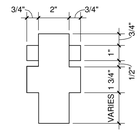
1 A801 DOOR JAMB/HEAD
3" = 1'-0"



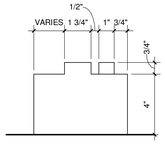
2 A801 SIDELIGHT JAMB/HEAD
3" = 1'-0"



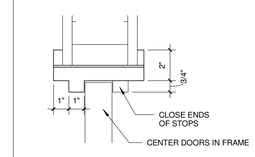
3 A801 SIDELIGHT JAMB
3" = 1'-0"



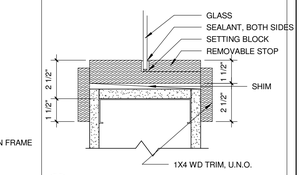
4 A801 SIDELIGHT MULLION
3" = 1'-0"



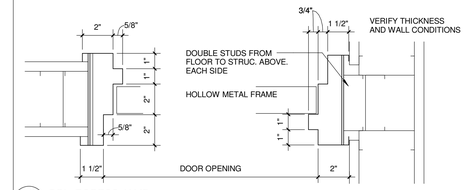
5 A801 SIDELIGHT SILL
3" = 1'-0"



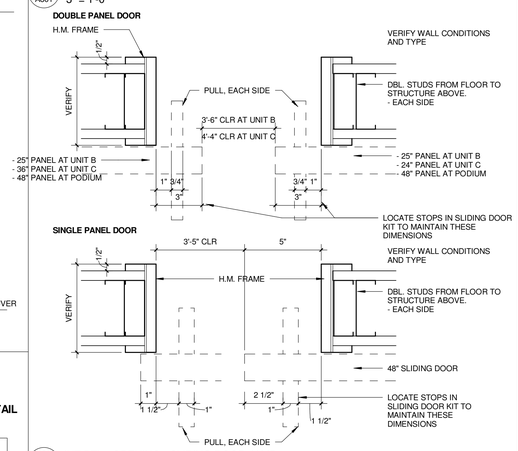
9 A801 DBL. EGRESS HEAD
3" = 1'-0"



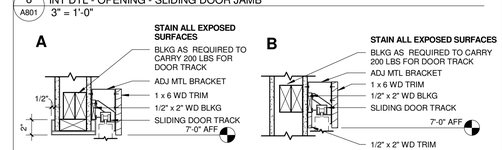
10 A801 INT DTL - OPENINGS - INT WINDOW FRAME
3" = 1'-0"



12 A801 DBL. EGRESS JAMB
3" = 1'-0"



8 A801 INT DTL - OPENING - SLIDING DOOR JAMB
3" = 1'-0"



6 A801 INT DTL - OPENING - DOOR, HEAD SLIDING
1 1/2" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

DOOR TYPES, WINDOW TYPES & FRAME DETAILS

Scale	Date	Project Number
As indicated	6/23/15	146038

A801

Door Schedule - Area A

Door Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
A100A	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	216.58	SL2A	AL	PreFin	Double
A100B	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	284.8	SL2A	AL	PreFin	Double
A102	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	005.1	DF1	HM	Paint	Single
A102A		3' - 0"	4' - 0"									OVERHEAD COILING DOOR - BY DIVISION 08
A102B		4' - 0"	4' - 0"									OVERHEAD COILING DOOR - BY DIVISION 08
A110	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	012.1	DF1	HM	Paint	Single
A112	D4	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	3.52	DF1	HM	Paint	Double
A119	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	012.12	DF1	HM	Paint	Single
A120	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	013.0	DF1	HM	Paint	Single
A121	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	12.11	DF1	HM	Paint	Single
A122	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	12.1	DF1	HM	Paint	Single
A123	D	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	3.2	SL1B	HM	Paint	Single
A124	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	014.0	DF1	HM	Paint	Single
A125	A3	4' - 0"	7' - 0"	1 3/4"	W	PreFin	X	023.5	DF11	HM	Paint	DOUBLE SLIDER W/ (2) 48" PANELS
A128B	A3	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	073.2	DF1	HM	Paint	Double
A129	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	003.0	DF1	HM	Paint	Single
A130	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	003.0	DF1	HM	Paint	Single
A132	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	014.2	DF1	HM	Paint	Single
A133	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	012.0	DF1	HM	Paint	Single
A136	D	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	003.51	DF1	HM	Paint	Double
A137B	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	013.0	DF1	HM	Paint	Single
A138	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	005.0	DF1	HM	Paint	Single
A140	A	2' - 8"	7' - 0"	1 3/4"	W	PreFin	X	014.4	DF1	HM	Paint	Single
A153	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	002.12	DF1	HM	Paint	Single
A155	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	003.2	DF1	HM	Paint	Single
A156	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	004.11	DF1	HM	Paint	Single
A157	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	001.2	DF1	HM	Paint	Single
A160	A	3' - 0"	7' - 0"	1 3/4"	HM	Paint	X	114.54	DF1	HM	Paint	Double
A161A	A	3' - 0"	7' - 0"	1 3/4"	HM	Paint	60 MIN	014.51	DF1	HM	Paint	Double
A161B	A	3' - 10"	7' - 0"	1 3/4"	HM	Paint	X	114.54	DF1	HM	Paint	Single
A162	A	3' - 6"	7' - 0"	1 3/4"	HM	Paint	X	064.0	DF1	HM	Paint	Single
A163A	A	3' - 6"	7' - 0"	1 3/4"	HM	Paint	60 MIN	061.0	DF1	HM	Paint	Single
A163B	A	3' - 6"	7' - 0"	1 3/4"	HM	Paint	60 MIN	061.0	DF1	HM	Paint	Single
A164	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	044.0	DF1	HM	Paint	Single
A167	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	005.0	DF1	HM	Paint	Single
A181	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	003.2	DF1	HM	Paint	Single
A181B		6' - 0"	5' - 0"									COILING EXTERIOR SHUTTER - BY SECTION 107113.23
A184	B	3' - 8"	7' - 0"	1 3/4"	W	PreFin	20 MIN	076.6	DF5	HM	Paint	Double Egress
A187	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	013.2	DF1	HM	Paint	Single
A189	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	011.2	DF1	HM	Paint	Single
A198	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	011.2	DF1	HM	Paint	Single
A205	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	012.0	DF1	HM	Paint	Single
A206	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	44.0	DF1	HM	Paint	Single
A207	D	3' - 10"	7' - 0"	1 3/4"	WD	Paint				WD	Paint	SCREEN DOOR - BY DIVISION 08
A208	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	263.2	DF1	AL	PreFin	Single
A209	A3	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	73.2	DF1	HM	Paint	Double
A216A	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	216.8	SL1A	AL	PreFin	Single w/ Sidelight
A216B	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	264.8	SL1A	AL	PreFin	Single w/ Sidelight
A217	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	004.0	DF1	HM	Paint	Single
A218	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	1.3	DF1	HM	Paint	Single
A224	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	44.0	DF1	HM	Paint	Single
A225	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	3.12	DF1	HM	Paint	Single
A226	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	005.0	DF1	HM	Paint	Single
A227	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	012.0	DF1	HM	Paint	Single
A231	A	3' - 0"	7' - 0"	1 3/4"	HM	Paint	60 MIN	014.4	DF1	HM	Paint	Single
A238	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	011.2	DF1	HM	Paint	Single
A245	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	011.2	DF1	HM	Paint	Single
A253	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	13.12	DF1	HM	Paint	Single
A254	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	011.2	DF1	HM	Paint	Single
A256A	F	3' - 8"	7' - 0"	1 3/4"	W	PreFin	90 MIN	76.6	DF5	HM	Paint	Double Egress
A258	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	60 MIN	13.12	DF1	HM	Paint	Single

Door Schedule - SN UNIT A

Door Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
SN-A1	A2	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	031.0	DF1	HM	Paint	Single
SN-A2	A	4' - 0"	7' - 0"	1 3/4"	W	PreFin	X	029.0	DF7	HM	Paint	Single Slider

Door Schedule - SN UNIT B

Door Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
SN-B1	A2	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	031.0	DF1	HM	Paint	Single
SN-B2	A	2' - 1"	7' - 0"	1 3/4"	W	PreFin	X	029.5	DF11	HM	Paint	Double Panel Slider

Door Schedule - SN UNIT C

Door Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
SN-C1	A	5' - 0"	7' - 0"	1 3/4"	W	Pre-Fin	X	031.5	DF1	HM	Paint	Double Uneven
SN-C2	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	029.5	DF11	HM	Paint	Double Sliding, DF11 Cut and Welded

Door Schedule - SN UNIT D

Door Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
SN-D1	A2	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	031.0	DF1	HM	Paint	Single
SN-D2	A	4' - 0"	7' - 0"	1 3/4"	W	PreFin	X	029.0	DF7	HM	Paint	Single Slider

Door Schedule - DCS UNIT A

Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
DCS-A1	A	3' - 4"	7' - 0"	1 3/4"	W	PreFin	X	031.0	DF1	HM	Paint	Single
DCS-A2	A	3' - 6"	7' - 0"	1 3/4"	W	PreFin	X	029.0	DF7	HM	Paint	Single Slider

Door Schedule - DCS UNIT B

Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
DCS-B1	A	3' - 4"	7' - 0"	1 3/4"	W	PreFin	X	31.0	DF1	HM	Paint	Single
DCS-B2	A	2' - 1"	7' - 0"	1 3/4"	W	PreFin	X	29.5	DF11	HM	Paint	Double Panel Slider

Door Schedule - Area B

Door Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
B106	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	60 MIN	013.2	DF1	HM	Paint	Single
B110	B	3' - 8"	7' - 0"	1 3/4"	W	PreFin	20 MIN	76.6	DF5	HM	Paint	Double Egress
B117	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	011.2	DF1	HM	Paint	Single
B124	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	011.2	DF1	HM	Paint	Single
B132	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	13.12	DF1	HM	Paint	Single
B133	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	011.2	DF1	HM	Paint	Single
B134	A	3' - 0"	7' - 0"	1 3/4"	HM	Paint	60 MIN	014.4	DF1	HM	Paint	Single
B135	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	014.4	DF1	HM	Paint	Single
B138	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	012.0	DF1	HM	Paint	Single
B139	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	005.0	DF1	HM	Paint	Single
B140	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	3.12	DF1	HM	Paint	Single
B141	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	44.0	DF1	HM	Paint	Single
B146	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	263.2	DF1	AL	PreFin	Single
B152	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	1.3	DF1	HM	Paint	Single
B153	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	004.0	DF1	HM	Paint	Single
B154A	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	216.8	SL1A	AL	PreFin	Single w/ Sidelight
B154B	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	264.8	SL1A	AL	PreFin	Single w/ Sidelight
B157	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	13.2	DF1	HM	Paint	Single
B160	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	12.0	DF1	HM	Paint	Single
B161	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	44.0	DF1	HM	Paint	Single
B171	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	3.2	DF1	HM	Paint	Single
B171B		6' - 0"	5' - 0"									COILING EXTERIOR SHUTTER - BY SECTION 107113.23
B175	B	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	76.6	DF5	HM	Paint	Double Egress
B177	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	11.2	DF1	HM	Paint	Single
B183	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	011.2	DF1	HM	Paint	Single
B190A	A	3' - 8"	7' - 0"	1 3/4"	HM	Paint	X	114.54	DF1	HM	Paint	Double
B190B	A	3' - 8"	7' - 0"	1 3/4"	HM	Paint	X	114.54	DF1	HM	Paint	Double
B191A	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	214.1	DF1	AL	PreFin	Single
B191B	C	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	3.51	DF1	HM	Paint	Double
B192	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	12.0	DF1	HM	Paint	Single
B193	A	3' - 4"	7' - 0"	1 3/4"	W	PreFin	60 MIN	014.0	DF1	HM	Paint	Single
B194	A	3' - 4"	7' - 0"	1 3/4"	W	PreFin	60 MIN	014.1	DF1	HM	Paint	Single
B195	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	014.2	DF1	HM	Paint	Single
B196	A	3' - 4"	7' - 0"	1 3/4"	W	PreFin	X	14.0	DF1	HM	Paint	Single
B206	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	11.2	DF1	HM	Paint	Single
B212	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	11.2	DF1	HM	Paint	Single
B216	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	20 MIN	76.6	DF5	HM	Paint	Double Egress
B221	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	3.2	DF1	HM	Paint	Single
B221B		6' - 0"	5' - 0"									COILING EXTERIOR SHUTTER - BY SECTION 107113.23
B225	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	44.0	DF1	HM	Paint	Single
B226	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	12.0	DF1	HM	Paint	Single
B229	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	13.2	DF1	HM	Paint	Single
B233A	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	216.8	SL1A	AL	PreFin	Single w/ Sidelight
B233B	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	264.8	SL1A	AL	PreFin	Single w/ Sidelight
B234	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	4.0	DF1	HM	Paint	Single
B235	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	1.3	DF1	HM	Paint	Single
B241	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	44.0	DF1	HM	Paint	Single
B242	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	3.21	DF1	HM	Paint	Single
B243	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	5.0	DF1	HM	Paint	Single
B244	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	12.0	DF1	HM	Paint	Single
B250	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	263.2	DF1	AL	PreFin	Single
B255	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN		DF1	HM	Paint	Single
B256	A	3' - 0"	7' - 0"	1 3/4"	HM	Paint	60 MIN	14.4	DF1	HM	Paint	Single
B257	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	14.4	DF1	HM	Paint	Single
B258	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	13.12	DF1	HM	Paint	Single
B263	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	60 MIN	11.2	DF1	HM	Paint	Single
B269	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	11.2	DF1	HM	Paint	Single
B277	B	3' - 8"	7' - 0"	1 3/4"	W	PreFin	20 MIN	76.6	DF5	HM	Paint	Double Egress
B281	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	60 MIN	13.2	DF1	HM	Paint	Single

Door Schedule - Area C

Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
C100	F	3' - 8"	7' - 0"	1 3/4"	W	PreFin	90 MIN	75.6	DF5	HM	Paint	Double Egress
C100B	A	3' - 10"	7' - 0"	1 3/4"	W	PreFin	90 MIN	75.6	DF5	HM	Paint	Double Egress
C101	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	005.0	DF1	HM	Paint	Single
C102	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	005.0	DF1	HM	Paint	Single
C103	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	13.12	DF1	HM	Paint	Single
C104	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	014.4	DF1	HM	Paint	Single
C105	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	14.21	DF1	HM	Paint	Single
C106	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	013.0	DF1	HM	Paint	Single
C114	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	79.2	DF5	HM	Paint	Double Egress
C120	A	2' - 6"	7' - 0"	1 3/4"	W	PreFin	X	011.2	DF1	HM	Paint	Single
C126	A	2' - 6"	7' - 0"	1 3/4"	W	PreFin	X	11.4	DF1	HM	Paint	Single
C127	A	3' - 4"	7' - 0"	1 3/4"	W	PreFin	X	014.4	DF1	HM	Paint	Single
C135A	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	216.8	SL1A	AL	PreFin	Single w/ Sidelight
C135B	K	3' - 8"	7' - 0"	1 3/4"	AL	PreFin	X	264.81	SL1A	AL	PreFin	Single w/ Sidelight
C136	D	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	64.31	SL1B	HM	Paint	Single w/ Sidelight
C137	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	3.0	DF1	HM	Paint	Single
C138	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	44.0	DF1	HM	Paint	Single
C139	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	4.0	DF1	HM	Paint	Single
C140	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	012.0	DF1	HM	Paint	Single
C142	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	012.0	DF1	HM	Paint	Single
C143	K	3' - 0"	7' - 0"	1 3/4"	AL	PreFin	X	213.1	DF1	AL	PreFin	Single
C149	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	014.4	DF1	HM	Paint	Single
C150	A	2' - 6"	7' - 0"	1 3/4"	W	PreFin	X	011.2	DF1	HM	Paint	Single
C155	A	2' - 6"	7' - 0"	1 3/4"	W	PreFin	X	011.2	DF1	HM	Paint	Single
C160	A	3' - 0"	7' - 0"	1 3/4"	HM	Paint	45 MIN	264.31	DF1	HM	Paint	Single
C163A	A	3' - 0"	3' - 6"	1 3/4"	W	PreFin	X	000.0	DF9	HM	Paint	Single, 1/2 Door. By Section 083819
C163B	A	3' - 0"	3' - 6"	1 3/4"	W	PreFin	X	000.0	DF9	HM	Paint	Single, 1/2 Door. By Section 083819
C169A	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	013.2	DF1	HM	Paint	Single
C169B	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	013.2	DF1	HM	Paint	Single
C170	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	013.2	DF1	HM	Paint	Single
C171	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	014.0	DF1	HM	Paint	Single
C172A	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	013.2	DF1	HM	Paint	Single
C172B	A	3' - 0"	7' - 0"	1 3/4"	W	PreFin	X	014.7	DF1	HM	Paint	Single
C173	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	60 MIN	013.21	DF1	HM	Paint	Single
C174	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	60 MIN	013.21	DF1	HM	Paint	Single
C175	A	3' - 8"	7' - 0"	1 3/4"	W	PreFin	X	15.0	DF1	HM	Paint	Single

Door Schedule - Therapy Pool Add Alternate 1

Door Number	Door Type	Door Width	Door Height	Door Thickness	Door Material	Door Finish	Door Rating	Hardware	Frame Type	Frame Material	Frame Finish	Type Comments
A143	D	3' - 8"	7' - 0"	1 3/4"	FG	PreFin	X	13.3	DF1	FG	PreFin	Single, Door/ Frame By Div 081743
A143A	A	3' - 0"	7' - 0"	1 3/4"	FG	PreFin	X	260.1	DF1	AL	PreFin	Single
A144	A	3' - 0"	7' - 0"	1 3/4"	FG	PreFin	X	14.8	DF1	FG	PreFin	Single, Door/ Frame By Div 081743
A145	A	3' - 8"	7' - 0"	1 3/4"	FG	PreFin	X	2.3	DF1	FG	PreFin	Single, Door/ Frame By Div 081743
A146	A	3' - 8"	7' - 0"	1 3/4"	FG	PreFin	X	2.3	DF1	FG	PreFin	Single, Door/ Frame By Div 081743

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

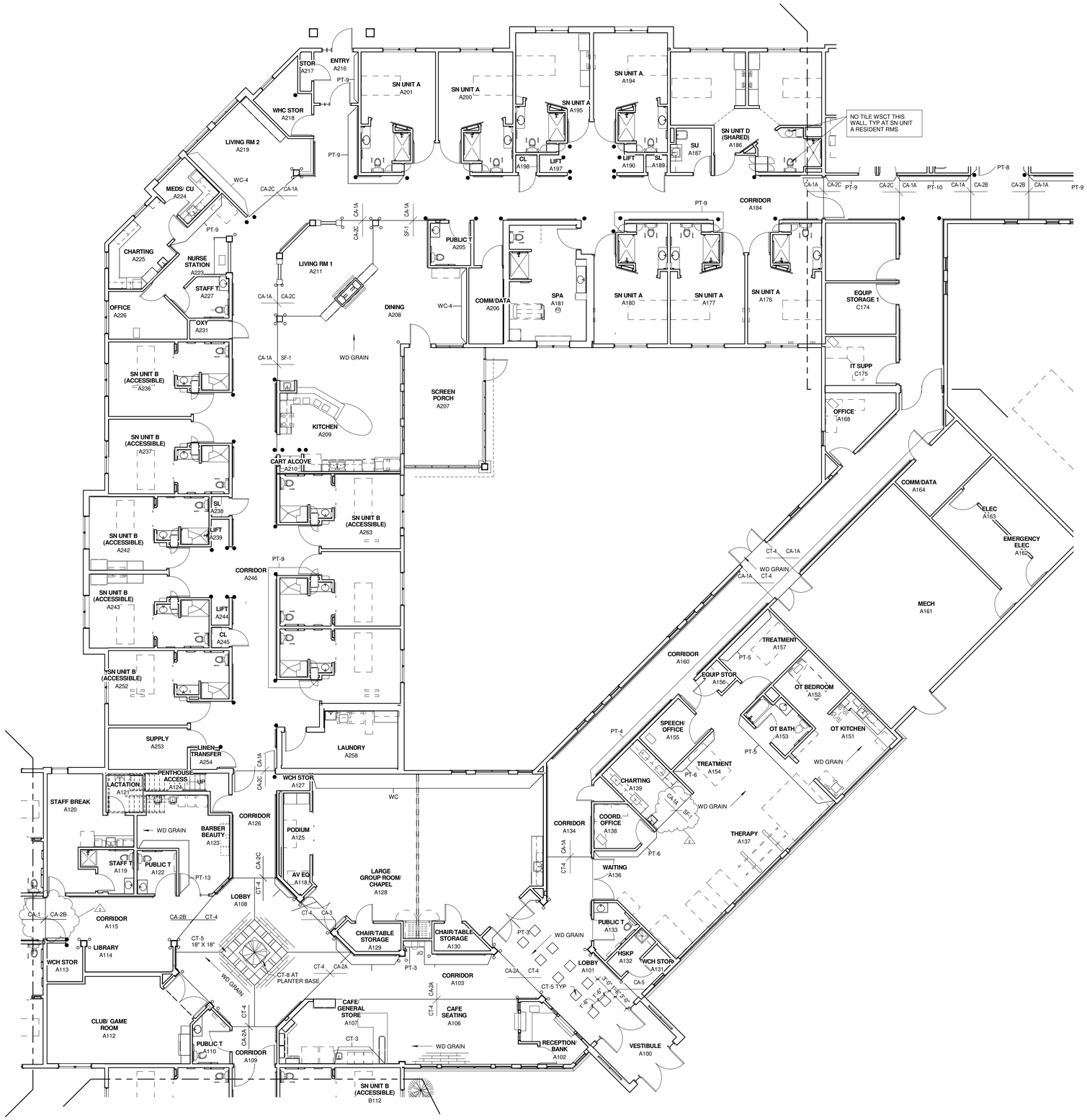
Rev. #	Date	Revision	Description
1	7/8/15	Addendum 1	Bid Package 2 - Addendum 1
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

DOOR SCHEDULE - AREA A, B, & C

Scale	Date	Project Number
	6/23/15	146038

A802



1 I101 AREA A FS
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

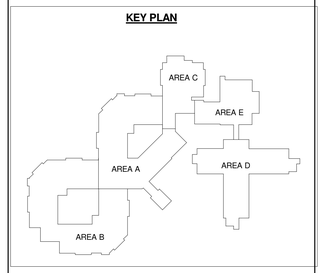
GENERAL NOTES

1. ALL VERTICAL & HORIZONTAL SOFFIT SURFACES TO BE PT-1, U.N.O.

LEGEND

- ● CG-1
- ○ CG-2

KEY PLAN

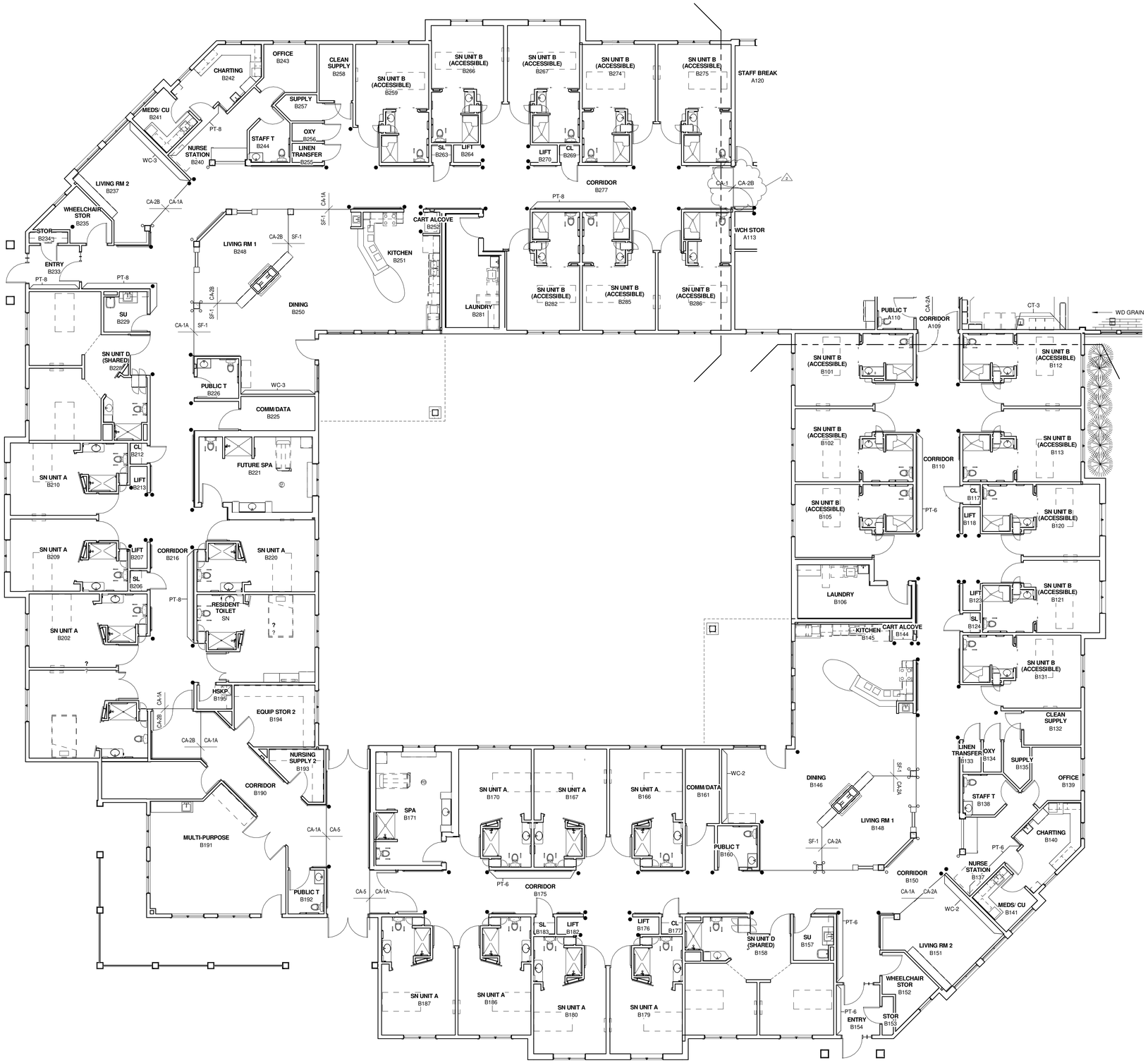


© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR FINISH PLAN - AREA A

Scale	Date	Project Number
As indicated	6/23/15	146038

I101



1 / I102 AREA B FS
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

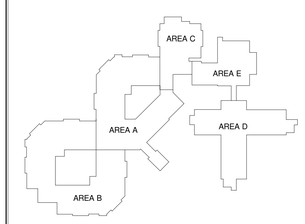
GENERAL NOTES

1. ALL VERTICAL & HORIZONTAL SOFFIT SURFACES TO BE PT-1, U.N.O.

LEGEND

- ● CG-1
- ○ CG-2

KEY PLAN

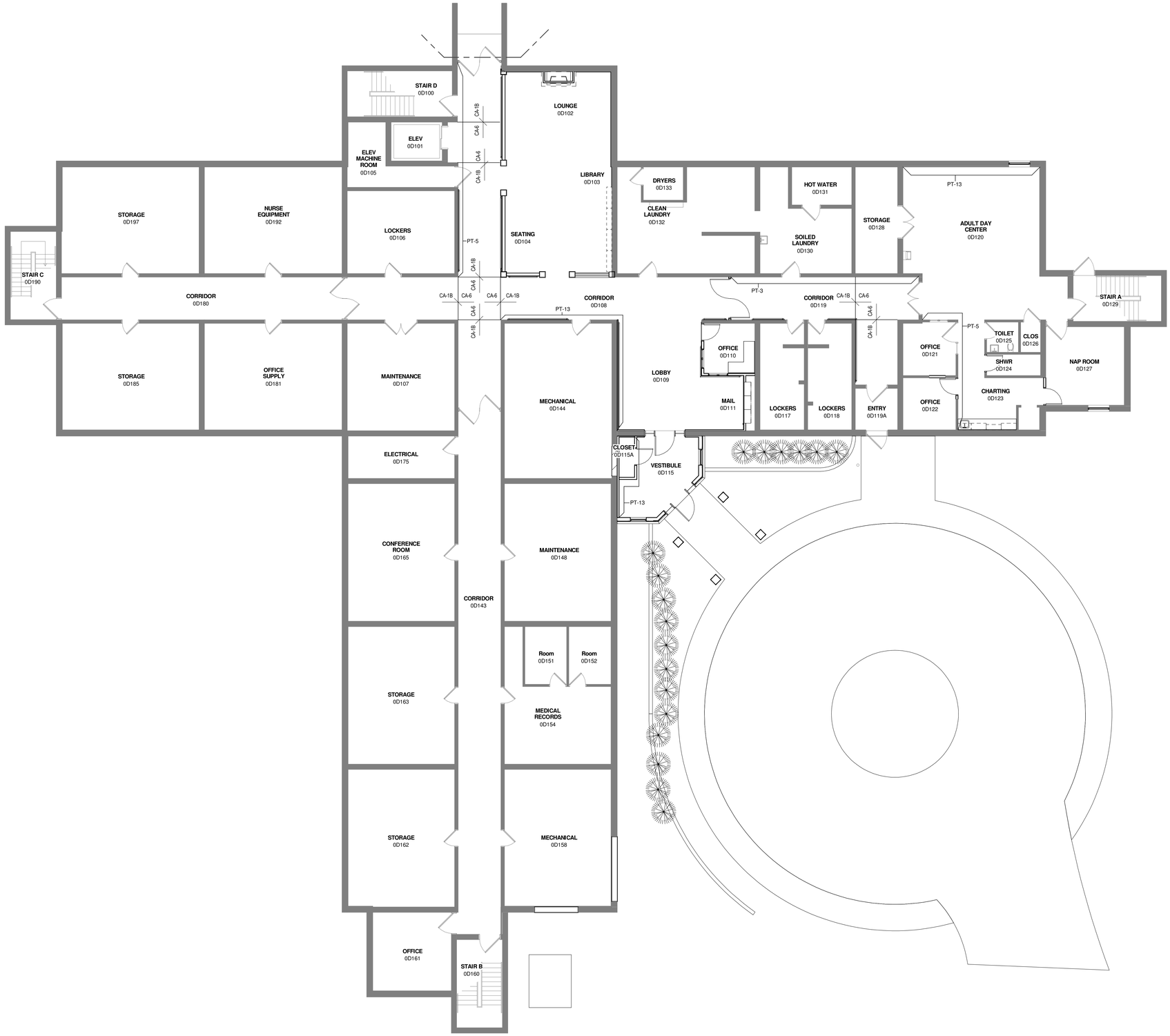


© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR FINISH PLAN - AREA B

Scale	Date	Project Number
As indicated	6/23/15	146038

I102



1 / I104 AREA D LEVEL 0 FS
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

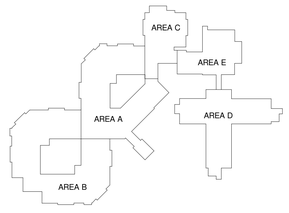
GENERAL NOTES

1. ALL VERTICAL & HORIZONTAL SOFFIT SURFACES TO BE PT-1, U.N.O.

LEGEND

- ● CG-1
- ○ CG-2

KEY PLAN



© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

LOWER LEVEL FINISH PLAN - AREA D

Scale	Date	Project Number
As indicated	6/23/15	146038

I104

RFS-A

Room Number	Room Name	Finish: Floor	Finish: Base	Finish: Wall	Finish: Ceiling	Comments
A100	VESTIBULE	CA-5	V-1	PT-1	ACT-1	
A101	LOBBY	CT-5, CT-4*	V-1	PT-1, PT-3**	GYP/PT, WD TRELLIS***	*CT-5 FIELD WITH CT-4 BORDER, **ACCENT PT-3 @ UPPER COLUMNS & 3 WALLS @ ENTRY TO A128, ***TRELLIS & TRIM TO BE PT-14, SEE ELEV
A102	RECEPTION/ BANK	CA-2A	V-2	PT-1	GYP/PT	
A103	CORRIDOR	CA-2A	V-1	PT-1, PT-3*, WG-2, HR-1 W/ WD BACKER	GYP/PT	*PT-3 ACCENT AT COLUMNS
A106	CAFE SEATING	CT-4	V-1	PT-7*	GYP/PT, TRELLIS**	*PT-7 WALLS UP TO COLUMN @ A101 ** TRELLIS TO BE PT-14
A107	CAFE/ GENERAL STORE	CT-4	V-1	PT-1, CT-3, PT-7*	ACT-1, GYP/PT	*CT-3 BACKSPLASH, ACCENT PT-7 AT VERTICAL SOFFIT SURFACES
A108	LOBBY	CT-5, CT-4*	V-1	PT-1, PT-3**, PT-7, CT-8, WG-2, HR-1 W/ WD BACKER	ACT-1, GYP/PT	**CT-5 ACCENT WITH CT-4 FIELD, **PT-3 ACCENT AT VERTICAL SIDES OF SOFFIT, PT-3 & 7 ACCENT WALLS, SEE FINISH PLAN, CT-8 @ PLANTER
A109	CORRIDOR	CA-2A	V-1	PT-1, WG-2, HR-1 W/ WD BACKER	ACT-1, GYP/PT	
A110	PUBLIC T	CT-1	CSP	CT-1, CT-7A, PT-6*	ACT-3	*CT-1 WSCT WITH CT-7A ACCENT BAND, EPOXY PT-6 ABOVE
A112	CLUB/ GAME ROOM	CA-3	V-1	PT-8	ACT-1, GYP/PT	
A113	WCH STOR	CA-2B	V-1	PT-1, WP-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE
A114	LIBRARY	CA-2B	V-1	PT-4	ACT-1	
A115	CORRIDOR	CA-2B	V-1	PT-1, WG-2, HR-1 W/ WD BACKER	ACT-1, GYP/PT	
A118	AV EQ	CA-3	V-1	PT-1	ACT-1	
A119	STAFF T	SF-3	V-2	PT-1*	ACT-3	*EPOXY PT-1
A120	STAFF BREAK	SF-1	V-2	PT-1, PT-5*	ACT-2	*PT-5 @ WEST WALL
A121	LACTATION	SF-1	V-2	PT-1	ACT-2	
A122	PUBLIC T	CT-1	CSP	CT-1, CT-7A, PT-6*	ACT-3	*CT-1 WSCT WITH CT-7A ACCENT BAND, EPOXY PT-6 ABOVE
A123	BARBER BEAUTY	SF-1	V-1	PT-1, PT-13*	ACT-1	*SEE FINISH PLAN FOR ACCENT WALLS
A124	PENTHOUSE ACCESS	SC, RST*	V-2	PT-1	EXP/PT	*RUBBER TREADS, RISERS & LANDING AT STAIR
A125	PODIUM	CA-3	V-1	PT-1	ACT-1	
A126	CORRIDOR	CA-2C	V-1	WG-2, HR-1, PT-1*	ACT-1, GYP/PT	*WG-2 ABOVE BASE, HR-1 WITH 6" WD BACKER
A127	WCH STOR	CA-2C	V-1	PT-1, WP-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE
A128	LARGE GROUP ROOM/ CHAPEL	CA-3	V-1	PT-1,WC-1*	ACT-1, GYP/PT	*ACCENT WC AT NORTH WALL
A129	CHAIR/TABLE STORAGE	SF-2	V-2	PT-1	EXP/PT	
A130	CHAIR/TABLE STORAGE	SF-2	V-2	PT-1	EXP/PT	
A131	WCH STOR	CA-5	V-1	PT-1, WP-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE
A132	HSKP	SF-2	V-2	FRP, PT-1*	EXP/PT	*FRP WAINSCOT AT BOTH SIDES OF FLOOR SINK
A133	PUBLIC T	CT-1	CSP	CT-1, CT-7A, PT-6*	ACT-3	*CT-1 WSCT WITH CT-7A ACCENT BAND, EPOXY PT-6 ABOVE
A134	CORRIDOR	CA-1A, CT-4*	V-1	WG-1, HR-1, PT-1**	ACT-1	*SEE FINISH PLAN**WG-1 ABOVE BASE; HR-1 WITH WOOD BACKER
A136	WAITING	SF-1	V-1	PT-1, 6*	ACT-1	*SEE FINISH PLAN FOR PT-6 ACCENT
A137	THERAPY	SF-1	V-1	PT-1	ACT-1	
A138	COORD. OFFICE	CA-1A	V-2	PT-1	ACT-2	
A139	CHARTING	CA-1A	V-2	PT-1, 6*	ACT-2	*PT-6 @ WEST WALL
A140	STORAGE	SF-2	V-2	PT-1	EXP/PT	
A151	OT KITCHEN	SF-1	V-1	PT-1, PT-6*	ACT-1	*PT-6 @ NE WALL
A152	OT BEDROOM	SF-1	V-1	PT-1, PT-5*	ACT-1	*PT-5 @ WEST WALL
A153	OT BATH	CT-1	CSP	PT-1, CT-1*	ACT-3, GYP/PT	*INSTALL CT-1 3X12 TRIM @ CSP, ALL WALLS
A154	TREATMENT	SF-1	V-1	PT-1, PT-6*	ACT-1	*PT-6 @ WEST WALL
A155	SPEECH/ OFFICE	CA-1A	V-2	PT-1	ACT-2	
A156	EQUIP STOR	SF-2	V-2	PT-1	EXP/PT	
A157	TREATMENT	SF-1	V-1	PT-1, PT-5*	ACT-1	*PT-5@ WEST WALL
A160	CORRIDOR	CA-1A	V-1	WG-1, HR-1, PT-1, PT-4*	ACT-1	*WG-1 ABOVE BASE; HR-1; SEE FINISH PLAN FOR PT-4 ACCENT
A161	MECH	SC	V-2	PT-1	EXP	
A162	EMERGENCY ELEC	SC	V-2	PT-1	EXP	
A163	ELEC	SC	V-2	PT-1	EXP	
A164	COMM/DATA	SC	V-2	PT-1	EXP	
A168	OFFICE	CA-1A	V-1	PT-1*	ACT-2	*PT ACCENT @ N WALL, TO BE SELECTED
A181	SPA	CT-1, CT-2*	CSP	CT-1, CT-7A, PT-1**	ACT-3, GYP/PT	*CT-2 AT SHOWER, **EPOXY PT-1; CT-1 WSCT WITH CT-7A ACCENT BAND AT TUB AND TOILET WALL, FULL-HT CT-1 AT ALL SHOWER WALLS
A184	CORRIDOR	CA-1A	V-1	WG-1, HR-1, WD TR, PT-1, PT-9, PT-11*	ACT-1, GYP/PT	*WG-1 ABOVE BASE; HR-1 WITH WOOD BACKER; PT-11 ACCENT BAND BETWEEN WD TRIM NEAR CEILING, PT-9 ACCENT WALLS, SEE FINISH PLAN
A187	SU	SF-2	ICB	FRP, PT-1*	ACT-3	*FRP WSCT AT ALL SIDES OF FLUSHING RIM SINK
A189	SL	SF-2	ICB	PT-1	EXP/PT	
A190	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
A197	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
A198	CL	SF-2	V-2	PT-1	EXP/PT	
A205	PUBLIC T	CT-1	CSP	CT-1, CT-7A, PT-1, PT-9*	ACT-3	*CT-1 WSCT WITH CT-7A ACCENT BAND & CT-1 TRIM EPOXY PT-1 ABOVE & PT-9 @ SOUTH WALL
A206	COMM/DATA	SC	V-2	PT-1	EXP	
A207	SCREEN PORCH	SC	-	-	-	
A208	DINING	SF-1	V-1	PT-1, WC-4*	ACT-1	*SEE FINISH PLAN
A209	KITCHEN	SF-1	V-1	PT-1, CT-3, PT-9*	ACT-3, GYP/PT	*CT-3 BACKSPLASH (SEE ELEVATIONS), PT -9 ACCENT AT VERTICAL & HORIZONTAL SOFFIT SURFACES ABOVE KITCHEN COUNTER
A210	CART ALCOVE	SF-1	V-1	WP-1, PT-1*	ACT-3	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
A211	LIVING RM 1	CA-2C	V-1	PT-1, PT-2, CT-8, WD*	ACT-1, GYP/PT	*PT-2 AT HALF WALLS, PT-1 AT COLUMNS, CT-8 AT FIREPLACE, WD CAP AT HALF WALLS & HEARTH; ACCENT PT-2 AT ALL SIDES OF VERTICAL & HORIZONTAL SOFFIT SIDES AT SOFFIT OVER FIREPLACE
A216	ENTRY	CA-5	V-1	PT-1,PT-9*	ACT-1	*PT-9 @ EAST WALL
A217	STOR	SF-2	V-2	PT-1	EXP	
A218	WHC STOR	SF-2	V-2	PT-1, WP-1*	EXP	*4'-0" HIGH WP-1 WSCT AT ALL WALLS
A219	LIVING RM 2	CA-2C	V-1	PT-1, WC-4*	ACT-1, GYP/PT	*SEE FINISH PLAN FOR WC-4 LOCATION
A223	NURSE STATION	CA-1A*	V-1	PT-1, PT-9**	ACT-2	*INSTALL W/ CLEAN EDGES AROUND RECESSED SCALE INSERT **SEE FINISH PLAN FOR ACCENT PT LOCATION
A224	MEDS/ CU	SF-2	V-2	PT-1	ACT-2	
A225	CHARTING	CA-1A	V-2	PT-1	ACT-2	
A226	OFFICE	CA-1A	V-2	PT-1*	ACT-2	*PT ACCENT @ S WALL, TO BE SELECTED
A227	STAFF T	SF-3	V-2	PT-1*	ACT-3	*EPOXY PT-1
A231	OXY	SC	-	PT-1*	EXP	*MUD FLOOR TO WALL, EPOXY PT-1
A238	SL	SF-2	ICB	PT-1	EXP/PT	
A239	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
A244	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
A245	CL	SF-2	V-2	PT-1	EXP/PT	
A246	CORRIDOR	CA-1A	V-1	WG-1, HR-1, WD TR, PT-1, 9, 10*	ACT-1, GYP/PT	*WG-1 ABOVE BASE; CHAIR RAIL BEHIND HR-1; PT-9 ACCENT WALL SEE FINISH PLAN, PT-10 ACCENT BAND BETWEEN WD TRIM & CEILING.
A253	SUPPLY	SF-2	V-2	PT-1	EXP/PT	
A254	LINEN TRANSFER	SF-2	V-2	PT-1	EXP/PT	
A258	LAUNDRY	SF-2	V-2	PT-1, 6*	ACT-3	*PT-6 @ EAST WALL

RFS-B

Room Number	Room Name	Finish: Floor	Finish: Base	Finish: Wall	Finish: Ceiling	Comments
B106	LAUNDRY	SF-2	V-2	PT-1, PT-6*	ACT-3	*PT-6 ON SOUTH WALL
B110	CORRIDOR	CA-1A	V-1	PT-1, PT-5, PT-6, WG-1, HR-1*	ACT-1	*WG-1 ABOVE BASE, HR-1 WITH WD BACKER PT-6 ACCENT WALLS, PT-5 BETWEEN WOOD TRIM & CEILING , SEE FINISH PLAN.
B117	CL	SF-2	V-2	PT-1	EXP/PT	
B118	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B123	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B124	SL	SF-2	ICB	PT-1	EXP/PT	
B132	CLEAN SUPPLY	SF-2	V-2	PT-1	EXP/PT	
B133	LINEN TRANSFER	SF-2	V-2	PT-1	EXP/PT	
B134	OXY	SC	-	PT-1*	EXP/PT	*MUD FLOOR TO WALL, EPOXY PT-1
B135	SUPPLY	SF-2	V-2	PT-1	EXP/PT	
B137	NURSE STATION	CA-1A*	V-1	PT-1, PT-6**	ACT-2	*INSTALL W/ CLEAN EDGES AROUND RECESSED SCALE INSERT *SEE FINISH PLAN FOR PT LOCATION
B138	STAFF T	SF-3	V-2	PT-1*	ACT-3	*EPOXY PT-1
B139	OFFICE	CA-1A	V-2	PT-1*	ACT-2	*PT ACCENT AT N WALL, TO BE SELECTED
B140	CHARTING	CA-1A	V-2	PT-1	ACT-2	
B141	MEDS/ CU	SF-2	V-2	PT-1	ACT-2	
B144	CART ALCOVE	SF-1	V-1	WP-1, PT-1*	ACT-3	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B145	KITCHEN	SF-1	V-1	PT-1, CT-3, PT-4*	ACT-3, GYP/PT	*CT-3 BACKSPLASH (SEE ELEVATIONS), PT-4 ACCENT AT VERTICAL & HORIZONTAL SOFFIT SURFACES ABOVE KITCHEN COUNTER
B146	DINING	SF-1	V-1	PT-1, WC-2*	ACT-1	*WC-2 ACCENT, SEE FINISH PLAN
B148	LIVING RM 1	CA-2A	V-1	PT-1, PT-2, CT-8, WD,*	ACT-1, GYP/PT	*PT-2 AT HALF WALLS, PT-1 AT COLUMNS, CT-8 AT FIREPLACE, WD CAP AT HALF WALLS & HEARTH; ACCENT PT-2 AT ALL VERTICAL & HORIZONTAL SOFFIT SIDES AT SOFFIT OVER FIREPLACE
B150	CORRIDOR	CA-1A	V-1	PT-1, PT-2, WD*	ACT-1	*PT-1 @ COLUMNS - PT-2 @ HALF WALLS, WD CAPS
B151	LIVING RM 2	CA-2A	V-1	PT-1, WC-2*	ACT-1, GYP/PT	*SEE FINISH PLAN FOR WC-2 LOCATION
B152	WHEELCHAIR STOR	SF-2	V-2	PT-1, WP-1*	EXP	*4'-0" HIGH WP-1 WSCT AT ALL WALLS
B153	STOR	SF-2	V-2	PT-1	EXP	
B154	ENTRY	CA-5	V-1	PT-1, PT-6*	ACT-1	*PT-6 @ WEST WALL
B157	SU	SF-2	ICB	FRP, PT-1*	ACT-3	*FRP WSCT AT ALL SIDES OF FLUSHING RIM SINK
B160	PUBLIC T	CT-1	CSP	CT-1, CT-7B, PT-6*	ACT-3	*CT-1 WSCT WITH CT-7B ACCENT BAND & CT-1 TRIM, EPOXY PT-6 ABOVE
B161	COMM/DATA	SC	V-2	PT-1	EXP	
B171	SPA	CT-1, CT-2*	CSP	CT-1, CT-7B, PT-6**	ACT-3	*CT-2 @ SHOWER ** CT-1 FULL HT @ SHOWER WALLS, WAINSCOT @ REMAINING WALLS WITH CT-1 TRIM & CT-7B ACCENT BAND PT-6 ABOVE
B175	CORRIDOR	CA-1A	V-1	PT-1, PT-4, PT-6, WG-1, HR-1*	ACT-1	*WG-1 ABOVE BASE, HR-1 W/ WD BACKER, PT-6 ACCENT WALLS, PT-4 BETWEEN WD TRIM & CEILING
B176	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B177	CL	SF-2	V-2	PT-1	EXP/PT	
B182	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B183	SL	SF-2	ICB	PT-1	EXP/PT	
B190	CORRIDOR	CA-1A, CA-2B, CA-5*	V-1	PT-1, PT-5**	ACT-1	*SEE FINISH PLAN ** PT-5 ACCENT AT NE WALL
B191	MULTI-PURPOSE	CA-3	V-1	PT-3	ACT-1	
B192	PUBLIC T	CT-1	CSP	CT-1, CT-7A*	ACT-3	*CT-1 WAINSCOT W/ CT-1 TRIM & CT-7 A ACCENT BAND ON E & S WALLS, SEE ELEV.
B193	NURSING SUPPLY 2	SF-2	V-2	PT-1	ACT-2	
B194	EQUIP STOR 2	SC	V-2	PT-1	EXP	
B195	HSKP	SF-2	V-2	FRP, PT-1*	EXP	*FRP WAINSCOT @ 2 WALLS OF FLOOR SINK
B196	MECH	SC	V-2	PT-1	EXP	
B206	SL	SF-2	ICB	PT-1	EXP/PT	
B207	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B212	CL	SF-2	V-2	PT-1	EXP/PT	
B213	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B216	CORRIDOR	CA-1A	V-1	WG-1, HR-1, WD, PT-1, 5, 8*	ACT-1	*WG-1 ABOVE BASE, HR-1 W/ WD BACKER, PT-8 ACCENT WALLS, PT-5 ACCENT BAND BETWEEN WD TRIM & CEILING , SEE FINISH PLAN
B221	FUTURE SPA	SC, CT-2*	-	CT-1*, PT-1	ACT-3, GYP/PT	*CT-2 @ SHOWER ** CT-1 FULL HEIGHT @ SHOWER WALLS
B225	COMM/DATA	SC	V-2	PT-1	EXP	
B226	PUBLIC T	CT-1	CSP	CT-1, CT-6B, PT-1, PT-5*	ACT-3	*CT-1, WSCT WITH CT -6B ACCENT BAND & CT-1 TRIM EPOXY PT-1 ABOVE & PT-5 ACCENT ON EAST WALL
B229	SU	SF-2	ICB	FRP, PT-1*	ACT-3	*FRP WSCT AT ALL SIDES OF FLUSHING RIM SINK
B233	ENTRY	CA-5	V-1	PT-1, PT-8*	ACT-1	*PT-8 @ SOUTH WALL
B234	STOR	SF-2	V-2	PT-1, PT-8*	EXP	
B235	WHEELCHAIR STOR	SF-2	V-2	PT-1, WP-1*	EXP	*4'-0" HIGH WP-1 WSCT AT ALL WALLS
B236	CORRIDOR	CA-1A	V-1	PT-1, PT-2, WD*	ACT-1	*PT-1 @ COLUMNS. PT-2 @ HALF WALLS, WD CAP @ 1/2 WALL
B237	LIVING RM 2	CA-2B	V-1	PT-1, WC-3*	ACT-1, GYP/PT	*SEE FINISH PLAN FOR ACCENT WC-3 LOCATION
B240	NURSE STATION	CA-1A*	V-1	PT-1, PT-8*	ACT-2	*INSTALL W/ CLEAN EDGES AROUND RECESSED SCALE INSERT **SEE FINISH PLAN FOR ACCENT PT LOCATION
B241	MEDS/ CU	SF-2	V-2	PT-1	ACT-2	
B242	CHARTING	CA-1A	V-2	PT-1	ACT-2	
B243	OFFICE	CA-1A	V-2	PT-1*	ACT-2	*PT ACCENT @ E WALL, TO BE SELECTED
B244	STAFF T	SF-3	V-2	PT-1*	ACT-3	*EPOXY PT-1
B248	LIVING RM 1	CA-2B	V-1	PT-1, PT-2, CT-8, WD*	ACT-1, GYP/PT	*PT-2 AT HALF WALLS, PT-1 AT COLUMNS, CT-8 AT FIREPLACE, WD CAP AT HALF WALLS & HEARTH; ACCENT PT-2 AT ALL VERTICAL & HORIZONTAL SOFFIT SIDES AT SOFFIT OVER FIREPLACE
B250	DINING	SF-1	V-1	PT-1, WC-3*	ACT-1	*SEE FINISH PLAN
B251	KITCHEN	SF-1	V-1	PT-1, CT-3, PT-8*	ACT-3, GYP/PT	*CT-3 BACKSPLASH (SEE ELEVATIONS), PT-8 ACCENT AT VERTICAL & HORIZONTAL SOFFIT SURFACES ABOVE KITCHEN COUNTER
B252	CART ALCOVE	SF-1	V-1	WP-1, PT-1*	ACT-3	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B255	LINEN TRANSFER	SF-2	V-2	PT-1	EXP/PT	
B256	OXY	SC	-	PT-1*	EXP/PT	*MUD FLOOR TO WALL, EPOXY PT-1
B257	SUPPLY	SF-2	V-2	PT-1	EXP	
B258	CLEAN SUPPLY	SF-2	V-2	PT-1	EXP/PT	
B263	SL	SF-2	ICB	PT-1	EXP/PT	
B264	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B269	CL	SF-2	V-2	PT-1	EXP/PT	
B270	LIFT	CA-1A	V-1	WP-1, PT-1*	ACT-1	*4'-0" HIGH WP-1 WSCT AT ALL SIDES OF ALCOVE, PT-1 ABOVE
B277	CORRIDOR	CA-1A	V-1	WG-1, HR-1, WD, PT-1, PT-7, PT-8*	ACT-1	*WG-1 ABOVE BASE, HR-1 W/ WD. BACKER, PT-8 ACCENT WALLS, PT-7 BAND BETWEEN WOOD TRIM & CEILING, SEE FINISH PLAN
B281	LAUNDRY	SF-2	V-2	PT-1,6*	ACT-2	*PT-6 @ SOUTH WALL

RFS-C

Room Number	Room Name	Finish: Floor	Finish: Base	Finish: Wall	Finish: Ceiling	Comments
C100	CORRIDOR	CA-1A, 2B, 2C*	V-1	WG-2, HR-1, PT-1, 8, 9, 10**	ACT-1	*SEE FINISH PLAN **WG-2 ABOVE BASE, HR-1 WITH WD BACKER, PT-8,9,10 ACCENTS, SEE FINISH PLAN.
C101	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*PT ACCENT ON N WALL, TO BE SELECTED
C102	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*PT ACCENT ON N WALL, TO BE SELECTED
C103	S.U.	SF-2	ICB	PT-1*	ACT-3	*EPOXY PT
C104	HSKP	SF-2	V-2	FRP, PT-1*	ACT-3	*FRP WAINSCOT BOTH WALLS OF FLOOR SINK PT ABOVE
C105	STOR	SF-2	V-2	V-2	EXP/PT	
C106	QUIET/SAFE ROOM	SF-2	ICB	PT-1	ACT-2, GYP/PT	
C114	CORRIDOR	CA-1A	V-1	WG-2, HR-1, PT-1,5,8*	ACT-1	*WG-2 ABOVE BASE, HR-1 W/ WD BACKER, PT-5 ACCENT PT-8 BAND BETWEEN WOOD TRIM AND CEILING SEE FINISH PLAN.
C120	SL	SF-2	ICB	PT-1	EXP/PT	
C121	LIFT	CA-1A	V-1	PT- WP-1*	ACT-1	*WP WAINSCOT, ALL WALLS, PT ABOVE
C126	CL	SF-2	V-2	PT-1	EXP/PT	
C127	STOR	SF-2	V-2	PT-1	EXP	
C135	VESTIBULE	CA-5	V-1	PT-1,8*	ACT-1	*PT-8 @ SOUTH WALL
C136	CORRIDOR	CA-1A	V-1	PT-1,8*	ACT-1	*PT-8 @ EAST WALL
C137	OFFICE	CA-1A	V-1	PT-1*	ACT-2	*PT ACCENT @ EAST WALL, TO BE SELECTED
C138	CHART/MED	CA-1A	V-2	PT-1,6*	ACT-2	*PT-6 @ SOUTH WALL
C139	STOR	SF-2	V-2	PT-1	EXP	
C140	STAFF T	SF-3	V-2	PT-1	ACT-3	
C141	CORRIDOR	CA-1A	V-1	WG-2, HR-1, PT-1,5,8*	ACT-1	WG-2 ABOVE BASE, HR-1 W/ WD BACKER, PT-5 ACCENT WALL, PT-8 BAND BETWEEN WD TRIM & CEILING, SEE FINISH PLAN
C142	PUBLIC T	CT-1	CSP	CT-1,7A,PT-1,5*	ACT-3	*CT-1 WAINSCOT W/ CT-1 TRIM & CT-7A ACCENT BAND, PT-5 @ N WALL, PT ABOVE TILE, SEE TYP ELEV.
C143	SUN ROOM	CA-2B	V-1	PT-1	ACT-1	
C149	STOR	SF-2	V-2	PT-1	EXP	
C150	CL	SF-2	V-2	PT-1	EXP/PT	
C155	SL	SF-2	ICB	PT-1	EXP/PT	
C156	LIFT	CA-1A	V-1	PT-1, WP-1*	ACT-1	*WP WAINSCOT @ ALL WALLS, PT ABOVE
C160	CORRIDOR	CA-1A	V-1	WG-2, HR-1, PT-1,8*	ACT-1	*WG-2 ABOVE BASE, HR-1 W/ WOOD BACKER, PT-8 BAND BETWEEN WD TRIM & CEILING
C161	LIVING	CA-2B	V-1	CT-8, WD, PT-8*	ACT-1	*CT @ FIREPLACE, WD @ MANTLE & HEARTH, PT-8 @ SOFFITS
C162	DINING	SF-1	V-1	CT-8, WD, PT-8*	ACT-1	*CT @ FIREPLACE, WD @ MANTLE & HEARTH, PT-8 @ SOFFITS
C163	KITCHEN	SF-1	V-1	PT-1	ACT-3	
C169	SPA	CT-1, CT-2*	CSP	CT-1, CT-6B, PT-1,5**	ACT-3	*CT-2 @ SHOWER ** CT-1 WAINSCOT, WITH CT-1 TRIM AND 6B ACCENT BAND, CT-1 FULL HT @ SHOWER WALLS PT-5 ACCENT @ NORTH WALL
C170	RES. LAUNDRY	SF-2	V-2	PT-1	ACT-3	
C171	DATA	CS	V-2	PT-1	EXP	
C172	CONFERENCE ROOM	CA-1A	V-1	PT-1	ACT-1	
C173	NURSING SUPPLY 1	SF-2	V-2	PT-1	EXP/PT	
C174	EQUIP STORAGE 1	CS	V-2	PT-1	EXP	
C175	IT SUPP	CA-1A	V-2	PT-1	ACT-2	

RFS - SN AREA A - TYPICAL RESIDENT ROOM

Room Name	Finish: Floor	Finish: Base	Finish: Wall	Finish: Ceiling	Comments
RESIDENT ROOM	SF-1	V-1	PT-1,ACCENT PT*	ACT-2	*@ AREA A ALTERNATE PT-9 & PT-11 AT WINDOW WALLS

RFS - SN AREA B, NORTH AND SOUTH HOUSEHOLDS - TYPICAL RESIDENT ROOM

Room Name	Finish: Floor	Finish: Base	Finish: Wall	Finish: Ceiling	Comments
RESIDENT ROOM	SF-1	V-1	PT-1,ACCENT PT*	ACT-2	@AREA B(NORTH) ALTERNATE PT-5 & 8 AT WINDOW WALLS @AREA B(SOUTH) ALTERNATE PT-4 & 5 AT WINDOW WALLS.

RFS- SN AREA C, DCS - TYPICAL RESIDENT ROOM

Room Name	Finish: Floor	Finish: Base	Finish: Wall	Finish: Ceiling	Comments
RESIDENT ROOM	SF-1	V-1	PT-1	ACT-2	

RFS - SN AREAS A, B, AND C - TYPICAL RESIDENT TOILET ROOM

Room Name	Finish: Floor	Finish: Base	Finish: Wall	Finish: Ceiling	Comments
RESIDENT TOILET	CT-1, CT-2*	CSP	CT-1, PT-1**	ACT-3, GYP/PT	*CT-2 AT SHOWER, **CT-1 WSCT W/ CT-1 TRIM, EPOXY PT-1 ABOVE; FULL-HT CT-1 AT ALL SHOWER WALLS- REFER TO ELEVATIONS FOR LOCATION OF TILE WAINSCOT & TILE WALL TRIM

RFS-ALT #1

Room Number	Room Name	Finish: Floor	Finish: Base	Finish: Wall	Finish: Ceiling	Comments
A143	POOL RM	CT-9	CSP	CT-9, PT-9*	GYP/PT	*CT-9 WSCT, EPOXY PT-9 ABOVE, SEE ELEVATION
A144	POOL EQUIP/ STOR	SC	V-2	PT-1*	EXP	*EPOXY PT-1
A145	CHANGING	CT-1	CSP	CT-1, PT-1*	ACT-3, GYP/PT	*CT WSCT, EPOXY PT ABOVE; FULL-HT CT AT ALL SHOWER WALLS
A146	CHANGING	CT-1	CSP	CT-1, PT-1*	ACT-3, GYP/PT	*CT WSCT, EPOXY PT ABOVE; FULL-HT CT AT ALL SHOWER WALLS

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

ROOM FINISH SCHEDULE - AREA A, B & C, AND TYPICAL RESIDENT UNITS

Scale	Date	Project Number
	6/23/15	146038

I201

RFS-BASEMENT AREA D

Room Number	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
0D100	STAIR D	-	-	PT TO MATCH EXISTING AFTER WATER DAMAGE IS REPAIRED	-	
0D101	ELEV	-	-	-	-	
0D102	LOUNGE	CA-7	V-1	PT-2,3*	ACT-1	*PT-3 @ EAST WALL & AT COLUMNS
0D103	LIBRARY	CA-7	V-1	PT-2,3*	ACT-1	*PT-3 @ EAST WALL & AT COLUMNS
0D104	SEATING	CA-7	V-1	PT-2,3*	ACT-1	*PT-3 @ EAST WALL & AT COLUMNS
0D105	ELEV MACHINE ROOM	E	-	-	-	
0D106	LOCKERS	E	-	-	-	
0D107	MAINTENANCE	E	-	-	-	
0D108	CORRIDOR	CA-1B, 6*	V-1	PT-1,2	ACT-1	*CA-6 INSETS, SEE FINISH PLAN
0D109	LOBBY	CA-1B	V-1	PT-1, 13*	ACT-1	*PT-13 ACCENT @ WEST WALL
0D110	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*PT ACCENT ON EAST WALL, TO BE SELECTED
0D111	MAIL	CA-1B	V-1	PT-1	ACT-1	
0D115	VESTIBULE	CA-5	V-1	PT-1, 13*	ACT-1	*PT-13 ACCENT, SEE FINISH PLAN
0D115A	CLOSET	SC	V-2	PT-1	ACT-2	
0D117	LOCKERS	E	-	-	-	
0D118	LOCKERS	E	-	-	-	
0D119	CORRIDOR	CA-1B, 6*	V-1	PT-1, 3**	ACT-1	*CA-6 INSET, SEE FINISH PLAN **PT-3 @ N WALL
0D119A	ENTRY	CA-5	V-1	PT-1	ACT-1	
0D120	ADULT DAY CENTER	SF-1	V-1	PT-1, 5, 13**	ACT-1	PER ALT. 2, *SEE FINISH PLAN FOR ACCENT PAINT
0D121	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	PER ALT. 2, *PT ACCENT ON SOUTH WALL TO BE SELECTED
0D122	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	PER ALT. 2, *PT ACCENT ON SOUTH WALL TO BE SELECTED
0D123	CHARTING	CA-1A	V-1	PT-1	ACT-2	PER ALT. 2, *PT ACCENT ON SOUTH WALL TO BE SELECTED
0D124	SHWR	E	-	-	-	PER ALT. 2, *PT ACCENT ON SOUTH WALL TO BE SELECTED
0D125	TOILET	E	-	-	-	PER ALT. 2, *PT ACCENT ON SOUTH WALL TO BE SELECTED
0D126	CLOS	E	-	-	-	PER ALT. 2, *PT ACCENT ON SOUTH WALL TO BE SELECTED
0D127	NAP ROOM	CA-1B	V-2	PT-2	ACT-2	PER ALT. 2, *PT ACCENT ON SOUTH WALL TO BE SELECTED
0D128	STORAGE	E	-	-	-	
0D129	STAIR A	E	-	-	-	
0D130	SOILED LAUNDRY	E	-	-	-	
0D131	HOT WATER	E	-	-	-	
0D132	CLEAN LAUNDRY	E	-	-	-	
0D133	DRYERS	E	-	-	-	
0D143	CORRIDOR	E	-	-	-	
0D144	MECHANICAL	E	-	-	-	
0D148	MAINTENANCE	E	-	-	-	
0D151	Room	E	-	-	EXIST ACT*	*RE-INSTALL EXISTING CEILING
0D152	Room	E	-	-	EXIST ACT*	*RE-INSTALL EXISTING CEILING
0D154	MEDICAL RECORDS	E	-	-	EXIST ACT*	*RE-INSTALL EXISTING CEILING
0D158	MECHANICAL	E	-	-	-	
0D160	STAIR B	E	-	-	-	
0D161	OFFICE	E	-	-	EXIST ACT*	*RE-INSTALL EXISTING CEILING
0D162	STORAGE	E	-	-	-	
0D163	STORAGE	E	-	-	-	
0D165	CONFERENCE ROOM	E	-	-	EXIST ACT*	*RE-INSTALL EXISTING CEILING
0D175	ELECTRICAL	E	-	-	-	
0D180	CORRIDOR	E	-	-	EXIST ACT*	*RE-INSTALL EXISTING CEILING
0D181	OFFICE SUPPLY	E	-	-	-	
0D185	STORAGE	E	-	-	EXIST ACT*	*RE-INSTALL EXISTING CEILING
0D190	STAIR C	E		-	-	
0D192	NURSE EQUIPMENT	E	-	-	-	
0D197	STORAGE	E	-	-	-	

RFS-FIRST FLOOR AREA D

A	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
1D100	STAIR D	E	E	E	E	
1D101	ELEVATOR	-	-	-	-	
1D102	CORRIDOR	CA-1B	V-1	HR-1, WD, PT-1, PT-2, PT-13**	ACT-1, GYP/PT	*HR-1 W/ WD BACKER PT-2 ACCENT AT ALL VERTICAL & HORIZONTAL SOFFIT SIDES AT SOFFIT IN FRONT OF ELEVATOR, PT-13 ACCENT AT WEST WALL, PT BY SECTION 099600
1D103	PORCH	CA-6	V-1	PT-1, PT-2*	ACT-1, GYP/PT	*PT-2 AT COLUMNS AND HALF WALLS
1D104	LIVING ROOM	CA-6	V-1	PT-1, 2, WC-6*	ACT-1, GYP/PT	*PT-2 AT COLUMNS, WC-6 @ EAST WALL
1D108	CORRIDOR	CA-1B, CA-6*	V-1	HR-1, WD, PT-1, PT-13*	ACT-1, GYP/PT	*SEE FINISH PLAN **HR-1 W/ WD BACKER, SEE FINISH PLANS FOR ACCENTS, PT BY SECTION 099600
1D109	CL	SF-2	V-2	PT-1	ACT-3	
1D110	PRIVATE DINING	SF-1	V-1	PT-1, PT-13*	ACT-1, GYP/PT	*PT ACCENT WALL AT EAST WALL
1D111	SL	SF-2	ICB	PT-1	ACT-3	
1D124	SUN ROOM	SF-1	V-1	PT-6	ACT-2	
1D129	STAIR A	E	E	E	E	
1D140	RESIDENTIAL COMMON	SF-1	V-1	PT-1, PT-13, WC-6*	ACT-1, GYP/PT	*WC-6 @ EAST WALL, PT-13 AT COLUMNS
1D141	KITCHEN	SF-1	V-1	PT-1, 2, CT-3*	ACT-1, GYP/PT	*CT-3 BACKSPLASH, SEE ELEVATION, PT-2 @ SOFFITS
1D142	CORRIDOR	CA-1B	V-1	HR-1, WD, PT-1, PT-13*	ACT-1, GYP/PT	*HR-1 W/ WD BACKER, SEE FINISH PLAN FOR ACCENTS, PT BY SECTION 099600
1D143	CORRIDOR	CA-1B	V-1	HR-1, WD, PT-1, PT-13*	ACT-1	*HR-1 W/ WD BACKER, SEE FINISH PLAN FOR ACCENTS, PT BY SECTION 099600
1D144	LAUNDRY	SF-2	V-2	PT-1, 6*	ACT-3	*PT-6 @ SOUTH WALL
1D145	STORAGE	SF-2	V-2	PT-1	EXP/PT	
1D160	STAIR B	E	E	E	E	
1D161	SUN ROOM	SF-1	V-1	PT-2, 6*	ACT-1	*PT-6 ACCENT @ EAST WALL
1D162	DAY ROOM/CRAFT	SF-1	V-1	PT-2, 6*	ACT-1	*PT-6 ACCENT @ NORTH WALL
1D175	EQUIP STOR	SF-2	V-2	PT-1	EXP/PT	
1D176	T	CT-1	CSP	CT-1, CT-6A, PT-1,13*	ACT-3	*CT-1 WSCT WITH CT-8 ACCENT BAND AND CT-1 TRIM, EPOXY PT-1 ABOVE & PT-13 @ E WALL
1D177	SPA	CT-1, E*	CSP	CT-1, CT-6A, PT-1, E**	ACT-1, ACT-3, GYP/PT	*SEE PLAN FOR EXISTING TILE LOCATION- WALL & FLOOR, **CT-1 WSCT WITH CT -1 TRIM & CT-6A ACCENT BAND, EPOXY PT-1 ABOVE, & PT-13 ACCENT - SEE FINISH PLAN
1D178	T	CT-1	CSP	CT-1, CT-6A, PT-1,13*	ACT-3	*CT-1 WSCT WITH CT-1 TRIM & CT-6A ACCENT BAND, EPOXY PT-1 ABOVE & PT-13 @ N WALL
1D180	CORRIDOR	CA-1B	V-1	HR-1, WD, PT-1, PT-13*	ACT-1	HR-1 W/ WD BACKER, SEE FINISH PLAN FOR ACCENTS, PT BY SECTION 099600
1D190	STAIR C	E	E	E	E	
1D216	SU / SL	SF-2	ICB	PT-1	ACT-3	
1D217	HSKP	SF-2	V-2	FRP, PT-1*	E	*FRP WAINSCOT AT ALL SIDES OF FLOOR SINK
1D218	CHARTING / MEDS	CA-1A	V-2	PT-1	ACT-2	
1D219	NURSE MANAGER	CA-1A	V-2	PT-1, PT*	ACT-2	*PT ACCENT @ EAST WALL, TO BE SELECTED
1D220	SUPPLY	E	E	E	E	
1D221	IT	E	E	E	E	

RFS - CBRF UNIT A

Room Number	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
CBRF A1	RESIDENT ROOM CBRF A1	CA-4	V-1	PT-1	ACT-2	
CBRF A1	RESIDENT ROOM CBRF A1	CA-4	V-1	PT-1	ACT-2	
CBRF A2	RESIDENT TOILET CBRF A2	SF-3	V-1	PT-1	GYP/PT, ACT-3	

RFS - CBRF UNIT B

Room Number	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
CBRF B1	RESIDENT ROOM CBRF B1	CA-4	V-1	PT-1	ACT-2	
CBRF B2	RESIDENT TOILET CBRF B2	SF-3	V-1	PT-1	GYP/PT, ACT-3	

RFS-SECOND FLOOR AREA D

Room Number	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
2D100	STAIR D	E	E	E	E	
2D101	ELEVATOR	-	-	-	-	
2D102	CORRIDOR	CA-1B	V-1	HR-1, WD, PT-1, PT-2, PT-12*	ACT-1, GYP/PT	*HR-1 W/ WD BACKER PT-2 ACCENT AT ALL VERTICAL & HORIZONTAL SOFFIT SIDES AT SOFFIT IN FRONT OF ELEVATOR, PT-12 ACCENT AT WEST WALL, PT BY SECTION 099600
2D103	PORCH	CA-7	V-1	PT-1	ACT-1, GYP/PT	
2D104	LIVING ROOM	CA-7	V-1	PT-1, 2, WC-5*	ACT-1, GYP/PT	*PT-2 AT COLUMNS & HALF WALL, WC-5 @ EAST WALL
2D108	CORRIDOR	CA-1B	V-1	WG-1, HR-1, WD, PT-1, PT-12*	ACT-1, GYP/PT	*WG-1 ABOVE BASE, HR-1 WITH WOOD BACKER; SEE FINISH PLANS FOR ACCENTS, PT BY SECTION 099600
2D109	CL	SF-2	V-2	PT-1	ACT-3	
2D110	PRIVATE DINING	SF-1	V-1	PT-1, PT-12*	ACT-1, GYP/PT	*PT-12 ACCENT WALL AT EAST WALL
2D111	SL	SF-2	ICB	PT-1	ACT-3	
2D123	STAIR A	E	E	E	E	
2D124	SUN ROOM	SF-1	V-1	PT-6	ACT-2	
2D140	RESIDENTIAL COMMON	SF-1	V-1	PT-1, PT-12, WC-5*	ACT-1, GYP/PT	*WC-5 @ EAST WALL(SEE FINISH PLAN), PT-12 AT COLUMNS
2D141	KITCHEN	SF-1	V-1	PT-1, 2, CT-3*	ACT-1, GYP/PT	*CT-3 BACKSPLASH, SEE ELEVATION, PT-2 @ SOFFITS
2D142	CORRIDOR	CA-1B	V-1	HR-1, WD, PT-1*	ACT-1, GYP/PT	*HR-1 W/ WD BACKER, PT BY SECTION 099600
2D143	CORRIDOR	CA-1B, CA-7*	V-1	HR-1, WD, PT-1, PT-12**	ACT-1	* SEE FINISH PLAN **HR-1 W/ WD BACKER, PT-12 ACCENT, SEE FINISH PLAN FOR ACCENTS, PT BY SECTION 099600
2D144	LAUNDRY	SF-2	V-2	PT-1, 6*	ACT-3	*PT-6 @ SOUTH WALL
2D145	STORAGE	SF-2	V-2	PT-1	EXP/PT	
2D160	STAIR B	E	E	E	E	
2D161	SUN ROOM	SF-1	V-1	PT-6	ACT-1	
2D162	DAY ROOM/CRAFT	SF-1	V-1	PT-2, 6*	ACT-1	*PT-6 ACCENT @ NORTH WALL
2D163	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*PT ACCENT ON EAST WALL, TO BE SELECTED
2D175	EQUIP STOR	SF-2	V-2	PT-1	EXP/PT	
2D176	T	CT-1	CSP	CT-1, CT-7B, PT-1,12*	ACT-3	*CT-1 WSCT WITH CT TRIM & CT-7B ACCENT BAND, EPOXY PT-1 ABOVE & PT-12 @ E WALL
2D177	SPA	CT-1, E*	CSP	CT-1, CT-7B, PT-1, 12**	ACT-1, ACT-3, GYP/PT	*SEE PLAN FOR EXISTING TILE LOCATION- WALL & FLOOR, **CT-1 WSCT WITH CT -1 TRIM & CT-7B ACCENT BAND, EPOXY PT-1 ABOVE, & PT-12 ACCENT - SEE FINISH PLAN
2D178	T	CT-1	CSP	CT-1, CT-7B, PT-1,12*	ACT-3	*CT-1 WSCT WITH CT-1 TRIM & CT-7B ACCENT BAND, EPOXY PT-1 ABOVE & PT-12 @ E WALL
2D180	CORRIDOR	CA-1B	V-1	HR-1, WD, PT-1, PT-12*	ACT-1	HR-1 W/ WD BACKER, SEE FINISH PLAN FOR ACCENTS, PT BY SECTION 099600
2D190	STAIR C	E	E	E	E	
2D216	SU / SL	SF-2	ICB	PT-1	ACT-3	
2D217	HSKP	SF-2	V-2	FRP, PT-1*	E	*FRP WAINSCOT AT ALL SIDES OF FLOOR SINK
2D218	CHARTING / MEDS	CA-1A	V-2	PT-1	ACT-2	
2D219	NURSE MANAGER	CA-1A	V-2	PT-1, PT*	ACT-2	*PT ACCENT @ EAST WALL, TO BE SELECTED
2D220	SUPPLY	E	E	E	E	

RFS-BASEMENT AREA E

Room Number	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
0E115	CORRIDOR	E				
0E116	ELEV	E				
0E117	STAIR	E				
0E118	ELEV EQUIP	E				
0E119	ELEC	E				
0E120	MECHANICAL	E				
0E130	STORAGE	E				
0E131	HOT WATER	E				
0E132	RECIEVING	E				
0E133	CLEAN LINEN	E				
0E134	MAINTENANCE	E				
0E135	FOOD STORAGE	E				
0E136	IT/STORAGE	E				
0E140	CORRIDOR	E				
0E141	TOILET	E				
0E142	RECYCLING	E				

RFS-FIRST FLOOR AREA E

Room Number	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
1E100	MECH/ELEC	*	*	*	*	*PATCH TO MATCH EXISTING TO NEW CONSTRUCTION
1E101	TRANS-FILLING ROOM	*	*	*	*	*PATCH TO MATCH EXISTING TO NEW CONSTRUCTION
1E102	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*ACCENT PT AND LOCATION TO BE SELECTED
1E103	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*ACCENT PT AND LOCATION TO BE SELECTED
1E104	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*ACCENT PT AND LOCATION TO BE SELECTED
1E105	CORRIDOR	E	-	-	-	
1E107	CORRIDOR	CA-1A	V-1	PT-1*	ACT-1	*PT BY SECTION 099600
1E108	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*PT BY SECTION 099600
1E109	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*PT BY SECTION 099600
1E110	OFFICE	CA-1A	V-2	PT-1, PT*	ACT-2	*PT BY SECTION 099600
1E112	CORRIDOR	CA-1A, 7, 1B*	V-1	PT-1,12**	ACT-1	*CA-7 & CA-1B INSETS, SEE FINISH PLAN **PT-12 ACCENT SEE FINISH PLAN, PT BY SECTION 099600
1E115	SERVICE CORR	E	-	-	-	
1E116	ELEV	E	-	-	-	
1E117	STAIR	E	-	-	-	
1E118	CART WASH	E	-	-	-	
1E119	PANTRY	E	-	-	-	
1E123	T	E	-	-	-	
1E124	HSKP	E	-	-	-	
1E125	OFFICE	E	-	-	-	
1E126	COOLER	E	-	-	-	
1E127	EXISTING KITCHEN	E	-	-	-	
1E130	STAFF LOUNGE	SF-1	V-2	PT-1, 6*	ACT-2	*PT-6 ACCENT AT WEST WALLS
1E131	WELLNESS ROOM	SF-1, CA-7*	V-1	PT-2, 5**	ACT-1	*SEE FINISH PLAN **PT-5 ACCENTS NORTH & SOUTH WALLS
1E132	CORRIDOR	CA-1B	V-1	PT-1, 2*	ACT-1	*PT-2 ACCENT BETWEEN WINDOWS ON BOTH SIDES OF CORRIDOR, PT BY SECTION 099600

RFS - CBRF UNIT C

Room Number	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
CBRF C1	ENTRY	CA-4	V-1	PT-1	ACT-2	
CBRF C2	CLOSET	CA-4	V-1	PT-1	GYP/PT	
CBRF C3	KITCHEN	SF-1	V-1	PT-1	ACT-2	
CBRF C4	LIVING ROOM	CA-4	V-1	PT-1	ACT-2	
CBRF C5	BEDROOM	CA-4	V-1	PT-1	ACT-2	
CBRF C6	CLOSET	CA-4	V-1	PT-1	GYP/PT	
CBRF C7	BATHROOM	SF-3	V-1	PT-1	GYP/PT, ACT-3	

RFS - CBRF UNIT D

Room Number	Room Name	Finish Floor	Finish Base	Finish Wall	Finish Ceiling	Comments
CBRF D1	ENTRY	CA-4	V-1	PT-1	ACT-2	
CBRF D2	CLOSET	CA-4	V-1	PT-1	GYP/PT	
CBRF D3	KITCHEN/DINING	SF-1	V-1	PT-1	ACT-2	
CBRF D4	LIVING ROOM	CA-4	V-1	PT-1	ACT-2	
CBRF D5	BEDROOM	CA-4	V-1	PT-1	ACT-2	
CBRF D6	CLOSET	CA-4	V-1	PT-1	GYP/PT	
CBRF D7	BATHROOM	SF-3	V-1	PT-1	GYP/PT, ACT-3	

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

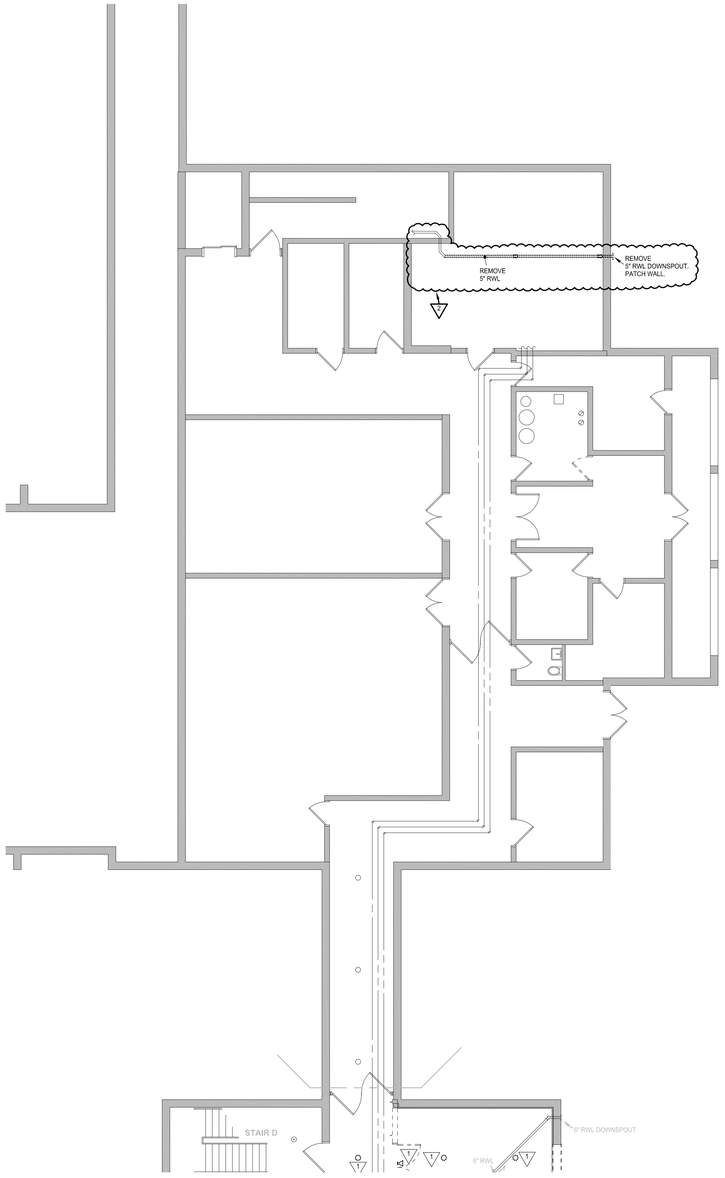
Rev. #	Date	Revision	Description
2	7/14/15	Addendum 2	Bid Package 2 - Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

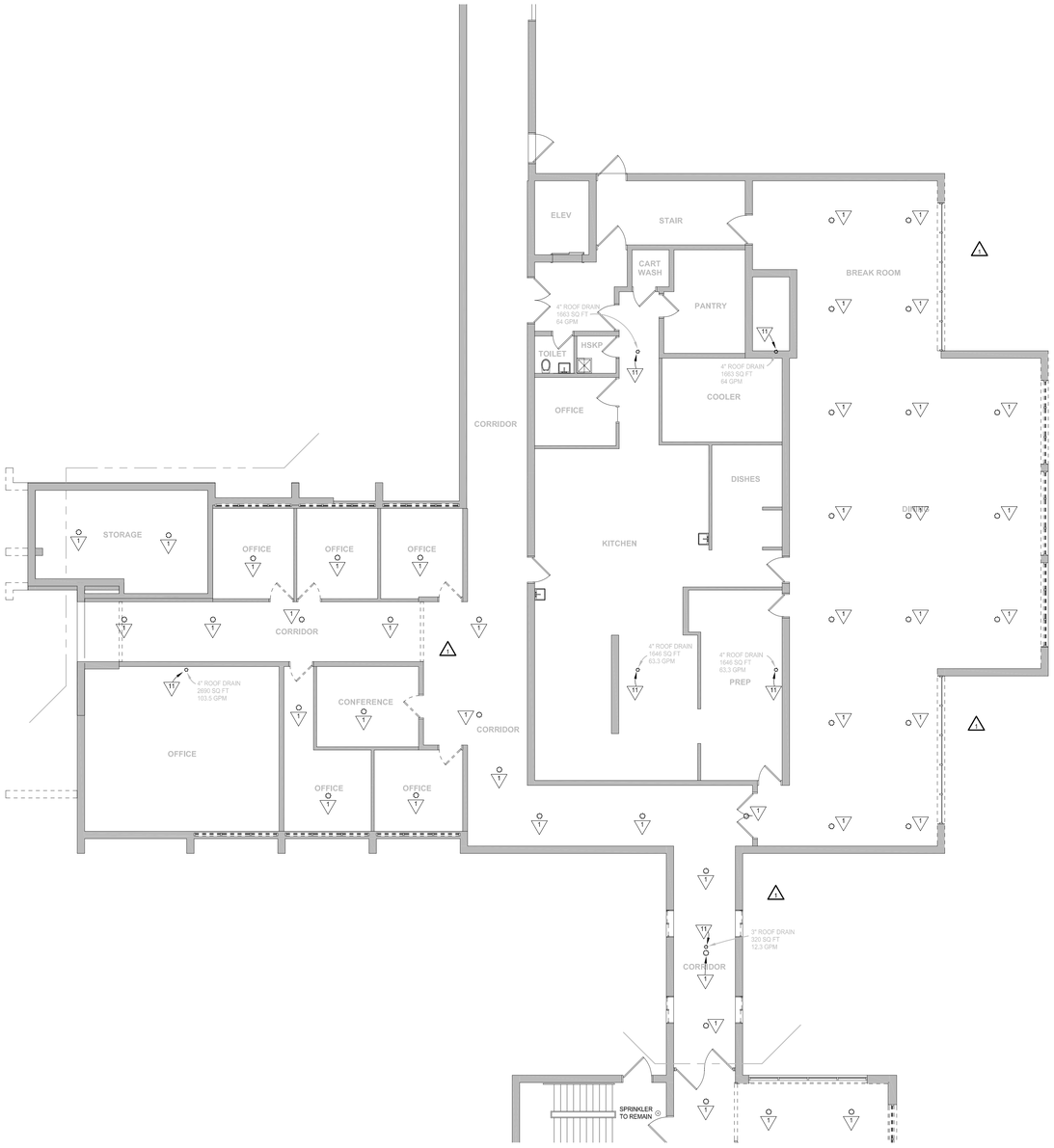
ROOM FINISH SCHEDULE - AREA D & E, AND TYPICAL RESIDENT UNITS

Scale	Date	Project Number
	6/23/15	146038

I202



2 PD104 PLUMBING DEMOLITION - BASEMENT - AREA E
1/8" = 1'-0"



1 PD104 PLUMBING / FIRE PROTECTION DEMOLITION - FIRST FLOOR - AREA E
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/08/15	Addendum No. 1	
2	7/14/15	Addendum No. 2	

GENERAL NOTES

DOTTED ITEMS ARE EXISTING TO BE DEMOLISHED. ALL HOLES IN FLOOR OR WALL FROM REMOVED PIPING SHALL BE PATCHED TO MATCH ASSEMBLY FIRE RATING.

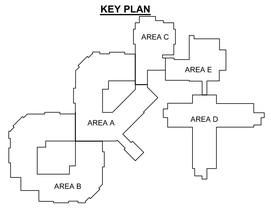
DIVISION 22 IS RESPONSIBLE FOR PATCHING WALLS AND FLOORS FROM DEMOLITION WORK ASSOCIATED WITH PLUMBING FIXTURE AND PIPING REMOVAL.

NOTES MAY NOT BE USED ON EACH SHEET.

KEY NOTES

1. REMOVE SPRINKLER AND ASSOCIATED PIPING AS NECESSARY TO MODIFY SYSTEM.
2. REMOVE PLUMBING FIXTURE, WASTE AND VENT AND DOMESTIC WATER SUPPLY PIPING.
3. REMOVE FLOOR DRAIN AND CONNECTED WASTE AND VENT PIPING. PATCH FLOOR.
4. REMOVE SHOWER VALVE AND SPRAY AND DOMESTIC WATER SUPPLY PIPING.
5. REMOVE ALL PLUMBING PIPING FROM PREVIOUSLY REMOVED PLUMBING FIXTURE.
6. REMOVE ALL PLUMBING PIPING IN CHASE OR WALL.
7. REMOVE PLUMBING SERVING BATHING UNIT.
8. REMOVE PLUMBING FIXTURE, SUPPLY RISERS AND P-TRAP. ROUGH-INS SHALL REMAIN.
9. REMOVE WASTE PIPE TO BELOW FLOOR AND CAP PIPE. PATCH FLOOR AS NECESSARY FOR NEW FINISHES.
10. ABANDON WASTE STACK. CAP PIPE AT WALL.
11. REMOVE EXISTING ROOF DRAIN AND REPLACE WITH NEW ROOF DRAIN IN SAME LOCATION.

KEY PLAN

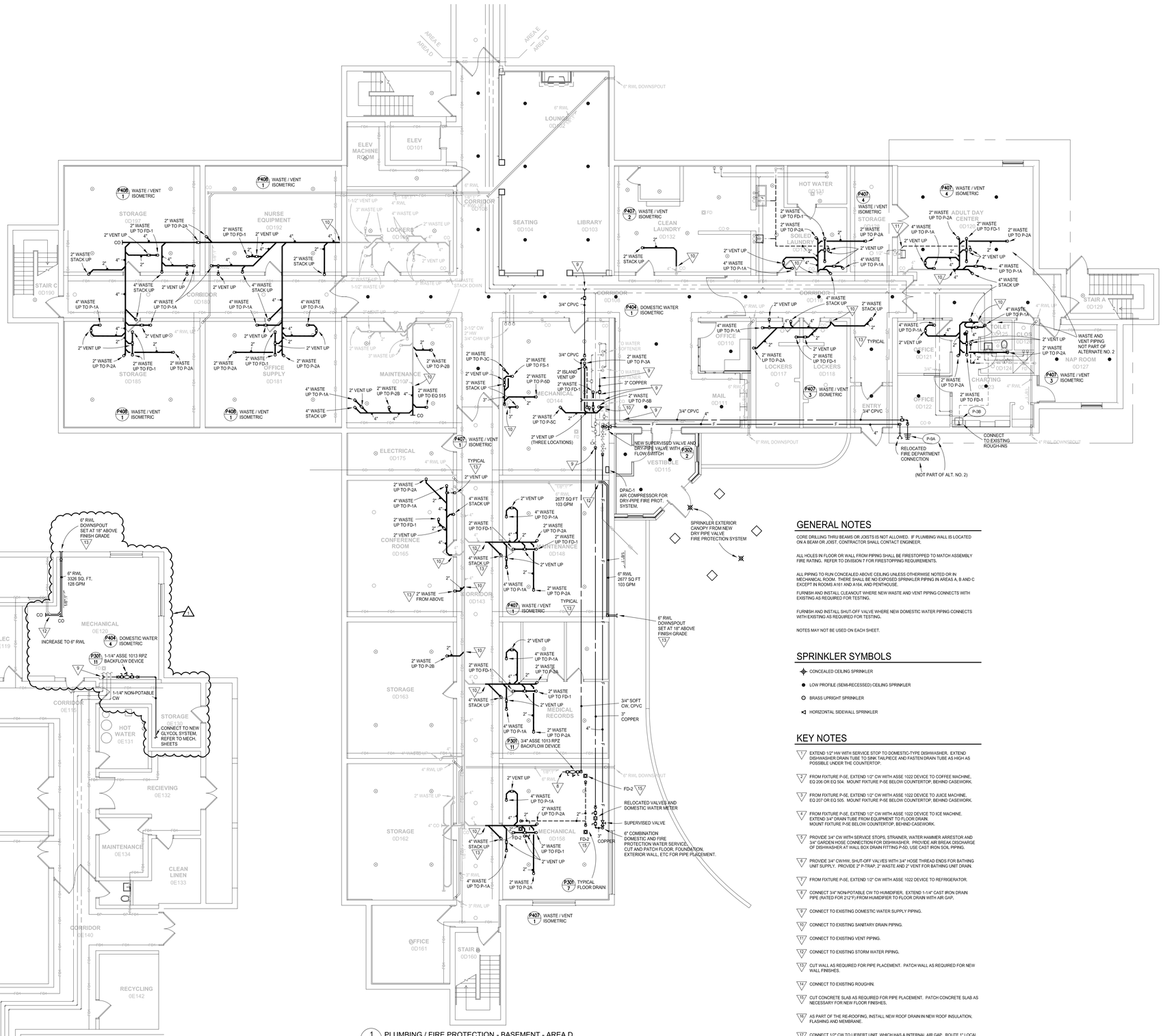


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

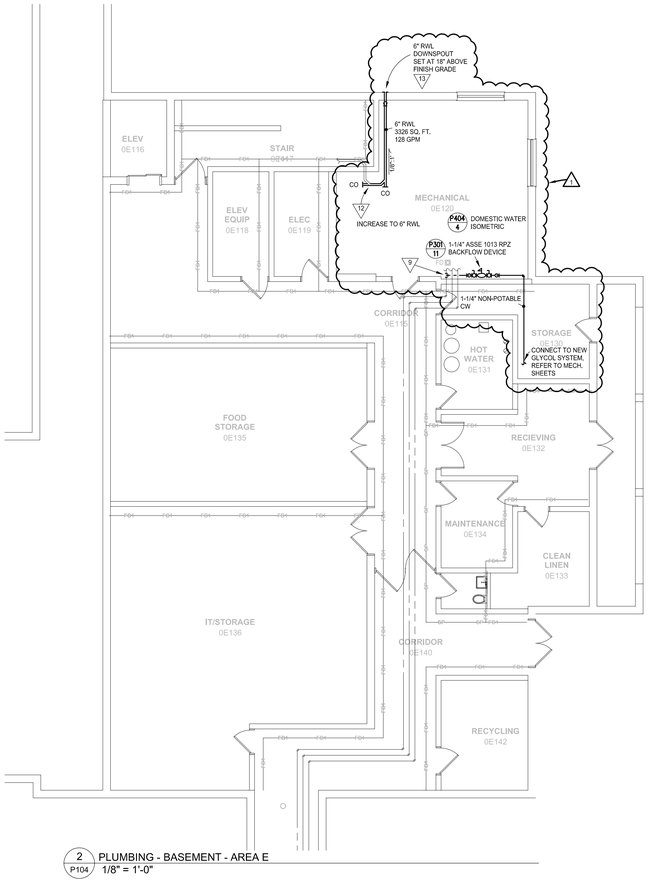
PLUMBING / FIRE PROTECTION DEMOLITION FIRST FLOOR - AREA E

Scale	Date	Commission #
1/8"=1'-0"	06/23/15	146038

PD104



1 / P104 PLUMBING / FIRE PROTECTION - BASEMENT - AREA D
1/8" = 1'-0"



2 / P104 PLUMBING - BASEMENT - AREA E
1/8" = 1'-0"

GENERAL NOTES

CORE DRILLING THRU BEAMS OR JOISTS IS NOT ALLOWED. IF PLUMBING WALL IS LOCATED ON A BEAM OR JOIST, CONTRACTOR SHALL CONTACT ENGINEER.

ALL HOLES IN FLOOR OR WALL FROM PIPING SHALL BE FIRESTOPPED TO MATCH ASSEMBLY FIRE RATING. REFER TO DIVISION 7 FOR FIRESTOPPING REQUIREMENTS.

ALL PIPING TO RUN CONCEALED ABOVE CEILING UNLESS OTHERWISE NOTED OR IN MECHANICAL ROOM. THERE SHALL BE NO EXPOSED SPRINKLER PIPING IN AREAS A, B AND C EXCEPT IN ROOMS A161 AND A164, AND PENTHOUSE.

FURNISH AND INSTALL CLEANOUT WHERE NEW WASTE AND VENT PIPING CONNECTS WITH EXISTING AS REQUIRED FOR TESTING.

FURNISH AND INSTALL SHUT-OFF VALVE WHERE NEW DOMESTIC WATER PIPING CONNECTS WITH EXISTING AS REQUIRED FOR TESTING.

NOTES MAY NOT BE USED ON EACH SHEET.

SPRINKLER SYMBOLS

- CONCEALED CEILING SPRINKLER
- LOW PROFILE (SEMI-RECESSED) CEILING SPRINKLER
- BRASS UPRIGHT SPRINKLER
- HORIZONTAL SIDEWALL SPRINKLER

KEY NOTES

1. EXTEND 1/2" HW WITH SERVICE STOP TO DOMESTIC-TYPE DISHWASHER. EXTEND DISHWASHER DRAIN TUBE TO SINK TAILPIECE AND FASTEN DRAIN TUBE AS HIGH AS POSSIBLE UNDER THE COUNTERTOP.
2. FROM FIXTURE P-5E, EXTEND 1/2" CW WITH ASSE 1022 DEVICE TO COFFEE MACHINE. EQ 206 OR EQ 504. MOUNT FIXTURE P-5E BELOW COUNTERTOP. BEHIND CASEWORK.
3. FROM FIXTURE P-5E, EXTEND 1/2" CW WITH ASSE 1022 DEVICE TO JUICE MACHINE. EQ 207 OR EQ 505. MOUNT FIXTURE P-5E BELOW COUNTERTOP. BEHIND CASEWORK.
4. FROM FIXTURE P-5E, EXTEND 1/2" CW WITH ASSE 1022 DEVICE TO ICE MACHINE. EXTEND 3/4" DRAIN TUBE FROM EQUIPMENT TO FLOOR DRAIN. MOUNT FIXTURE P-5E BELOW COUNTERTOP. BEHIND CASEWORK.
5. PROVIDE 3/4" CW WITH SERVICE STOPS, STRAINER, WATER HAMMER ARRESTOR AND 3/4" GARDEN HOSE CONNECTION FOR DISHWASHER. PROVIDE AIR BREAK DISCHARGE OF DISHWASHER AT WALL BOX DRAIN FITTING P-5D. USE CAST IRON SOIL PIPING.
6. PROVIDE 3/4" CW/HW, SHUT-OFF VALVES WITH 3/4" HOSE THREAD ENDS FOR BATHING UNIT SUPPLY. PROVIDE 2" P-TRAP, 2" WASTE AND 2" VENT FOR BATHING UNIT DRAIN.
7. FROM FIXTURE P-5E, EXTEND 1/2" CW WITH ASSE 1022 DEVICE TO REFRIGERATOR.
8. CONNECT 3/4" NON-POTABLE CW TO HUMIDIFIER. EXTEND 1-1/4" CAST IRON DRAIN PIPE (RATED FOR 212°F) FROM HUMIDIFIER TO FLOOR DRAIN WITH AIR GAP.
9. CONNECT TO EXISTING DOMESTIC WATER SUPPLY PIPING.
10. CONNECT TO EXISTING SANITARY DRAIN PIPING.
11. CONNECT TO EXISTING VENT PIPING.
12. CONNECT TO EXISTING STORM WATER PIPING.
13. CUT WALL AS REQUIRED FOR PIPE PLACEMENT. PATCH WALL AS REQUIRED FOR NEW WALL FINISHES.
14. CONNECT TO EXISTING ROUGHIN.
15. CUT CONCRETE SLAB AS REQUIRED FOR PIPE PLACEMENT. PATCH CONCRETE SLAB AS NECESSARY FOR NEW FLOOR FINISHES.
16. AS PART OF THE RE-ROOFING, INSTALL NEW ROOF DRAIN IN NEW ROOF INSULATION, FLASHING AND MEMBRANE.
17. CONNECT 1/2" CW TO LIEBERT UNIT. WHICH HAS A INTERNAL AIR GAP. ROUTE 1" LOCAL DRAIN TUBE FROM LIEBERT PUMP OUTLET TO NEARBY FLOOR DRAIN.
18. CONNECT 1" CW TO FILL LINE OF HEATING SYSTEM.

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	Addendum No. 2	

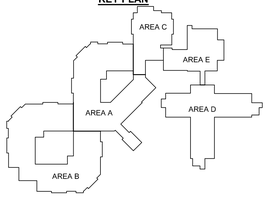
PLUMBING FIXTURE PIPE SIZES

	SUPPLY PIPE SIZE, INCH		WASTE PIPE SIZE, IN.	VENT PIPE SIZE, IN.
	HW	CW		
P-1A FLUSH TANK WATER CLOSET	—	1/2	3	2
P-2A, P-2B LAVATORY	1/2	1/2	1-1/4	1-1/4
P-3A, P-3B, P-3D, P-3E SINK, SINGLE BOWL	1/2	1/2	1-1/2	1-1/2
P-3C SINK, DOUBLE BOWL	3/4	3/4	2	1-1/2
P-4A, P-4B SHOWER	1/2	1/2	2	1-1/2
P-4C BATHTUB / SHOWER	1/2	1/2	1-1/2	1-1/2
P-5A FLOOR RECEPTOR	1/2	1/2	3	1-1/2
P-5B UTILITY BOX	1/2	1/2	2	1-1/2
P-5C LAUNDRY TUB	1/2	1/2	1-1/2	1-1/2
P-5D UTILITY DRAIN BOX	—	—	2	1-1/2
P-5E WATER UTILITY BOX	—	1/2	—	—
P-6A FLUSHING RIM SINK	1/2	1-1/4	4	2
P-7A SHAMPOO SINK	1/2	1/2	1-1/2	1-1/2
P-8A ELECTRIC WATER COOLER	—	1/2	1-1/4	1-1/4
P-9A NON-FREEZE WALL HYDRANT	—	3/4	—	—
P-9B WALL FAUCET	—	3/4	—	—
FD-1, FD-2 FLOOR DRAIN	—	—	SEE PLAN	SEE PLAN
FS-1, FS-2 FLOOR SINK	—	—	SEE PLAN	SEE PLAN

FIRE PROTECTION NOTES - AREA D

RELOCATE EXISTING BRANCH LINES, MAINS, DROPS AND SPRINKLERS AS NECESSARY FOR MECHANICAL CONTRACTOR TO INSTALL NEW DUCTWORK. INSTALL NEW BRANCH LINES, DROPS AND SPRINKLERS IN ROOMS WITH NEW CEILING, IN ACCORDANCE WITH NFPA 13 FOR FULL COVERAGE. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION ON CEILINGS.

KEY PLAN

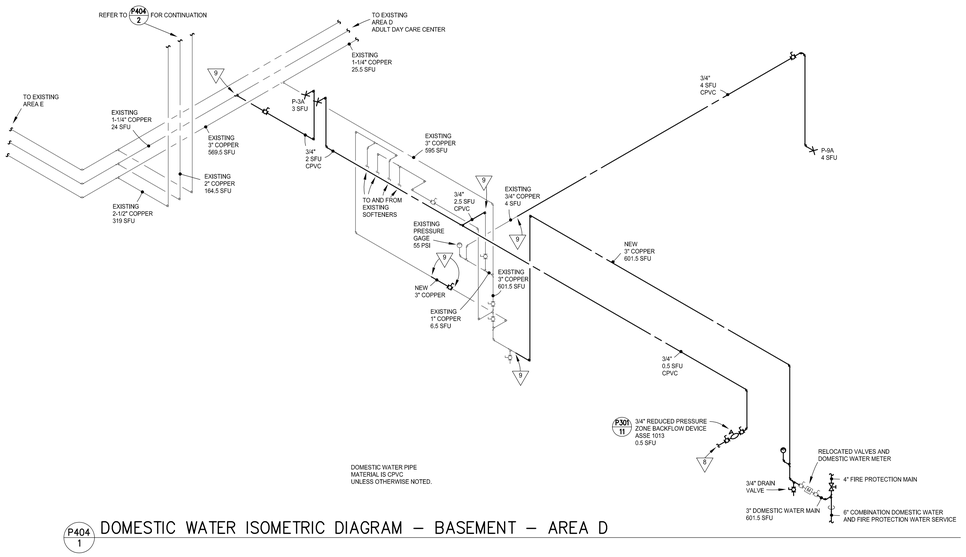


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

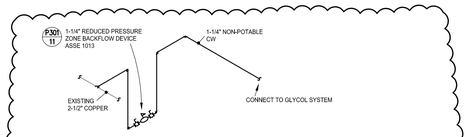
PLUMBING / FIRE PROTECTION BASEMENT - AREA D

Scale	Date	Commission #
1/8"=1'-0"	06/23/15	146038

P104

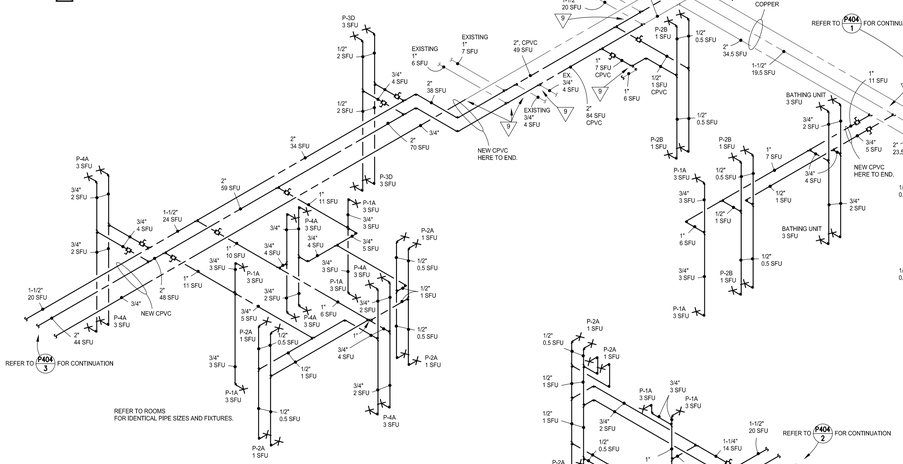


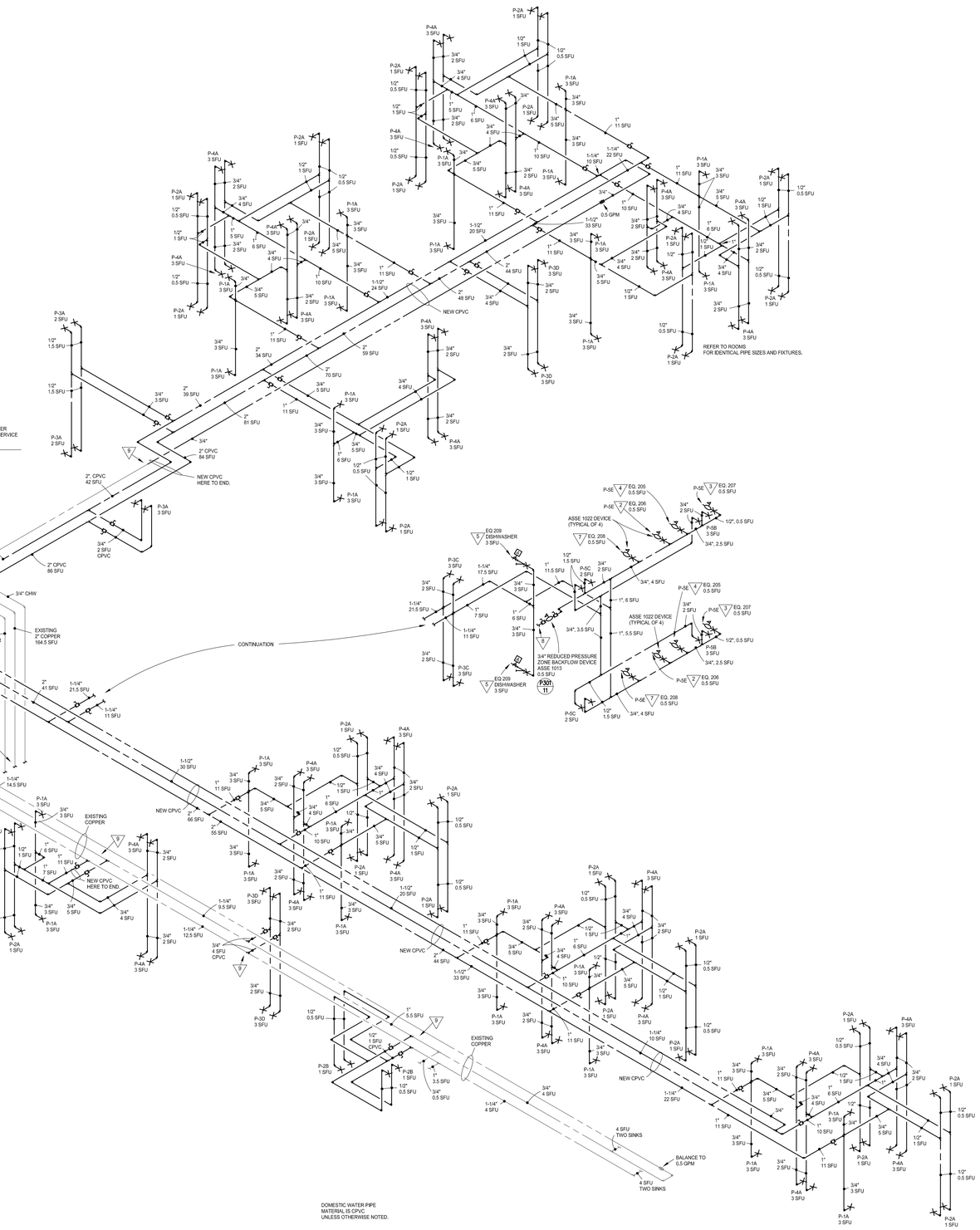
P404/1 DOMESTIC WATER ISOMETRIC DIAGRAM – BASEMENT – AREA D



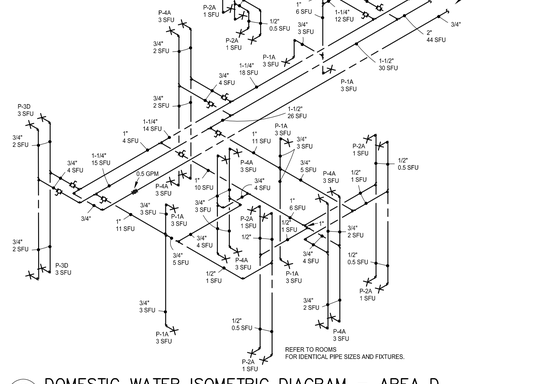
P404/4 DOMESTIC WATER ISOMETRIC DIAGRAM – AREA E

PIPING MATERIAL IS COPPER FOR THIS ISOMETRIC





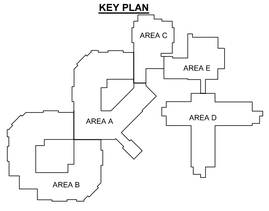
P404/2 DOMESTIC WATER ISOMETRIC DIAGRAM – FIRST AND SECOND FLOORS – AREA D



P404/3 DOMESTIC WATER ISOMETRIC DIAGRAM – AREA D

PIPING MATERIAL IS CPVC FOR THIS ISOMETRIC

KEY PLAN



Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	Addendum No. 2	

GENERAL NOTES

CORE DRILLING THRU BEAMS OR JOISTS IS NOT ALLOWED. IF PLUMBING WALL IS LOCATED ON A BEAM OR JOIST, CONTRACTOR SHALL CONTACT ENGINEER.

ALL HOLES IN FLOOR OR WALL FROM PIPING SHALL BE FIRESTOPPED TO MATCH ASSEMBLY FIRE RATING. REFER TO DIVISION 7 FOR FIRESTOPPING REQUIREMENTS.

ALL PIPING TO RUN CONCEALED ABOVE CEILING UNLESS OTHERWISE NOTED OR IN MECHANICAL ROOM. THERE SHALL BE NO EXPOSED SPRINKLER PIPING IN AREAS A, B AND C EXCEPT IN ROOMS A161 AND A164, AND PENTHOUSE.

FURNISH AND INSTALL CLEANOUT WHERE NEW WASTE AND VENT PIPING CONNECTS WITH EXISTING AS REQUIRED FOR TESTING.

FURNISH AND INSTALL SHUT-OFF VALVE WHERE NEW DOMESTIC WATER PIPING CONNECTS WITH EXISTING AS REQUIRED FOR TESTING.

NOTES MAY NOT BE USED ON EACH SHEET.

SPRINKLER SYMBOLS

- CONCEALED CEILING SPRINKLER
- LOW PROFILE (SEMI-RECESSED) CEILING SPRINKLER
- BRASS UPRIGHT SPRINKLER
- HORIZONTAL SIDEWALL SPRINKLER

KEY NOTES

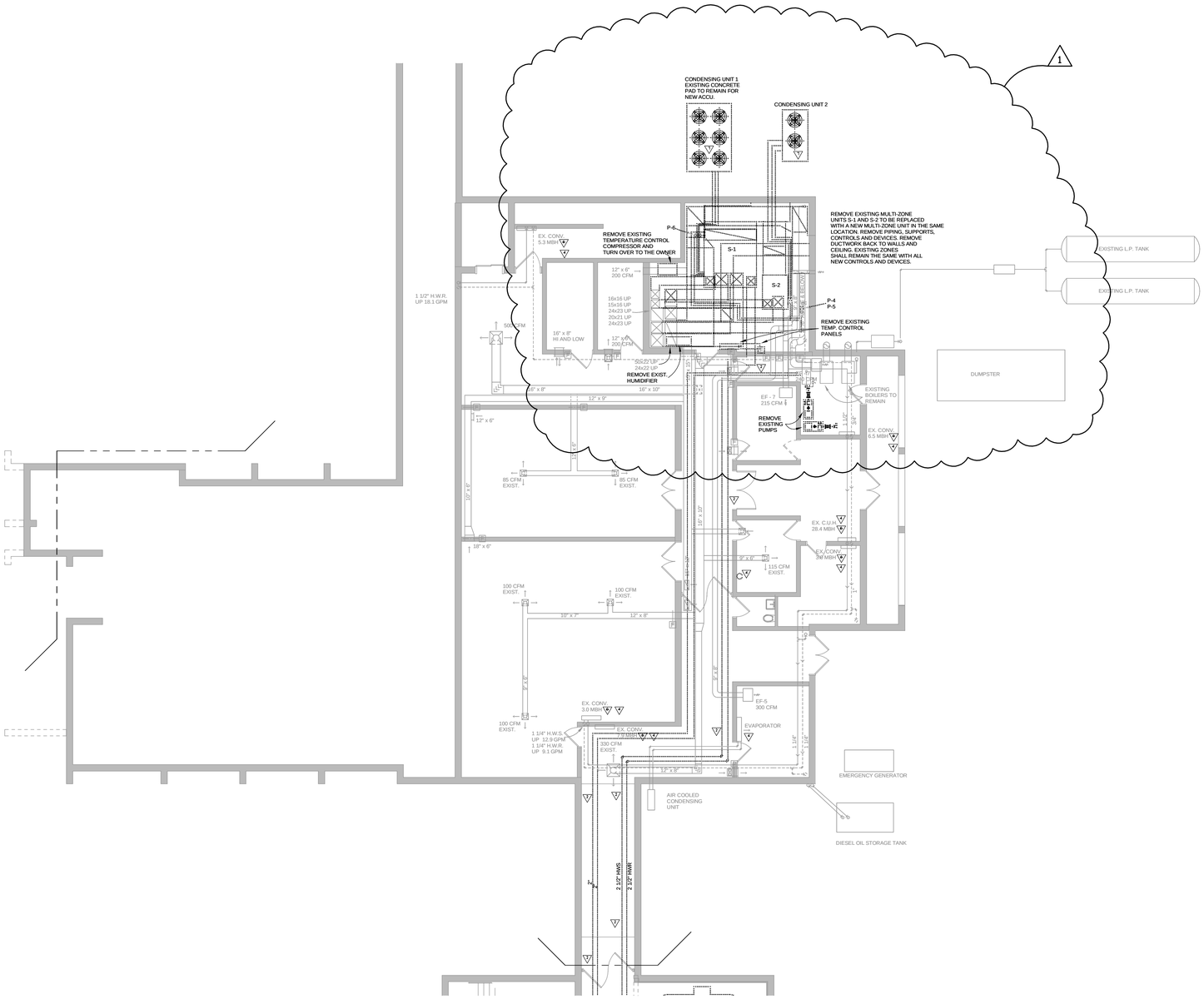
1. EXTEND 1/2" HW WITH SERVICE STOP TO DOMESTIC-TYPE DISHWASHER. EXTEND DISHWASHER DRAIN TUBE TO SINK TAILPIECE AND FASTEN DRAIN TUBE AS HIGH AS POSSIBLE UNDER THE COUNTERTOP.
2. FROM FIXTURE P-5E, EXTEND 1/2" CW WITH ASSE 1022 DEVICE TO COFFEE MACHINE. EQ 206 OR EQ 504. MOUNT FIXTURE P-5E BELOW COUNTERTOP, BEHIND CASEWORK.
3. FROM FIXTURE P-5E, EXTEND 1/2" CW WITH ASSE 1022 DEVICE TO JUICE MACHINE. EQ 207 OR EQ 505. MOUNT FIXTURE P-5E BELOW COUNTERTOP, BEHIND CASEWORK.
4. FROM FIXTURE P-5E, EXTEND 1/2" CW WITH ASSE 1022 DEVICE TO ICE MACHINE. EXTEND 3/4" DRAIN TUBE FROM EQUIPMENT TO FLOOR DRAIN. MOUNT FIXTURE P-5E BELOW COUNTERTOP, BEHIND CASEWORK.
5. PROVIDE 3/4" CW WITH SERVICE STOPS, STRAINER, WATER HAMMER ARRESTOR AND 3/4" GARDEN HOSE CONNECTION FOR DISHWASHER. PROVIDE AIR BREAK DISCHARGE OF DISHWASHER AT WALL BOX DRAIN FITTING P-5D, USE CAST IRON SOIL PIPING.
6. PROVIDE 3/4" CW/HW, SHUT-OFF VALVES WITH 3/4" HOSE THREAD ENDS FOR BATHING UNIT SUPPLY. PROVIDE 2" P-TRAP, 2" WASTE AND 2" VENT FOR BATHING UNIT DRAIN.
7. FROM FIXTURE P-5E, EXTEND 1/2" CW WITH ASSE 1022 DEVICE TO REFRIGERATOR.
8. CONNECT 3/4" NON-POTABLE CW TO HUMIDIFIER. EXTEND 1-1/4" CAST IRON DRAIN PIPE (RATED FOR 212°F) FROM HUMIDIFIER TO FLOOR DRAIN WITH AIR GAP.
9. CONNECT TO EXISTING DOMESTIC WATER SUPPLY PIPING.
10. CONNECT TO EXISTING SANITARY DRAIN PIPING.
11. CONNECT TO EXISTING VENT PIPING.
12. CONNECT TO EXISTING STORM WATER PIPING.
13. CUT WALL AS REQUIRED FOR PIPE PLACEMENT. PATCH WALL AS REQUIRED FOR NEW WALL FINISHES.
14. CONNECT TO EXISTING ROUGHIN.
15. CUT CONCRETE SLAB AS REQUIRED FOR PIPE PLACEMENT. PATCH CONCRETE SLAB AS NECESSARY FOR NEW FLOOR FINISHES.
16. AS PART OF THE RE-ROOFING, INSTALL NEW ROOF DRAIN IN NEW ROOF INSULATION, FLASHING AND MEMBRANE.
17. CONNECT 1/2" CW TO LIEBERT UNIT, WHICH HAS A INTERNAL AIR GAP. ROUTE 1" LOCAL DRAIN TUBE FROM LIEBERT PUMP OUTLET TO NEARBY FLOOR DRAIN.
18. CONNECT 1" CW TO FILL LINE OF HEATING SYSTEM.

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

PLUMBING ISOMETRIC DIAGRAMS

Scale	Date	Commission #
NOT TO SCALE	06/23/15	146038

P404



Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

DEMOLITION NOTES:

SCREENED ITEMS ARE EXISTING TO REMAIN. DOTTED ITEMS ARE EXISTING TO BE REMOVED.

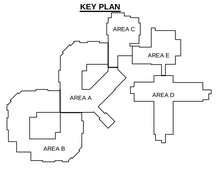
MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL PATCHING AND REPAIR OF EXIST. WALLS AND FLOORS WHERE PIPING AND DUCTWORK WERE REMOVED. PATCH OR REPAIR SHALL MEET REQUIRED FIRE/SMOKE RATINGS. REFER TO ARCH. PLANS FOR FURTHER DETAIL ON WALL RATINGS AND TYPES.

COORDINATE CEILING REMOVAL WHERE REQUIRED. REPAIR OR REPLACE CEILING TO EXISTING CONDITION WHERE CEILING IS NOT BEING REPLACED.

KEY NOTES:

1. REMOVE EXISTING DIFFUSER OR REGISTER AND ASSOCIATED DUCTWORK, HANGERS AND SUPPORTS.
2. REMOVE EXISTING PIPING, HANGERS AND SUPPORTS AND CAP PIPING TO REMAIN.
3. REMOVE EXISTING DUCTWORK HANDERS AND SUPPORTS.
4. REMOVE EXISTING THERMOSTAT. TO BE REPLACED WITH NEW. REMOVE ALL PNEUMATIC TUBING COMPLETELY.
5. REMOVE EXISTING AIR CONDITIONING UNIT AND ALL ASSOCIATED PIPING AND DEVICES AND CONTROLS.
6. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H. ETC.) TO REMAIN. REMOVE EXISTING BALL VALVES, CONTROL VALVES, STRAINERS AND FLOW CONTROL VALVES TO BE REPLACED WITH NEW OF THE SAME SIZE. SEE DETAIL M30/15.
7. REMOVE EXISTING AIR COOLED CONSENSING UNIT AND ALL ASSOCIATED PIPING, DEVICES, AND CONTROLS. REMOVE EXISTING CONCRETE PAD ON GRADE.
8. REMOVE EXISTING HUMIDIFIER AND ALL ASSOCIATED PIPING, DEVICES & CONTROLS.
9. REMOVE EXISTING VERTICAL AIR COND. UNIT AND ALL ASSOCIATED PIPING, DEVICES, AND CONTROLS
10. REMOVE EXISTING FAN COIL UNIT AND ALL ASSOCIATED PIPING, DEVICES, SUPPORTS AND CONTROLS
11. REMOVE EXISTING CONVECTOR AND ALL ASSOCIATED PIPING, DEVICES, SUPPORTS AND CONTROLS

KEY PLAN



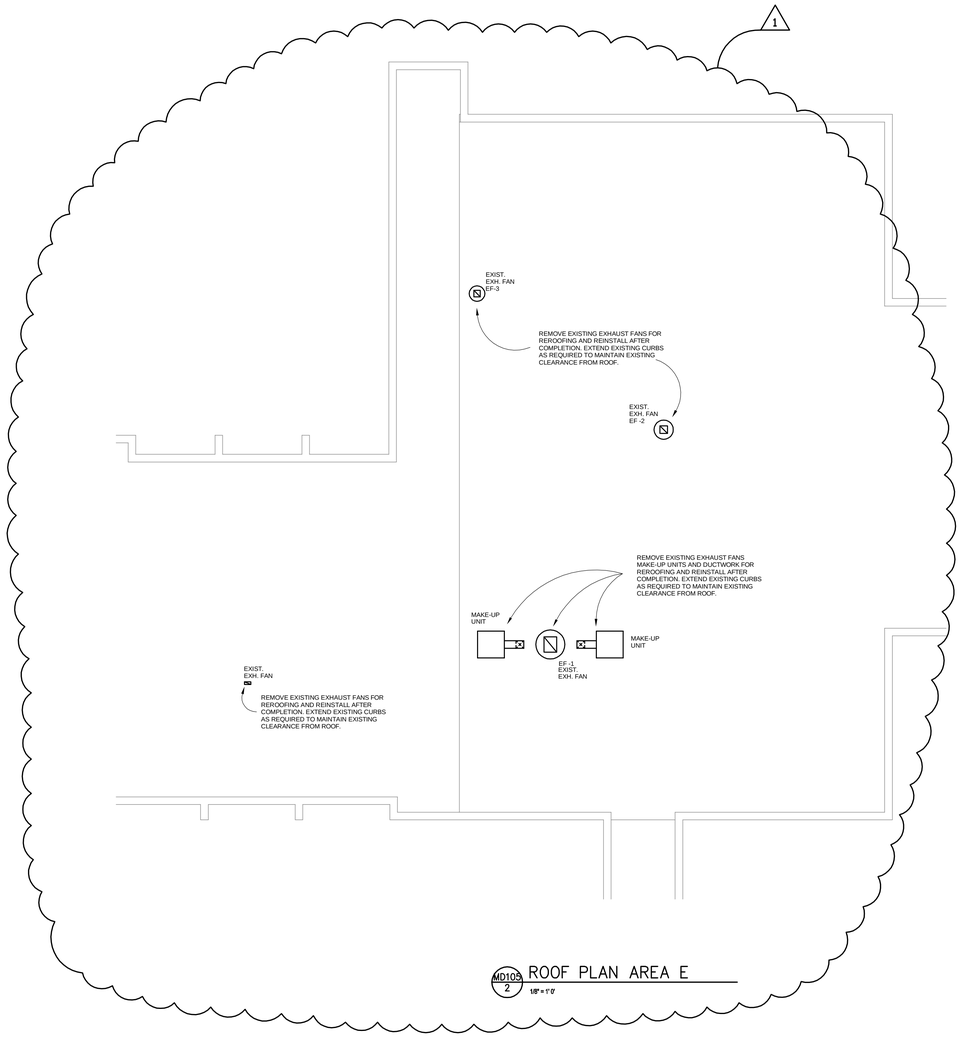
© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C. - DEMOLITION
BASEMENT FLOOR PLAN
AREA E

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

MD101

MD105 1 ROOF PLAN AREA D
1/8" = 1'-0"



MD105 2 ROOF PLAN AREA E
1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

DEMOLITION NOTES:

SCREENED ITEMS ARE EXISTING TO REMAIN. DOTTED ITEMS ARE EXISTING TO BE REMOVED.

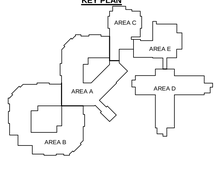
MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL PATCHING AND REPAIR OF EXIST. WALLS AND FLOORS WHERE PIPING AND DUCTWORK WERE REMOVED. PATCH OR REPAIR SHALL MEET REQUIRED FIRE/SMOKE RATINGS. REFER TO ARCH. PLANS FOR FURTHER DETAIL ON WALL RATINGS AND TYPES.

COORDINATE CEILING REMOVAL WHERE REQUIRED. REPAIR OR REPLACE CEILING TO EXISTING CONDITION WHERE CEILING IS NOT BEING REPLACED.

KEY NOTES:

1. REMOVE EXISTING DIFFUSER OR REGISTER AND ASSOCIATED DUCTWORK, HANGERS AND SUPPORTS.
2. REMOVE EXISTING PIPING, HANGERS AND SUPPORTS AND CAP PIPING TO REMAIN.
3. REMOVE EXISTING DUCTWORK HANDERS AND SUPPORTS.
4. REMOVE EXISTING THERMOSTAT. TO BE REPLACED WITH NEW. REMOVE ALL PNEUMATIC TUBING COMPLETELY.
5. REMOVE EXISTING AIR CONDITIONING UNIT AND ALL ASSOCIATED PIPING AND DEVICES AND CONTROLS.
6. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H. ETC.) TO REMAIN. REMOVE EXISTING BALL VALVES, CONTROL VALVES, STRAINERS AND FLOW CONTROL VALVES TO BE REPLACED WITH NEW OF THE SAME SIZE. SEE DETAIL M301/5.
7. REMOVE EXISTING AIR COOLED CONSENSING UNIT AND ALL ASSOCIATED PIPING, DEVICES, AND CONTROLS. REMOVE EXISTING CONCRETE PAD ON GRADE.
8. REMOVE EXISTING HUMIDIFIER AND ALL ASSOCIATED PIPING, DEVICES & CONTROLS.
9. REMOVE EXISTING VERTICAL AIR COND. UNIT AND ALL ASSOCIATED PIPING, DEVICES, AND CONTROLS
10. REMOVE EXISTING FAN COIL UNIT AND ALL ASSOCIATED PIPING, DEVICES, SUPPORTS AND CONTROLS
11. REMOVE EXISTING CONVECTOR AND ALL ASSOCIATED PIPING, DEVICES, SUPPORTS AND CONTROLS

KEY PLAN



© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C. - DEMOLITION
ROOF PLAN
AREA D CBRF

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

MD105

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

GENERAL NOTES:

DUCT SIZE IS THE SAME AS DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

PROVIDE NEW SHUTOFF VALVES AT ALL NEW-TO-EXISTING PIPE CONNECTIONS.

KEY NOTES:

1. CONNECET TO EXISTING DUCTWORK, REGISTER OR DIFFUSER AT THIS LOCATION.
2. CONNECET TO EXISTING PIPING AT THIS LOCATION.
3. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H., ETC). REMOVE EXISTING BALL VALVES, CONTROL VALVES AND FLOW CONTROL VALVES AND REPLACE WITH NEW OF THE SAME SIZE. SEE DETAIL M301/5.
4. CONNECT NEW 4" H.W.S. & H.W.R. TO EXISTING BOILER SYSTEM IN THIS LOCATION. INSTALL NEW AIRTROL AND PIPE TO EXISTING EXPANSION TANK. INSTALL NEW PUMPS AND TIE INTO EXISTING PIPING. DETAILS M301/4.
5. DUCT SMOKE DETECTOR FURNISHED AND INSTALLED BY DIV. 28. COORDINATE.
6. INSTALL CODE APPROVED SHUTOFF IMMEDIATELY INSIDE THE BUILDING (AND PRIOR TO BRANCHLINES) AT AN ACCESSIBLE HEIGHT.

DIFFUSER LEGEND

24105

- INDICATES TYPE OF DIFFUSER.
  - S = SURFACE
  - L = LAY-IN
  - EC = EGG CRATE
- INDICATES NECK SIZE EITHER SQUARE DIMENSION OR THE DIAMETER. EC INDICATES EGG CRATE WITH A LINED SHEET METAL BOX.
- INDICATES DIFFUSER SIZE, INCHES SQUARE.

REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING DIFFUSERS. ALL DIFFUSERS ARE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS BY A HATCHED AREA.

HATCHED AREA INDICATES ANY INACTIVE PORTION

VARIABLE VOLUME BOX SCHEDULE

THIS SYMBOL ON THE PLANS INDICATES THE VALVE BUNDLE AND THE G.P.M.

TYPE

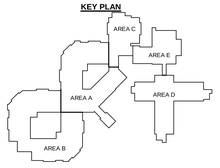
SIZE

BOX SIZE	CFM RANGE
'A'	0-199
'B'	200-399
'C'	400-599
'D'	600-799
'E'	800-1199
'F'	1200-2400
'G'	2400 & UP

BOX TYPE
1. VARIABLE VOLUME BOX WITH REHEAT
2. CONSTANT VOLUME BOX WITH REHEAT
3. HIGH - LOW - HIGH - WITH REHEAT
4. VARIABLE VOLUME BOW - NO REHEAT

NOTE: BOX SIZE 'F' & 'G' MAY BE TWO PARALLEL BOXES

KEY PLAN

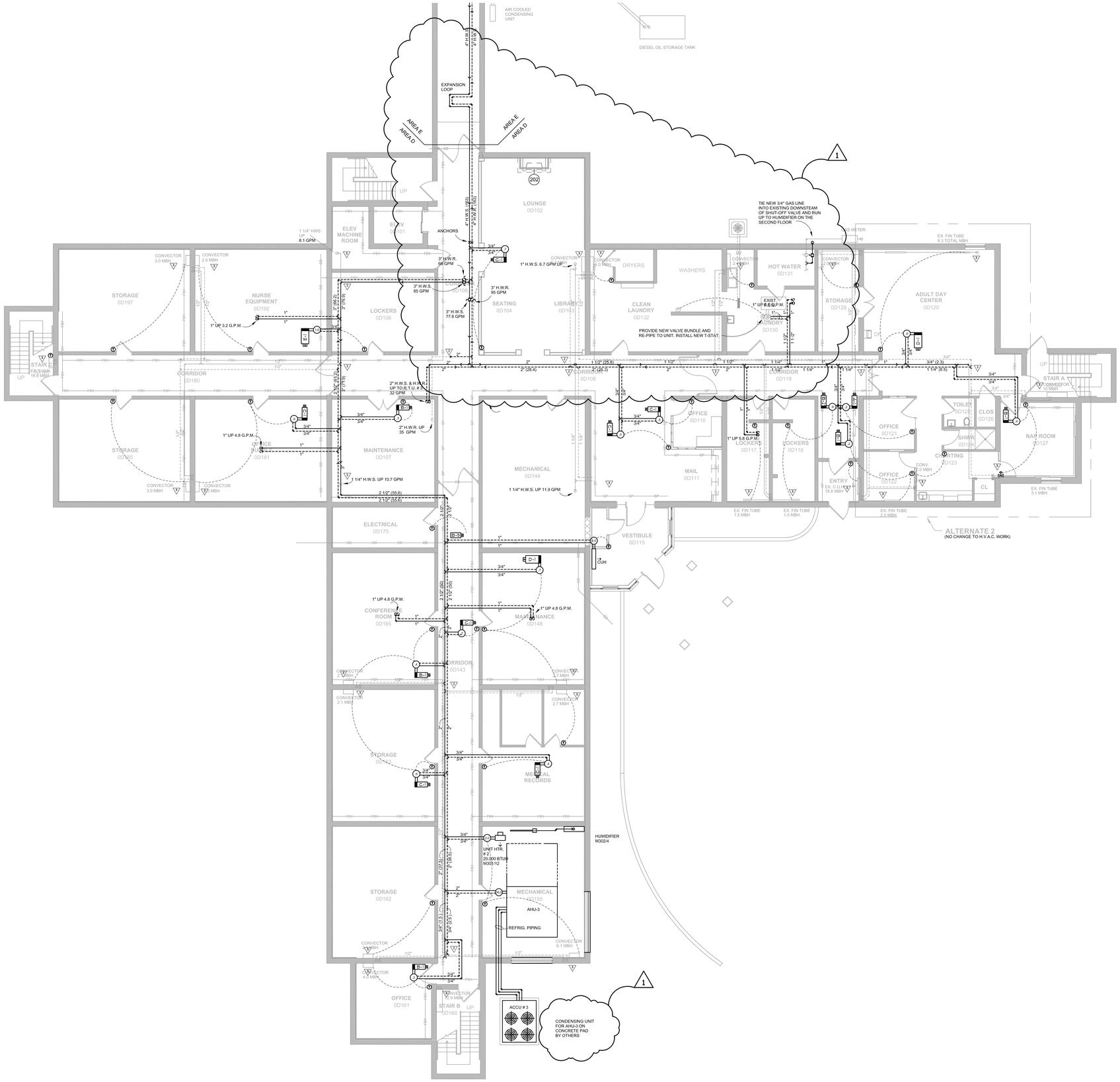


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C. - HYDRONICS FIRST FLOOR PLAN AREA C AND E CORE SERVICES

Scale	Date	Project Number
1/8" = 1'- 0"	06/23/15	146038

M103



Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

GENERAL NOTES:

DUCT SIZE IS THE SAME AS DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

PROVIDE NEW SHUTOFF VALVES AT ALL NEW-TO-EXISTING PIPE CONNECTIONS.

KEY NOTES:

1. CONNECET TO EXISTING DUCTWORK, REGISTER OR DIFFUSER AT THIS LOCATION.
2. CONNECET TO EXISTING PIPING AT THIS LOCATION.
3. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H., ETC), REMOVE EXISTING BALL VALVES, CONTROL VALVES AND FLOW CONTROL VALVES AND REPLACE WITH NEW OF THE SAME SIZE. SEE DETAIL M301/5.
4. CONNECT NEW 4" H.W.S. & H.W.R. TO EXISTING BOILER SYSTEM IN THIS LOCATION. INSTALL NEW AIRTROL AND PIPE TO EXISTING EXPANSION TANK. INSTALL NEW PUMPS AND TIE INTO EXISTING PIPING. DETAILS M301/4.
5. DUCT SMOKE DETECTOR FURNISHED AND INSTALLED BY DIV. 26. COORDINATE.
6. INSTALL CODE APPROVED SHUTOFF IMMEDIATELY INSIDE THE BUILDING (AND PRIOR TO BRANCHLINES) AT AN ACCESSIBLE HEIGHT.

DIFFUSER LEGEND

24/05
- INDICATES TYPE OF DIFFUSER.
  - S = SURFACE
  - L = LAY-IN
  - EC = EGG CRATE
- INDICATES NECK SIZE EITHER SQUARE DIMENSION OR THE DIAMETER. EC INDICATES EGG CRATE WITH A LINED SHEET METAL BOX.
- INDICATES DIFFUSER SIZE, INCHES SQUARE.

REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING DIFFUSERS. ALL DIFFUSERS ARE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS BY A HATCHED AREA.

HATCHED AREA INDICATES ANY INACTIVE PORTION

VARIABLE VOLUME BOX SCHEDULE

THIS SYMBOL ON THE PLANS INDICATES THE VALVE BUNDLE AND THE G.P.M.

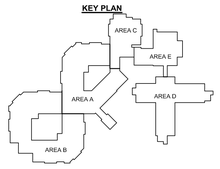
TYPE — 10 — A-3 — SIZE

BOX SIZE	CFM RANGE
"A"	0-199
"B"	200-399
"C"	400-599
"D"	600-799
"E"	800-1199
"F"	1200-2400
"G"	2400 & UP

BOX TYPE
1 VARIABLE VOLUME BOX WITH REHEAT
2 CONSTANT VOLUME BOX WITH REHEAT
3 HIGH - LOW - HIGH - WITH REHEAT
4 VARIABLE VOLUME BOW - NO REHEAT

NOTE: BOX SIZE "F" & "G" MAY BE TWO PARALLEL BOXES

KEY PLAN

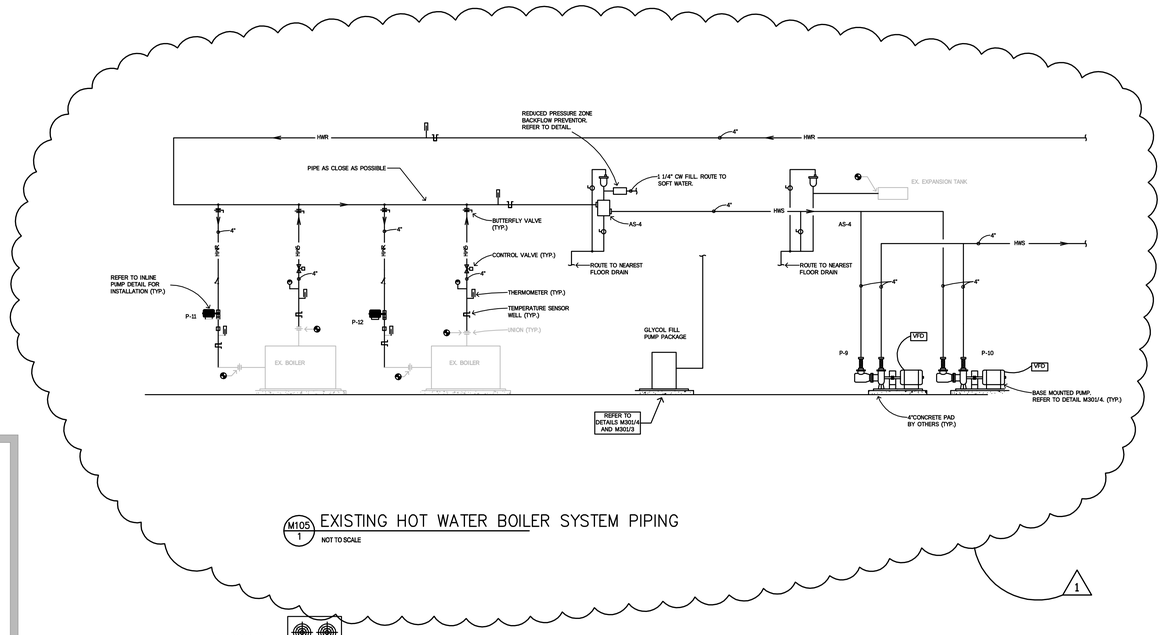


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural/ural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C. - HYDRONICS
BASEMENT FLOOR PLAN
AREA D CBRF

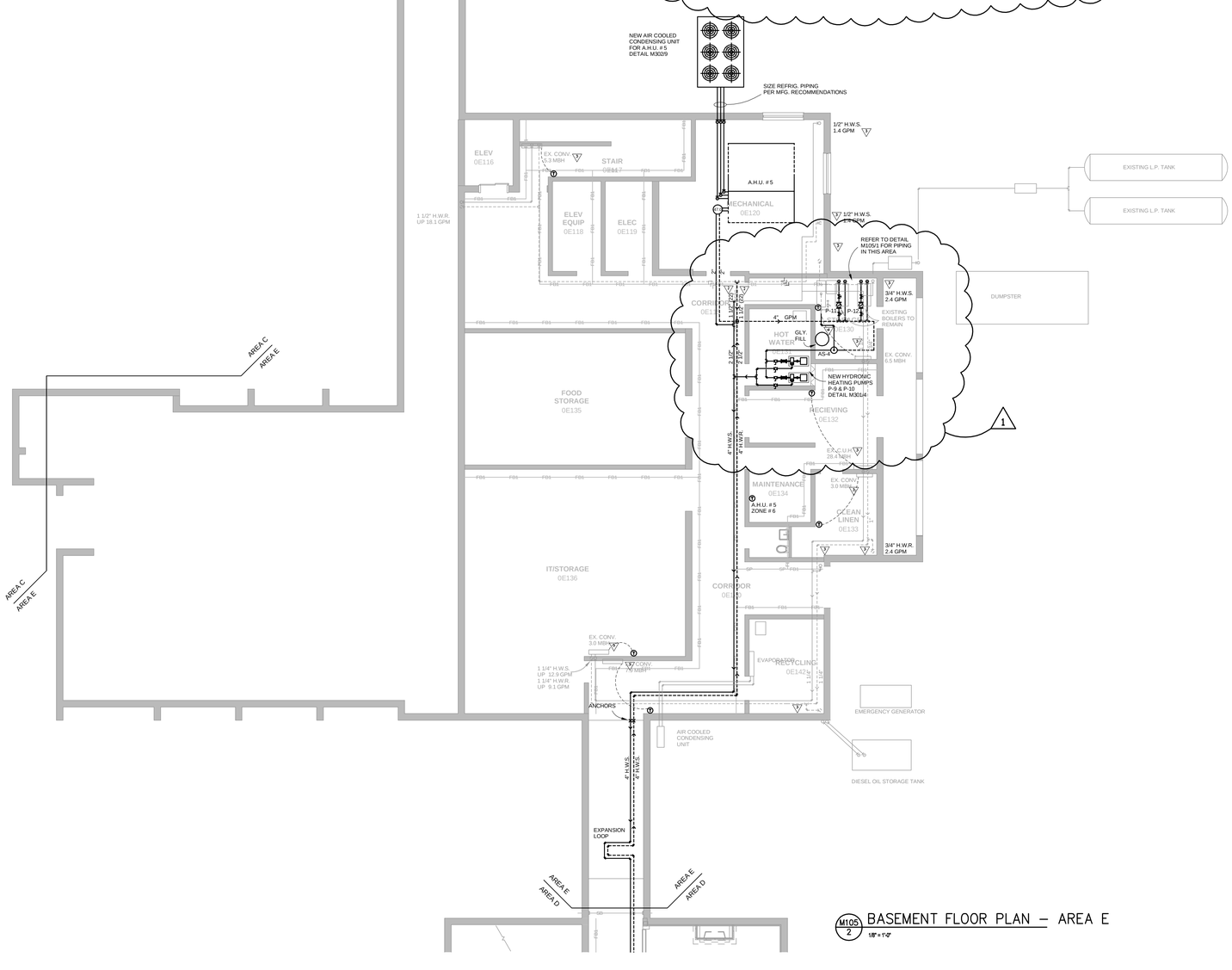
Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

M104



M105 1 EXISTING HOT WATER BOILER SYSTEM PIPING

NOT TO SCALE



M105 2 BASEMENT FLOOR PLAN – AREA E

1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

GENERAL NOTES:

DUCT SIZE IS THE SAME AS DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

PROVIDE NEW SHUTOFF VALVES AT ALL NEW-TO-EXISTING PIPE CONNECTIONS.

KEY NOTES:

1. CONNECET TO EXISTING DUCTWORK, REGISTER OR DIFFUSER AT THIS LOCATION.
2. CONNECET TO EXISTING PIPING AT THIS LOCATION.
3. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H., ETC), REMOVE EXISTING BALL VALVES, CONTROL VALVES AND FLOW CONTROL VALVES AND REPLACE WITH NEW OF THE SAME SIZE. SEE DETAIL M301/5.
4. CONNECT NEW 4" H.W.S. & H.W.R. TO EXISTING BOILER SYSTEM IN THIS LOCATION. INSTALL NEW AIRTROL AND PIPE TO EXISTING EXPANSION TANK. INSTALL NEW PUMPS AND TIE INTO EXISTING PIPING. DETAILS M301/4.
5. DUCT SMOKE DETECTOR FURNISHED AND INSTALLED BY DIV. 26. COORDINATE.
6. INSTALL CODE APPROVED SHUTOFF IMMEDIATELY INSIDE THE BUILDING (AND PRIOR TO BRANCHLINES) AT AN ACCESSIBLE HEIGHT.

DIFFUSER LEGEND

24105

- INDICATES TYPE OF DIFFUSER.
  - S = SURFACE
  - L = LAY-IN
  - EC = EGG CRATE
- INDICATES NECK SIZE EITHER SQUARE DIMENSION OR THE DIAMETER. EC INDICATES EGG CRATE WITH A LINED SHEET METAL BOX.
- INDICATES DIFFUSER SIZE, INCHES SQUARE.

REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING DIFFUSERS. ALL DIFFUSERS ARE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS BY A HATCHED AREA.

HATCHED AREA INDICATES ANY INACTIVE PORTION

VARIABLE VOLUME BOX SCHEDULE

THIS SYMBOL ON THE PLANS INDICATES THE VALVE BUNDLE AND THE G.P.M.

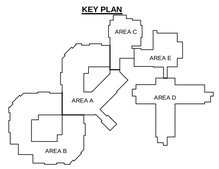
TYPE — 10 — A-3 — SIZE

BOX SIZE	CFM RANGE
"A"	0-199
"B"	200-399
"C"	400-599
"D"	600-799
"E"	800-1199
"F"	1200-2400
"G"	2400 & UP

BOX TYPE
1 VARIABLE VOLUME BOX WITH REHEAT
2 CONSTANT VOLUME BOX WITH REHEAT
3 HIGH - LOW - HIGH - WITH REHEAT
4 VARIABLE VOLUME BOW - NO REHEAT

NOTE: BOX SIZE "F" & "G" MAY BE TWO PARALLEL BOXES

KEY PLAN

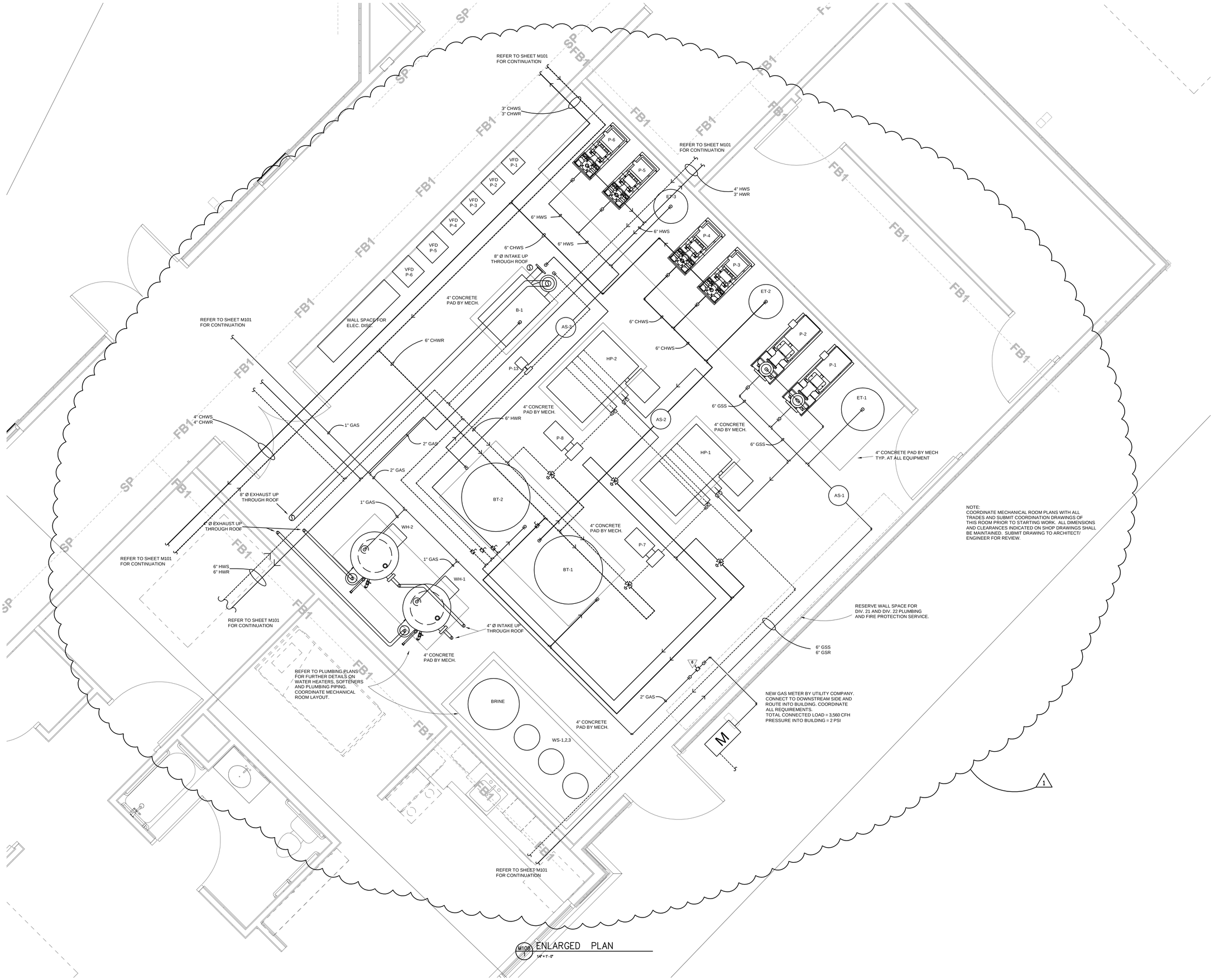


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C. - HYDRONICS
BASEMENT FLOOR PLAN
AREA E

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

M105



NOTE:
COORDINATE MECHANICAL ROOM PLANS WITH ALL TRADES AND SUBMIT COORDINATION DRAWINGS OF THIS ROOM PRIOR TO STARTING WORK. ALL DIMENSIONS AND CLEARANCES INDICATED ON SHOP DRAWINGS SHALL BE MAINTAINED. SUBMIT DRAWING TO ARCHITECT/ ENGINEER FOR REVIEW.

M108 ENLARGED PLAN
1/4" = 1'-0"

Horty Elving™

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

GENERAL NOTES:

DUCT SIZE IS THE SAME AS DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

PROVIDE NEW SHUTOFF VALVES AT ALL NEW-TO-EXISTING PIPE CONNECTIONS.

KEY NOTES:

1. CONNECET TO EXISTING DUCTWORK, REGISTER OR DIFFUSER AT THIS LOCATION.
2. CONNECET TO EXISTING PIPING AT THIS LOCATION.
3. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H., ETC). REMOVE EXISTING BALL VALVES, CONTROL VALVES AND FLOW CONTROL VALVES AND REPLACE WITH NEW OF THE SAME SIZE. SEE DETAIL M3X/5.
4. CONNECT NEW 4" H.W.S. & H.W.R. TO EXISTING BOILER SYSTEM IN THIS LOCATION. INSTALL NEW AIRTROL AND PIPE TO EXISTING EXPANSION TANK. INSTALL NEW PUMPS AND TIE INTO EXISTING PIPING. DETAILS M3X/4.
5. DUCT SMOKE DETECTOR FURNISHED AND INSTALLED BY DIV. 26. COORDINATE.
6. INSTALL CODE APPROVED SHUTOFF IMMEDIATELY INSIDE THE BUILDING (AND PRIOR TO BRANCHLINES) AT AN ACCESSIBLE HEIGHT.

DIFFUSER LEGEND

24105

- INDICATES TYPE OF DIFFUSER.
  S = SURFACE
  L = LAY-IN
  EC = EGG CRATE
- INDICATES NECK SIZE EITHER SQUARE DIMENSION OR THE DIAMETER. EC INDICATES EGG CRATE WITH A LINED SHEET METAL BOX.
- INDICATES DIFFUSER SIZE, INCHES SQUARE.

REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING DIFFUSERS. ALL DIFFUSERS ARE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS BY A HATCHED AREA.

HATCHED AREA INDICATES ANY INACTIVE PORTION

VARIABLE VOLUME BOX SCHEDULE

THIS SYMBOL ON THE PLANS INDICATES THE VALVE BUNDLE AND THE G.P.M.

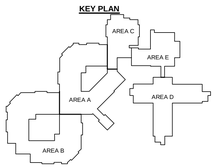
TYPE — 10 — A-3 — SIZE

BOX SIZE	CFM RANGE
"A"	0-199
"B"	200-399
"C"	400-599
"D"	600-799
"E"	800-1199
"F"	1200-2400
"G"	2400 & UP

BOX TYPE
1 VARIABLE VOLUME BOX WITH REHEAT
2 CONSTANT VOLUME BOX WITH REHEAT
3 HIGH - LOW - HIGH - WITH REHEAT
4 VARIABLE VOLUME BOW - NO REHEAT

NOTE: BOX SIZE "F" & "G" MAY BE TWO PARALLEL BOXES

KEY PLAN



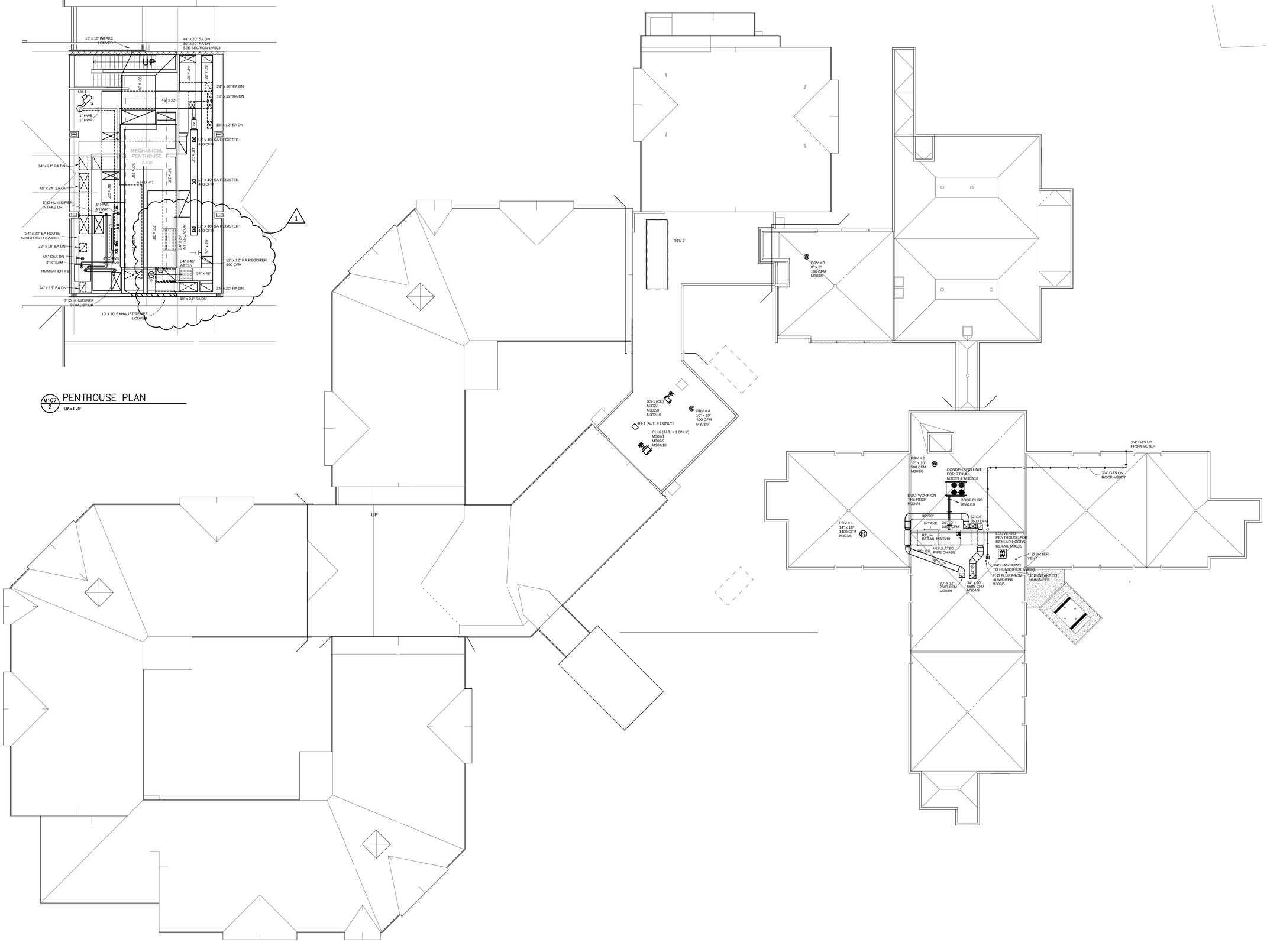
© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C.
ENLARGED PLAN

Scale	Date	Project Number
AS INDICATED	06/23/15	146038

M109

M107 2 PENTHOUSE PLAN
1/8" = 1'-0"



M107 1 ROOF PLAN
1/16" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

GENERAL NOTES:

DUCT SIZE IS THE SAME AS DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

PROVIDE NEW SHUTOFF VALVES AT ALL NEW-TO-EXISTING PIPE CONNECTIONS.

KEY NOTES:

1. CONNECET TO EXISTING DUCTWORK, REGISTER OR DIFFUSER AT THIS LOCATION.
2. CONNECET TO EXISTING PIPING AT THIS LOCATION.
3. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H., ETC). REMOVE EXISTING BALL VALVES, CONTROL VALVES AND FLOW CONTROL VALVES AND REPLACE WITH NEW OF THE SAME SIZE. SEE DETAIL M301/5.
4. CONNECT NEW 4" H.W.S. & H.W.R. TO EXISTING BOILER SYSTEM IN THIS LOCATION. INSTALL NEW AIRTROL AND PIPE TO EXISTING EXPANSION TANK. INSTALL NEW PUMPS AND TIE INTO EXISTING PIPING. DETAILS M301/4.
5. DUCT SMOKE DETECTOR FURNISHED AND INSTALLED BY DIV. 26. COORDINATE.
6. INSTALL CODE APPROVED SHUTOFF IMMEDIATELY INSIDE THE BUILDING (AND PRIOR TO BRANCHLINES) AT AN ACCESSIBLE HEIGHT.

DIFFUSER LEGEND

24/10S

- INDICATES TYPE OF DIFFUSER.
  S = SURFACE
  L = LAY-IN
  EC = EGG CRATE
- INDICATES NECK SIZE EITHER SQUARE DIMENSION OR THE DIAMETER. EC INDICATES EGG CRATE WITH A LINED SHEET METAL BOX.
- INDICATES DIFFUSER SIZE, INCHES SQUARE.

REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING DIFFUSERS. ALL DIFFUSERS ARE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS BY A HATCHED AREA.

HATCHED AREA INDICATES ANY INACTIVE PORTION

VARIABLE VOLUME BOX SCHEDULE

THIS SYMBOL ON THE PLANS INDICATES THE VALVE BUNDLE AND THE G.P.M.

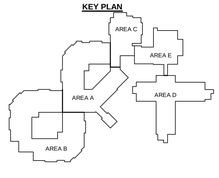
TYPE — 12 — A-3 — SIZE

BOX SIZE	CFM RANGE
"A"	0-199
"B"	200-399
"C"	400-599
"D"	600-799
"E"	800-1199
"F"	1200-2400
"G"	2400 & UP

BOX TYPE
1. VARIABLE VOLUME BOX WITH REHEAT
2. CONSTANT VOLUME BOX WITH REHEAT
3. HIGH - LOW - HIGH - WITH REHEAT
4. VARIABLE VOLUME BOW - NO REHEAT

NOTE: BOX SIZE "F" & "G" MAY BE TWO PARALLEL BOXES

KEY PLAN

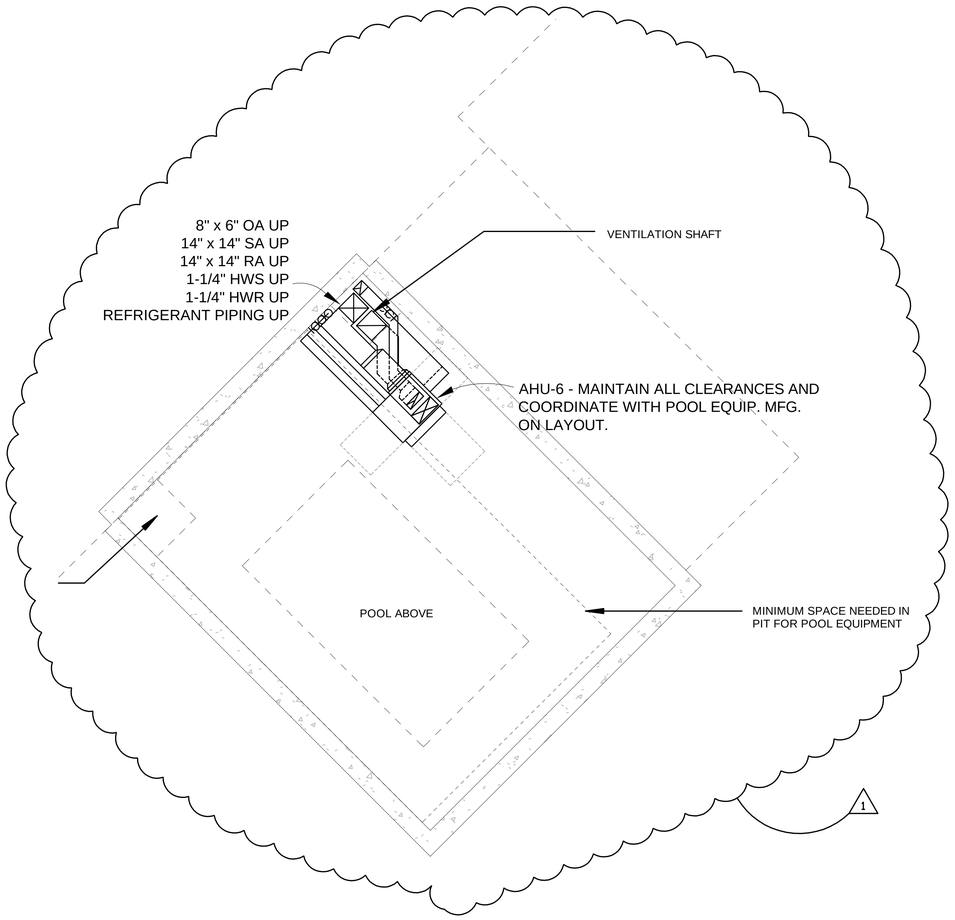


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C.
ROOF PLAN

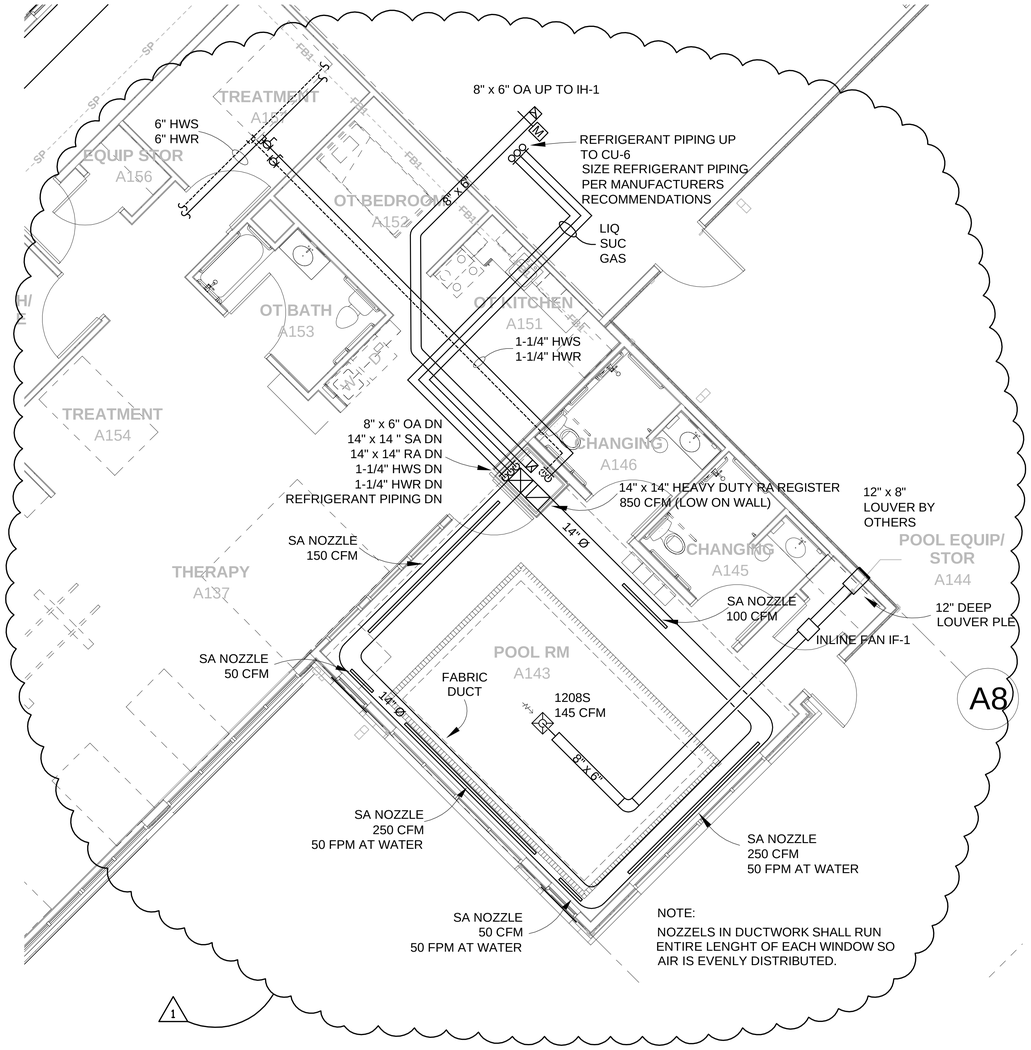
Scale	Date	Project Number
AS INDICATED	06/23/15	146038

M110



M112 1 UNDERGROUND

1/8" = 1'-0"



M112 2 MAIN LEVEL

1/8" = 1'-0"

INTAKE HOOD SCHEDULE

UNIT NO.	IH-1
SERVES	AHU-6
MANUFACTURER	GREENHECK
MODEL NO.	FGI
CFM	125
THROAT	8"x8"
PRESSURE DROP	0.3"
NOTES	1

NOTES:
1. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

AIR HANDLING UNIT SCHEDULE

UNIT NO.	AHU-6
SERVES	POOL ROOM
MANUFACTURER	SERESCO
MODEL NO.	NE-002-PH-I-A1NT4851Y0C2AN0
SUPPLY CFM	850
OA CFM	125
HEATING MBH	20
EWT/LWT (°F)	120/110
COOLING MBH (TOTAL/SENS)	26.7/13.3
ESP (in WC)	0.75"
VOLTS/PHASE	208/3/60
HP	0.5
NOTES	1,2

NOTES:
1. CONNECT POOL HEATER PIPING FROM AHU-6 INTO POOL HEATER SYSTEM. COORDINATE WITH POOL EQUIPMENT MANUFACTURER. ASSUME 50' OF 3/4" PIPING.
2. HEATING COIL SELECTED USING 35% PROPYLENE GLYCOL.

INLINE FAN SCHEDULE

UNIT NO.	IF-1
SYSTEM	POOL
CFM	145
S.P.	0.4"
HP	1/6 HP
VOLTAGE	110/60/1
MODEL	SQ-75-VG
MANUF	GREENHECK
NOTES	1,2,3

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. SELECT WITH ECM MOTORS. PROVIDE WITH SPEED CONTROLLER.
3. PROVIDE WITH GRAVITY DAMPER AND BIRDSCREEN.

CONDENSING UNIT SCHEDULE

UNIT NO.	CU-6
SERVES	AHU-6
MANUFACTURER	SERESCO
MODEL NO.	NC-B-1V-CUC-V
COMPRESSOR TYPE	SCROLL
REFRIGERANT	R410A
CIRCUITS	1
VOLTS/PHASE	208/3/60
HP	1.4
MCA	7
NOTES	1,2,3,4,5

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE WITH SPRING VIBRATION ISOLATORS PER MANUFACTURER'S RECOMMENDATIONS.
3. SIZE REFIRGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE WITH SINGLE POINT ELECTRICAL CONNECTION AND TRANSFORMER FOR CONTROL CIRCUIT.
5. PROVIDE WITH HOT GAS BYPASS ON FIRST STAGE.

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

GENERAL NOTES:

DUCT SIZE IS THE SAME AS DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

PROVIDE NEW SHUTOFF VALVES AT ALL NEW-TO-EXISTING PIPE CONNECTIONS.

KEY NOTES:

1. CONNECET TO EXISTING DUCTWORK, REGISTER OR DIFFUSER AT THIS LOCATION.
2. CONNECET TO EXISTING PIPING AT THIS LOCATION.
3. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H., ETC). REMOVE EXISTING BALL VALVES, CONTROL VALVES AND FLOW CONTROL VALVES AND REPLACE WITH NEW OF THE SAME SIZE. SEE DETAIL M3X/5.
4. CONNECT NEW 4" H.W.S. & H.W.R. TO EXISTING BOILER SYSTEM IN THIS LOCATION. INSTALL NEW ARTROL AND PIPE TO EXISTING EXPANSION TANK. INSTALL NEW PUMPS AND TIE INTO EXISTING PIPING. DETAILS M3X/4.
5. DUCT SMOKE DETECTOR FURNISHED AND INSTALLED BY DIV. 26. COORDINATE.
6. INSTALL CODE APPROVED SHUTOFF IMMEDIATELY INSIDE THE BUILDING (AND PRIOR TO BRANCHLINES) AT AN ACCESSIBLE HEIGHT.

DIFFUSER LEGEND

24105

INDICATES TYPE OF DIFFUSER.
S = SURFACE
L = LAY-IN
EC = EGG CRATE

INDICATES NECK SIZE EITHER SQUARE DIMENSION OR THE DIAMETER.
EC INDICATES EGG CRATE WITH A LINED SHEET METAL BOX.

INDICATES DIFFUSER SIZE, INCHES SQUARE.

REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING DIFFUSERS. ALL DIFFUSERS ARE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS BY A HATCHED AREA.

HATCHED AREA INDICATES ANY INACTIVE PORTION

VARIABLE VOLUME BOX SCHEDULE

THIS SYMBOL ON THE PLANS INDICATES THE VALVE BUNDLE AND THE G.P.M.

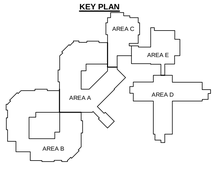
TYPE — 10 — A-3 — SIZE

BOX SIZE	CFM RANGE
"A"	0-199
"B"	200-399
"C"	400-599
"D"	600-799
"E"	800-1199
"F"	1200-2400
"G"	2400 & UP

BOX TYPE
1 VARIABLE VOLUME BOX WITH REHEAT
2 CONSTANT VOLUME BOX WITH REHEAT
3 HIGH + LOW + HIGH + WITH REHEAT
4 VARIABLE VOLUME BOW - NO REHEAT

NOTE: BOX SIZE "F" & "G" MAY BE TWO PARALLEL BOXES

KEY PLAN



© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C.
ALTERNATE - AREA A

Scale	Date	Project Number
AS INDICATED	06/23/15	146038

M112

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

GENERAL NOTES:

DUCT SIZE IS THE SAME AS DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

PROVIDE NEW SHUTOFF VALVES AT ALL NEW-TO-EXISTING PIPE CONNECTIONS.

KEY NOTES:

1. CONNECET TO EXISTING DUCTWORK, REGISTER OR DIFFUSER AT THIS LOCATION.
2. CONNECET TO EXISTING PIPING AT THIS LOCATION.
3. EXISTING HYDRONIC HEATING DEVICE (F/N TUBE, CONV., C.U.H., ETC) REMOVE EXISTING BALL VALVES, CONTROL VALVES AND FLOW CONTROL VALVES AND REPLACE WITH NEW OF THE SAME SIZE. SEE DETAIL M301/5.
4. CONNECT NEW 4" H.W.S. & H.W.R. TO EXISTING BOILER SYSTEM IN THIS LOCATION. INSTALL NEW AIRTROL AND PIPE TO EXISTING EXPANSION TANK. INSTALL NEW PUMPS AND TIE INTO EXISTING PIPING. DETAILS M301/4.
5. DUCT SMOKE DETECTOR FURNISHED AND INSTALLED BY DIV. 26. COORDINATE.
6. INSTALL CODE APPROVED SHUTOFF IMMEDIATELY INSIDE THE BUILDING (AND PRIOR TO BRANCHLINES) AT AN ACCESSIBLE HEIGHT.

DIFFUSER LEGEND

1206S
- INDICATES TYPE OF DIFFUSER.
  - S = SURFACE
  - L = LAY-IN
  - EC = EGG CRATE
- INDICATES NECK SIZE EITHER SQUARE DIMENSION OR THE DIAMETER. EC INDICATES EGG CRATE WITH A LINED SHEET METAL BOX.
- INDICATES DIFFUSER SIZE, INCHES SQUARE.

REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING DIFFUSERS. ALL DIFFUSERS ARE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS BY A HATCHED AREA.

HATCHED AREA INDICATES ANY INACTIVE PORTION

VARIABLE VOLUME BOX SCHEDULE

THIS SYMBOL ON THE PLANS INDICATES THE VALVE BUNDLE AND THE G.P.M.

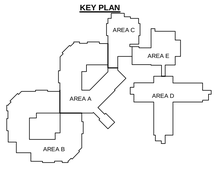
TYPE — 1ø — A-3 — SIZE

BOX SIZE	CFM RANGE
'A'	0-199
'B'	200-399
'C'	400-599
'D'	600-799
'E'	800-1199
'F'	1200-2400
'G'	2400 + UP

BOX TYPE
1. VARIABLE VOLUME BOX WITH REHEAT
2. CONSTANT VOLUME BOX WITH REHEAT
3. HIGH - LOW - HIGH - WITH REHEAT
4. VARIABLE VOLUME BOW - NO REHEAT

NOTE: BOX SIZE 'F' + 'G' MAY BE TWO PARALLEL BOXES

KEY PLAN

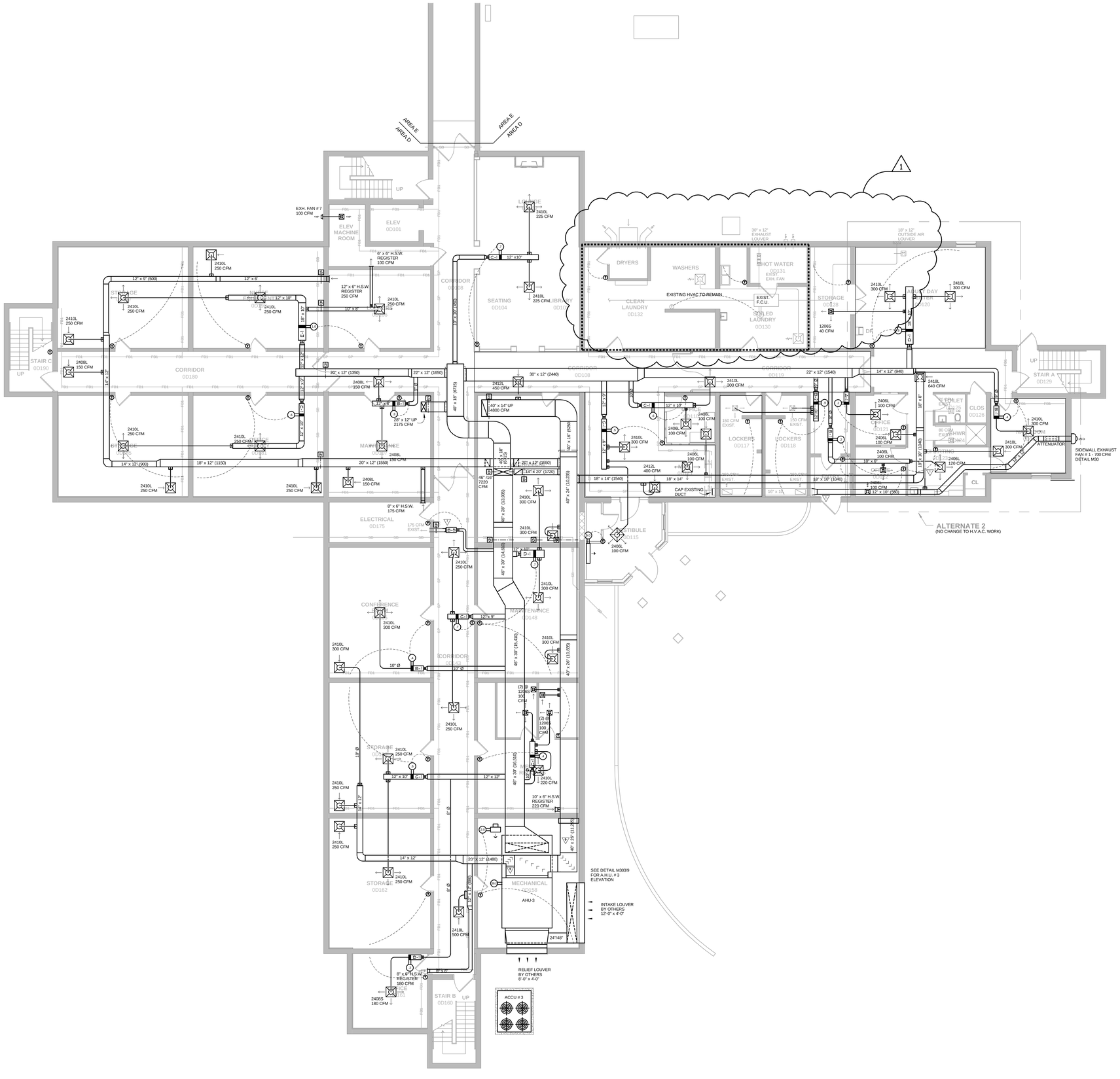


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C. - VENTILATION
FIRST FLOOR PLAN AREA A SNF & TOWN CENTER

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

M201



Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

GENERAL NOTES:

DUCT SIZE IS THE SAME AS DIFFUSER NECK SIZE UNLESS OTHERWISE NOTED.

PROVIDE NEW SHUTOFF VALVES AT ALL NEW-TO-EXISTING PIPE CONNECTIONS.

KEY NOTES:

1. CONNECET TO EXISTING DUCTWORK, REGISTER OR DIFFUSER AT THIS LOCATION.
2. CONNECET TO EXISTING PIPING AT THIS LOCATION.
3. EXISTING HYDRONIC HEATING DEVICE (FIN TUBE, CONV., C.U.H., ETC), REMOVE EXISTING BALL VALVES, CONTROL VALVES AND FLOW CONTROL VALVES AND REPLACE WITH NEW OF THE SAME SIZE. SEE DETAIL M301/5.
4. CONNECT NEW 4" H.W.S. & H.W.R. TO EXISTING BOILER SYSTEM IN THIS LOCATION. INSTALL NEW AIRTICL AND PIPE TO EXISTING EXPANSION TANK. INSTALL NEW PUMPS AND TIE INTO EXISTING PIPING. DETAILS M301/4.
5. DUCT SMOKE DETECTOR FURNISHED AND INSTALLED BY DIV. 26. COORDINATE.
6. INSTALL CODE APPROVED SHUTOFF IMMEDIATELY INSIDE THE BUILDING (AND PRIOR TO BRANCHLINES) AT AN ACCESSIBLE HEIGHT.

DIFFUSER LEGEND

2410S

- INDICATES TYPE OF DIFFUSER.
  - S = SURFACE
  - L = LAY-IN
  - EC = EGG CRATE
- INDICATES NECK SIZE EITHER SQUARE DIMENSION OR THE DIAMETER. EC INDICATES EGG CRATE WITH A LINED SHEET METAL BOX.
- INDICATES DIFFUSER SIZE, INCHES SQUARE.

REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING DIFFUSERS. ALL DIFFUSERS ARE 4-WAY THROW UNLESS INDICATED OTHERWISE ON PLANS BY A HATCHED AREA.

HATCHED AREA INDICATES ANY INACTIVE PORTION

VARIABLE VOLUME BOX SCHEDULE

THIS SYMBOL ON THE PLANS INDICATES THE VALVE BUNDLE AND THE G.P.M.

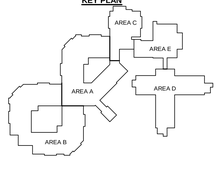
TYPE — 1 — 4 — UP — A-3 — SIZE

BOX SIZE	CFM RANGE
"A"	0-199
"B"	200-399
"C"	400-599
"D"	600-799
"E"	800-1199
"F"	1200-2400
"G"	2400 & UP

BOX TYPE
1 VARIABLE VOLUME BOX WITH REHEAT
2 CONSTANT VOLUME BOX WITH REHEAT
3 HIGH - LOW - HIGH - WITH REHEAT
4 VARIABLE VOLUME BOW - NO REHEAT

NOTE: BOX SIZE "F" & "G" MAY BE TWO PARALLEL BOXES

KEY PLAN

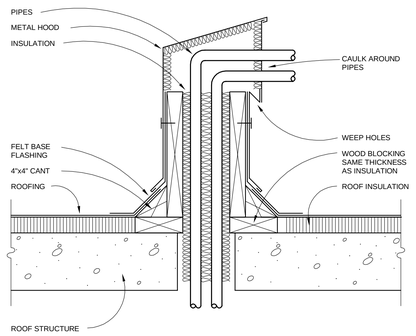


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

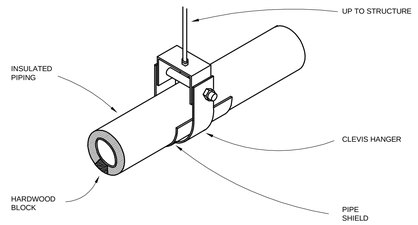
H.V.A.C. - VENTILATION
BASEMENT FLOOR PLAN
AREA D CBRF

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

M204



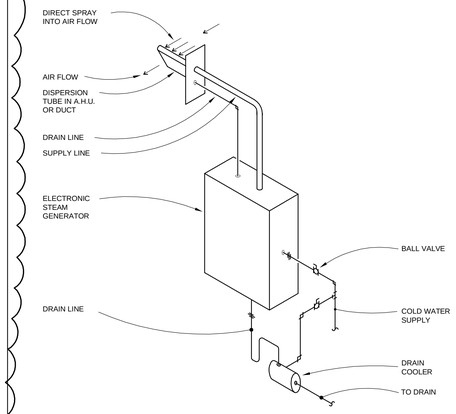
M302 1 ROOF CURB AT PIPING THRU ROOF
NOT TO SCALE



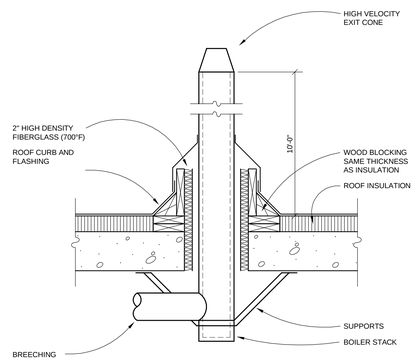
M302 2 CLEVIS HANGER HIGH DENSITY INSERTS
NO SCALE

1

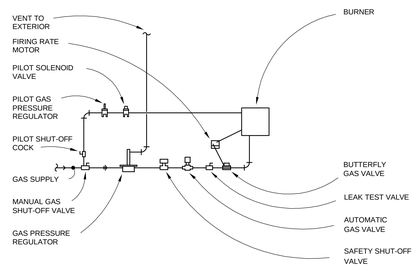
M302 3 OMITTED
NO SCALE



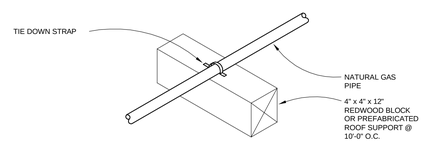
M302 4 ELECTRONIC HUMIDIFIER
NO SCALE



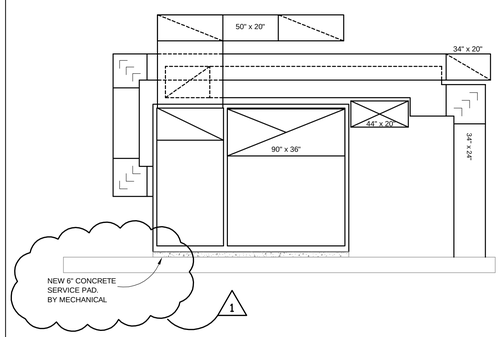
M302 5 BOILER STACK
NO SCALE



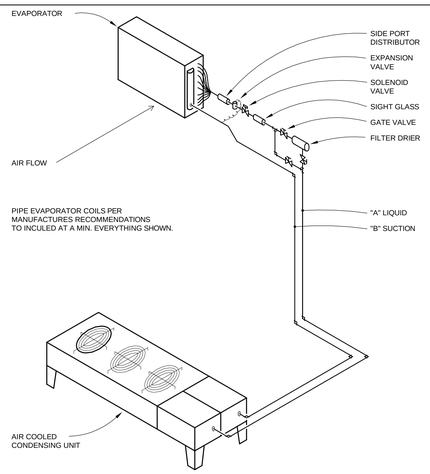
M302 6 GAS BURNER PIPING
NO SCALE



M302 7 GAS PIPE SUPPORT ON ROOF
NO SCALE

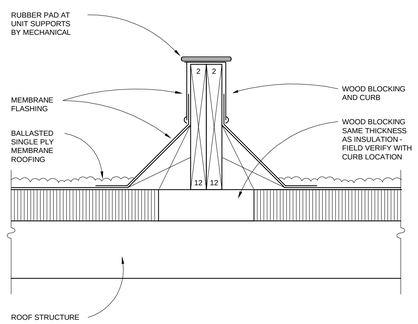


M302 8 A.H.U. # 1 ELEVATION
NO SCALE

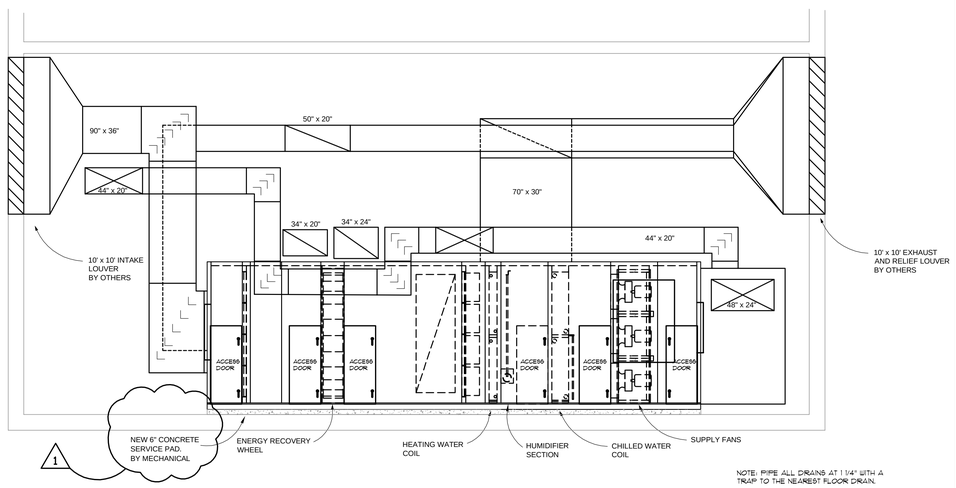


M302 9 D.X. COIL REFRIGERANT PIPING
NO SCALE

NOTE:
MECHANICAL CONTRACTOR TO COORDINATE SIZE AND SPACING OF CURBS WITH ROOFING CONTRACTOR.



M302 10 ROOF CURB AT SINGLE MEMBRANE ROOF
NO SCALE



NOTE: PIPE ALL DRAINS AT 1 1/4" WITH A TRAP TO THE NEAREST FLOOR DRAIN.

M302 11 A.H.U. # 1 ELEVATION
NO SCALE

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

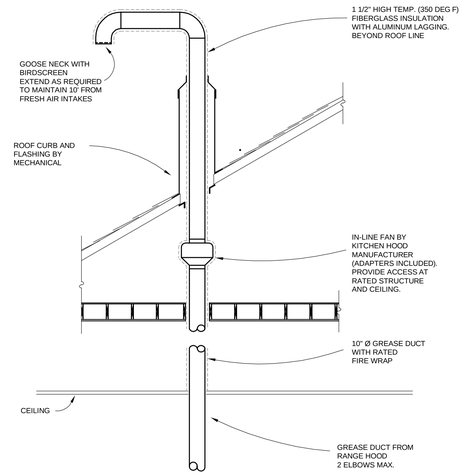
Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

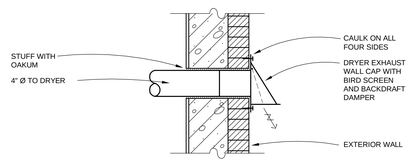
H.V.A.C. DETAILS

Scale	Date	Project Number
	06/23/15	146038

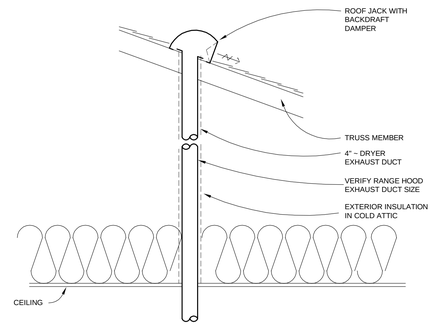
M302



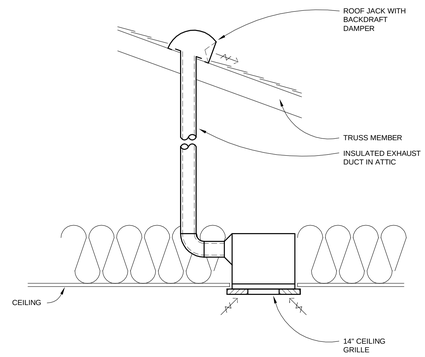
M303 1 DENLAR HOOD AT SLOPED ROOF
NOT TO SCALE



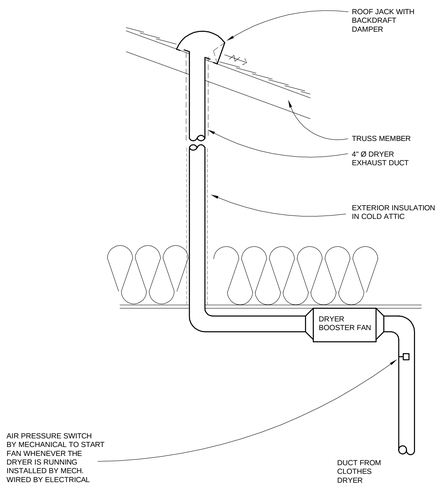
M303 2 EXHAUST FAN OUTLET (SIDEWALL)
NO SCALE



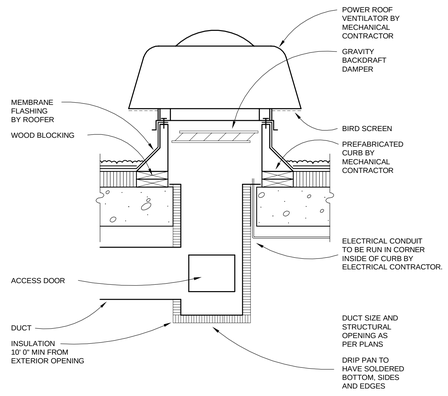
M303 3 DRYER EXHAUST THRU ROOF
NO SCALE



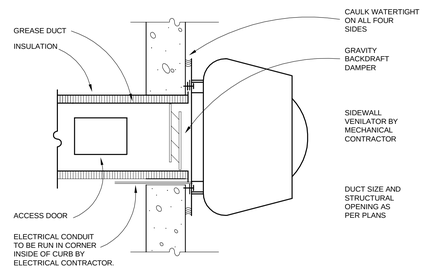
M303 4 TOILET EXHAUST FAN
NO SCALE



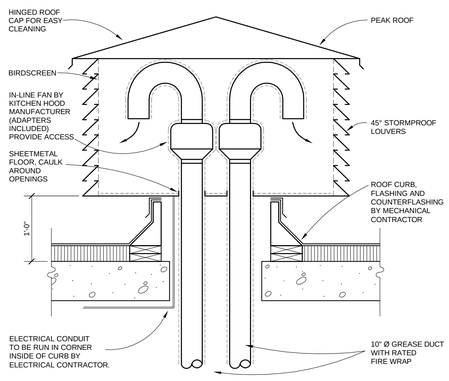
M303 5 DRYER EXHAUST FAN - SIDEWALL
NO SCALE



M303 6 POWER ROOF VENTILATOR WITH PREFABRICATED CURB
NO SCALE

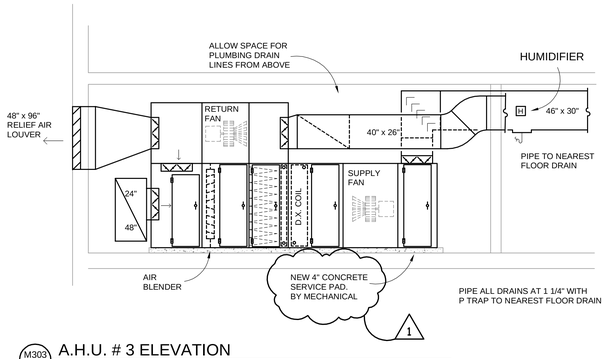


M303 7 SIDEWALL EXHAUST FAN
NO SCALE



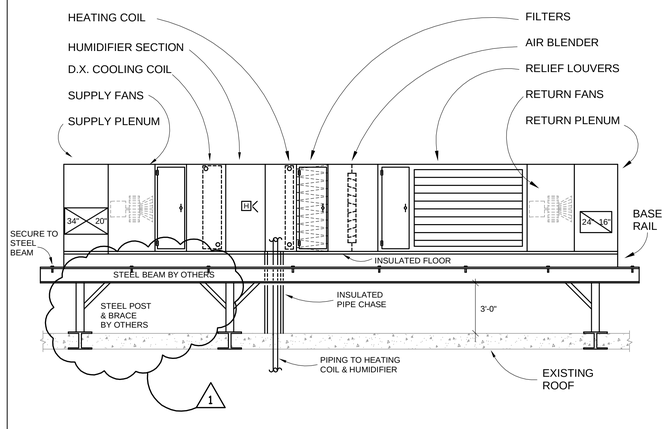
M303 8 PENTHOUSE AT DENLAR EXHAUST FANS
NO SCALE

NOTE:
PROVIDE ACCESS DOORS ON ALL SECTIONS.



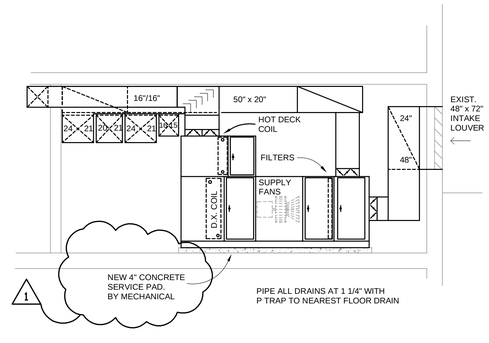
M303 9 A.H.U. # 3 ELEVATION
NO SCALE

NOTE:
PROVIDE ACCESS DOORS ON ALL SECTIONS.
FRESH AIR INTAKE SHALL BE A MIN. OF 3'-0" ABOVE THE ROOF.



M303 10 R.T.U. # 4 ELEVATION
NO SCALE

NOTE:
PROVIDE ACCESS DOORS ON ALL SECTIONS.



M303 11 A.H.U. # 5 ELEVATION
NO SCALE

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

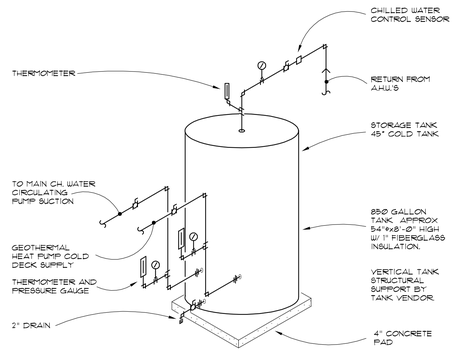
Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

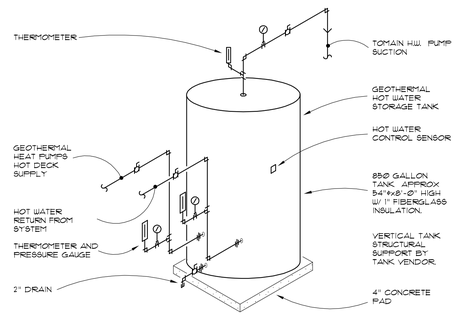
H.V.A.C. DETAILS

Scale	Date	Project Number
	06/23/15	146038

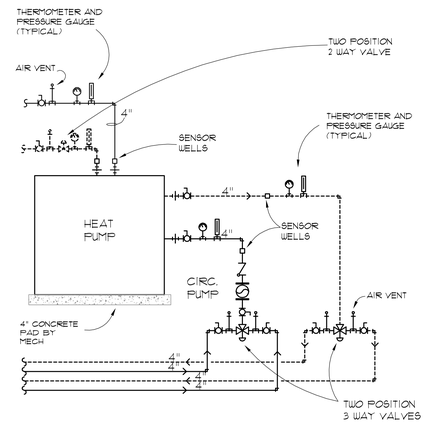
M303



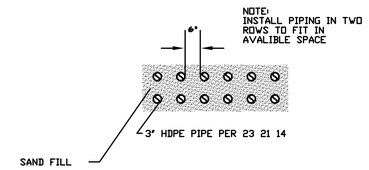
CHILLED WATER
M305 1 BUFFER TANK PIPING DIAGRAM
NO SCALE



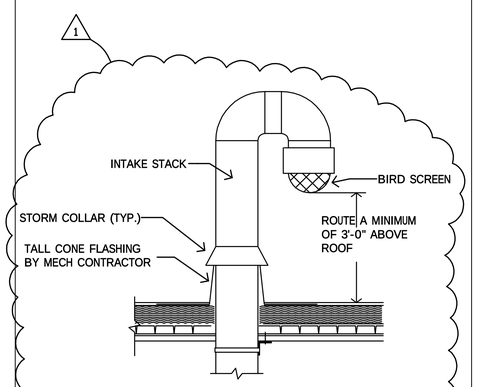
HOT WATER
M305 2 BUFFER TANK PIPING DIAGRAM
NO SCALE



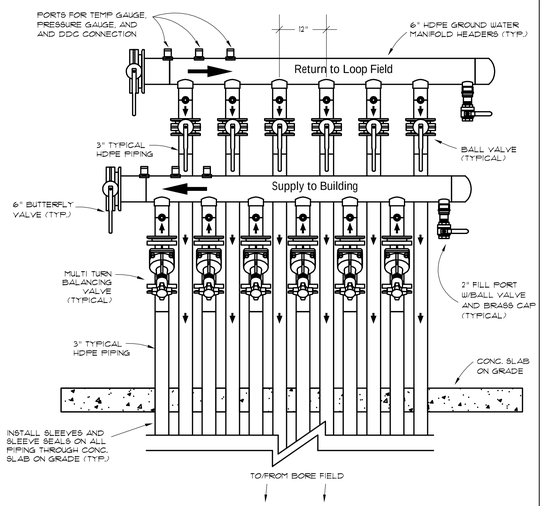
M305 3 TYPICAL HEAT PUMP PIPING
NO SCALE
15034-1



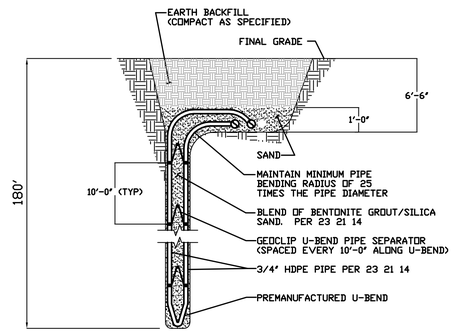
M305 4 SUPPLY RETURN PIPE SECTION (GEO.)
NO SCALE
15034-1



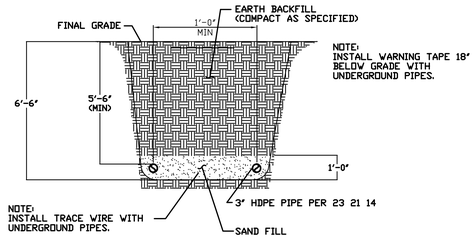
M305 5 BOILER INTAKE INLET DETAIL
NO SCALE



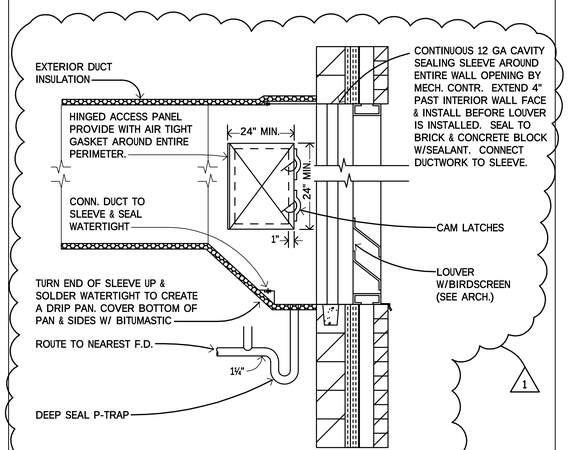
M305 6 PIPING MANIFOLD (GEO.)
NO SCALE



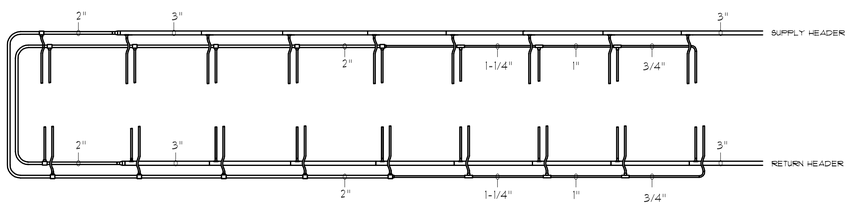
M305 7 VERTICAL HEAT EXHANGER (GEO)
NO SCALE



M305 8 SUPPLY RETURN TRENCH SECTION (GEO.)
NO SCALE



M305 10 LOUVER INSTALLATION DETAIL
NO SCALE



M305 9 BORE FIELD HEADER PIPING (GEO.)
NO SCALE

Horty Elving
Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

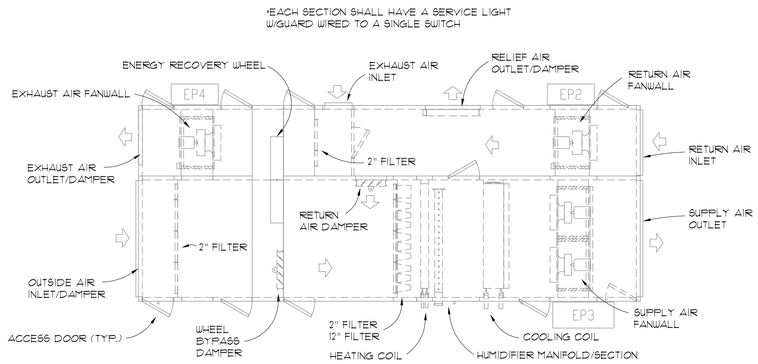
Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architecture or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

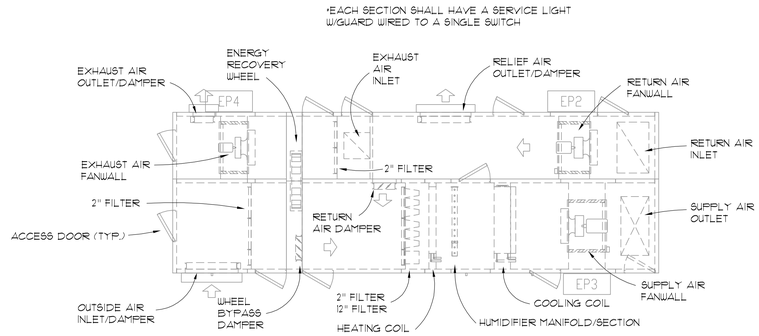
H.V.A.C. DETAILS

Scale	Date	Project Number
	06/23/15	146038

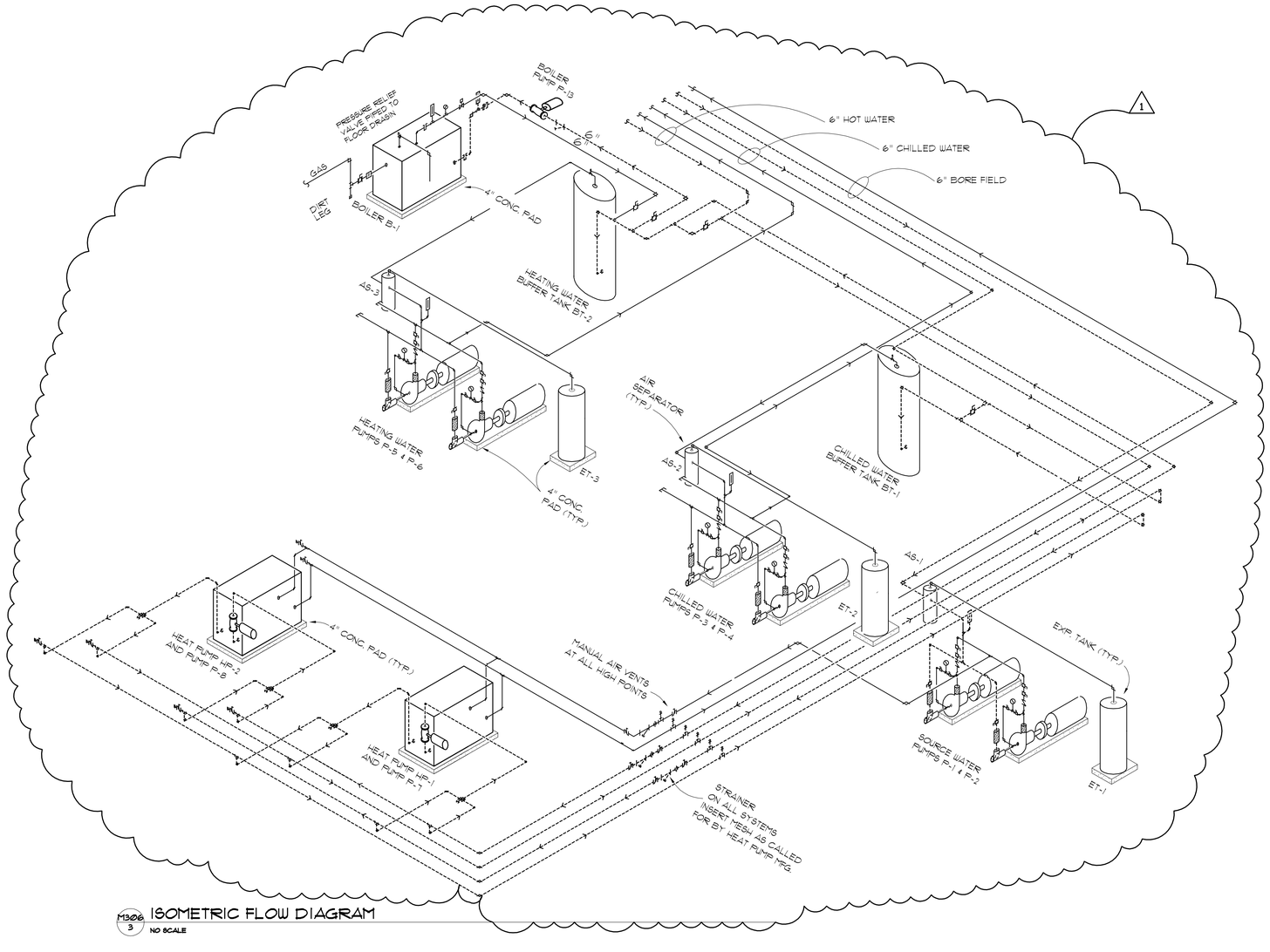
M305



M306 1 AHU-1 DETAIL
NO SCALE



M306 2 RTU-2 DETAIL
NO SCALE



M306 3 ISOMETRIC FLOW DIAGRAM
NO SCALE

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

H.V.A.C. DETAILS

Scale	Date	Project Number
	06/23/15	146038

M306

AIR HANDLING UNIT SCHEDULE

UNIT NUMBER	A.H.U. # 1	R.T.U. # 2	A.H.U. # 3	R.T.U. # 4	A.H.U. # 5
LOCATION	PENTHOUSE	ROOF AREA C	OD158 MECH	ROOF AREA D	0E120 MECH
SERVES	AREA A & B	AREA A & C	CBRF AREA D	AREA D 2ND FLOOR	AREA E
MODEL NUMBER	TEMTROL - GOVERNAIR	TEMTROL - GOVERNAIR	TEMPTROL - GOVERNAIR	TEMPTROL- GOVERNAIR	TEMTROL - GOVERNAIR
SUPPLY FAN	(6) @ 16" Ø	(2) @ 16" Ø	(3) @ 16" Ø	(2) @ 20°	(3) @ 20" Ø
CFM - STATIC PRESSURE	25,430 CFM @ 5.5" T.S.P.	8700 CFM @ 5" T.S.P.	16,535 CFM @ 5" T.S.P.	9,500 CFM @ 4.75 " T.S.P.	16,535 CFM @ 4.5" T.S.P.
CFM - MIN. OUTSIDE AIR	10,560 CFM	3,270 CFM	4630 CFM	3200 CFM	4000 CFM
H.P.	6 HP EACH 36 HP TOTAL	6 HP EACH 12 HP TOTAL	7 HP EACH 21 HP TOTAL	6HP EACH 12 HP TOTAL	5 HP EACH 15 HP TOTAL
R.P.M.	3207 RPM	2884 RPM	3200 RPM	3088 RPM	2,250 RPM
VOLTAGE - TOTAL MCA	460/60/3 - 54 MCA	460/60/3 - 26 MCA	460/60/3 - 34.8 MCA	460/60/3 - 19.8 MCA	460/60/3 - 18.6 MCA
FILTER BOX	2" PRE-FILTER	2" PREFILTER	2" PRE-FILTER	2" PRE-FILTER	2" PRE-FILTER
	12" FINAL FILTER	12" FINAL FILTER	12" FINAL FILTER	12" FINAL FILTER	
RETURN FAN	(2) @ 20" Ø	(1) @ 16"Ø	(3) @ 20" Ø	(2) @ 20" °	NONE
CFM - STATIC PRESSURE	17,585 CFM @ 1.5" S.P.	6,995 CFM @ 1.5" S.P.	12,735 CFM @ 1.5 " S.P.	6390 CFM @ 1.5" S.P.	
H.P	3 HP EACH 6 HP TOTAL	1 @ 1 H.P.	2 HP EACH 6 HP TOTAL	1.5 HP EACH 3 HP TOTAL	
HEATING COIL - EAT/LAT	12.2 ° to 65°	12° TO 65 °	52° TO 72°	41° TO 72°	43° TO 73°
BTUH OUTPUT - GPM	725,000 BTUH - 156.6 G.P.M.	221,300 BTUH - 47.8 G.P.M.	360,220 BTUH - 36 G.P.M.	319,500 BTUH- 32 G.P.M.	467,906 BTUH - 47 G.P.M.
COOLING COIL - ENTERING AIR	76.5 DB/63.8 WB	77.2 DB/64.4 WB	77.1 DB/64.2 WB	78.4DB/65.1 WB	78.2 DB/65.0 WB
LEAVING AIR	52.9DB/ 52.8 WB	52.8DB/52.5 WB	53.1 DB/52.2 WB	52.3° DB/51.7° WB	52.4 WB/ 51.8 DB
TOTAL MBH - SENSIBLE MBH	814.5 T MBH - 653.7 S MBH	304.9 T MBH - 232.4 S MBH	551.4 T MBH - 398.7 S MBH	353.3 T MBH - 248 S MBH	528.6 T MBH - 371.7 S MBH
COOLING GPM	173.8	63.1	-	-	-
EXHAUST FAN	(2) @ 20" Ø	(1) @ 16" Ø	-	-	-
CFM - STATIC PRESSURE	7,845 CFM @ 3.0" S.P.	1,735 CFM @ 2.5" S.P.	-	-	-
H.P.	3 HP EACH 6 HP TOTAL	1 HP	-	-	-
WEIGHT (INCLUDING CURB ON RTU-2)	26,901 LBS	17,500 LBS	14,341 LBS	11,056 LBS	7,600 LBS
NOTES	1,2,3,4,5,8,9,13,14	1,2,3,4,5,8,9,12,14	1,4,5,6,7,9,10,13,14	1,4,5,6,7,9,10,13,14	1,4,6,7,11,12,14

A.H.U. # 5 ZONES
ZONE # 1 - 1300 CFM SMALL DINING
ZONE # 2 - 4000 CFM MAIN DINING
ZONE # 3 - 3780 CFM KITCHEN
ZONE # 4 - 1415 CFM GROUND FLOOR
ZONE # 5 - 1140 CFM ADMINISTQATION
ZONE # 6 - 2740 CFM ADMINISTRATION

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. ENTERING HOT WATER TEMP IS 120°F, LEAVING TEMP IS 110°F. SELECT COIL WITH 35% PROPYLENE GLYCOL.
3. UNIT HAS CHILLED WATER COIL. ENTERING CHILLED WATER TEMP IS 44°F, LEAVING TEMP IS 54°F. SELECT COIL WITH 35% PROPYLENE GLYCOL.
4. UNITS SHALL HAVE FANWALL TECHNOLOGY WITH SILENCERS AND BACKDRAFT DAMPERS ON EACH FAN SECTION.
5. VFD's FOR SUPPLY AND RETURN FANS, AND ENERGY WHEEL SHALL BE FACTORY FURNSIHED AND INSTALLED INTEGRAL TO UNIT. REFER TO 23 05 15.
6. UNIT HAS DX COOLING COIL WITH REMOTE CONDENSING UNIT.
7. ENTERING HOT WATER TEMP IS 180°F, LEAVING TEMP IS 160°F. SELECT COIL WITH 35% PROPYLENE GLYCOL.
8. UNIT HAS ENERGY RECOVERY WHEEL WITH BYPASS DAMPERS ON SUPPLY SIDE FOR ECONOMIZER. REFER TO HEAT WHEEL SCHEDULE FOR PERFORMANCE.
9. UNIT SHALL HAVE SECTION FOR HUMIDIFER WITH A MINIMUM WETTING DISTANCE OF 24".
10. UNIT SHALL HAVE A BLENDER SECTION.
11. UNIT IS A MULTIZONE AHU. REFER TO ZONING DETAILS ON SIDE OF SCHEDULE.
12. PROVIDE 2-WAY HEATING AND COOLING CONTROL VALVE AT AHU/RTU INDICATED.
13. PROVIDE 3-WAY HEATING AND COOLING CONTROL VALVE AT AHU/RTU INDICATED.
14. REFER TO FAN SOUND POWER SCHEDULE FOR SOUND REQUIREMENTS.

HEAT WHEEL SCHEDULE

UNIT NUMBER	A.H.U. # 1	ROOF-TOP UNIT # 2
SUPPLY CFM	10,560 CFM	3343 CFM
SUMMER ENTERING	87°/71°	87°/71°
SUMMER LEAVING	79.9°/66.5°	82.5°/67.3°
WINTER ENTERING	-18	-18.1
WINTER LEAVING	30.2°/25.5°	12.3°/10.4°
EXHAUST CFM	7845 CFM	1735 CFM
SUMMER ENTERING	74°/61.8°	74°/61.8°
SUMMER LEAVING	83.7°/68.5°	82.5°/67.3°
WINTER ENTERING	72°/51°	72°/50°
WINTER LEAVING	1.8°/2.6°	11.4°/11.4°
TOTAL EFFICENCY	75.8%	58.3%
SUPPLY STATIC PRESSURE	1"	1"
EXHAUST STATIC PRESSURE	1"	1"
WHEEL DIAMETER	--	--
MOTOR H.P.	INCLUDED IN UNIT	INCLUDED IN UNIT

CONDENSING UNIT SCHEDULE

SERVES	AHU-3	RTU-4	AHU-5
MANUFACTURER	DAIKIN	DAIKIN	DAIKIN
UNIT NUMBER	CU-3	CU-4	CU-5
MODEL NUMBER	RCS-050-D	RCS-035-D	RCS-045-D
NOMINAL TONS	50	35	45
BTUH	567,992	384,220	512,454
VOLTS/PHASE/HZ	460/3/60	460/3/60	460/3/60
MCA	91.3	72.1	91.3
MIN. EER @ AHRI COND.	11.0	11.3	11.4
REFRIG. TYPE	R410A	R410A	R410A
COMPRESSOR TYPE	SCROLL	SCROLL	SCROLL
COMPRESSOR QTY.	4	4	4
STAGES	4	4	4
NOTES	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE WITH SPRING VIBRATION ISOLATORS PER MANUFACTURER'S RECOMMENDATIONS.
3. SIZE REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE WITH SINGLE POINT ELECTRICAL CONNECTION AND TRANSFORMER FOR CONTROL CIRCUIT.
5. PROVIDE WITH HOT GAS BYPASS ON FIRST STAGE.

HEAT PUMP SCHEDULE

SYSTEM	HP-1	HP-2
MANUF	MULTISTACK	MULTISTACK
MODEL	MR070XN1H1ROAAC-410A	MR070XN1H1ROAAC-410A
	COOLING MODE PERFORMANCE - MIN. EER = 16.4	
LOAD WATER	180.2 GPM @ 14.5' FT HD	180.2 GPM @ 14.5' FT HD
EWT/LWT	54°F/ 44°F	54°F/ 44°F
SOURCE WATER	209.8 GPM @ 17.9' FT HD	209.8 GPM @ 17.9' FT HD
EWT/LWT	80°F/ 90°F	80°F/ 90°F
COOLING CAPACITY	66.8 TONS/968.4 MBH THR	66.8 TONS/968.4 MBH THR
	HEATING MODE PERFORMANCE - MIN. COP = 3.1	
LOAD WATER	180.2 GPM @ 14.5' FT HD	180.2 GPM @ 14.5' FT HD
EWT/LWT	111.6°F/ 120°F	111.6°F/ 120°F
SOURCE WATER	209.8 GPM @ 17.9' FT HD	209.8 GPM @ 17.9' FT HD
EWT/LWT	38.8°F/ 33.5°F	38.8°F/ 33.5°F
HEATING CAPACITY	62.8 TONS/508.4 MBH EXTRACTED	62.8 TONS/508.4 MBH EXTRACTED
ELECTRICAL	460/60/3 - 135 MCA - 200 MOP	460/60/3 - 135 MCA - 200 MOP
NOTES	1,2,3	1,2,3

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. SELECT UNITS AT 25% PROPYLENE GLYCOL ON THE SOURCE SIDE AND 35% PROPYLENE GLYCOL ON THE LOAD SIDE.
3. PROVIDE WITH SINGLE POINT ELECTRICAL CONNECTION AND TRASNFORMER FOR CONTROL CIRCUIT. DIVISION 26 TO FURNISH AND INSTALL FUSED DISCONNECT.

POWER ROOF VENTILATOR SCHEDULE

PRV NUMBER	P.R.V. # 1	P.R.V. # 2	P.R.V. # 3	SIDEWALL FAN # 1	SIDEWALL FAN # 2	SIDEWALL FAN # 3	SIDEWALL FAN # 4	SIDEWALL FAN # 5	PRV # 4
SYSTEM	BUILDING "D" EXHAUST	BUILDING "D" EXHAUST	1E101 OXYGEN	BUILDING "D" EXH. 0D127	BUILDING "D" EXH. 1D121	BUILDING "D" EXH. 1D153	BUILDING "D" EXH. 2D121	BUILDING "D" EXH. 2D153	BUILDING "A" EXH. A162/163
CFM	1400 CFM	580 CFM	190 CFM	780 CFM	680 CFM	730 CFM	680 CFM	730 CFM	400 CFM
S.P.	0.8"	0.75"	0.3"	0.625"	0.625"	0.75"	0.625"	0.75"	0.35"
H.P.	1/2 H.P	1/4 H.P	1/6 H.P	1/4 H.P	1/4 H.P	1/4 H.P	1/4 H.P	1/4 H.P	1/6 H.P
VOLTAGE	110/60/1	110/60/1	110/60/1	110/60/1	110/60/1	110/60/1	110/60/1	110/60/1	110/60/1
MODEL	G-123-VG	G-098-VG	G-070-VG	CW-099-VG	CW-099-VG	CW-099-VG	CW-099-VG	CW-099-VG	G-085-VG
MANUF	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
NOTES	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. SELECT WITH ECM MOTORS. PROVIDE WITH SPEED CONTROLLER.
3. PROVIDE WITH GRAVITY DAMPER AND BIRDSCREEN.

HUMIDIFIER SCHEDULE

ROOM NUMBER	A.H.U. # 1	R.T.U. # 2	A.H.U. # 3	R.T.U. # 4
CFM	25,430 CFM	8,730 CFM	16,535 CFM	9,500 CFM
# STEAM	300 # /HR	100 # /HR	75 # /HR	100 # /HR
REL. HUMIDITY	25%	25%	25%	25%
MODEL	NORTEC GSTC-300	NORTEC GSTC-100	NORTEC NH-EL-100	NORTEC GSTC-100
PROBE LENGTH	VERIFY WITH A.H.U. MFG.	VERIFY WITH R.T.U. MFG.	VERIFY WITH A.H.U. MFG.	VERIFY WITH R.T.U. MFG.
INPUT	420,000 BTUH	140,000 BTUH	28.1 KW	140,000 BTUH
NOTES	1,2	1,2	1,3	1,2

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. UNIT IS NATURAL GAS FIRED.
3. UNIT SHALL BE CAPABLE OF PROVIDING ADEQUATE STEAM AT THE DISTANCE INDICATED ON THE DRAWINGS FROM THE HUMIDIFIER OUTLET TO THE MANIFOLD INLET.

SPLIT SYSTEM AIR COND.

ROOM NUMBER	COMM/DATA A164
SYSTEM	SPLIT SYSTEM (SS-1)
CFM - TONS	750 CFM - 1 1/2 TONS
EVAP. MODEL	MMD18E7XHE0E
EVAP VOLTAGE	277/1/60
COND. MODEL	PFH020A-PL7
COND. VOLTAGE	208/1/60
MANUF	LIEBERT MINI MATE 2
NOTES	1

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.

CABINET UNIT HEATER SCHEDULE

UNIT NO.	CUH-1	CUH-2	CUH-3	CUH-4	CUH-5	CUH-6	CUH-7	CUH-8	CUH-9	CUH-10	CUH-11	CUH-12	CUH-13	CUH-14
SERVES	VESTIBULE A100	DINING B146	ENTRY B154	CORRIDOR B190	CORRIDOR B190	DINING B250	ENTRY B233	DINING A208	ENTRY A216	CORRIDOR A160	CORRIDOR C160	SUN ROOM C143	VESTIBULE C135	VEST. 0D121
MANUFACTURER	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING	STERLING
MODEL NO.	RC-1200-08	RC-1200-04	RC-1200-08	RC-1200-04	RC-1200-04	RC-1200-04	RC-1200-08	RC-1200-04	RC-1200-08	RC-1200-04	RC-1200-04	RC-1200-04	RC-1200-10	FSI-1045-10
TYPE	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER	HOT WATER
CABINET	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	RECESSED CEILING	FLOOR SET - INV.
CFM	860	430	860	430	430	430	860	430	860	430	430	430	1060	1060
RPM	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050
HP	1/10, 1/15	1/10	1/10, 1/15	1/10	1/10	1/10	1/10, 1/15	1/10	1/10, 1/15	1/10	1/10	1/10	1/10, 1/15	1/10
COIL ROWS	2	1	1	1	1	1	1	1	1	1	1	1	1	1
VOLTS/PHASE	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1
MBH	37.6	12.8	23.3	12.8	12.8	12.8	23.3	12.8	23.3	12.8	12.8	12.8	26.5	26.5
GPM	8.6	2.9	5.4	2.9	2.9	2.9	5.4	2.9	5.4	2.9	2.9	2.9	6.1	2.8
NOTES	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,2,4	1,3,4

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. ENTERING HOT WATER TEMP IS 120°F, LEAVING TEMP IS 110°F. SELECT COIL WITH 35% PROPYLENE GLYCOL.
3. ENTERING HOT WATER TEMP IS 180°F, LEAVING TEMP IS 160°F. SELECT COIL WITH 35% PROPYLENE GLYCOL.
4. PROVIDE 3-WAY VALVES AT ALL CUHs.

EXPANSION TANK SCHEDULE

UNIT NO.	ET-1	ET-2	ET-3
SERVES	GROUND SOURCE	CHILLED WATER	HEATING WATER
MANUFACTURER	B & G	B & G	B & G
MODEL NO.	B-600	B-200	B-500
TYPE	BLADDER	BLADDER	BLADDER
MIN. PRECHARGE PRESSURE	22 PSIG	22 PSIG	22 PSIG
MAX. OPERATING PRESSURE	30 PSIG	30 PSIG	30 PSIG
EXPANSION VOLUME	158 GALLONS	53 GALLONS	132 GALLONS
TANK HEIGHT	63-3/4"	36-7/8"	78"
TANK DIAMETER	30"	24"	24"
NOTES	1,2	1,2	1,2

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE AUTOMATIC AIR VENT PIPED TO NEAREST FLOOR DRAIN.

BOILER SCHEDULE

MANUFACTURER	AERCO
MODEL	BMK 2000
TYPE	HW
FUEL	GAS
GAS INPUT BTUH	2,000,000
GROSS OUTPUT BTUH	1,840,000
VOLTS/PHASE	120/1
FLA	16
NOTES	1,2

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. HEATING SYSTEM IS 35% PROPYLENE GLYCOL.

EXHAUST FAN SCHEDULE

UNIT NO.	EF-1	EF-2	EF-3	EF-4	EF-5	EF-6	EF-7
SERVES	OT BATH A153	HSKP A132	TOILET A133	OXY A231	OXY B256	OXY B134	ELEV. AREA D LL
MANUFACTURER	BROAN	BROAN	BROAN	BROAN	BROAN	BROAN	BROAN
TYPE	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING
MODEL	QTXE110	QTXE050	QTXE080	QTXE050	QTXE050	QTXE050	QTXE0110
CFM	95	40	75	50	50	50	100
S.P.	0.25"	0.25"	0.25"	0.25"	0.25"	0.25"	0.25"
HP	FRACTIONAL	FRACTIONAL	FRACTIONAL	FRACTIONAL	FRACTIONAL	FRACTIONAL	FRACTIONAL
VOLTS/PHASE	110/1	110/1	110/1	110/1	110/1	110/1	110/1
NOTES	1,2	1,2	1,2	1,2	1,2	1,2	1,2

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE WITH GRAVITY DAMPER AND BIRDSCREEN.

RADIANT HEATING PANEL SCHEDULE

UNIT NO.	RP-1	RP-2	RP-3	RP-4	RP-5	RP-6
SERVES	SPA C169	SPA A181	SPA B171	FUTURE SPA B221	SPA 1D177	SPA 2D177
MANUFACTURER	QMARK	QMARK	QMARK	QMARK	AIRTEX	AIRTEX
TYPE	ELECTRIC	ELECTRIC	ELECTRIC	ELECTRIC	HYDRONIC	HYDRONIC
CATALOG NO.	CP501	CP501	CP501	CP501	--	--
SIZE	2' x 4'	2' x 4'	2' x 4'	2' x 4'	2' x 4'	2' x 4'
VOLTS	120	120	120	120	180° - 160°	180° - 160°
WATTS	500	500	500	500	1200 BTUH	1200 BTUH
AMPS	4.2	4.2	4.2	4.2	--	--
NOTES	1,2	1,2	1,2	1,2	1,3	1,3,4

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. SELECT SURFACE MOUNTING FRAME FOR 24" x 48" PANELS.
3. SELECT UNITS FOR LAY-IN CEILING. HEATING SYSTEM IS 35% PROPYLENE GLYCOL.
4. PROVIDE 2-WAY CONTROL VALVES AT HEATING PANEL.

BUFFER TANK SCHEDULE

UNIT NO.	BT-1	BT-2
SERVES	CHILLED WATER	HEATING WATER
TANK VOLUME	850 GALLONS	850 GALLONS
INLET SIZE	6"	6"
TANK DIAMETER	54"	54"
TANK HEIGHT	96"	96"
NOTES	1,2,3	1,2,3

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. TANKS SHALL BE ASME RATED.
3. MAXIMUM HEIGHT SHALL BE 8'-0".

UNIT HEATER SCHEDULE

UNIT NO.	UH-1	UH-2
SERVES	PENTHOUSE	0D158
MANUFACTURER	STERLING	STERLING
MODEL NO.	HS-60	HS-20
TYPE	HOT WATER	HOT WATER
CABINET	HORIZONTAL	HORIZONTAL
CFM	900	900
RPM	1000	1000
HP	1/20	1/20
VOLTS/PHASE	115/1	115/1
MBH	18.7	20.0
EWT/LWT (°F)	120/110	180/160
GPM	3.5	2.0
NOTES	1,2,4	1,3,4

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. ENTERING HOT WATER TEMP IS 120°F, LEAVING TEMP IS 110°F. SELECT COIL WITH 35% PROPYLENE GLYCOL.
3. ENTERING HOT WATER TEMP IS 180°F, LEAVING TEMP IS 160°F. SELECT COIL WITH 35% PROPYLENE GLYCOL.
4. ALL CONTROL VALVES SHALL BE 2-WAY.

ATTENUATORS

SYSTEM	A.H.U. # 3 RETURN	A.H.U. # 3 RETURN	A.H.U. # 3 RETURN	R.T.U. # 4 RETURN	R.T.U. # 4 RETURN	R.T.U. # 4 RETURN	A.H.U. # 1 RETURN	A.H.U. # 1 RETURN	R.T.U. # 1 RETURN	R.T.U. # 1 RETURN
CFM	2630 CFM	2170 CFM	1720 CFM	2500 CFM	2170 CFM	1720 CFM	5735 CFM	11,860 CFM	3900 CFM	3200 CFM
OCTAVE BAND CENTER FREQUENCY (HZ)	SECOND	SECOND	SECOND	SECOND	SECOND	SECOND	SECOND	SECOND	SECOND	SECOND
MINIMUM DYNAMIC INSERTION LOSS (DB)	9 dba	9 dba	9 dba	9 dba	9 dba	9 dba	9 dba	9 dba	9 dba	9 dba
FACE VELOCITY FPM	1052 F.P.M.	1000 F.P.M.	883F.P.M.	1000 F.P.M.	1000 F.P.M.	882 F.P.M.	1013 F.P.M.	1092 F.P.M.	1097 F.P.M.	1029 F.P.M.
APPROXIMATE SIZE	30" x 20"	26" x 12"	20" x 14"	30" x 12"	26" x 12"	20" x 14"	34" x 24"	34" x 24"	34" x 24"	34" x 24"
LENGTH	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	5'-0"	3'-0"	5'-0"	5'-0"
NOTES	1	1	1	1	1	1	1	1	1	1

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.

LINEAR RADIATION SCHEDULE

MANUFACTURER	RUNTAL
MODEL	RF-4
ENCLOSURE HEIGHT	11-1/2"
ENCLOSURE DEPTH	2"
BTU/H PER FOOT	225
NOTES	1,2,3,4,5,6

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. MOUNT BOTTOM OF RUNTAL 3" FROM FLOOR.
3. RUN RADIATION WALL TO WALL WHERE APPLICABLE. REFER TO DRAWINGS FOR FURTHER DETAIL. PROVIDE ALL END/WALL CAPS, ETC... AS REQUIRED TO ACCESS DRAIN VALVES.
4. LOCATE ALL VALVES (EXCEPT DRAIN VALVES) ABOVE CEILING IN ACCESSIBLE LOCATION.
5. SELECT RADIATION AT 35% PROPYLENE GLYCOL.
6. ALL CONTROL VALVES SHALL BE 2-WAY.

CIRCULATING PUMP SCHEDULE

PUMP NUMBER	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12	P-13
LOCATION	MECH A161	MECH A161	MECH A161	MECH A161	MECH A161	MECH A161	MECH A161	MECH A161	MECH 0E131	MECH 0E131	STOR 0E130	STOR 0E130	MECH A161
SYSTEM	GROUND SOURCE	GROUND SOURCE	CH. WATER	CH. WATER	HEATING WATER	HEATING WATER	PRIMARY HEAT PUMP	PRIMARY HEAT PUMP	HYDRONIC HEATING	HYDRONIC HEATING	PRIMARY BOILER PUMP	PRIMARY BOILER PUMP	PRIMARY BOILER PUMP
STYLE	BASE MOUNT	BASE MOUNT	BASE MOUNT	BASE MOUNT	BASE MOUNT	BASE MOUNT	IN-LINE	IN-LINE	BASE MOUNTED	BASE MOUNTED	IN-LINE	IN-LINE	IN-LINE
GPM	209.8	209.8	238.3	238.3	375.6	375.6	180.2	180.2	226 G.P.M.	226 G.P.M.	130	130	215
HEAD	113'	113'	66.5'	66.5'	70'	70'	46.2'	46.2'	70'	70'	20'	20'	20'
RPM	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
MEDIA	25% PROPYLENE GLYCOL	25% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL	35% PROPYLENE GLYCOL
H.P.	15	15	7.5	7.5	15	15	5	5	7 1/2 H.P.	7 1/2 H.P.	1 1/2 H.P.	1 1/2 H.P.	2 H.P.
CURRENT	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3	460/60/3
MANUF	B & G	B & G	B & G	B & G	B & G	B & G	B & G	B & G	B & G	B & G	B & G	B & G	B & G
MODEL	SERIES 1510 2E	SERIES 1510 2E	SERIES 1510 2BC	SERIES 1510 2BC	SERIES 1510 3BC	SERIES 1510 3BC	SERIES 80 3x3x9-1/2B	SERIES 80 3x3x9-1/2B	SERIES 1510 2 1/2BB	SERIES 1510 2 1/2BB	SERIES 60 2x5-1/4	SERIES 60 2x5-1/4	SERIES 80 4x4x9-1/2
NOTES	1,2	1,2	1,2	1,2	1,2	1,2	1	1	1,2	1,2	1	1	1

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PUMP IS DRIVEN BY A VFD FURNISHED AND INSTALLED BY THE BAS CONTRACTOR.

FAN SOUND POWER SCHEDULE (dB re: 10E-12)

OPERATING CONDITION	63	125	250	500	1K	2K	4K	8K	LwA	Lw
AHU-1										
SUPPLY (IN/OUT)	95/87	89/84	88/89	95/83	90/83	90/80	89/79	85/73	97/88	100/93
RETURN (IN/OUT)	89/79	85/76	83/88	85/76	81/74	80/73	79/69	70/61	87/83	93/89
EXHAUST (IN/OUT)	88/76	85/76	82/85	82/71	77/70	76/69	73/64	66/55	84/79	91/86
RTU-2										
SUPPLY (IN/OUT)	86/81	85/80	85/87	89/77	85/76	85/74	83/72	79/67	92/83	94/89
RETURN (IN/OUT)	82/70	79/75	76/79	73/63	70/64	70/61	62/56	59/42	76/73	85/81
EXHAUST (IN/OUT)	70/68	81/75	72/76	75/62	74/64	73/62	69/58	63/52	79/71	84/79
AHU-3										
SUPPLY (IN/OUT)	91/84	87/81	86/87	92/80	88/80	87/78	87/76	83/71	94/85	97/91
RETURN (IN/OUT)	85/74	82/78	79/83	76/67	74/68	73/65	66/60	62/47	80/77	88/85
RTU-4										
SUPPLY (IN/OUT)	89/82	84/79	84/85	90/78	85/78	85/75	84/73	80/68	92/83	95/89
RETURN (IN/OUT)	82/70	79/75	76/79	73/63	70/64	70/61	62/56	59/42	76/72	85/81
AHU-5										
SUPPLY (IN/OUT)	94/83	90/80	88/93	90/81	84/78	83/77	82/73	73/67	91/87	97/94

AIR SEPARATOR SCHEDULE

UNIT NO.	AS-1	AS-2	AS-3	AS-4
SERVES	SOURCE WATER	HEATING WATER	CHILLED WATER	HYDRONIC HTG.
MANUFACTURER	B&G	B&G	B&G	B&G
MODEL NO.	R-6	R-6	R-6	R-4
MAX GPM	700	700	700	300
INLET/OUTLET SIZE	6	6	6	4
NOTES	1,2	1,2	1,2	1,2

NOTES:
1. INSTALL IN ACCORDANCE MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE AUTOMATIC AIR VENT PIPED TO NEAREST FLOOR DRAIN.

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

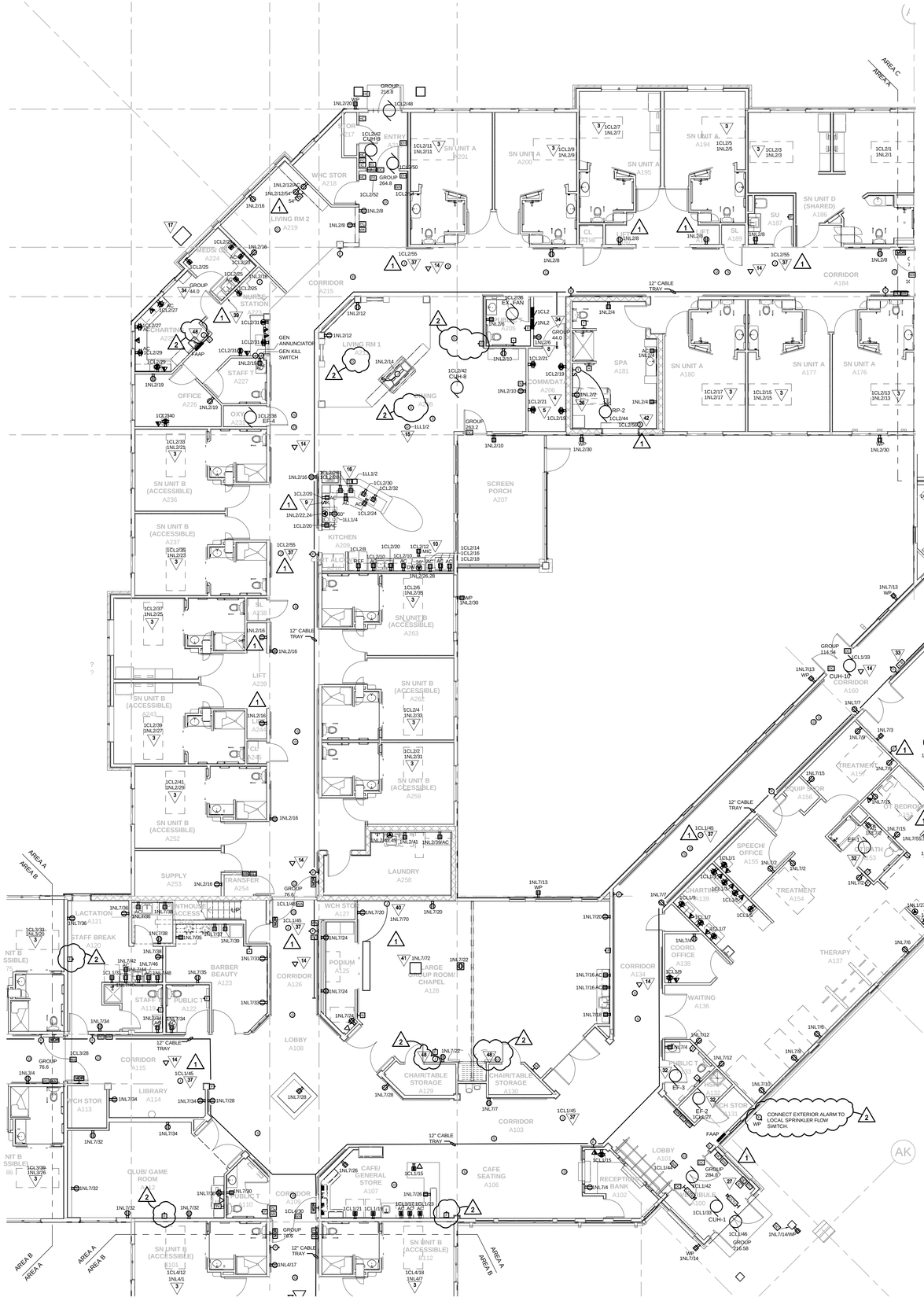
Rev. #	Date	Revision	Description
1	7/14/15	ADDENDUM # 2	H.V.A.C. REVISIONS

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

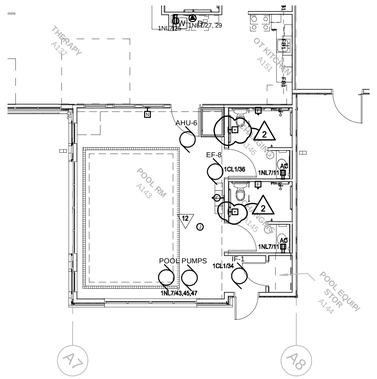
H.V.A.C. SCHEDULES

Scale	Date	Project Number
NO SCALE	06/23/15	146038

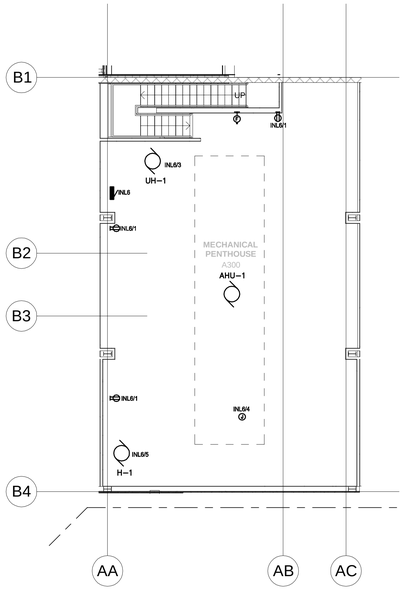
M401



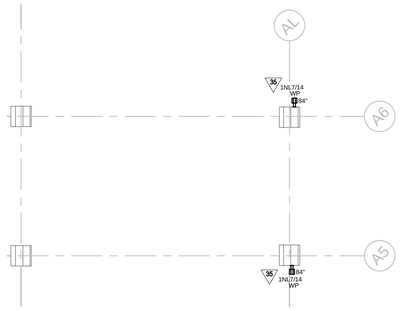
1 FIRST FLOOR PLAN - AREA A
E101 1/8" = 1'-0"



2 THERAPY POOL - ADD ALTERNATE #1
E101 1/8" = 1'-0"



3 PENTHOUSE PLAN
E101 1/8" = 1'-0"



4 AREA A CANOPY
E101 1/8" = 1'-0"

28 PROVIDE GROUND FAULT CIRCUIT BREAKER.

29 PROVIDE ELECTRONIC LSI 100% RATED ADJUSTABLE CIRCUIT BREAKER.

30 NOT USED.

31 PROVIDE 120V POWER FOR FIRE SUPPRESSION SYSTEM PROVIDED BY DIVISION 23. CONNECT FIRE SUPPRESSION DETECTION SYSTEM TO BUILDING FIRE ALARM SYSTEM.

32 CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.

33 PROVIDE A SQUARE D BOILER KILL SWITCH, MODEL: Z85AX4. PROVIDE STAINLESS STEEL FACEPLATE AND MOUNT AT 42" AFF. PROVIDE "BOILER SHUTDOWN" LABEL.

34 PROVIDE POE ACCESS CONTROL LOCKSET M120834 TC1P1 P3Z.

35 PROVIDE ARLINGTON DBVSIC-1 RECESSED OUTLET BOX FINISHED WHITE. FEED RECEPTACLES FROM GROUND THROUGH THE BASE OF COLUMN.

36 DEMOLISH EXISTING PANEL. EXTEND 100A FEEDER TO ROOFTOP FOR CONNECTION TO MECHANICAL EQUIPMENT. SEE ROOF PLAN FOR ADDITIONAL INFORMATION.

37 MOUNT JUNCTION BOX ABOVE CEILING FOR NURSE CALL LOCATOR POWER.

38 PROVIDE ELEVATOR RECALL SMOKE DETECTOR.

39 PROVIDE WIRELESS NURSE CALL CONSOLE.

40 PROVIDE 120V POWER TO MOTORIZED SCREEN. PROVIDE A JUNCTION BOX FOR LOW VOLTAGE SWITCH WITH 3/4" CONDUIT RUNNING FROM JUNCTION BOX TO MOTORIZED SCREEN.

41 PROVIDE POWER AND DATA FOR CEILING MOUNTED PROJECTOR.

42 PROVIDE POWER AND A JUNCTION BOX AND 3/4" STUBUP FOR A MOTORIZED SHUTTER. LOW VOLTAGE CABLING AND SWITCH BY SHUTTER INSTALLER.

43 PROVIDE 120V POWER AND LOW VOLTAGE CABLING FOR ELEVATOR CURTAIN. CONNECT TO SMOKE DETECTOR AUXILIARY CONTACT.

44 PROVIDE SYSTEM SMOKE DETECTOR(S) WITH AUXILIARY CONTACTS TO SOUND THE 520 HZ BEDROOM AREA SPEAKER. THIS SPEAKER SHALL SOUND ON A LOCAL OR GENERAL ALARM.

45 PROVIDE A WIREMOLD, OR EQUAL, 4000 STEEL IVORY RACEWAY FROM CEILING TO TV OUTLET AND RECEPTACLE.

46 PROVIDE A WIREMOLD, OR EQUAL, 2000 STEEL IVORY RACEWAY FROM EXISTING RECEPTACLE TO NEW DESK RECEPTACLE AT 36" AFF.

47 PROVIDE A PENDANT NURSE CALL FOR EACH BED IN CBRF.

48 PROVIDE A 2" X 4" JUNCTION BOX AND 3/4" STUBUP FOR PANIC BUTTON.

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/08/15	Addendum 1	
2	07/14/15	Addendum 2	

GENERAL NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. ELECTRICAL CONTRACTOR SHALL CUT AND PATCH WALL S AS REQUIRED TO MATCH EXISTING SURFACE WHERE NO NEW FINISHES ARE SPECIFIED. WHERE NEW FINISHES ARE SPECIFIED, ELECTRICAL CONTRACTOR SHALL PREPARE WALL SURFACES SUITABLE FOR NEW FINISHES BY OTHERS. PROVIDE EXTENSION RINGS FOR DEVICES LOCATED ON WALLS TO BE FURRED OUT. CONTINUE ALL CIRCUITS THAT MAY BE INTERRUPTED BY DEMOLITION. NO DEVICE SHALL BE ORPHANED.

C. PROVIDE LIFE SAFETY POWER FOR SMOKE DAMPERS. SEE MECHANICAL PLANS FOR LOCATIONS. SMOKE DAMPERS SHALL CLOSE ON A GENERAL ALARM.

D. ALL LOCATIONS WHERE EXISTING FIRE ALARM, SPEAKER, DATA, AND CABLE T.V. DEVICES AND CABLING WERE DEMOLISHED ARE TO BE REPLACED WITH A NEW DEVICE AND ASSOCIATED CABLING IN THE EXISTING BUILDING.

E. PROVIDE WIRELESS TRANSMITTER FOR GROUP 263.2 DOOR CONTACT.

F. PROVIDE ALL POWER AND LOW VOLTAGE WIRING FOR THE LISTED HARDWARE GROUP.

KEY NOTES:

1 REMOVE EXISTING PANEL AND PROVIDE NEW PANEL. CONNECT TO EXISTING FEEDER. PROVIDE CUTTING AND PATCHING AS REQUIRED TO ACCOMODATE PANEL.

2 PROVIDE NEW RECEPTACLE AND BRANCH CIRCUIT WIRING. UTILIZE EXISTING JUNCTION BOX AND CONDUIT.

3 SEE TYPICAL ROOM LAYOUTS ON SHEET E108 FOR WORK IN THESE ROOMS. PROVIDE CIRCUITING FROM PANEL SHOWN.

4 PROVIDE 2' COPPER GROUND BUS. CONNECT TO MAIN GROUND BUS WITH #6 COPPER.

5 PROVIDE ¾" FIRE TREATED PLYWOOD ON THE NON-DOOR WALLS. PAINT THE OUTER SURFACE WITH GRAY FIRE RETARDENT PAINT.

6 PROVIDE (3) 4" AND (2) 2" PVC CONDUITS FOR TELECOM AND CABLE TV CABLES FROM DATA TO 36" X 48" QUAZITE PULL BOX.

7 PROVIDE TWO 3M QUICK PASS 4" SQUARE FIRE BARRIER PASS THROUGH DEVICES. #98040055141/02 OR APPROVED EQUAL. LOCATE ABOVE ACT CEILING.

8 PROVIDE ONE 3M QUICK PASS 4" SQUARE FIRE BARRIER PASSTHROUGH DEVICE. #98040055141 OR APPROVED EQUAL.

9 PROVIDE 50A 2-POLE CONTACTOR AND SWITCH. (SEE DETAIL)

10 INSTALL RECEPTACLE FOR MICROWAVE IN CABINET ABOVE.

11 NOT USED

12 PROVIDE 100A FEEDER TO POOL CONTROL PANEL LOCATED UNDER THE FLOOR. (BY OTHERS)

13 EXTERIOR SPEAKER STROBE FOR SIAMESE CONNECTION. EXTEND CABLES AS REQUIRED.

14 PROVIDE DATA DROP ON 8" SPOOL, ABOVE CEILING FOR WIRELESS ACCESS POINT.

15 STAND ALONE 120V SMOKE DETECTOR FOR DENLAR HOOD. MOUNT 20' AWAY FROM DENLAR HOOD.

16 PROVIDE 0-60MIN WINDUP TIMER FOR DENLAR HOOD.

17 PROVIDE 4" CONDUIT FROM A164 TO THE WEST SIDE 24" X 30" PULLBOX.

18 INCLUDE IN BASE BID.

19 TO BE PART OF ADD ALTERNATE.

20 DISCONNECT EXISTING AHU TO BE DEMOLISHED AND PROVIDE CONNECTION TO NEW UNIT. PROVIDE 20A FUSES IN FUSE HOLDER AND PROVIDE 30A DISCONNECT SWITCH AT UNIT.

21 DISCONNECT UNIT AND DEMOLISH FEEDER BACK TO SOURCE.

22 PROVIDE NEW FEEDER, DISCONNECT, AND CONNECTION TO NEW UNIT AS SHOWN.

23 DEMOLISH ALL CONNECTIONS AND FEEDERS ASSOCIATED WITH CONDENSING UNIT S1 TO BE REMOVED. LEAVE ANY CONNECTIONS TO ANY UNITS SERVING OTHER AREAS INTACT.

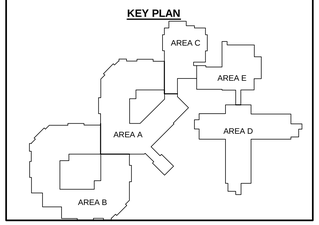
24 PROVIDE NEW 60A/3P FUSED DIS SW FOR H-3 AND FUSES FOR 45A. PROVIDE 50A ALUMINUM FEEDER FOR H-3 AND 50A FUSES FOR THE "40A SPARE" IN SWBD.

25 RECEPTACLES, DATA, AND LIGHTING IN THIS AREA TO BE PART OF ALTERNATE. OTHER WORK INCLUDED IN BASE BID.

26 PROVIDE REMOTE "BLANK FACE" GFCI DEVICE, LEVITON 7590 OR EQUAL FOR SPA TUB.

27 PROVIDE AIPHONE IX-MV MASTER STATION AND A RY IP 44 CLOSURE BOX FOR INTERFACE TO THE DOOR ACCESS SYSTEM IN THE MAIN DATA ROOM RACK. POWER WITH CRITICAL POWER. PROVIDE DOOR RELEASE AND VIDEO APPS. PROVIDE AN AIPHONE IX-SBX-ISDVG INTERCOM WITH BACK BOX AT "IC" LOCATION.

KEY PLAN

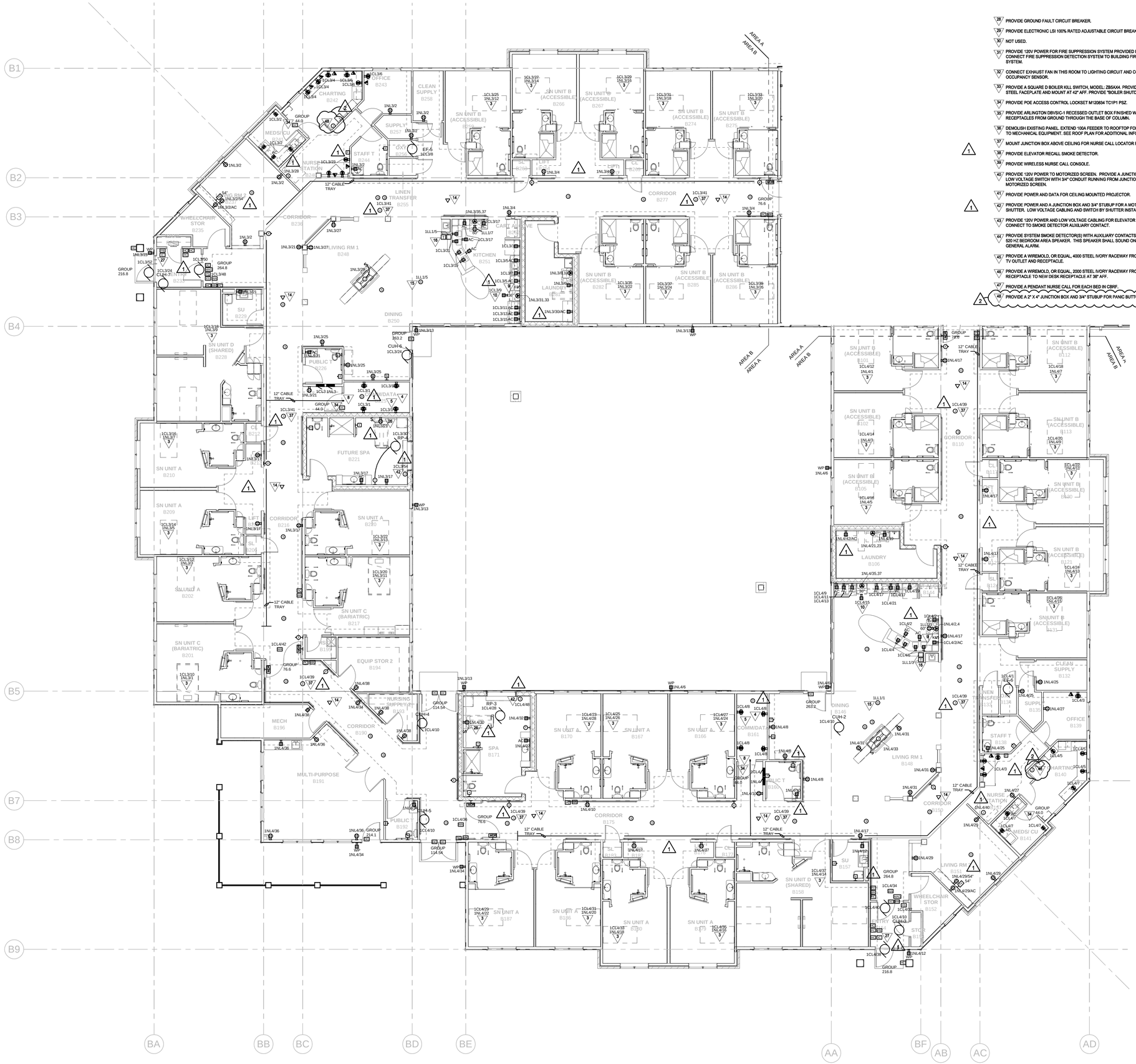


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR POWER & SYSTEMS PLAN - AREA A SNF & TOWN CENTER

Scale	Date	Project Number
As indicated	06/23/15	146038

E101



29 PROVIDE GROUND FAULT CIRCUIT BREAKER.

29 PROVIDE ELECTRONIC LSI 100% RATED ADJUSTABLE CIRCUIT BREAKER.

30 NOT USED.

31 PROVIDE 120V POWER FOR FIRE SUPPRESSION SYSTEM PROVIDED BY DIVISION 23. CONNECT FIRE SUPPRESSION DETECTION SYSTEM TO BUILDING FIRE ALARM SYSTEM.

32 CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.

33 PROVIDE A SQUARE D BOILER KILL SWITCH, MODEL: ZB5AX4. PROVIDE STAINLESS STEEL FACEPLATE AND MOUNT AT 42" AFF. PROVIDE "BOILER SHUTDOWN" LABEL.

34 PROVIDE POE ACCESS CONTROL LOCKSET M120834 TC1P1 PSZ.

35 PROVIDE ARLINGTON DBVSIC-1 RECESSED OUTLET BOX FINISHED WHITE. FEED RECEPTACLES FROM GROUND THROUGH THE BASE OF COLUMN.

36 DEMOLISH EXISTING PANEL. EXTEND 100A FEEDER TO ROOFTOP FOR CONNECTION TO MECHANICAL EQUIPMENT. SEE ROOF PLAN FOR ADDITIONAL INFORMATION.

37 MOUNT JUNCTION BOX ABOVE CEILING FOR NURSE CALL LOCATOR POWER.

38 PROVIDE ELEVATOR RECALL SMOKE DETECTOR.

39 PROVIDE WIRELESS NURSE CALL CONSOLE.

40 PROVIDE 120V POWER TO MOTORIZED SCREEN. PROVIDE A JUNCTION BOX FOR LOW VOLTAGE SWITCH WITH 3/4" CONDUIT RUNNING FROM JUNCTION BOX TO MOTORIZED SCREEN.

41 PROVIDE POWER AND DATA FOR CEILING MOUNTED PROJECTOR.

42 PROVIDE POWER AND A JUNCTION BOX AND 3/4" STUBUP FOR A MOTORIZED SHUTTER. LOW VOLTAGE CABLING AND SWITCH BY SHUTTER INSTALLER.

43 PROVIDE 120V POWER AND LOW VOLTAGE CABLING FOR ELEVATOR CURTAIN. CONNECT TO SMOKE DETECTOR AUXILIARY CONTACT.

44 PROVIDE SYSTEM SMOKE DETECTOR(S) WITH AUXILIARY CONTACTS TO SOUND THE 520 HZ BEDROOM AREA SPEAKER. THIS SPEAKER SHALL SOUND ON A LOCAL OR GENERAL ALARM.

45 PROVIDE A WIREMOLD, OR EQUAL, 4000 STEEL IVORY RACEWAY FROM CEILING TO TV OUTLET AND RECEPTACLE.

46 PROVIDE A WIREMOLD, OR EQUAL, 2000 STEEL IVORY RACEWAY FROM EXISTING RECEPTACLE TO NEW DESK RECEPTACLE AT 36" AFF.

47 PROVIDE A PENDANT NURSE CALL FOR EACH BED IN CBRF.

48 PROVIDE A 2" X 4" JUNCTION BOX AND 3/4" STUBUP FOR PANIC BUTTON.

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/08/15	Addendum 1	
2	07/14/15	Addendum 2	

GENERAL NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. ELECTRICAL CONTRACTOR SHALL CUT AND PATCH WALL S AS REQUIRED TO MATCH EXISTING SURFACE WHERE NO NEW FINISHES ARE SPECIFIED. WHERE NEW FINISHES ARE SPECIFIED, ELECTRICAL CONTRACTOR SHALL PREPARE WALL SURFACES SUITABLE FOR NEW FINISHES BY OTHERS. PROVIDE EXTENSION RINGS FOR DEVICES LOCATED ON WALLS TO BE FURRED OUT. CONTINUE ALL CIRCUITS THAT MAY BE INTERRUPTED BY DEMOLITION. NO DEVICE SHALL BE ORPHANED.

C. PROVIDE LIFE SAFETY POWER FOR SMOKE DAMPERS. SEE MECHANICAL PLANS FOR LOCATIONS. SMOKE DAMPERS SHALL CLOSE ON A GENERAL ALARM.

D. ALL LOCATIONS WHERE EXISTING FIRE ALARM, SPEAKER, DATA, AND CABLE T.V. DEVICES AND CABLING WERE DEMOLISHED ARE TO BE REPLACED WITH A NEW DEVICE AND ASSOCIATED CABLING IN THE EXISTING BUILDING.

E. PROVIDE WIRELESS TRANSMITTER FOR GROUP 263.2 DOOR CONTACT.

F. PROVIDE ALL POWER AND LOW VOLTAGE WIRING FOR THE LISTED HARDWARE GROUP.

KEY NOTES:

1 REMOVE EXISTING PANEL AND PROVIDE NEW PANEL. CONNECT TO EXISTING FEEDER. PROVIDE CUTTING AND PATCHING AS REQUIRED TO ACCOMODATE PANEL.

2 PROVIDE NEW RECEPTACLE AND BRANCH CIRCUIT WIRING. UTILIZE EXISTING JUNCTION BOX AND CONDUIT.

3 SEE TYPICAL ROOM LAYOUTS ON SHEET E108 FOR WORK IN THESE ROOMS. PROVIDE CIRCUITING FROM PANEL SHOWN.

4 PROVIDE 2' COPPER GROUND BUS. CONNECT TO MAIN GROUND BUS WITH #6 COPPER.

5 PROVIDE ¾" FIRE TREATED PLYWOOD ON THE NON-DOOR WALLS. PAINT THE OUTER SURFACE WITH GRAY FIRE RETARDENT PAINT.

6 PROVIDE (3) 4" AND (2) 2" PVC CONDUITS FOR TELECOM AND CABLE TV CABLES FROM DATA TO 36" X 48" QUAZITE PULL BOX.

7 PROVIDE TWO 3M QUICK PASS 4" SQUARE FIRE BARRIER PASS THROUGH DEVICES. #98040055141102 OR APPROVED EQUAL. LOCATE ABOVE ACT CEILING.

8 PROVIDE ONE 3M QUICK PASS 4" SQUARE FIRE BARRIER PASSTHROUGH DEVICE. #98040055141 OR APPROVED EQUAL.

9 PROVIDE 50A 2-POLE CONTACTOR AND SWITCH. (SEE DETAIL)

10 INSTALL RECEPTACLE FOR MICROWAVE IN CABINET ABOVE.

11 NOT USED

12 PROVIDE 100A FEEDER TO POOL CONTROL PANEL LOCATED UNDER THE FLOOR. (BY OTHERS)

13 EXTERIOR SPEAKER STROBE FOR SIAMESE CONNECTION. EXTEND CABLES AS REQUIRED.

14 PROVIDE DATA DROP ON 8' SPOOL ABOVE CEILING FOR WIRELESS ACCESS POINT.

15 STAND ALONE 120V SMOKE DETECTOR FOR DENLAR HOOD. MOUNT 20' AWAY FROM DENLAR HOOD.

16 PROVIDE 0-60MIN WINDUP TIMER FOR DENLAR HOOD.

17 PROVIDE 4" CONDUIT FROM A164 TO THE WEST SIDE 24" X 30" PULLBOX.

18 INCLUDE IN BASE BID.

19 TO BE PART OF ADD ALTERNATE.

20 DISCONNECT EXISTING AHU TO BE DEMOLISHED AND PROVIDE CONNECTION TO NEW UNIT. PROVIDE 20A FUSES IN FUSE HOLDER AND PROVIDE 30A DISCONNECT SWITCH AT UNIT.

21 DISCONNECT UNIT AND DEMOLISH FEEDER BACK TO SOURCE.

22 PROVIDE NEW FEEDER, DISCONNECT, AND CONNECTION TO NEW UNIT AS SHOWN.

23 DEMOLISH ALL CONNECTIONS AND FEEDERS ASSOCIATED WITH CONDENSING UNIT S1 TO BE REMOVED. LEAVE ANY CONNECTIONS TO ANY UNITS SERVING OTHER AREAS INTACT.

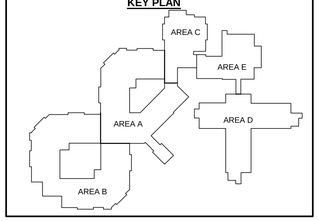
24 PROVIDE NEW 60A/3P FUSED DIS SW FOR H-3 AND FUSES FOR 45A. PROVIDE 50A ALUMINUM FEEDER FOR H-3 AND 50A FUSES FOR THE "40A SPARE" IN SWBD1.

25 RECEPTACLES, DATA, AND LIGHTING IN THIS AREA TO BE PART OF ALTERNATE. OTHER WORK INCLUDED IN BASE BID.

26 PROVIDE REMOTE "BLANK FACE" GFCI DEVICE, LEVITON 7590 OR EQUAL FOR SPA TUB.

27 PROVIDE AIPHONE IX-MV MASTER STATION AND A RY IP 44 CLOSURE BOX FOR INTERFACE TO THE DOOR ACCESS SYSTEM IN THE MAIN DATA ROOM RACK. POWER WITH CRITICAL POWER. PROVIDE DOOR RELEASE AND VIDEO APPS. PROVIDE AN AIPHONE IX-SBIX-ISDVG INTERCOM WITH BACK BOX AT "C" LOCATION.

KEY PLAN

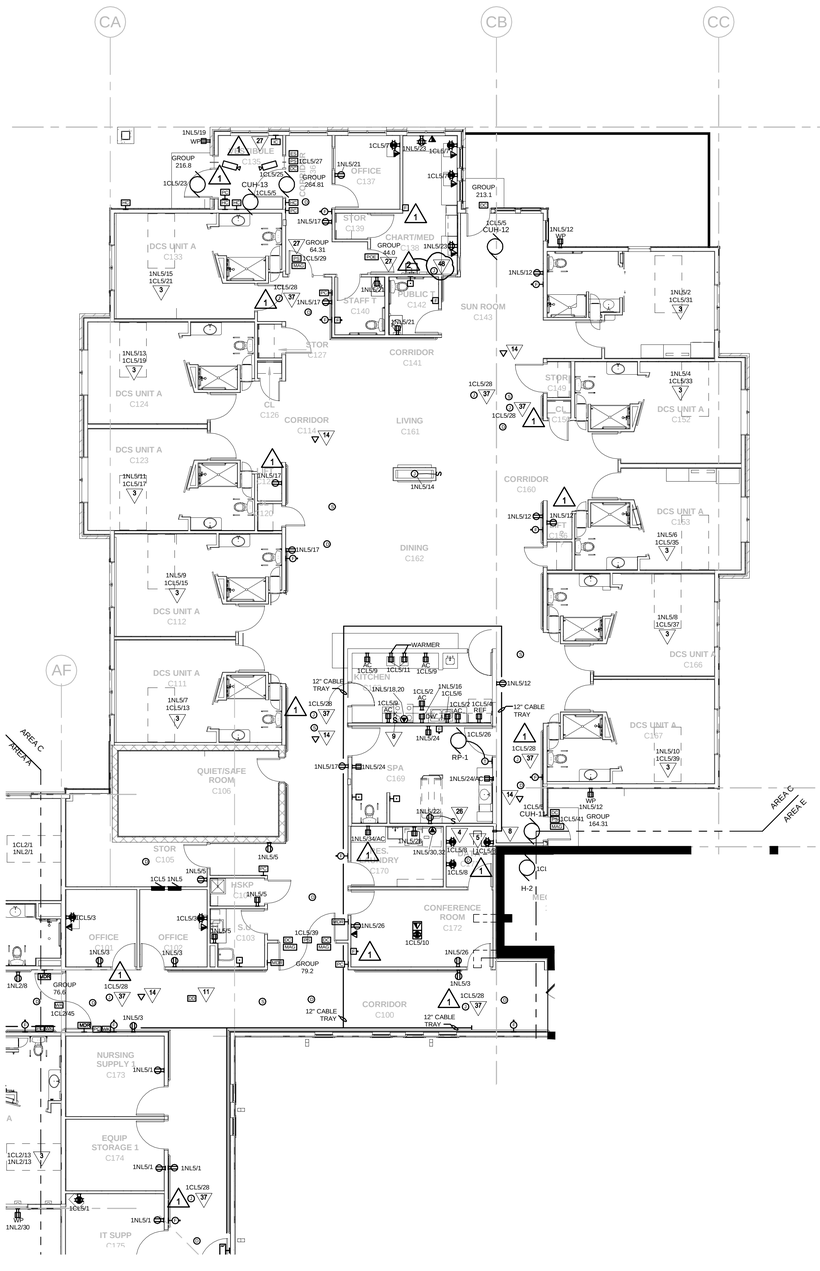


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR POWER & SYSTEMS PLAN - AREA B SNF

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

E102



28 PROVIDE GROUND FAULT CIRCUIT BREAKER.

29 PROVIDE ELECTRONIC LSI 100% RATED ADJUSTABLE CIRCUIT BREAKER.

30 NOT USED.

31 PROVIDE 120V POWER FOR FIRE SUPPRESSION SYSTEM PROVIDED BY DIVISION 23. CONNECT FIRE SUPPRESSION DETECTION SYSTEM TO BUILDING FIRE ALARM SYSTEM.

32 CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.

33 PROVIDE A SQUARE D BOILER KILL SWITCH, MODEL: ZB5AX4. PROVIDE STAINLESS STEEL FACEPLATE AND MOUNT AT 42" AFF. PROVIDE "BOILER SHUTDOWN" LABEL.

34 PROVIDE POE ACCESS CONTROL LOCKSET M12083M TC1P1 PSZ.

35 PROVIDE ARLINGTON DBVSIC-1 RECESSED OUTLET BOX FINISHED WHITE. FEED RECEPTACLES FROM GROUND THROUGH THE BASE OF COLUMN.

36 DEMOLISH EXISTING PANEL. EXTEND 100A FEEDER TO ROOFTOP FOR CONNECTION TO MECHANICAL EQUIPMENT. SEE ROOF PLAN FOR ADDITIONAL INFORMATION.

1 37 MOUNT JUNCTION BOX ABOVE CEILING FOR NURSE CALL LOCATOR POWER.

38 PROVIDE ELEVATOR RECALL SMOKE DETECTOR.

39 PROVIDE WIRELESS NURSE CALL CONSOLE.

40 PROVIDE 120V POWER TO MOTORIZED SCREEN. PROVIDE A JUNCTION BOX FOR LOW VOLTAGE SWITCH WITH 3/4" CONDUIT RUNNING FROM JUNCTION BOX TO MOTORIZED SCREEN.

41 PROVIDE POWER AND DATA FOR CEILING MOUNTED PROJECTOR.

42 PROVIDE POWER AND A JUNCTION BOX AND 3/4" STUBUP FOR A MOTORIZED SHUTTER. LOW VOLTAGE CABLING AND SWITCH BY SHUTTER INSTALLER.

43 PROVIDE 120V POWER AND LOW VOLTAGE CABLING FOR ELEVATOR CURTAIN. CONNECT TO SMOKE DETECTOR AUXILIARY CONTACT.

44 PROVIDE SYSTEM SMOKE DETECTOR(S) WITH AUXILIARY CONTACTS TO SOUND THE 520 HZ BEDROOM AREA SPEAKER. THIS SPEAKER SHALL SOUND ON A LOCAL OR GENERAL ALARM.

45 PROVIDE A WIREMOLD, OR EQUAL, 4000 STEEL IVORY RACEWAY FROM CEILING TO TV OUTLET AND RECEPTACLE.

46 PROVIDE A WIREMOLD, OR EQUAL, 2000 STEEL IVORY RACEWAY FROM EXISTING RECEPTACLE TO NEW DESK RECEPTACLE AT 36" AFF.

47 PROVIDE A PENDANT NURSE CALL FOR EACH BED IN CBRF.

2 48 PROVIDE A 2" X 4" JUNCTION BOX AND 3/4" STUBUP FOR PANIC BUTTON.

Horty Elving™

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/08/15	Addendum 1	
2	07/14/15	Addendum 2	

GENERAL NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. ELECTRICAL CONTRACTOR SHALL CUT AND PATCH WALL S AS REQUIRED TO MATCH EXISTING SURFACE WHERE NO NEW FINISHES ARE SPECIFIED. WHERE NEW FINISHES ARE SPECIFIED, ELECTRICAL CONTRACTOR SHALL PREPARE WALL SURFACES SUITABLE FOR NEW FINISHES BY OTHERS. PROVIDE EXTENSION RINGS FOR DEVICES LOCATED ON WALLS TO BE FURRED OUT. CONTINUE ALL CIRCUITS THAT MAY BE INTERRUPTED BY DEMOLITION. NO DEVICE SHALL BE ORPHANED.

C. PROVIDE LIFE SAFETY POWER FOR SMOKE DAMPERS. SEE MECHANICAL PLANS FOR LOCATIONS. SMOKE DAMPERS SHALL CLOSE ON A GENERAL ALARM.

D. ALL LOCATIONS WHERE EXISTING FIRE ALARM, SPEAKER, DATA, AND CABLE T.V. DEVICES AND CABLING WERE DEMOLISHED ARE TO BE REPLACED WITH A NEW DEVICE AND ASSOCIATED CABLING IN THE EXISTING BUILDING.

E. PROVIDE WIRELESS TRANSMITTER FOR GROUP 263.2 DOOR CONTACT.

F. PROVIDE ALL POWER AND LOW VOLTAGE WIRING FOR THE LISTED HARDWARE GROUP.

KEY NOTES:

1 REMOVE EXISTING PANEL AND PROVIDE NEW PANEL. CONNECT TO EXISTING FEEDER. PROVIDE CUTTING AND PATCHING AS REQUIRED TO ACCOMODATE PANEL.

2 PROVIDE NEW RECEPTACLE AND BRANCH CIRCUIT WIRING. UTILIZE EXISTING JUNCTION BOX AND CONDUIT.

3 SEE TYPICAL ROOM LAYOUTS ON SHEET E108 FOR WORK IN THESE ROOMS. PROVIDE CIRCUITING FROM PANEL SHOWN.

4 PROVIDE 2' COPPER GROUND BUS. CONNECT TO MAIN GROUND BUS WITH #6 COPPER.

5 PROVIDE $\frac{3}{4}$" FIRE TREATED PLYWOOD ON THE NON-DOOR WALLS. PAINT THE OUTER SURFACE WITH GRAY FIRE RETARDENT PAINT.

6 PROVIDE (3) 4" AND (2) 2" PVC CONDUITS FOR TELECOM AND CABLE TV CABLES FROM DATA TO 36" X 48" QUAZITE PULL BOX.

7 PROVIDE TWO 3M QUICK PASS 4" SQUARE FIRE BARRIER PASS THROUGH DEVICES. #98040055141O2 OR APPROVED EQUAL. LOCATE ABOVE ACT CEILING.

8 PROVIDE ONE 3M QUICK PASS 4" SQUARE FIRE BARRIER PASSTHROUGH DEVICE. #98040055141 OR APPROVED EQUAL.

9 PROVIDE 50A 2-POLE CONTACTOR AND SWITCH. (SEE DETAIL)

10 INSTALL RECEPTACLE FOR MICROWAVE IN CABINET ABOVE.

11 NOT USED

12 PROVIDE 100A FEEDER TO POOL CONTROL PANEL LOCATED UNDER THE FLOOR. (BY OTHERS)

13 EXTERIOR SPEAKER STROBE FOR SIAMESE CONNECTION. EXTEND CABLES AS REQUIRED.

14 PROVIDE DATA DROP ON 8' SPOOL ABOVE CEILING FOR WIRELESS ACCESS POINT.

15 STAND ALONE 120V SMOKE DETECTOR FOR DENLAR HOOD. MOUNT 20' AWAY FROM DENLAR HOOD.

16 PROVIDE 0-60MIN WINDUP TIMER FOR DENLAR HOOD.

17 PROVIDE 4" CONDUIT FROM A164 TO THE WEST SIDE 24" X 30" PULLBOX.

18 INCLUDE IN BASE BID.

19 TO BE PART OF ADD ALTERNATE.

20 DISCONNECT EXISTING AHU TO BE DEMOLISHED AND PROVIDE CONNECTION TO NEW UNIT. PROVIDE 20A FUSES IN FUSE HOLDER AND PROVIDE 30A DISCONNECT SWITCH AT UNIT.

21 DISCONNECT UNIT AND DEMOLISH FEEDER BACK TO SOURCE.

22 PROVIDE NEW FEEDER, DISCONNECT, AND CONNECTION TO NEW UNIT AS SHOWN.

23 DEMOLISH ALL CONNECTIONS AND FEEDERS ASSOCIATED WITH CONDENSING UNIT S1 TO BE REMOVED. LEAVE ANY CONNECTIONS TO ANY UNITS SERVING OTHER AREAS INTACT.

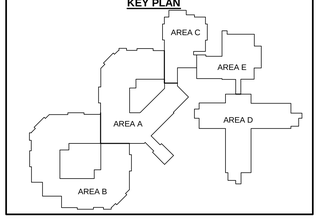
24 PROVIDE NEW 60A/3P FUSED DIS SW FOR H-3 AND FUSES FOR 45A. PROVIDE 50A ALUMINUM FEEDER FOR H-3 AND 50A FUSES FOR THE "40A SPARE" IN SWBD1.

25 RECEPTACLES, DATA, AND LIGHTING IN THIS AREA TO BE PART OF ALTERNATE. OTHER WORK INCLUDED IN BASE BID.

26 PROVIDE REMOTE "BLANK FACE" GFCI DEVICE, LEVITON 7590 OR EQUAL FOR SPA TUB.

1 27 PROVIDE AIPHONE IX-MV MASTER STATION AND A RV IP A4 CLOSURE BOX FOR INTERFACE TO THE DOOR ACCESS SYSTEM IN THE MAIN DATA ROOM RACK. POWER WITH CRITICAL POWER. PROVIDE DOOR RELEASE AND VIDEO APPS. PROVIDE AN AIPHONE IX-SBX-ISDVG INTERCOM WITH BACK BOX AT "C" LOCATION.

KEY PLAN

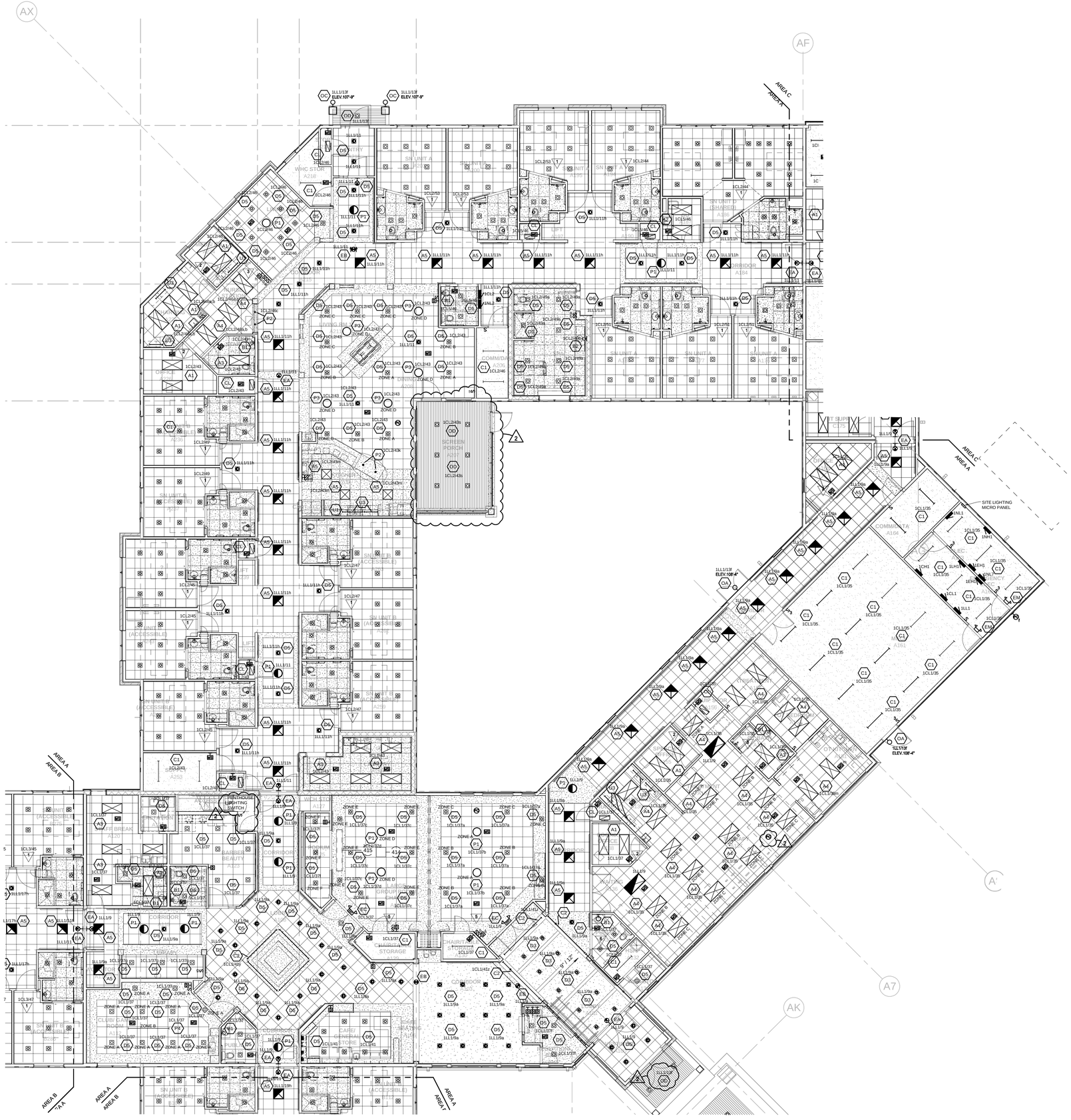


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

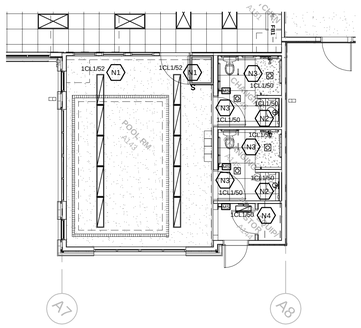
FIRST FLOOR POWER & SYSTEMS PLAN - AREA C DEMENTIA/CRISIS STABILIZATION

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

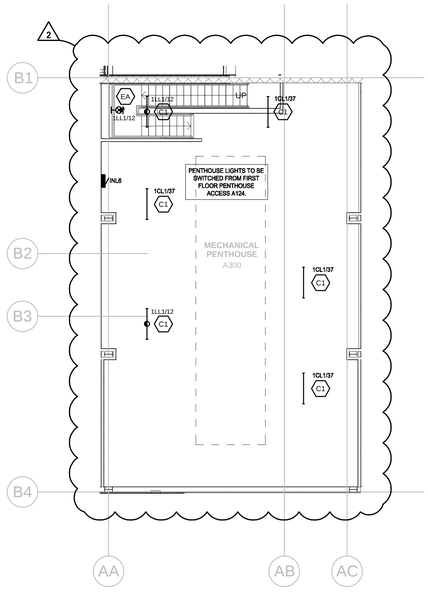
E103



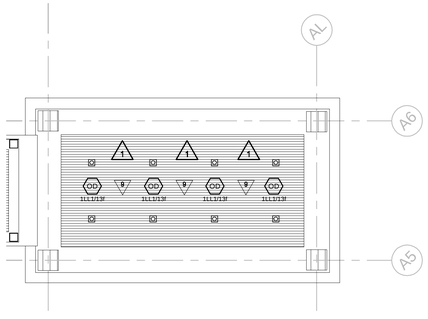
1 FIRST FLOOR PLAN - AREA A
E201 1/8" = 1'-0"



2 THERAPY POOL - ADD ALTERNATE
E201 1/8" = 1'-0"



3 PENTHOUSE PLAN
E201 1/8" = 1'-0"



4 AREA A CANOPY
E201 1/8" = 1'-0"

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 **F** 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/08/15	Addendum 1	
2	07/14/15	Addendum 2	

GENERAL LIGHTING NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. NOT ALL LUMINAIRES ARE IDENTIFIED BY TYPE. WHEN A LUMINAIRE IS NOT IDENTIFIED IT SHALL BE THE SAME AS THOSE IDENTIFIED AROUND IT. CONTACT ELECTRICAL ENGINEER WITH QUESTIONS.

C. NOT ALL LUMINAIRE SWITCHES ARE IDENTIFIED. WHEN A SWITCH LEG IS NOT INDICATED THE LUMINAIRE SHALL BE PLACED ON THE SWITCH FOR THAT SPACE. IF NO SWITCH EXISTS THE LUMINAIRE WILL NOT BE SWITCHED. EMERGENCY EGRESS LIGHTING WILL NOT BE SWITCHED.

D. WALL-MOUNTED EXIT SIGNS SHALL BE MOUNTED 6" ABOVE THE DOOR, WHEREVER POSSILE.

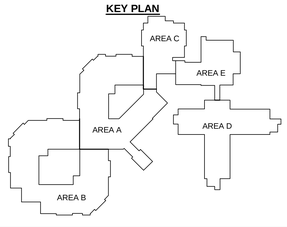
E. VERIFY MOUNTING HEIGHTS WITH ARCHITECTURAL ELEVATIONS.

F. PROVIDE A "POWER PLUG" TYPE LUMINAIRE DISCONNECT FOR EVERY BALLASTED LIGHT TO MEET NEW NEC CODE 410.130(B).

KEY NOTES:

1. SEE SHEET E207 FOR ENLARGED PLANS.
2. PROVIDE DUAL LEVEL WALL MOUNTED OCCUPANCY SENSOR.
3. SWITCH CORRIDOR LIGHTS FROM CHARTING.
4. LIGHTING PANEL AND OVERRIDE SWITCHES.
5. PROVIDE DAYLIGHT HARVESTING CONTROL FOR ALL THE A128 D5 LIGHTS. THEY SHALL DIM VIA PHOTOCELL. THE D5 LIGHTS SHALL ALSO HAVE WALL MOUNTED DIMMERS AND CEILING MOUNTED OCCUPANCY SENSORS. WALL MOUNTED DIMMERS SHALL OVERRIDE THE DAYLIGHT HARVESTING DIMMING PHOTOCELL.
6. CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.
7. CONNECT TO EXISTING AREA LIGHTING CIRCUIT.
8. REINSTALL LIGHTS.
9. PROVIDE POWER VIA UNDERGROUND FEEDER FUNING UP THE INSIDE OF CANOPY COLUMN. CANOPY AND BUILDING ARE NOT CONNECTED.
10. DIMMER, LUTRON MRF2-6ND-AL (LIGHT ALMOND)
11. WIRELESS DIMMER, LUTRON PJ2-3BRL-AL (LIGHT ALMOND) PROVIDE ALL PROGRAMMING SO THAT EACH PAIR OF DIMMERS ARE MATCHED AND DO NOT AFFECT OTHER WIRELESS DIMMERS.
12. CONNECT STAIRWELL LIGHTS TO LIFE SAFETY CIRCUIT.
13. CONNECT NEW EXTERIOR LIGHT TO OLD LIGHT JUNCTION BOX AND LIFE SAFETY CIRCUIT.

KEY PLAN

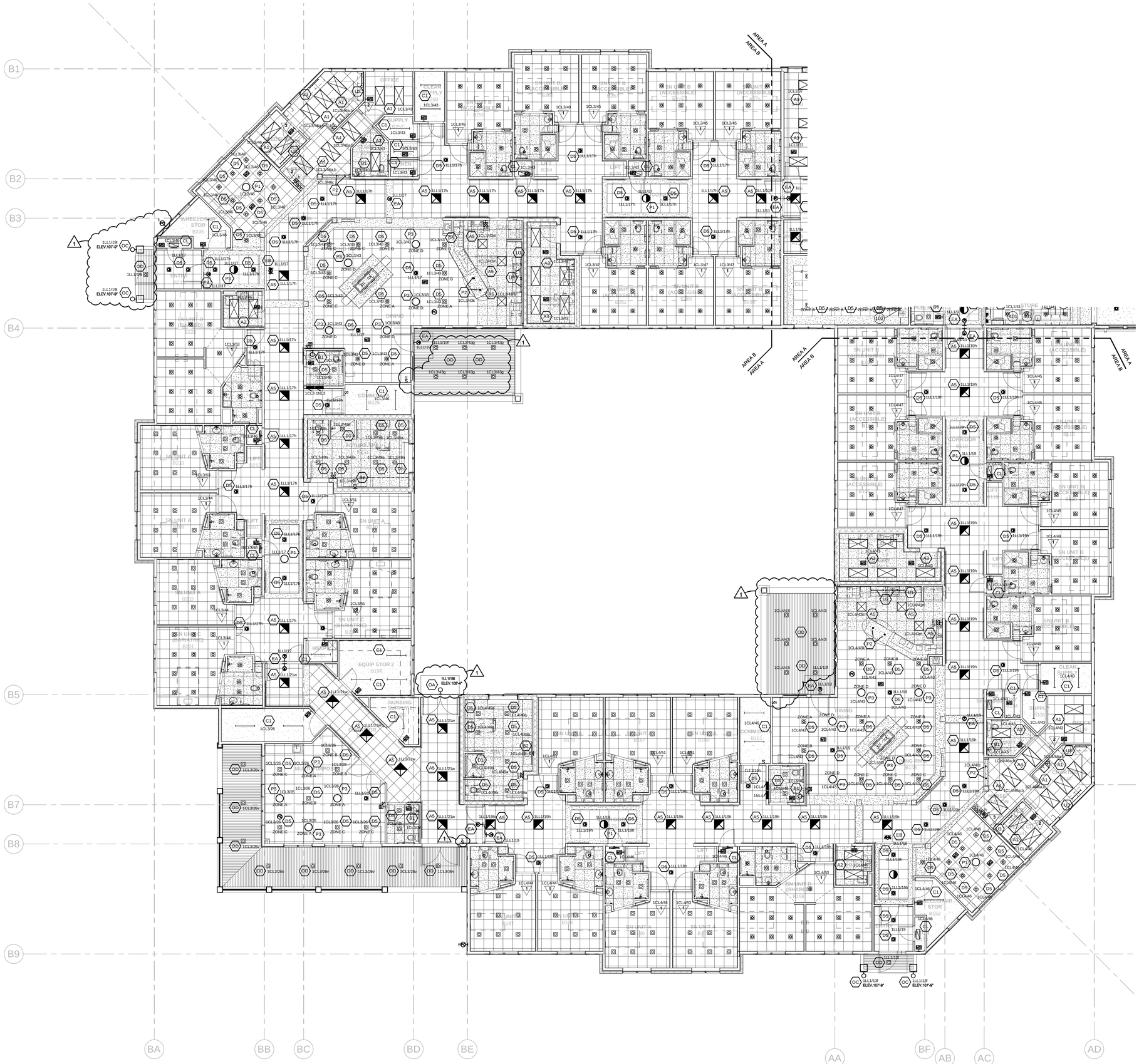


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR LIGHTING PLAN - AREA A SNF & TOWN CENTER

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

E201



Horty Elving™

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 **F** 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/14/15	Addendum 2	

GENERAL LIGHTING NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. NOT ALL LUMINAIRES ARE IDENTIFIED BY TYPE. WHEN A LUMINAIRE IS NOT IDENTIFIED IT SHALL BE THE SAME AS THOSE IDENTIFIED AROUND IT. CONTACT ELECTRICAL ENGINEER WITH QUESTIONS.

C. NOT ALL LUMINAIRE SWITCHES ARE IDENTIFIED. WHEN A SWITCH LEG IS NOT INDICATED THE LUMINAIRE SHALL BE PLACED ON THE SWITCH FOR THAT SPACE. IF NO SWITCH EXISTS THE LUMINAIRE WILL NOT BE SWITCHED. EMERGENCY EGRESS LIGHTING WILL NOT BE SWITCHED.

D. WALL-MOUNTED EXIT SIGNS SHALL BE MOUNTED 6" ABOVE THE DOOR, WHEREVER POSSILE.

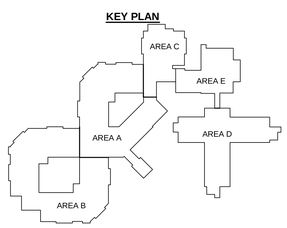
E. VERIFY MOUNTING HEIGHTS WITH ARCHITECTURAL ELEVATIONS.

F. PROVIDE A "POWER PLUG" TYPE LUMINAIRE DISCONNECT FOR EVERY BALLASTED LIGHT TO MEET NEW NEC CODE 410.130(B).

KEY NOTES:

1. SEE SHEET E207 FOR ENLARGED PLANS.
2. PROVIDE DUAL LEVEL WALL MOUNTED OCCUPANCY SENSOR.
3. SWITCH CORRIDOR LIGHTS FROM CHARTING.
4. LIGHTING PANEL AND OVERRIDE SWITCHES.
5. PROVIDE DAYLIGHT HARVESTING CONTROL FOR ALL THE A128 D5 LIGHTS. THEY SHALL DIM VIA PHOTOCELL. THE D5 LIGHTS SHALL ALSO HAVE WALL MOUNTED DIMMERS AND CEILING MOUNTED OCCUPANCY SENSORS. WALL MOUNTED DIMMERS SHALL OVERRIDE THE DAYLIGHT HARVESTING DIMMING PHOTOCELL.
6. CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.
7. CONNECT TO EXISTING AREA LIGHTING CIRCUIT.
8. REINSTALL LIGHTS.
9. PROVIDE POWER VIA UNDERGROUND FEEDER FUNING UP THE INSIDE OF CANOPY COLUMN. CANOPY AND BUILDING ARE NOT CONNECTED.
10. DIMMER, LUTRON MRF2-6ND-AL (LIGHT ALMOND)
11. WIRELESS DIMMER, LUTRON PJ2-3BRL-AL (LIGHT ALMOND) PROVIDE ALL PROGRAMMING SO THAT EACH PAIR OF DIMMERS ARE MATCHED AND DO NOT AFFECT OTHER WIRELESS DIMMERS.
12. CONNECT STAIRWELL LIGHTS TO LIFE SAFETY CIRCUIT.
13. CONNECT NEW EXTERIOR LIGHT TO OLD LIGHT JUNCTION BOX AND LIFE SAFETY CIRCUIT.

KEY PLAN

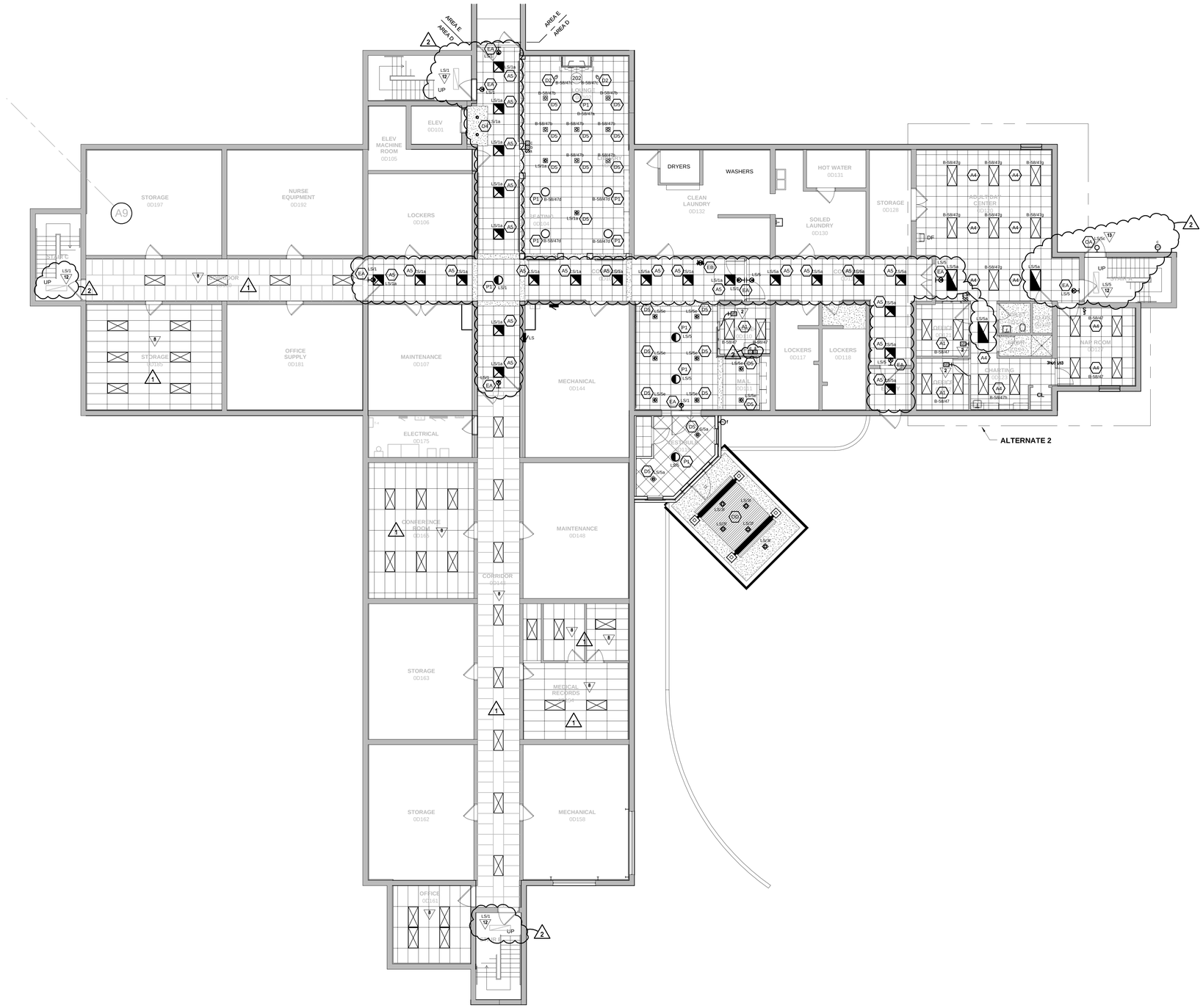


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST FLOOR LIGHTING PLAN - AREA B SNF

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

E202



Horty Elving™

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 **F** 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/08/15	Addendum 1	
2	07/14/15	Addendum 2	

GENERAL LIGHTING NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. NOT ALL LUMINAIRES ARE IDENTIFIED BY TYPE. WHEN A LUMINAIRE IS NOT IDENTIFIED IT SHALL BE THE SAME AS THOSE IDENTIFIED AROUND IT. CONTACT ELECTRICAL ENGINEER WITH QUESTIONS.

C. NOT ALL LUMINAIRE SWITCHES ARE IDENTIFIED. WHEN A SWITCH LEG IS NOT INDICATED THE LUMINAIRE SHALL BE PLACED ON THE SWITCH FOR THAT SPACE. IF NO SWITCH EXISTS THE LUMINAIRE WILL NOT BE SWITCHED. EMERGENCY EGRESS LIGHTING WILL NOT BE SWITCHED.

D. WALL-MOUNTED EXIT SIGNS SHALL BE MOUNTED 6" ABOVE THE DOOR, WHEREVER POSSILE.

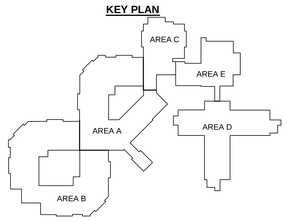
E. VERIFY MOUNTING HEIGHTS WITH ARCHITECTURAL ELEVATIONS.

F. PROVIDE A "POWER PLUG" TYPE LUMINAIRE DISCONNECT FOR EVERY BALLASTED LIGHT TO MEET NEW NEC CODE 410.130(B).

KEY NOTES:

1. SEE SHEET E207 FOR ENLARGED PLANS.
2. PROVIDE DUAL LEVEL WALL MOUNTED OCCUPANCY SENSOR.
3. SWITCH CORRIDOR LIGHTS FROM CHARTING.
4. LIGHTING PANEL AND OVERRIDE SWITCHES.
5. PROVIDE DAYLIGHT HARVESTING CONTROL FOR ALL THE A128 D5 LIGHTS. THEY SHALL DIM VIA PHOTOCELL. THE D5 LIGHTS SHALL ALSO HAVE WALL MOUNTED DIMMERS AND CEILING MOUNTED OCCUPANCY SENSORS. WALL MOUNTED DIMMERS SHALL OVERRIDE THE DAYLIGHT HARVESTING DIMMING PHOTOCELL.
6. CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.
7. CONNECT TO EXISTING AREA LIGHTING CIRCUIT.
8. REINSTALL LIGHTS. 1
9. PROVIDE POWER VIA UNDERGROUND FEEDER FUNING UP THE INSIDE OF CANOPY COLUMN. CANOPY AND BUILDING ARE NOT CONNECTED.
10. DIMMER, LUTRON MRF2-6ND-AL (LIGHT ALMOND)
11. WIRELESS DIMMER, LUTRON PJ2-3BRL-AL (LIGHT ALMOND) PROVIDE ALL PROGRAMMING SO THAT EACH PAIR OF DIMMERS ARE MATCHED AND DO NOT AFFECT OTHER WIRELESS DIMMERS.
12. CONNECT STAIRWELL LIGHTS TO LIFE SAFETY CIRCUIT. 2
13. CONNECT NEW EXTERIOR LIGHT TO OLD LIGHT JUNCTION BOX AND LIFE SAFETY CIRCUIT.

KEY PLAN

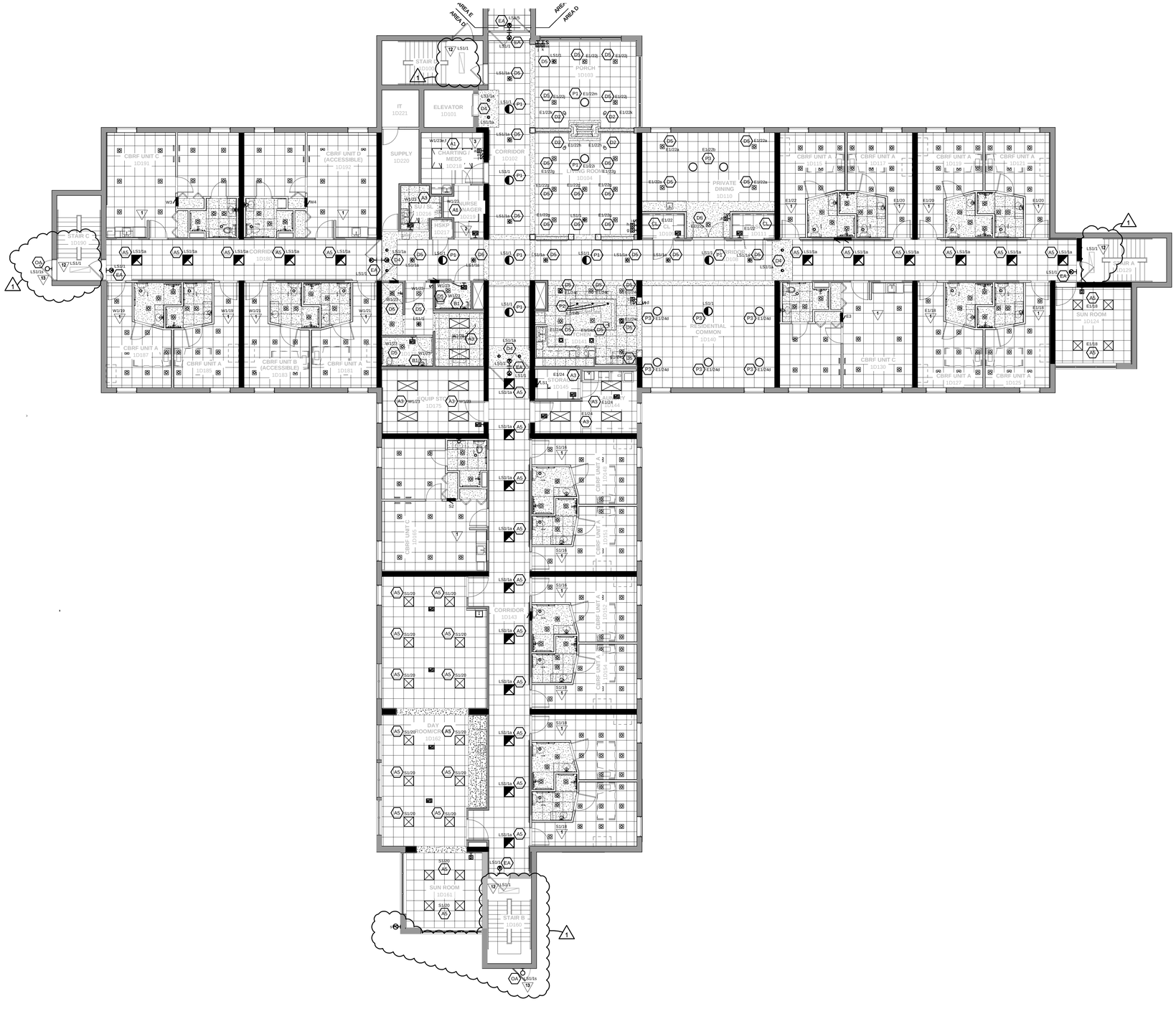


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

BASEMENT LIGHTING PLAN - AREA D CBRF

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

E204



Horty Elving™

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/14/15	Addendum 2	

GENERAL LIGHTING NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. NOT ALL LUMINAIRES ARE IDENTIFIED BY TYPE. WHEN A LUMINAIRE IS NOT IDENTIFIED IT SHALL BE THE SAME AS THOSE IDENTIFIED AROUND IT. CONTACT ELECTRICAL ENGINEER WITH QUESTIONS.

C. NOT ALL LUMINAIRE SWITCHES ARE IDENTIFIED. WHEN A SWITCH LEG IS NOT INDICATED THE LUMINAIRE SHALL BE PLACED ON THE SWITCH FOR THAT SPACE. IF NO SWITCH EXISTS THE LUMINAIRE WILL NOT BE SWITCHED. EMERGENCY EGRESS LIGHTING WILL NOT BE SWITCHED.

D. WALL-MOUNTED EXIT SIGNS SHALL BE MOUNTED 6" ABOVE THE DOOR, WHEREVER POSSILE.

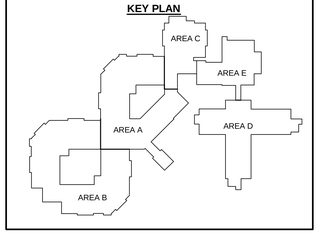
E. VERIFY MOUNTING HEIGHTS WITH ARCHITECTURAL ELEVATIONS.

F. PROVIDE A "POWER PLUG" TYPE LUMINAIRE DISCONNECT FOR EVERY BALLASTED LIGHT TO MEET NEW NEC CODE 410.130(B).

KEY NOTES:

1. SEE SHEET E207 FOR ENLARGED PLANS.
2. PROVIDE DUAL LEVEL WALL MOUNTED OCCUPANCY SENSOR.
3. SWITCH CORRIDOR LIGHTS FROM CHARTING.
4. LIGHTING PANEL AND OVERRIDE SWITCHES.
5. PROVIDE DAYLIGHT HARVESTING CONTROL FOR ALL THE A128 D5 LIGHTS. THEY SHALL DIM VIA PHOTOCELL. THE D5 LIGHTS SHALL ALSO HAVE WALL MOUNTED DIMMERS AND CEILING MOUNTED OCCUPANCY SENSORS. WALL MOUNTED DIMMERS SHALL OVERRIDE THE DAYLIGHT HARVESTING DIMMING PHOTOCELL.
6. CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.
7. CONNECT TO EXISTING AREA LIGHTING CIRCUIT.
8. REINSTALL LIGHTS.
9. PROVIDE POWER VIA UNDERGROUND FEEDER FUNING UP THE INSIDE OF CANOPY COLUMN. CANOPY AND BUILDING ARE NOT CONNECTED.
10. DIMMER, LUTRON MRF2-6ND-AL (LIGHT ALMOND)
11. WIRELESS DIMMER, LUTRON PJ2-3BRL-AL (LIGHT ALMOND) PROVIDE ALL PROGRAMMING SO THAT EACH PAIR OF DIMMERS ARE MATCHED AND DO NOT AFFECT OTHER WIRELESS DIMMERS.
12. CONNECT STAIRWELL LIGHTS TO LIFE SAFETY CIRCUIT.
13. CONNECT NEW EXTERIOR LIGHT TO OLD LIGHT JUNCTION BOX AND LIFE SAFETY CIRCUIT.

KEY PLAN

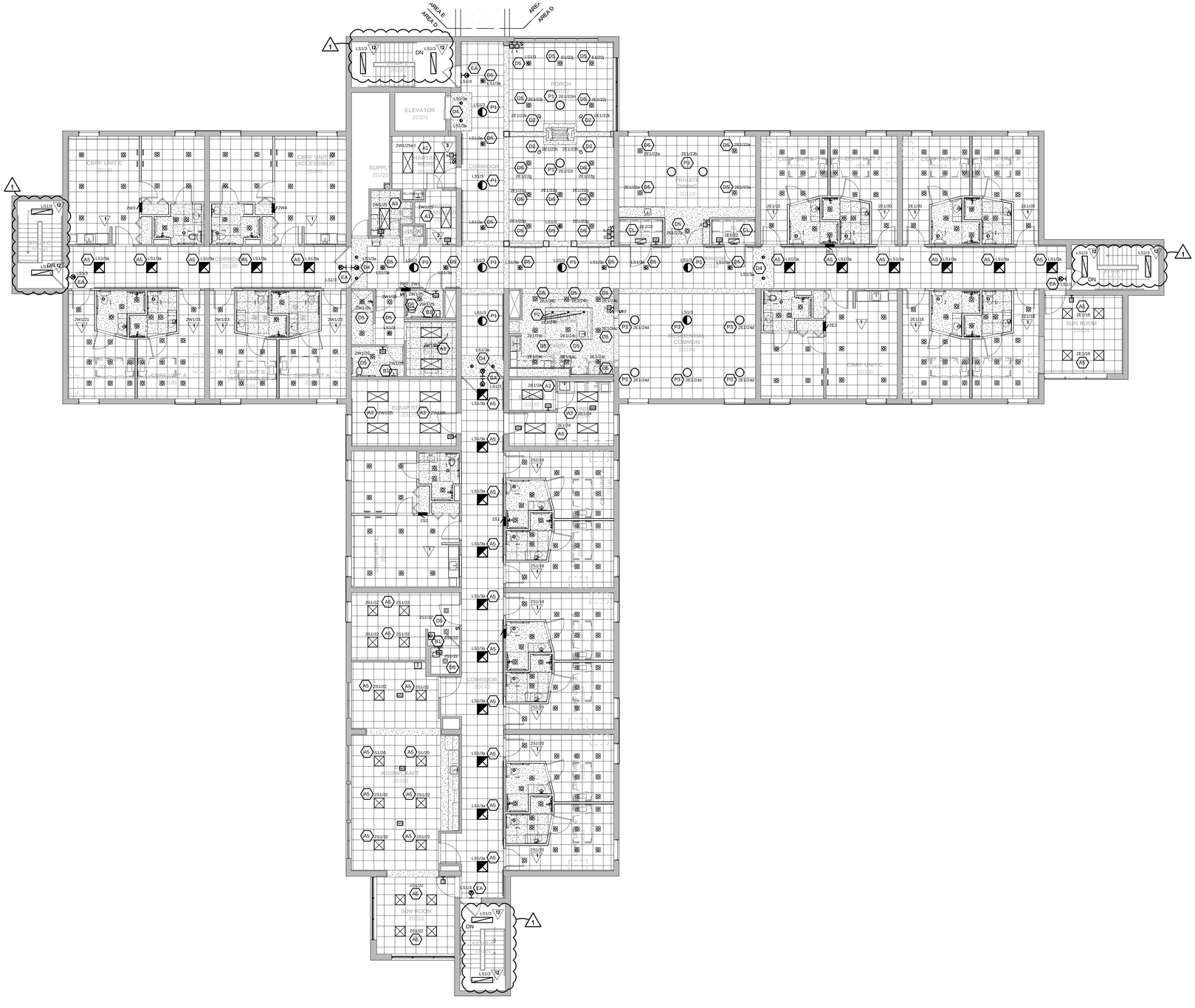


© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

FIRST LIGHTING PLAN - AREA D CBRF

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

E205



Horty Elving™

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/14/15	Addendum 2	

GENERAL LIGHTING NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. NOT ALL LUMINAIRES ARE IDENTIFIED BY TYPE. WHEN A LUMINAIRE IS NOT IDENTIFIED IT SHALL BE THE SAME AS THOSE IDENTIFIED AROUND IT. CONTACT ELECTRICAL ENGINEER WITH QUESTIONS.

C. NOT ALL LUMINAIRE SWITCHES ARE IDENTIFIED. WHEN A SWITCH LEG IS NOT INDICATED THE LUMINAIRE SHALL BE PLACED ON THE SWITCH FOR THAT SPACE. IF NO SWITCH EXISTS THE LUMINAIRE WILL NOT BE SWITCHED. EMERGENCY EGRESS LIGHTING WILL NOT BE SWITCHED.

D. WALL-MOUNTED EXIT SIGNS SHALL BE MOUNTED 6" ABOVE THE DOOR, WHEREVER POSSILE.

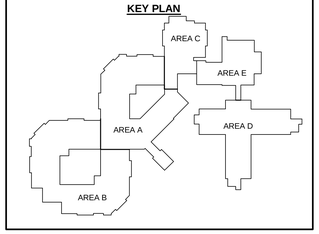
E. VERIFY MOUNTING HEIGHTS WITH ARCHITECTURAL ELEVATIONS.

F. PROVIDE A "POWER PLUG" TYPE LUMINAIRE DISCONNECT FOR EVERY BALLASTED LIGHT TO MEET NEW NEC CODE 410.130(B).

KEY NOTES:

1. SEE SHEET E207 FOR ENLARGED PLANS.
2. PROVIDE DUAL LEVEL WALL MOUNTED OCCUPANCY SENSOR.
3. SWITCH CORRIDOR LIGHTS FROM CHARTING.
4. LIGHTING PANEL AND OVERRIDE SWITCHES.
5. PROVIDE DAYLIGHT HARVESTING CONTROL FOR ALL THE A128 D5 LIGHTS. THEY SHALL DIM VIA PHOTOCELL. THE D5 LIGHTS SHALL ALSO HAVE WALL MOUNTED DIMMERS AND CEILING MOUNTED OCCUPANCY SENSORS. WALL MOUNTED DIMMERS SHALL OVERRIDE THE DAYLIGHT HARVESTING DIMMING PHOTOCELL.
6. CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.
7. CONNECT TO EXISTING AREA LIGHTING CIRCUIT.
8. REINSTALL LIGHTS.
9. PROVIDE POWER VIA UNDERGROUND FEEDER FUNING UP THE INSIDE OF CANOPY COLUMN. CANOPY AND BUILDING ARE NOT CONNECTED.
10. DIMMER, LUTRON MRF2-6ND-AL (LIGHT ALMOND)
11. WIRELESS DIMMER, LUTRON PJ2-3BRL-AL (LIGHT ALMOND) PROVIDE ALL PROGRAMMING SO THAT EACH PAIR OF DIMMERS ARE MATCHED AND DO NOT AFFECT OTHER WIRELESS DIMMERS.
12. CONNECT STAIRWELL LIGHTS TO LIFE SAFETY CIRCUIT.
13. CONNECT NEW EXTERIOR LIGHT TO EXT LIGHT JUNCTION BOX AND LIFE SAFETY CIRCUIT.

KEY PLAN



© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

SECOND FLOOR LIGHTING PLAN - AREA D CBRF

Scale	Date	Project Number
1/8" = 1'-0"	06/23/15	146038

E206

COPPER FEEDER SCHEDULE

THREE PHASE THREE WIRE & GROUND FEEDER					THREE PHASE FOUR WIRE & GROUND FEEDER				
DESIGNATION	CONDUCTOR	GROUND	CONDUIT	AMPS	DESIGNATION	CONDUCTOR	GROUND	CONDUIT	AMPS
20D	3#12	12	1/2"	20A	20Y	4#12	12	1/2"	20A
30D	3#10	10	3/4"	30A	30Y	4#10	10	3/4"	30A
40D	3#8	10	3/4"	40A	40Y	4#8	10	1"	40A
50D	3#8	10	3/4"	50A	50Y	4#8	10	1"	50A
60D	3#6	10	1"	60A	60Y	4#6	10	1"	60A
70D	3#4	8	1-1/4"	70A	70Y	4#4	8	1-1/4"	70A
80D	3#4	8	1-1/4"	80A	80Y	4#4	8	1-1/4"	80A
90D	3#3	8	1-1/4"	90A	90Y	4#3	8	1-1/4"	90A
100D	3#3	8	1-1/4"	100A	100Y	4#3	8	1-1/4"	100A
125D	3#1	6	1-1/2"	125A	125Y	4#1	6	1-1/2"	125A
150D	3#1/0	6	1-1/2"	150A	150Y	4#1/0	6	2"	150A
175D	3#2/0	6	1-1/2"	175A	175Y	4#2/0	6	2"	175A
200D	3#3/0	6	2"	200A	200Y	4#3/0	6	2"	200A
225D	3#4/0	4	2"	225A	225Y	4#4/0	4	2-1/2"	225A
250D	3#250	4	2-1/2"	250A	250Y	4#250	4	2-1/2"	250A
300D	3#350	4	2-1/2"	300A	300Y	4#350	4	3"	300A
400D	3#500	3	3"	400A	400Y	4#500	3	3-1/2"	400A
500D	(2)#250	(2) 2	(2) 2-1/2"	500A	500Y	(2)#250	(2) 2	(2) 3"	500A
600D	(2)#350	(2) 1	(2) 3"	600A	600Y	(2)#350	(2) 1	(2) 3"	600A
800D	(2)#500	(2) 1/0	(2) 3"	800A	800Y	(2)#500	(2) 1/0	(2) 3-1/2"	800A
1000D	(4)#250	(4) 2/0	(4) 3-1/2"	1000A	1000Y	(4)#250	(4) 2/0	(4) 3"	1000A
1200D	(4)#350	(4) 3/0	(4) 3"	1200A	1200Y	(4)#350	(4) 3/0	(4) 3"	1200A
1600D	(5)#400	(5) 4/0	(5) 3"	1600A	1600Y	(5)#400	(5) 4/0	(5) 3-1/2"	1600A
1600D	(4)#500	(4) 4/0	(4) 3-1/2"	1600A	1600Y*	(4)#500	(4) 4/0	(4) 4"	1600A
2000D	(6)#400	(6) 250	(6) 3"	2000A	2000Y	(6)#400	(6) 250	(6) 3-1/2"	2000A
2500D	(7)#500	(7) 350	(7) 3"	2500A	2500Y	(7)#500	(7) 350	(7) 3-1/2"	2500A
3000D	(8)#500	(8) 400	(8) 3-1/2"	3000A	3000Y	(8)#500	(8) 400	(8) 4"	3000A
4000D	(11)#500	(11)500	(11) 3-1/2"	4000A	4000Y	(11)#500	(11)500	(11) 4"	4000A

ALUMINUM FEEDER SIZE SCHEDULE

FEEDER MARK	CONDUIT SETS	CONDUIT SIZE	CONDUIT TYPE	ALUMINUM WIRE QTY	ALUMINUM WIRE SIZE	ALUMINUM WIRE TYPE THHN	GND (G)	(SCHEDULE 40) NOTES EMT WG
20	1	3/4"	EMT	3	#10	THHN	#8	(3/4" C) WG
30N	1	3/4"	EMT	4	#10	THHN	#8	(3/4" C) WG
45	1	3/4"	EMT	3	#6	THHN	#6	(3/4" C) WG
50	1	3/4"	EMT	3	#6	THHN	#8	(3/4" C) WG
50N	1	3/4"	EMT	4	#6	THHN	#8	(3" C) WG
60	1	3/4"	EMT	3	#4	THHN	#6	(3" C) WG
60N	1	3/4"	EMT	4	#4	THHN	#6	(3 1/4" C) WG
70	1	3/4"	EMT	3	#4	THHN	#6	(3" C) WG
70N	1	1"	EMT	4	#4	THHN	#6	(3 1/4" C) WG
80	1	1"	EMT	3	#3	THHN	#6	(3 1/4" C) WG
80N	1	1"	EMT	4	#3	THHN	#6	(3 1/4" C) WG
90	1	1"	EMT	3	#2	THHN	#6	(3 1/4" C) WG
100	1	1 1/4"	EMT	3	#1	THHN	#6	(3 1/2" C) WG
100N	1	1 1/4"	EMT	4	#1	THHN	#6	(3 1/2" C) WG
125	1	1 1/4"	EMT	3	#1/0	THHN	#4	(3 1/2" C) WG
125N	1	1 1/2"	EMT	4	#1/0	THHN	#4	(3" C) WG
150	1	1 1/2"	EMT	3	#2/0	THHN	#4	(3" C) WG
150N	1	2"	EMT	4	#3/0	THHN	#4	(3 1/2" C) WG
175	1	2"	EMT	3	#4/0	THHN	#4	(3 1/2" C) WG
175N	1	2"	EMT	4	#4/0	THHN	#4	(3 1/2" C) WG
200	1	2"	EMT	3	#250	THHN	#4	(3 1/2" C) WG
200N	1	2 1/2"	EMT	4	#250	THHN	#4	(3" C) WG
225	1	2"	EMT	3	#300	THHN	#2	(3 1/2" C) WG
225N	1	2 1/2"	EMT	4	#300	THHN	#2	(3" C) WG
250N	1	2 1/2"	EMT	5	#4/0	THHN	#2	(3 1/2" C) WG
225VN	1	2"	EMT	5	#300	THHN	#2	(3" C) WG
250	1	2 1/2"	EMT	3	#350	THHN	#2	(3" C) WG
250N	1	2 1/2"	EMT	4	#350	THHN	#2	(3" C) WG
300	1	2 1/2"	EMT	3	#500	THHN	#2	(3" C) WG
300N	1	2"	EMT	4	#500	THHN	#2	(3 1/2" C) WG
350	1	2"	EMT	3	#600	THHN	#1	(3 1/2" C) WG
350N	1	3 1/2"	EMT	4	#600	THHN	#1	(4" C) WG
400	1	3 1/2"	EMT	3	#750	THHN	#1	(4" C) WG
400N	1	4"	EMT	4	#750	THHN	#1	(3" C) WG
450	2	3"	EMT	3	#300	THHN	#1/0	(2 1/2" C) WG
450N	2	2 1/2"	EMT	4	#300	THHN	#1/0	(2" C) WG
500	2	2 1/2"	EMT	3	#350	THHN	#1/0	(2" C) WG
500N	2	2 1/2"	EMT	4	#350	THHN	#1/0	(2" C) WG
600	2	2 1/2"	EMT	3	#500	THHN	#2/0	(3 1/2" C) WG
600N	2	3"	EMT	4	#500	THHN	#2/0	(3 1/2" C) WG
700	2	3"	EMT	3	#600	THHN	#3/0	(3 1/2" C) WG
700N	2	3 1/2"	EMT	4	#600	THHN	#3/0	(4" C) WG
800	2	3"	EMT	3	#750	THHN	#3/0	(4" C) WG
800N	2	3 1/2"	EMT	4	#750	THHN	#3/0	(3" C) WG
1000	3	3"	EMT	3	#600	THHN	#4/0	(3 1/2" C) WG
1000N	3	3 1/2"	EMT	4	#600	THHN	#4/0	(4" C) WG
1200	4	2 1/2"	EMT	3	#500	THHN	#250	(3" C) WG
1200N	4	3"	EMT	4	#500	THHN	#250	(3 1/2" C) WG
1600	5	3"	EMT	4	#600	THHN	#350	(3 1/2" C) WG
1600N	5	3 1/2"	EMT	4	#600	THHN	#350	(4" C) WG
2000	6	3"	EMT	3	#600	THHN	#400	(3 1/2" C) WG
2000N	6	3 1/2"	EMT	4	#600	THHN	#400	(4" C) WG
2500	7	3 1/2"	EMT	3	#750	THHN	#600	(4" C) WG
2500N	7	4"	EMT	4	#750	THHN	#600	(5" C) WG
3000	8	3 1/2"	EMT	3	#750	THHN	#600	(4" C) WG
3000N	8	4"	EMT	4	#750	THHN	#600	(5" C) WG
4000	11	3 1/2"	EMT	3	#750	THHN	#600	(4" C) WG
4000N	11	4"	EMT	4	#750	THHN	#600	(5" C) WG

NOTES

37 MOUNT JUNCTION BOX ABOVE CEILING FOR NURSE CALL LOCATOR POWER.

38 PROVIDE ELEVATOR RECALL SMOKE DETECTOR.

39 PROVIDE WIRELESS NURSE CALL CONSOLE.

40 PROVIDE 120V POWER TO MOTORIZED SCREEN. PROVIDE A JUNCTION BOX FOR LOW VOLTAGE SWITCH WITH 3/4" CONDUIT RUNNING FROM JUNCTION BOX TO MOTORIZED SCREEN.

41 PROVIDE POWER AND DATA FOR CEILING MOUNTED PROJECTOR.

42 PROVIDE POWER AND A JUNCTION BOX AND 3/4" STUBUP FOR A MOTORIZED SHUTTER. LOW VOLTAGE CABLING AND SWITCH BY SHUTTER INSTALLER.

43 PROVIDE 120V POWER AND LOW VOLTAGE CABLING FOR ELEVATOR CURTAIN. CONNECT TO SMOKE DETECTOR AUXILIARY CONTACT.

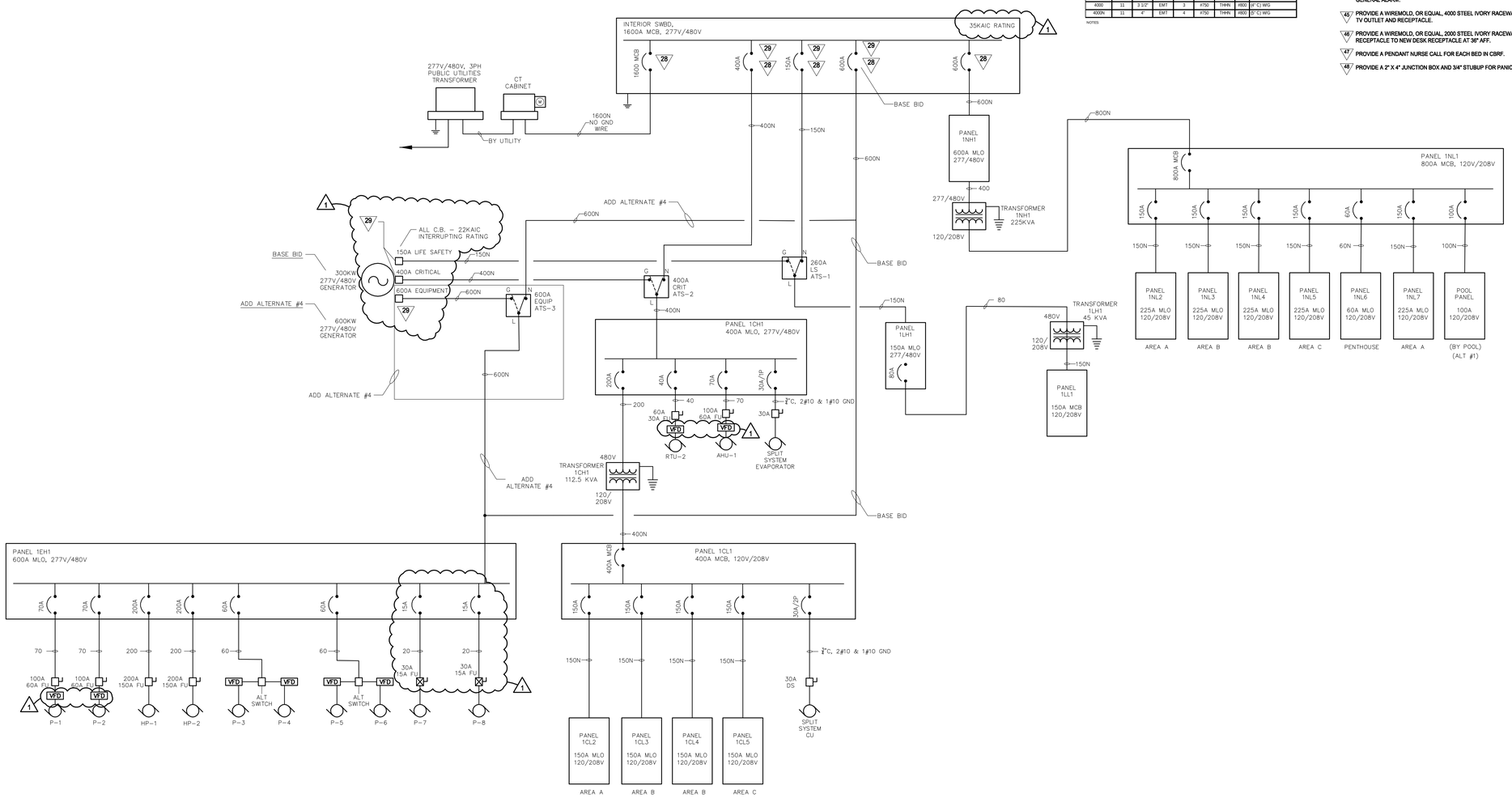
44 PROVIDE SYSTEM SMOKE DETECTOR(S) WITH AUXILIARY CONTACTS TO SOUND THE 520 HZ BEDROOM AREA SPEAKER. THIS SPEAKER SHALL SOUND ON A LOCAL OR GENERAL ALARM.

45 PROVIDE A WIREMOLD, OR EQUAL, 4000 STEEL IVORY RACEWAY FROM CEILING TO TV OUTLET AND RECEPTACLE.

46 PROVIDE A WIREMOLD, OR EQUAL, 2000 STEEL IVORY RACEWAY FROM EXISTING RECEPTACLE TO NEW DESK RECEPTACLE AT 36" AFF.

47 PROVIDE A PENDANT NURSE CALL FOR EACH BED IN CBRF.

48 PROVIDE A 2" X 4" JUNCTION BOX AND 3/4" STUBUP FOR PANIC BUTTON.



Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/14/15	Addendum 2	

GENERAL NOTES:

A. SOME NOTES MAY NOT APPLY TO THIS SHEET.

B. ELECTRICAL CONTRACTOR SHALL CUT AND PATCH WALL S AS REQUIRED TO MATCH EXISTING SURFACE WHERE NO NEW FINISHES ARE SPECIFIED. WHERE NEW FINISHES ARE SPECIFIED, ELECTRICAL CONTRACTOR SHALL PREPARE WALL SURFACES SUITABLE FOR NEW FINISHES BY OTHERS. PROVIDE EXTENSION RINGS FOR DEVICES LOCATED ON WALLS TO BE FURRED OUT. CONTINUE ALL CIRCUITS THAT MAY BE INTERRUPTED BY DEMOLITION. NO DEVICE SHALL BE ORPHANED.

C. PROVIDE LIFE SAFETY POWER FOR SMOKE DAMPERS. SEE MECHANICAL PLANS FOR LOCATIONS. SMOKE DAMPERS SHALL CLOSE ON A GENERAL ALARM.

D. ALL LOCATIONS WHERE EXISTING FIRE ALARM, SPEAKER, DATA, AND CABLE T.V. DEVICES AND CABLING WERE DEMOLISHED ARE TO BE REPLACED WITH A NEW DEVICE AND ASSOCIATED CABLING IN THE EXISTING BUILDING.

E. PROVIDE WIRELESS TRANSMITTER FOR GROUP 263.2 DOOR CONTACT.

F. PROVIDE ALL POWER AND LOW VOLTAGE WIRING FOR THE LISTED HARDWARE GROUP.

KEY NOTES:

1 REMOVE EXISTING PANEL AND PROVIDE NEW PANEL. CONNECT TO EXISTING FEEDER. PROVIDE CUTTING AND PATCHING AS REQUIRED TO ACCOMODATE PANEL.

2 PROVIDE NEW RECEPTACLE AND BRANCH CIRCUIT WIRING. UTILIZE EXISTING JUNCTION BOX AND CONDUIT.

3 SEE TYPICAL ROOM LAYOUTS ON SHEET E108 FOR WORK IN THESE ROOMS. PROVIDE CIRCUITING FROM PANEL SHOWN.

4 PROVIDE 2' COPPER GROUND BUS. CONNECT TO MAIN GROUND BUS WITH #6 COPPER.

5 PROVIDE ½" FIRE TREATED PLYWOOD ON THE NON-DOOR WALLS. PAINT THE OUTER SURFACE WITH GRAY FIRE RETARDENT PAINT.

6 PROVIDE (3) 4" AND (2) 2" PVC CONDUITS FOR TELECOM AND CABLE TV CABLES FROM DATA TO 36" X 48" QUAZITE PULL BOX.

7 PROVIDE TWO 3M QUICK PASS 4" SQUARE FIRE BARRIER PASS THROUGH DEVICES. #9804005514102 OR APPROVED EQUAL. LOCATE ABOVE ACT CEILING.

8 PROVIDE ONE 3M QUICK PASS 4" SQUARE FIRE BARRIER PASSTHROUGH DEVICE. #9804005541 OR APPROVED EQUAL.

9 PROVIDE 50A 2-POLE CONTACTOR AND SWITCH. (SEE DETAIL)

10 INSTALL RECEPTACLE FOR MICROWAVE IN CABINET ABOVE.

11 NOT USED

12 PROVIDE 100A FEEDER TO POOL CONTROL PANEL LOCATED UNDER THE FLOOR. (BY OTHERS)

13 EXTERIOR SPEAKER STROBE FOR SIAMESE CONNECTION. EXTEND CABLES AS REQUIRED.

14 PROVIDE DATA DROP ON 8' SPOOL ABOVE CEILING FOR WIRELESS ACCESS POINT.

15 STAND ALONE 120V SMOKE DETECTOR FOR DENLAR HOOD. MOUNT 20' AWAY FROM DENLAR HOOD.

16 PROVIDE 0-60MIN WINDUP TIMER FOR DENLAR HOOD.

17 PROVIDE 4" CONDUIT FROM A164 TO THE WEST SIDE 24" X 30" PULLBOX.

18 INCLUDE IN BASE BID.

19 TO BE PART OF ADD ALTERNATE.

20 DISCONNECT EXISTING AHU TO BE DEMOLISHED AND PROVIDE CONNECTION TO NEW UNIT. PROVIDE 20A FUSES IN FUSE HOLDER AND PROVIDE 30A DISCONNECT SWITCH AT UNIT.

21 DISCONNECT UNIT AND DEMOLISH FEEDER BACK TO SOURCE.

22 PROVIDE NEW FEEDER, DISCONNECT, AND CONNECTION TO NEW UNIT AS SHOWN.

23 DEMOLISH ALL CONNECTIONS AND FEEDERS ASSOCIATED WITH CONDENSING UNIT S1 TO BE REMOVED. LEAVE ANY CONNECTIONS TO ANY UNITS SERVING OTHER AREAS INTACT.

24 PROVIDE NEW 60A/2P FUSED DIS SW FOR H-3 AND FUSES FOR 45A. PROVIDE 50A ALUMINUM FEEDER FOR H-3 AND 50A FUSES FOR THE "40A SPARE" IN SWBD1.

25 RECEPTACLES, DATA, AND LIGHTING IN THIS AREA TO BE PART OF ALTERNATE. OTHER WORK INCLUDED IN BASE BID.

26 PROVIDE REMOTE "BLANK FACE" GFCI DEVICE, LEVITON 7590 OR EQUAL FOR SPA TUB.

27 PROVIDE AIPHONE IX-MV MASTER STATION AND A RY IP 44 CLOSURE BOX FOR INTERFACE TO THE DOOR ACCESS SYSTEM IN THE MAIN DATA ROOM RACK. POWER WITH CRITICAL POWER. PROVIDE DOOR RELEASE AND VIDEO APPS. PROVIDE AN AIPHONE IX-SBX-ISDVG INTERCOM WITH BACK BOX AT "IC" LOCATION.

28 PROVIDE GROUND FAULT CIRCUIT BREAKER.

29 PROVIDE ELECTRONIC LSI 100% RATED ADJUSTABLE CIRCUIT BREAKER.

30 NOT USED.

31 PROVIDE 120V POWER FOR FIRE SUPPRESSION SYSTEM PROVIDED BY DIVISION 23. CONNECT FIRE SUPPRESSION DETECTION SYSTEM TO BUILDING FIRE ALARM SYSTEM.

32 CONNECT EXHAUST FAN IN THIS ROOM TO LIGHTING CIRCUIT AND CONTROL WITH OCCUPANCY SENSOR.

33 PROVIDE A SQUARE D BOILER KILL SWITCH, MODEL: 2B5AX4. PROVIDE STAINLESS STEEL FACEPLATE AND MOUNT AT 42" AFF. PROVIDE "BOILER SHUTDOWN" LABEL.

34 PROVIDE POE ACCESS CONTROL LOCKSET M120834 TC1P1 PSZ.

35 PROVIDE ARLINGTON DBVSIC-1 RECESSED OUTLET BOX FINISHED WHITE. FEED RECEPTACLES FROM GROUND THROUGH THE BASE OF COLUMN.

36 DEMOLISH EXISTING PANEL. EXTEND 100A FEEDER TO ROOFTOP FOR CONNECTION TO MECHANICAL EQUIPMENT. SEE ROOF PLAN FOR ADDITIONAL INFORMATION.

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

ONE-LINE DIAGRAM

Scale	Date	Project Number
	06/23/15	146038

E300

1

PANELBOARD SCHEDULE — PANEL: B-58

LOCATION: MECHANICAL | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: SURFACE | SOURCE: MAIN SWBD (T-3)

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	LOCKER ROOM RECEPTACLES					20/1	0			20/1					B-51 EAST HALL RECEPTACLES	2
3	EAST WALL RECEPTACLES					20/1		0		20/1					GFCI	4
5	WATER COOLER					20/1			0	20/1					B50 EAST RECEPTACLES	6
7	B-53 TIMECLOCK					20/1	0			20/1					SOUTH RECEPTACLES	8
9	HEATER SE HALL					20/1		0		20/1					B-50 RECEPTACLE	10
11	WEST STAIRWELL HEATER					20/1			0	20/1					WEST HALL GFCI	12
13	ROOFTOP LIGHTS					20/1	0			20/1					RECEPTACLES	14
15	B-58 NORTH RECEPTACLES					20/1		0		20/1					ELEVATOR RECEPTACLES	16
17	B-55 RECEPTACLES					20/1			0	20/1					NORTH HALL RECEPTACLES	18
19	B-58 EAST RECEPTACLES					20/1	0			20/1					B-21 RECEPTACLES	20
21	B-56 EAST HALL RECEPTACLES					20/1		0		20/1					B-63 RECEPTACLES	22
23	B-58 WEST RECEPTACLES					20/1			0	20/1					SPARE	24
25	SOUTH HALL STORAGE REC.					20/1	0			20/1					SOUTH HALL STORAGE REC.	26
27	SOUTH HALL STORAGE REC.					20/1		0		20/1					SPARE	28
29	RECEPTACLES		0.8			20/1			0.8	20/1					SOUTH HALL STORAGE REC.	30
31	RECEPTACLES	1				20/1	1			20/1					RECEPTACLES	32
33	RECEPTACLES			0.2		20/1		0.2		20/1					RECEPTACLES	34
35	RECEPTACLES	1				20/1			1.2	20/1				0.2	VESTIBULE C1H	36
37	RECEPTACLES			0.6		20/1	1.5			20/1			0.9		SIDEWALL FAN #1	38
39	RECEPTACLES			0.8		20/1		1.1		20/1				0.3	UH-2/RECEPTACLE	40
41	RECEPTACLES			1		20/1			1.8	20/1				0.8	DOOR OPERATOR	42
43	RECEPTACLES			0.4		20/1	1.2			20/1				0.8	DOOR OPERATOR	44
45	RECEPTACLES			0.4		20/1		1.2		20/1				0.8	WANDERING PATIENT	46
47	LIGHTS				1.6	20/1			2.4	20/1				0.8	POWER SUPPLY	48
49	SPARE					20/1	0.6			20/1			0.6	0.6	LOCATOR	50
51	SPARE					20/1		0.8		20/1		0.8			RECEPTACLES	52
53	SPARE					20/1			0	20/1					SPARE	54
	CONNECTED KW	2	0	4.2	1.6		4.3	3.3	6.2		0	0.8	0.9	4.3		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	1.6	0	2.94	2						0	0.56	0.72	3.44		

TOTAL KW WITH DEMAND 11.3
TOTAL 3 PHASE AMPS **31.3** 10,000 AIC INTERRUPTING RATING

PROVIDE WITH FEED THROUGH LUGS

1 2

PANELBOARD SCHEDULE — PANEL: E1

LOCATION: EAST WING CORRIDOR 1ST FLOOR | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: B-58

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT ROOM RECEPTACLES					20/1	0			20/1					SUN ROOM RECEPTACLES	2
3	RESIDENT ROOM RECEPTACLES					20/1		0		20/1					CORRIDOR RECEPTACLES	4
5	RESIDENT ROOM RECEPTACLES					20/1			0	20/1					DINING RECEPTACLES	6
7	RESIDENT ROOM RECEPTACLES					20/1	0			20/1					LIVING ROOM RECEPTACLES	8
9	RESIDENT ROOM RECEPTACLES					20/1		0		20/1					PORCH RECEPTACLES	10
11	RESIDENT ROOM RECEPTACLES					20/1			0	20/2					FIREPLACE	12
13	APARTMENT PANEL E3					60/2	0			-					-	14
15	-					-		0.9		20/1			0.9		SIDEWALL FAN #2	16
17	PRIVATE DINING RECEPTACLES					20/1			0	20/1					SPARE	18
19	PRIVATE DINING RECEPTACLES					20/1	0			20/1					SPARE	20
21	LOCATOR	0.6				20/1		0.6		20/1					SPARE	22
23	SPARE					20/1			0	20/1					SPARE	24
25	SPARE					20/1	0			20/1					SPARE	26
27	SPARE					20/1		0		20/1					SPARE	28
29	SPARE					20/1			0	20/1					SPARE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0.6	0	0	0		0	1.5	0		0	0	0.9	0		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0.48	0	0	0						0	0	0.72	0		

TOTAL KW WITH DEMAND 1.2
TOTAL 3 PHASE AMPS **1.45** 10,000 AIC INTERRUPTING RATING

NOTES: PROVIDE WITH FEED-THROUGH LUGS. MAY USE RETROFIT KIT.

2

PANELBOARD SCHEDULE — PANEL: E2

LOCATION: EAST WING CORRIDOR 1ST FLOOR | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: B-58

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	KITCHEN COUNTER RECEPTACLES					20/1	0			20/1					SPARE	2
3	KITCHEN REFRIGERATOR					20/1		0		20/1					SPARE	4
5	KITCHEN INDUCTION WARMER					20/1			0	20/1					SPARE	6
7	KITCHEN INDUCTION WARMER					20/1	0			20/1					SPARE	8
9	KITCHEN STOVE					50/2		0		20/1					SPARE	10
11	-					-			0	20/1					SPARE	12
13	KITCHEN JUICE MACHINE					15/1	0			20/1					SPARE	14
15	KITCHEN COFFEE MACHINE					15/1		0		20/1					SPARE	16
17	KITCHEN ICE MACHINE					15/1			0						SPACE	18
19	SPACE						0								SPACE	20
21	SPACE							0							SPACE	22
23	SPACE								0						SPACE	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0	0	0	0		0	0	0		0	0	0	0		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0	0	0	0						0	0	0	0		

TOTAL KW WITH DEMAND 0
TOTAL 3 PHASE AMPS **0** 10,000 AIC INTERRUPTING RATING

NOTES: PROVIDE WITH FEED-THROUGH LUGS. MAY USE RETROFIT KIT.

PANELBOARD SCHEDULE — PANEL: LS

LOCATION: BASEMENT MECHANICAL ROOM | MAIN: 60A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: SURFACE | SOURCE: SWB-1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	LIGHTS				0.6	20/1	1.2			20/1				0.60	FIRESMOKE DAMPERS	2
3	LIGHTS				0.8	20/1		1.4		20/1				0.60	ELEVATOR SMOKE CURTAIN	4
5	LIGHTS				0.3	20/1			0.3	20/1					SPARE	6
7	SPARE					20/1	0			20/1					SPARE	8
9	SPARE					20/1		0							SPACE	10
11	SPACE								0						SPACE	12
13	SPACE						0								SPACE	14
15	SPACE							0							SPACE	16
17	SPACE								0						SPACE	18
19	SPACE						0								SPACE	20
21	SPACE							0							SPACE	22
23	SPACE								0						SPACE	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0.00	0.00	0.00	1.70		0	0	0		0.00	0.00	0.00	1.20		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0	0	0	2.125						0	0	0	0.96		

TOTAL KW WITH DEMAND 3.09
TOTAL 3 PHASE AMPS **8.57** 10,000 AIC INTERRUPTING RATING

NOTES: PROVIDE WITH FEED THROUGH LUGS.

PANELBOARD SCHEDULE — PANEL: LS1

LOCATION: 1ST FLOOR STORAGE ROOM | MAIN: 60A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: SURFACE | SOURCE: SWB-1 (THROUGH LS)

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	LIGHTS-1ST				1.6	20/1	1.6			20/1					FIRESMOKE DAMPERS	2
3	LIGHTS-2ND				1.6	20/1		1.6		20/1					1ST FLR DENLAR HOOD CTRLS	4
5	LIGHTS				1.5	20/1			1.5	20/1					1ST FLR DENLAR HOOD	6
7	SPARE					20/1	0			20/1					2ND FLR DENLAR HOOD CTRLS	8
9	SPARE					20/1		0		20/1					2ND FLR DENLAR HOOD	10
11	SPARE					20/1			0.6	20/1				0.6	ELEVATOR SMOKE CURTAIN	12
13	SPACE						0								SPACE	14
15	SPACE							0							SPACE	16
17	SPACE								0						SPACE	18
19	SPACE						0								SPACE	20
21	SPACE							0							SPACE	22
23	SPACE								0						SPACE	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0.00	0.00	0.00	4.70		0	0	0		0.00	0.00	0.00	0.60		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0	0	0	5.875						0	0	0	0.48		

TOTAL KW WITH DEMAND 6.36
TOTAL 3 PHASE AMPS **17.7** 10,000 AIC INTERRUPTING RATING

NOTES: PROVIDE WITH FEED THROUGH LUGS.

1 2

PANELBOARD SCHEDULE — PANEL: S1

LOCATION: SOUTH WING CORRIDOR 1ST FLOOR | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: MAIN SWBD (T-4)

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT ROOM RECEPTACLES					20/1	0			20/1					SUN ROOM RECEPTACLES	2
3	RESIDENT ROOM RECEPTACLES					20/1		0		20/1					DAY ROOM RECEPTACLES	4
5	RESIDENT ROOM RECEPTACLES					20/1			0	30/2					DRYER	6
7	RESIDENT ROOM RECEPTACLES					20/1	0			-					-	8
9	RESIDENT ROOM RECEPTACLES					20/1		0		20/1					WASHER	10
11	RESIDENT ROOM RECEPTACLES					20/1			0	20/1					LAUNDRY RECEPTACLES	12
13	APRTMENT PANEL S2					60/2	0.9			20/1			0.9		SIDEWALL FAN #3	14
15	-					-		1.4		20/1	1.4				LIGHTS	16
17	STORAGE RECEPTACLES					20/1			1.4	20/1	1.4				LIGHTS	18
19	LOCATOR	0.6				20/1	1.2			20/1	0.6				LIGHTS	20
21	SPARE					-		0		20/1					SPARE	22
23	SPARE					20/1			0	20/1					SPARE	24
25	SPARE					20/1	0			20/1					SPARE	26
27	SPACE							0		20/1					SPARE	28
29	SPACE								0	20/1					SPARE	30
31	SPACE						0			20/1					SPARE	32
33	SPACE							0		20/1					SPARE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0.6	0	0	0		2.1	1.4	1.4		3.4	0	0.9	0		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0.48	0	0	0						4.25	0	0.72	0		

TOTAL KW WITH DEMAND 5.45
TOTAL 3 PHASE AMPS **6.56** 10,000 AIC INTERRUPTING RATING

NOTES: PROVIDE WITH FEED-THROUGH LUGS. MAY USE RETROFIT KIT.

1 2

PANELBOARD SCHEDULE — PANEL: W1

LOCATION: WEST WING CORRIDOR 1ST FLOOR | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: MAIN SWBD (T-4)

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT ROOM RECEPTACLES					20/1	0			20/1					CORRIDOR RECEPTACLES	2
3	RESIDENT ROOM RECEPTACLES					20/1		0		20/1					BATHROOM RECEPTACLES	4
5	RESIDENT ROOM RECEPTACLES					20/1			0	20/1					SPA	6
7	RESIDENT ROOM RECEPTACLES					20/1	0			20/1					WATER FOUNTAIN	8
9	APARTMENT PANEL W3					60/2		0		20/1					NURSE MANAGER RECEPTACLES	10
11	-					-			0	20/1					CHARTING/MEDS RECEPTACLES	12
13	APARTMENT PANEL W4					60/2	0			20/1					SUPPLY RECEPTACLES	14
15	-					-		0		20/1					IT ROOM RECEPTACLES	16
17	ELEVATOR EXHAUST FAN					20/1			0	20/1					RECEPT	18
19	LIGHTS				0.9	20/1	0.9			20/1					RECEPT	20
21	LIGHTS				0.9	20/1		0.9		20/1					RP-5	22
23	LIGHTS				0.8	20/1			0.8	20/1					SPARE	24
25	LOCATOR	0.6					0.6			20/1					SPARE	26
27	SPACE							0		20/1					SPARE	28
29	SPACE								0	20/1					SPARE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0.6	0	0	2.6		1.5	0.9	0.8		0	0	0	0		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0.48	0	0	3.25						0	0	0	0		

TOTAL KW WITH DEMAND 3.73
TOTAL 3 PHASE AMPS **4.49** 10,000 AIC INTERRUPTING RATING

NOTES: PROVIDE WITH FEED-THROUGH LUGS. MAY USE RETROFIT KIT.

2

PANELBOARD SCHEDULE — PANEL: 2E1

LOCATION: EAST WING CORRIDOR 2ND FLOOR | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: E1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT RECEPTACLES					20/1	0			20/1					CORRIDOR RECEPTACLES	2
3	RESIDENT RECEPTACLES					20/1		0		20/1					DINING RECEPTACLES	4
5	RESIDENT RECEPTACLES					20/1			0	20/1					PRIVATE DINING RECEPTACLES	6
7	RESIDENT RECEPTACLES					20/1	0			20/1					PRIVATE DINING RECEPTACLES	8
9	RESIDENT RECEPTACLES					20/1		0		20/1					LIVING ROOM RECEPTACLES	10
11	RESIDENT RECEPTACLES					20/1			0	20/1					PORCH RECEPTACLES	12
13	APARTMENT PANEL 2E2					60/2	0			20/2					FIREPLACE	14
15	-					-		0		-					-	16
17	SIDEWALL FAN #4		0.9			20/1			1.9	20/1	1				LIGHTS	18
19	LOCATOR	0.6				20/1	2.1			20/1	1.5				LIGHTS	20
21	SPARE					20/1		1		20/1	1				LIGHTS	22
23	SPARE					20/1			1.4	20/1	1.4				LIGHTS	24
25	SPARE					20/1	0			20/1					SPARE	26
27	SPARE					20/1		0		20/1					SPARE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0.6	0.9	0	0		2.1	1	3.3		4.9	0	0	0		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0.48	0.72	0	0						6.125	0	0	0		

TOTAL KW WITH DEMAND 7.33
TOTAL 3 PHASE AMPS **8.82** 10,000 AIC INTERRUPTING RATING

NOTES: PROVIDE WITH FEED-THROUGH LUGS. MAY USE RETROFIT KIT.

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/08/15	Addendum 1	
2	07/14/15	Addendum 2	

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

ELECTRICAL SCHEDULES

Scale	Date	Project Number
	06/23/15	146038

E401

PANELBOARD SCHEDULE — PANEL: 2S1

LOCATION: SOUTH WING CORRIDOR FLOOR 2 — MAIN: 200A MLO

VOLTAGE: 208/120 — PH: 3 — WIRE: 4 — MOUNTING: RECESSED — SOURCE: S1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT RECEPTACLES					20\1	0			20/1					SUN ROOM RECEPTACLES	2
3	RESIDENT RECEPTACLES					20\1		0		20/1					DAY ROOM RECEPTACLES	4
5	RESIDENT RECEPTACLES					20\1			0	20/1					OFFICE RECEPTACLES	6
7	RESIDENT RECEPTACLES					20\1	0			20/1					STORAGE RECEPTACLES	8
9	RESIDENT RECEPTACLES					20\1		0		20/1					LAUNDRY RECEPTACLES	10
11	RESIDENT RECEPTACLES					20\1			0	30/2					DRYER	12
13	APARTMENT PANEL 2S2					60/2	0			-					-	14
15	-					-		0.9		20/1			0.9		SIDEWALL FAN #5	16
17	HUMIDIFIER #4					20/1			1.4	20/1	1.4				LIGHTS	18
19	LOCATOR	0.60				20/1	2			20/1	1.4				LIGHTS	20
21	LIGHTS				0.9	20/1		2.5		20/1	1.6				LIGHTS	22
23	LIGHTS				0.9	20/1			0.9	20/1					SPARE	24
25	LIGHTS				0.9	20/1	0.9			20/1					SPARE	26
27	SPACE							0		20/1					SPARE	28
29	SPACE								0	20/1					SPARE	30
31	SPACE						0			20/1					SPARE	32
33	SPACE							0		20/1					SPARE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0.6	0	0	2.7		2.9	3.4	2.3		4.4	0	0.9	0		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0.48	0	0	3.375						5.5	0	0.72	0		

TOTAL KW WITH DEMAND 10.1

TOTAL 3 PHASE AMPS **12.1** — 10,000 AIC INTERRUPTING RATING

NOTES: MAY USE RETROFIT KIT.

PANELBOARD SCHEDULE — PANEL: 2W1

LOCATION: WEST WING CORRIDOR FLOOR 2 — MAIN: 225A MLO

VOLTAGE: 208/120 — PH: 3 — WIRE: 4 — MOUNTING: RECESSED — SOURCE: W1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT RECEPTACLES					20/1	0			20/1					CORRIDOR RECEPTACLES	2
3	RESIDENT RECEPTACLES					20/1		0		20/1					BATHROOM RECEPTACLES	4
5	RESIDENT RECEPTACLES					20/1			0	20/1					RP-6	6
7	RESIDENT RECEPTACLES					20/1	0			20/1					NURSE MANAGER RECEPTACLES	8
9	APARTMENT PANEL 2W3					60/2		0		20/1					SUPPLY RECEPTACLES	10
11	-					-			0	20/1					CHARTING/MEDS	12
13	APARTMENT PANEL 2W4					60/2	0.5			20/1				0.5	RP-6	14
15	-					-		0.6		20/1				0.6	LOCATOR	16
17	PRV #1					20/1			0	20/1					SPARE	18
19	PRV#2					20/1	0			20/1					SPARE	20
21	LIGHTS				0.9	20/1		0.9		20/1					SPARE	22
23	LIGHTS				0.9	20/1			0.9	20/1					SPARE	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0	0	0	1.8		0.5	1.5	0.9		0	0	0	1.1		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0	0	0	2.25						0	0	0	0.88		

TOTAL KW WITH DEMAND 3.13

TOTAL 3 PHASE AMPS **3.77** — 10,000 AIC INTERRUPTING RATING

NOTES: MAY USE RETROFIT KIT.

PANELBOARD SCHEDULE — PANEL: 2W2

LOCATION: WEST WING CORRIDOR 1ST FLOOR — MAIN: 100A MLO

VOLTAGE: 208/120 — PH: 3 — WIRE: 4 — MOUNTING: RECESSED — SOURCE: W1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	KITCHEN COUNTER RECEPT					20/1	0			20/1					SPARE	2
3	KITCHEN REFRIGERATOR					20/1		0		20/1					SPARE	4
5	KITCHEN INDUCTION WARMER					20/1			0	20/1					SPARE	6
7	KITCHEN INDUCTION WARMER					20/1	0			20/1					SPARE	8
9	KITCHEN STOVE					50/2		0		20/1					SPARE	10
11	-					-			0	20/1					SPARE	12
13	KITCHEN JUICE MACHINE					15/1	0			20/1					SPARE	14
15	KITCHEN COFFEE MACHINE					15/1		0		20/1					SPARE	16
17	KITCHEN ICE MACHINE					15/1			0						SPACE	18
19	SPARE					20/1	0								SPACE	20
21	SPARE					20/1		0							SPACE	22
23	SPARE					20/1			0						SPACE	24
25	SPARE					20/1	0								SPACE	26
27	SPARE					20/1		0							SPACE	28
29	SPARE					20/1			0						SPACE	30
31	SPARE					20/1	0								SPACE	32
33	SPARE					20/1		0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	0	0	0	0		0	0	0		0	0	0	0		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0	0	0	0						0	0	0	0		

TOTAL KW WITH DEMAND 0

TOTAL 3 PHASE AMPS **0** — 10,000 AIC INTERRUPTING RATING

NOTES: MAY USE RETROFIT KIT.

PANELBOARD SCHEDULE — PANEL: 1CH1

LOCATION: EMERGENCY ELECTRICAL ROOM — MAIN: 400A MLO

VOLTAGE: 480/277 — PH: 3 — WIRE: 4 — MOUNTING: — SOURCE: MAIN SWBD

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	DATA ROOM EVAPORATOR	4				30/1	4			200/3					1CL1	2
3	AHU-1	15				70/3		15		-					-	4
5	-	15				-			15	-					-	6
7	-	15				-	15			150/3					SPARE	8
9	RTU-2	7.2				40/3		7.2		-					-	10
11	-	7.2				-			7.2	-					-	12
13	-	7.2				-	7.2								SPACE	14
15	SPACE							0							SPACE	16
17	SPACE								0						SPACE	18
19	SPACE						0								SPACE	20
21	SPACE							0							SPACE	22
23	SPACE								0						SPACE	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
	CONNECTED KW	70.6	0	0	0		26.2	22.2	22.2		0	0	0	0		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	56.48	0	0	0						0	0	0	0		

TOTAL KW WITH DEMAND 56.5

TOTAL 3 PHASE AMPS **68** — 25,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1CL1

LOCATION: EMERGENCY ELECTRICAL ROOM — MAIN: 400A MCB

VOLTAGE: 208/120 — PH: 3 — WIRE: 4 — MOUNTING: SURFACE — SOURCE: 1CH1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	OFFICE COMPUTER			0.8		20/1	0.8			150/3					PANEL 1CL2	2
3	CHARTING RECEPTACLES			0.8		20/1		0.8		-					-	4
5	CHARTING RECEPTACLES			0.6		20/1			0.6	-					-	6
7	CHARTING RECEPTACLES			0.8		20/1	0.8			150/3					PANEL 1CL3	8
9	CHARTING RECEPTACLES			0.8		20/1		0.8		-					-	10
11	DATA ROOM RECEPTACLES			0.8		20/1			0.8	-					-	12
13	DATA ROOM RECEPTACLES			0.8		20/1	0.8			150/3					PANEL 1CL4	14
15	RECEPTION COMPUTER REC.			0.4		20/1		0.4		-					-	16
17	GENERAL STORE COFFEE/JUICE			0.8		20/1			0.8	-					-	18
19	GENERAL STORE VENDING			0.8		20/1	0.8			150/3					PANEL 1CL5	20
21	GENERAL STORE VENDING			0.8		20/1		0.8		-					-	22
23	GENERAL STORE ICE			0.6		20/1			0.6	-					-	24
25	SPARE					20/1	0.5			15/1				0.5	CP-1	26
27	LOBBY TOILET EX. FAN	0.8				15/1		1.3		15/1				0.5	CONTROL VALVE	28
29	SPARE					20/1			0.5	20/1				0.5	WATER SOFTENER	30
31	STAFF LOUNGE REFRIGERATOR	0.8				20/1	1.3			20/1				0.5	WATER HEATER	32
33	VESTIBULE CUH	0.8				20/1		0.8		20/1					IF-1	34
35	LIGHTS				1.8	20/1			2.3	20/1				0.5	EXHAUST FAN #8	36
37	LIGHTS				1.6	20/1	2			25/2				0.4	DATA ROOM CONDENSOR	38
39	PRV #4		1			20/1		1.4		-				0.4	-	40
41	LIGHTS				1	20/1			2	20/1			1		LOBBY VESTIBULE DOOR ACT.	42
43	B-1					20/1	0			20/1					WANDERING PATIENT	44
45	LOCATORS	0.6				20/1		1.6		20/1			1		VESTIBULE DOOR ACTUATOR	46
47	CHEMICAL PUMP	0.3				20/1			0.3	20/1					WANDERING PATIENT	48
49	SPARE					20/1	1			20/1	1				POOL LIGHTS (ADD ALT)	50
51	SPACE							1		20/1	1				POOL LIGHTS (ADD ALT)	52
53	SPACE								0						SPACE	54
55	SPACE						0								SPACE	56
57	SPACE							0							SPACE	58
59	SPACE								0						SPACE	60
61	SPACE						0								SPACE	62
63	SPACE							0							SPACE	64
65	SPACE								0						SPACE	66
67	SPACE						0								SPACE	68
69	SPACE							0							SPACE	70
71	SPACE								0						SPACE	72
	CONNECTED KW	3.30	1.00	8.80	4.40		8.00	8.90	7.90		2.00	0.00	2.00	3.30		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	2.64	0.8	6.16	5.5						2.5	0	1.6	2.64		

TOTAL KW WITH DEMAND 21.8

TOTAL 3 PHASE AMPS **60.7** — 10,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1CL2

LOCATION: AREA 'A' CORRIDOR — MAIN: 150A MLO

VOLTAGE: 208/120 — PH: 3 — WIRE: 4 — MOUNTING: RECESSED — SOURCE: 1CL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT RECEPTACLES			0.4		20/1	0.8			20/1		0.4			RESIDENT RECEPTACLES	2
3	RESIDENT RECEPTACLES			0.4		20/1		0.8		20/1		0.4			RESIDENT RECEPTACLES	4
5	RESIDENT RECEPTACLES			0.4		20/1			0.8	20/1		0.4			RESIDENT RECEPTACLES	6
7	RESIDENT RECEPTACLES			0.4		20/1	1.2			20/1				0.8	KITCHEN REFRIGERATOR	8
9	RESIDENT RECEPTACLES			0.4		20/1		1.2		20/1		0.8			KITCHEN COUNTER REC.	10
11	RESIDENT RECEPTACLES			0.4		20/1			1.6	20/1				1.2	KITCHEN MICROWAVE	12
13	RESIDENT RECEPTACLES			0.4		20/1	1.2			20/1				0.8	KITCHEN JUICE MACHINE	14
15	RESIDENT RECEPTACLES			0.4		20/1		1.2		20/1				0.8	KITCHEN ICE MACHINE	16
17	RESIDENT RECEPTACLES			0.4		20/1			1.2	20/1				0.8	KITCHEN COFFEE MACHINE	18
19	DATA ROOM RECEPTACLES			0.8		20/1	1.6			20/1		0.8			KITCHEN GARBAGE DISPOSAL	20
21	DATA ROOM RECEPTACLES			0.8		20/1		1.2		20/1		0.4			KITCHEN COUNTER REC.	22
23	MEDS RECEPTACLES			0.4		20/1			0.8	20/1		0.4			KITCHEN COUNTER REC.	24
25	MEDS RECEPTACLES			0.4		20/1	1			15/1		0.6			KITCHEN INDUCTION WARMER	26
27	CHARTING RECEPTACLES			0.4		20/1		1		15/1		0.6			KITCHEN INDUCTION WARMER	28
29	CHARTING RECEPTACLES			0.4		20/1			1	15/1		0.6			KITCHEN INDUCTION WARMER	30
31	NURSE STATION RECEPTACLES			0.8		20/1	1.4			15/1		0.6			KITCHEN INDUCTION WARMER	32
33	RESIDENT RECEPTACLES			0.4		20/1		0.4		20/1					SPARE	34
35	RESIDENT RECEPTACLES			0.4		20/1			1.2	20/1				0.8	TOILET EX. FAN	36
37	RESIDENT RECEPTACLES			0.4		20/1	1.2			20/1				0.8	OXYGEN EX. FAN	38
39	RESIDENT RECEPTACLES			0.4		20/1		0.8		20/1		0.4			NURSE STATION OFFICE REC.	40
41	RESIDENT RECEPTACLES			0.4		20/1			1.1	20/1				0.7	CUH/RADIANT PANEL #2	42
43	LIGHTS				1.2	20/1	2.4			20/1	1.2				LIGHTS	44
45	LIGHTS				1.3	20/1		2.3		20/1	1				LIGHTS	46
47	LIGHTS				1.4	20/1			2.2	20/1			0.8		DOOR ACTUATOR	48
49	LIGHTS				1.2	20/1	2			20/1			0.8		DOOR ACTUATOR	50
51	LIGHTS				1.2	20/1		2		20/1				0.8	POWER SUPPLY	52
53	LIGHTS				1.2	20/1			2	20/1				0.8	WANDERING PATIENT	54
55	LOCATORS	0.6				20/1	1.2			20/1				0.6	SHUTTER	56
57	SPARE					20/1		0		20/1					SPARE	58
59	SPARE					20/1			0	15/1					SPARE	60
61	SPARE					20/1	0			15/1					SPARE	62
63	SPARE					20/1		0		15/1					SPARE	64
65	SPARE					20/1			0						SPACE	66
67	SPARE					20/1	0								SPACE	68
69	SPARE					20/1		0							SPACE	70
71	SPARE					20/1			0						SPACE	72
	CONNECTED KW	0.60	0.00	9.60	7.50		14.00	10.90	11.90		2.20	6.40	1.60	8.90		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	0.48	0	6.72	9.375						2.75	4.48	1.28	7.12		

TOTAL KW WITH DEMAND 32.2

TOTAL 3 PHASE AMPS **89.5** — 10,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1CL3

LOCATION: AREA 'B' CORRIDOR — MAIN: 150A MLO

VOLTAGE: 208/120 — PH: 3 — WIRE: 4 — MOUNTING: RECESSED — SOURCE: 1CL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	DATA ROOM RECEPTACLES			0.4		20/1	1			20/1		0.6			MEDS/CU RECEPTACLES	2
3	KITCHEN REFRIGERATOR	0.8				20/1		1.4		20/1		0.6			CHARTING RECEPTACLES	4
5	KITCHEN COUNTER REC.			0.8		20/1			1.4	20/1		0.6			CHARTING RECEPTACLES	6
7	GARBAGE DISPOSAL			0.8		20/1	1.3			20/1				0.5	OXYGEN EX. FAN	8
9	KITCHEN MICROWAVE	1				20/1		1.4		20/1		0.4			RESIDENT RECEPTACLES	10
11	KITCHEN JUICE MACHINE	0.8				20/1			1.2	20/1		0.4			RESIDENT RECEPTACLES	12
13	KITCHEN ICE MACHINE	0.8				20/1	1.2			20/1		0.4			RESIDENT RECEPTACLES	14
15	KITCHEN COFFEE MACHINE	0.8				20/1		1.2		20/1		0.4			RESIDENT RECEPTACLES	16
17	KITCHEN COUNTER REC.	0.8				20/1			1.2	20/1		0.4			RESIDENT RECEPTACLES	18
19	KITCHEN WARMERS	0.8				20/1	1.2			20/1		0.4			RESIDENT RECEPTACLES	20
21	KITCHEN WARMERS	0.8				20/1		1.2		20/1		0.4			RESIDENT RECEPTACLES	22
23	NURSE STATION RECEPTACLES			0.6		20/1			1.1	20/1				0.5	DINING/ENTRY CUH'S	24
25	RESIDENT RECEPTACLES			0.4		20/1	1			20/1	0.6				LIGHTS	26
27	RESIDENT RECEPTACLES			0.4		20/1		1		20/1				0.6	WNDERING PATIENT	28
29	RESIDENT RECEPTACLES			0.4		20/1			0.9	20/1				0.5	RADIANT PANEL #4	30
31	RESIDENT RECEPTACLES			0.4		20/1	1.2			20/1				0.8	POWER SUPPLY	32
33	RESIDENT RECEPTACLES			0.4		20/1		1.2		20/1				0.8	WANDERING PATIENT	34
35	RESIDENT RECEPTACLES			0.4		20/1			1.2	20/1				0.8	WANDERING PATIENT	36
37	RESIDENT RECEPTACLES			0.4		20/1	1.4			20/1			1		DOOR ACTUATOR	38
39	RESIDENT RECEPTACLES			0.4		20/1		1.4		20/1			1		DOOR ACTUATOR	40
41	LOCATORS	0.6				20/1			1.4	20/1				0.8	WANDERING PATIENT	42
43	LIGHTS				1.35	20/1	2.55			20/1	1.2				LIGHTS	44
45	LIGHTS				1.35	20/1		2.55		20/1	1.2				LIGHTS	46
47	LIGHTS				1.35	20/1			1.35	20/1					DOOR POWER SUPPLY	48
49	LIGHTS				1.35	20/1	1.35			20/1					DOOR OPERATOR	50
51	LIGHTS				1.35	20/1		1.35		20/1					DOOR OPERATOR	52
53	LIGHTS				1.35	20/1			1.35	20/1					SHUTTER	54
55	SPACE						0								SPACE	56
57	SPACE							0							SPACE	58
59	SPACE								0						SPACE	60
61	SPACE						0								SPACE	62
63	SPACE							0							SPACE	64
65	SPACE								0						SPACE	66
67	SPACE						0								SPACE	68
69	SPACE							0							SPACE	70
71	SPACE								0						SPACE	72
	CONNECTED KW	7.20	0.00	5.80	8.10		12.20	12.70	11.10		3.00	4.60	2.00	5.30		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	5.76	0	4.06	10.125						3.75	3.22	1.6	4.24		

TOTAL KW WITH DEMAND 32.8

TOTAL 3 PHASE AMPS **91** — 10,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1CL4

LOCATION: AREA 'B' CORRIDOR — MAIN: 150A MLO

VOLTAGE: 208/120 — PH: 3 — WIRE: 4 — MOUNTING: — SOURCE: 1CL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION
1	OXYGEN EX. FAN					20/1	0			20/1					KITCHEN COUNTER REC.
3	NURSE STATION RECEPTACLES					20/1		0		20/1					KITCHEN WARMERS
5	CHARTING RECEPTACLES					20/1			0	20/1					KITCHEN WARMERS
7	CHARTING/MEDS REC.					20/1	0.8			20/1		0.8			DATA ROOM RECEPTACLES
9	KITCHEN JUICE MACHINE					20/1		0.5		20/1				0.5	CUH'S
11	KITCHE ICE MACHINE					20/1			0.4	20/1		0.4			RESIDENT RECEPTACLES
13	KITCHEN COFFEE MACHINE					20/1	0.4			20/1		0.4			RESIDENT RECEPTACLES
15	KITCHEN MICROWAVE					20/1		0.4		20/1		0.4			RESIDENT RECEPTACLES
17	KITCHEN COUNTER REC.					20/1			0.4	20/1		0.4			RESIDENT RECEPTACLES
19	KITCHEN REFRIGERATOR					20/1	0.4			20/1		0.4			RESIDENT RECEPTACLES
21	GARBAGE DISPOSAL					20/1		0.4		20/1		0.4			RESIDENT RECEPTACLES
23	RESIDENT RECEPTACLES			0.4		20/1			0.8	20/1		0.4			RESIDENT RECEPTACLES
25	RESIDENT RECEPTACLES			0.4		20/1	0.8			20/1		0.4			RESIDENT RECEPTACLES
27	RESIDENT RECEPTACLES					20/1		0.5		20/1				0.5	RADIANT PANEL #3
29	RESIDENT RECEPTACLES			0.4		20/1			1.2	20/1				0.8	WANDERING PATIENT
31	RESIDENT RECEPTACLES			0.4		20/1	1.2			20/1				0.8	POWER SUPPLY
33	RESIDENT RECEPTACLES			0.4		20/1		1.2		20/1				0.8	WANDERING PATIENT
35	RESIDENT RECEPTACLES			0.4		20/1			1.2	20/1				0.8	WANDERING PATIENT
37	RESIDENT RECEPTACLES			0.4		20/1	1.4			20/1				1	DOOR OPERATOR
39	LOCATORS	0.6				20/1		1.6		20/1				1	DOOR OPERATOR
41	SPARE					20/1			0.8	20/1				0.8	WANDERING PATIENT
43	LIGHTS				1.35	20/1	2.7			20/1	1.35				LIGHTS
45	LIGHTS				1.35	20/1		2.7		20/1	1.35				LIGHTS
47	LIGHTS				1.35	20/1			1.35	20/1					SHUTTER
49	LIGHTS				1.35	20/1	1.35			20/1					SPARE
51	LIGHTS				1.35	20/1		1.35		20/1					SPARE
53	SPARE					20/1			0	20/1					SPARE
55	SPACE						0								SPACE
57	SPACE							0							SPACE
59	SPACE								0						SPACE
61	SPACE						0								SPACE
63	SPACE							0							SPACE
65	SPACE								0						SPACE
67	SPACE						0								SPACE
69	SPACE							0							SPACE
71	SPACE								0						SPACE
	CONNECTED KW	0.60	0.00	2.80	6.75		9.05	8.65	6.15		2.70	4.00	0.00	7.00	
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8	
	DEMAND KW	0.48	0	1.96	8.4375						3.375	2.8	0	5.6	

TOTAL KW WITH DEMAND 22.7

TOTAL 3 PHASE AMPS **63** — 10,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1CL5

LOCATION: AREA 'C' STORAGE ROOM — MAIN: 150A MLO

VOLTAGE: 208/120 — PH: 3 — WIRE: 4 — MOUNTING: RECESSED — SOURCE: 1CL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	IT SUPPLY					20/1	0			20/1					KITCHEN COUNTER REC.	2
3	OFFICE RECEPTACLES					20/1		0		20/1					KITCHEN REFRIGERATOR	4
5	VESTIBULE CUH					20/1			0	20/1					GARBAGE DISPOSAL	6
7	CHARTING/MEDS RECEPTACLES					20/1	0			20/1					DATA ROOM RECEPTACLES	8
9	KITCHEN COUNTER REC.					20/1		0		20/1					CONFERENCE ROOM FLOORBOX	10
11	KITCHEN WARMERS					20/1			0	20/1					PRV #3	12
13	RECEPTACLES			0.4		20/1	0.4			20/1					HUMIDIFIER #2	14
15	RECEPTACLES			0.4		20/1		1.6		20/1	1.2				LIGHTS	16
17	RECEPTACLES			0.4		20/1			1.6	20/1	1.2				LIGHTS	18
19	RECEPTACLES			0.4		20/1	1.6			20/1	1.2				LIGHTS	20
21	RECEPTACLES			0.4		20/1		1.6		20/1	1.2				LIGHTS	22
23	DOOR OPERATOR	0.8				20/1			2	20/1	1.2				LIGHTS	24
25	DOOR OPERATOR	0.8				20/1	1.3			20/1				0.5	RADIANT PANEL #1	26
27	POWER SUPPLY	0.5				20/1		1.1		20/1				0.6	LOCATORS	28
29	POWER SUPPLY	0.5				20/1			1.1	20/1				0.6	LOCATORS	30
31	RECEPTACLES			0.4		20/1	0.4			20/1					SPARE	32
33	RECEPTACLES			0.4		20/1		0.4		20/1					SPARE	34
35	RECEPTACLES			0.4		20/1			0.4						SPACE	36
37	RECEPTACLES			0.4		20/1	0.4								SPACE	38
39	POWER SUPPLY	0.5				20/1		0.5							SPACE	40
41	POWER SUPPLY	0.5				20/1			0.5						SPACE	42
	CONNECTED KW	3.60	0.00	3.60	0.00		4.10	5.20	5.60		6.00	0.00	0.00	1.70		
	DEMAND	0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
	DEMAND KW	2.88	0	2.52	0						7.5	0	0	1.36		

TOTAL KW WITH DEMAND 14.3

TOTAL 3 PHASE AMPS **39.6** — 10,000 AIC INTERRUPTING RATING

NOTES:

Horty Elving

Horty Elving & Associates, Inc.

505 East Grant Street, Minneapolis, MN 55404-1490

T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County

BID PACKAGE 2

Health Center Additions & Renovation

New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/08/15	Addendum 1	
2	07/14/15	Addendum 2	

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

ELECTRICAL SCHEDULES

Scale	Date	Project Number
	06/23/15	146038

E402

PANELBOARD SCHEDULE — PANEL: 1EH1

LOCATION: ELECTRICAL ROOM | MAIN: 600A MLO
VOLTAGE: 480/277 | PH: 3 | WIRE: 4 | MOUNTING: SURFACE | SOURCE: MAIN SWBD

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	P-1					70/3	0			200/3					HP-1	2
3								0		-						4
5						-			0	-						6
7	P-2					70/3	0			200/3					HP-2	8
9						-		0		-						10
11						-			0	-						12
13	P3/P4					60/3	0			60/3					P5/P6	14
15						-		0		-						16
17						-			0	-						18
19	P7					20/3	0			20/3					P-8	20
21						-		0		-						22
23						-			0	-						24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
CONNECTED KW		0.00	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00	0.00		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0	0	0	0						0	0	0	0		

TOTAL KW WITH DEMAND 0
TOTAL 3 PHASE AMPS 0 — 35,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1LH1

LOCATION: EMERGENCY ELECTRICAL ROOM | MAIN: 150A MLO
VOLTAGE: 480/277 | PH: 3 | WIRE: 4 | MOUNTING: SURFACE | SOURCE: MAIN SWBD

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	SPARE					20/1	0			80/3					PANEL 1LL1	2
3	SPARE					20/1		0		-					SPACE	4
5	SPACE								0	-					SPACE	6
7	SPACE						0								SPACE	8
9	SPACE							0							SPACE	10
11	SPACE								0						SPACE	12
13	SPACE						0								SPACE	14
15	SPACE							0							SPACE	16
17	SPACE								0						SPACE	18
19	SPACE						0								SPACE	20
21	SPACE							0							SPACE	22
23	SPACE								0						SPACE	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
CONNECTED KW		0.00	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00	0.00		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0	0	0	0						0	0	0	0		

TOTAL KW WITH DEMAND 0
TOTAL 3 PHASE AMPS 0 — 25,000 AIC INTERRUPTING RATING

NOTES:

2

PANELBOARD SCHEDULE — PANEL: 1LL1

LOCATION: EMERGENCY ELECTRICAL ROOM | MAIN: 150A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: SURFACE | SOURCE: 1LH1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	DENLAR HOOD CONTROLS	0.5				20/1	1			20/1				0.5	DENLAR HOOD CONTROLS	2
3	KITCHEN DENLAR HOOD	0.8				20/1		1.6		20/1				0.8	KITCHEN DENLAR HOOD	4
5	DENLAR HOOD CONTROLS	0.5				20/1			1.2	15/3				0.7	DRY PIPE AIR COMPRESSOR	6
7	KITCHEN DENLAR HOOD	0.8				20/1	1.5			-				0.7		8
9	LIGHTS				1.5	20/1		2.2		-				0.7		10
11	A LIGHTS				0.9	20/1			1.3	20/1	0.4				PENTHOUSE LIGHTS	12
13	B LIGHTS				0.5	20/1	1.1			20/1				0.6	FIRE SUPPRESS. CONTROL PNL	14
15	C LIGHTS				1	20/1		1.5		20/1				0.5	DATA ROOM VESDA	16
17	EGRESS LIGHTS				0.9	20/1			0.9	20/1					FIRE ALARM PANEL	18
19	EGRESS LIGHTS				0.9	20/1	0.9								SPACE	20
21	EGRESS LIGHTS				0.5	20/1		0.5							SPACE	22
23	SPACE								0						SPACE	24
25	SPACE						0								KITCHEN DENLAR HOOD	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
CONNECTED KW		2.60	0.00	0.00	6.20		4.50	5.80	3.40		0.40	0.00	0.00	4.50		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		2.08	0	0	7.75						0.5	0	0	3.6		

TOTAL KW WITH DEMAND 13.9
TOTAL 3 PHASE AMPS 38.7 — 10,000 AIC INTERRUPTING RATING

NOTES:

1

PANELBOARD SCHEDULE — PANEL: 1NH1

LOCATION: MAIN ELECTRICAL ROOM | MAIN: 600A MLO
VOLTAGE: 480/277 | PH: 3 | WIRE: 4 | MOUNTING: SURFACE | SOURCE: MAIN SWBD

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	EXTERIOR POLE LIGHTS				1	20/1	1			20/1					SPARE	2
3	FLAGPOLE/MONU/WALK LTS				0.3	20/1		0.3		20/1					SPARE	4
5	EXTERIOR POLE LIGHTS				1	20/1			1	20/1					SPARE	6
7	SPACE						0			400/3					TRANSFORMER 1NH1	8
9	SPACE							0		-					-	10
11	SPACE								0	-					-	12
13	SPACE						0								SPACE	14
15	SPACE							0							SPACE	16
17	SPACE								0						SPACE	18
19	SPACE						0								SPACE	20
21	SPACE							0							SPACE	22
23	SPACE								0						SPACE	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
CONNECTED KW		0.00	0	0.00	2.30		0	0	0		0	0.00	0	0.00		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0	0	0	2.875						0	0	0	0		

TOTAL KW WITH DEMAND 2.88
TOTAL 3 PHASE AMPS 0 — 35,000 AIC INTERRUPTING RATING

NOTES:

2

PANELBOARD SCHEDULE — PANEL: 1NL1

LOCATION: MAIN ELECTRICAL ROOM | MAIN: 800 MCB
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: SURFACE | SOURCE: 1NH1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	PANEL 1NL2					150/3	0			150/3					1NL5	2
3						-		0		-					-	4
5						-			0	-					-	6
7	PANEL 1NL3					150/3	0			60/3					1NL6	8
9						-		0		-					-	10
11						-			0	-					-	12
13	PANEL 1NL4					150/3	0			150/3					1NL7	14
15						-		0		-					-	16
17						-			0	-					-	18
19	SPACE						0			100/3					POOL PANEL	20
21	SPACE							0		-					-	22
23	SPACE								0	-					-	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
CONNECTED KW		0.00	0.00	0.00	0.00		0.00	0.00	0.00		0.00	0.00	0.00	0.00		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0	0	0	0						0	0	0	0		

TOTAL KW WITH DEMAND 0
TOTAL 3 PHASE AMPS 0 — 22,000 AIC INTERRUPTING RATING

NOTES:

2

1

PANELBOARD SCHEDULE — PANEL: 1NL2

LOCATION: AREA 'A' CORRIDOR | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: 1NL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT RECEPTACLES			1		20/1	2.2			20/1				1.2	SPA	2
3	RESIDENT RECEPTACLES			1		20/1		1.6		20/1		0.6			SPA RECEPTACLES	4
5	RESIDENT RECEPTACLES			1		20/1			1.4	20/1		0.4			RECEPTACLE NEXT TO PANEL	6
7	RESIDENT RECEPTACLES			1		20/1	1.8			20/1		0.8			CORRIDOR RECEPTACLES	8
9	RESIDENT RECEPTACLES			1		20/1		1.6		20/1		0.6			DINING RECEPTACLES	10
11	RESIDENT RECEPTACLES			1		20/1			1.8	20/1		0.8			LIVING ROOM RECEPTACLES	12
13	RESIDENT RECEPTACLES			1		20/1	2			20/1				1	LIVING/DINING FIREPLACE	14
15	RESIDENT RECEPTACLES			1		20/1		1.8		20/1		0.8			CORRIDOR RECEPTACLES	16
17	RESIDENT RECEPTACLES			1		20/1			1.8	20/1				0.8	NURSE STATION SCALE	18
19	NURSE STATION OFFICE REC.			0.6		20/1	1.4			20/1		0.8			ENTRY EXTERIOR RECEPTACLES	20
21	RESIDENT RECEPTACLES			1		20/1		3		40/2				2	KITCHEN RANGE	22
23	RESIDENT RECEPTACLES			1		20/1			3	-				2		24
25	RESIDENT RECEPTACLES			1		20/1	3			40/2				2	KITCHEN DISHWASHER	26
27	RESIDENT RECEPTACLES			1		20/1		3		-				2		28
29	RESIDENT RECEPTACLES			1		20/1			1.6	20/1		0.6			COURTYARD RECEPTACLES	30
31	RESIDENT RECEPTACLES			1		20/1	1			20/1					SPARE	32
33	RESIDENT RECEPTACLES			1		20/1		1		20/1					SPARE	34
35	RESIDENT RECEPTACLES			1		20/1			1	20/1					SPARE	36
37						20/1	0								SPACE	38
39	LAUNDRY RECEPTACLES			1		20/1		1							SPACE	40
41	WASHER			1		20/1			1						SPACE	42
43	DRYER					30/2	0								SPACE	44
45						-		0							SPACE	46
47	SPARE					20/1			0						SPACE	48
49	SPARE					20/1	0								SPACE	50
51	SPACE							0							SPACE	52
53	SPACE								0						SPACE	54
CONNECTED KW		0.00	0.00	19.60	0.00		11.40	13.00	11.60		0.00	5.40	0.00	11.00		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0	0	13.72	0						0	3.78	0	8.8		

TOTAL KW WITH DEMAND 26.3
TOTAL 3 PHASE AMPS 73.1 — 10,000 AIC INTERRUPTING RATING

NOTES:

1

PANELBOARD SCHEDULE — PANEL: 1NL3

LOCATION: AREA 'B' CORRIDOR | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: 1NL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT RECEPTACLES					20/1	0			20/1					SUPPLY RECEPTACLES	2
3	RESIDENT RECEPTACLES					20/1		0		20/1					CORRIDOR RECEPTACLES	4
5	RESIDENT RECEPTACLES					20/1			0	20/1					WASHER	6
7	RESIDENT RECEPTACLES					20/1	0			30/2					DRYER	8
9	RESIDENT RECEPTACLES					20/1		0		-						10
11	RESIDENT RECEPTACLES					20/1			0	20/1					RESIDENT RECEPTACLES	12
13	RESIDENT RECEPTACLES					20/1	0			20/1					RESIDENT RECEPTACLES	14
15	COURTYARD RECEPTACLES					20/1		0		20/1					RESIDENT RECEPTACLES	16
17	SPA RECEPTACLES					20/1			0	20/1					RESIDENT RECEPTACLES	18
19	SPA					20/1	0			20/1					RESIDENT RECEPTACLES	20
21	CORRIDOR RECEPTACLES					20/1		0		20/1					RESIDENT RECEPTACLES	22
23	EXTERIOR RECEPTACLE					20/1			0	20/1					RESIDENT RECEPTACLES	24
25	DINING RECEPTACLES					20/1	0			20/1					RESIDENT RECEPTACLES	26
27	LIVING ROOM RECEPTACLES					20/1		0.8		20/1				0.80	NURSE STATION SCALE	28
29	LIVING ROOM FIREPLACE					20/1			0.6	20/1		0.60			LAUNDRY RECEPTACLE	30
31	KITCHEN DISHWASHER					40/2	0			20/1					SPARE	32
33						-		0		20/1					SPARE	34
35	KITCHEN RANGE					40/2			0	20/1					SPARE	36
37						-	0			20/1					SPARE	38
39	SPARE					20/1		0		20/1					SPARE	40
41	SPARE					20/1			0	20/1					SPARE	42
43	SPACE						0			20/1					SPARE	44
45	SPACE							0		20/1					SPARE	46
47	SPACE								0						SPACE	48
49	SPACE						0								SPACE	50
51	SPACE							0							SPACE	52
53	SPACE								0						SPACE	54
CONNECTED KW		0.00	0.00	0.00	0.00		0.00	0.80	0.60		0.00	0.60	0.00	0.80		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0	0	0	0						0	0.42	0	0.64		

TOTAL KW WITH DEMAND 1.06
TOTAL 3 PHASE AMPS 2.95 — 10,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1NL4

LOCATION: AREA 'B' CORRIDOR | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: 1NL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RESIDENT RECEPTACLES			0.4		20/1	0.4			40/2					KITCHEN RANGE	2
3	RESIDENT RECEPTACLES			0.4		20/1		0.4		-						4
5	RESIDENT RECEPTACLES			0.4		20/1			0.4	20/1					COURTYARD RECEPTACLES	6
7	RESIDENT RECEPTACLES			0.4		20/1	0.4			20/1					DINING RECEPTACLES	8
9	RESIDENT RECEPTACLES			0.4		20/1		0.4		20/1					CORRIDOR RECEPTACLES	10
11	RESIDENT RECEPTACLES			0.4		20/1			0.4	20/1					EXTERIOR RECEPTACLE	12
13	RESIDENT RECEPTACLES			0.4		20/1	0.8			20/1		0.4			RESIDENT RECEPTACLES	14
15	RESIDENT RECEPTACLES			0.4		20/1		0.8		20/1		0.4			RESIDENT RECEPTACLES	16
17	CORRIDOR RECEPTACLES			0.4		20/1			0.8	20/1		0.4			RESIDENT RECEPTACLES	18
19	WASHER					20/1	0.4			20/1		0.4			RESIDENT RECEPTACLES	20
21	DRYER					40/2		0.4		20/1		0.4			RESIDENT RECEPTACLES	22
23						-			0.4	20/1		0.4			RESIDENT RECEPTACLES	24
25	SUPPLY REC.					20/1	0.4			20/1		0.4			RESIDENT RECEPTACLES	26
27	NURSE STATION REC.					20/1		0.4		20/1		0.4			RESIDENT RECEPTACLES	28
29	LIVING ROOM RECEPTACLES					20/1			0	20/1					SPA	30
31	DINING RECEPTACLES					20/1	0			20/1					SPA RECEPTACLES	32
33	DINING/LIVING FIREPLACE					20/1		0		20/1					CORRIDOR RECEPTACLES	34
35	KITCHEN RANGE					40/1			0	20/1					MULTI-PURPOSE REC.	36
37						-	0			20/1					STORAGE RECEPTACLES	38
39	SPARE					20/1		0.8		20/1				0.8	NURSE STATION SCALE	40
41	SPARE					20/1			0.6	20/1		0.6			LAUNDRY RECEPTACLE	42
43	SPARE					20/1	0			20/1					SPARE	44
45	SPACE							0							SPACE	46
47	SPACE								0						SPACE	48
49	SPACE						0								SPACE	50
51	SPACE							0							SPACE	52
53	SPACE								0						SPACE	54
CONNECTED KW		0.00	0.00	3.60	0.00		2.40	3.20	2.60		0.00	3.80	0.00	0.80		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0	0	2.52	0						0	2.66	0	0.64		

TOTAL KW WITH DEMAND 5.82
TOTAL 3 PHASE AMPS 16.2 — 10,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1NL5

LOCATION: AREA 'C' STORAGE ROOM | MAIN: 225A MLO
VOLTAGE: 208/120 | PH: 3 | WIRE: 4 | MOUNTING: RECESSED | SOURCE: 1NL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	SUPPLY RECEPTACLES					20/1	0			20/1					RESIDENT RECEPTACLES	2
3	CORRIDOR RECEPTACLES					20/1		0		20/1					RESIDENT RECEPTACLES	4
5	STORAGE RECEPTACLES					20/1			0	20/1					RESIDENT RECEPTACLES	6
7	RESIDENT RECEPTACLES					20/1	0			20/1					RESIDENT RECEPTACLES	8
9	RESIDENT RECEPTACLES					20/1		0		20/1					RESIDENT RECEPTACLES	10
11	RESIDENT RECEPTACLES					20/1			0	20/1					CORRIDOR RECEPTACLES	12
13	RESIDENT RECEPTACLES					20/1	0			20/1					LIVING/DINING FIREPLACE	14
15	RESIDENT RECEPTACLES					20/1		0		20/1					KITCHEN DISHWASHER	16
17	DINING CORRIDOR REC.					20/1			0	40/2					KITCHEN RANGE	18
19	EXTERIOR RECEPTACLE					20/1	0			-						20
21	STAFF TOILET					20/1		0		20/1					SPA	22
23	CHARTING/CMEDS RECEPTACLES					20/1			0	20/1					SPA RECEPTACLES	24
25	SPARE					20/1	0			20/1					CONFERENCE RECEPTACLES	26
27	SPARE					20/1		0		20/1					WASHING MACHINE	28
29	SPARE					20/1			0	30/2					DRYER	30
31	SPARE					20/1	0			-						32
33	SPACE							0.6		20/1		0.60			LAUNDRY RECEPTACLE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
43	SPACE						0								SPACE	44
45	SPACE							0							SPACE	46
47	SPACE								0						SPACE	48
49	SPACE						0								SPACE	50
51	SPACE							0							SPACE	52
53	SPACE								0						SPACE	54
CONNECTED KW		0.00	0.00	0.00	0.00		0.00	0.60	0.00		0.00	0.60	0.00	0.00		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0	0	0	0						0	0.42	0	0		

TOTAL KW WITH DEMAND 0.42
TOTAL 3 PHASE AMPS 1.17 — 10,000 AIC INTERRUPTING RATING

NOTES:

Horty Elving™

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/08/15	Addendum 1	
2	07/14/15	Addendum 2	

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

ELECTRICAL SCHEDULES

Scale	Date	Project Number
	06/23/15	146038

E403

PANELBOARD SCHEDULE — PANEL: W3

LOCATION: CBRF UNIT C (APARTMENT) MAIN: 60A/2 MLO
VOLTAGE: 208/120 PH: 1 WIRE: 3 MOUNTING: RECESSED SOURCE: W1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	KW / PHASE - B -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RECEPTACLE			0.4		20/1	0.8		20/1		0.4			RECEPT	2
3	RECEPTACLE			1.2		20/1		1.2	20/1					LIGHTS	4
5	RECEPTACLE			1		20/1	1							SPACE	6
7	RECEPTACLE			0.4		20/1		0.4						SPACE	8
9	RECEPTACLE			0.4		20/1	0.4							SPACE	10
11	SPARE					20/1		0						SPACE	12

10,000 AIC INTERRUPTING RATING

NOTES: TYPICAL OF S2 (SOURCE S1), E3(SOURCE E1), 2E2 (SOURCE 2E1), 2SE (SOURCE 2S1), AND 2W3 (SOURCE 2W1)
PROVIDE AN ARC FAULT CIRCUIT BREAKER FOR CIRCUIT BREAKER 3.

PANELBOARD SCHEDULE — PANEL: W4

LOCATION: CBRF UNIT D (APARTMENT) MAIN: 60A/2 MLO
VOLTAGE: 208/120 PH: 1 WIRE: 3 MOUNTING: RECESSED SOURCE: W1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	KW / PHASE - A -	KW / PHASE - B -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RECEPTACLE			0.4		20/1	0.8		20/1		0.4			RECEPT	2
3	RECEPTACLE			1.2		20/1		1.2	20/1					LIGHTS	4
5	RECEPTACLE			0.4		20/1	0.4							SPACE	6
7	RECEPTACLE	0.8				20/1		0.8						SPACE	8
9	RECEPTACLE	0.8				20/1	0.8							SPACE	10
11	SPARE					20/1		0						SPACE	12

10,000 AIC INTERRUPTING RATING

NOTES: TYPICAL OF 2W4(SOURCE 2W1). PROVIDE AN ARC FAULT CIRCUIT BREAKER FOR CIRCUIT BREAKER 3.

PANELBOARD SCHEDULE — PANEL: 1NL6

LOCATION: PENTHOUSE MAIN: 60A MLO
VOLTAGE: 208/120 PH: 3 WIRE: 4 MOUNTING: SURFACE SOURCE: 1NL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	RECEPTACLES			0.60		20/1	1.1			20/1	0.5				LIGHTS	2
3	UNIT HEATER	0.60				20/1		0.6		20/1					AHU LIGHT	4
5	HUMIDIFIER #1					20/1			0	20/1					SPARE	6
7	SPARE					20/1	0			20/1					SPARE	8
9	SPARE					20/1		0		20/1					SPARE	10
11	SPARE					20/1			0	20/1					SPARE	12
13	SPARE					20/1	0								SPACE	14
15	SPARE					20/1		0							SPACE	16
17	SPACE								0						SPACE	18
19	SPACE						0								SPACE	20
21	SPACE							0							SPACE	22
23	SPACE								0						SPACE	24
25	SPACE						0								SPACE	26
27	SPACE							0							SPACE	28
29	SPACE								0						SPACE	30
31	SPACE						0								SPACE	32
33	SPACE							0							SPACE	34
35	SPACE								0						SPACE	36
37	SPACE						0								SPACE	38
39	SPACE							0							SPACE	40
41	SPACE								0						SPACE	42
CONNECTED KW		0.60	0.00	0.60	0.00		1.10	0.60	0.00		0.50	0.00	0.00	0.00		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		0.48	0	0.42	0						0.625	0	0	0		

TOTAL KW WITH DEMAND 1.53
TOTAL 3 PHASE AMPS 4.24 — 10,000 AIC INTERRUPTING RATING

NOTES:

PANELBOARD SCHEDULE — PANEL: 1NL7

LOCATION: MAIN ELECTRICAL ROOM MAIN: 150A MLO
VOLTAGE: 208/120 PH: 3 WIRE: 4 MOUNTING: SURFACE SOURCE: 1NL1

CKT. NO.	DESCRIPTION	EQP. KW	MTR. KW	REC. KW	LTG. KW	C.B. A/P	- A -	- B -	- C -	C.B. A/P	LTG. KW	REC. KW	MTR. KW	EQP. KW	DESCRIPTION	CKT. NO.
1	EXTERIOR RECEPTACLES			0.6		20/1	1.4			20/1		0.8			OT BATHROOM RECEPTACLES	2
3	MECHANICAL RM RECEPTACLES			0.6		20/1		1.2		20/1		0.6			OFFICE RECEPTACLES	4
5	ELECTRICAL RM RECEPTACLES			0.4		20/1			0.8	20/1		0.4			THERAPY RECEPTACLES	6
7	CORRIDOR RECEPTACLES			0.8		20/1	1.2			20/1		0.4			THERAPY RECEPTACLES	8
9	OFFICE RECEPTACLES			0.6		20/1		1		20/1		0.4			THERAPY RECEPTACLES	10
11	POOL CHANGING RECEPTACLES			0.4		20/1			0.8	20/1		0.4			THERAPY RECEPTACLES	12
13	COURTYARD RECEPTACLES			0.6		20/1	1			20/1		0.4			LOBBY EXTERIOR REC.	14
15	TREATMENT/OT BEDROOM REC.			0.6		20/1		1		20/1		0.4			CHAPEL COUNTER REC.	16
17	OT KITCHEN RECEPTACLES			0.4		20/1			0.8	20/1		0.4			CHAPEL REFRIGERATOR	18
19	OT DISHWASHER	1				20/1	1.4			20/1		0.4			CAHPEL RECEPTACLES	20
21	OT REFRIGERATOR	1				20/1		1.4		20/1		0.4			CHAPEL FLOORBOX	22
23	OT MICROWAVE	1.2				20/1			2	20/1		0.8			CHAPEL PODIUM REC.	24
25	OT WASHER	1.2				20/1	1.6			20/1		0.4			GENERAL STORE COUNTER REC.	26
27	OT DRYER	1				30/2		1.6		20/1		0.6			LOBBY RECEPTACLES	28
29	-	1				-			1.6	20/1		0.6			GAME ROOM RECEPTACLES	30
31	BARBER RECEPTACLES	1.2				20/1	2			20/1		0.8			GAME ROOM RECEPTACLES	32
33	BARBER RECEPTACLES	1.2				20/1		1.8		20/1		0.6			LIBRARY RECEPTACLES	34
35	BARBER RECEPTACLES	1.2				20/1			1.8	20/1		0.6			STAFF BREAK RECEPTACLES	36
37	HAIR DRYER	1.2				20/1	1.8			20/1		0.6			STAFF BREAK RECEPTACLES	38
39	HAIR DRYER	1.2				20/1		1.8		20/1		0.6			STAFF BREAK DISHWASHER	40
41	POOL SUMP PUMPS		0.7			15/3			1.3	20/1		0.6			STAFF BREAK COFFEE	42
43	(ADD ALTERNATE)		0.7			-	1.3			20/1		0.6			STAFF BREAK GARBAGE DISP.	44
45	-		0.7			-		1.3		20/1		0.6			STAFF BREAK TOASTER	46
47	AHU-6			1		20/3			1.6	20/1		0.6			STAFF BREAK MICROWAVE	48
49	(ADD ALTERNATE)			1		-	2.4			15/3		1.4			CU-6	50
51	-			1		-		2.4		-		1.4			(ADD ALTERNATE)	52
53	SPARE					20/1			1.4	-		1.4			-	54
55	OT KITCHEN RANGE					40/2		0		20/1					SPARE	56
57	-					-			0	20/1					SPARE	58
59	SPARE					20/1	0			20/1					SPARE	60
61	SPARE					20/1		0		20/1					SPARE	62
63	SPARE								0						SPACE	64
65	SPACE							0							SPACE	66
67	SPACE								0						SPACE	68
69	SPACE						0.5			20/1				0.5	MOTORIZED SCREEN	70
71	SPACE							0.5		20/1				0.5	PROJECTOR	72
CONNECTED KW		12.40	2.10	8.00	0.00		14.10	13.50	12.10		0.00	17.20	0.00	0.00		
DEMAND		0.8	0.8	0.7	1.25						1.25	0.7	0.8	0.8		
DEMAND KW		9.92	1.68	5.6	0						0	12.04	0	0		

TOTAL KW WITH DEMAND 29.2
TOTAL 3 PHASE AMPS 81.3 — 22,000 AIC INTERRUPTING RATING

NOTES:

MOTOR & EQUIPMENT SCHEDULE

MOTOR/ EQUIP NO.	DESCRIPTION	LOCATION	kW	HP	MCA	MAX OPD	VOLT/ PHASE	DISC BY DIV	DISC TYPE	STARTER BY DIV	STARTER TYPE/CNTRL	MINIMUM CONDUCTOR SIZE	FED FROM	REMARKS
AHU-1	AIR HANDLING UNIT	PENTHOUSE			54	60	480/3	26	FDS	DIV 23	VFD	SEE ONE LINE	SEE ONE LINE	PROVIDE NEMA 3R RATED FDS, PROVIDE 1 DUCT DETECTOR IN SA AND 1 IN RA
AHU-3	AIR HANDLING UNIT	AREA 'D' BASEMENT			34.8	40	480/3	26	FDS	DIV 23	VFD	SEE ONE LINE	SEE ONE LINE	PROVIDE NEMA 3R RATED FDS, PROVIDE 1 DUCT DETECTOR IN SA AND 2 IN RA
AHU-5	AIR HANDLING UNIT	AREA 'E' BASEMENT			18.6	20	480/3	26	FDS	DIV 23	VFD	SEE ONE LINE	SEE ONE LINE	PROVIDE NEMA 3R RATED FDS, PROVIDE 6 DUCT DETECTORS IN SA AND 1 IN RA
B-1	BOILER	AREA 'A' MECHANICAL			20	20	120/1	26	MRS			1/2"C, 3#12 & 1#12 GND	1CL1	
CU-6	POOL CONDENSOR	AREA A			7	15	208/3	26	FDS			1/2" C, 3#12 & 1#12 GND	1NL7	ADD ALTERNATE #1, PROVIDE NEMA 3R RATED FDS
CU-3	CONDENSING UNIT FOR AHU-3	AREA 'D' EXTERIOR			91.3	110	480/3	26	FDS			SEE ONE LINE	SEE ONE LINE	PROVIDE NEMA 3R RATED FDS
CU-4	CONDENSING UNIT FOR AHU-4	AREA 'D' ROOF			72.1	80	480/3	26	FDS			SEE ONE LINE	SEE ONE LINE	PROVIDE NEMA 3R RATED FDS
CU-5	CONDENSING UNIT FOR AHU-5	AREA 'E' EXTERIOR			91.3	110	480/3	26	FDS			SEE ONE LINE	SEE ONE LINE	PROVIDE NEMA 3R RATED FDS
CUH-1	CABINET UNIT HEATER	VESTIBULE A100		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL1	
CUH-2	CABINET UNIT HEATER	DINING B146		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL4	
CUH-3	CABINET UNIT HEATER	ENTRY B154		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL4	
CUH-4	CABINET UNIT HEATER	CORRIDOR B190		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL4	
CUH-5	CABINET UNIT HEATER	CORRIDOR B190		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL4	
CUH-6	CABINET UNIT HEATER	DINING B250		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL3	
CUH-7	CABINET UNIT HEATER	ENTRY B233		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL3	
CUH-8	CABINET UNIT HEATER	DINING A208		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL2	
CUH-9	CABINET UNIT HEATER	ENTRY A216		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL2	
CUH-10	CABINET UNIT HEATER	CORRIDOR A160		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL1	
CUH-11	CABINET UNIT HEATER	CORRIDOR C160		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL5	
CUH-12	CABINET UNIT HEATER	SUN ROOM C143		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL5	
CUH-13	CABINET UNIT HEATER	VESTIBULE C135		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL5	
CUH-14	CABINET UNIT HEATER	VESTIBULE 0D115		1/10		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	B-58	
AHU-6	AIR HANDLING UNIT	AREA A			13	20	208/3	26	COMBO	26	COMBO	1/2"C, 3#12 & 1#12 GND	1NL7	LOCATED UNDER FLOOR. ADD ALTERNATE #1. RUNS W/ EF-8
EF-1	EXHAUST FAN	OT BATH A153		1/8		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	SEE PLANS	
EF-2	EXHAUST FAN	HSKP A132		1/8		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL1	
EF-3	EXHAUST FAN	TOILET A133		1/8		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	SEE PLANS	
EF-4	EXHAUST FAN	OXY A231		1/8		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL2	
EF-5	EXHAUST FAN	OXY B256		1/8		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL3	
EF-6	EXHAUST FAN	OXY B134		1/8		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL4	
EF-7	EXHAUST FAN	ELEVATOR AREA 'D'		1/8		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	W1	
EF-8	EXHAUST FAN	POOL		1/8		20	120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL1	ADD ALTERNATE #1. CONNECT TO AHU-6 CONTROL CIRCUIT
HP-1	HEAT PUMP	AREA 'A' MECHANICAL			135		460/3	26	FDS			SEE ONE LINE	SEE ONE LINE	
HP-2	HEAT PUMP	AREA 'A' MECHANICAL			135		460/3	26	FDS			SEE ONE LINE	SEE ONE LINE	
H-1	HUMIDIFIER	PENTHOUSE				20	120/1	26	MRS			1/2"C, 2#12 & 1#12 GND	1NL6	
H-2	HUMIDIFIER	MECHANICAL 1E100				20	120/1	26	MRS			1/2"C, 2#12 & 1#12 GND	1CL5	
H-3	HUMIDIFIER	AREA 'D' BASEMENT	28.1				480/3	26	DS			SEE ONE LINE	SEE ONE LINE	
H-4	HUMIDIFIER	STORAGE 2D145				20	120/1	26	MRS			1/2"C, 2#12 & 1#12 GND	2S1	
P-1	GROUND SOURCE PUMP	AREA 'A' MECHANICAL		15			460/3	26	FDS	23	VFD	SEE ONE LINE	SEE ONE LINE	
P-2	GROUND SOURCE PUMP	AREA 'A' MECHANICAL		15			460/3	26	FDS	23	VFD	SEE ONE LINE	SEE ONE LINE	
P-3	CHILLED WATER PUMP	AREA 'A' MECHANICAL		7.5			460/3	26	FDS	23	VFD	SEE ONE LINE	SEE ONE LINE	
P-4	CHILLED WATER PUMP	AREA 'A' MECHANICAL		7.5			460/3	26	FDS	23	VFD	SEE ONE LINE	SEE ONE LINE	
P-5	HOT WATER PUMP	AREA 'A' MECHANICAL		15			460/3	26	FDS	23	VFD	SEE ONE LINE	SEE ONE LINE	
P-6	HOT WATER PUMP	AREA 'A' MECHANICAL		15			460/3	26	FDS	23	VFD	SEE ONE LINE	SEE ONE LINE	
P-7	WELL FIELD PUMP	AREA 'A' MECHANICAL		5			460/3	26	COMBO	26	COMBO	SEE ONE LINE	SEE ONE LINE	
P-8	WELL FIELD PUMP	AREA 'A' MECHANICAL		5			460/3	26	COMBO	26	COMBO	SEE ONE LINE	SEE ONE LINE	
P-9	HYDRONIC HEAT PUMP	AREA 'E' 0E131		7.5		20	460/3	26	FDS	23	VFD	SEE ONE LINE	CC	PROVIDE NEW 20A/3P BREAKER IN PANEL
P-10	HYDRONIC HEAT PUMP	AREA 'E' 0E131		7.5		20	460/3	26	FDS	23	VFD	SEE ONE LINE	CC	PROVIDE NEW 20A/3P BREAKER IN PANEL
P-11	BOILER PUMP	AREA 'E' 0E131		1.5			460/3	26	COMBO	26	COMBO	3/4"C, 3#12 & 1#12 GND	SEE PLANS	
P-12	BOILER PUMP	AREA 'E' 0E131		1.5			460/3	26	COMBO	26	COMBO	3/4"C, 3#12 & 1#12 GND	SEE PLANS	
P-13	BOILER PUMP	AREA 'A' MECHANICAL		2			460/3	26	COMBO	26	COMBO	3/4"C, 3#12 & 1#12 GND	SEE PLANS	
P.R.V. #1	POWER ROOF VENT	AREA 'D' ROOF		1/2			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	2W1	
P.R.V. #2	POWER ROOF VENT	AREA 'D' ROOF		1/4			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	2W1	
P.R.V. #3	POWER ROOF VENT	AREA 'E' ROOF		1/6			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL5	
P.R.V. #4	POWER ROOF VENT	AREA 'A' ROOF		1/6			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL1	
IF-1	IN LINE FAN	POOL STORAGE ROOM		1/6			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1CL1	ADD ALTERNATE #1
RP-1	RADIANT HEATING PANEL	SPA C169	1/2				120/1	26	COMBO	23	T-STAT	1/2"C, 2#12 & 1#12 GND	1CL5	
RP-2	RADIANT HEATING PANEL	SPA A181	1/2				120/1	26	COMBO	23	T-STAT	1/2"C, 2#12 & 1#12 GND	1CL2	
RP-3	RADIANT HEATING PANEL	SPA B171	1/2				120/1	26	COMBO	23	T-STAT	1/2"C, 2#12 & 1#12 GND	1CL4	
RP-4	RADIANT HEATING PANEL	SPA B221	1/2				120/1	26	COMBO	23	T-STAT	1/2"C, 2#12 & 1#12 GND	1CL3	
RP-5	RADIANT HEATING PANEL	SPA 1D177								23				PROVIDE J-BOX, CONDUIT, AND WIRING FOR T-STAT
RP-6	RADIANT HEATING PANEL	SPA 2D177								23				PROVIDE J-BOX, CONDUIT, AND WIRING FOR T-STAT
RTU-2	ROOFTOP UNIT	AREA 'C' ROOF			26	30	480/3	26	FDS	DIV 23	VFD	SEE ONE LINE	SEE ONE LINE	PROVIDE NEMA 3R RATED FDS, PROVIDE 2 DUCT DETECTORS IN SA AND 2 IN RA
RTU-4	ROOFTOP UNIT	AREA 'D' ROOF			19.8	20	480/3	26	FDS	DIV 23	VFD	SEE ONE LINE	SEE ONE LINE	PROVIDE NEMA 3R RATED FDS, PROVIDE 3 DUCT DETECTORS IN SA AND 3 IN RA
SF-1	SIDEWALL FAN	0D127		1/4			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	B58	
SF-2	SIDEWALL FAN	1D121		1/4			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	E1	
SF-3	SIDEWALL FAN	1D153		1/4			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	S1	
SF-4	SIDEWALL FAN	2D121		1/4			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	2E1	
SF-5	SIDEWALL FAN	2D153		1/4			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	2S1	
SSC	SPLIT SYSTEM CONDENSOR	AREA 'A' ROOF				25	208/1	26	FDS WP			3/4"C, 2#10 & 1#10 GND	1CL1	
SSE	SPLIT SYSTEM EVAPORATOR	MAIN DATA ROOM AREA 'A'				30	277/1	23	DS			3/4"C, 2#10 & 1#10 GND	1CH1	
UH-1	UNIT HEATER	PENTHOUSE		1/20			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	1NL6	
UH-2	UNIT HEATER	BASEMENT AREA 'D'		1/20			120/1	23	MRS			1/2"C, 2#12 & 1#12 GND	B-58	

LEGEND:
FDS = FUSED SAFETY SWITCH
SHUNT = SHUNT TRIP SAFETY SWITCH
DS = NON FUSED SAFETY SWITCH
VFD = VARIABLE FREQUENCY DRIVE
VFD = VARIABLE FREQUENCY DRIVE
COMBO = DISCONNECT SWITCH, MOTOR STARTER, HOA, AUX.CONTACTS, 24 VAC TRANSFORMER.
FVNR = FULL VOLTAGE NON-REVERSING STARTER
MRS = MOTOR RATED SWITCH
HOA = HAND/OFF/AUTO CONTROL
SS = START/STOP CONTROL
T-STAT = THERMOSTAT

LIGHTING CONTROL PANEL SCHEDULE — PANEL: A112

LOCATION: CLUB/GAME ROOM A112

CIRCUIT #	ZONE	CONTROL	ZONE DESCRIPTION	VOLT	LOAD TYPE
1CL1/37	A	DIMMING	D5 DIMMING LED DOWNLIGHTS	120	DIMMING
1CL1/37	B	SWITCH	P4 BILLIARDS LIGHT	120	NON-DIM

NOTES: (1) WATTSTOPPER LMRC-212, (1) LMSW-101-LA SWITCH, LMDM-101-LA DIMMER, (2) LMDC-100 VACANCY SENSORS

LIGHTING CONTROL PANEL SCHEDULE — PANEL: A128

LOCATION: LARGE GROUP ROOM/CHAPEL

CIRCUIT #	ZONE	CONTROL	ZONE DESCRIPTION	VOLT	LOAD TYPE
1CL1/37	A	SWITCH	P1 CLF BOWL (EAST)	120	NON-DIM
1CL1/37	B	DIMMING	D5 DIMMING LED DOWNLIGHTS	120	DIMMING
1CL1/37	C	DAYLIGHT HARVESTING	D5 DIMMING LED DOWNLIGHTS	120	DIMMING
1CL1/37	D	SWITCH	P1 CLF BOWL (WEST)	120	NON-DIM
1CL1/37	E	DIMMING	D5 DIMMING LED DOWNLIGHTS	120	DIMMING
1CL1/37	F	DIMMING/ON-OFF	D5 DIMMING LED DOWNLIGHTS	120	DIMMING

NOTES: (2) LMRC101 CONTROLLERS, (2) LMRC-212 CONTROLLERS, (1) LMLS-400 DAYLIGHT SENSORS, (2) LMSW-101-LA, (3) LMDM-101-LA, (1) LMIO-102 DIGITAL PARTITION INTERACE, (4) LMDC-100 VACANCY SENSORS

LIGHTING CONTROL PANEL SCHEDULE — PANEL: A137

LOCATION: TREATMENT A137

CIRCUIT #	ZONE	CONTROL	ZONE DESCRIPTION	VOLT	LOAD TYPE
1CL1/35	A	ON-OFF/VACANCY SENSOR	TREATMENT A154	120	NON-DIM
1CL1/35	B	ON-OFF/VACANCY SENSOR	THERAPY A137 CENTRAL	120	NON-DIM
1CL1/35	C	ON-OFF/DAYLIGHT HARVST/ VACANCY SENSOR	THERAPY A137 WINDOW	120	DIMMING

NOTES: (1) WATTSTOPPER LMRC-213, (6) LMDC-101 SENSORS, (1) LMLS-400 ZONE C DAYLIGHT SENSOR

LIGHTING CONTROL PANEL SCHEDULE — PANEL: A208

LOCATION: DINING A208

CIRCUIT #	ZONE	CONTROL	ZONE DESCRIPTION	VOLT	LOAD TYPE
1CL2/43	A	DAYLIGHT HARVEST/VAC SENS	D5 LED DOWNLIGHT - WINDOW	120	NON-DIM
1CL2/43	B	DIMMING/VACANCY SENSOR	D5 LED DOWNLIGHT - DINING	120	NON-DIM
1CL2/43	C	DIMMING/VACANCY SENSOR	D5 LED DOWNLIGHT - LIVING	120	DIMMING
1CL2/43	D	ON-OFF/VACANCY SENSOR	P3 CLF BOWLS	120	NON-DIM

NOTES: (1) WATTSTOPPER LMRC-213, (1) LMLS-400 PHOTO SENSOR, (1) LMDM-101-LA, (1) LMSW-100-LA SWITCH, (3) LMDC-100-LA VACANCY SENSOR, (1) LMRC-101 CONTROLLER

LIGHTING CONTROL PANEL SCHEDULE — PANEL: B146

LOCATION: DINING B146

CIRCUIT #	ZONE	CONTROL	ZONE DESCRIPTION	VOLT	LOAD TYPE
1CL2/43	A	DAYLIGHT HARVEST/VAC SENS	D5 LED DOWNLIGHT - WINDOW	120	NON-DIM
1CL2/43	B	DIMMING/VACANCY SENSOR	D5 LED DOWNLIGHT - DINING	120	NON-DIM
1CL2/43	C	DIMMING/VACANCY SENSOR	D5 LED DOWNLIGHT - LIVING	120	DIMMING
1CL2/43	D	ON-OFF/VACANCY SENSOR	P3 CLF BOWLS		

NOTES: (1) WATTSTOPPER LMRC-213, (1) LMLS-400 PHOTO SENSOR, (1) LMSW-101-LA, (1) LMRC-101-LA CONTROLLER, (2) LMDC-100-LA VACANCY SENSOR

LIGHTING CONTROL PANEL SCHEDULE — PANEL: B250

LOCATION: DINING B250

CIRCUIT #	ZONE	CONTROL	ZONE DESCRIPTION	VOLT	LOAD TYPE
1CL2/43	A	DAYLIGHT HARVEST/VAC SENS	D5 LED DOWNLIGHT - WINDOW	120	NON-DIM
1CL2/43	B	DIMMING/VACANCY SENSOR	D5 LED DOWNLIGHT - DINING	120	NON-DIM
1CL2/43	C	DIMMING/VACANCY SENSOR	D5 LED DOWNLIGHT - LIVING	120	DIMMING
1CL2/43	D	ON-OFF/VACANCY SENSOR	P3 CLF BOWLS		

NOTES: (1) WATTSTOPPER LMRC-213, (1) LMLS-400 PHOTO SENSOR, (1) LMSW-101-LA, (1) LMRC-101-LA CONTROLLER, (2) LMDC-100-LA VACANCY SENSOR

LIGHTING CONTROL PANEL SCHEDULE — PANEL: B191

LOCATION: MULTI-PURPOSE B191

CIRCUIT #	ZONE	CONTROL	ZONE DESCRIPTION	VOLT	LOAD TYPE
1CL3/26	A	SWITCH	P3 CFL BOWL	120	NON-DIM
1CL3/26	B	DIMMING	D5 LED DOWNLIGHT - CENTRAL	120	DIMMING
1CL3/26	C	DAYLIGHT HARVESTING	D5 LED DOWNLIGHT - WINDOW	120	DIMMING

NOTES: (1) WATTSTOPPER LMRC-213, (1) LMLS-400 PHOTO SENSOR, (1) LMDM-101-LA, (1) LMSW-101 LA SWITCH

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

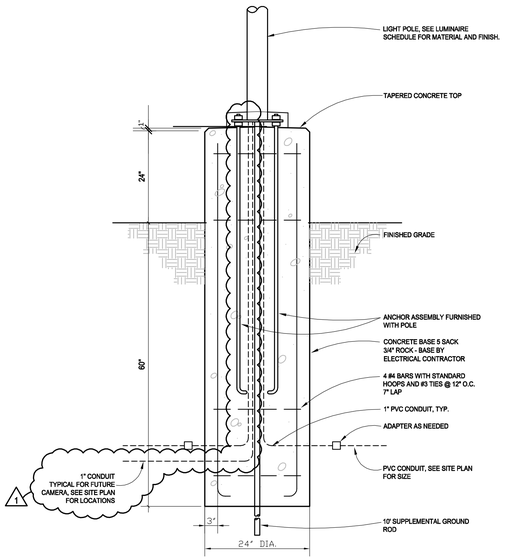
Rev. #	Date	Revision Description
1	07/08/15	Addendum 1
2	07/14/15	Addendum 2

© COPYRIGHT This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

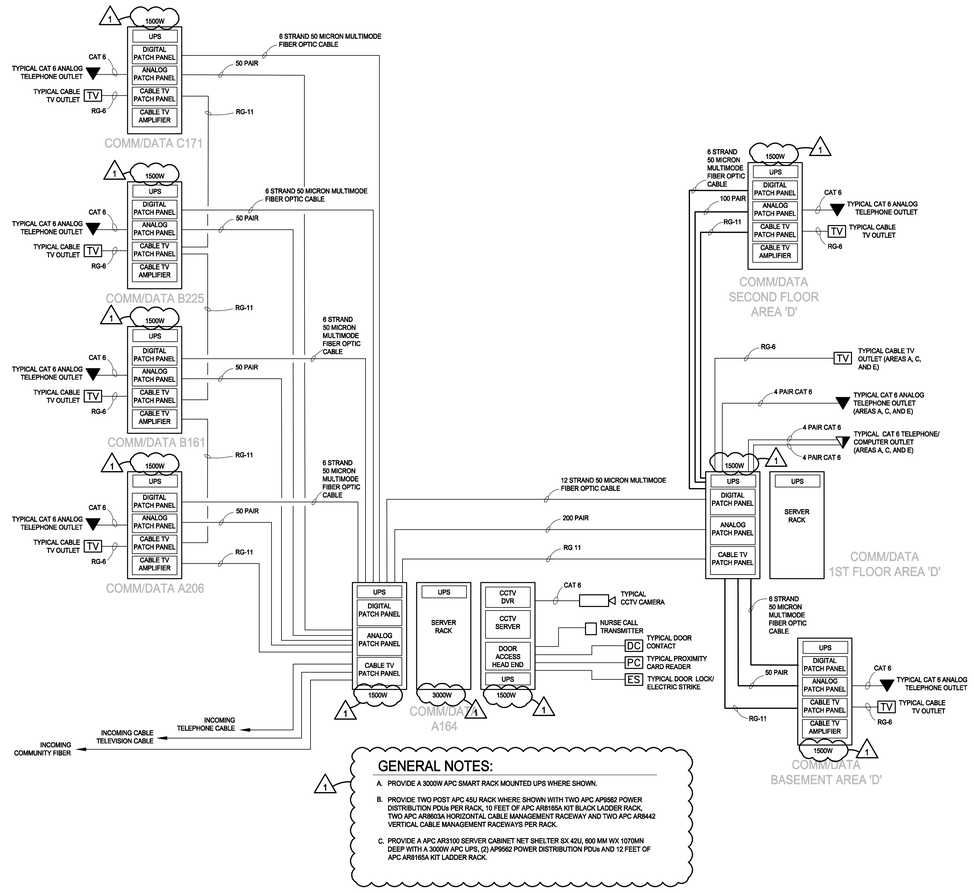
ELECTRICAL SCHEDULES

Scale | Date 06/23/15 | Project Number 146038

E404



1 / E500 LIGHT POLE MOUNTING DETAIL
NOT TO SCALE



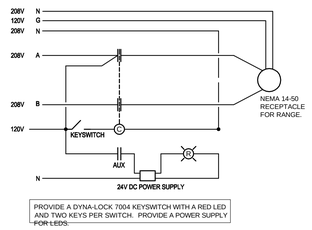
GENERAL NOTES:

A. PROVIDE A 3000W APC SMART RACK MOUNTED UPS WHERE SHOWN.

B. PROVIDE TWO POST APC 45U RACK WHERE SHOWN WITH TWO APC AP9562 POWER DISTRIBUTION PDUs PER RACK, 10 FEET OF APC AR8165A KIT BLACK LADDER RACK, TWO APC AR8603A HORIZONTAL CABLE MANAGEMENT RACEWAY AND TWO APC AR8442 VERTICAL CABLE MANAGEMENT RACEWAYS PER RACK.

C. PROVIDE A APC AR3100 SERVER CABINET NET SHELTER SX 42U, 600 MM WX 1070MN DEEP WITH A 3000W APC UPS, (2) AP9562 POWER DISTRIBUTION PDUs AND 12 FEET OF APC AR8165A KIT LADDER RACK.

2 / E500 DATA RISER DIAGRAM
NOT TO SCALE



3 / E500 RANGE LOCKOUT DETAIL
NOT TO SCALE

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 2
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	07/14/15	Addendum 2	

© COPYRIGHT: This drawing is the copyrighted work product of the Architect and reuse, modification or reproduction of these documents without express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

ELECTRICAL DETAILS

Scale	Date	Project Number
	06/23/15	146038

E500

SECTION 00 23 00
WORK CATEGORIES

With the intent of supplementing and clarifying the scope of work elsewhere defined, and without intending to limit and/or restrict the extent of work required by the Contract Documents, the work generally will consist of the following items and operations listed in each of the attached Work Category descriptions. Each bidder is responsible for insuring that their price is all inclusive of any requirements in related specification sections or contract drawings not included under a specific Work Category.

Each Work Category is identified by a Work Category Number and Work Category Description. These designations shall be placed on the Bid Form and the Work Category Description shall become the scope of work for the successful Contractor selected for each Work Category.

Each Contractor shall examine the Contract Documents of all disciplines to determine the extent of the proposed construction and shall perform the work to conform to construction called for an in such manner as not to interfere with or delay work of other Contractors.

It is important that all Bidders review all of the Work Categories as items and statements contained in other Work Categories will clarify the interaction of each Contractor's work with others.

If there is a conflict on a specific item between the Contract Documents and the Work Category Description, the Bid Package Description will govern. However, if an item is covered in the Contract Documents but not reiterated in the Work Category Description, the Bidder shall still be responsible for that item of work.

The following sections apply to all Work Category Bidders:

All Division 00 sections.
All Division 01 sections.
00 23 00 Work Categories

Definitions:

"Furnish and Install" means to provide all labor, materials, insurance, taxes, equipment, etc. to complete the described work, per plans and specifications.

"Install Only" means receive delivery on board, unload, uncrate and install, including all labor, miscellaneous materials, insurance, taxes, and equipment necessary for material supplied by others. This also includes removal of debris generated by materials supplied by others.

"Furnish Only" means deliver, tax and freight includes (FOB job site), materials to the Owner's facility for installation by others. Delivery shall be made during standard working hours and notification of delivery shall be given to Market & Johnson 72 hours in advance.

WORK CATEGORY NUMBER	SPECIFICATION SECTION(S)	PORTION OF WORK
02A	02 41 19 – Selective Demolition	Furnish and Install
03A	03 30 00 – Cast-In-Place Concrete	Furnish and Install
04	04 20 00 – Unit Masonry 04 72 00 – Cast Stone Masonry	Furnish and Install Furnish and Install
05A	05 12 00 – Structural Steel Framing 05 31 00 – Steel Decking 05 50 00 – Metal Fabrications 05 52 13 – Pipe and Tube Railings	Furnish Only Furnish Only Furnish Only Furnish Only
05B	05 12 00 – Structural Steel Framing 05 31 00 – Steel Decking 05 50 00 – Metal Fabrications 05 52 13 – Pipe and Tube Railings	Install Only Install Only Install Only Install Only
06A	06 10 00 – Rough Carpentry 06 16 00 – Sheathing 06 17 53 – Shop-Fabricated Wood Trusses 08 54 13 – Fiberglass Windows	Furnish Only Furnish Only Furnish Only Furnish Only
06B	06 10 00 – Rough Carpentry 06 16 00 – Sheathing 06 17 53 – Shop-Fabricated Wood Trusses 08 54 13 – Fiberglass Windows	Install Only Install Only Install Only Install Only
06C	06 20 13 – Exterior Finish Carpentry 06 20 23 – Interior Finish Carpentry 06 41 13 – Wood-Veneer-Faced Architectural Cabinets 06 41 16 – Plastic-Laminate-Faced Architectural Cabinets 06 64 00 – Plastic Paneling ***** complete or partial bids accepted *****	Furnish Only Furnish Only Furnish Only Furnish Only Furnish Only

WORK CATEGORY NUMBER	SPECIFICATION SECTION(S) PORTION OF WORK
06D	06 20 13 – Exterior Finish Carpentry .....Install Only 06 20 23 – Interior Finish Carpentry .....Install Only 06 41 13 – Wood-Veneer-Faced Architectural Cabinets .....Install Only 06 41 16 – Plastic-Laminate-Faced Architectural Cabinets .....Install Only 06 64 00 – Plastic Paneling .....Install Only 08 11 13 – Hollow Metal Doors and Frames.....Install Only 08 14 16 – Flush Wood Doors .....Install Only 08 14 13 – Stile and Rail Wood Doors .....Install Only 08 17 43 – Integrated Composite Door Opening Assemblies .....Install Only 08 34 83 – Floor Doors.....Install Only 08 38 19 – Rigid Traffic Doors.....Install Only 08 71 00 – Door Hardware .....Install Only 10 11 00 – Visual Display Units .....Install Only 10 21 23 – Cubicle Curtains and Track .....Install Only 10 26 00 – Wall and Door Protection .....Install Only 10 28 00 – Toilet, Bath, and Laundry Accessories .....Install Only 10 31 00 – Prefabricated Electric Fireplaces .....Install Only 10 44 13 – Fire Extinguisher Cabinets .....Install Only 10 44 16 – Fire Extinguishers.....Install Only 10 51 13 – Metal Lockers .....Install Only 11 52 13 – Projection Screens .....Install Only 11 70 00 – Medical Equipment.....Install Only 12 35 30 – Residential Casework .....Install Only 12 36 61.13 – Cultured Marble Countertops.....Install Only 12 36 61.16 – Solid Surfacing Countertops .....Install Only ***** complete or partial bids accepted *****
07A	07 14 16 - Cold Fluid-Applied Waterproofing .....Furnish and Install
07B	07 21 00 – Thermal Insulation.....Furnish and Install
07C	07 21 19 – Foamed-In-Place Insulation .....Furnish and Install ***** Bid Alternate *****
07D	07 31 13 – Asphalt Shingles.....Furnish and Install
07E	07 53 23 – Ethylene-Propylene-Diene-Monomer (EPDM) Roofing ..Furnish and Install 07 62 00 – Sheet Metal Flashing and Trim .....Furnish and Install 07 72 00 – Roof Accessories .....Furnish and Install
07F	07 46 19 – Steel Siding .....Furnish and Install 07 46 26 – Fiber Substrate Siding.....Furnish and Install
07G	07 81 00 – Fireproofing .....Furnish and Install
07H	07 84 13 – Penetration Firestopping .....Furnish and Install 07 84 46 – Fire-Resistive Joint Systems .....Furnish and Install 07 92 00 – Joint Systems .....Furnish and Install

WORK CATEGORY NUMBER	SPECIFICATION SECTION(S) PORTION OF WORK
08A	08 11 13 – Hollow Metal Doors and Frames.....Furnish Only 08 14 16 – Flush Wood Doors .....Furnish Only 08 14 13 – Stile and Rail Wood Doors .....Furnish Only 08 17 43 – Integrated Composite Door Opening Assemblies .....Furnish Only 08 34 83 – Floor Doors.....Furnish Only 08 38 19 – Rigid Traffic Doors.....Furnish Only 08 71 00 – Door Hardware .....Furnish Only ***** complete or partial bids accepted *****
08B	08 33 13 – Coiling Counter Doors.....Furnish and Install ~~08 33 23 – Overhead Coiling Doors .....Furnish and Install~~ 08 34 93 – Elevator Door Smoke Containment System .....Furnish and Install 10 71 13.23 – Coiling Exterior Shutters .....Furnish and Install ***** complete or partial bids accepted *****
08C	08 41 13 – Aluminum-Framed Entrances and Storefront .....Furnish and Install 08 62 00 - Skylights.....Furnish and Install 08 80 00 - Glazing .....Furnish and Install 08 88 13 – Fire-Resistant Glazing.....Furnish and Install
09A	05 40 00 – Cold-Formed Metal Framing .....Furnish and Install 08 31 13 – Access Doors and Frames.....Furnish and Install 09 21 16.23 – Gypsum Board Shaft Wall Assemblies .....Furnish and Install 09 22 16 – Non-Structural Metal Framing .....Furnish and Install 09 29 00 – Gypsum Board .....Furnish and Install
09B	09 30 13 – Ceramic Tiling .....Furnish and Install
09C	09 51 13 – Acoustical Panel Ceilings.....Furnish and Install
09D	09 65 13 – Resilient Base and Accessories.....Furnish and Install 09 65 16 – Resilient Sheet Flooring .....Furnish and Install 09 68 13 – Tile Carpeting.....Furnish and Install
09E	09 72 00 – Wall Coverings .....Furnish and Install 09 91 13 – Exterior Painting.....Furnish and Install 09 91 23 – Interior Painting .....Furnish and Install 09 93 00 – Staining and Transparent Finishing .....Furnish and Install 09 96 00 – High-Performance Coatings.....Furnish and Install
10A	10 11 00 – Visual Display Units .....Furnish Only 10 21 23 – Cubicle Curtains and Track .....Furnish Only 10 26 00 – Wall and Door Protection .....Furnish Only 10 28 00 – Toilet, Bath, and Laundry Accessories .....Furnish Only 10 31 00 – Prefabricated Electric Fireplaces .....Furnish Only 10 44 13 – Fire Extinguisher Cabinets.....Furnish Only 10 44 16 – Fire Extinguishers.....Furnish Only 10 51 13 – Metal Lockers.....Furnish Only 11 52 13 – Projection Screens .....Furnish Only 11 70 00 – Medical Equipment.....Furnish Only ***** complete or partial bids accepted *****
10B	10 22 39 – Folding Panel Partitions .....Furnish and Install

WORK CATEGORY NUMBER	SPECIFICATION SECTION(S) PORTION OF WORK
11A	11 31 00 – Residential Appliances .....Furnish and Install
11B	11 73 00 – Ceiling Mounted Patient Lift System .....Furnish and Install
12	12 35 30 – Residential Casework .....Furnish Only 12 36 61.13 – Cultured Marble Countertops .....Furnish Only 12 36 61.16 – Solid Surfacing Countertops .....Furnish Only ***** complete or partial bids accepted *****
13	13 17 23 – Therapeutic Pools .....Furnish and Install ***** Bid Alternate *****
21A	Division 21 – Fire Suppression.....Furnish and Install
22A	Division 22 – Plumbing.....Furnish and Install
23A	Division 23 – Heating, Ventilating, And Air Conditioning (HVAC) .....Furnish and Install *23 09 00 – Instrumentation and Control for HVAC .....excluded...see 23B* *23 09 93 – Sequence of Operations for HVAC Controls.....excluded...see 23B* *23 05 93 - Testing, Adjusting and Balancing for HVAC .....excluded...see 23C*
23B	23 09 00 – Instrumentation and Control for HVAC .....Furnish and Install 23 09 93 – Sequence of Operations for HVAC Controls.....Furnish and Install
23C	23 05 93 - Testing, Adjusting and Balancing for HVAC .....Furnish and Install
26A	Division 26 – Electrical .....Furnish and Install Division 27 - Communications.....Furnish and Install Division 28 – Electronic Safety and Security.....Furnish and Install
32E	32 31 19 – Decorative Metal Fences and Gates .....Furnish and Install

Work Category 2 - Demolition

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 02	Existing Conditions
02 41 19	Selective Demolition

Scope of Work – Additional Category Requirements

1. Hoisting and equipment as required for the work of this Bid Package.

2. Demolition of existing mechanical and electrical systems by work categories 21A thru 26A.

3. Dumpsters are to be provided by the demolition contractor. Recycling of materials is required.

4. Items specified to be salvaged needs to be coordinated with construction manager.

5. Protection and cleaning of concrete, wall and ceiling surfaces surrounding the work of this Bid Package, including but not limited to, plywood protection under scaffolding and plastic, or other means of floor protection.

6. In addition to the daily clean up requirements listed in the Contract Documents, this Package is to provide 1 person for 2 hours per week to assist the Construction Manager in general clean up duties and relocation of materials as required. This requirement applies each week for which you have personnel on-site. This amount of labor shall be listed on the schedule of values and will be only paid when participation requirements are satisfied, otherwise the amount will be deducted from the contract.

7. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 2, including but not limited to, paving, curb & gutter, sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 2.

8. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

Work Category 03A – Cast-In-Place Concrete

The following information is provided inn order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Bidding Requirements, Contract Forms and Conditions of the Contract
Division 01	General Requirements
03 30 00	Cast-in-place Concrete

Scope of Work – Additional Category Requirements

1. WC 03A includes all forming, furnishing, placement and equipment complete.

2. Mix designs for the project shall be submitted to the Market & Johnson within one week of the receipt of a written contract or letter of intent. Failure to meet this requirement may lead to project delays.

3. Concrete reinforcement shop drawings shall be submitted to Market & Johnson within two weeks of the receipt of a written contract or letter of intent. Reinforcing steel shall be delivered to the site within two weeks after receipt of approved shop drawings. Failure to meet this requirement may lead to project delays.

4. The only concrete that is not included within Work Category 03A is those items specifically listed to be provided within other Work Categories.

5. Provide dewatering for the work of this Work Category.

6. Provide winter weather protection for the work of this Work Category, including but not limited to, temporary heating, temporary enclosure, snow removal, batch plant requirements, curing requirements, frost protection and any other requirements necessary to complete the work of this Work Category. Schedule delays due to weather and lack of winter weather protection will not be accepted by Market & Johnson. Work Category 03A will be responsible for any damages because of these types of schedule delays.

7. Provide provisions for hot weather concrete placement for the work of this Work Category. Schedule delays due to weather and lack of hot weather protection will not be accepted by Market & Johnson. Work Category 03A will be responsible for any damages because of these types of schedule delays.

8. All concrete pours shall be coordinated with Market & Johnson 24 hours in advance of the concrete delivery. Any concrete pours that are not coordinated are subject to the concrete being rejected with the cost of the concrete to be borne by Work Category 03A.

9. Provide for the pouring of stair pans within five days of the erection of each set of stairs. After five days, Market & Johnson will provide temporary stair treads with the cost of the work to be borne by Work Category 03A.

10. Granular fill and compacted sub-base elevations shall be coordinated with Work Category 31A while grading operations are in progress. Work Category 03A shall chalk finished slab elevations on the walls surrounding the areas that are to be prepared. It is the responsibility of Work Category 03A to be on-site at the conclusion of the grading for each area so that final acceptance of the elevations can be verified while Work Category 31A is there in the process of completing their work. Once grading is complete, if the elevations have not been verified by Work Category 03A, any corrective grading shall be the responsibility of Work Category 03A to complete.

11. Provide concrete sealer at the locations shown in the Contract Documents at the conclusion of the project. Work Category 03A shall provide protection or removal of all dirt, construction debris, and residue as required by the sealer manufacturer prior to installation.

12. Floor flatness shall be provided as per the Contract Documents. Any floors which are not in compliance with the floor flatness requirement may be subject to removal and replacement at the expense of Work Category 03A. Market & Johnson may also choose to have the floor patched by another contractor, at the expense of Work Category 03A.

Work Category 4 – Masonry

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 4	
04 20 00	Unit Masonry
04 72 00	Cast Stone Masonry
Division 7 (as applies)	
07 21 19	Thermal Insulation
07 25 00	Weather Barriers
07 62 00	Sheet Metal Flashing and Trim

Scope of Work – Additional Category Requirements

9. Hoisting and equipment as required for the work of this Bid Package.

10. Winter Heat and snow removal for the duration of the masonry installation process is the responsibility of Package 4.

11. The construction Manager will provide temporary heating for the inside of the building after building enclosure. Building enclosure is defined as precast complete, roofing complete and exterior windows and curtain wall installed.

12. Concrete block staging and mixing areas locations shall be coordinated with the Construction Manager. Mixing locations shall provide for dust containment provisions and protection of all hard surfaces.

13. Package 4 will be responsible for providing a shelter and heat as required for mixing operations as interior mixing during the winter months cannot be guaranteed or expected

14. Concrete block deliveries shall be coordinated with the Construction Manager 24 hours in advance of delivery. Concrete block shall be brought to the site on an "as needed" basis as staging areas are limited at the downtown site.

15. Interior and Exterior layout shall be included in this package for installation of the work of this package.

16. All openings shall be provided in the masonry walls, including but not limited to, doors, windows, ducts, cable trays, and any other penetrations requiring a framed masonry opening. It is the responsibility of Package 4 to provide all of the openings and coordinate with the requirements of all other packages and the construction manager.

17. Installation of all embedded materials required by other packages including but not limited to, embedded plates, steel angles, strap anchors, anchors, and sleeves.

18. Coordination and cooperation with mechanical and electrical subcontractors for the rough in of piping, mechanical, and electrical components.

19. Cooperation and coordination with the owners testing agency. Any work failing to meet the specified testing requirements will be removed and replaced at the expense of bid package 4.

20. Hollow Metal frames will be set by Package 06. It is the responsibility of this Package to verify the frame for squareness, alignment, plumbness and damage. If no deficiencies are noted any corrections will be assumed to be the responsibility of package 4.

21. Horizontal and vertical reinforcement embedded within masonry walls will be furnished and installed by package 4.

22. Grouting all masonry components. Package 4 shall coordinate with other Bid Packages to ensure that the cores are grouted solid at locations for any component shown to be bolted / fastened to the wall.

23. Firesafing, firestopping, fire caulking, grouting, and sealant as required at the head of all masonry walls per the requirements of the Contract Documents.

24. Grouting of door frames as required.

25. Protection and cleaning of concrete, wall and ceiling surfaces surrounding the work of this Bid Package, including but not limited to, plywood protection under scaffolding and plastic, or other means of floor protection.

26. In addition to the daily clean up requirements listed in the Contract Documents, this Package is to provide 1 person for 2 hours per week to assist the Construction Manager in general clean up duties and relocation of materials as required. This requirement applies each week for which you have personnel on-site. This amount of labor shall be listed on the schedule of values and will be only paid when participation requirements are satisfied, otherwise the amount will be deducted from the contract.

27. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 4, including but not limited to, paving, curb & gutter, sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 4.

28. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

29. Includes exterior monument sign CMU and cast stone cap.

Work Category 5A – Steel Framing - Materials

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 5	
05 12 00	Structural Steel Framing
05 31 00	Metal Deck
05 50 00	Metal Fabrications
05 52 13	Pipe and Tube Railings

Scope of Work – Additional Category Requirements

1. Furnish steel components, including but not limited to, structural steel, steel joists, metal decking, metal fabrications, miscellaneous metals, stairs, ladders, ship ladders, hand railings, guard railings, decorative railings, aluminum steel grating, roof opening frames, pour stops, topping slab support angles, pipe bollards, elevator sill angles, loose lintels, and any other steel components not specifically listed within other bid packages.

2. Coordinate and deliver steel components as per the erection sequence and schedules approved by the construction manager and package 5B.

3. The staging area is limited. Shipments should be included to deliver materials two weeks prior to schedule date for installation of material. This will require a greater quantity of smaller shipments. Shipments made that exceed the staging capacity of the site will be the responsibility of this package to remove and re-ship to the site.

4. Coordinate with Package 22A Plumbing and 23A HVAC for the sizes and location of all roof openings for incorporation into the approval drawings. This package shall be responsible for any required corrections that were not properly coordinated.

5. Coordinate with package 3A Concrete and the construction manager for the location and size of all pour stops, deck openings, and roof openings.

6. Materials furnished under this package shall be shipped FOB jobsite. The construction manager and package 5A shall be notified 5 days in advance of delivery so that provisions for hoisting can be arranged. Deliveries that are not coordinated per these requirements will be rejected.

7. All exposed fasteners in jail area occupancy shall be security type fasteners.

8. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

Work Category 5B –Steel Framing - Erection

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 5	
05 12 00	Structural Steel Framing
05 31 00	Metal Deck
05 50 00	Metal Fabrications
05 52 13	Pipe and Tube Railings

Scope of Work – Additional Category Requirements

1. Coordination of erections sequences and material deliveries with the construction manager and package 5A, including participation in coordination meetings as required.

2. Coordination of deliveries with package 5B as required for erection. Given the limited staging on the project, package 5A will be responsible for coordinating deliveries on an as needed basis prior to erection.

3. Receipts and inventory of all anchors, bolts, fasteners, screws, and associated hardware for installation of the work of this package, Package 5A shall notify the construction manager in writing, within 3 days of delivery of material, as to any quantities that are insufficient. The construction manager will only be responsible for obtaining the quantities of insufficient materials listed and will NOT be responsible for obtaining additional hardware not listed in writing per the requirements. Package 5A shall be responsible for obtaining any additional hardware not placed in writing to the construction manager.

4. Hoisting as required for the work in this package.

5. Off-loading, inventory and installation of all steel components, including but not limited to, structural steel, steel joists, metal decking, metal fabrications, miscellaneous metals, stairs, ladders, ship ladders, hand railings, guard railings, decorative railings, aluminum steel grating, roof opening frames, pour stops, topping slab support angles, pipe bollards, elevator sill angles, and any other steel components not specifically listed within other bid packages.

6. Coordination with package 3B Precast and construction manager for erection of structural steel during the precast erection sequence.

7. Temporary engineering and bracing of components during the erection process.

8. Responsible for removing rust and protecting steel components scheduled for spray fireproofing form moisture.

9. Grouting all base plates after erections

10. In addition to daily clean up requirements listed in the contract documents, this package is to assist the construction manager in general clean-up duties and relocation of materials as required.

11. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 5A, including but not limited to, paving, curb & gutter, sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 5A.

Work Category 6A – Rough Carpentry Framing

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 6	
06 10 00	Rough Carpentry
06 16 00	Sheathing
06 17 53	Shop-Fabricated Wood Trusses
Division 7	
07 25 00	Weather Barriers
Division 8	
08 54 13	Fiberglass Windows
08 91 19	Fixed Louvers

Scope of Work – Additional Category Requirements

1. Coordinate all deliveries with the construction manager. Material shall be provided FOB jobsite and a packing list shall be provided to the construction manager. In the event that a packing ship is not provided for delivery, package 6 is responsible.

2. Coordinate development of shop drawings with the electrical, mechanical and finish trade contractors during the rough-in stages of construction to ensure accuracy of final cutouts.

3. All fasteners required for the work of this bid package.

4. Provide for off-loading and hoisting of all materials. Hoisting access to the second floor is not guaranteed, it may be necessary to hand carry materials through stairs. The elevators will not be used for material hoisting.

5. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

Work Category 6B – Rough Carpentry Erection

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 6	
06 10 00	Rough Carpentry
06 16 00	Sheathing
06 17 53	Shop-Fabricated Wood Trusses
Division 7	
07 25 00	Weather Barriers
Division 8	
08 54 13	Fiberglass Windows
08 91 19	Fixed Louvers

Scope of Work – Additional Category Requirements

1. Coordinate all deliveries with the construction manager. Material shall be provided FOB jobsite and a packing list shall be provided to the construction manager. In the event that a packing ship is not provided for delivery, package 6 is responsible.

2. Shall receive, unload, transport, inventory, store, protect, and install all of the components of this package.

3. Provide for off-loading and hoisting of all materials. Hoisting access to the second floor is not guaranteed, it may be necessary to hand carry materials through stairs. The elevators will not be used for material hoisting.

4. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

5. All fasteners required for the work of this bid package.

6. Contractor is responsible for bracing structures, includes materials and labor.

Work Category 6C – Architectural Casework / Finish Carpentry

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 6	
06 20 13	Exterior Finish Carpentry
06 20 23	Interior Finish Carpentry
06 41 13	Wood-Veneer-Faced Architectural Cabinets
06 41 16	Plastic-Laminate-Faced Architectural Cabinets
06 64 00	Plastic Paneling

Scope of Work – Additional Category Requirements

1. Coordinate all deliveries with the construction manager. Material shall be provided FOB jobsite and a packing list shall be provided to the construction manager. In the event that a packing ship is not provided for delivery, package 6 is responsible.

2. Coordinate development of shop drawings with the electrical, mechanical and finish trade contractors during the rough-in stages of construction to ensure accuracy of final cutouts.

3. Provide for off-loading and hoisting of all materials. Hoisting access to the second floor is not guaranteed, it may be necessary to hand carry materials through stairs. The elevators will not be used for material hoisting.

4. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

Work Category 6D – Building Works

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 6	
06 20 13	Exterior Finish Carpentry
06 20 23	Interior Finish Carpentry
06 41 13	Wood-Veneer-Faced Architectural Cabinets
06 41 16	Plastic-Laminate-Faced Architectural Cabinets
06 64 00	Plastic Paneling
Division 8	
08 11 13	Hollow Metal Doors and Frames
08 14 16	Flush Wood Doors
08 14 13	Stile and Rail Wood Doors
08 17 43	Integrated Composite Door Opening Assemblies
08 38 19	Rigid Traffic Doors
08 71 00	Door Hardware
Division 10	
10 11 00	Visual Display Units
10 21 23	Cubicle Curtains and Track
10 26 00	Wall and Door Protection
10 28 00	Toilet, Bath and Laundry Accessories
10 44 13	Fire Extinguishers Cabinets
10 44 16	Fire Extinguishers
10 51 13	Metal Lockers
Division 11	
11 52 13	Projection Screens
11 70 00	Medical Equipment
Division 12	
12 35 30	Residential Casework
12 36 61.13	Cultured Marble Countertops
12 36 61.16	Solid Surfacing Countertops

Scope of Work – Additional Category Requirements

1. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 6, including but not limited to, paving, curb & gutter,

sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 6.

2. Coordinate all deliveries with the construction manager. Material shall be provided FOB jobsite and a packing list shall be provided to the construction manager. In the event that a packing ship is not provided for delivery, package 6 is responsible.

3. Shall receive, unload, transport, inventory, store, protect, and install all of the components of this package.

4. Coordinate development of shop drawings with the electrical, mechanical and finish trade contractors during the rough-in stages of construction to ensure accuracy of final cutouts.

5. All fasteners required for the work of this bid package.

6. This package will be responsible for correcting any scratches to the finished material installed by this package. If scratches cannot be adequately fixed, this package shall be responsible for replacement.

7. Provide for off-loading and hoisting of all materials. Hoisting access to the second floor is not guaranteed, it may be necessary to hand carry materials through stairs. The elevators will not be used for material hoisting.

8. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

9. Coordination and field dimensioning is required with associated packages.

Work Category 7A – Cold Fluid-Applied Waterproofing

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 7	
07 14 16	Cold Fluid-Applied Waterproofing

Scope of Work – Additional Category Requirements

1. Provide for off-loading and hoisting of all materials.

2. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

3. Coordinate with other trades before installation.

4. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 7B – Thermal Insulation

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 7	
07 21 00	Thermal Insulation

Scope of Work – Additional Category Requirements

1. Provide for off-loading and hoisting of all materials.

2. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

3. Coordinate with other trades before installation.

4. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 7C – Foamed-In-Place Insulation (Alternate #3)

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 7	
07 21 19	Foamed-In-Place Insulation

Scope of Work – Additional Category Requirements

1. Provide for off-loading and hoisting of all materials.

2. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

3. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 7D – Asphalt Roofing

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 7	
07 31 13	Asphalt Shingles
07 62 00	Sheet Metal Flashing and Trim
07 72 00	Roof Accessories

Scope of Work – Additional Category Requirements

1. Roofing systems complete, flashing and sheet metal, insulation, crickets, copings, edge metal, reglets, gravel stops, scuppers, downspouts, ballast and roof accessories as shown, required by manufacturer or specified.

2. Complete flashing and seal for all roof penetrations as shown or specified, including penetrations shown or required by the mechanical and electrical drawings.

3. Include a separate mobilization for sealing pipes/conduit penetrations after the initial installation of the roof.

4. This package shall be responsible for completely cleaning & blowing off the roof decks, plank and precast prior to installation of roof. Shall have construction manager inspect all roof areas prior to installation of the roof.

5. Complete flashing and seal for all roof curbs as shown or specified on the architectural, mechanical, and electrical drawings

6. Complete flashing and seal for all skylight openings as shown or specified, including temporary weather protection until skylights are installed.

7. Metal parapet caps, counter flashings, metal reglet flashings, scuppers, overflow scuppers, downspouts, flashings, and sealants as shown or specified.

8. Provide caulking and sealants as required for the work of this package, including all caulking recommended by the roofing manufacturer whether or not it is shown on the drawings.

9. Snow removal and cold weather protection.

10. Underlayment under the roofing membrane as shown or specified.

11. In addition to daily clean up requirements listed in the contract documents, this package is to assist the construction manager in general clean up duties and relocation of materials as required.

12. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 7D, including but not limited to, paving, curb & gutter, sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 7D

Work Category 7E – EPDM Roofing

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 7	
07 21 00	Thermal Insulation (as applies)
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 62 00	Sheet Metal Flashing and Trim
07 72 00	Roof Accessories

Scope of Work – Additional Category Requirements

1. Roofing systems complete, flashing and sheet metal, insulation, crickets, copings, edge metal, reglets, gravel stops, scuppers, downspouts, ballast and roof accessories as shown, required by manufacturer or specified.

2. Complete flashing and seal for all roof penetrations as shown or specified, including penetrations shown or required by the mechanical and electrical drawings.

3. Include a separate mobilization for sealing pipes/conduit penetrations after the initial installation of the roof.

4. This package shall be responsible for completely cleaning & blowing off the roof decks, plank and precast prior to installation of roof. Shall have construction manager inspect all roof areas prior to installation of the roof.

5. Complete flashing and seal for all roof curbs as shown or specified on the architectural, mechanical, and electrical drawings

6. Complete flashing and seal for all skylight openings as shown or specified, including temporary weather protection until skylights are installed.

7. Roof walkway pads, pavers, splash blocks, and accessories as shown or specified.

8. Metal parapet caps, counter flashings, metal reglet flashings, scuppers, overflow scuppers, downspouts, flashings, and sealants as shown or specified.

9. Provide caulking and sealants as required for the work of this package, including all caulking recommended by the roofing manufacturer whether or not it is shown on the drawings.

10. Snow removal and cold weather protection.

11. Vapor barriers under the roofing membrane as shown or specified.

12. In addition to daily clean up requirements listed in the contract documents, this package is to assist the construction manager in general clean up duties and relocation of materials as required.

13. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 7E, including but not limited to, paving, curb & gutter, sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 7E

Work Category 7F – Steel and Fiber Substrate Siding

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 7	
07 46 19	Steel Siding
07 46 26	Fiber Substrate Siding

Scope of Work – Additional Category Requirements

1. Systems complete, steel siding, aluminum soffit, and steel gutters / downspouts.

2. Weather barrier completed by others however responsibility to validate quality is the responsibility of this work category.

3. In addition to daily clean up requirements listed in the contract documents, this package is to assist the construction manager in general clean up duties and relocation of materials as required.

Work Category 7G – Applied Fireproofing

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 7	
07 81 00	Applied Fireproofing
07 84 13	Firestopping (as applies)

Scope of Work – Additional Category Requirements

1. The Site access route must be coordinated with the Construction Manager and adhered to at all times.

2. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 7E, including but not limited to, paving, curb & gutter, sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 7E.

3. Coordinate with package 5A & 5B Steel and construction manager for schedule of installation.

4. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 7D – Caulking and Sealants

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 7	
07 84 13	Penetration Firestopping
07 84 46	Fire-Resistive Joint Systems
07 92 00	Joint Sealants

Scope of Work – Additional Category Requirements

1. Caulking of the following, but not limited to; all exterior concrete to pre-cast wall joints, concrete topping slab connection to precast and masonry, masonry control joins, masonry to masonry, masonry to precast, masonry to steel, and masonry to drywall, interior and exterior cast stone, drywall control joins, cabinetry and back splashes, perimeter of wood paneling, exterior door frames, interior frames, interior joints around windows, entrances, curtain walls, window stools, access doors, exterior overhead doors, louvers, tile control joints, shower compartments, toilet, bath and laundry accessories, fire extinguisher cabinets, food service equipment.

2. Caulking as required by division 21, 22, 23, 26, and 28, including but not limited to, all penetrations, perimeter of fixtures.

3. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 8A – Hollow Metal Materials

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 8	
08 11 13	Hollow Metal Doors and Frames
08 14 16	Flush Wood Doors
08 14 13	Stile and Rail Wood Doors
08 17 43	Integrated Composite Door Opening Assemblies
08 38 19	Rigid Traffic Doors
08 71 00	Door Hardware

Scope of Work – Additional Category Requirements

1. Coordinate with building works contractor for delivery and install.

2. Provide all hoisting and off-loading of materials.

3. Provide complete shop drawings and samples as required.

4. Interior glass provided by others.

5. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 8B - Overhead Doors

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 8	
08 33 13	Coiling Counter Doors
~~08 33 23~~	~~Overhead Coiling Doors~~
08 34 93	Elevator Door Smoke Containment System
10 71 13.23	Coiling Exterior Shutters

Scope of Work – Additional Category Requirements

1. Coordinate with package 26 Electrical for connection points and electrical requirements.
2. Coordinate with division 28 Security for interface with security system.
3. Provide all hoisting and off-loading of materials
4. Provide any wood blocking for the work of the package.
5. Provide steel angles and support as required for attachment of the overhead door track assembly.
6. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 8C - Aluminum Systems

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 8	
08 41 13	Aluminum-Framed Entrances and Storefronts
08 62 00	Unit Skylights
08 71 00	Door Hardware (as applies)
08 80 00	Glazing
08 88 13	Fire-Resistant Glazing

Scope of Work – Additional Category Requirements

1. Provide all accessories, fasteners, insulation, supports, and blocking required for the work of this bid package. Including but not limited to, all wood blocking required for support of anchoring of the curtain wall, aluminum windows, storefronts, entrances, skylights, power door operators, and power door operator actuators.

2. Complete installation of skylight, including flashing and sealants. Coordinate with roofing for termination of roofing membrane and requirements for fastening.

3. Provide all non-corrosive flashings indicated to be provided around all window, storefront, aluminum entrance and curtain wall openings.

4. Provide all joint sealants as required for all materials installed under the scope of this bid package, including where the work of this package abuts the work of others. This includes but not limited to, exterior perimeter seals of all aluminum windows, curtain wall, storefronts, entrances, and skylights.

5. Provide all materials and labor necessary to clean and protect the work provided under this bid package until owner acceptance. This includes the removal and cleaning of all stickers.

6. Provide all standard interior glass.

7. Provide automatic entrance doors, including all supports, accessories, and hardware as shown or specified. Coordinate function of electrical hardware required to be tied into the fire alarm and security systems with electrical and security.

8. Perform field measurements for all openings required for the work of this package prior to release for fabrication.

9. Provide all insulation shown within the work of this package, including interior insulation as required at spandrel glass.

10. Provide all off loading and hoisting of the materials of this package.

11. Site access route must be coordinated with the Construction Manager and adhered to at all times.

12. Provide final cleaning of all exterior glass, immediately prior to building occupancy. This work will be completed after the precast is power washed.

13. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 8B, including but not limited to, paving, curb & gutter, sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 8B.

14. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 09A - Drywall

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 5	
05 40 00	Cold-Formed Metal Framing
Division 7	
07 24 23	Exterior Foundation Insulation Finish System
07 84 13	Penetration Firestopping (as applies)
07 84 46	Fire-Resistive Joint Systems (as applies)
Division 9	
09 21 16.23	Gypsum Board Shaft Wall Assemblies
09 22 16	Non-Structural Metal Framing
09 29 00	Gypsum Board

Scope of Work – Additional Category Requirements

1. Package shall include all layout as necessary to perform work of this package.

2. Provide gypsum wall board, moisture resistant sheetrock, impact resistant board, shaftwall, core board, tile backer units, and plywood at locations shown or specified on the contract documents.

3. Coordinate rough opening sizes and requirements for all window, curtainwall, and aluminum entrance openings with Package 08A – 08F.

4. Coordinate with Bid Package 21A, 22A, 23A, and 26A for installation of mechanical and electrical components within the work of this Package.

5. Provide firestopping, insulation, caulking, sealant as required at head of wall conditions constructed by this package. Rated walls shall be constructed according to UL listed assemblies and as per the requirements of the Contract Documents.

6. Provide all fire/smokestopping system or devices necessary to ensure work installed by this Bid Package complies with the requirements of specification section 07 84 13 and 07 84 46 and meets all code requirements. Coordinate the firestopping work required of this Bid Package with the firestopping work of all other Bid Packages to ensure complete construction of all wall and firestopping assemblies.

7. Provide metal framing, sheathing at all areas not specifically listed in other Bid Packages

8. Provide an Allowance of (40) access 2'x2' access doors at location to be determined by the mechanical and electrical trades.

9. Provide all suspension systems for gypsum board assemblies.

10. Provide all materials and labor necessary to clean and protect the work provided under this Bid Package until Owner Acceptance.

11. Provide daily cleanup, including sweeping of all work areas and the disposal of debris and garbage generated by this Bid Package's personnel. Provide a sufficient quantity of trash carts, bins, garbage cans, etc to prevent the accumulation of waste and provide means to transport the waste to the dumpster furnished by the Construction Manager.

Work Category 09B - Tile

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00 Procurement and Contracting Requirements
Division 01 General Requirements

Division 7 (as applies)
07 26 00 Vapor Retarders
07 92 00 Joint Sealants

Division 9
09 30 13 Ceramic Tiling

Scope of Work – Additional Category Requirements

1. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 9B.

2. Coordinate with package 3A Concrete, 22A Plumbing and the construction manager for any special tile requirements for the sloping floors.

3. Provide waterproofing membrane where shown or specified in the contract documents.

4. Provide crack isolation membrane at all construction joints, control joints, and shrinkage cracks greater than 1/8" in the concrete substrate.

5. Provide proper termination of the waterproofing membrane at the floor drain.

6. Provide protection of adjacent floor, wall and ceiling finishes.

7. Includes recessed porcelain shower shelves.

8. Provide all materials and labor necessary to clean and protect the work provided under this bid package until owner acceptance.

9. Provide temporary lighting as required.

10. Provide all material hoisting and off-loading of material.

11. Provide attic stock material with a written inventory list of the materials provided to the construction manager at the conclusion of the project.

12. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

13. Package 9B shall inspect and review all finished wall conditions as provided by package 9A Drywall prior to applying paint, and report and deficiencies to the Construction Manager. By applying paint to drywall surfaces, Packages 9B is accepting the substrate. In the event that painted wall surfaces are later rejected by Owner, Architect, or Construction Manager due to taping deficiencies or finish issues, Package (B will provide re-painting as required at no additional cost to the Owner.

Work Category 09C - Acoustical Ceilings

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this bid package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 9	
09 51 13	Acoustical Panel Ceilings

Scope of Work – Additional Category Requirements

1. Provide complete protection of existing features surrounding the project for the complete demo and installation of the work of package 9C, including but not limited to, paving, curb & gutter, sidewalks, buildings, green space. The complete removal and replacement of the damaged site features shall be the responsibility of package 9C.

2. Provide all acoustical ceilings, including suspension systems, adhesives, trim, molding, extended perimeter wall moldings, acoustical sealant, curtain pockets moldings, extruded aluminum profiles, accessories and height differential materials, as needed, shown or specified.

3. Provide all openings, penetrations, cutouts in acoustical work for all trades as required to allow each trade to complete their scope of work.

4. Install tiles for ceiling mounted devices (devices provided by others) when directed by the construction manager.

5. Provide all materials and labor necessary to clean and protect the work provided under this section until owner acceptance.

6. Provide sprayed fireproofing patching at any fireproofed areas damaged by this scope of work.

7. Provide hoisting as required for this package.

8. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 09D - Flooring

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 9	
09 65 13	Resilient Base and Accessories
09 65 16	Resilient Sheet Flooring
09 68 13	Tile Carpeting

Scope of Work – Additional Category Requirements

1. Provide complete protection of existing features surrounding the project for installation of the work of package 9D, including but not limited to, adjacent floor finishes, wall finishes, doors, casework. The complete removal and replacement of the damaged site features shall be the responsibility of package 9D.

2. Provide all materials and labor necessary to clean and protect the work provided under this bid package until owner acceptance.

3. Moisture testing is required and must be accepted by construction manager before installation.

4. Provide temporary lighting as required.

5. Provide all material hoisting and off-loading of material.

6. Provide attic stock material with a written inventory list of the materials provided to the construction manager at the conclusion of the project.

7. Provide all accessories, trim pieces, edging strips, reducers, and transitions shown or specified.

8. Clean resilient flooring or provide protection until the completion of the punch list. After completion of punch list, provide floor polish finish of VCT.

9. Provide floor protection of installed carpet until completion of punch list. After completion of the punch list, remove protection and vacuum/clean carpet for final acceptance.

10. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

11. Inspect and review all substrate conditions prior to installing materials. Report any deficiencies to the Construction Manager. Failure to report deficiencies will be repaired at no additional cost to the Owner.

Work Category 09E - Painting

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 9	
09 72 00	Wallcoverings
09 91 13	Exterior Painting
09 91 23	Interior Painting
09 93 00	Staining and Transparent Finishing
09 96 00	High-Performance Coatings

Scope of Work – Additional Category Requirements

1. Paint all exposed steel, including but not limited to, handrails, guardrails, spindles or mesh on handrails and guardrails, steel stairs, stair risers, roof ladders, roof hatches, ships ladders, exposed lintels, exposed embeds, bollards and all other exposed metal shown or specified.

2. Painting of all exposed fasteners, embed plates, or anchors at finished will or floor surfaces.

3. Package 9E shall inspect and review all finished wall conditions as provided by package 9A Drywall prior to applying paint, and report and deficiencies to the Construction Manager. By applying paint to drywall surfaces, Packages 9E is accepting the substrate. In the event that painted wall surfaces are later rejected by Owner, Architect, or Construction Manager due to taping deficiencies or finish issues, Package (E will provide re-painting as required at no additional cost to the Owner.

4. Provide all preparation of new or existing surfaces for painting of concrete, masonry, steel, iron, galvanized steel, aluminum, mechanical and electrical work, wood products and gypsum board, including floor treatments, sealers, primers, sandblasting, and other preparatory means, as required, shown or specified.

5. Clean and sand all hollow metal doors and frames prior to painting.

6. Provide finish paint of all materials, equipment, or products shown or specified to be field painted on all disciplines of the Contract Documents, including but not limited to miscellaneous metals, access panels, projection screens, door frames and hollow metal doors.

7. Paint all access doors shown on the documents. This Bid Package is to assume forty additional 2' x 2' access doors will be provided that this Bid Package will have to paint.

8. Provide all materials and labor necessary to clean and protect the work provided under this Bid Package until Owner acceptance. Ensure proper ventilation when painting in an enclosed area.

9. In addition to the daily clean up requirements listed in the Contract Documents, this Package is to provide 1 person for 2 hours per week to assist the Construction Manager in general clean-up duties and relocation of materials as required. This requirement applies each week for which you will have personnel on-site. The amount of this labor shall be listed on the schedule of values and will only be paid when participation requirements are satisfied, otherwise the amount will be deducted from the Contract.

10. Paint all walls to the deck and exposed ceilings in rooms scheduled without a ceiling.

11. Paint all exposed piping, ductwork, and conduit in finished spaces exposed to view.

12. Provide paint finish on all surfaces.

13. Provide hoisting and off-loading of materials as required for the work of this Package.

Work Category 10A - Accessories

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished as per Specification Section.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 10	
10 11 00	Visual Display Units
10 21 23	Cubicle Curtains and Track
10 26 00	Wall and Door Protection
10 28 00	Toilet, Bath and Laundry Accessories
10 26 00	Prefabricated Electric Fireplaces
10 44 13	Fire Extinguishers Cabinets
10 44 16	Fire Extinguishers
10 51 13	Metal Lockers
Division 11	
11 52 13	Projection Screens
11 70 00	Medical Equipment

Scope of Work – Additional Category Requirements

1. Submit bid referencing Work Category 10A – partial or complete bids will be accepted. Construction manager will review the bids and has the right to award partial or package numbers.

2. See specifications sections for specific product data.

Work Category 10B – Folding Partition

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished as per Specification Section.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 10	
10 22 39	Folding Panel Partitions

Scope of Work – Additional Category Requirements

1. Provide all hoisting and off-loading of materials

2. Provide any wood blocking for the work of the package.

3. Provide steel angles and support as required for attachment of the overhead door track assembly.

4. In addition to daily clean up requirements in the construction documents, this package is to provide assistance to the construction manager in general clean up and relocation of materials as necessary.

Work Category 11A - Appliances

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 11	
11 31 00	Residential Appliances

Scope of Work – Additional Category Requirements

1. Package 11A shall furnish, receive, unload, transport, and install all of the components of this Bid Package. The components of this Bid Package shall be warehoused until the scheduled date for installation. Upon arrival at the jobsite the protection, security, and storage of the material is the responsibility of the Package 11A.

2. Participation in on-site coordination meetings to verify kitchen equipment rough-in locations prior to pouring the slab-on-grade and prior to setting masonry / sheetrocking. Package 11A shall assist in layout of rough-in locations for mechanical, plumbing, and electrical services.

3. The kitchen equipment shall be initially set in place for mechanical and electrical connections. A separate trip shall be provided for equipment start-up and testing. After the equipment has been fully tested and operated, Owner training can be conducted.

Work Category 11B – Ceiling Mounted Patient Lift System

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 11	
11 73 00	Ceiling Mounted Patient Lift System

Scope of Work – Additional Category Requirements

1. Provide delivery, off-loading, and hoisting of all equipment provided by this Package. This includes any temporary provisions and/or rigging required to get the equipment from the delivery truck to the final installed location.

2. Package 11B shall furnish, receive, unload, transport, and install all of the components of this Bid Package. The components of this Bid Package shall be warehoused by Package 11B, until the scheduled date for installation. Upon arrival at the jobsite the protection, security, and storage of the material is the responsibility of the Package 11B.

Work Category 12 – Residential Casework

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 11	
12 35 30	Residential Casework
12 36 61.13	Cultured Marble Countertops
12 36 61.16	Solid Surfacing Countertops

Scope of Work – Additional Category Requirements

1. Provide delivery, off-loading, and hoisting of all equipment provided by this Package. This includes any temporary provisions and/or rigging required to get the equipment from the delivery truck to the final installed location.

2. Provide complete shop drawings and field dimensioning of countertops.

3. Includes all hardware, brackets, and other accessories associated with the product. Installation and fasteners by the Building Works package.

Work Category 13 – Therapy Pool (Alternate)

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 13	
13 17 23	Therapeutic Pools
Division 22	Plumbing (as applies)
Division 26	Electrical (as applies)

Scope of Work – Additional Category Requirements

1. Delivery to the site, off-loading of equipment at the site, hoisting of materials to their permanent location inside the building is included within this Bid Package.

2. Provide layout and embeds not shown on architectural or structural drawings.

3. Provide hoist way guardrails during construction.

.

4. Coordinate with mechanical and electrical bid packages to ensure a fully operable pool operation.

5. It is this Bid Packages responsibility to schedule and attend all local, state, and/or federal inspections whether or not they occur during normal project working hours. Submit inspection reports from agencies to the Construction Manager

6. Verify the size, location, and layout of the pool rough-ins.

7. All manufacturer's warranties shall be included. Warranties shall begin at Owner's acceptance. Extended warranties, if specified, shall be provided. Where equipment is used for temporary hoisting, extended warranties shall be provided for the period of temporary use.

Work Category 22A - Plumbing

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 02	Existing Conditions
02 41 19	Selective Demolition
Division 7	
07 84 13	Penetration Firestopping (as applies)
Division 22	
22 05 17	Sleeves and Sleeve Seals for Plumbing Piping
22 05 18	Escutcheons for Plumbing Piping
22 05 19	Meters and Gages for Plumbing Piping
22 05 23	General Duty Valves for Plumbing Piping
22 05 29	Hangers and Supports for Plumbing Piping & Equipment
22 05 53	Identification for Plumbing Piping and Equipment
22 07 19	Plumbing Piping Insulation
22 11 16	Domestic Water Piping
22 11 19	Domestic Water Piping Specialties
22 11 23	Domestic Water Pumps
22 13 16	Sanitary Waste and Vent Piping
22 13 19	Sanitary Waste Piping Specialties
22 13 29	Sanitary Sewerage Pumps
22 14 13	Storm Drainage Piping
22 14 23	Storm Drainage Piping Specialties
22 31 00	Domestic Water Softeners
22 34 00	Fuel-Fired, Domestic Water Heaters
22 43 00	Healthcare Plumbing Fixtures

Scope of Work – Additional Category Requirements

1. Provide all excavation, trenching, and back fill required for the installation of all underground work. Remove any spoils.

2. Provide final connections to kitchen equipment, including but not limited to, internal connections, external connections, indirect wastes to floor drains, installation of backflow prevention devices, fittings, valves, parts, adaptors, regulators, and any other required accessories.

3. Provide all rough-ins, hookups, and connections for equipment furnished by other Bid Packages and all Owner furnished equipment.

4. All manufacturers' warranties shall be included. Warranties shall begin at Owners acceptance. Extended warranties, if specified, shall be provided. Where equipment is used for temporary, extended warranties shall be provided for the period of temporary usage.

5. Provide identification/coding/labeling of piping, equipment, systems, ceiling markers, etc. as necessary to complete this scope.

6. It is this Bid Packages responsibility to schedule and attend all local, state and/or federal inspections whether or not they occur during normal project working hours. Submit inspection reports from local, state and federal inspection agencies to the Construction Manager.

7. Provide labor, material, equipment, coordination, and supervision for connection and tie-ins to existing pipes.

8. Bid Package 31A Sitework will provide utility services stubs within 5'-0" of the exterior foundation wall of the building. The final connection shall be made by the last Bid Package to complete their work, either Package 22A Plumbing or 31A Sitework. Coordinate the locations for these services with Packages 31B Sitework.

9. Provide all cleaning/disinfecting of pipe and equipment as required.

10. Provide all coordination with the assistance to the independent certified testing and balancing Contractor, during the performance of their work under Bid Package 23C Testing and Balancing. Provide labor to adjust systems as directed by the Test and Balance Contractor.

11. All demolition and sawcutting of floor openings is by individual Bid Packages requiring the opening.

12. Refer to other Bid Packages for coordination of work between HVAC Sheetmetal, Testing and Balancing, Building Automation and Electrical Systems. Coordinate all work with the Contractors performing under those Bid Packages.

13. ~~Bid Package 03A is providing all concrete equipment curbs, pads, and bases, as shown on the drawings. Equipment pads not shown on the drawings will be provided the Bid Package requiring the pad.~~ All equipment pads will be provided and installed under this work category.

14. Provide all blocking, backing miscellaneous supports, sleeves, clock outs, core drilling, holes in walls, decks, precast, and concrete slabs. Provide all hangers, support framing, anchors, concrete embeds, hardware, etc. required for the scope of the Bid Package. Include final cutting of decking for block outs/openings/sleeves.

15. Alert all Contractors of penetrations, sleeves and other types of openings, installed under this Bid Package, impacting their work by physically marking, providing layout drawings, and/or coordinating all locations of openings, penetrations and sleeves within concrete, precast, masonry, gypsum board, etc. Furnish, layout, set, inspect all sleeves and openings as needed to support precast, concrete, masonry, etc.

16. Provide spray fireproofing patching at any fireproofed areas damaged by this scope of work.

17. Coordinate the installation of all work associated with this Bid Package, with the work of all Bid Packages, and existing work to ensure that all tolerances and clearances required for all Bid Packages are maintained.

18. Provide and coordinate all necessary tie-ins, demolition, relocation, and shutdowns with the Construction Manager and the Owner to ensure no disruption to the existing system occurs. The necessity of performing the work of this Bid Package during non-regular or non-peak hours as directed by the Owner will not be compensable.

19. Provide all start up, testing, verification, corrective action, manuals, and training as required or specified, including separate demonstration tests to the Construction Manager, the Owner, and local authorities.

20. Provide Owner training for equipment and systems. Include on-site training by manufacturer's technical representatives for all equipment and systems. This trip is a separate trip from time of equipment startup and demonstration testing.

21. Provide all materials and labor necessary to clean and protect the work provided under this Bid Package until Owner acceptance.

22. Provide complete participation and cooperation for above ceiling coordination.

23. Once the building is enclosed, the Construction Manager will be installing temporary gas heaters to heat the building. This Bid Package is to provide temporary gas piping, meter, connections to the heaters furnished by the Construction Manager.

24. In addition to the daily clean up requirements listed in the Contract Documents, this Package is to provide 1 person for 2 hours per week to assist the Construction Manager in general clean-up duties and relocation of materials as required. This requirement applies each week for which you will have personnel on-site. The amount of this labor shall be listed on the schedule of values and will only be paid when participation requirements are satisfied, otherwise the amount will be deducted from the Contract.

25. Owner Training will occur in phases following the construction phases in the schedule.

Work Category 23A - HVAC

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 02	Existing Conditions
02 41 19	Selective Demolition
Division 7	
07 84 13	Penetration Firestopping (as applies)
Division 23	
23 05 13	Common Motor Requirements for HVAC Equipment
23 05 15	Variable-Frequency Motor Controllers
23 05 16	Expansion Fittings and Loops for HVAC Piping
23 05 17	Sleeves and Sleeve Seals for HVAC Piping
23 05 19	Meters and Gages for HVAC Piping
23 05 23	General Duty Valves for HVAC Piping
23 05 29	Hangers and Supports for HVAC Piping and Equipment
23 05 48	Vibration and Seismic Controls for HVAC Piping and Equipment
23 05 53	Identification for HVAC Piping and Equipment
23 07 13	Duct Insulation
23 07 16	HVAC Equipment Insulation
23 07 19	HVAC Piping Insulation
23 21 13	Hydronic Piping
23 21 14	Geothermal Vertical Bore Ground Loop Heat Exchanger
23 21 15	Ground Heat Exchanger Testing and Observation
23 21 16	Geothermal Heat Exchanger Flushing, Purging, Hydrostatic Testing & Charging
23 21 23	Hydronic Pumps
23 23 00	Refrigerant Piping
23 31 13	Metal Ducts
23 33 00	Ductwork Accessories
23 34 23	HVAC Power Ventilators
23 36 00	Air Terminal Units
23 37 13	Diffusers, Registers and Grilles
23 37 23	HVAC Gravity Ventilators
23 51 00	Breechings, Chimneys and Stacks
23 52 16	Condensing Boilers
23 62 00	Packaged Compressor and Condenser Units
23 64 23	Water-to-Water Heat Pumps
23 74 13	Indoor / Outdoor Custom Air-Handling Units
23 81 26	Split-System Air-Conditioners
23 82 33	Heating Terminal Units
23 82 33	Radiant-Heating Panels (Electric)

23 84 13 Humidifiers

Scope of Work – Additional Category Requirements

1. Provide all wall louvers and caulking of the louvers. Coordinate openings (provide size and location), with the Contractor building the wall. Provide all head and sill flashings. Provide all blank-off panels as needed.

2. Provide all rough-ins, hookups, and connections for equipment furnished by other Bid Packages and all Owner furnished equipment.

3. All manufacturers' warranties shall be included. Warranties shall begin at Owners acceptance. Extended warranties, if specified, shall be provided. Where equipment is used for temporary, extended warranties shall be provided for the period of temporary usage.

4. Provide identification/labeling of ductwork, equipment, systems, ceiling markers, etc. as necessary to complete this scope.

5. Cover all open ends of ductwork with wood, poly, or metal covers on at the end of each working day.

6. It is this Bid Packages responsibility to schedule and attend all local, state and/or federal inspections whether or not they occur during normal project working hours. Submit inspection reports from local, state and federal inspection agencies to the Construction Manager

7. Provide labor, material, equipment, coordination, and supervision for connections and tie-ins to existing ductwork.

8. Provide all cleaning of ductwork and equipment as required.

9. Provide all coordination with the assistance to the independent certified testing and balancing Contractor, during the performance of their work under Bid Package 23C Testing and Balancing. Provide labor to adjust systems as directed by the Test and Balance Contractor.

10. Coordinate with Bid Package 22A Plumbing for all piping/plumbing connections to equipment provided by this Bid Package.

11. Coordinate with Bid Packages 23B Controls, and 23C Test and Balance Contractors, and provide coordination in all aspects of the work. With the exception of the actual labor of the Test and Balance Contractor, this Bid Package shall consider specification section 23 05 93 to be an inclusive part of their contract documents and shall assume necessary compliance therewith, especially substantial completion. This Bid Package shall execute their work in close coordination with the Test and Balance contractor, making every effort to provide complete test and balance systems, responding expeditiously to correct any deficiencies, inadequacies, imbalances, etc. that may be uncovered by the test of those systems. In that regard, cost and labor for the installation, addition, replacement of removal of any shims, sheaves, or other similar items necessary for incremental adjustment of systems demonstrated by the test and balance tests, will be considered to be part of the base scope of this Bid Package.

12. All demolition and sawcutting of floor openings is by individual Bid Packages requiring the opening.

13. Refer to other Bid Packages for coordination of work between HVAC Sheetmetal, Testing and Balancing, Building Automation and Electrical Systems. Coordinate all work with the Contractors performing under those Bid Packages.

14. This bid Package is responsible for the removal, replacement, cutting, patching, etc. as needed for the installation of its work, including any walls, decks, floors, ceilings, etc.

15. Provide and coordinate all necessary tie-ins, demolition, relocation, and shutdowns with the Construction Manager and the Owner to ensure no disruption to the existing systems occurs. The necessity of performing the work of this Bid Package during non-regular or non-peak hours as directed by the Owner will not be compensable.

16. ~~Bid Package 03A is providing all concrete equipment curbs, pads, and bases, as shown on the drawings. Equipment pads not shown on the drawings will be provided the Bid Package requiring the pad.~~ All equipment pads will be provided and installed under this work category.

17. Provide all blocking, backing miscellaneous supports, sleeves, clock outs, core drilling, holes in walls, decks, precast, and concrete slabs. Provide all hangers, support framing, anchors, concrete embeds, hardware, etc. required for the scope of the Bid Package. Include final cutting of decking for block outs/openings/sleeves.

18. Alert all Contractors of penetrations, sleeves and other types of openings, installed under this Bid Package, impacting their work by physically marking, providing layout drawings, and/or coordinating all locations of openings, penetrations and sleeves within concrete, precast, masonry, gypsum board, etc. Furnish, layout, set, inspect all sleeves and openings as needed to support precast, concrete, masonry, etc.

19. Provide all fire/smokestopping systems of devices necessary to endure work installed by this Bid Package complies with the requirements of specification 07 84 00 and meets all code requirements. Coordinate the firestopping work required of this Bid Package with the firestopping work of all other Bid Packages to ensure complete construction of all wall and firestopping assemblies.

20. Coordinate the installation of all work associated with this Bid Package, with the work of all Bid Packages, and existing work to ensure that all tolerances and clearances required for all Bid Packages are maintained. Coordination includes, but is not limited to, participation in the development of coordination drawings. This Bid Package is to **lead** the above ceiling coordination drawing process and is responsible for these drawigns.

21. Provide all start up, testing, verification, corrective action, manuals, and training as required or specified, including separate demonstration tests to the Construction Manager, the Owner, and local authorities.

22. Provide Owner training for equipment and systems. Include on-site training by manufacturer's technical representatives for all equipment and systems. This trip is a separate trip from time of equipment startup and demonstration testing.
23. Provide all materials and labor necessary to clean and protect the work provided under this Bid Package until Owner acceptance.

24. Provide all excavation, trenching, and backfill required for the installation of all underground work. Remove any spoils.

25. In addition to the daily clean up requirements listed in the Contract Documents, this Package is to provide 1 person for 2 hours per week to assist the Construction Manager in general clean-up duties and relocation of materials as required. This requirement applies each week for which you will have personnel on-site. The amount of this labor shall be listed on the schedule of values and will only be paid when participation requirements are satisfied, otherwise the amount will be deducted from the Contract.

26. Owner Training will occur in phases following the construction phases in the schedule.

Work Category 23B – Temperature Controls

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 02	Existing Conditions
02 41 19	Selective Demolition
Division 23	
23 09 00	Instrumentation and Control for HVAC
23 09 93	Sequence of Operations for HVAC Controls

Scope of Work – Additional Category Requirements

1. Provide a complete building management, integrated automation and control system as shown, required or specified; including all instruments, devices, panels, pneumatic tubing, control wiring, as specified and required for a complete and fully operational system.

2. Refer to other Bid Packages for coordination of work between Mechanical and Electrical systems.

3. Provide power connections for all panels or devices provided by this Bid Package that are not shown on the electrical drawings.

4. Coordinate all work with the contractors performing work under Bid Packages 22A Plumbing, 23A HVAC Sheetmetal, 23C Testing and Balancing and 26 Electrical

5. Provide all specified factory training for Owner's personnel, including travel, and lodging. In addition, all necessary on-site programming and hardware training shall be provided.

6. It is this Bid Packages responsibility to schedule and attend all local, state and/or federal inspections whether or not they occur during normal project working hours. Submit inspection reports from local, state and federal inspection agencies to the Construction Manager

7. All manufacturers' warranties shall be included. Warranties shall begin at Owners acceptance. Extended warranties, if specified, shall be provided. Where equipment is used for temporary, extended warranties shall be provided for the period of temporary usage.

8. Provide all fire/smokestopping systems of devices necessary to endure work installed by this Bid Package complies with the requirements of specification 07 84 00 and meets all code requirements. Coordinate the firestopping work required of this Bid Package with

the firestopping work of all other Bid Packages to ensure complete construction of all wall and firestopping assemblies.

9. Provide sprayed fireproofing patching at any fireproofed areas damaged by this scope of work.

10. Coordinate the installation of all work associated with this Bid Package, with the work of all Bid Packages, and existing work to ensure that all tolerances and clearances required for all Bid Packages are maintained.

11. Provide and coordinate all necessary tie-ins, demolition, relocation, and shutdowns with the Construction Manager and the Owner to ensure no disruption to the existing systems occurs. The necessity of performing the work of this Bid Package during non-regular or non-peak hours as directed by the Owner will not be compensable.

12. Provide labor, material, equipment, coordination, and supervision for connections and tie-ins to existing ductwork.

13. All demolition and sawcutting of floor openings is by individual Bid Packages requiring the opening.

14. ~~Bid Package 03A is providing all concrete equipment curbs, pads, and bases, as shown on the drawings. Equipment pads not shown on the drawings will be provided the Bid Package requiring the pad.~~ All equipment pads will be provided and installed under this work category.

15. Provide all start up, testing, verification, corrective action, manuals, and training as required or specified, including separate demonstration tests to the Construction Manager, the Owner, and local authorities.

16. Provide all materials and labor necessary to clean and protect the work provided under this Bid Package until Owner acceptance.

17. Provide identification/labeling of piping, equipment, systems, ceiling markers, etc. as necessary to complete this scope.

18. Coordinate with Bid Packages 22 Plumbing, 23A HVAC, and 23C Test and Balance Contractors, and provide coordination in all aspects of the work. With the exception of the accrual labor of the Test and Balance Contractor, this Bid Package shall consider specification section 23 05 93 to be an inclusive part of their contract documents and shall assume necessary compliance therewith, especially substantial completion. This Bid Package shall execute their work in close coordination with the Test and Balance contractor, making every effort to provide complete test and balance systems, responding expeditiously to correct any deficiencies, inadequacies, imbalances, etc. that may be uncovered by the test of those systems. In that regard, cost and labor for the installation, addition, replacement of removal of any shims, sheaves, or other similar items necessary for incremental adjustment of systems demonstrated by the test and balance tests, will be considered to be part of the base scope of this Bid Package.

19. Owner Instruction/Training: Upon completion of systems operation test and acceptance, this Bid Package shall schedule instructional meetings as required for the Owner facility and operations personnel through the Construction Manager. The Construction Manager and Owner shall be contacted for acceptable time for said instructions and shall be provided with written confirmation of the actual scheduled date, time and location for the meeting, a minimum of fourteen (14) days prior for the meeting. Representatives of Bid Packages 22A, 23A, and 23B shall be present for the entire duration of the operating instructions. The Bid Packages shall instruct the Owner's personnel in the proper operation and maintenance of all mechanical systems and equipment. In particular, instruct the Owners personnel on the changeover period of all systems, control and

adjustments, draining of systems that require draining, and chemical analysis of systems that require chemicals. The Bid Packages shall demonstrate each operational mode of systems and describe the system operational requirements. The Bid Packages shall make any fine adjustments to systems or controls necessary to enable the systems to operate as designed. The owner's personnel shall be permitted to stop and/or start any piece of equipment in the system.

20. Provide all blocking, backing miscellaneous supports, sleeves, clock outs, core drilling, holes in walls, decks, precast, and concrete slabs. Provide all hangers, support framing, anchors, concrete embeds, hardware, etc. required for the scope of the Bid Package. Include final cutting of decking for block outs/openings/sleeves.

21. This bid Package is responsible for the removal, replacement, cutting, patching, etc. as needed for the installation of its work, including any walls, decks, floors, ceilings, etc.

22. Owner Training will occur in phases following the construction phases in the schedule.

Work Category 23C - Test and Balancing

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 02	Existing Conditions
02 41 19	Selective Demolition
Division 23	
23 05 93	Testing, Adjusting and Balancing for HVAC

Scope of Work – Additional Category Requirements

1. Final written test and balance reports must be submitted to the Construction Manager within 7 calendar days of completing the test.

2. Construction Schedule will require phased occupancy and testing and balancing will be required in multiple phases and multiple reports will be required. See construction schedule.

Work Category 26A - Electrical

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 02	Existing Conditions
02 41 19	Selective Demolition
Division 7	
07 84 13	Penetration Firestopping (as applies)
Division 26	
26 05 19	Low-Voltage Electrical Power Conductors and Cables
26 05 26	Grounding and Bonding for Electrical Systems
26 05 29	Hangers and Supports for Electrical Systems
26 05 33	Raceways and Boxes for Electrical Systems
26 05 44	Sleeves and Sleeve Seals for Electrical Raceways and Cabling
26 05 53	Identification for Electrical Systems
26 05 73	Overcurrent Protective Device Coordination Study
26 09 23	Lighting Control Devices
26 09 43.16	Addressable-Fixture Lighting Controls
26 24 13	Switchboards
26 24 16	Panelboards
26 27 26	Wiring Devices
26 28 13	Fuses
26 32 13	Engine Generator
26 36 00	Transfer Switches
26 51 19	LED Interior Lighting
26 52 19	Emergency and Exit Lighting
Division 27	
27 05 28	Pathways for Communications Systems
27 05 36	Cable Trays For Communication Systems
27 05 44	Sleeves and Sleeve Seals for Communications Pathways and Cabling
27 11 00	Communications Equipment Room Fittings
27 13 00	Communications Backbone Cabling
27 15 00	Communications Horizontal Cabling
27 52 23	Nurse Call / Code Blue Systems
Division 28	
28 05 13	Conductors and Cables for Electronic Safety and Security
28 05 28	Pathways For Electronic Safety and Security
28 13 00	Access Control
28 23 00	Video Surveillance

28 31 11 Digital, Addressable Fire-Alarm System

Scope of Work – Additional Category Requirements

1. Coordination with existing systems.

2. All manufacturers' warranties shall be included. Warranties shall begin at Owner's acceptance. Extended warranties, if specified, shall be provided.

3. All demolition and sawcutting of floor openings is by individual Bid Packages requiring the opening.

4. This Bid Package is responsible for the removal, replacement, cutting, patching, etc as needed for the installation of its work. Including but not limited to any walls, floors, ceilings, etc. within the existing building and any streets, sidewalks or landscaping disturbed.

5. Provided and coordinate all necessary tie-ins, demolition, relocation, and shutdowns with the Construction Manager and the Owner to ensure no disruption to the existing systems or facilities. The necessity of performing the work of this Bid Package during non-regular or non-peak hours as directed by the Owner will not be compensable. All shutdowns and tie-ins must be coordinated with the Construction Manager and the Owner a minimum of 7 days prior to possible shut downs or tie-ins.

6. Provide all dust control, infection control, and cleanup when working within the existing facilities.

7. ~~Bid Package 03A is providing all concrete equipment curbs, pads, and bases, as shown on the drawings. Equipment pads not shown on the drawings will be provided the Bid Package requiring the pad.~~ All equipment pads will be provided and installed under this work category.

8. Provide all blocking, backing, miscellaneous supports, sleeves, block outs, core drilling, and holes in walls, decks, precast and concrete slabs. Provide all hangers, support framing, anchors, concrete embeds, hardware, etc. required for the scope of the work of the Bid Package.

9. Alert all Contractors of penetrations, sleeves, and other types of openings, installed under this Bid Package, impacting their work by physically marking, providing layout drawings, and/or coordinating all locations of openings, penetrations and sleeves within concrete, precast, masonry, gypsum board, etc.

10. Coordinate the installation of all work associated with the Bid Package, with the work of all Bid Packages, and existing work, to ensure that all tolerances and clearances required for all Bid Packages are maintained.

11. Provide all start up, testing, verification, corrective action, manuals, and training as required or specified.

12. Provide Owner training for equipment and systems. Include on-site training by manufacturer's technical representatives for all equipment and systems. This trip is a separate trip from time of equipment startup and demonstration testing.

13. Provide all materials and labor necessary to clean and protect the work provided under this Bid Package until Owner acceptance.

14. Provide temporary power and lighting for use by all Bid Packages. Outlets will be required within 100 foot radius of any point on the floor. See temporary lighting requirements in specs. Include maintenance and removal of these systems.

15. Once the building is enclosed, the Construction Manager will be installing temporary gas heaters to heat the building. This Bid Package is to provide temporary power to the heaters furnished by the Construction Manager. There may be up to three units per floor.

16. In addition to the daily clean up requirements listed in the Contract Documents, this Package is to provide 1 person for 2 hours per week to assist the Construction Manager in general clean-up duties and relocation of materials as required. This requirement applies each week for which you will have personnel on-site. The amount of this labor shall be listed on the schedule of values and will only be paid when participation requirements are satisfied, otherwise the amount will be deducted from the Contract.

17. Owner Training will occur in phases following the construction phases in the schedule.

Work Category 32E - Fencing

The following information is provided in order to define and describe the scope of work that will be required of the successful Bidder. The scope of work shall include all labor, materials, supervision, equipment, tools, insurance, bonding, taxes, and all other items required to perform this work.

The information is to be complimentary with the collective requirements of all the other Contract Documents. All the Contract Documents, including all disciplines of the specifications and drawings, are included as part of this scope of work.

The Document will become a part of the successful Bidder's Final Contract and outlines the specific scope of work for this Work Category.

The following specification sections shall be completely furnished and installed under the scope of this Bid Package.

Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
Division 02	Existing Conditions
Division 32	
32 31 19	Decorative Metal Fences and Gates

Scope of Work – Additional Category Requirements

1. Provide complete system including gate, hardware and grouting / anchoring as required.

2. In addition to the daily clean up requirements listed in the Contract Documents, this Package is to provide 1 person for 2 hours per week to assist the Construction Manager in general clean-up duties and relocation of materials as required. This requirement applies each week for which you will have personnel on-site. The amount of this labor shall be listed on the schedule of values and will only be paid when participation requirements are satisfied, otherwise the amount will be deducted from the Contract.

3. Coordinate the installation of all work associated with the Bid Package, with the work of all Bid Packages, and existing work, to ensure that all tolerances and clearances required for all Bid Packages are maintained.

SECTION 00 41 00
BID FORM

PROJECT: Bid Package #2
St. Croix County Health Center - Additions and Renovation
New Richmond, WI

BID DEADLINE: Tuesday, July 21, 2015, @ 2:00 p.m. local time

BID TO: St. Croix County Facilities Department
Attn: Monica Lucht
1101 Carmichael Road – Suite G315
Hudson, WI 54016

Or

Fax: (715) 377-5818

Or

Email: bids@co.saint-croix.wi.us

Company Name _____

Business Address _____
Street Address City State Zip

Mailing Address _____
P.O. Box City State Zip

Phone Number ( ) _____ Fax: Number ( ) _____

Contact for Project _____ Email Address: _____

Authorized Signature _____ Title _____
(circle applicable items) Union Non-Union MBE WBE SBE

SEAL IF BID BY A CORPORATION

In strict compliance with the Bidding and Contract Documents entitled St. Croix County Health Center - Additions and Renovation and dated June 2, 2015, as prepared by Horty Elving & Associates, Inc, the undersigned have become thoroughly familiar with the terms and conditions of the proposed Contract Documents, local conditions affecting the Work, fully inspected the particulars of the site, and propose the following bid:

A separate Bid Form should be used for each Work Category or for each combination of Work Categories being bid.

Company Name: _____ Work Category No(s). _____

WORK CATEGORY NUMBER _____

BASE BID: All Work as defined in Work Category Number(s) noted above.

Total Base Bid: $ _____.

** Indicate PARTIAL OR COMPLETE (for specified Work Categories ONLY) **

ALTERNATE BID #1 – Therapy Pool Addition:

Total Alternate Bid: (Add) $ _____.

ALTERNATE BID #2 – Adult Day Care Remodel:

Total Alternate Bid: (Add) $ _____.

ALTERNATE BID #3 – Spray Foam Exterior Wall Insulation:

Total Alternate Bid: (Add / Deduct) $ _____.

ALTERNATE BID #4 – Increase generator size to 600 KW:

Total Alternate Bid: (Add) $ _____.

ALTERNATE BID #5 – Replace exterior hollow metal doors with FRP doors:

Total Alternate Bid: (Add / Deduct) $ _____.

ALTERNATE BID #6 – Provide fiberglass shower stalls:

Total Alternate Bid: (Add / Deduct) $ _____.

Company Name: _____ Work Category No(s). _____

ALTERNATE BID #7 – Nurse Call approved equal:

Total Alternate Bid: (Add / Deduct) $ _____.

ALTERNATE BID #8 – Omit commercial washer and dryer replacement:

Total Alternate Bid: (Deduct) $ _____.

ALTERNATE BID #9 – Omit residential appliances:

Total Alternate Bid: (Deduct) $ _____.

"Install Only" means receive delivery on board, unload, uncrate and install, including all labor, miscellaneous materials, insurance, taxes, and equipment necessary for material supplied by others. This also includes removal of debris generated by materials supplied by others.

"Furnish Only" means deliver, tax and freight includes (FOB job site), materials to the Owner's facility for installation by others. Delivery shall be made during standard working hours and notification of delivery shall be given to Market & Johnson 72 hours in advance.

We acknowledge receipt of Addenda _____ through _____ inclusive.

Performance Bond and Labor and Material Payment Bond

The Bidder ☐ can / ☐ cannot provide Performance and Payment Bond in favor of St. Croix County and Market & Johnson, **if requested,** in the sum of 100% of the Contract Amount. The premium for any bonds will be paid by the Contractor, separate from the amounts quoted above.

The name of the proposed surety is _____.

To provide Performance and Payment Bonds
Base Bid Add $_____

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.
6. Submittal of Focus on Energy Documentation.

B. Related Requirements:

1. Section 01 73 00 "Execution" for progress cleaning of Project site.
2. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
4. Section 01 79 00 "Demonstration and Training" for requirements for instructing Owner's personnel.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
2. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number where applicable.
3. Submit test/adjust/balance records.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
2. Complete startup and testing of systems and equipment.
3. Perform preventive maintenance on equipment used prior to Substantial Completion.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training."
5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
6. Complete final cleaning requirements, including touchup painting.
7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Results of completed inspection will form the basis of requirements for final completion.

1.6 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request,

© Horty Elving & Associates, Inc.
Commission # 146038

Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

   a. Project name.
   b. Date.
   c. Name of Architect and Construction Manager.
   d. Name of Contractor.

4. Submit list of incomplete items in one of the following formats:

   a. MS Excel electronic file.
   b. PDF electronic file.

1.8 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.9 SUBMITTAL OF FOCUS ON ENERGY DOCUMENTATION

A. St. Croix County intends to involve Focus on Energy in the design and construction process to maximize energy savings and receive financial incentives for installing energy efficient systems and equipment. The architect and engineer commissioned for this project have worked with Focus on Energy by providing services that include, but are not limited to, participation in meetings with Focus on Energy to identify energy-saving measures and selection and specification of Focus on Energy-approved equipment.

Contractor shall install specified energy efficient equipment and provide invoices and other completion documentation, as required by Focus on Energy, prior to project close-out.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Remove tools, construction equipment, machinery, and surplus material from Project site.
b. Clean exposed interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
c. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
d. Sweep concrete floors broom clean in unoccupied spaces.
e. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
f. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
g. Remove labels that are not permanent.
h. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
i. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

© Horty Elving & Associates, Inc.
Commission # 146038

j. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
k. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
l. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
m. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Base fill (drainage course) for concrete slabs-on-grade.
2. Cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

   a. Footings.
   b. Foundation walls.
   c. Piers and pilasters.
   d. Slabs-on-grade.
   e. Concrete toppings.

3. Cement-based, polymer-modified, self-leveling repair underlayment.

B. Related Sections:

1. Section 32 16 00 “Curbs and Sidewalks" for concrete pavement and walks.

1.3 DEFINITIONS

A. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

B. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar

arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

1.5 INFORMATIONAL SUBMITTALS

A. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

B. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

F. Preinstallation Conference: Conduct conference at Project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.

© Horty Elving & Associates, Inc.

d. Concrete subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, and concrete protection.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Base Fill (Drainage Course): Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

B. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a 3/8-inch sieve, 10 to 30 percent passing a No. 100 sieve, and at least 5 percent passing No. 200 sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

D. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.

E. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

F. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

G. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60, deformed bars, assembled with clips.

C. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I/II,. Supplement with the following:

a. Fly Ash: ASTM C 618, Class F or C.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.

© Horty Elving & Associates, Inc.
Commission # 146038

1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal for footings and 3/4 inch nominal for all other cast-in-place concrete.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.6 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

2.7 FIBER REINFORCEMENT

A. Synthetic Micro-Fiber: Fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches long.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF; Master Fiber F70.
b. Fabpro Oriented Polymers LLC; GENESIS Fibrillated Fibers.
c. Propex Concrete Systems Corp.; Fibermesh 300.

2.8 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Carlisle Coatings & Waterproofing, Inc.; Blackline 400.
b. Fortifiber Building Systems Group; Moistop Ultra 10.
c. Grace Construction Products, W. R. Grace & Co.; Florprufe 120.
d. Insulation Solutions, Inc.; Viper VaporCheck 10.
e. Meadows, W. R., Inc.; Perminator 10 mil.
f. Raven Industries Inc.; Vapor Block 10.
g. Stego Industries, LLC; Stego Wrap 10 mil Class A.

2.9 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.10 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.

C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.11 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.

2.12 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 20 percent.
2. Combined Fly Ash and Pozzolan: 20 percent.
3. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 20 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture in all interior slab-on-grade mixes.
2. Use water-reducing admixture in concrete, as required, for placement and workability.
3. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
4. Note: Design mix slump requirements are considered “pre-admixture” slumps.

© Horty Elving & Associates, Inc.
Commission # 146038

2.13 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.55.
3. Slump Limit: 5 inches, plus or minus 1 inch.

B. Foundation Walls, Piers, and Pilasters: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.55.
3. Slump Limit: 3 inches, plus or minus 1 inch.
4. Air Content: 6% +/-.

C. Interior Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.55.
3. Minimum Cementitious Materials Content: 540 lb/cu. yd.
4. Slump Limit: 4 inches, plus or minus 1 inch.
5. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
6. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.5 lb/cu. yd.

D. Concrete Toppings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Minimum Cementitious Materials Content: 540 lb/cu. yd..
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: Do not allow air content of trowel-finished toppings to exceed 3 percent.
5. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.5 lb/cu. yd.

2.14 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.15 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 BASE FILL (DRAINAGE COURSE) UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course 6 inches or less in compacted thickness in a single layer.
2. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
3. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.2 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class C, 1/2 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

© Horty Elving & Associates, Inc.
Commission # 146038

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.3 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.4 REMOVING AND REUSING FORMS

A. General: Formwork for sides of walls, piers, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.5 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Unroll sheet vapor retarder over the area where the slab is to be poured. Sheet vapor retarder should completely cover the pour area, wrap up all sidewalls, and terminate at the top-of-slab elevation.
2. All joints/seams both lateral and butt should be overlapped six inches and sealed with manufacturer's recommended tape.
3. Seal all penetrations. All pipes, conduit, ducting, rebar and wire penetrations should be sealed using tape and/or Mastic.
4. Repair sheet vapor retarder damaged during or after installation. Cut a piece of sheet vapor retarder large enough to cover any damaged areas by a minimum overlap of six inches in all directions. Clean all adhesion areas of dust, dirt and moisture. Tape down all edges.

3.6 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.7 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Place slab-on-grade construction joints at a maximum of 60 feet on center.
4. Locate horizontal joints in walls at underside of floors and at the top of footings or floor slabs.
5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Control Joints in Slabs-on-Grade: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
3. Place control joints in concrete slab-on-grade at a maximum spacing of 16 feet on center. Locate on grid lines or under partitions wherever feasible.
4. Place control joints in concrete toppings at mid-span of precast concrete plank and to a depth of 1 inch.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

© Horty Elving & Associates, Inc.
Commission # 146038

2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces indicated to receive trowel finish.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and

© Horty Elving & Associates, Inc.
Commission # 146038

uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

    a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and of levelness, F(L) 15.
    b. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.

3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 3/16 inch.

D. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 4 inches high minimum unless otherwise indicated; and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated.
3. Minimum Compressive Strength: 4000 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base, and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

3.12 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

   a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

3.13 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

© Horty Elving & Associates, Inc.
Commission # 146038

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
6. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Inspections:

1. Steel reinforcement placement.
2. Headed bolts and studs.
3. Verification of use of required design mixture.
4. Concrete placement, including conveying and depositing.
5. Curing procedures and maintenance of curing temperature.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the requirements of Section 014000 - Quality Requirements.

1. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
2. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
3. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
4. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 03 30 00

© Horty Elving & Associates, Inc.
Commission # 146038

SECTION 230993 - SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes control sequences for HVAC systems, subsystems, and equipment.

B. Related Sections include the following:

1. Division 23 Section "Instrumentation and Control for HVAC" for control equipment and devices and for submittal requirements.

1.3 DEFINITIONS

A. DDC: Direct digital control.

B. VAV: Variable Air Volume

1.4 CONTROL SEQUENCES

A. Refer to the attached control sequences and points schedule for required Building Automation Systems work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Variable Air Volume Systems

1. GENERAL

A. Air Handling Systems: All equipment indicated shall be controlled by the same software defined occupied/unoccupied schedule through the Building Automation System.

1. **AREA SERVED:**

   Air Handling Unit AHU-3
   VAV Boxes #-##
   Exhaust Fans
   Condensing Unit CU-3
   Air Flow Stations

2. **AREA SERVED:**

   Rooftop Unit RTU-4
   VAV Boxes #-##
   Exhaust Fans
   Condensing Unit CU-4
   Air Flow Stations

B. All variable speed drives shall are furnished by the Air Handler Unit Manufacturer.

C. Provide the outside air, relief air, return air and control air electric damper actuators. Dampers provided integral with the Air Handling Unit.

D. Provide the hot water valves and electric actuators; refer to equipment schedules for 2 or 3 way valves. Installation specified under another DIV 23 section.

E. Smoke detectors are furnished and installed by the Electrical Contractor.

F. Provide and wire static pressure safety switches.

G. Provide and wire all electrical interlocks to other equipment associated with this system, as indicated or otherwise necessary for proper system operation.

H. Airflow measuring stations and electronic transducers provided by Air Handling Unit manufacturer at fan inlets. Wire complete all airflow measuring stations and electronic transducers.

I. Humidifier by another Division 23 section comes furnished with its own internal controls. Coordinate requirements to connect to BACnet interface for control as described here-in.

2. CONTROL SEQUENCE

A. Occupied Mode

1. The system shall be indexed to occupied mode be a timeclock schedule or momentary push button through the EMCS, with fans at minimum RPM and the outside air dampers in the closed position.

2. All fans associated with this system shall run continuously.

© Horty Elving & Associates, Inc.
Commission # 146038

3. Fan Capacity Control

   a. Provide a “soft start” ramp function to bring fans to speed slowly.

   b. Provide a duct static pressure sensor and PID control loop to modulate the supply fan speed control to maintain the duct static pressure setpoint (software adjustable).

   c. If none of the terminal VAV boxes served by the unit is in the maximum open position, the static pressure setpoint shall be decreased to save fan energy.

   d. Locate static pressure sensor approximately 2/3 distance downstream of the supply fan. Coordinate location with sheet metal installation contractor and test and balance contractor.

4. Building Pressure Control

   a. The return exhaust fan shall track the supply fan CFM. Control the return fan speed to an airflow setpoint. The return fan airflow setpoint shall be determined as the supply fan airflow minus the exhaust airflow from the area served and minus the outside ventilation airflow.

   b. The building differential static pressure sensor shall modulate the relief air damper to maintain a positive building static pressure of 0.025 in w.g. The relief air damper shall not be modulated less than 30% open when the system is in occupied mode.

   c. The outside air damper shall not be modulated below its minimum setting. If the outside air damper is at its minimum setting and the building static pressure drops below its setting, decrease the return fan speed.

5. Minimum Outside Air Damper Control

   a. The minimum outside airflow shall be set to the CFM indicated on the drawings. The minimum outside airflow setpoint shall be operator adjustable through the system front-end software.

6. Mixed-Air/Discharge Air Temperature Reset

   a. The mixed air/discharge air temperature setpoint shall be reset based on requests for cooling or heating from the VAV boxes. When requests for cooling or heating exceed the operator-defined number, the discharge air setpoint shall be reset. Refer to the cooling and heating sequences. The intent of the mixed air/discharge air reset strategy is to maintain the highest temperature setpoint to maximize ventilation to the spaces without overheating more than the operator defined number of spaces.

   b. The mixed air/discharge air shall be reset between a minimum and maximum temperature operator adjustable setpoint. The maximum temperature shall be initially set for 65.0 degrees. The minimum temperature shall be initially set for 55.0 degrees. Upon initial system start-up the system shall start at the same discharge air temperature that ended the last occupied period.

7. Economizer Control

   a. The economizer outside air damper and return air damper shall modulate to maintain the mixed air setpoint. The mixed air temperature setpoint shall be reset based on the number of cooling requests from operator adjustable VAV zones. The mixed air set point shall reset between minimum and maximum limits initially set for 55°F and 65°F.

b. The economizer outside air damper shall be closed to minimum position when the outside air enthalpy is greater than the return air enthalpy, the outside air temperature is greater than 80.0 degrees, the outside air enthalpy is greater than 26.0 BTU/lb.

8. Condensing Unit Control

a. The system shall be indexed to the mechanical cooling mode when the outside air dampers are at full open, the outside air temperature is greater than 65.0 degrees, and the number of cooling requests exceeds the operator specified number. The condensing unit operation shall be locked out unless the AHU status indicates the fan is running.

b. The hot water control valve shall be closed.

c. A temperature sensor in the supply air stream shall cycle each stage of the condensing unit on as required to maintain the supply air temperature setpoint. (Verify number of stages with unit manufacturer).

d. Provide a minimum time delay between indexing on each subsequent cooling stage and minimum run timers for each stage. Coordinate with the condensing unit manufacturer for equipment interface requirements and initial time delay and run time settings. Confirm initial timed settings by field observation of the refrigeration system sight glass such that system oil is observed to circulate during all operating conditions.

e. When the number of "cooling requests" exceeds the operator-specified number, the discharge air temperature shall be decreased to prevent over heating.

f. Wire a solenoid valve for each circuit of cooling to open when the circuit stage is cycled on. Provide anti-cycle timer for each stage to prevent short cycling.

g. When the outside air temperature drops below an operator setpoint initially set for 62°F, disable the mechanical cooling mode and return system to economizer operation.

9. Hot Water Control Valve Control

a. The system shall be indexed to the heating mode when hot water is available, the discharge air temperature falls below its setpoint, or during morning warm-up.

b. The condensing unit operation shall be locked out and the outside air damper shall close to its minimum position.

c. The heating coil valve shall be modulated open to maintain the discharge air temperature setpoint.

d. When the number of "cooling requests" from various zones exceeds an operator-specified number, the discharge air temperature shall be decreased to prevent overheating.

e. Provide a low-limit control override to open the hot water valve incrementally when the temperature in the mixed air chamber falls below 45 degrees.

10. Humidifier Control

a. Provide a manual operator override through the front end graphics to enable/disable humidifier operation.

© Horty Elving & Associates, Inc.

b. When enabled, a humidity sensor in the return duct for each unit shall modulate its respective humidifier output through the open protocol interface as required to maintain the return air humidity setpoint initially set for 35% RH (adjustable).

c. Provide an airflow switch in the duct discharge to prove airflow prior to allowing the humidifier to operate.

d. Humidifier operation shall be locked out unless the chilled water control valves are fully closed.

e. Provide a high limit humidity sensor downstream of the humidifier. The high limit humidity sensor shall limit the humidifier capacity to a maximum of 85%.

B. Unoccupied Mode

1. Cooling

a. The supply fans, return fans, outside air and exhaust fans shall be off.

b. The outside air, and relief air dampers shall be in the closed position.

c. The condensing unit operation shall be locked out.

d. The heating coil valve shall be closed.

2. Heating

a. When the number of "heating requests" from the VAV zones served by the air handling unit exceeds a user-defined number, the supply fan shall start with outside air and relief air dampers fully closed, return air dampers open. The AHU hot water heating coil valve shall remain closed and the VAV reheat coil valves shall modulate to maintain the night setback temperature.

b. When the "heating requests" are satisfied, the system shall be shutdown.

c. Provide a low-limit control override to open the hot water valve incrementally when the temperature in the mixed air chamber falls below 45.0 degrees.

C. Safeties

1. Freezestat - Provide low temperature type (manual reset) freezestat serpentined across leaving side of hot water coil. De-energize unit fans, close outside air damper, and transmit alarm to EMCS when temperature falls below the freezestat setpoint (35°F).

2. Smoke - Transmit alarm to EMCS when smoke is detected in duct system.

3. Static Pressure Switch - Provide a static pressure sensor and safety switch located in the mixed air chamber and supply duct to shutdown supply fans and return fans, and transmit an alarm to the EMCS, when the static pressure is below the setpoint of the sensor.

4. High Discharge Air Temperature - De-energize fan and transmit alarm to EMCS when the discharge air temperature exceeds 90.0 degrees.

5. Low Discharge Air Temperature - De-energize fan and transmit alarm to EMCS when the discharge air temperature drops below 50.0 degrees.

3. ALARMS

A. Generate an alarm when one of the following devices trips:

1. Freezestat
2. Duct Smoke Detectors
3. Mixed Air Static Safety Switch
4. Supply Air Static Safety Switch.
5. Return Air Static Safety Switch.

B. Generate an alarm when the return fan control is on but the status of either of the return fans is off.

C. Generate an alarm when the supply fan control is on but the status of either supply fan is off.

D. Generate an alarm when the discharge air temperature is 5°F above or below the setpoint for more than a 10-minute duration (all variables operator adjustable).

E. Generate an alarm when the discharge air static pressure is 0.5” wc above or below the setpoint for more than a 5 minute duration (all variables operator adjustable).

F. Generate an alarm when the return duct humidify is ± 10% off setpoint for a period greater than 30 minutes. Lock out alarm function when the humidifier is disabled.

G. Generate an alarm when the filler differential pressure is greater than the operator defined setpoint.

H. Generate an alarm when the mixed air temperature is 45°F or below for more than a 5 minute duration (all variables operator adjustable).

4. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the indicated control sequences.

(DO)	Supply Fan Control
(DI)	Supply Fan Status (Current Sensor)
(DO)	Return Fan Control
(DI)	Return Fan Status (Current Sensor)
(DO)	Outside Air Fan Control
(DI)	Outside Air Fan Status (Current Sensor)
(AO)	Supply VFD Modulation
(AO)	Return VFD Modulation
(AI)	Discharge Air Temperature
(AI)	Outside Air Temperature
(AI)	Mixed Air Temperature
(AI)	Return Air Temperature
(AI)	Outside Air Flow (Calculated)
(AO)	Outside Air Damper Modulation
(AO)	OA Damper Modulation
(AO)	RA Damper Modulation
(AO)	Relief Air Damper Modulation
(AI)	Supply Duct Static Pressure
(DI)	Smoke Alarm
(DI)	Freezestat Alarm
(AI)	Building Differential Static Pressure
(AO)	HW Valve Modulation
(DO)	DX Control for Each Stage
(AO)	Outside Air Flow Setpoint
(AI)	Outside Air Enthalpy
(AI)	Return Duct Humidity
(AI)	Dirty Filter Differential
(AI)	Supply Duct Humidity
(DO)	HRU-1 Control
(DO)	Humidifier Enable/Disable
(AO)	Humidifier Control
(AI)	Humidifier Alarms
(DI)	Supply Airflow Status

© Horty Elving & Associates, Inc.

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Variable Air Volume Systems (with Heat Recovery Unit)

1. GENERAL

A. Air Handling Systems: All equipment indicated shall be controlled by the same software defined occupied/unoccupied schedule through the Building Automation System.

1. **AREA SERVED:**

   Air Handling Unit AHU-1
   VAV Boxes #-##
   Exhaust Fans
   Humidifiers
   Air Flow Measuring Stations

2. **AREA SERVED:** Building East

   Rooftop Unit RTU-2
   VAV Boxes #-##
   Exhaust Fans
   Humidifiers
   Air Flow Measuring Stations

B. The supply fans, return fans, exhaust fans and enthalpy wheel will be furnished complete with variable speed drives as work of another specification section.

C. Provide the outside air, relief air, return air, and control air electric damper operators. All dampers provided by the Unit manufacturer.

D. Provide the hot water and chilled water valves and electric actuators; refer to equipment schedules for quantity of 2 or 3 way valves. Installation specified under another DIV 23 section.

E. Smoke detectors are furnished and installed by the Electrical Contractor.

F. Provide and wire static pressure safety switches.

G. Provide and wire all electrical interlocks to other equipment associated with this system, as indicated or otherwise necessary for proper system operation.

H. Airflow measuring stations and electronic transducers provided by Air Handling Unit manufacturer at fan inlets. Wire complete all airflow measuring stations and electronic transducers.

I. Humidifier by another Division 23 section comes furnished with its own internal controls. Coordinate requirements to connect to BACnet interface for control as described here-in.

2. CONTROL SEQUENCE

A. Occupied Mode

1. The system shall be indexed to occupied mode be a timeclock schedule through the EMCS. Control dampers for each exhaust fan and the heat recovery unit shall prove open before systems are allowed to start.

2. The supply fans, return fans, exhaust fans, and heat recovery unit shall run continuously. Provide a soft-start ramp function to bring fans to speed slowly.

3. Fan Capacity Control

   a. Provide a “soft start” ramp function to bring fans to speed slowly.

   b. Provide a duct static pressure sensor and PID control loop to modulate the supply fan speed control to maintain the duct static pressure setpoint (software adjustable).

   c. If none of the terminal VAV boxes served by the unit is in the maximum open position, the static pressure setpoint shall be decreased to save fan energy.

   d. Locate static pressure sensor approximately 2/3 distance downstream of the supply fan. Coordinate location with sheet metal installation contractor and test and balance contractor.

4. Building Pressure Control

   a. Control the return fan speed to an airflow setpoint. The return fan airflow setpoint shall be determined as the supply fan airflow minus the exhaust airflow from the area served and minus the outside ventilation airflow.

   b. The building differential static pressure sensor shall modulate the outside air, return air, and relief air dampers to maintain a positive building static pressure of 0.025 in w.g.

   c. The outside air damper shall not be modulated below its minimum setting. If the outside air damper is at its minimum setting and the building static pressure drops below its setting, decrease the return fan speed.

5. Outside Air Damper Control

   a. The minimum outside airflow shall be set to the CFM indicated on the drawings. The minimum outside airflow setpoint shall be operator adjustable through the system front-end software

6. Mixed-Air/Discharge Air Temperature Reset

   a. The mixed air/discharge air temperature setpoint shall be reset based on requests for cooling from the VAV boxes. When requests for cooling exceed the operator-defined number, the discharge air setpoint shall lower to meet the demands of those zones calling for cooling. When there are no requests for cooling, the discharge air setpoint will be raised. The initial setpoint shall be 70 degrees, the minimum shall be 55 degrees, and the maximum setpoint shall be 70 degrees.

7. Economizer Control

   a. Heat Recovery wheel shall run continuously. Refer to heat recovery unit control. The minimum outside air damper control shall continue to function as described for non-economizing mode of operation.

   b. The outside air damper and return air damper shall modulate to maintain the mixed air setpoint.

   a. In control zones also served by perimeter fin tube radiation, the radiation valves shall modulate to maintain room temperature setpoint.

© Horty Elving & Associates, Inc.
Commission # 146038

d. The outside air damper shall be closed to minimum position when the outside air enthalpy is greater than the return air enthalpy, the outside air temperature is greater than 80.0 degrees, the outside air enthalpy is greater than 26.0 BTU/lb., or the system is indexed to the cooling mode.

8. Chilled Water Coil Valve Control

a. The system shall be indexed to the mechanical cooling mode when chilled water is available, the outside air dampers are full open, the outside air temperature is greater than 58.0 degrees, and the number of cooling requests exceeds the operator specified number.

b. The hot water control valve shall be closed and the outside air damper shall close to its minimum position.

c. The chilled water coil valve shall modulate to maintain the discharge air temperature setpoint.

d. When the number of "heating requests" exceeds the operator-specified number, the discharge air temperature shall be increased to prevent over cooling.

9. Hot Water Control Valve Control

a. The system shall be indexed to the heating mode when hot water is available, the discharge air temperature falls below its setpoint, or during morning warm-up.

b. The chilled water control valve shall be closed and the outside air damper shall be in its minimum position.

c. The heating coil valve shall be modulated open to maintain the discharge air temperature setpoint of 60.0 degrees.

d. When the number of "cooling requests" from various zones exceeds an operator-specified number, the discharge air temperature shall be decreased to prevent overheating.

11. Heat Recovery Wheel

a. The heat recovery unit supply fan shall run continuously. Provide a duct static pressure sensor in the unit supply duct to modulate heat recovery unit supply fan speed to maintain a duct static pressure setpoint initially set for 0.2” w.g.

b. The face and bypass dampers on both the outside air and exhaust shall be controlled as follows:

Operation	Face	Bypass
Wheel Rotating	Open	Close
Wheel Stopped	Closed	Open
Economizer	Closed	Open

c. An exhaust air temperature sensor located downstream of each wheel shall modulate the wheel speed to maintain a minimum leaving outside air temperature of 15 degrees. As the exhaust air temperature drops below 15 degrees, the wheel speed shall slow.

d. An outside air temperature sensor located downstream of each wheel shall modulate the wheel speed through the variable frequency drive to maintain a maximum leaving outside air temperature of 55.0 degrees. As the outside air temperature rises above 55.0 degrees the wheel speed shall slow.

e. When the leaving outside air temperature is between 15 and 55.0 degrees the heat wheel shall turn at full speed to maximize heat recovery.

f. When the outside air temperature heat downstream of the heat wheel is greater than an operator defined setpoint initially set for 55.0 degrees, and the heat wheel is turning at is minimum speed, the heat recovery unit shall be indexed to economizer mode. The enthalpy wheel shall stop rotating and the face and bypass dampers shall close upon proof that the outside air bypass damper has opened to it minimum outside air position.

g. When the entering outside air enthalpy is greater than the building return air enthalpy, the heat recovery unit shall be indexed out of economizer mode and the wheel shall run at full speed to maximize heat recovery.

h. Provide a soft start ramp control for wheel speed operation. The wheel shall take approximately 30 seconds to ramp to full speed.

12. Humidifier Control

f. Provide a manual operator override through the front end graphics to enable/disable humidifier operation.

g. When enabled, a humidity sensor in the return duct for each unit shall modulate its respective humidifier output through the open protocol interface as required to maintain the return air humidity setpoint initially set for 30% RH (adj).

h. Provide an airflow switch in the duct discharge to prove airflow prior to allowing the humidifier to operate.

i. Humidifier operation shall be locked out unless the chilled water control valves are fully closed.

j. Provide a high limit humidity sensor downstream of the humidifier. The high limit humidity sensor shall limit the humidifier capacity to a maximum of 85%.

B. Unoccupied Mode

1. Cooling

a. The supply fans, return fans, outside air, exhaust fans, and heat recovery unit shall be off.

b. The outside air, relief air, and control dampers shall be in the closed position.

c. Cooling coil valve shall be fully closed.

d. The heating coil valve shall be closed.

2. Heating

a. The building unoccupied heating temperature of 55.0 degrees will be maintained by the building perimeter fin tube radiation. All air handling systems shall be off.

b. The air handling unit mixed air sensor shall modulate the unit heating control valve to maintain an air handling unit case temperature not less than 55.0 degrees.

© Horty Elving & Associates, Inc.
Commission # 146038

C. Safeties

1. Freezestat - Provide low temperature type manual reset freezestat serpentined across leaving side of hot water coil. De-energize unit fans, close outside air damper, and transmit alarm to EMCS when temperature falls below the freezestat setpoint (35°F).

2. Smoke - Transmit alarm to EMCS when smoke is detected in duct system.

3. Static Pressure Switch - Provide a static pressure sensor and safety switch located in the mixed air chamber and supply duct to shutdown supply fans and return fans, and transmit an alarm to the EMCS, when the static pressure is below the setpoint of the sensor.

4. High Discharge Air Temperature - De-energize fan and transmit alarm to EMCS when the discharge air temperature exceeds 90.0 degrees.

5. Low Discharge Air Temperature - De-energize fan and transmit alarm to EMCS when the discharge air temperature drops below 50.0 degrees.

3. ALARMS

A. Generate an alarm when one of the following devices trips:

1. Freezestat
2. Duct Smoke Detectors
3. Mixed Air Static Safety Switch
4. Supply Air Static Safety Switch.
5. Return Air Static Safety Switch.

B. Generate an alarm when any return fan, supply fan, exhaust fan, or heat recovery unit fan control is on but its status is off.

C. Generate an alarm when the return duct humidify is ± 10% off setpoint for a period greater than 30 minutes. Lock out alarm function when the humidifier is disabled.

D. Generate an alarm when the discharge air temperature is 5°F above or below the setpoint for more than a 10-minute duration (all variables operator adjustable).

E. Generate an alarm when the discharge air static pressure is 0.5” wc above or below the setpoint for more than a 5 minute duration (all variables operator adjustable).

F. Generate an alarm when the mixed air temperature is 5°F above or below the setpoint for more than a 15-minute duration (all variables operator adjustable).

G. Generate an alarm when the mixed air temperature is 45°F or below for more than a 5 minute duration (all variables operator adjustable).

H. Generate an alarm when the filler differential pressure is greater than the operator defined setpoint.

4. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the indicated control sequences.

(DO)	Supply Fan Control
(DI)	Supply Fan Status (Current Sensor)
(DO)	Return Fan Control
(DI)	Supply Fan Status (Current Sensor)
(AO)	Supply VFD Modulation
(AO)	Return VFD Modulation
(DO)	Exhaust Fan Control
(DI)	Exhaust Fan Status (Current Sensor)
(AO)	Exhaust Fan VFD Modulation
(AI)	Discharge Air Temperature
(AI)	Outside Air Temperature
(AI)	Mixed Air Temperature
(AI)	Return Air Temperature
(AO)	Enthalpy Wheel Face Damper
(AO)	Enthalpy Wheel Bypass
(AO)	Enthalpy Wheel VFD Modulation
(AI)	Enthalpy Wheel Supply Leaving Temp
(AI)	Enthalpy Wheel Exhaust Entering Temp
(AI)	Enthalpy Wheel Exhaust Leaving Temp
(AI)	Enthalpy Wheel Discharge Static Pressure
(AO)	Enthalpy Wheel VFD Modulation
(AO)	OA Damper Modulation
(AO)	RA Damper Modulation
(AO)	Relief Air Damper Modulation
(AI)	Supply Duct Static Pressure
(DI)	Smoke Alarm
(DI)	Freezestat Alarm
(AI)	Building Differential Static Pressure
(AO)	HW Valve Modulation
(AO)	Chilled Water Valve Modulation
(AI)	Supply Fan Airflow
(AI)	Return Fan Airflow
(AI)	Exhaust Fan Airflow
(AI)	Minimum Outside Air Airflow (Calculated)
(AO)	Minimum Outside Air Damper Modulation
(AI)	Filter Differential Pressure
(AI)	Supply Duct Humidity
(DO)	HRU-1 Control
(DO)	Humidifier Enable/Disable
(AO)	Humidifier Control
(AI)	Humidifier Alarms
(DI)	Supply Airflow Status
(AI)	Return Duct Humidity

© Horty Elving & Associates, Inc.
Commission # 146038

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Constant Volume Multizone Units

1. GENERAL

A. Air Handling Systems: All equipment indicated shall be controlled by the same software defined occupied/unoccupied schedule through the Building Automation System.

1. **AREA SERVED:**

Air Handling Unit AHU-5
Exhaust Fans
Condensing Unit CU-5
Airflow Measuring Stations

B. Smoke detectors are furnished and installed by the Division 26 contractor.

C. Provide and wire static pressure safety switches.

D. Provide and wire all electrical interlocks to other equipment associated with this system, as indicated or otherwise necessary for proper system operation.

E. Provide the outside air, relief air, return air and all supply multizone air (6 zones) electric damper actuators. Dampers provided integral with the Air Handling Unit, except for the relief air damper. Provide the relief air damper for installation by another Division 23 contractor.

F. Airflow measuring stations and electronic transducers provided by Air Handling Unit manufacturer at fan inlets. Wire complete all airflow measuring stations and electronic transducers.

G. Provide the hot water valves and electric actuators; refer to equipment schedules for 2 or 3 way valves. Installation specified under another DIV 23 section

2. CONTROL SEQUENCE

A. Occupied Mode

1. The system shall be indexed to occupied mode by a timeclock schedule.

2. The supply fan shall run continuously.

3. Economizer Control

a. The outside air damper and return air dampers shall modulate to maintain the mixed air setpoint.

b. The outside air damper shall be closed to minimum position when the outside air enthalpy is greater than the return air enthalpy, the outside air temperature is greater than 80.0 degrees, the outside air enthalpy is greater than 26.0 BW/lb., or the system is indexed to the cooling mode.

c. The relief air damper shall modulate open when the air handling unit outside air damper opens beyond its minimum position. The building relief damper shall modulate as required to maintain a positive building static pressure of 0.01 in. w.g.

4. Cold Deck and Condensing Unit Control

a. The system shall be indexed to the mechanical cooling mode when the outside air dampers are fully open, the outside air temperature is greater than 65.0 degrees, and the number of cooling requests exceeds the operator specified number. The condensing unit operation shall be locked out unless the AHU status indicates the fan is running.

b. The hot water control valve shall be closed and the outside air damper shall close to its minimum position.

c. A cold deck temperature sensor shall cycle each stage of the condensing unit on as required to maintain the operator adjustable cold deck temperature setpoint of 55.0 degrees. (Verify number of stages with unit manufacturer).

d. Wire a solenoid valve for each circuit of cooling to open when the circuit stage is cycled on. Provide anti-cycle timer for each stage to prevent short cycling.

5. Hot Deck and Hot Water Valve Control

a. The system shall be indexed to the heating mode when hot water is available and the space temperature falls below its setpoint, or during morning warm-up mode.

b. The condensing unit operation shall be locked out and the outside air damper shall close to its minimum position.

c. The heating coil valve shall be modulated open to maintain the hot deck discharge air temperature setpoint. The mix air/discharge air temperature setpoint shall be reset by the space temperature. The mixed air temperature shall not be allowed to drop below 55.0 degrees.

6. Multizone Damper Control

a. Each set of hot and cold zone dampers (6 zones) shall modulate in sequence to satisfy the space temperature setpoint.

B. Unoccupied Mode

1. Cooling

a. The supply fan shall be off.

b. The outside air and relief air dampers shall be in the closed position.

c. The condensing unit operation shall be locked out.

d. The hot water valve shall be closed.

2. Heating

a. When the space temperature drops below the night set-back temperature setpoint, of 55.0 degrees the supply fan shall start with outside air and relief air dampers fully closed, return air dampers open and the hot water heating coil valve full open.

b. The system shall shutdown when the setpoint temperature is achieved.

C. Safeties

© Horty Elving & Associates, Inc.

1. Freezestat - Provide low temperature type (manual reset) freezestat serpentined across leaving side of hot water coil. De-energize unit fan, close outside air damper, and transmit alarm to EMCS when temperature falls below the freezestat setpoint (35°F).

2. Smoke - Transmit alarm to EMCS when smoke is detected in duct system.

3. Static Pressure Switch - Provide a static pressure sensor and safety switch located in the mixed air chamber to shutdown supply fan, and transmit an alarm to the EMCS, when the static pressure is below the setpoint of the sensor.

3. ALARMS

A. Generate an alarm when one of the following devices trips:

1. Freezestat
2. Duct Smoke Detectors
3. Mixed Air Static Safety Switch

B. Generate an alarm when the supply fan control is on but the fan status is off.

C. Generate an alarm when the space temperature is 5°F above or below the setpoint for more than a 10-minute duration (all variables operator adjustable).

D. Generate an alarm when the mixed air temperature is 5°F above or below the setpoint for more than a 15-minute duration (all variables operator adjustable).

E. Generate an alarm when the mixed air temperature is 45°F or below for more than a 5 minute duration (all variables operator adjustable).

F. Generate an alarm to the EMCS when the hot deck discharge air temperature exceeds 110.0 degrees (adj).

G. Generate an alarm to the EMCS when the cold deck discharge air temperature drops below 38.0 degrees (adj).

4. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(DO)	Supply Fan Control
(DI)	Supply Fan Status (Current Sensor)
(AI)	Discharge Air Temperature
(AI)	Outside Air Temperature
(AI)	Mixed Air Temperature
(AI)	Return Air Temperature
(AI)	OA Air Humidity Sensor
(AO)	Hot Deck/Cold Deck Damper Modulation (6 zones)
(AO)	Relief Air Damper Modulation
(DI)	Smoke Alarm
(DI)	Freezestat Alarm
(AI)	Building Differential Static Pressure
(AO)	HW Valve Modulation
(DO)	DX Control for Each Stage
(AO)	OA Damper Modulation
(AI)	Dirty Filter Differential

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: VAV Boxes with Terminal Reheat

1. GENERAL

A. Control Sequences for Variable Air Volume with terminal reheat are included in this section.

B. Provide the electronic VAV box control module and floating point damper motor to the VAV box manufacturer for mounting at the factory.

C. The VAV box manufacturer will install and wire the electronic VAV box control module and damper motor, and connect air flow sensor to the control module at the factory.

D. Provide space temperature sensor for each VAV box and wire it to the respective control module.

E. Provide control valves and actuators for the reheat coil (RH) and finned tube radiation (FTR), where applicable; refer to equipment schedule for valve type and control. Installation of control valve is work of another DIV 23 specification section.

F. Provide a separate heating, cooling setpoint for each VAV box. Each setpoint shall be individually adjustable from the front end computer graphic.

G. Provide leaving air temperature sensor at VAV box outlet.

2. CONTROL SEQUENCES

A. Occupied Mode

1. Cooling

a. The VAV boxes shall be indexed to occupied mode by the EMCS.

b. The maximum/minimum CFM flow rates shall be software adjustable.

c. The space temperature setpoint shall be definable in the software.

d. As the space temperature rises above cooling setpoint, the VAV box damper shall be modulated from minimum towards open position.

e. When the VAV box is in full cooling and the space is still calling for cooling, a "cooling request" shall be transmitted over the network to the respective air-handling unit. This message shall reset the discharge air temperature as described under the air handling unit control sequence.

f. When the space is satisfied and calling for less cooling, the VAV box damper shall modulate towards minimum position.

g. When the VAV box damper is in minimum cooling and the space is still calling for less cooling, a "heating request" shall be transmitted over the network to the respective air-handling unit. This message shall reset the discharge air temperature as described under the air handling unit control sequence.

2. Heating

© Horty Elving & Associates, Inc.
Commission # 146038

a. The VAV boxes shall remain in cooling mode unless the "heating available" signal has been broadcast over the network by the central plant control module. VAV boxes shall then be indexed to the heating mode by the EMCS.

b. As the space temperature drops below heating setpoint, the reheat coil valve shall modulate towards open position and the VAV box airflow control shall modulate open.

c. When the VAV box is in full heating and the space is still calling for heating, a "heating request" shall be transmitted over the network to the respective air-handling unit. This message shall reset the discharge air temperature as described under the air handling unit control sequence.

d. When the VAV box is in minimum heating and the space is still calling for cooling, the VAV box damper shall be modulated towards open position.

e. On a further call for cooling, a "cooling request" shall be transmitted over the network to the respective air-handling unit. This message shall reset the discharge air temperature as described under the air handling unit control sequence.

B. Unoccupied Mode

1. Cooling

a. The VAV boxes are indexed to unoccupied mode by the EMCS.

b. The VAV box reheat coil valves are closed.

c. The "cooling requests" from various zones are ignored by the system and no action is taken.

2. Heating

a. When the space temperature drops below the unoccupied setpoint, a "heating request" shall be transmitted over the network to the respective air-handling unit.

b. When the number of heating requests exceeds an operator definable number, the air handling unit shall start with the outside air and relief air dampers fully closed, return air dampers fully open, and the heating coil valve closed.

c. When the heating requests are satisfied, the air-handling unit shall be turned off.

3. ALARMS

A. Generate an alarm when the space temperature is 5°F above the occupied/unoccupied cooling temperature setpoint (adj).

B. Generate an alarm when the space temperature is 5°F below the occupied/unoccupied heating temperature setpoint (adj).

4. POINT SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(AI)	VAV Box CFM	(AO)	Heating CFM Setpoint
(AO)	VAV Box Damper Modulation	(AO)	Minimum Cooling CFM Setpoint
(AI)	VAV Box Damper Position	(AO)	Maximum Cooling CFM Setpoint
(AO)	RH Coil Valve Modulation	(DO)	Heating Space Temperature Setpoint
(AI)	Space Temperature	(DO)	Cooling Space Temperature Setpoint
(AI)	Leaving Air Temperature		

© Horty Elving & Associates, Inc.
Commission # 146038

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Fan Coil Units

1. GENERAL

A. Air Handling Systems: All equipment indicated shall be controlled by the same software defined occupied/unoccupied schedule through the Building Automation System.

1. **AREA SERVED:**

Existing Fan Coil Unit FC-1 *and Existing Exhaust Fan*
Existing Condensing Unit CU-1

B. Provide the outside air damper electric actuators.

C. Provide the *3-way* hot water valve *and* electric actuators; ~~refer to equipment schedules for 2 or 3 way control valves~~. Installation specified under another DIV 23 section.

D. Provide and wire static pressure safety switches.

E. Provide and wire all electrical interlocks to other equipment associated with this system, as indicated or otherwise necessary for proper system operation.

2. CONTROL SEQUENCE

A. Occupied Mode

1. The supply *and exhaust* fan shall run continuously. *Interlock exhaust fan with fan coil unit.*

2. The outside air damper shall fully open.

3. Condensing Unit Control

a. The unit shall be indexed to cooling mode when the space temperature rises above its setpoint.

b. The hot water control valve shall be closed.

c. The condensing unit shall be cycled on/off as required to maintain the space temperature cooling setpoint. The condensing unit operation shall be locked out until a duct static pressure sensor indicates the fan is running.

d. Condensing unit operation shall be locked out at all outside air temperatures below 60.0 degrees.

e. Provide an anti-cycle timer to prevent a compressor short cycling.

4. Hot Water Control Valve Control

a. The system shall be indexed to the heating mode when hot water is available and the space temperature falls below its setpoint.

b. Condensing unit operation shall be locked out.

c. The heating coil valve shall be modulated open to maintain the space temperature setpoint.

B. Unoccupied Mode

1. Cooling

a. The supply fan and exhaust fans shall be off.

b. The outside air ~~and relief air~~ damper~~s~~ shall be in the closed position.

c. The heating coil valve shall be closed.

2. Heating

a. When the space temperature drops below the night set-back temperature setpoint, of 55.0 degrees the supply fan shall start with outside air damper fully closed and the hot water heating coil valve full open.

b. The system shall shutdown when the setpoint temperature is achieved.

C. Safeties

1. Freezestat - Provide low temperature type (manual reset) freezestat serpentined across leaving side of hot water coil. De-energize unit fan, close outside air damper, and transmit alarm to EMCS when temperature falls below the freezestat setpoint (35°F).

2. High Discharge Air Temperature - De-energize fan and transmit alarm to EMCS when the discharge air temperature exceeds 100.0 degrees.

3. Low Discharge Air Temperature - De-energize fan and transmit alarm to EMCS when the discharge air temperature drops below 38.0 degrees.

3. ALARMS

A. Generate an alarm when one of the following devices trips:

1. Freezestat

B. Generate an alarm when the supply fan control is on but the fan status is off.

C. Generate an alarm when the space temperature is 5°F above or below the setpoint for more than a 10-minute duration (all variables operator adjustable).

4. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences.

(DO) Supply Fan Control
(DI) Supply Fan Status (current sensor)
(AI) Discharge Air Temperature
(DO) OA Damper Control
(AO) HW Valve Modulation
(DI) Freezestat Alarm
(AI) Space Temperature
(DO) Condensing Unit Control
(DO) Exhaust Fan Control
(DI) Exhaust Fan Status

© Horty Elving & Associates, Inc.
Commission # 146038

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Exhaust Fans – Scheduled On/Off

1. GENERAL

A. Control Sequence for the following exhaust fans are described in this section:

Exhaust Fans: EF-2,4,5,6,7
Powered Roof Ventilators: PRV-1,2,3,4
Sidewall Exhaust Fans: SWF-1,2,3,4,5
Existing Exhaust Fans on Roof of Area 'E'

B. Division 23 to provide all required control relays for all exhaust fans. Coordinate an accessible relay location for installation by Division 26.

C. Provide and wire all electrical interlocks to other equipment associated with this system, as indicated or otherwise necessary for proper system operation.

D. Label existing exhaust fans to remain with the next available EF sequential number. Intent is that no two EF's have the same graphical number.

2. CONTROL SEQUENCE

A. Occupied Cycle Control

1. Exhaust Fans shall operate continuously, 24/7.
2. *Schedule EFs on with their respective AHU that serves the adjacent area.*

3. ALARMS:

A. Generate an alarm if the fan is indicated to run and its status is off.

4. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(DO) Exhaust Fan Control
(DI) Exhaust Fan Status

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Exhaust Fans – Control by Others

1. GENERAL

A. Control sequences for the following exhaust fans are described in this section:

EF-1	OT Bath A153
EF-3	Toilet A133

B. 120/1 volt exhaust fans are furnished with magnetic contactors or motor starter/switches by Division 26.

C. All electrical interlocks associated with equipment will be provided by the electrical contractor.

2. CONTROL SEQUENCE

A. A wall switch will be provided and installed by Division 26 to turn the fan on/off.

3. ALARMS: There are no EMCS alarms associated with this equipment.

4. POINTS SCHEDULE: Provide as required for controls listed above. The operation of all exhaust fans shall be monitored by the EMCS.

(DI) Exhaust Fan Status (current sensor)

© Horty Elving & Associates, Inc.
Commission # 146038

SEQUENCE OF OPERATION AND POINTS SCHEDULES
FOR: Domestic Water Heating Systems

1. GENERAL

A. The following types of water heater control sequences are described in this section:

1. Domestic water circulation pump.

B. 120/1 motors are furnished with magnetic starters or motor switches by Division 26. Division 23 to provide all relays.

2. CONTROL SEQUENCE

A. Occupied

1. The domestic water heaters shall operate continuously on their own internal controls.

2. Domestic water circulating pumps shall be enabled.

B. Unoccupied

1. The domestic water heaters shall operate continuously on their own internal controls.

2. The domestic water circulating pumps shall be disabled.

3. SAFETIES

A. There are no safeties associated with this equipment.

4. ALARMS:

A. Generate an alarm when the pump is controlled on but it's status is off.

5. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(DO) ~~Exhaust Fan~~ *Pump* Control
(DI) ~~Exhaust Fan~~ *Pump* Status

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Geothermal Central Heat Pump System

1. GENERAL

A. The heat Pumps are provided with factory mounted and wired controls and control components. The factory provided controller is capable of open protocol communications through the BACnet ANSI/ASHRAE communication standard 135-2001. Integrate each of the Heat Pumps into the Building Automation System. Refer to specification section 23 64 23 "Water-to-Water Heat Pumps."

B. Coordinate with the boiler manufacturer to provide the following control functions through the Building Automation System: enable/disable, general fault alarm, and 4-20 mA reset of supply water temperature.

C. Furnish and Install all pump variable speed drives. High voltage connection by Division 26.

D. Provide and wire flow switch required for each Heat Pump as required for operation. Coordinate requirements with Heat Pump manufacturer. Installation by another Division 23 contractor.

E. Provide and wire differential pressure sensors on the hot water, chilled water and geothermal water distribution system across the remote piping mains. Coordinate requirements with other Division 23 sections.

F. Provide and wire all control valves associated with the Central heat Pump System. Refer to drawings for quantities, types and sizes.

2. CONTROL SEQUENCE

A. The central plant system shall be enabled manually through the BAS graphics or by the BAS through a user defined time clock schedule. The central plant shall broadcast an enable signal across the network.

B. Well Field (Source) Pump Control:

1. When the plant is enabled, the Source circulating pumps P-1 or P-2 shall operate continuously.

2. Source Pumps P-1 and P-2 are 100% redundant and shall operate on a lead/lag basis. When the lead pump is indicated to run but its status is off, the lag pump shall start. The lead pump designation shall alternate on a user defined time clock schedule initially set for one week.

3. Source Pumps P-1 and P-2 shall each be controlled through their variable speed drives to maintain differential pressure setpoint across the geothermal supply and return mains at the header piping manifold. Setpoint shall be initially set for 10psi (adj).

C. Chilled Water Pump Control ($44^oF/54^oF$):

1. When enabled to cooling mode at the Heat Pumps, the chilled water circulating pump P-3 or P-4 shall operate continuously when the ambient temperature is above 50^oF (adj.), from the same signal that allows or dis-allows the Heat Pumps to produce chilled water.

2. Chilled Water Pumps P-3 and P-4 are 100% redundant and shall operate on a lead/lag basis. When the lead pump is indicated to run but its status is off, the lag pump shall start. The lead pump designation shall alternate on a user defined time clock schedule initially set for one week.

3. Chilled Water Pumps P-1 and P-2 shall each be controlled through their variable speed drives to maintain differential pressure setpoint across AHU-1 in the Penthouse. Setpoint shall be initially set for 10psi (adj).

© Horty Elving & Associates, Inc.
Commission # 146038

4. The main chilled water control point shall be a sensor in the common return water line from both AHUs. A second sensor, mounted low in the buffer tank, shall override the main sensor if tank temperature rises above 48°F (adj).

D. Heating Water Pump Control (120°F/110°F):

1. When enabled to Heating Mode at the Heat Pumps, the heating water circulating pump P-5 or P-5 shall operate continuously.

2. Heating Water Pumps P-5 and P-6 are 100% redundant and shall operate on a lead/lag basis. When the lead pump is indicated to run but its status is off, the lag pump shall start. The lead pump designation shall alternate on a user defined time clock schedule initially set for one week.

3. Heating Water Pumps P-5 and P-6 shall each be controlled through their variable speed drives to maintain differential pressure setpoint across the supply and return heating mains near Corridor B190. Setpoint shall be initially set for 10psi (adj).

4. The main heating water control point shall be a sensor mounted high in the buffer tank.

E. Heat Pump Control and Sequencing:

1. When the plant is enabled, Heat Pumps HP-1 and HP-2 will be sequenced on as required to maintain 54°F in the common chilled water return main, 48°F in the chilled water buffer tank, and 120°F in the heating water buffer tank.

2. Both Heat Pumps shall be given priority for sequencing. This order of sequence shall be fully and easily adjustable from the front-end BAS graphics.

3. The heating and cooling priority sequencing shall always be in reverse order. For instance, if the priority sequence for heating is:

   a. HP-1 = first on
   b. HP-2 = second on
   c. Boiler B-1 = third on; then

4. The priority sequence for cooling is:

   a. HP-1 = second on
   b. HP-2 = first on.

5. Upon a call for heating or cooling at either of the Heat Pumps, the respective 2-position/3-way valves on the inlet and outlet of each Heat Pump will go to their respective position, the respective pumps will be energized, and the Heat Pump will operate until the buffer tank temperature setpoint is satisfied. A dead-band and time delay shall be developed to minimize Heat Pump short cycling. At least two-stage unloading, at each Heat Pump, will be included in the control sequence to further limit short cycling and improve efficiency. In addition, on the well field inlet, a 2-postion/2-way valve will open and close whenever the specific Heat Pump is heating or cooling.

6. In cooling mode, both the Heat Pump and Chilled Water Pump shall be locked out above 50°F ambient.

F. Protective Controls:

1. Upon a call for Heating, the heat pump reversing valve shall be commanded to heat position, the heat/cool valves will be commanded to heat position, the "source" isolation valve shall be commanded open, and the Heat Pump circulation Pump shall be commanded ON. Once the "Source" isolation valve is "proven" fully open and the heat/cool valves have "proven" in the heat position, the compressors are allowed to run. The compressors must remain running for a minimum of 5 minutes. Once the compressors are shut off they must remain off for a minimum of 5 minutes, the "source" isolation valve shall be commanded closed, and the "load" heating pump shall be commanded off. Upon another call for heat, the sequence starts over.

2. Upon a call for Cooling, the heat pump reversing valve shall be commanded to cool position, the heat/cool valves will be commanded to cool position, the "source" isolation valve shall be commanded open, and the Heat Pump circulation Pump shall be commanded ON. Once the "Source" isolation valve is "proven" fully open and the heat/cool valves have "proven" in the cool position, the compressors are allowed to run. The compressors must remain running for a minimum of 5 minutes. Once the compressors are shut off they must remain off for a minimum of 5 minutes, the "source" isolation valve shall be commanded closed, and the "load" cooling pump shall be commanded off. Upon another call for cool, the sequence starts over.

3. When the unit is switched from heating to cooling or vice-versa, the unit must shut down for a minimum of 20 minutes. If the unit calls for the mode it was previously in, the unit will not have to satisfy the 20 minute delay (but it still must satisfy the 5 minute off timer).

4. Likewise, the compressors will not be able to start until the "source" water flow is proven.

5. Provide all end switches for "proven" signals on all source and load side control valves at Heat Pumps.

6. Provide BAS graphic to confirm "proven" signals.

G. Critical Valve Cv and Pressure Drop Requirements:

1. At both Heat Pumps, there are 3-way/2-postion "load" valves to direct chilled water or heating water to the Heat Pumps as called for. At each Heat Pump, the "suction" valve (to the Heat Pump primary circulating pump) shall have a maximum 0.5 psi WPD at full GPM for the hot water and chilled water modes. The "discharge" valves shall be similar.

2. At both Heat Pumps, there is a single 2-way/2-position "source" valve. This valve shall also have a maximum 0.5 psi WPD at full GPM.

3. WPD at full GPM at all local heating valves (VAV/reheat, terminal heating devices, etc) shall not exceed 10 FT.

4. WPD at full GPM at all AHU cooling valves shall not exceed 10 FT.

5. Note the "source" water may be as low as 32°F at 25% propylene glycol.

6. Note the heating water is nominally 120°F at 35% propylene glycol and the chilled water is nominally at 44°F at 35% propylene glycol.

H. Differential Pressure Sensors on Strainers:

1. At each primary strainer (cooling, heating, source), provide a differential pressure sensor across the strainer to monitor and alarm the BAS.

© Horty Elving & Associates, Inc.
Commission # 146038

I. Boiler B-1 Control:

1. Boiler B-1 shall be enabled when the heat pump is in fault, or is unable to maintain the heating supply water setpoint at the buffer tank by a user adjustable offset for a user adjustable time period, or when flow is below a user adjustable setpoint at the heat pump heating water main. The boiler will operate on its own internal controls *to maintain buffer tank temperature*. Turn off the boiler when the above conditions are no longer valid.

2. The boiler supply water temperature shall be set for 120°F.

3. The boiler pump P-13, shall be interlocked with the boiler operation such that the pump runs continuously. The end switch on the control valve shall prove open and there shall be proof of flow prior to running pump and then firing boiler.

3. ALARMS

A. Generate an alarm when the heat pump is indicated to run but its status is off.

B. Generate an alarm when any of the heat pump parameters are outside of the manufacturer's recommended limits.

C. Generate an alarm when the boiler is indicated to run but is in fault.

D. Generate an alarm when any of the pumps are indicated to run but its status is off.

E. Generate an alarm when the well field supply temperature is ± 3° F off setpoint for a period greater than 30 minutes.

F. Generate an alarm when the heating setpoint at the buffer tank is ± 5° F off setpoint for a period greater than 30 minutes.

G. Generate an alarm when the chilled return loop or buffer tank temp is ± 5° F off setpoint for a period greater than 30 minutes.

H. Dirty strainer alarms for heat, cool and source strainers at Heat Pump.

4. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated

(DO)	Heat Pump Control
(DI)	Heat Pump Failure Alarm
(AI)	Heat Pump BACnet Points (all available points)
(AI)	Well Field Supply Temperature
(AI)	Well Field Return Temperature
(AI)	Chilled Supply Temperature
(AI)	Chilled Return Temperature
(AI)	Heating Supply Temperature
(AI)	Heating Return Temperature
(DO)	B-1 Control
(DI)	B-1 Failure Alarm
(AO)	B-1 Temperature Setpoint
(AI)	Boiler B-1 Supply Temperature
(AI)	Boiler B-1 Return Temperature
(AO)	Heating Buffer Tank Setpoint
(AO)	Cooling Return and Buffer Setpoint
(AI)	Heating Loop Differential Pressure
(AI)	Cooling Loop Differential Pressure
(AI)	Wellfield Source Loop Differential Pressure
(AI)	Pump P-1 VFD Speed %
(DI)	Pump P-1 VFD Fault
(AI)	Pump P-2 VFD Speed %
(DI)	Pump P-2 VFD Fault
(AI)	Pump P-3 VFD Speed %
(DI)	Pump P-3 VFD Fault
(AI)	Pump P-4 VFD Speed %
(DI)	Pump P-4 VFD Fault
(AI)	Pump P-5 VFD Speed %
(DI)	Pump P-5 VFD Fault
(AI)	Pump P-6 VFD Speed %
(DI)	Pump P-6 VFD Fault
(DO)	Pump P-1 Control
(DI)	Pump P-1 Status
(AO)	Pump P-1 VFD Modulation
(DO)	Pump P-2 Control
(DI)	Pump P-2 Status
(AO)	Pump P-2 VFD Modulation
(DO)	Pump P-3 Control
(DI)	Pump P-3 Status
(AO)	Pump P-3 VFD Modulation
(DO)	Pump P-4 Control
(DI)	Pump P-4 Status
(AO)	Pump P-4 VFD Modulation
(DO)	Pump P-5 Control
(DI)	Pump P-5 Status
(AO)	Pump P-5 VFD Modulation
(DO)	Pump P-6 Control
(DI)	Pump P-6 Status
(AO)	Pump P-6 VFD Modulation
(DO)	Pump P-7 Control
(DI)	Pump P-7 Status
(DO)	Pump P-8 Control
(DI)	Pump P-8 Status
(AI)	Strainer Differential Pressure (2 Load, 1 Source)
(DO)	Valve Modulation (all)
(AI)	Chilled Buffer Tank Temp
(AI)	Heating Buffer Tank Temp
(DO)	*Pump P-13 Control*
(DI)	*Pump P-13 Status*

© Horty Elving & Associates, Inc.
Commission # 146038

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Cabinet Unit Heaters

1. GENERAL

A. Provide a space temperature sensor and control sequence for each cabinet unit heater.

B. Provide heating control valves and electric valve actuators; installed as work of another Division 23 Section. Cabinet unit heater valves ~~are typically 2-way~~ *shall be 3-way* modulating.

C. Provide and wire a surface mounted aquastat; mounted as work of another Division 23 Section.

D. The unit heaters shall be indexed between its occupied and unoccupied modes by a timeclock schedule through the EMCS system.

2. CONTROL SEQUENCE

E. Occupied Mode

1. On a call for heat from a space temperature sensor, the heating valve shall modulate open, to maintain a temperature setpoint of 70.0 degrees.

2. An aquastat mounted on the return hot water line shall de-energize fan motor when fluid temperature falls below setpoint of aquastat (adjustable). The aquastat and the space temperature call for heat shall be wired in series such that the unit heater fan will run only if there is a call for heat and there is hot water available in the system.

F. Unoccupied Mode

1. On a call for heat from a space temperature sensor, the heating valve shall modulate open to maintain a temperature setpoint of 55.0 degrees.

2. An aquastat mounted on the return hot water line shall de-energize fan motor when fluid temperature falls below setpoint of aquastat (adjustable). The aquastat and the space temperature call for heat shall be wired in series such that the unit heater fan will run only if there is a call for heat and there is hot water available in the system.

3. ALARMS

A. Generate an alarm when space temperature drops 5°F below setpoint for 5-minute duration in heating mode.

4. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(AI) Space Temperature
(AO) Heating Valve Modulation

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Horizontal Unit Heaters

1. GENERAL

A. Provide a space temperature sensor and control sequence for each horizontal unit heater.

B. Provide heating control valves and electric valve actuators; installed as work of another Division 23 Section. Horizontal unit heater valves are typically 2-way modulating.

C. Provide and wire a surface mounted aquastat; mounted as work of another Division 23 Section.

2. CONTROL SEQUENCE

A. On a call for heat from the room temperature sensor, the heating valve shall open.

B. An aquastat mounted on the return hot water line shall de-energize fan motor when fluid temperature falls below setpoint of aquastat (adjustable). The aquastat and space temperature call for heat shall be wired in series such that the unit heater fan will run only if there is a call for heat and there is hot water available in the system.

3. ALARMS:

A. Generate an alarm when the space temperature drops 5°F below setpoint for a 5-minute duration.

4. POINT SCHEDULE:

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(AI) Space Temperature
(AO) Heating Valve Modulation

© Horty Elving & Associates, Inc.
Commission # 146038

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Convectors

1. GENERAL

A. Provide a space temperature sensor and control sequence for each convector.

B. Provide heating control valves and electric valve actuators; installed as work of another Division 23 Section. Control valves are typically 2-way modulating.

C. The duct coils shall be indexed between their occupied and unoccupied modes by a timeclock schedule through the Building Automation System.

2. CONTROL SEQUENCE

A. Occupied Mode

1. On a call for heating from the space temperature sensor, the heating valve shall modulate open to maintain a temperature setpoint of 72.0 degrees.

B. Unoccupied Mode

1. On a call for heating from the space temperature sensor, the heating valve shall modulate open to maintain a temperature setpoint of 55.0 degrees.

3. ALARMS

A. Generate an alarm when the space temperature drops 5°F below setpoint for a 5-minute duration in the heating mode.

4. POINT SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(AI) Space Temperature
(AO) Heating Valve Modulation

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Radiation

1. GENERAL

A. Provide a space temperature sensor and control sequence for each piece of radiation.

B. Provide heating control valves and electric valve actuators; installed as work of another Division 23 Section.

2. CONTROL SEQUENCE

A. Occupied Mode

1. On a call for heating, the radiation valves shall modulate to maintain a temperature setpoint of 72.0 degrees.

B. Unoccupied Mode

1. On a call for heating from the space temperature sensor, the heating valve shall modulate open to maintain a space temperature setpoint of 55.0 degrees.

3. ALARMS

A. Generate an alarm when the space temperature drops 5°F below setpoint for a 5-minute duration in the heating mode.

4. POINT SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(AI) Space Temperature
(AO) Radiation Valve Modulation

© Horty Elving & Associates, Inc.
Commission # 146038

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Ceiling Radiant Panel (Hydronic)

1. GENERAL

A. Provide a space temperature sensor and control sequence for each piece of radiation.

B. Provide heating control valves and electric valve actuators; installed as work of another Division 23 Section.

C. Electric Radiant Ceiling Panel controls are by Division 23. No work under this section.

2. CONTROL SEQUENCE

A. Occupied Mode

2. On a call for heating, the radiation valves shall modulate to maintain a temperature setpoint of 72.0 degrees.

B. Unoccupied Mode

2. On a call for heating from the space temperature sensor, the heating valve shall modulate open to maintain a space temperature setpoint of 55.0 degrees.

3. ALARMS

A. Generate an alarm when the space temperature drops 5°F below setpoint for a 5-minute duration in the heating mode.

4. POINT SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(AI) Space Temperature
(AO) Radiant Panel Valve Modulation

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Split System Air Conditioning Units

1. GENERAL

A. The Computer Room units are ceiling evaporator sections mounted in the space with remote condensing units. Refer to the drawings for quantity and location.

B. All controls are provided with the units by another Division 23 Section including a remote mounted microprocessor control. The Building Automation System contractor shall install and wire all controls as required for the complete operation of the unit.

C. Provide a space temperature and humidity sensor, separate from microprocessor, if required to monitor space temperature and humidity. Coordinate requirements with Split System manufacturer.

2. CONTROL SEQUENCE

A. All controls provided by another Division 23 section. There is no control sequence associated with this equipment.

3. ALARMS

A. Generate an alarm if the space temperature is greater than 5°F above setpoint for a period greater than 30 minutes. Connect to each remote microprocessor control unit as required to receive the following alarm points in the Building Automation System.

1. High return air temperature
2. Low return air temperature
3. Loss of power
4. Low voltage
5. Airflow
6. Filter
7. Compressor low pressure
8. Compressor high pressure

4. POINTS SCHEDULE

Provide at a minimum the following control points and as required to accomplish the control sequences indicated.

(AI) Space Temperature
(AI) Space Humidity

© Horty Elving & Associates, Inc.
Commission # 146038

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Therapy Pool – Under Alternate #1 only.

1. GENERAL

A. Air Handling Systems: All equipment indicated shall be controlled by the same software defined occupied/unoccupied schedule through the Building Automation System.

1. **AREA SERVED:**

Pool Unit AHU-6
Exhaust Fan PRV-5
Condensing Unit CU-6
Intake Hood IH-1

B. Provide an open protocol interface to the packaged pool unit to accomplish the following control sequences. Refer to the packaged pool unit specification Section 23 74 16. Intent is that the Sequence is per 23 74 16, coordinate to provide the following at a minimum

C. Install and wire complete all control components provided with the pool unit in accordance with all manufacturer's recommendations guidelines.

D. Provide and install temperature sensors to monitor outside air, supply air, return air, and space temperature sensors. Provide and install space humidity sensor and space differential pressure sensor referenced between the Pool A143 and Therapy A137. Redundant sensors can be eliminated if the information is available through the pool unit open protocol interface.

E. Provide a graphical user interface representative of the pool system to display all information available through the user interface.

F. Provide the outside air damper and electric damper actuator. Installation of damper by another Div. 23 section.

G. Provide the hot water valves and electric actuators; refer to equipment schedules for 2 or 3 way valves. Installation specified under another DIV 23 section.

H. Provide and wire static pressure safety switches.

I. Provide and wire all electrical interlocks to other equipment associated with this system, as indicated or otherwise necessary for proper system operation.

2. CONTROL SEQUENCE

A. The Building Automation system shall enable/disable the pool unit on a time clock schedule, initially set to run 24/7.

B. The pool unit will operate on its own internal controls to maintain the space temperature and humidity set points. Provide all set point adjustments and manual overrides through the Building Automation system front-end software. The unit shall minimize energy usage by optimizing the use of mechanical cooling, hot water reheat, and hot gas reheat for corridor control of space humidity and temperature

C. Outside Air Damper Control

1. The outside air damper shall modulate open to maintain the CFM indicated on the drawings. Interface with Pool unit controls so outside air damper is open when unit is ON.

D. Exhaust Fan Control

1. Exhaust Fan shall run continuously when unit is ON.

E. Condensing Unit Control

1. Install all controls as required to interface to pool unit controls.

3. ALARMS

A. Provide an alarm if any of the pool system controls parameters are ±10% of set point for a period greater than 30 minutes.

B. Provide an alarm if the pool water temperature is ±3 degrees from set point for a period greater than 30 minutes.

C. Connect to Pool unit to receive all other alarms.

4. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the indicated control sequences.

(DO)	System Eanble/Disable	(DI)	Supply Fan Status (current sensor)
(AI)	Pool Return Water Temperature (monitor)	(DI)	Return Fan Status (current sensor)
(AI)	Pool Supply Water Temperature (monitor)	(DI)	Exhaust Fan Status (current sensor)
(AI)	Pool Space Temperature	(AI)	Supply Fan CFM
(AI)	Pool Space Humidity	(AI)	Return Fan CFM
(AI)	Exhaust Fan Control	(AI)	Dirty Filter Differential
(AI)	Space Differential Pressure	(AI)	Building Differential Static Pressure
(AI)	Outside Air Temperature	(AO)	HW Valve Modulation
(AI)	Supply Air Temperature	(DO)	DX Control for Each Stage
(AI)	Return Air Temperature	(AO)	Outside Air Damper Modulation
(AI)	Return Duct Humidity		

© Horty Elving & Associates, Inc.
Commission # 146038

CONTROL SEQUENCE AND POINTS SCHEDULE
FOR: Central Heating Plant – Existing Building

1. GENERAL

A. Provide electric actuators and end switches for proof of open on combustion air damper; installation of dampers is specified as work of another DIV 23 section.

B. Provide wiring and contactors as required to operate combustion air dampers directly from existing burner on-board control circuitry. Dampers shall open on a call for heat from burner aquastat control and combustion air fan shall be on prior to Boilers firing.

C. Provide control valves and electric valve actuators; installation of valves is work of another DIV 23 Section.

D. Provide and wire boiler control input for on/off control and for general alarm back to BAS front-end.

F. Provide and wire a differential pressure sensor on the hot water distribution system across the heating water supply and return mains at RTU-4. Locate in ceiling space below unit in accessible location.

G. Provide and install all variable speed drives associated with these systems. High voltage wiring by DIV 26 contractor.

H. Provide and wire all electrical interlocks to other equipments associated with system, as indicated or otherwise necessary for proper system operation.

2. CONTROL SEQUENCE

A. Boiler Plant Control

1. The central plant shall be indexed to heating mode manually or by the EMCS when outdoor air temperature drops below a user-definable setpoint. The central plant control module shall broadcast a "heating available" signal across the network to the various system control modules.

2. The boilers shall operate on their existing internal burner firing controls. Combustion air damper shall be on.

3. Boiler Pumps P-11 and P-12 shall be interlocked with their respective boiler operation such that each pump operates continuously when its respective boiler is in heating mode and they are off when the boiler is off.

4. Control secondary loop pumps P-9 and P-10 on a lead/lag basis. The pump speed shall modulate through the variable speed drive to maintain the differential pressure set point. Automation shall select the lowest reading differential pressure sensor for control. The lag pump shall automatically start upon lead pump failure or if the lead pump is unable to maintain the differential pressure set point the lead pump designation shall rotate on a software-defined schedule.

5. Provide secondary loop supply water reset schedule. Reset linearly between the endpoints as follows:

Supply Temperature	*Outside Air Temperature*
190°F	*0°F*
120°F	*60°F*

6. *Provide a supply water temperature sensor and PID loop for boilers B-1 and B-2 to modulate the control valves to maintain the supply water temperature setpoint. Override the boiler valve control to maintain a minimum boiler return water temperature of 140°F. Incrementally open the boiler control valve on the start-up such that the inlet temperature does not drop below 140°F.*

B. *Unoccupied*

1. *Heating*

a. *The central plant shall continue to operate in occupied heating mode as described above. Close combustion air damper when both boilers are off.*

3. SAFETIES

A. *The damper end switch and flow switch(es) shall be wired directly to the burner control circuit as operational safeties; coordinate installation methods with boiler manufacturer.*

4. ALARMS

A. *Generate an alarm when any Boiler is in failure mode or an alarm as determined by the on board burner circuitry.*

B. *Generate an alarm when any pump is indicated to run but its status is off.*

C. *Generate an alarm when the any supply water temperature is 10°F higher or lower than the setpoint for a 10-minute duration.*

D. *Generate an alarm when Boiler B-1 and B-2 inlet temperatures cannot be maintained.*

5. POINTS SCHEDULE

Provide at a minimum the following control points for each system and as required to accomplish the control sequences indicated.

(DO)	*B-1 Control*
(DI)	*B-1 Failure*
(AI)	*B-1 Inlet Temperature*
(AI)	*B-1 Supply Temperature*
(DO)	*B-2 Control*
(DI)	*B-2 Failure*
(AI)	*B-2 Inlet Temperature*
(AI)	*B-2 Supply Temperature*
(AI)	*Secondary Hot Water Supply Temperature*
(AI)	*Secondary Hot Water Return Temperature*
(AO)	*Boiler B-1 Valve Modulation*
(AO)	*Boiler B-2 Valve Modulation*
(DO)	*Pump P-9 Control*
(DI)	*Pump P-9 Status*
(DO)	*Pump P-9 VFD Modulation*
(DO)	*Pump P-10 Control*
(DI)	*Pump P-10 Status*
(AO)	*Pump P-10 VFD Modulation*
(DO)	*Heating Mode*
(DI)	*All alarms*
(AO)	*Combustion Damper Modulation*
(AO)	*Differential Pressure*
(DO)	*Pump P-11 Control*
(DI)	*Pump P-11 Status*
(DO)	*Pump P-12 Control*
(DI)	*Pump P-12 Status*

END OF SECTION 230993

© Horty Elving & Associates, Inc.
Commission # 146038

SECTION 23 31 13 - METAL DUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Single-wall rectangular ducts and fittings.
2. Single-wall round ducts and fittings.
3. Sheet metal materials.
4. Duct liner.
5. Sealants and gaskets.
6. Hangers and supports.
7. Double-walled (insulated) exterior duct (as required; see plans and details).
8. *Thermaduct, ducts and fittings for Outdoor Installations.*

B. Related Sections:

1. Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing requirements for metal ducts.
2. Division 23 Section "Air Duct Accessories" for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.

1.3 PERFORMANCE REQUIREMENTS

A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports shall withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"

1.4 ACTION SUBMITTALS

A. Product Data: For each type of the following products:

1. Liners and adhesives.
2. Sealants and gaskets.

B. Shop Drawings:

1. Factory- and shop-fabricated ducts and fittings.
2. Fittings.
3. Reinforcement and spacing.
4. Seam and joint construction
5. Hangers and supports, including methods for duct and building attachment, and vibration isolation

PART 2 - PRODUCTS

2.1 SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.2 DOUBLE WALL RECTANGULAR DUCTS AND FITTINGS

A. Rectangular Ducts: Fabricate ducts with indicated dimensions for the inner duct.

B. Inner and Outer Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

C. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-4, "Transverse (Girth) Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

D. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-5, "Longitudinal Seams - Rectangular Ducts," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

E. Interstitial Insulation: 2" extruded polystyrene. Refer to Section 23 07 13.

© Horty Elving & Associates, Inc.
Commission # 146038

2.3 SHEET METAL MATERIALS

A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

1. Galvanized Coating Designation: G90.
2. Finishes for Surfaces Exposed to View: Mill phosphatized.

C. Carbon-Steel Sheets: Comply with ASTM A 1008/A 1008M, with oiled, matte finish for exposed ducts.

D. Reinforcement Shapes and Plates: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

1. Where black- and galvanized-steel shapes and plates are used to reinforce aluminum ducts, isolate the different metals with butyl rubber, neoprene, or EPDM gasket materials.

E. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

F. Aluminum Sheets: Comply with ASTM B 209 Alloy 3003, H14 temper; with mill finish for concealed ducts, and standard, one-side bright finish for duct surfaces exposed to view.

2.4 SEALANT AND GASKETS

A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

B. Water-Based Joint and Seam Sealant:

1. Application Method: Brush on.
2. Solids Content: Minimum 65 percent.
3. Shore A Hardness: Minimum 20.
4. Water resistant.
5. Mold and mildew resistant.
6. VOC: Maximum 75 g/L (less water).
7. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
8. Service: Indoor or outdoor.
9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.

C. Flanged Joint Sealant: Comply with ASTM C 920.

1. General: Single-component, acid-curing, silicone, elastomeric.
2. Type: S.
3. Grade: NS.
4. Class: 25.
5. Use: O.

6. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

2.5 HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation. *This shall include pools. Aluminum can be used as an alternative.*

C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct."

D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.

E. Steel Cables for Stainless-Steel Ducts: Stainless steel complying with ASTM A 492.

F. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.

G. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

H. Trapeze and Riser Supports:

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
2. Supports for Stainless-Steel Ducts: Stainless-steel shapes and plates.
3. Supports for Aluminum Ducts: Aluminum or galvanized steel coated with zinc chromate.

2.6 DUCT LINER

A. Flexible Elastomeric Duct Liner: Preformed, cellular, closed-cell, sheet materials complying with ASTM C 534, Type II, Grade 1; and with NFPA 90A or NFPA 90B.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Aeroflex USA, Inc.
   b. Armacell LLC.
   c. Rubatex International, LLC.

2. Surface-Burning Characteristics: Maximum flame-spread index of 25 and maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.
3. Liner Adhesive: As recommended by insulation manufacturer and complying with NFPA 90A or NFPA 90B.
4. Maximum Thermal Conductivity: 0.25 Btu x in./h x sq. ft. x deg F at75 deg F mean temperature.

B. Thickness : 1 inches unless indicated different on the drawing.

© Horty Elving & Associates, Inc.
Commission # 146038

C. Insulation Pins and Washers:

1. Cupped-Head, Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inchdiameter shank, length to suit depth of insulation indicated with integral 1-1/2-inch galvanized carbon-steel washer.
2. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch-thick galvanized steel; with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.

D. Shop Application of Duct Liner: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 7-11, "Flexible Duct Liner Installation."

1. Adhere a single layer of indicated thickness of duct liner with at least 90 percent adhesive coverage at liner contact surface area. Attaining indicated thickness with multiple layers of duct liner is prohibited.
2. Apply adhesive to transverse edges of liner facing upstream that do not receive metal nosing.
3. Butt transverse joints without gaps, and coat joint with adhesive.
4. Fold and compress liner in corners of rectangular ducts or cut and fit to ensure butted-edge overlapping.
5. Do not apply liner in rectangular ducts with longitudinal joints, except at corners of ducts, unless duct size and dimensions of standard liner make longitudinal joints necessary.
6. Apply adhesive coating on longitudinal seams in ducts with air velocity of 2500 fpm.
7. Secure transversely oriented liner edges facing the airstream with metal nosings that have either channel or "Z" profiles or are integrally formed from duct wall. Fabricate edge facings at the following locations:

   a. Fan discharges.
   b. Intervals of lined duct preceding unlined duct.
   c. Upstream edges of transverse joints in ducts where air velocities are higher than 2500 fpm or where indicated.

8. Terminate inner ducts with buildouts attached to fire-damper sleeves, dampers, turning vane assemblies, or other devices. Fabricated buildouts (metal hat sections) or other buildout means are optional; when used, secure buildouts to duct walls with bolts, screws, rivets, or welds.

2.7 NON-FIBROUS, CLOSED CELL, OUTDOOR DUCTWORK

A. Product: Thermaduct, ducts and fittings by Thermaduct, LLC.

B. The panel shall be manufactured of CFC-free Kooltherm closed cell rigid thermoset resin thermally bonded on both sides to a factory applied .001" aluminum foil facing reinforced with a fiberglass scrim. An added UV stable, 39 mil high impact resistant titanium infused vinyl is factory bonded to the outer surfaces to provide a zero permeability water tight barrier.

C. The thermal conductivity shall be no greater than 0.13BTU • in/Hr •ft2•°F, the thermal conductivity shall be no greater than 0.13BTU • in/Hr •ft2•°F.

D. The density of the Kooltherm foam shall not be less than 3.5 pcf with a minimum compressive strength of 28 psi.

E. The standard panel shall be 1-3/4 inch thickness with an R-Value of 12.

1. Maximum Temperature: Continuous rating of 185 degrees F inside ducts or ambient temperature surrounding ducts.

2. *Maximum Thermal Conductivity: 0.13 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.*

3. *Permeability: 0.00 perms maximum when tested according to ASTM E 96/E 96M, Procedure A.*

4. *Antimicrobial Agent: Compound shall be tested for efficacy by an NRTL, and registered by the EPA for use in HVAC systems.*

5. *Noise-Reduction Coefficient: 0.05 minimum when tested according to ASTM C 423, Mounting A.*

6. *Required Markings: All interior duct liner shall bear UL label and other markings required by UL 181 on each full sheet of duct panel; UL ratings for internal closure materials.*

7. *All insulation materials shall be closed cell with a closed cell content of >90%.*

F. *Closure Materials:*

1. *V-Groove Adhesive: Silicone (interior).*

2. *UV stable 38 mil high impact resistant titanium infused vinyl (exterior).*

   a. *Factory manufactured seamless corners.*
   b. *Cohesive bonded over-lap at corner seam covers.*
   c. *Water resistant titanium infused welded vinyl seams.*
   d. *Mold and mildew resistant.*

3. *Polymeric Sealing System:*

   a. *Structural Membrane: Aluminum scrim with woven glass fiber with UV stable vinyl clad applied.*
   b. *Sealant: Low VOC.*
   c. *Color: White (colors, matched by architect optional).*
   d. *Water resistant.*
   e. *Mold and mildew resistant.*

4. *Duct Connectors:*

   a. *Factory manufactured cohesive bonded strips (low pressure only).*
   b. *Factory manufactured all aluminum grip flange.*

      1. *Grip flange.*
      2. *F-flange.*
      3. *H-flange.*
      4. *U-flange.*

   c. *Factory manufactured galvanized 4-bolt flange.*

G. *Outdoor Cladding:*

1. *Thermaduct outdoor Installations: Duct segments shall incorporate UV stable 39 mil high impact resistant titanium infused vinyl which is introduced during the manufacturing process.*

H. *Flange Coverings:*

© Horty Elving & Associates, Inc.
Commission # 146038

1. Flanges are field sealed airtight before flange covers are installed. Flange covering consists of the following:

a. Ddd
b. Foam tape insulation with molded 39 mil covers.
c. Air gap (heating only application) with molded 39 mil covers.

I. Weight:

1. Thermaduct shall provide low weight stresses on the building framing and support members. Hangers and tie-downs are to be detailed on the manufacturer's installing contractors detail drawings prior to installation but not exceeding 13' for duct girth <84" and 8' for duct girth >85" between hangers and designed to carry the weight and wind load of the ductwork.

2.8 Fabric Duct:

1. Round fabric air dispersion system shall be constructed of FabricAir COMBI 70 fabric, or approved equal. The fabric is a woven fire retardant and permeable fabric complying with the following characteristics, Duct Shape: round with sewn in aluminum hoops to remain cylindrical shape at all times. Aluminum rail with cable hangers and supports. Fabric: 100% Flame Retardant Polyester, duct dispersion with linear arrays of laser cut orifices. Color of fabric duct shall be selected by the Architect.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.

B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

C. Install ducts with fewest possible joints.

D. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

E. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

F. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

G. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

H. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.

I. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.

J. Where ducts pass through fire-rated interior partitions, ceiling-roof assemblies, ceiling-floor assembly and exterior walls, install fire dampers. Comply with requirements in Division 23 Section "Air Duct Accessories" for fire and smoke dampers.

K. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction," Appendix G, "Duct Cleanliness for New Construction Guidelines."

L. Install Thermaduct per Manufacturer's most current guidelines.

3.2 INSTALLATION OF EXPOSED DUCTWORK

A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.

B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.

C. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

D. Repair or replace damaged sections and finished work that does not comply with these requirements.

3.3 ADDITIONAL INSTALLATION REQUIREMENTS FOR COMMERCIAL KITCHEN HOOD EXHAUST DUCT

A. Install commercial kitchen hood exhaust ducts without dips and traps that may hold grease, and sloped a minimum of 2 percent to drain grease back to the hood.

B. Install fire-rated access panel assemblies at each change in direction and at maximum intervals of 20 feet in horizontal ducts, and at every floor for vertical ducts, or as indicated on Drawings. Locate access panel on top or sides of duct a minimum of 1-1/2 inches from bottom of duct.

C. Do not penetrate fire-rated assemblies except as allowed by applicable building codes and authorities having jurisdiction.

3.4 DUCT SEALING

A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

3.5 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

© Horty Elving & Associates, Inc.

1. Where practical, install concrete inserts before placing concrete.
2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.

C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.

D. Hangers Exposed to View: Threaded rod and angle or channel supports.

E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet.

F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.6 THERMADUCT HANGER AND SUPPORT INSTALLATION

A. Contractor to ensure that the ductwork system is properly and adequately supported.

1. Ensure that the chosen method is compatible with the specific ductwork system requirements per Thermaduct installation detail drawings. Pre-installation should be provided prior to work commencement by installing contractor for approval.

2. Install upper attachments to architectural roof curbs. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used. Coordinate all requirements with Architectural.

B. Supports on straight runs of ductwork shall be positioned at centers not exceeding 13 feet for duct sections when fabricated in 13 foot lengths with duct girth less than 84". Larger duct sizes and short segments with duct girth greater than 84" are to be supported at 8 foot centers or less, in accordance with the Thermaduct installation details provided prior to work commencement.

C. Ductwork shall be supported at changes of direction, at branch duct connections, tee fittings, parallel under turning vanes and all duct accessories such as dampers, etc.

D. The load of such accessories to the ductwork shall be neutralized by the accessory support.

3.7 CONNECTIONS

A. Make connections to equipment with flexible connectors complying with Division 23 Section "Air Duct Accessories."

B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.8 START UP

A. Air Balance: Comply with requirements in Division 23 Section "Testing, Adjusting, and Balancing for HVAC."

3.9 *INDOOR* DUCT SCHEDULE

A. Fabricate ducts with galvanized sheet steel except as otherwise indicated.

B. Pool Ductwork:

1. Supply Ductwork exposed in Pool: Fabric Duct.
2. Exhaust Ductwork exposed in Pool: Aluminum with welded seams and flanged joints with EPDM gaskets.
3. All other ductwork in chases and in pit below pool: Aluminum with welded seams and flanged joints with EPDM gaskets.

C. Supply Ducts:

1. Ducts Connected to Terminal Units:

a. Pressure Class: Positive 1-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 12.
d. SMACNA Leakage Class for Round and Flat Oval: 12.

2. Ducts Connected to Air-Handling Units:

a. Pressure Class: Positive 3-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 6.
d. SMACNA Leakage Class for Round and Flat Oval: 6.

3. Ducts Connected to Equipment Not Listed Above:

a. Pressure Class: Positive 2-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 6.
d. SMACNA Leakage Class for Round and Flat Oval: 6

D. Return Ducts:

1. Ducts Connected to Heat Pumps, Furnaces and Terminal Units:

a. Pressure Class: Positive or negative 1-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 12.
d. SMACNA Leakage Class for Round and Flat Oval: 12.

2. Ducts Connected to Air-Handling Units:

a. Pressure Class: Positive or negative 2-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 12.

© Horty Elving & Associates, Inc.
Commission # 146038

d. SMACNA Leakage Class for Round and Flat Oval: 12.
e. SMACNA Leakage Class for Rectangular: 12.
f. SMACNA Leakage Class for Round and Flat Oval: 12.

E. Exhaust Ducts:

1. Ducts Connected to Fans Exhausting (ASHRAE 62.1, Class 1 and 2) Air:

a. Pressure Class: Negative 2-inch wg.
b. Minimum SMACNA Seal Class: B if negative pressure, and A if positive pressure.
c. SMACNA Leakage Class for Rectangular: 12.
d. SMACNA Leakage Class for Round and Flat Oval: 12.

2. Ducts Connected to Air-Handling Units:

a. Pressure Class: Positive or negative 2-inch wg.
b. Minimum SMACNA Seal Class: B if negative pressure, and A if positive pressure.
c. SMACNA Leakage Class for Rectangular: 12.
d. SMACNA Leakage Class for Round and Flat Oval: 12.

3. Ducts Connected to Commercial Kitchen Hoods: Comply with NFPA 96.

a. Exposed to View: Type 304, stainless-steel sheet, No. 4 finish.
b. Concealed: Carbon-steel sheet – 18 ga.
c. Welded seams and joints.
d. Pressure Class: Positive or negative 3-inch wg.
e. Minimum SMACNA Seal Class: Welded seams, joints, and penetrations.
f. SMACNA Leakage Class: 3.

F. Outdoor-Air (Not Filtered, Heated, or Cooled) Ducts:

1. Ducts Connected to Air-Handling Units:

a. Pressure Class: Positive or negative 2-inch wg.
b. Minimum SMACNA Seal Class: A.
c. SMACNA Leakage Class for Rectangular: 6.

G. Liner:

1. Supply, Return and Exhaust Air Ducts where indicated on the drawings: Flexible Elastomeric, 1 inch thick.

H. Intermediate Reinforcement:

1. Galvanized-Steel Ducts: Galvanized steel.

I. Elbow Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."

a. Velocity 1000 fpm or Lower:

1) Radius Type RE 1 with minimum 0.5 radius-to-diameter ratio.
2) Mitered Type RE 4 without vanes.

b. Velocity 1000 to 1500 fpm:

1) Radius Type RE 1 with minimum 1.0 radius-to-diameter ratio.
2) Radius Type RE 3 with minimum 0.5 radius-to-diameter ratio and two vanes.
3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

c. Velocity 1500 fpm or Higher:

1) Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
2) Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

2. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."

a. Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
b. Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
c. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

3. Round Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "Round Duct Elbows."

a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows." Elbows with less than 90-degree change of direction have proportionately fewer segments.

1) Velocity 1000 fpm or Lower: 0.5 radius-to-diameter ratio and three segments for 90-degree elbow.
2) Velocity 1000 to 1500 fpm: 1.0 radius-to-diameter ratio and four segments for 90-degree elbow.
3) Velocity 1500 fpm or Higher: 1.5 radius-to-diameter ratio and five segments for 90-degree elbow.
4) Radius-to Diameter Ratio: 1.5.

b. Round Elbows, 12 Inches and Smaller in Diameter: Stamped or pleated.
c. Round Elbows, 14 Inches and Larger in Diameter: Standing seam.

J. Branch Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-6, "Branch Connection."

a. Rectangular Main to Rectangular Branch: 45-degree entry.
b. Rectangular Main to Round Branch: Spin in.

2. Round and Flat Oval: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees." Saddle taps are permitted in existing duct.

© Horty Elving & Associates, Inc.

a. Velocity 1000 fpm or Lower: 90-degree tap.
b. Velocity 1000 to 1500 fpm: Conical tap.
c. Velocity 1500 fpm or Higher: 45-degree lateral.

3.10 OUTDOOR DUCT SCHEDULE

A. Double Wall, galvanized steel ductwork with 4 mil EPDM covering (Refer to Section 23 07 13 for further requirements).

B. As an acceptable alternative to double-wall galvanized steel with 2" insulation and 40 mil EPDM cover, contractor may choose to install Thermaduct.

1. Minimum Panel thickness: 1-3/4 inches (R-12).
2. Aluminim Cladding: minimum 0.025 inches thick.
3. Vinyl Cladding: minimum 38 mil.

END OF SECTION 23 31 13

SECTION 28 31 11 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Provide a new fire alarm panel in Area A with annunciator panels as shown on the plans. The entire campus shall have one manufacturer including the existing D and E areas. The system shall include speaker/strobes, system speakers, 520 Hz CBRF speakers sounding on a general and local alarm, fire alarm panel with two analog telephone lines and modem, addressable smoke detectors, addressable heat detectors, resident room CBRF system smoke detectors, connections to tamper and flow switches,120V power and fire alarm connections to smoke dampers, connections to Denlar hoods and fire suppression systems, connections to all magnetic and electric door locks and magnetic door hold opens, new smoke detectors for elevator recall, heat detectors for elevator shunt trip, manual pull stations, and duct smoke detectors for supply and return air ducts which shall shut down all facility air handling equipment on a general alarm. The system shall have mass communication equipment with paging to areas over the telephone system. Provide fire alarm connections to the Vesda and dry pipe systems.

B. Note that the existing fire alarm system in Areas D and E shall be completely replaced. The new areas A, B, and C shall be constructed first and the fire alarm extended into Areas D and E.

C. Section Includes:

1. Manual fire-alarm boxes.
2. System smoke detectors.
3. Heat detectors.
4. Notification appliances.
5. Remote annunciator.
6. Addressable interface device.
7. Fire alarm panel.

D. Related Requirements:

1. Section 28 05 13 "Conductors and Cables for Electronic Safety and Security" for cables and conductors for fire-alarm systems.

1.3 DEFINITIONS

A. EMT: Electrical Metallic Tubing.

B. FACP: Fire Alarm Control Panel.

C. HLI: High Level Interface.

D. NICET: National Institute for Certification in Engineering Technologies.

E. PC: Personal computer.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

1. Include construction details, material descriptions, dimensions, profiles, and finishes.
2. Include rated capacities, operating characteristics, and electrical characteristics.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Provide program report showing that air-sampling detector pipe layout balances pneumatically within the airflow range of the air-sampling detector.
12. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
    c. Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' control system.
    d. Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' smoke-evacuation system.
    e. Locate detectors according to manufacturer's written recommendations.
    f. Show air-sampling detector pipe routing.

13. Include voice/alarm signaling-service equipment rack or console layout, grounding schematic, amplifier power calculation, and single-line connection diagram.
14. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.

© Horty Elving & Associates, Inc.
Commission # 146038

2. Shop Drawings shall be prepared by persons with the following qualifications:

   a. Trained and certified by manufacturer in fire-alarm system design.
   b. NICET-certified, fire-alarm technician; Level III minimum.
   c. Licensed or certified by authorities having jurisdiction.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 01 78 23 "Operation and Maintenance Data," include the following:

   a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
   b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
   c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
   d. Riser diagram.
   e. Device addresses.
   f. Air-sampling system sample port locations and modeling program report showing layout meets performance criteria.
   g. Record copy of site-specific software.
   h. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

      1) Equipment tested.
      2) Frequency of testing of installed components.
      3) Frequency of inspection of installed components.
      4) Requirements and recommendations related to results of maintenance.
      5) Manufacturer's user training manuals.

   i. Manufacturer's required maintenance related to system warranty requirements.
   j. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level II technician.

C. NFPA Certification: Obtain certification according to NFPA 72 by a UL-listed alarm company.

1.8 PROJECT CONDITIONS

A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.

B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:

1. Notify Construction Manager no fewer than seven days in advance of proposed interruption of fire-alarm service.
2. Do not proceed with interruption of fire-alarm service without Construction Manager's written permission.

C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.9 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Retain one of first two options in first paragraph below. System in first option is a quality-assurance program described in NFPA 72 and administered by UL. System in second option is a similar program administered by FM Global. See Editing Instruction No. 2 in the Evaluations for discussion about UL certification and FM Global placards. Coordinate with Drawings.

© Horty Elving & Associates, Inc.
Commission # 146038

C. Noncoded, UL-certified addressable system, with multiplexed signal transmission and voice/strobe evacuation.

D. Automatic sensitivity control of certain smoke detectors.

E. All components provided shall be listed for use with the selected system.

F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Air-sampling smoke-detection system (VESDA).
6. Combustible gas detectors.
7. Automatic sprinkler system water flow.
8. Preaction system.
9. Fire-extinguishing system operation.
10. Fire standpipe system.
11. Dry system pressure flow switch.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances**,** including voice evacuation notices.
2. Identify alarm and specific initiating device at fire-alarm control unit, connected network control panels, off-premises network control panels, and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Unlock electric door locks in designated egress paths.
5. Release fire and smoke doors held open by magnetic door holders.
6. Activate voice/alarm communication system.
7. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
8. Close smoke dampers in air ducts of designated air-conditioning duct systems.
9. Activate preaction system.
10. Recall elevators to primary or alternate recall floors.
11. Activate elevator power shunt trip.
12. Activate emergency shutoffs for gas and fuel supplies.
13. Record events in the system memory.
14. Record events by the system printer.
15. Indicate device in alarm on the graphic annunciator.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:

1. Valve supervisory switch.
2. High- or low-air-pressure switch of a dry-pipe or preaction sprinkler system.
3. Alert and Action signals of air-sampling detector system.
4. Elevator shunt-trip supervision.
5. Independent fire-detection and -suppression systems.
6. User disabling of zones or individual devices.

7. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.
10. Voice signal amplifier failure.
11. Hose cabinet door open.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit, connected network control panels, off-premises network control panels, and remote annunciators.
3. Record the event on system printer.
4. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.
5. Transmit system status to building management system.
6. Display system status on graphic annunciator.

2.3 FIRE-ALARM CONTROL UNIT

A. Manufacturers: Subject to compliance with requirements, provide products by the following :

1. Siemens Industry Inc: Fire Safety Division
2. Simplex
3. Notifier
4. Edwards

B. General Requirements for Fire-Alarm Control Unit:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.

   a. System software and programs shall be held in nonvolatile flash, electrically erasable, programmable, read-only memory, retaining the information through failure of primary and secondary power supplies.
   b. Include a real-time clock for time annotation of events on the event recorder and printer.
   c. Provide communication between the FACP and remote circuit interface panels, annunciators, and displays.
   d. The FACP shall be listed for connection to a central-station signaling system service.
   e. Provide nonvolatile memory for system database, logic, and operating system and event history. The system shall require no manual input to initialize in the event of a complete power down condition. The FACP shall provide a minimum 500-event history log.

© Horty Elving & Associates, Inc.
Commission # 146038

2. Addressable Initiation Device Circuits: The FACP shall indicate which communication zones have been silenced and shall provide selective silencing of alarm notification appliance by building communication zone.
3. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.

C. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, 80 characters, minimum.
2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

D. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, three line(s) of 80 characters, minimum.
2. Keypad: Arranged to permit entry and execution of programming, display, and control commands, and to indicate control commands to be entered into the system for control of smoke-detector sensitivity and other parameters.

E. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:

1. Pathway Class Designations: NFPA 72, Class A.
2. Pathway Survivability: Level 1.
3. Install no more than 100 addressable devices on each signaling-line circuit.
4. Serial Interfaces:

a. One dedicated RS 485 port for central-station operation using point ID DACT.
b. One RS 485 port for remote annunciators, Ethernet module, or multi-interface module (printer port).
c. One RS 232 port for PC configuration.
d. One RS 232 port for VESDA HLI connection.
e. One RS 232 port for voice evacuation interface.

F. Smoke-Alarm Verification:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
2. Activate an approved "alarm-verification" sequence at fire-alarm control unit and detector.
3. Record events by the system printer.
4. Sound general alarm if the alarm is verified.
5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

G. Notification-Appliance Circuit:

1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
2. Where notification appliances provide signals to sleeping areas, the alarm signal shall be a 520-Hz square wave with an intensity 15 dB above the average ambient sound level or 5 dB above the maximum sound level, or at least 75 dBA, whichever is greater, measured at the pillow.
3. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.

H. Elevator Recall:

1. Elevator recall shall be initiated only by one of the following alarm-initiating devices:

   a. Elevator lobby detectors except the lobby detector on the designated floor.
   b. Smoke detector in elevator machine room.

2. Elevator controller shall be programmed to move the cars to the alternate recall floor if lobby detectors located on the designated recall floors are activated.
3. Water-flow alarm connected to sprinkler in an elevator shaft and elevator machine room shall shut down elevators associated with the location without time delay.

   a. Water-flow switch associated with the sprinkler in the elevator pit may have a delay to allow elevators to move to the designated floor.

I. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be connected to fire-alarm system.

J. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and print out the final adjusted values on system printer.

K. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.

L. Voice/Alarm Signaling Service: Central emergency communication system with redundant microphones, preamplifiers, amplifiers, and tone generators provided as a special module that is part of fire-alarm control unit.

1. Indicate number of alarm channels for automatic, simultaneous transmission of different announcements to different zones or for manual transmission of announcements by use of the central-control microphone. Amplifiers shall comply with UL 1711.

   a. Allow the application of, and evacuation signal to, indicated number of zones and, at the same time, allow voice paging to the other zones selectively or in any combination.
   b. Programmable tone and message sequence selection.
   c. Standard digitally recorded messages for "Evacuation" and "All Clear."
   d. Generate tones to be sequenced with audio messages of type recommended by NFPA 72 and that are compatible with tone patterns of notification-appliance circuits of fire-alarm control unit.

2. Status Annunciator: Indicate the status of various voice/alarm speaker zones and the status of firefighters' two-way telephone communication zones.
3. Preamplifiers, amplifiers, and tone generators shall automatically transfer to backup units, on primary equipment failure.

M. Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events.

© Horty Elving & Associates, Inc.

N. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory and digital alarm communicator transmitters shall be powered by 24-V dc source.

1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.

O. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

1. Batteries: Vented, wet-cell pocket, plate nickel cadmium.

P. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.4 PREACTION SYSTEM

A. Initiate Presignal Alarm: This function shall cause an audible and visual alarm and indication to be provided at the FACP. Activation of an initiation device connected as part of a preaction system shall be annunciated at the FACP only, without activation of the general evacuation alarm.

2.5 MANUAL FIRE-ALARM BOXES

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Siemens Industry Inc.: Fire Safety Division.
2. Simplex
3. Notifier
4. Edwards

B. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Single-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
3. Station Reset: Key- or wrench-operated switch.
4. Indoor Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation.
5. Weatherproof Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.

2.6 SYSTEM SMOKE DETECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Siemens Industry Inc.: Fire Safety Division.
2. Simplex
3. Notifier
4. Edwards

B. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be four-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit.

a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
c. Multiple levels of detection sensitivity for each sensor.
d. Sensitivity levels based on time of day.

C. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.

© Horty Elving & Associates, Inc.
Commission # 146038

2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuitSee Editing Instruction No. 5 in the Evaluations for discussion about nonsystem smoke detectors.

2.7 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

B. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F or a rate of rise that exceeds 15 deg F per minute unless otherwise indicated.

1. Mounting: Adapter plate for outlet box mounting Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of 190 deg F.

1. Mounting: Adapter plate for outlet box mounting Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

D. Continuous Linear Heat-Detector System:

1. Detector Cable: Rated detection temperature 155 deg F. Listed for "regular" service and a standard environment. Cable includes two steel actuator wires twisted together with spring pressure, wrapped with protective tape, and finished with PVC outer sheath. Each actuator wire is insulated with heat-sensitive material that reacts with heat to allow the cable twist pressure to short circuit wires at the location of elevated temperature.
2. Control Unit: Two-zone or multizone unit as indicated. Provide same system power supply, supervision, and alarm features as specified for fire-alarm control unit.
3. Signals to Fire-Alarm Control Unit: Any type of local system trouble shall be reported to fire-alarm control unit as a composite "trouble" signal. Alarms on each detection zone shall be individually reported to central fire-alarm control unit as separately identified zones.
4. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.8 NOTIFICATION APPLIANCES

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Notifier
2. Simplex
3. Edwards
4. Siemens Industry Inc.

B. Devices: Individually addressed, connected to a signaling-line circuit, equipped for mounting as indicated, and with screw terminals for system connections. Provide white finish.

C. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.

D. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch-high letters on the lens.

1. Rated Light Output:

a. 75 cd.
b. 15/30/75/110 cd, selectable in the field.

2. Mounting: Wall mounted unless otherwise indicated.
3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
4. Flashing shall be in a temporal pattern, synchronized with other units.
5. Strobe Leads: Factory connected to screw terminals.
6. Mounting Faceplate: Factory finished, white.

E. Voice/Tone Notification Appliances:

1. Comply with UL 1480.
2. Speakers for Voice Notification: Locate speakers for voice notification to provide the intelligibility requirements of the "Notification Appliances" and "Emergency Communications Systems" chapters in NFPA 72.
3. High-Range Units: Rated 2 to 15 W.
4. Low-Range Units: Rated 1 to 2 W.
5. Mounting: Flush.
6. Matching Transformers: Tap range matched to acoustical environment of speaker location.

F. Exit Marking Audible Notification Appliance:

1. Exit marking audible notification appliances shall meet the audibility requirements in NFPA 72.
2. Provide exit marking audible notification appliances at the entrance to all building exits.
a. Provide exit marking audible notification appliances at the entrance to areas of refuge with audible signals distinct from those used for building exit marking.
3. Mounting Faceplate: Factory finished, white.

© Horty Elving & Associates, Inc.
Commission # 146038

2.9 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.10 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.
2. Store an internal identifying code for control panel use to identify the module type.
3. Listed for controlling HVAC fan motor controllers.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

C. Integral Relay: Capable of providing a direct signal to elevator controller to initiate elevator recall to circuit-breaker shunt trip for power shutdown.

1. Allow the control panel to switch the relay contacts on command.
2. Have a minimum of two normally open and two normally closed contacts available for field wiring.

D. Control Module:

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

2.11 DIGITAL ALARM COMMUNICATOR TRANSMITTER

A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL 632.

B. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture one telephone line(s) and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.

C. Local functions and display at the digital alarm communicator transmitter shall include the following:

1. Verification that both telephone lines are available.

2. Programming device.
3. LED display.
4. Manual test report function and manual transmission clear indication.
5. Communications failure with the central station or fire-alarm control unit.

D. Digital data transmission shall include the following:

1. Address of the alarm-initiating device.
2. Address of the supervisory signal.
3. Address of the trouble-initiating device.
4. Loss of ac supply.
5. Loss of power.
6. Low battery.
7. Abnormal test signal.
8. Communication bus failure.

E. Secondary Power: Integral rechargeable battery and automatic charger.

F. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.

1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

1. Devices placed in service before all other trades have completed cleanup shall be replaced.
2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.

B. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

1. Comply with requirements for seismic-restraint devices specified in Section 26 05 48.16 "Seismic Controls for Electrical Systems."

© Horty Elving & Associates, Inc.

C. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

D. Smoke- or Heat-Detector Spacing:

1. Comply with the "Smoke-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for smoke-detector spacing.
2. Comply with the "Heat-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for heat-detector spacing.
3. Smooth ceiling spacing shall not exceed 30 feet.
4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Annex A or Annex B in NFPA 72.
5. HVAC: Locate detectors not closer than 36 inches from air-supply diffuser or return-air opening.
6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.

E. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

1. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to system turnover.

G. Elevator Shafts: Coordinate temperature rating and location with sprinkler rating and location. Do not install smoke detectors in sprinklered elevator shafts.

H. Single-Station Smoke Detectors: Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound.

I. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

J. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

K. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

L. Device Location-Indicating Lights: Locate in public space near the device they monitor.Coordinate "Antenna for Radio Alarm Transmitter" Paragraph below with Drawings. Wind speed is usually a requirement of the applicable building code.

3.3 PATHWAYS

A. Pathways above recessed ceilings and in non-accessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

B. Pathways shall be installed in EMT.

C. Exposed EMT shall be painted red enamel.

3.4 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 08 71 00 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Alarm-initiating connection to smoke-control system (smoke management) at firefighters' smoke-control system panel.
2. Alarm-initiating connection to stairwell and elevator-shaft pressurization systems.
3. Smoke dampers in air ducts of designated HVAC duct systems.
4. Magnetically held-open doors.
5. Electronically locked doors and access gates.
6. Alarm-initiating connection to elevator recall system and components.
7. Alarm-initiating connection to activate emergency lighting control.
8. Alarm-initiating connection to activate emergency shutoffs for gas and fuel supplies.
9. Supervisory connections at valve supervisory switches.
10. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
11. Supervisory connections at elevator shunt-trip breaker.
12. Data communication circuits for connection to building management system.
13. Data communication circuits for connection to mass notification system.
14. Supervisory connections at fire-extinguisher locations.
15. Supervisory connections at fire-pump power failure including a dead-phase or phase-reversal condition.
16. Supervisory connections at fire-pump engine control panel.

3.5 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

© Horty Elving & Associates, Inc.
Commission # 146038

3.6 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.7 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by authorities having jurisdiction.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.

4. Test audible appliances for the private operating mode according to manufacturer's written instructions.

5. Test visible appliances for the public operating mode according to manufacturer's written instructions.

6. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

F. Fire-alarm system will be considered defective if it does not pass tests and inspections.

G. Prepare test and inspection reports.

H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.8 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3.9 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.10 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 28 31 11

© Horty Elving & Associates, Inc.
Commission # 146038