Sawyer County

Agenda

Courthouse Construction Ad Hoc Committee Meeting
Thursday, August 5, 2021 @ 8:30 AM
Assembly Room/Virtual Meeting

Page

1. CALL TO ORDER

a. To view or participate in the **virtual meeting** from a computer, iPad, or Android device please go to https://zoom.us/j/97982898675. You can also use the dial in number for listening only at 1-312-626-6799 with the Webinar ID: 979 8289 8675. If additional assistance is needed please contact the County Clerk's Office at 715-634-4866 prior to the meeting. If you are on a computer, click the "Raise Hand" button and wait to be recognized. If you are on a telephone, dial *9 and wait to be recognized.

2. ROLL CALL

3. CERTIFICATION OF COMPLIANCE WITH THE OPEN MEETINGS LAW

4. MEETING AGENDA

5. CONSIDER APPROVAL OF MINUTES FROM PREVIOUS MEETING

3 a. 6.29.21 Courthouse Ad Hoc Minutes DRAFT

6. REVIEW OF COURTHOUSE SCHEMATIC DESIGN (DISCUSSION AND POSSIBLE ACTION)

4 - 75 a. Schematic Drawing Files

1) 21_0804 SD Drawings for 8.5.21 Construction Ad Hoc Mtg.
2) 21_0804 Basis of Design for 8.5.21 Ad Hoc Construction Mtg.

DISCLAIMER:

A quorum of the County Board of Supervisors or of any of its committees may be present at this meeting to listen and observe. Neither the Board nor any of the committees have established attendance at this meeting as an official function of the Board or committee(s) or otherwise made a determination that attendance at the

meeting is necessary to carry out the Board or committee's function. The only purpose for other supervisors attending the meeting is to listen to the information presented. Neither the Board nor any committee (other than the committee providing this notice and agenda) will take any official action with respect to this noticed meeting.

Copy sent via email to: County Clerk and News Media. Note: Any person wishing to attend whom, because of a disability, requires accommodation should call the Sawyer County Clerk's Office (715.634.4866) at least 24 hours before the scheduled meeting so appropriate arrangements can be made.

Minutes of the June 29th meeting of the Sawyer County Courthouse Construction Ad Hoc Committee Of the Sawyer County Board of Supervisors Assembly Room; Sawyer County

Voting Committee Members Present:
☒ Chair: **Ron Kinsley**
☒ Bruce Paulsen – Vice Chair
☒ Tweed Shuman
☒ James Schlender
☒ Tom Hoff

Others Present:
Alex Butterfield
Andrew Danielson
Rebecca Roeker

Call to Order – Chair Kinsley called the meeting to order at 6:00 pm. Roll call was taken; quorum was met.

Public Comments

Certification of Compliance with the open meeting law was met; quorum was met.

Minutes – Mr. Paulsen made a motion to accept the minutes of the June 9, 2021, meeting; second by Mr. Shuman. Motion carried without negative vote.

Construction Contract with Miron Construction – The proposed contract with Miron Construction was presented. A motion was made by Mr. Shuman; second by Mr. Paulsen to approve the contract and move forward to the July Public Works Committee then the County Board meeting for approval. Motion carried without negative vote.

Solar Update – John Cain of Venture Architects will look into this option further.

Building Roof – Fire Wall – Sprinkler System – A plan for the fire wall and sprinkler system will come forward as plans develop.

Timeline of Miron and Venture Architects – A timeline was presented and will be updated prior to going to the Public Works Committee.

Schedule of Pay Period, Borrowing Money – This item will be presented in the future.

Courthouse Remodeling Update -- California Avenue project is awaiting lawyers Tom Duffy and Mike Kelsey to fulfill aspects of the contract.

Veteran's Services Building – This item will be place on the July Public Works agenda for discussion.

CJCC Staffing Area – Space may be needed for CJCC staff and in-house staff may be able to fulfill work in this area.

Future Agenda Items – Veteran's Services Building; CJCC staffing

Meeting Date/Time – The next meeting of the Courthouse Construction Ad Hoc Committee is yet to be determined.

Meeting adjourned at 7:05 pm

Minutes recorded by Ron Kinsley, Committee Chair

DRAFT

Sawyer County, Wisconsin

Sawyer County Courts Addition & Remodeling

10610 Main St, Hayward, WI 54843

WISCONSIN MAP

VICINITY MAP

SITE MAP
<Address>

SD Package

OWNER:
<Agency>
<Department>
<Address>
Phone: xxx.xxx.xxxx

CIVIL
Harwood Engineering
255 North 21st Street
Milwaukee, Wisconsin 53233
Phone: 414.475.5554

ARCHITECT
Venture Architects
212 North 25th Street
Milwaukee, Wisconsin 53233
Phone: 414.271.3359

STRUCTURAL
Harwood Engineering
255 North 21st Street
Milwaukee, Wisconsin 53233
Phone: 414.475.5554

PLUMBING / FIRE PROTECTION
Somerville Inc.
2100 Riverside Drive
Green Bay, Wisconsin 54301
Phone: 920.437.8136

HEATING, VENTILATING AND AIR CONDITIONING
Somerville Inc.
2100 Riverside Drive
Green Bay, Wisconsin 54301
Phone: 920.437.8136

ELECTRICAL / TELECOMMUNICATIONS / SECURITY ELECTRONICS
Harwood Engineering
255 North 21st Street
Milwaukee, Wisconsin 53233
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SHEET INDEX



ARCHITECTURAL

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205 - ROOF PLAN
401 - EXTERIOR ELEVATIONS
501 - BUILDING SECTIONS
1101 - NORTH COURTROOM
1102 - SOUTH COURTROOM
1103 - COUNTY BOARDROOM

MECHANICAL

PRELIMINARY DUCT MAINS
SD ZONING

STRUCTURAL

STRUCTURAL FRAMING PLAN

CIVIL

CONCEPTUAL CIVIL & LANDSCAPE PLAN

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212 NORTH 25th STREET
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venture@venturearch.com

Consultants:

Reference:

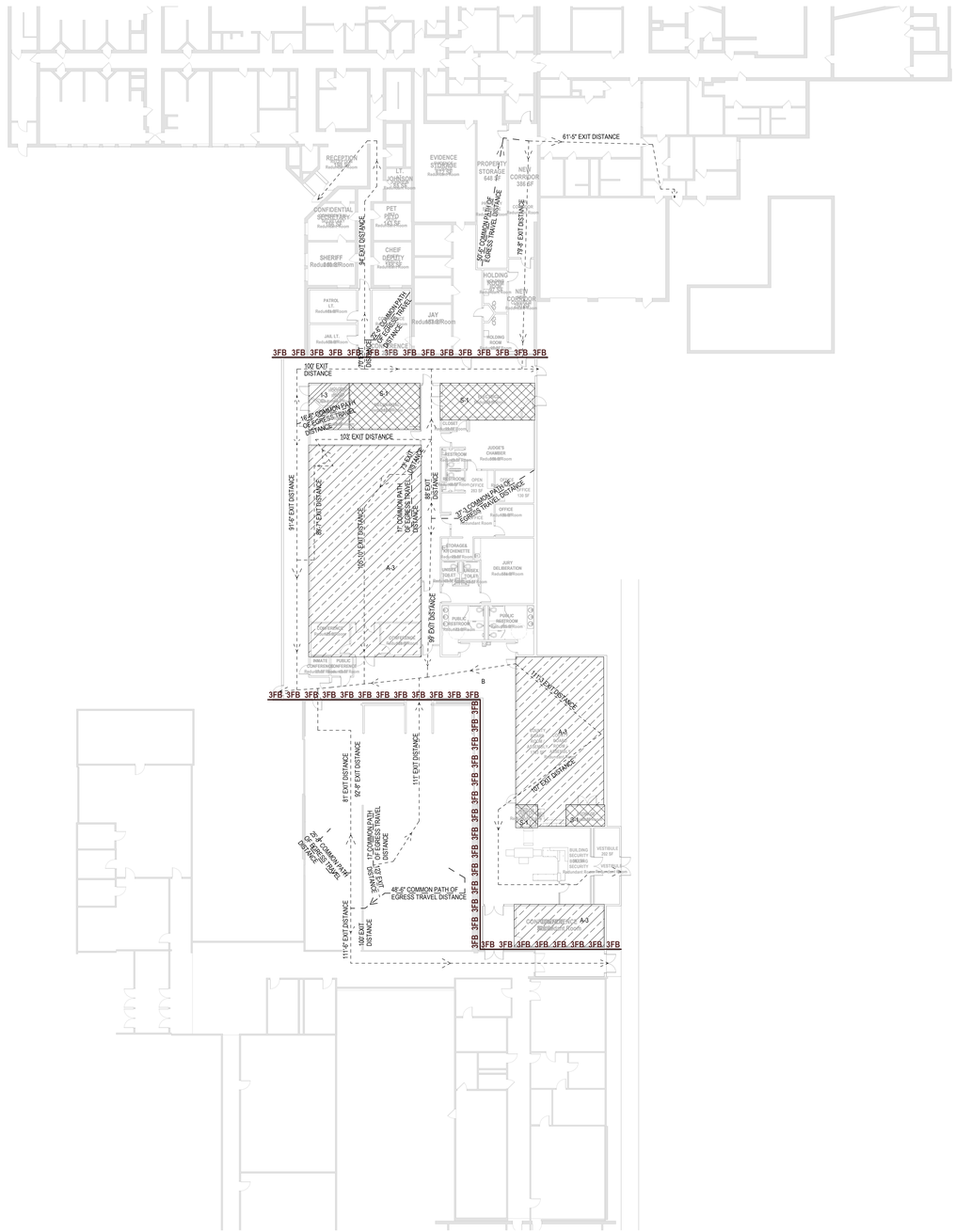
Sawyer County, Wisconsin
Sawyer County Courts Addition & Remodeling
10610 Main St, Hayward, WI 54843

Sheet Title: COVER SHEET / INDEX

Revisions:

No.	Date:	Description:

Graphic Scale	
Project Number	210032.00
Set Type	SD Package
Date Issued	08-04-2021
Sheet Number	**T001**



1 Building Plans
1/16" = 1'-0"

LIFE SAFETY INFORMATION

CONSTRUCTION DOCUMENTS PREPARED USING THE WISCONSIN COMMERCIAL BUILDING CODE UTILIZING THE 2015 INTERNATIONAL BUILDING CODE.

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION

GROUP B	BUSINESS
GROUP A3	ASSEMBLY
GROUP I3	INSTITUTIONAL
GROUP S1	STORAGE

FIRST FLOOR

ASSEMBLY		
COURTROOM - FIXED SEATING		80 OCCUPANTS
COURTROOM	1,771.95 SF/40=	44.29 OCCUPANTS
BOARDROOM - FIXED SEATING		19 OCCUPANTS
BOARDROOM	1,083.25 SF/15=	72.21 OCCUPANTS
BUSINESS	7,502 SF/100=	75.02 OCCUPANTS
INSTITUTIONAL		2 OCCUPANTS
STORAGE	823.57 SF/300=	2.74 OCCUPANTS
TOTAL OCCUPANT LOAD=		295.26 OCCUPANTS

CHAPTER 5: BUILDING HEIGHTS AND AREAS

TABLE 504.4 AND 506.2
GROUP B - BUSINESS
TYPE IIB
UNSPRINKLED
1 STORY - UNPROTECTED
ALLOWABLE AREA - 23,000 SF

NEW ADDITION BUILDING AREA = 12,753.74 SF

TABLE 508.4
OCCUPANCY SEPERATION EXTENDS TO ROOF DECK

BETWEEN B, A3, I3 AND S1 - 2 HOUR
EXCEPTION - B TO S1 = NO SEPERATION

CHAPTER 7: FIRE AND SMOKE PROTECTION

NEW ADDITION IS NOT SPRINKLED AND IS ATTACHING TO TWO NON SPRINKLED BUILDINGS. THEREFORE FIRE WALL SEPERATION IS NEEDED.

TABLE 706.4 - FIRE WALL FIRE RESISTANCE RATINGS

BETWEEN NEW ADDITION "B" AND EXISTING BUILDINGS "B"
3 HOUR FIRE WALL

CHAPTER 9: FIRE PROTECTION SYSTEMS

FIGURE 903.2 SPRINKLER THRESHOLDS

B	FLOOR LEVEL ABOVE ≥ 55 FEET AND OCCUPANT LOAD ≥ 30	NO, BLDG OK
A3	FIRE AREA > 12,000SF OR OCCUPANT LOAD > 300	4,235.37 SF < 12,000 SF 215.5 OCC < 300 OCC
I3	SPRINKLERS REQUIRED	TO BE DETERMINED
S1	FIRE AREA > 12,000 SF	823.57 SF < 12,000 SF

NEW ADDITION IS ACCEPTABLE FOR NON-SPRINKLED

CHAPTER 10: MEANS OF EGRESS

TABLE 1004.1.2 - OCCUPANT LOAD

ASSEMBLY - COURTROOM	40 SF/PERSON
ASSEMBLY - UNCONCENTRATED	15 SF/PERSON
BUSINESS	100 SF/PERSON
INSTITUTIONAL	BED COUNT
STORAGE	300 SF/PERSON

TABLE 1006.2.1 - COMMON PATH OF EGRESS TRAVEL

NONSPRINKLED BUILDING	
ASSEMBLY	75 FEET
BUSINESS	75 FEET
INSTUTIONAL	NP
STORAGE	75 FEET

TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE

NONSPRINKLED BUILDING	
ASSEMBLY	200 FEET
BUSINESS	200 FEET
INSTITUTIONAL	NP
STORAGE	200 FEET

FIRE RESISTIVE LEGEND

= CORRIDOR - EXIT ACCESS

= SUITE EGRESS

= SHAFT / STAIRWELL

= HAZARDOUS AREA

3 3 3 = 3 HOUR FIRE BARRIER

2 2 2 = 2 HOUR FIRE BARRIER

1 1 1 = 1 HOUR FIRE BARRIER

2SE 2SE = 2 HOUR SHAFT ENCLOSURE

2SB 2SB = 2 HOUR FIRE / SMOKE BARRIER

1SB 1SB = 1 HOUR FIRE / SMOKE BARRIER

X X X = SMOKE TIGHT TO DECK

SUITE SUITE = SUITE BOUNDARY

= DELAYED EGRESS DOOR DEVICE

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MANITOWOC, WI 54220
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Consultants:

Reference:

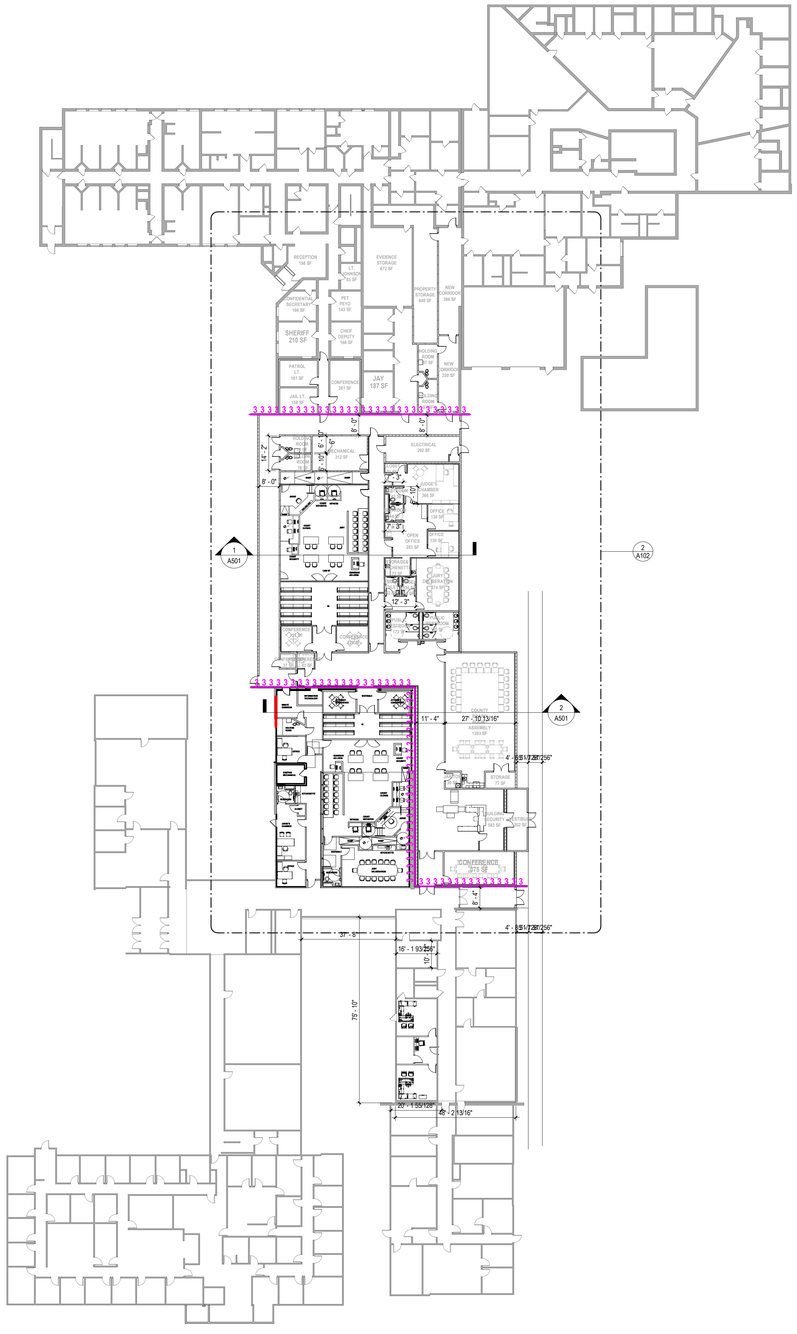
Sawyer County, Wisconsin
Sawyer County Courts Addition & Remodeling
10610 Main St, Hayward, WI 54843

Sheet Title: LIFE SAFETY

Revisions:

No.	Date:	Description:

Graphic Scale	
Project Number	210032.00
Set Type	SD Package
Date Issued	08-04-2021
Sheet Number	**G0.1**



1 OVERALL FIRST FLOOR PLAN
3/64" = 1'-0"

2 OVERALL FIRST FLOOR PLAN - (ENLARGED)
1/16" = 1'-0"

GENERAL CONSTRUCTION NOTES

1. WALLS ARE TO BE PARALLEL AND PERPENDICULAR TO ADJACENT WALLS UNLESS OTHERWISE NOTED. ALIGN WALLS WHERE APPARENT.
2. SEE FLOOR PLANS AND SHEET 1-7002 FOR WALL TYPES.
3. DOORS ARE TO HAVE A TYPICAL 4" OFFSET FROM ADJACENT WALL UNLESS NOTED OTHERWISE.
4. PROVIDE BLOCKING AT ALL WALL HUNG EQUIPMENT AND FURNITURE AS REQUIRED.
5. ALL FLOORS ARE TO BE LEVEL AND CLEAN PRIOR TO INSTALLATION OF NEW FLOOR COVERINGS. ALL FLOOR SURFACES AND TRANSITIONS BETWEEN SURFACE TYPES SHALL COMPLY WITH ADA GUIDELINES.
6. MINIMUM CLEAR DIMENSIONS INDICATED ON PLANS ARE MINIMUM ACCEPTABLE. CONTACT ARCHITECT IF THERE IS A CONFLICT.
7. COORDINATE THIS PROJECT WITH OWNER TO DETERMINE INTERIM LIFE SAFETY ROUTES IF APPLICABLE. CONFIRM ANY CONFLICTS WITH ARCHITECT/OWNER PRIOR TO CONSTRUCTION.

FLOOR PLAN KEYNOTES

KEY	KEYNOTE DESCRIPTION

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213 NORTH 25th STREET
MANITOWOC, WI 54220
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venture@ventarch.com

Consultants:

Reference:

Sawyer County, Wisconsin
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10610 Main St, Hayward, WI 54843

Sheet Title: OVERALL FIRST FLOOR PLAN

Revisions:

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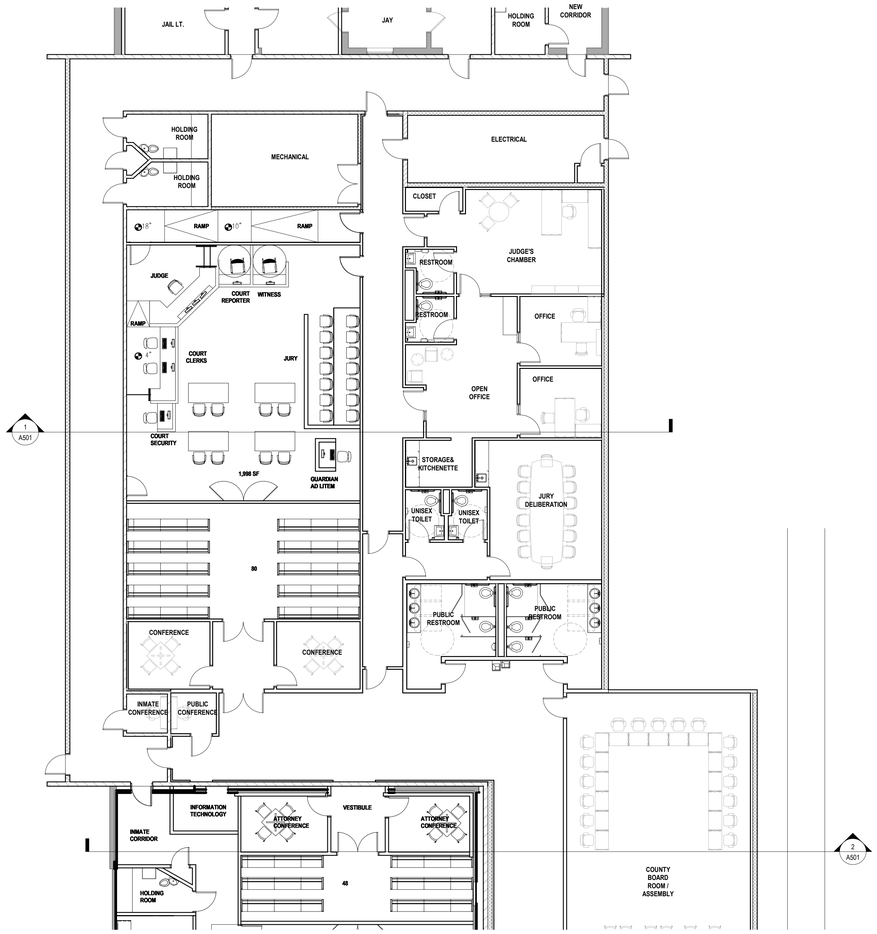
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Project Number	210032.00
Set Type	SD Package
Date Issued	08-04-2021
Sheet Number	**A102**

GENERAL CONSTRUCTION NOTES

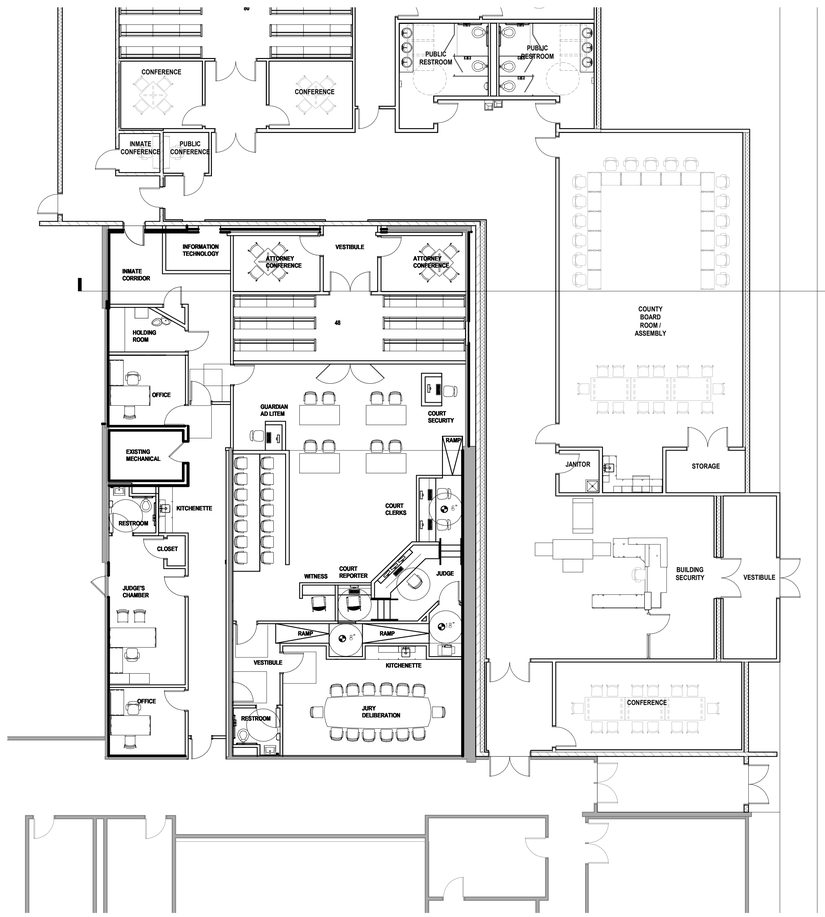
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FLOOR PLAN KEYNOTES

KEY	KEYNOTE DESCRIPTION



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



2 SOUTH COURTROOM
1/8" = 1'-0"

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Sawyer County Courts Addition & Remodeling
10610 Main St, Hayward, WI 54843

Sheet Title: ENLARGED FIRST FLOOR PLAN

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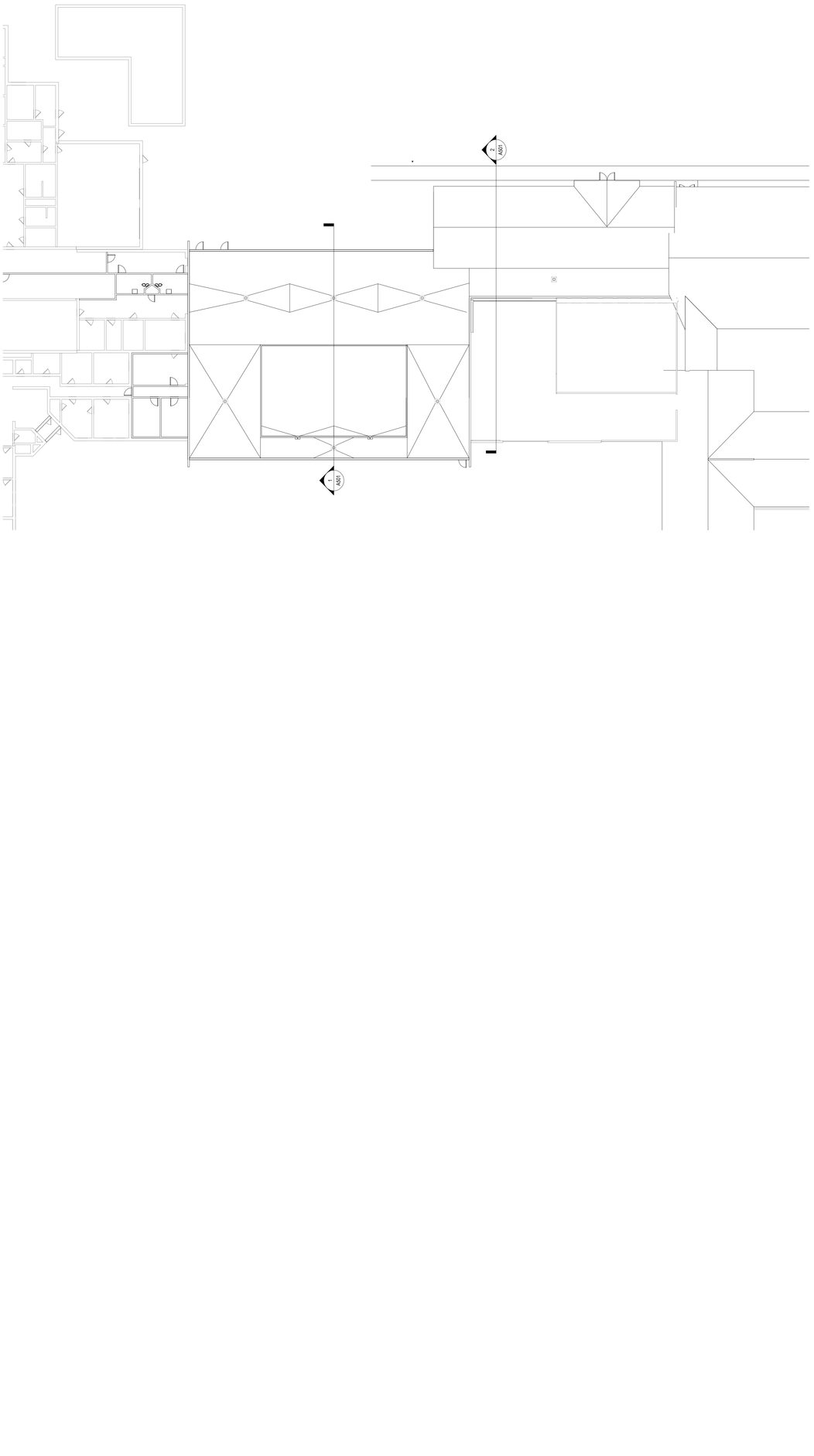
No.	Date:	Description:

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Project Number	210032.00
Set Type	SD Package
Date Issued	08-04-2021
Sheet Number	**A103**

Venturer Architects 212 NORTH 25th STREET MILWAUKEE, WI 53233 Tel: 414.271.3339 venture@venturer-ch.com	Consultants:	Reference:	**Sawyer County Courts Addition & Remodeling** Sawyer County, Wisconsin 10610 Main St. Hayward, WI 54843	ROOF PLAN Sheet Title	Revisions: No. / Date / Description: Graphic Scale Project Number: 210032.00 Set Type: SD Package Date Issued: 08-04-2021 Sheet Number: **A205**

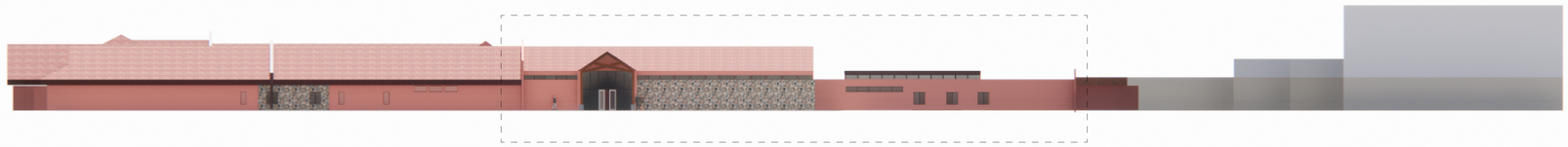
ROOF PLAN KEYNOTES

KEY	DESCRIPTION

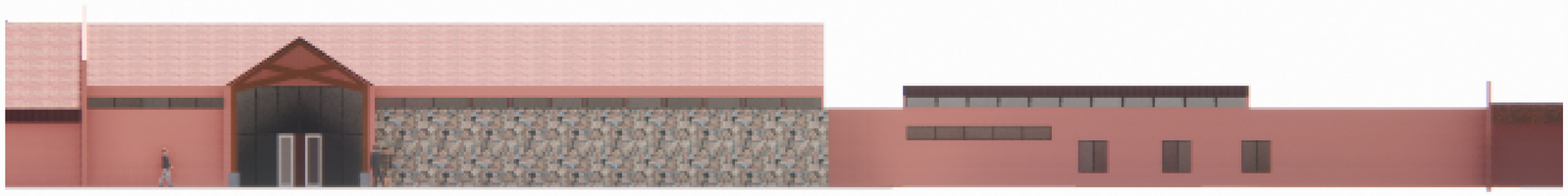


1 Roof Plan
1/8" = 1'-0"

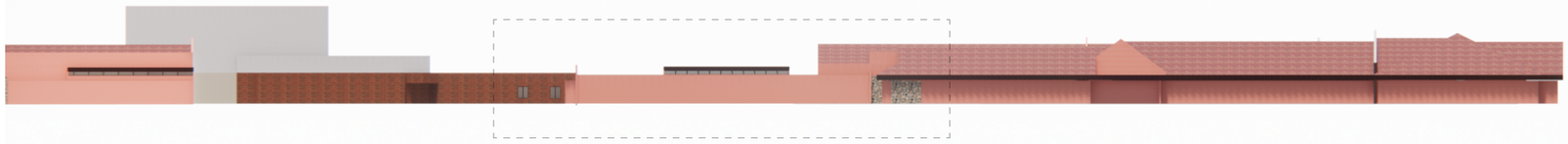
EXTERIOR ELEVATION KEYNOTES	
KEY	KEYNOTE DESCRIPTION



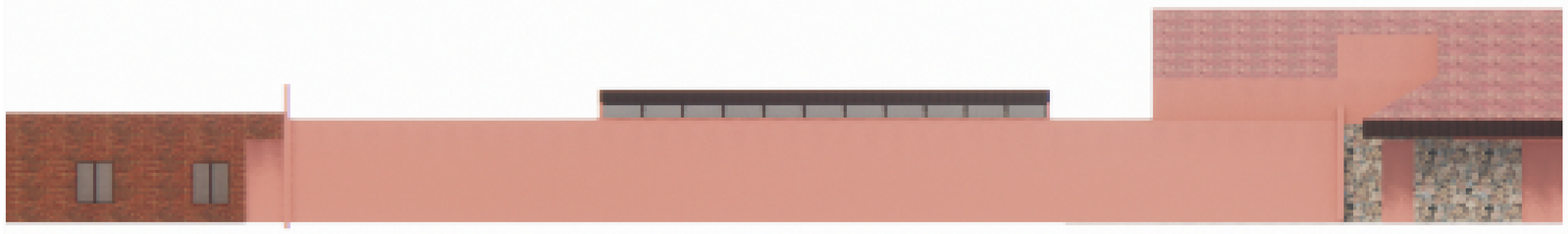
1 South-West Elevation



2 South-West Elevation (Enlarged)



3 North-East Elevation



4 North-East Elevation (Enlarged)

Venture Architects
213 NORTH 25th STREET
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ventureae@centurytel.com

Consultants:

Reference:

Sawyer County, Wisconsin
Sawyer County Courts Addition & Remodeling
10610 Main St, Hayward, WI 54843

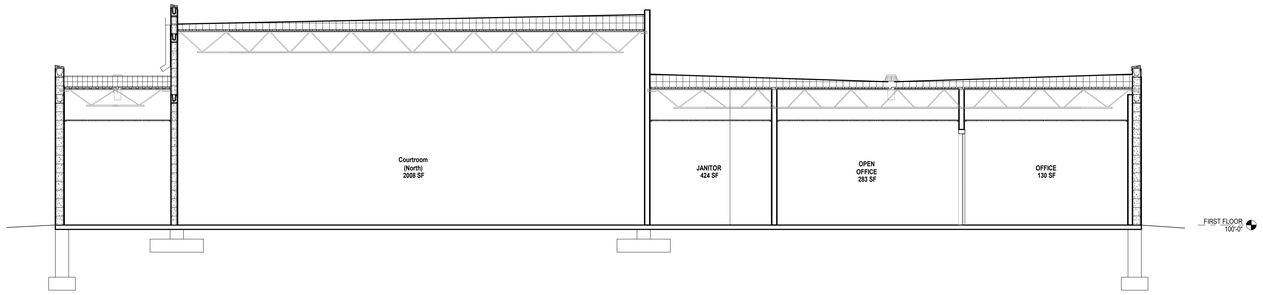
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EXTERIOR ELEVATIONS

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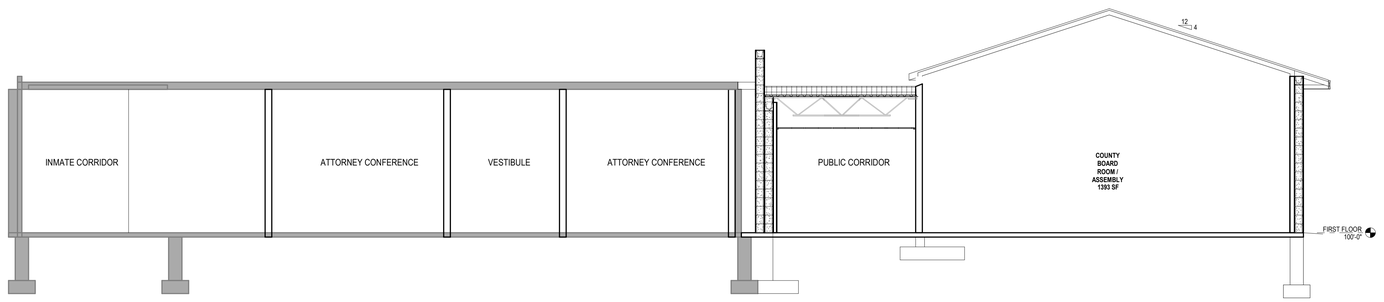
No.	Date:	Description:

Graphic Scale	
Project Number	210032.00
Set Type	SD Package
Date Issued	08-04-2021
Sheet Number	**A401**

SECTION KEYNOTES	
KEY	DESCRIPTION



1 SECTION THROUGH NEW COURTROOM
1/4" = 1'-0"



2 SECTION THROUGH BOARD ROOM
1/4" = 1'-0"

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Reference:

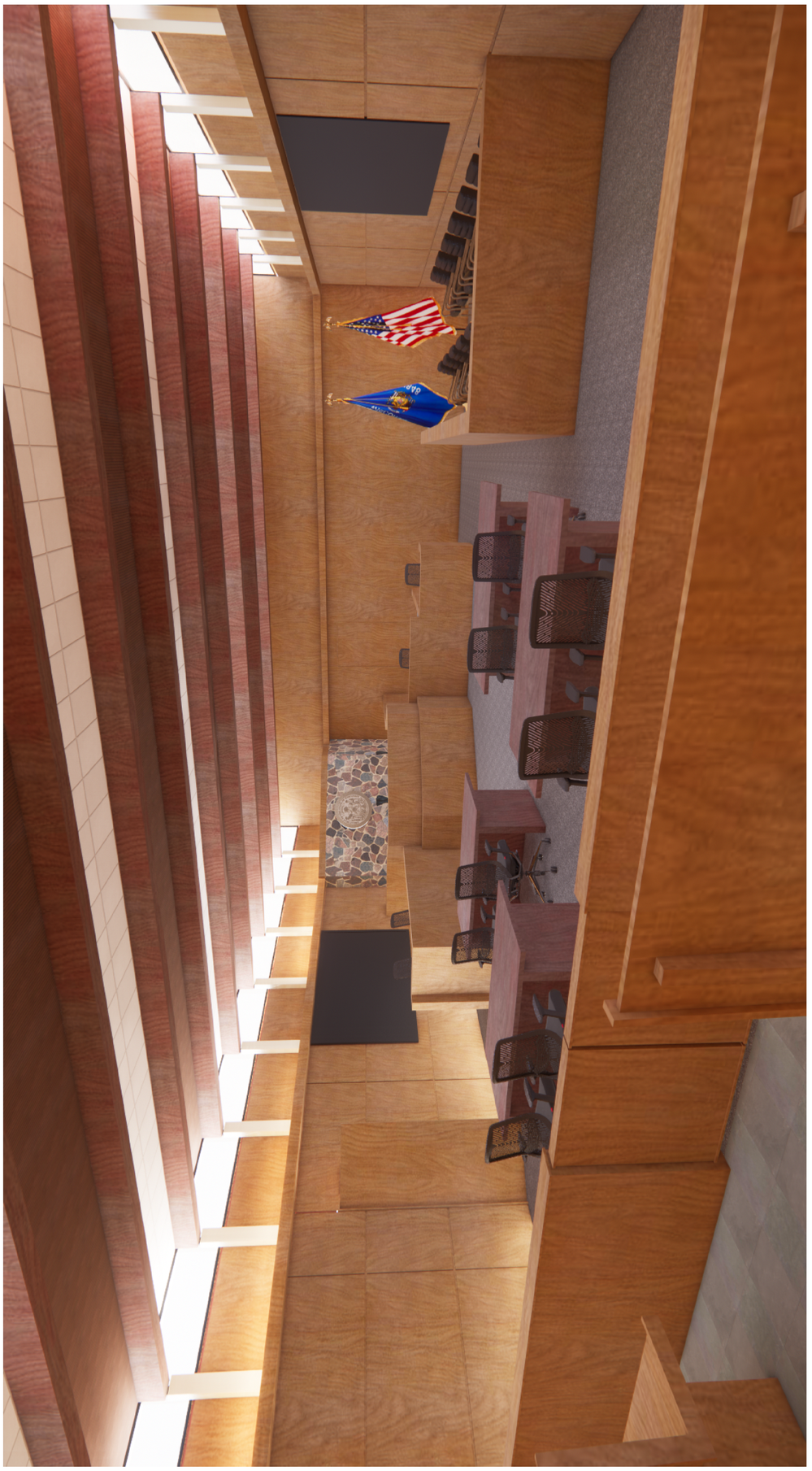
Sawyer County, Wisconsin
Sawyer County Courts Addition & Remodeling
10610 Main St, Hayward, WI 54843

Sheet Title
BUILDING SECTIONS

Revisions:

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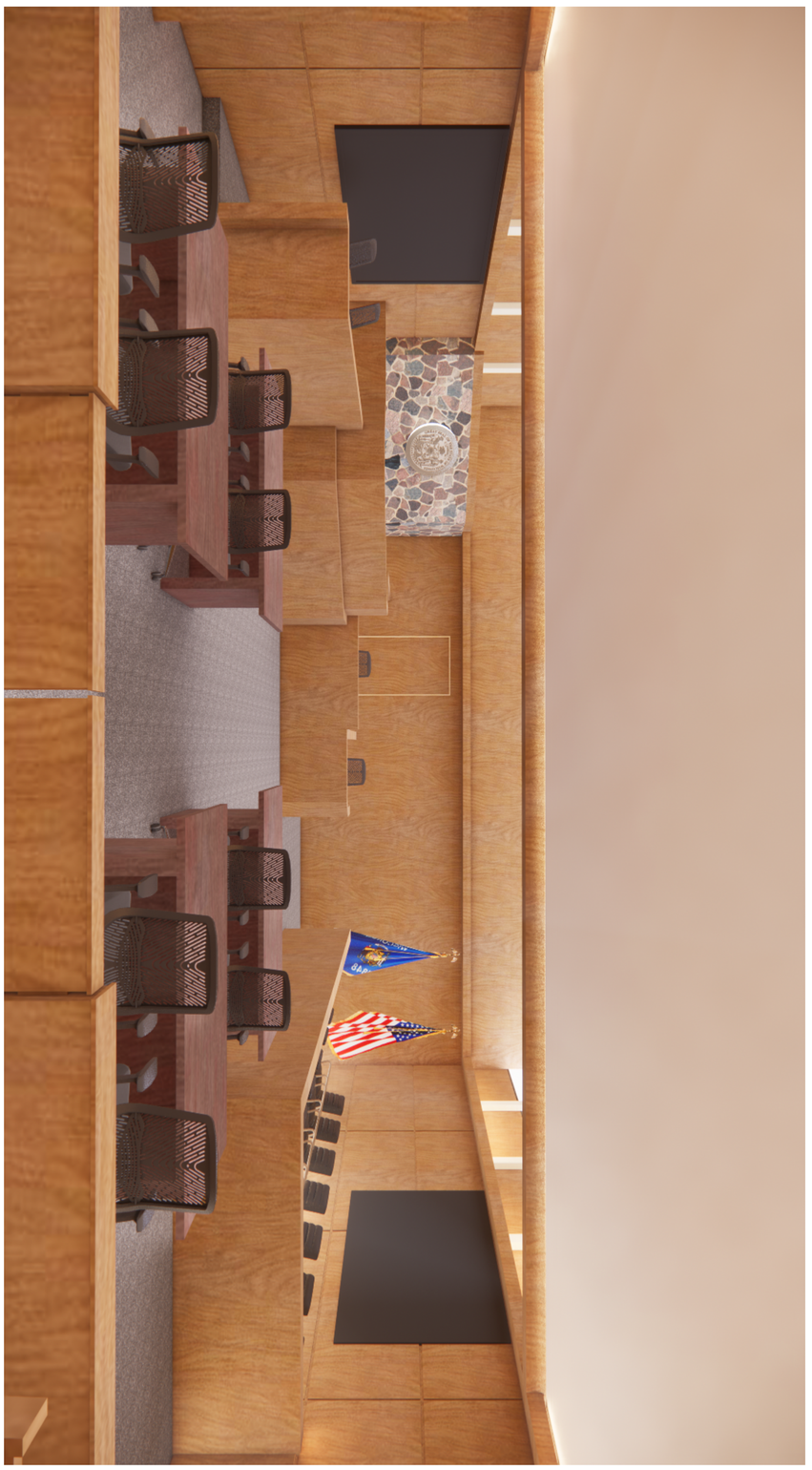
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Project Number	210032.00
Set Type	SD Package
Date Issued	08-04-2021
Sheet Number	**A501**



Sheet Title	NORTH COURTROOM
Sawyer County, Wisconsin	**Sawyer County Courts Addition & Remodeling**
10610 Main St. Hayward, WI 54843	
Reference:	
Consultants:	
212 NORTH 25th STREET MILWAUKEE, WI 53233 Tel: 414.271.3359 ventura@ventura-arch.com	Ventura Architects

Revisions:		
No.	Date:	Description:







Sheet Number: A1102
Date Issued: 08-04-2021
Set Type: SD Package
Project Number: 210032.00
Graphic Scale:

Revisions:

No.	Date	Description

Sheet Title: SOUTH COURTROOM

Sawyer County, Wisconsin
Sawyer County Courts Addition & Remodeling
10610 Main St, Hayward, WI 54843

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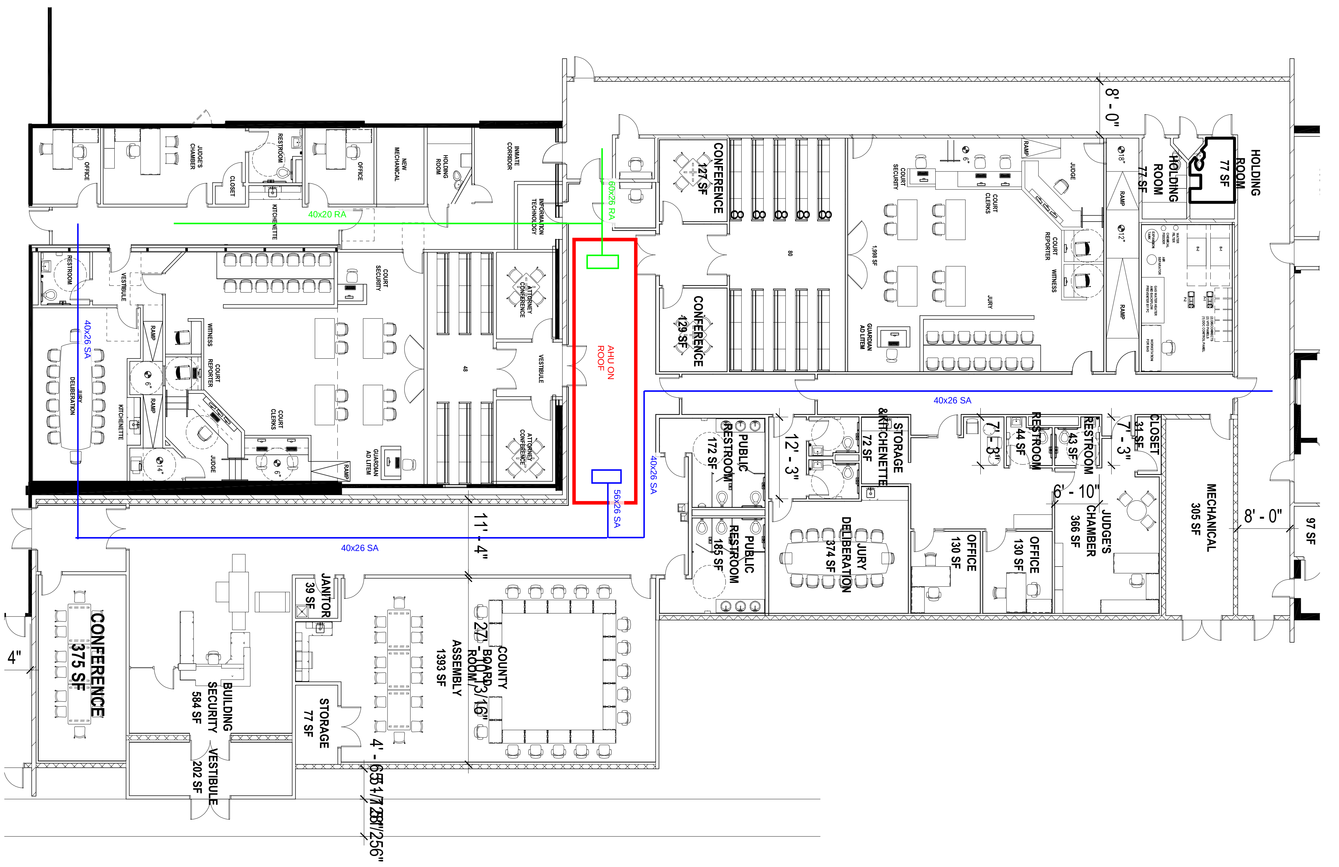
Consultants:

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212 NORTH 25th STREET
MILWAUKEE, WI 53233
Tel: 414-271-3309
venture@ventarch.com





Sheet Number: A1103	Revisions: No. / Date / Description	Sheet Title: COUNTY BOARDROOM	Sawyer County, Wisconsin **Sawyer County Courts Addition & Remodeling** 10610 Main St, Hayward, WI 54843	Reference:	Consultants: Venture Architects 212 NORTH 25th STREET MILWAUKEE, WI 53233 Tel: 414-271-3309 venture@venturearch.com
Date Issued: 08-04-2021					
Set Type: SD Package					
Project Number: 210032.00					
Graphic Scale:					



Sheet Number	Graphic Scale	Revisions: No. Date Description	Sawyer County, Wisconsin **Sawyer County Courts Addition & Remodeling**	Reference:	Consultants:
Date Issued	Project Number				
08-04-2021	210032.00				
Plot Type	SD Package				
		Sheet Title Unnamed	10610 Main St, Hayward, WI 54843		

/Venture/Architects
212 NORTH 25th STREET
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venture@venarch.com

HVAC ZONING PLAN

VentureArchitects
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ventura@planitarch.com

Consultants:

Reference:

Sawyer County, Wisconsin
Sawyer County Courts Addition & Remodeling
10610 Main St, Hayward, WI 54843

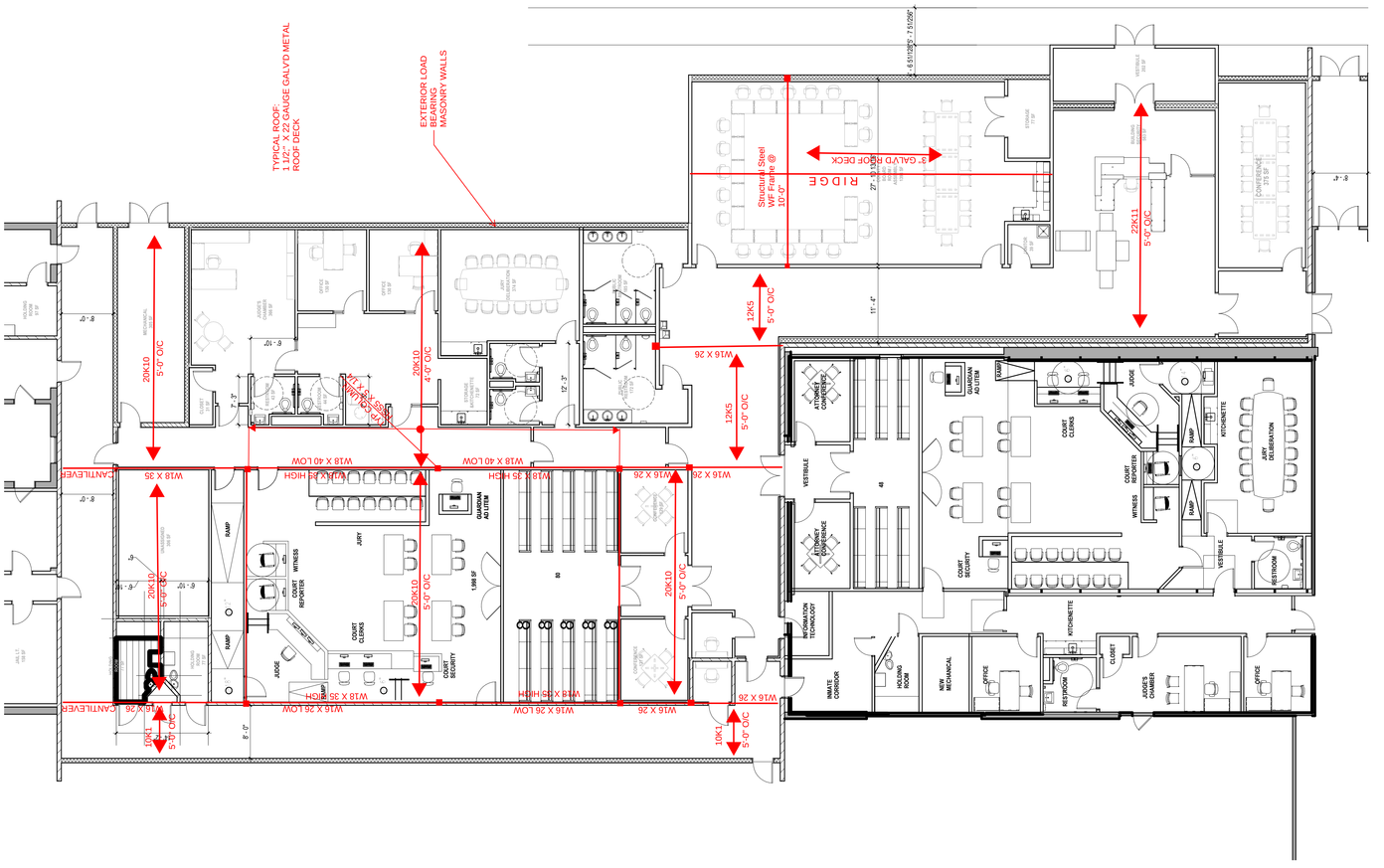
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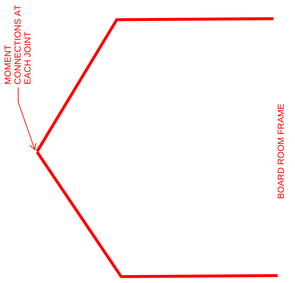
No.	Date:	Description:

Graphic Scale	
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Sheet Number	

STRUCTURAL ROOF FRAMING PLAN



FOUNDATION:
CAST IN PLACE FOUNDATION WALLS
SUPPORTED ON NORMAL SPREAD FOOTINGS, 4'-0" BELOW GRADE TO TOP OF FOOTING



Consultants: HAMWOOD ENGINEERING CONSULTANTS, LTD	Reference:	Sawyer County Courts Addition & Remodeling Sawyer County, Wisconsin 10610 Main St. Hayward, WI 54843	STRUCTURAL ROOF FRAMING PLAN Sheet Title	Revisions: No. / Date / Description: Graphic Scale Project Number: 210032.00 Set Type: SD Package Date Issued: 08-04-2021 Sheet Number: S1.0

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212 NORTH 2ND STREET
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ventura@ventura-ch.com

Sawyer County Courts Addition & Remodeling

Sawyer County, Wisconsin

10610 Main St. Hayward, WI 54843

CONCEPTUAL SITE, LANDSCAPE & UTILITY PLAN

Sheet Title

Revisions		
No.	Date:	Description:

Graphic Scale	SCALE: 1" = 20'
Project Number	210032.00
Set Type	SD Package
Date Issued	08-04-2021
Sheet Number	C1.10

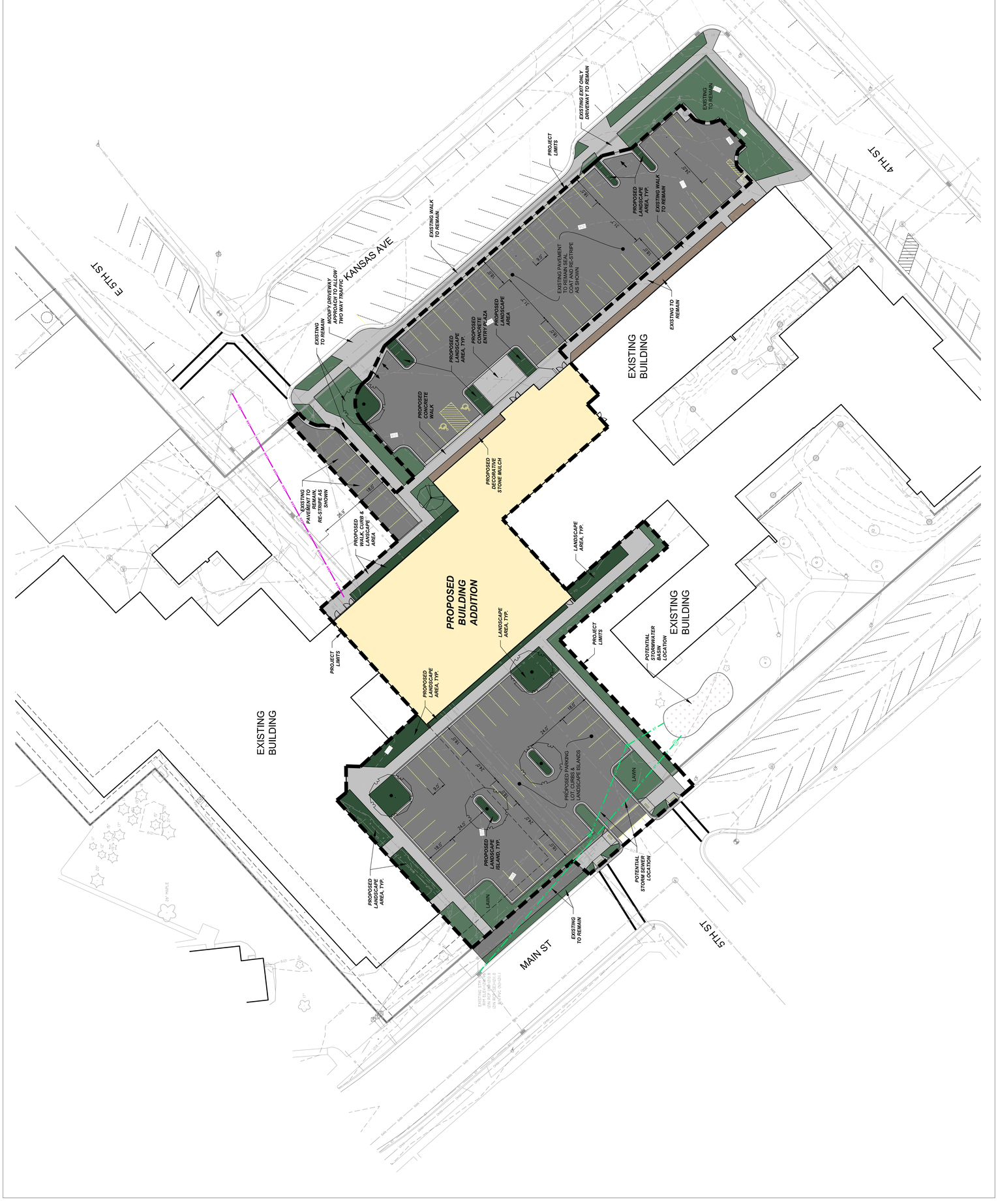
North

Consultants:

Harwood Engineering Consultants
LTD
210 North 21st Street, Milwaukee, WI 53233

Reference

Venturearchitects
212 NORTH 25th STREET
MILWAUKEE, WI 53233
TEL 414-271-1350
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Appendix B
Mechanical Cut Sheets



Sawyer County – Courts Addition & Remodeling

Basis of Design

HVAC, Electrical, Telecommunications, Lighting, Plumbing, Fire Protection, Civil and Landscape Architecture

Venture Project No. 210032.00

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Sawyer County
Courthouse Addition

Architectural Basis of Design

10 PROJECT DESCRIPTION

1010 Project Summary

A. The project is to construct an approximately 12,755 square foot addition to the existing Courthouse Building. The addition will include an added Courtroom, a new Board Room, a conference room and associated spaces. A portion of the existing building and jail will be altered; this includes the existing courtroom and support spaces and jail spaces. The addition will connect the Courthouse with the Jail and close the street. The location of the building is 10610 Main Street in Hayward, Wisconsin.

20 PROPOSAL, BIDDING AND CONTRACTING

2010 Delivery Method

A. Venture Architects has been selected as the Designer of Record. Miron Construction has been hired as the Construction Manager At Risk.

A SUBSTRUCTURE

A. This system includes all work below the lowest floor construction and the enclosing horizontal and vertical elements, together with the necessary mass excavation and backfill.

A10 Foundations

A1010 Standard Foundations

A. Continuous wall footings around the perimeter of the building and full foundations at exterior stoops.

A1030 Slab on Grade

A. Standard 5" slab on grade supported by fill with minimum 15 mil. heavy vapor barrier.

B SHELL

A. This system includes all structural slabs, and decks and supports above grade. Note that the structural work will include both horizontal items (slabs, decks, etc.) and vertical structural components (columns and interior structural walls). Exterior load bearing walls are not included in this system; see B2010, Exterior Walls.

B10 Superstructure

B1010 Floor Construction

A. Since the building is single-story slab on grade, the floor construction is indicated in A1030.

B1020 Roof Construction

A. The structural frame consists of sloping steel trusses, joists and deck, except over the Board Room, which is sloped beams and deck.

B20 Exterior Enclosure

B2010 Exterior Walls

A. The exterior enclosure will include a cementitious lap siding field with accent areas of stone veneer (to match the existing building).
B. The exterior wall back up construction will be steel studs.
C. The perimeter wall construction will consist of rigid polyisocyanurate foam throughout. The system will be based on the Dow Thermax wall system.
D. Prefinished extruded aluminum copings will be provided at the edges of the entire perimeter roof.

B2020 Exterior Windows

A. Fixed anodized aluminum storefront windows with thermal break and 1" high-shaded thermal, triple pane glazing, based on Wausau Windows InVent.

B2030 Exterior Doors

A. Anodized aluminum storefront doors with anodized aluminum frames (based on Special Lite SL-17) at public and staff entrances.
B. FRP panel doors with anodized aluminum frames at all other perimeter doors.
C. Exterior door hardware to be standard. Provide continuous hinges on high frequency exterior doors.
D. Hardware to conform to Sawyer County standards.
E. Where indicated, center mullions to be keyed removable.

B30 Roofing

B3010 Roof Coverings

A. White or gray fully adhered EPDM roof system on minimum of 6 inches of polyisocyanurate insulation. Insulation slopes at perimeter areas and drains.

C INTERIORS

C10 Interior Construction

C1010 Partitions

A. Fire Ratings: a 2-hour fire rating is required at separated areas indicated in the floor plans.
B. Fixed Partitions: 3-5/8" metal studs with 5/8" mold-resistant gypsum board throughout. Partitions to include batt insulation between studs. Gypsum board to extend to roof deck throughout.

C1020 Interior Doors

A. Standard interior door to be stained solid core flush doors (species to be determined) with hollow metal frames and standard hardware. Select doors may have narrow vision lite.
B. Some closed offices to have transoms in frames to allow for exterior daylight infiltration.

C1030 Specialties

A. Standard soap dispensers, toilet paper holders, paper towel dispensers and electric hand dryers, grab bars, mirrors and solid plastic toilet partitions and urinal screens.
B. Soap dispensers, toilet paper holders and paper towel dispensers to be Owner provided, Contractor installed.
C. Interior directional and per-room signage with interchangeable signage at offices.
D. Semi-recessed fire extinguisher cabinets throughout.
E. Solid plastic corner guards with aluminum mounting channels at all drywall outside corners.

C20 Stairs

C2010 Stair Construction

A. As a single-story building, stairs are not included.

C30 Interior Finishes

C3010 Wall Finishes

A. Gypsum Wallboard Finishes (GWB)
    1. 5/8" mold resistant GWB throughout.
    2. Level 4 finish.
    3. One coat primer and two coats paint throughout.
B. All other interior finishes are included in Appendix A (Interiors General Narrative)

E EQUIPMENT AND FURNISHINGS

E10 Equipment

E1090 Other Equipment
A. None.

E20 Furnishings

E2010 Fixed Furnishings
A. Manual roller shades in windows that are not clerestory; powered if clerestory.

Mechanical (HVAC) Basis of Design

M1. System Description

A. Building Automation System (BAS) shall be Automated Logic Direct Digital Control (DDC) to be integrated into County's current network. High quality thermostats +/- 2-degree accuracy will be used. Control of the thermostats will be through the BAS system and not at the individual thermostats.
B. Air Handlers will be designed based on custom equipment with service vestibule.
C. Boilers shall be designed based on Cleaver Brooks and Lochinvar heavy commercial high efficiency equipment.
D. There will be no humidification for the facility. Air conditioning equipment will dehumidify the facility.
E. Commissioning of all systems will be performed by third party prior to turning systems over to the County.
F. There will be no compressed air requirements for the HVAC Control System.
G. Roll up or double wide doors will be inside equipment room, to allow equipment access in and out.
H. Will look into Energy Recovery Unit as an option. Will implement system if payback is 7 years or less.

M2. Design Parameters

A. Building Envelope, Temperatures and Ventilation Rates
    1. Inside Winter Design Temperature: 70°F
    2. Inside Summer Design Temperature: 72°F in air-conditioned areas.
    3. Outside Design Temperatures in accordance with Wisconsin State Code
        a. Summer: 86°F DB, 75°F WB
        b. Winter: -25°F
    4. Outdoor Ventilation Rates based Wisconsin State Code; demand-controlled ventilation where dictated by code.
    5. Indoor Relative Humidity:
        a. Summer: 50% to 55% RH Design target
        b. Winter: Building is not humidified in winter.
    6. A sound NC level of 30 – 35 shall be maintained in occupied areas.
    7. U-Values
        a. Roof: 0.028 Btu/h*ft^2*F
        b. Exterior Walls: 0.051 Btu/h*ft^2*F
        c. Doors: 0.37 Btu/h*ft^2*F
        d. Windows: 0.29 Btu/h*ft^2*F, 0.45 SHGC
B. Piping
    1. Size piping for 300 to 400 mil in per foot, 2.5 to 3.5 ft. pressure drop per 100 linear feet.

2. All control valves to be sized at 3 psig maximum pressure drop, with CV rated at 1.5 or larger.
3. Ball valves shall be used on piping 2-1/2" and smaller. Gate valves shall be used on piping 3" and larger.
4. Isolation at each floor metal braid pump connector.
5. Hot water:
   a. 140°F supply
   b. 120°F return

C. Ductwork
1. Ductwork to be sized at 0.08" to 0.10" inch pressure drop per 100 feet.
2. Sensitive areas and areas with combustibles in the ceiling plenum to be ducted returns. Circulation areas to be plenum.

M3. Air Distribution Systems

A. The HVAC system will consist of one heavy commercial grade custom Roof Top Air Handling Unit double wall 3" insulation with a fan array style supply and return, with each fan array controlled via minimum two (2) variable frequency drives, face and bypass hot water heating coil and Direct Expansion Cooling along with MERV 8 & 13 filtration. Each fan in the fan array will be supplied with a backdraft damper to permit continued operation with the remaining operating fans in the event a fan goes down. AHU will be serviceable on roof through a service vestibule.

B. Air distribution will utilize Variable Air Volume air terminals with hot water reheat coils. Multiple rooms sharing the same thermostat and having the same exposure and occupancy type will be limited to maximum of 3 rooms - see drawing for zoning layout. Rooms with exterior exposure will utilize parallel fan-powered terminals for effective heating output and efficiency.

C. Zoning control will not utilize sensors used for lighting but will have their own dedicated monitored BAS Occupancy sensors. The control goes into unoccupied mode where the air supply terminal box will go full closed when personnel are not in the area. If the set down temperature in winter or the set-up temperature in summer is exceeded, the air terminal will go to minimum flow and maintain setpoint. When a person returns to area after a 3-minute time delay, the system returns to occupied mode. Areas will have sensor added by Mechanical Contractor. Note that rooms with exterior exposures with fan-powered VAV terminals can heat in winter when the VAV damper is closed to save energy.

D. Data rooms will be served by the main air handling system. Each room will have ductless mini-split type standalone backup system separate from the main air handling unit. The backup system will operate during nights, weekends, or any time the main air handling systems are not operational. The main air handling system will operate at a higher efficiency and lower cost during occupied times. Based on equipment heat load, it will be determined which is required: an air transfer fan or mechanical cooling. The back-up cooling system will be on emergency power.

E. Provide bi-directional slot air diffusers over exterior glass near locations where people will sit. Air is directed down along the glass when in heating mode, and automatically changes to be directed across the ceiling when cooling. This will eliminate the need for finned pipe radiation at wall.
F. Vestibules will have fan powered hot water terminals or cabinet unit heaters for heating.

M4. Heating Systems

A. Two (2) boilers, each sized to handle 100% of the building. Pumping interface will include a primary/secondary design with a dedicated primary pump for each boiler. Secondary pumping for building terminals and radiation (i.e. unit heaters, convectors, cabinet unit heaters) shall have two pumps in parallel for 100% redundancy and variable speed drives.
B. Hot water heating system will be high efficiency high mass condensing boilers providing approximately 96% efficiency (versus typical 80-85% efficiency). Design heating water temperatures will be designed to optimize boiler efficiency.
C. Pumps will be Bell & Gossett.
D. Water distribution systems shall have multiple shut off valves to allow for repair work without having to shut off or drain large sections of the building. Ball valves will be used on 3" and smaller piping, butterfly on 4" and larger. Facilities staff to confirm this.
E. Variable Frequency drives will match all drives used in County.

M5. Temperature Controls

A. Provide a complete system of direct digital controls. (See minimum point notes.)
B. Incorporate new building controls into existing control overlay operated by the County.
C. Workstation in boiler mechanical room.
D. Minimum System Points Listing

The following minimum points shall be incorporated into the DDC Control System as a minimum basis for each custom Air Handling Unit System:

1. Zone Temperature (Timed Override and Cancel)
2. Supply Air Temperature
3. Outdoor Air Temperature
4. Return Air Temperature
5. Outside Air Relative Humidity
6. Return Air Relative Humidity
7. Damper Position
8. Local Minimum Damper Position (OA)
9. Supply Air Temperature Setpoint Adjustment
10. Actual Power Exhaust Setpoint
11. Supply Fan Mode
12. Duck Smoke Detection Alarm
13. Supply Air CFM

14. Return Air CFM
15. Hot Water Valve Position (% open)
16. Chilled Water Valve Position (% open)

E. The following points shall be incorporated into the DDC System as a minimum basis for each Hot Water System:
   1. Supply Water Temperature
   2. Return Water Temperature
   3. Boiler Activation Sequence
   4. Pump Status
   5. Low Water Condition
   6. Boiler / Chiller Run Time
   7. Pump Flow Failure
   8. Boiler on/off status

F. The following points shall be incorporated into the DDC Control System as a minimum basis for exhaust fan (DDC controlled) Control:
   1. Fan Mode

G. The following points shall be incorporated into the DDC Control System as a minimum basis for the Energy Recovery Unit:
   1. Zone Temperature (Timed Override and Cancel)
   2. Supply Air Temperature
   3. Supply Air Temperature Setpoint Adjustment
   4. Exhaust Air Temperature
   5. Outside Air Temperature
   6. Supply Fan Mode
   7. Supply Air CFM
   8. Exhaust Air CFM
   9. Hot Water Valve Position (% open)
   10. Chilled Water Valve Position (% open)

H. The following points shall be incorporated into the DDC Control System as a minimum basis for VAV terminal units:
   1. Reheat Coil Valve (% open)
   2. Damper Position (% open)
   3. Room Setpoint
   4. Discharge Temperature (°F)
   5. Supply Air CFM
   6. Occupied / Unoccupied Mode

I. The following points shall be incorporated into the DDC control system for the Data / Server Rooms:
   1. Space Temperature
   2. Space High Temperature Alarm

J. The following points shall be incorporated into the DDC control system for the metering points:
   1. Gas Consumption
   2. MSB Electric Consumption
   3. MSB Peak Electric Demand

Electrical Systems, Telecommunications and Lighting Basis of Design

E1. Power Distribution

A. Power is anticipated to be provided by Elkhorn Electric Utility. Surge suppression equipment shall be installed at the service entrance equipment to help protect the building's electrical system.
B. Preliminary Electric Service size shall be 1600 Amps at 480Y/277V, 3 phase, 4 wire.
C. Emergency Electric Service, see Section E.5 Generator.
D. Aluminum conductors are acceptable for feeders larger than 100 AMPS.
E. M.C. Feeders and M.C. branch circuits are acceptable.
F. Multiple dry type transformers are recommended as they allow for flexibility throughout the floors. Satellite electric rooms will be needed to accommodate this equipment.
G. All IT rooms shall have emergency and UPS power, with surge protection devices provided with Power Panels.

E2. Fire Alarm System

A. An addressable Audible Fire Alarm System shall be installed per current NFPA 72 and 92 standards. The system shall include manual stations, strobes, speaker/strobes, smoke/heat detectors, and remote annunciator. Smoke duct detectors shall be provided at air handling systems where required.
B. Fire Alarm System shall monitor sprinkler flow/tamper switches, standby generator and any Fire Suppression Systems used in the building. System may be monitored by the Central Station. The Local Fire Chief/Inspector shall be contacted to determine operation and location requirements.
C. Plenum rated free-air cabling is permitted.

E3. Generator

A. An exterior standby generator shall provide emergency power for the following
    1. Life Safety Lighting
    2. Fire Alarm System
    3. Building Automation System
    4. Boiler system and associated heating equipment and fans
    5. Telecom Rooms, cooling and equipment
    6. Medical Refrigerators and Freezers
    7. Exterior Building Lighting
    8. Crisis Department
    9. Security systems, CCTV systems and Access Controls
    10. Water lab
B. The type of fuel shall be Natural Gas.
C. Bypass isolation is needed on transfer switches for maintenance and testing.
D. Manufacturer shall be Generac, Kohler, and Cummings.

E. A cam-lock style Termination Cabinet will be provided that can accommodate a connection to a portable generator and accommodate load bank testing of the permanent generator.

E4. Uninterruptible Power Supply (UPS)

A. Some equipment must remain on at all times. Uninterruptible power can be provided individually using small local UPS's at each piece of highly critical equipment. If the amount of UPS power needed is large, using several small UPS units can become inefficient. At some point, a large centralized UPS power and distribution system becomes more practical. Loads that will require a UPS System and backed up by the emergency power system are the IT System and Owner's Telephone System.

E5. Wireless Clock System

A. A wireless system shall be considered by the owner. This system would receive time information from the National GPS for accurate display of local time.

B. Acceptable manufacturer: Primex. A pre-bid assessment may be may be required to evaluate the appropriate number of antennae required for proper coverage.

E6. Public Address System

A. A Public Address System shall be provided. System would provide building wide announcements via ceiling and wall mounted (where needed) speakers. Exterior speakers shall be used outdoors. System would enable announcements to be made using selected desk phones.

E7. Miscellaneous

A. "White Noise Generator" System shall be provided.

B. Battery faucets and flush valves shall be provided.

C. Labeling of wiring devices shall occur at the front of the cover plates.

D. Underground conduit and junction boxes shall be provided for Car chargers at Sheriff are parking area.

E. A Weather Proof GFI Receptacle shall be provided adjacent to the Gas Meter.

F. Electric Hand Dryers shall be provided in Public Restrooms. *Add Electric Hand Dryer (No Heat) (i.e. Excel Dryer XLERATOReco XL-BW-ECO Hand Dryer, No Heat, White Thermoset Resin (BMC) Cover, Automatic Sensor, Surface Mounted, LEED Credits, GreenSpec Listed, Commercial Hand Dryer, 500 Watts.*

E8. Security System

A. A multi-function Security System shall be by GlobalCom including card access and CCTV. Raceways and Power Requirements shall be provided by the Electrical Contractor.

B. Duress Alarm
   1. The Duress System shall be provided by Owner. Power requirements shall be provided per owner's direction.

E9. Voice / Data Cabling System

A. Voice and Data Cabling, outlets and termination shall be provided as directed by the Client's IT Department. Switches, routers, servers, hubs, and associated programming shall be by the Client. Clients IT specifications shall be incorporated the Bid Documents

B. Cabling Infrastructure
   1. Horizontal Cabling
      a. Offices / Conference rooms: Each room has four (4) data drops, two (2) locations with two (2) cables.
      b. Cubicles: Allocate (2) data drops per cubicle, this allows for additional devices to be added without add addition cabling
      c. The system will allow for printer/copiers to be installed in various areas using the structured cabling systems
      d. Cabling for Wireless Access Points.
      e. Cable shall be Category 6 cable as defined by TIA/EIA-568-B.2-1 and the cable will be construct using a cross type separator (or spline) for pair separation

C. For each of the above the contractor shall provide a second patch cord for the MDF/IDF where the end of the cable is terminated. The length of the cable will vary based on the location of the owner equipment and where the patch field the cable is located.
   1. MDF (Main Distribution Frame) / IDF (Intermediate Distribution Frame). A dedicated IDF shall be provided for the Auditorium.
   2. Will contain two post relay racks, with eight (8) inch vertical cable management on both side. These racks shall be used for field terminations. Racks furnished by Owner installed and by Contractor
   3. MDF: Between the relay racks will be a four (4) post rack, minimum depth of 42 inches, the rack shall have vertical cable management in all four corners. This rack will be used for owner provide switches and servers.
   4. Standard 2U flat 48 port patch panels (base bid CAT 6, alt bid CAT 6A) shall be provided. This will need to be reevaluated prior to purchasing for current industry standards, as the building project is approximately two year in the future.
   5. Horizontal cable management shall be 2U and of the finger type with covers. Cable management shall be provided above the top patch panel, below the bottom patch panel and between each of the patch panels. In addition, the contractor shall provide ten (10) cable management units for each of the center racks.
   6. Cable tray will be used overhead to distribute copper cable between the racks; waterfalls shall be used to transition from the cable tray to racks.
   7. Fiber shall be run in inner duct and shall be used secured to the cable tray.

8. A ground mounted Hand Hole shall be provided with conduits into the MDF for Fiber and Copper Cable service to the HHS from the new adjacent Detention Center MDF.
9. Data outlets shall have 4" square junction boxes with Mud Ring and 1" conduits to an accessible location above the ceiling minimum or as required to accommodate cabling.
10. Empty conduit shall be provided from the second floor IDF to the roof for communication cables.
11. Spare junction boxes for future Data outlets and receptacles shall be provided in selected areas throughout the building.

Telecommunications
Design Concept Narrative

T1. General

A. Provide/Install new telecommunications conduits and pathways for Cat.6 wiring for all new network outlets/devices. Wireless access points to be wired with Cat.6A wiring.
B. Provide/Install copper and fiber backbone from existing Main Equipment Room (MER) to (1) new Telecommunications Room (TR). New cabling may be installed back to other existing TR's.
C. All network appliances will be provided and installed by Owner. Examples: Routers, Switches, Phones, Computers, Wireless Access Points, TV's, Monitors, Projectors, Room Schedulers, etc.

T2. Duress

A. Provide/Install new duress button devices and associated wiring back to existing duress system.
B. Duress buttons will be defined by part number to match existing.
C. Owner security company (not part of this contract) to tie in/program new duress buttons into the existing system.
D. If allowed, we could reference the security contractor in the bid documents to have their portion of the work included in the overall project.

T3. Paging

A. Provide/Install new paging speakers that tie into the existing building paging system. New amplification may be required.
B. Paging speakers may be ceiling and wall mounted where required.
C. System is based on 70 volt unless otherwise noted.
D. Based on design requirements we may be able to have the paging system be incorporated into the fire alarm system. Additional information with be required to make this determination.

T4. Video Surveillance

A. Provide/Install new telecommunications conduits and pathways for Cat.6 wiring for all new cameras required.
B. Owner's security company (not part of this contract) to provide/install all security cameras and mounting hardware for a working system.
C. Owner's security company (not part of this contract) to tie the new cameras to the existing working networked system. This includes all software and hardware recording requirements.
D. If allowed, we could reference the security contractor in the bid documents to have their portion of the work included in the overall project.
E. All switch ports (POE) to be provided and installed by Owner.

T5. Access Control

A. Provide/Install new telecommunications conduits and pathways for Cat.6 and/or multi-conductor cabling for all new access-controlled doors.

B. Division 08 (Door Hardware) to provide/install all electrified latches.

C. Provide/Install all conduits and pathways for all new Access Control devices. Devices: Door Strike, Card Readers, Door Status Switch, Request To Exit.

D. Owner security company (not part of this contract) to provide/install all devices listed above in item 19.

E. Owner security company (not part of this contract) to tie the new doors into the existing working networked system. This includes all software and hardware requirements.

F. If allowed, we could reference the security contractor in the bid documents to have their portion of the work included in the overall project.

Lighting
Design Concept Narrative

L1. General

A. The lighting layout shall comply with the latest version of the Energy Code as adopted by Wisconsin; ASHRAE 90.1-2013 | IECC 2015.

B. Lighting levels (measured in footcandles) shall be derived from the recommendations set by the Illuminating Engineering Society of North America (IESNA).

C. Exterior lighting shall comply with local municipal zoning ordinances for source type, Kelvin color temperature, light levels, glare/spill light control, mounting heights, etc.

D. In general, LED fixtures shall be utilized. These fixtures shall be of modular design, come standard with DCC dimming drivers, and follow IESNA LM-79 and LM-80 requirements. Incandescent, halogen, compact fluorescent, linear fluorescent and HID sources shall not be utilized.

E. Light fixtures shall be specification grade or better. All fixtures shall be UL/ETL listed, and be complete with light modules, drivers, mounting hardware, accessories, etc. for a complete operating system per code and manufacturer's recommendations.

F. Lighting shall be controlled via line voltage dimming switches with occupancy sensor override. Sensors shall be dual technology type with adjustable settings for time delay and sensitivity. Ceiling mounted occupancy sensors shall be supplied with an auxiliary set of contacts for HVAC load control as required.

G. Control for all exterior lighting shall be via a timeclock system for time of day controls with keyed low voltage override switches. This includes all building mounted lighting and all site/roadway lighting.

H. Dimming controls, down to a minimum of 1%, shall be provided where appropriate and/or where required by code.

I. Provide single and double-faced LED exit signs along the path of egress as defined by the Architect, and to comply with the egress code. Signs in public spaces shall be edge-lit type; signs in back of house staff areas shall be thermoplastic type.

J. Life Safety egress lighting shall be provided along the path of egress as defined by the Architect using normal fixtures wired to the generator for emergency backup power to achieve an average of not less than 1.0 footcandles, a minimum of not less than 0.1 footcandles, and a max:min ratio of 40:1 or better. Lighting located outside exterior doors shall be wired to the generator for exit discharge illumination, complete with redundancy (multiple fixtures, sources, drivers) as required by code.

K. Decorative fixtures (pendants, sconces, etc.) shall be considered where appropriate.

L. Interior accent lighting via LED adjustable recessed downlights, track lighting, and/or linear wall graze/wash fixtures shall be utilized for display walls, feature areas, signage, etc. Quantities and locations to be determined.

M. Exterior accent lighting via LED ground and/or building mounted flood and spotlights shall be utilized to highlight unique materials, feature areas, signage, etc. Quantities and locations to be determined.

N. LED undercabinet lighting shall be provided as required/desired by owner.

O. Type “RA” LED Recessed Downlights and/or Type “LA” Linear Recessed Fixtures shall be considered in courtrooms for general ambient illumination. Decorative fixtures and/or accent lighting shall also be considered where appropriate.

P. Type “BC/AC” 2x2/2x4 Architectural LED Troffers Fixtures shall be considered for office and staff spaces.

Q. Type “BB/AB” 2x2/2x4 Edge-Lit LED Panel Troffers shall be considered for storage rooms, electrical/mechanical rooms, and other similar type back-of-house spaces with lay-in-grid ceilings. Type “FA” LED Striplights and/or Wraparounds shall be considered for those same space types if gyp ceilings or exposed structure occurs.

R. Type “RA” LED Downlights (Recessed or Cylindrical) shall be considered for lobbies. Decorative fixtures and accent lighting shall also be considered.

S. Type “RA” LED Downlights or Type “BC” 2x2 LED Troffers shall be considered in corridors with decorative fixtures and/or marker lights calling out entrances to the courtrooms and other major spaces.

T. At each stair landing, a Type “WS” ceiling or wall mounted LED linear fixture shall be considered. Fixtures shall be provided with integral occupancy sensors and step-dimming controls.

U. 24-hour nightlights shall be provided as required/desired.

V. Lighting circuits shall be served at 120 volts.

W. Refer to attached packet of lighting fixture images/cut sheets. Note that fixtures provided are subject to change as the design of this project develops/progresses.

Plumbing Basis of Design

P1. General

A. The Plumbing Systems shall comply with the requirements of Wisconsin Administrative Code Chapters SPS 382-387 regarding materials and installation.

P2. Interior Plumbing

A. Water Distribution

1. The existing Courts Building and Jail Building will be connected together by a common building addition.
2. It is proposed that the water distribution for the new building addition be connected to the existing Courts Building water service at the meter location. This solution will avoid routing piping through the existing jail to avoid disruption of existing operations.
3. Sections of existing galvanized piping at the meter will be replaced at the new connection point.
4. Water is pre-softened by the water utility; therefore, water softener should not be required.
5. Water pressure is approximately 65 psi; therefore, booster pumps should not be required.
6. The new water distribution system will be routed above ceilings extended to new plumbing fixtures. Obsolete piping located below existing slabs will be drained, capped, and abandoned in place.
7. The Water Distribution System shall be a three-pipe configuration: hot water, hot water return, and cold water systems.
8. Hot Water Distribution will be supplied from a central sealed combustion gas fired water heater, with a distribution system designed with circulated zones where required, to maintain proper code compliant twenty-five foot maximum runs.
   a. The water heater will be located within the new Boiler Room. Venting will be through the roof.
9. Hot water to sensor faucets shall be tempered at the point of use with mixing valves and individual supply checks on each supply to the mixing valves.
10. All water distribution pipe and fittings shall be insulated with fiberglass insulation and labeled.
11. Shut off valves shall be two-piece full port valves for 2-1/2" and smaller piping. Valves 3" and larger shall be gate valve type. All valves shall be tagged and numbered. Each group of fixtures shall have isolation valves.
12. Exterior wall hydrants shall be provided at each new building elevation as coordinated with landscaping.
13. Cold water hose bibbs shall be provided in all Mechanical / Boiler Rooms.

B. Sanitary Drainage

1. A new 4" lateral shall be extended to municipal sewer in the street.
2. Sanitary drainage shall be extended to all fixtures.
3. Floor drains shall be provided in Toilet Rooms and Mechanical / Boiler Rooms.

C. Storm Drainage
1. Roof conductors shall be routed from new roof drains to the building storm sewer connecting to site provided lateral(s). Back water valves shall be provided at each clearwater water connection receiving HVAC condensate waste, with ample room to access to check valves for servicing. Horizontal roof conductors shall be insulated with fiberglass insulation.

D. Plumbing Fixtures
1. Stainless steel sinks shall be provided at Kitchenette and Break Rooms.
2. Lavatory faucet types and locations:
   a. Sensor Operation throughout
      - Hard wired with plug-in outlet style adapters.
   b. Courtroom holding areas: Stainless steel penal fixtures, with electronic valves. Valve operation to be controlled with a wall switch outside of Holding Room.
3. Flush valve types and locations:
   a. Sensor Operation throughout, except holding areas.
      - Sensor type - hardwire
   b. Courtroom holding areas: Stainless steel penal style fixtures with electronic control. Flush valve operation to be controlled with a wall switch outside of Holding Room.
4. Wall hung washdown urinals.
5. Floor mounted water closets.
6. Lavatories shall be integral, with solid surface counters or wall hung china, as directed by Owner / Architect.
7. Electric water coolers with bottle fill and water filters shall be located per architectural plans.

P3. Plumbing Specialties

A. Floor Drains
1. Manufacturers: Josam, Smith, Wade, Zurn, Sioux Chief or preapproved equal by Owners and Engineer.
2. Finished Spaces: Nickel bronze strainer, Public bathrooms with tile - provide square strainers.
3. Mechanical / Boiler Rooms: cast iron or ductile iron grate

B. Cleanouts
1. Manufacturers: Josam, Smith, Wade, Zurn, Sioux Chief, or preapproved equal by Owners and Engineer.
2. Finished Spaces: Nickel bronze cover
3. Mechanical / Boiler Rooms: Cast iron or ductile iron cover

C. Wall Hydrants
1. Manufacturers: Woodford or preapproved equal by Owners and Engineer.
2. Freeze Proof automatic draining with backflow preventer outlet

D. Hose Bibbs
   1. Manufacturers: Chicago Faucet, Plumbing Creations Incorporated, Woodford, Zurn, or preapproved equal by Owners and Engineer.
   2. Bronze construction with backflow preventer outlet

E. Roof Drains
   1. Manufacturer: Josam, Smith, Wade, Zurn, Sioux Chief, or preapproved equal by Owners and Engineer.
   2. Adjustable, cast iron body sump receiver with cast iron dome, under deck clamp.

P4. Valves

A. Ball Valves (2-1/2" and smaller)
   1. Manufacturers: Nibco, Apollo, Hammond, or preapproved equal by Owners and Engineer.
   2. Three piece, full port, bronze body

B. Gate Valves (3" and larger)
   1. Manufacturer: Nibco, Apollo, Hammond or preapproved equal by Owners and engineer.
   2. Cast iron body, stainless steel shaft, EPDM resilient seal, EPDM seals, bronze disc., lug type

C. Balance Valves (Hot Water Return)
   1. Manufacturer: Bell & Gossett Circuit setter type

D. Check Valves
   1. Manufacturers: Nibco, Apollo, Hammond, Zurn or preapproved equal by Owners and engineer.
   2. Spring loaded for domestic water supply systems only and swing type, bronze body, Y pattern, threaded ends

P5. Water Distribution Piping

A. Type "L" copper tubing, solder joints.

P6. Sanitary, Storm and Clear Water Drainage Piping

A. Storm, clear water and sanitary above ground shall be cast iron in plenum spaces and Schedule 40 PVC elsewhere. Storm below grade, clear water below grade, clear water vent system, and sanitary vent system shall be Schedule 40 PVC.

P7. Plumbing Equipment

A. Water Heaters
   1. Manufacturers: AO Smith Cyclone type, high efficiency, sealed combustion gas

B. Circulating Pumps
   1. Manufacturers: Bell & Gossett, Grundfos
   2. System self-lubricated type, bronze construction.

P8. Plumbing Fixtures

A. Manufacturers

- Vitreous china type wall hung water Closets, Urinals: Kohler, American Standard
- Lavatories: Vitreous china wall hung or solid surface integral with countertop, as directed.
- Water Closet Seats: Bemis, Beneke, Olsonite
- Manual Faucets: Chicago Faucet or preapproved equal by Owners and Engineer.
- Sensor Faucets: Sloan, Chicago Faucet
- Drains: Chicago Faucet, McGuire (heavy duty type only)
- Sensor Flush Valves: Sloan, Zurn
- Traps: McGuire, Dearborn, Engineered Brass Company (17 gauge min.)
- Carriers & Supports: Josam, Smith, Wade, Watts Drainage, Zurn
- Stainless Steel Sinks: Elkay, Just
- Mop Basins: Fiat, Mustee, Kohler, American Standard, or preapproved equal by Owners and Engineer.
- Electric Water Coolers: Elkay, Haws, Acorn
- Supplies & Stops: Chicago Faucet, McGuire – heavy duty type
- Stainless Steel Penal Fixtures: Acorn, Willoughby

P9. Plumbing Sustainability

A. Water Efficiency (WE)

- Water Use Reduction
- Water Closet (low flow) 1.6 GPF
- Urinal (low flow) 0.5 GPF
- Sink (low flow aerators) 1.5 gpm

Fire Protection System
Design Concept Narrative

FP1. General

A. All systems shall be designed and installed in accordance with applicable NFPA requirements, Authorities having Jurisdiction, the Owner's Insurance Carrier, and state and local Codes.

B. Extend new fire protection from existing riser room in jail to provide at a minimum coverage to new holding cells within courtrooms.

FP2. Clean Agent Fire Suppression within Critical IT Areas

A. FM200 per NFPA 2001.

Civil Basis of Design

C1. General

A. The Civil Engineering design concepts will comply with the requirements of the Wisconsin Department of Safety and Professional Services (DSPS), Standard Specifications for Sewer and Water Construction in Wisconsin, Municipal Codes, and Ordinances regarding materials and installations.

B. Utility information below is based off of the survey provided by REI Engineering, Inc.

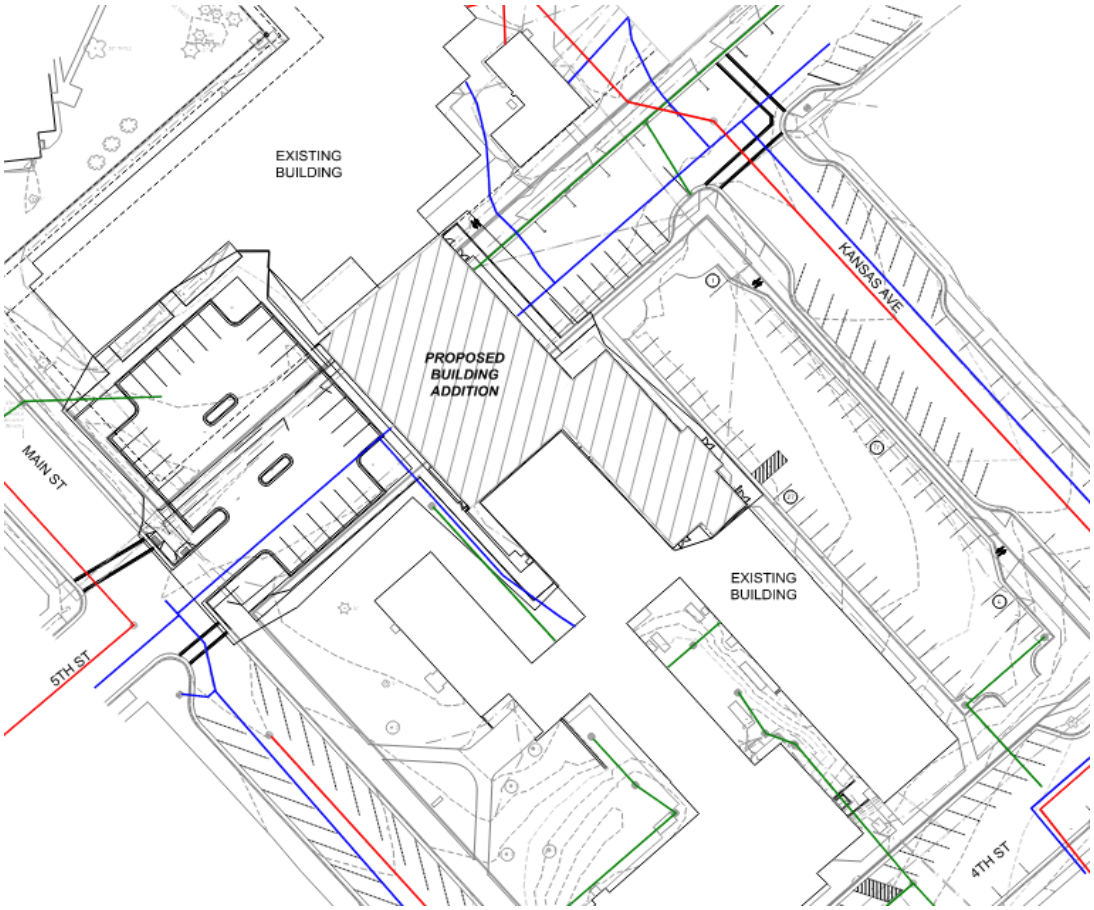
C2. Utilities (see Overall Site Utility Exhibit for Reference below)

A. Water Services
   1. No new water service is planned at this time. See plumbing section for more information.

B. Sanitary Sewer
   1. A new sanitary sewer lateral shall be extended to the proposed building addition to the northeast on East 5th Street, as coordinated with the Plumbing design.
   2. There is an existing 8" sanitary sewer line to the northeast of the proposed building location. This sewer appears to be taking the flow from the jail currently. The additional capacity in that line would need to be evaluated further to ensure there is capacity for the new Courthouse flow.

C. Storm Sewer
   1. There is an existing storm sewer system on East 5th Street that runs towards the northeast. The proposed building addition will need to have a storm sewer connection to that existing system for the roof drain.
   2. The rest of the area drains on grade along the curb and gutter on East 5th Street to the west and south to an existing storm sewer system.
   3. Storm sewer will be needed for the new parking lot west of the proposed building addition and tie into the existing system on Main Street.
   4. It is recommended the existing storm sewer lines in the area be televised prior to design in order to determine if there are any obstructions or deficiencies.

D. Telephone / Gas / Electric Utilities
   1. Existing gas and electric utilities are located in East 5th Street.
   2. See Mechanical / Electrical narratives for further description and location of these proposed utilities.



C3. Grading and Drainage

A. Grading

1. Preliminary estimates show a site disturbance area just under 1 acre. However, as the project design moves forward, additional information could push that disturbance over 1 acre, in which a Notice of Intent would be required along with stormwater management.
2. Erosion control will be required onsite (silt filter fence, ditch checks, topsoil pipe stabilization, inlet protection, as well as potential dewatering / sedimentation basins, if required).
3. The proposed construction area is relatively level and large elevation changes are not anticipated.

B. Stormwater Management (Quantity and Quality Control)
   1. Preliminary estimates show minimal additional impervious area being added from what is currently on site.
   2. The majority of the existing site splits midway down East 5th Street and drains either southwest or northeast. The rest of the site drains south via curb and gutter
   3. If stormwater management is needed, possible location could be the southeast corner of Main Street and 5th Street. The site stormwater system will be designed with the Sawyer County design requirements as they relate to water quantity.
   4. As the site relates to water quality, the majority would be viewed as redevelopment which will require water quality modeling and stormwater management design features that accomplish a 40% reduction in Total Suspended Solids (TSS) for new driveways and parking lots.

C4. Site Layout

A. Protection from vehicles for the new building addition will need to be incorporated into the design on the east face of the building via bollards or natural features.

B. Existing driveway and parking areas will be maintained as much as possible with the proposed building design.

Landscape Architecture Basis of Design

LA1. General

A. The overall site, civil & landscape architectural design processes will be collaborative between Venture Architects, Harwood Engineering & Sawyer County staff.

B. The site & landscape architectural design will be based on existing & proposed site conditions shown in the Civil drawings. Building floor plans will be referenced for footprints. Electrical power, circuiting & lighting content will also be referenced. Limited structural, mechanical & plumbing coordination will be needed.

C. Landscape architecture includes full-service design including conceptual design, municipal submittals, construction documents, bid assistance and typical construction administration.

LA2. Site Design

A. Parking & access: Southwest parking lot and East 5th Street to be redesigned to improve circulation and access. Northeast parking lot entries to be redesigned for improved circulation and way finding. Islands are to be added at both entries along with additional sections of curb to provide proper stall and aisle spacing. The Northeast lot also to be seal coated and restriped to allow for all parking stalls to meet typical dimensions. A concrete entry plaza will also be added to the northeast parking lot to create a formal entry to the new building addition. Stalls on East 5th Street are to be restriped.

B. Pedestrian traffic management: Overall site / landscape design needs to guide employees around the site. A sidewalk and landscape area is to be added along the north side of the building addition to create a connection point from the jail to the main courthouse entry and parking lot. Additional sidewalks to be added to the southwest parking lot to provide circulation and connections to public walks.

C. Existing vegetation: Landscape Architect will inventory and analyze the existing vegetation to determine what can remain and/or be reused.

LA3. Planting Design

A. Review all municipal requirements and guidelines for landscape plan approval.

B. Landscape plan will include planting design for the proposed building addition and parking lots. Planting design will take into consideration the existing design theme for the entire site and also maintenance preferences of the county.

C. Building foundations: Plantings (Shrubs & Perennials) to be proposed along the new foundations to soften the transition from building to ground surface and add interest to the building addition. The foundation plantings will also create a new separation/buffer from where East 5th Street has been vacated. Decorative stone is proposed along the foundation adjacent to the new entry to match the existing condition south of the new entry.

D. Parking lot islands: Plantings (Trees & Shrubs) to be proposed in the new parking lot islands to soften the expanses of pavement and reduce the heat island effect.

Appendix A
Interiors General Narrative

Interiors General Narrative

Building Security

Floor:	Large format porcelain tile, pattern
Base:	6"High porcelain tile
Wainscot:	Large format porcelain sheets & wood chairrail
Walls:	Fabric Wallcovering
Ceiling:	2' x 4' Ultima acoustical ceiling tile

Public Vestibule

Floor:	Walk off carpet tile at vestibule entry
Base:	6" High porcelain tile
Walls:	Large format porcelain tile, painted gyp board
Ceiling:	2' x 4' Ultima acoustical ceiling tile

Public Corridors

Floor:	Large format porcelain tile, pattern
Base:	6"High porcelain tile
Wainscot:	Large format porcelain sheets & wood chairrail
Walls:	Fabric Wallcovering
Ceiling:	2' x 4' Ultima acoustical ceiling tile

Public Restroom

Floor:	Large format porcelain tile 12" x 24"
Base:	Porcelain tile 6"
Walls:	Porcelain tile on all walls, 12" x 24"
Ceiling:	2' x 4' Ultima acoustical ceiling tile
Millwork:	Solid surface top, integral solid surface sink
Toilet Partitions:	Ceiling hung solid plastic, Hiny Hiders

Courtroom

Floor:	Carpet tile
Base:	6" Johnsonite Millwork Base
Walls:	Wood wainscot, acoustic wall panels, painted gyp board & stone wall @ judge's bench for feature wall
Ceiling:	2' x 2' Ultima high NRC acoustical ceiling tile with gyp board soffits, wood beams
Millwork:	Wood cabinetry with solid surface counters
Furniture:	Solid wood benches at gallery, tables/chairs/podium/task seating

Judges Chambers

Floor:	Carpet tile
Base:	6" Johnsonite Millwork Base
Wainscot:	Fabric wallcovering & wood chairrail
Walls:	Painted gyp board
Ceiling:	2' x 4' Ultima acoustical ceiling tile
Furniture:	High level modular,
Window treatments:	Manual Mechoshades

Judges Closet

Floor:	Carpet tile
Base:	4” vinyl base
Walls:	Painted gyp board
Ceiling:	2’ x 4’ Ultima acoustical ceiling tile
Furniture:	High level modular furniture

Judge’s Restroom

Floor:	Large format porcelain tile, 12” x 24”
Base:	6” Porcelain tile
Walls:	Porcelain on wet walls, painted gyp board on remaining
Ceiling:	2’ x 4’ Ultima acoustical ceiling tile
Millwork:	Solid surface top, integral solid surface sink

Office

Floor:	Carpet tile
Base:	4” vinyl base
Walls:	Painted gyp board
Ceiling:	2’ x 4’ Ultima acoustical ceiling tile
Millwork:	Plastic laminate cabinetry with solid surface countertops
Furniture:	Modular workstations

July Deliberation Room

Floor:	Carpet tile
Base:	4” vinyl base
Wainscot:	Fabric wallcovering and wood chairrail
Walls:	Painted gyp board
Ceiling:	2’ x 2’ Ultima high NRC acoustical ceiling tile
Millwork:	Plastic laminate cabinetry with solid surface countertops
Furniture:	Conference room tables and chairs

Jury Deliberation Toilets

Floor:	Large format porcelain tile, 12” x 24”
Base:	6” Porcelain tile
Walls:	Porcelain on wet walls, painted gyp board on remaining
Ceiling:	2’ x 4’ Ultima acoustical ceiling tile
Millwork:	Solid surface top, integral solid surface sink

Staff Corridors

Floor:	Large format porcelain tile, 12” x 24”
Base:	6” porcelain tile base
Walls:	painted gyp board
Ceiling:	2’ x 4’ Ultima acoustical ceiling tile

County Boardroom

Floor:	Carpet tile
Base:	4" Johnsonite millwork base
Wainscot:	Wood wall panel & chairrail
Walls:	Fabric wall covering
Ceiling:	2' x 2' Ultima acoustical ceiling tile
Millwork:	Wood cabinetry with solid surface counters
Window treatment:	Manual Mechoshades

Attorney / Client Conference Rooms/Media Room/Victim Witness

Floor:	Carpet tile
Base:	4" vinyl base
Walls:	Painted gyp board w/ wood chair rail
Ceiling:	2' x 4' Ultima acoustical ceiling tile (Ultima High NRC in Media Room)
Millwork:	Plastic laminate cabinetry with solid surface countertops
Furniture:	Conference room tables and chairs

Staff Toilet Room

Floor:	Large format porcelain tile
Base:	Porcelain tile
Walls:	Porcelain tile (12" x 24") @ wet walls, paint at remaining walls
Ceiling:	2' x 4' Ultima acoustical ceiling tile
Millwork:	Solid surface top, integral solid surface sink

Holding Room

Floor:	Sealed concrete
Base:	Epoxy paint
Walls:	Epoxy painted
Ceiling:	2' x 2' security ceiling
Furniture:	Stainless steel holding bench

Inmate Corridor

Floor:	Sealed concrete
Base:	Epoxy paint
Walls:	Epoxy painted
Ceiling:	2' x 2' Security ceiling

Kitchenette

Floor:	Luxury vinyl tile
Base:	4" vinyl base
Walls:	Painted gyp board
Ceiling:	2' x 4' Ultima acoustical ceiling tile
Millwork:	Plastic laminate cabinetry with solid surface countertops

Janitor Closet

Floor:	Sealed Concrete
Base:	4” vinyl base
Walls:	Wall protection @ slop sink, paint at remaining walls
Ceiling:	None
Furniture:	Industrial shelving

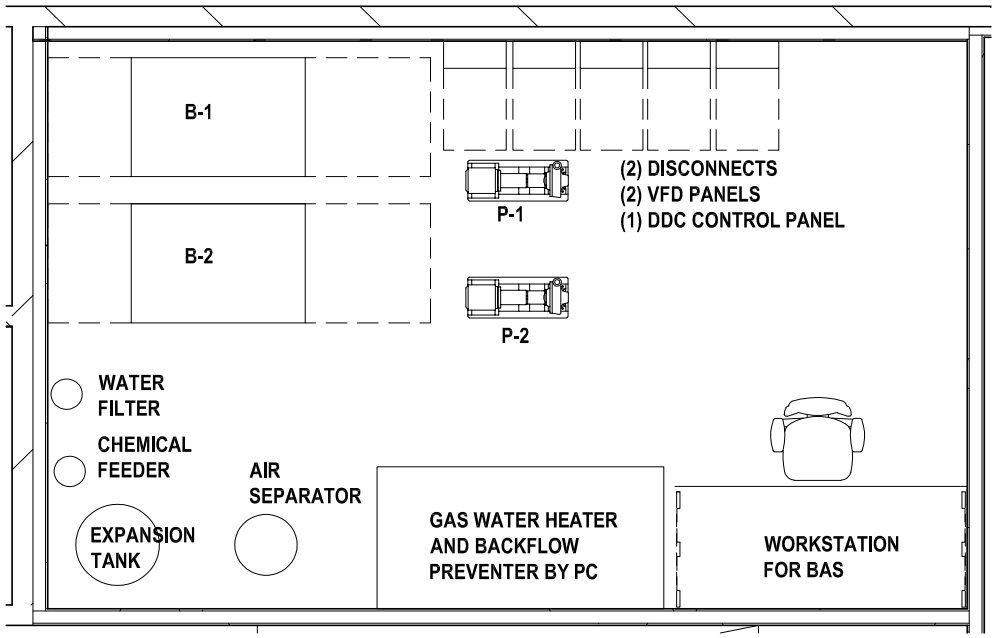
Electrical/Mechanical

Floor:	Sealed Concrete
Base:	4” vinyl base
Walls:	Paint
Ceiling:	None

Conference Room

Floor:	Carpet tile
Base:	4” vinyl base
Walls:	Painted gyp board w/ chair rail
Ceiling:	2’ x 4’ Ultima acoustical ceiling tile
Millwork:	Plastic laminate cabinetry with solid surface countertops
Furniture:	Conference room tables and chairs

Appendix B
Mechanical Cut Sheets



MECHANICAL ROOM LAYOUT

SCALE: 1/4" = 1'

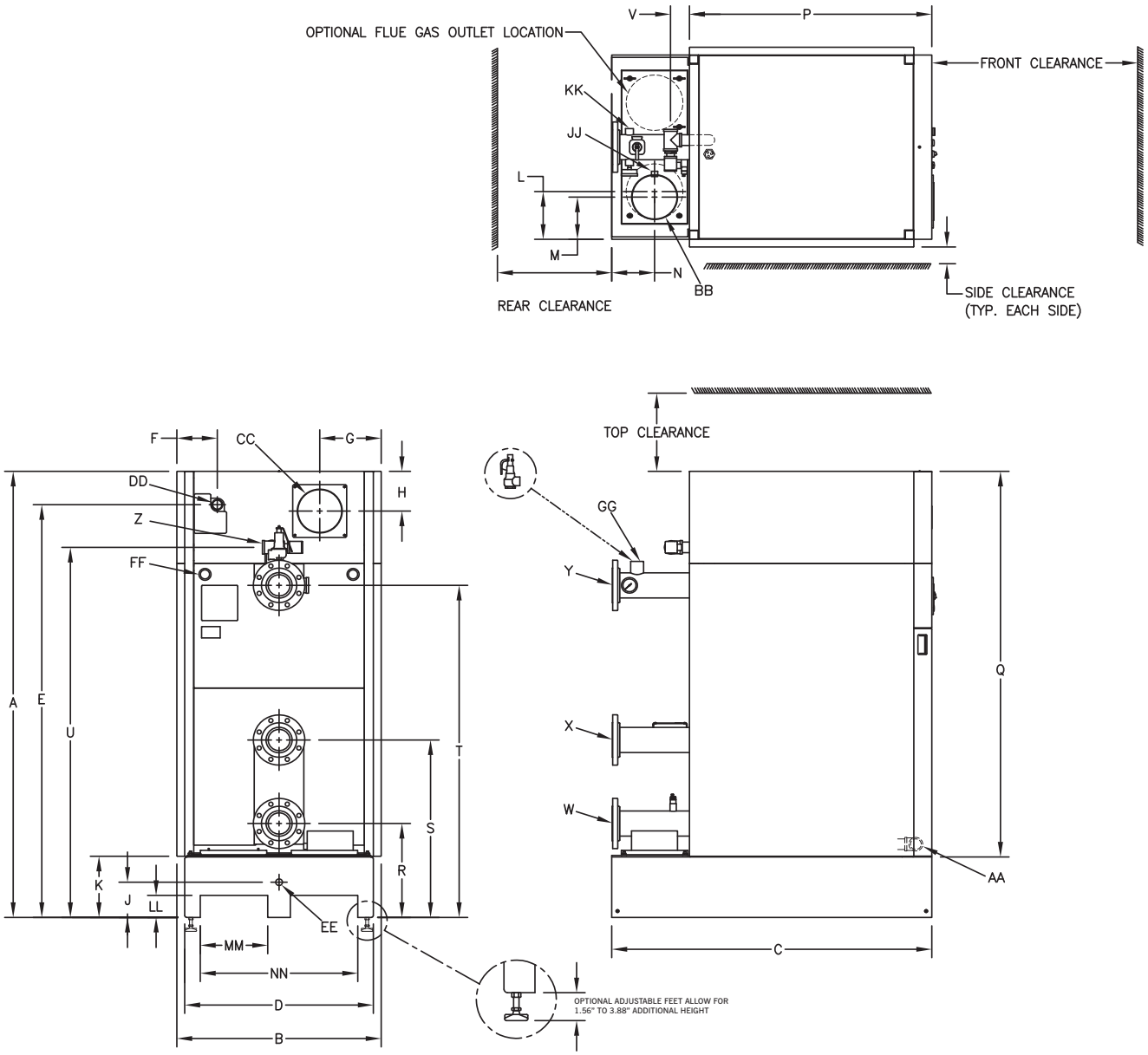
MODEL CFC-E BOILERS

500-6000 MBTU



Dimensions and Ratings

Dimension Diagram CFC-E



Dimensions Model CFC-E

ITEM	DIMENSIONS (inches)	500	750	1000	1500	2000	2500	3000	3500	4000	5000	6000
A	Overall Height	78.0	78.0	78.0	79.9	79.9	95.2	95.2	91.2	91.2	93.6	93.6
B	Overall Width	34.9	34.9	34.9	35.8	35.8	35.7	35.7	48.4	48.4	58.7	58.7
C	Overall Depth	49.4	49.4	49.4	56	56	56	56	68.4	68.4	80.6	80.6
D	Width Less Casing	32.1	32.1	32.1	33.0	33.0	33.0	33.0	45.7	45.7	55.9	55.9
E	Gas Connection to Floor	70.3	70.3	70.3	73.9	73.8	85.3	85.3	77.7	77.7	79.5	79.5
F	Side of Casing to Gas Connection	3.7	3.7	3.7	7.1	7.1	3.8	3.8	4.9	4.9	4.6	4.6
G	Side of Casing to Air Inlet	10.8	10.8	10.8	10.8	14.8	11.0	11.0	11.0	11.0	12.0	12.0
H	Top of Casing to Air Inlet	7.7	7.7	7.7	7.1	7.4	9.9	9.9	9.0	9.0	9.9	9.9
J	Floor to Condensate Drain	6.3	6.3	6.3	6.3	6.3	6.3	6.3	5.7	5.7	5.7	5.7
K	Floor to Bottom of Casing	11.0	11.0	11.0	11.0	11.0	11.4	11.4	11.4	11.4	12.0	12.0
L	Side of Base to Flue Outlet (Centered)	7.4	7.4	7.4	8.5	8.5	7.8	7.8	8.8	8.8	10.0	10.0
M	Side of Base to Flue Outlet (Offset)	6.4	6.4	6.4	7.5	7.5	N/A	N/A	N/A	N/A	N/A	N/A
N	Rear of Base to Flue Outlet	6.5	6.5	6.5	7.5	7.5	7.5	7.5	8.8	8.8	9.8	9.8
P	Casing Depth	36.3	36.3	36.3	42.4	42.4	42.4	42.4	52.5	52.5	62.1	62.1
Q	Casing Height	67.0	67.0	67.0	68.9	68.9	83.8	83.8	79.8	79.8	81.6	81.6
R	Floor to Lower Return Connection	16.8	16.8	16.8	16.8	16.8	16.9	16.9	16.8	16.8	18.5	18.5
S	Floor to Upper Return Connection	31.8	31.8	31.8	31.8	31.8	31.9	31.9	32.6	32.6	32.3	32.3
T	Floor to Supply Connection	59.5	59.5	59.5	59.5	59.5	70.4	70.4	62.3	62.3	63.3	63.3
U	Floor to Air vent Connection	66.3	66.3	66.3	66.3	66.3	76.9	76.9	70.3	70.3	71.9	71.9
V	Air Vent Line Projection from Rear of Casing	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.2	3.2	2.8	2.8
CONNECTIONS												
W	Water Low Temp. Return, Class150 RF Flange	2-1/2"	2-1/2"	2-1/2"	4"	4"	4"	4"	5"	5"	6"	6"
X	Water High Temp. Return, Class150 RF Flange	2-1/2"	2-1/2"	2-1/2"	4"	4"	4"	4"	5"	5"	6"	6"
Y	Water Outlet, Class150 RF Flange	2-1/2"	2-1/2"	2-1/2"	4"	4"	4"	4"	5"	5"	6"	6"
Z	Air Vent, NPT	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
AA	Vessel Drain, NPT	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
BB	Flue Gas Outlet											
	(Standard) - Nominal	6"	6"	8"	8"	8"	10"	10"	12"	12"	14"	14"
	(Option) - Nominal	8"	8"	6"	10"	10"	NA	NA	NA	NA	16"	16"
CC	Combustion Air - Nominal	6"	6"	6"	8"	8"	10"	10"	12	12	14"	14"
DD	Gas, NPT	1"	1"	1"	1-1/2"	1-1/2"	1-1/2"	2"	2	2	2"	2"
EE	Condensate Drain, NPT	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"	1"
FF	Electrical Opening, Left or Right	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"
GG	Safety Relief Valve Vessel Connection, NPT	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	2"	2"	2"	2"	2"	2"
JJ	Flue Coupling, NPT	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
KK	Water Outlet Coupling, NPT	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
FORK POCKETS (inches)												
LL	Pocket Height	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MM	Pocket Width	11.8	11.8	11.8	11.8	11.8	11.8	11.8	15.7	15.7	17.6	17.6
NN	Overall Pocket Width	27.6	27.6	27.6	27.6	27.6	27.6	27.6	35.4	35.4	39.4	39.4
WEIGHTS												
	Dry Weight (lb)	1298	1298	1396	1861	2041	2420	2475	3574	3761	4901	5278
	Shipping Weight (lb)	1413	1413	1511	1986	2166	2541	2596	3726	3913	5073	5450
	Operating Weight (lb)	2065	2065	2113	2778	2858	3470	3492	5227	5304	7502	7659
	Water Volume (gallon)	92	92	86	110	98	126	122	198	185	312	285

CLEARANCES (inches)

	500-4000	5000-6000
Top	14	18
Side	3	3
Rear	20	20
Front	36	36

Notes:

Boiler rear must be accessible for servicing.

Side clearance to wall or between boilers.

Side clearance typical each side.

Clearance dimensions are for servicing the boiler only. Refer to local and national electrical codes for proper minimum front panel service clearances.

Local code requirements, if more stringent, should take precedence.

Dimensions (metric) Model CFC-E

ITEM	DIMENSIONS (mm)	500	750	1000	1500	2000	2500	3000	3500	4000	5000	6000
A	Overall Height	1982	1982	1982	2028	2028	2418	2418	2316	2316	2378	2378
B	Overall Width	886	886	886	908	908	907	907	1230	1230	1490	1490
C	Overall Depth	1255	1255	1255	1422	1422	1422	1422	1738	1738	2048	2048
D	Width Less Casing	816	816	816	838	838	838	838	1160	1160	1420	1420
E	Gas Connection to Floor	1786	1786	1786	1877	1875	2167	2167	1974	1974	2019	2019
F	Side of Casing to Gas Connection	95	95	95	180	180	97	97	124	124	117	117
G	Side of Casing to Air Inlet	275	275	275	273	376	279	279	279	279	305	305
H	Top of Casing to Air Inlet	196	196	196	180	188	251	251	229	229	251	251
J	Floor to Condensate Drain	160	160	160	160	160	160	160	145	145	145	145
K	Floor to Bottom of Casing	279	279	279	279	279	290	290	290	290	305	305
L	Side of Base to Flue Outlet	189	189	189	217	217	198	198	224	224	254	254
M	Side of Base to Flue Outlet (Offset)	164	164	164	192	192	NA	NA	NA	NA	NA	NA
N	Rear of Base to Flue Outlet	165	165	165	190	190	191	191	224	224	249	249
P	Casing Depth	921	921	921	1077	1077	1077	1077	1334	1334	1577	1577
Q	Casing Height	1703	1703	1703	1749	1749	2129	2129	2027	2027	2073	2073
R	Floor to Lower Return Connection	428	428	428	428	428	429	429	427	427	470	470
S	Floor to Upper Return Connection	808	808	808	808	808	810	810	828	828	820	820
T	Floor to Supply Connection	1511	1511	1511	1511	1511	1788	1788	1582	1582	1608	1608
U	Floor to Air vent Connection	1683	1683	1683	1683	1683	1953	1953	1786	1786	1826	1826
V	Air Vent Line Projection From Rear of Casing	81	81	81	84	84	84	84	81	81	71	71

FORK POCKETS (mm)

LL	Pocket Height	102	102	102	102	102	102	102	102	102	102	102
MM	Pocket Width	300	300	300	300	300	300	300	399	399	447	447
NN	Overall Pocket Width	700	700	700	700	700	701	701	899	899	1001	1001

WEIGHTS

	Dry Weight (kg)	589	589	633	844	926	1098	1123	1621	1706	2223	2394
	Shipping Weight (kg)	641	641	686	901	983	983	983	1690	1775	2301	2472
	Operating Weight (kg)	939	939	969	1260	1280	1280	1280	2371	2406	3403	3474
	Water Volume (liter)	350	350	324	416	370	477	462	750	700	1180	1080

CLEARANCES (mm)

	500-4000	5000-6000
Top	356	457
Side	76	76
Rear	508	508
Front	914	914

Notes:

Boiler rear must be accessible for servicing.

Side clearance to wall or between boilers.

Side clearance typical each side.

Clearance dimensions are for servicing the boiler only. Refer to local and national electrical codes for proper minimum front panel service clearances.

Local code requirements, if more stringent, should take precedence.

Boiler Ratings *(Sea Level to 2000 Feet)*

		Boiler Size										
Description	**Units**	**500**	**750**	**1000**	**1500**	**2000**	**2500**	**3000**	**3500**	**4000**	**5000**	**6000**
Input Max.	Btu/hr	500,000	750,000	1,000,000	1,500,000	2,000,000	2,500,000	3,000,000	3,500,000	4,000,000	5,000,000	6,000,000
	kcal/hr	126,000	189,000	252,000	378,000	504,000	630,000	756,000	882,000	1,008,000	1,260,000	1,512,000
Natural Gas	ft^3/hr	500	750	1000	1500	2000	2500	3000	3500	4000	5000	6000
Propane	ft^3/hr	200	300	400	600	800	1000	1200	1400	1600	2000	2400
Natural Gas	m^3/hr	14	21	28	42	57	71	85	99	113	142	170
Propane	m^3/hr	5.7	8.5	11	17	23	28	34	40	45	57	68
Output at 120/ 80 F [49/27 C] 100% Firing	Btu/hr	470,000	705,000	940,000	1,410,000	1,880,000	2,350,000	2,820,000	3,290,000	3,760,000	4,700,000	5,640,000
	kcal/hr	118,440	177,660	236,880	355,320	473,760	592,200	710,640	829,080	947,520	1,184,400	1,421,280
	bhp	14	21	28	42	56	70	84	98	112	140	168
	kW	138	207	275	413	551	689	826	964	1102	1377	1653
Output at 180/ 140 F [82/60 C] 100% Firing	Btu/hr	440,000	660,000	880,000	1,320,000	1,760,000	2,200,000	2,640,000	3,080,000	3,520,000	4,400,000	5,280,000
	kcal/hr	110,880	166,320	221,760	332,640	443,520	554,400	665,280	776,160	887,040	1,108,800	1,330,560
	bhp	13	20	26	39	53	66	79	92	105	131	158
	kW	129	193	258	387	516	645	774	903	1032	1290	1547
MAWP	psi	125	125	125	125	125	125	125	125	125	125	125
	bar	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
MAWT	°F	210	210	210	210	210	210	210	210	210	210	210
	°C	99	99	99	99	99	99	99	99	99	99	99
Water Content	gallons	92	92	86	110	98	126	122	198	185	312	285
	liters	350	350	324	416	370	477	462	750	700	1180	1080
Weight w/o Water	pounds	1,298	1,298	1,396	1,861	2,041	2,420	2,475	3,574	3,761	4,901	5,278
	kg	589	589	633	844	926	1098	1123	1621	1706	2223	2394
Fireside Heating Surface	ft^2	193	193	252	388	489	546	593	889	1008	1262	1500
	m^2	18	18	23	36	45	51	55	83	94	117	139
Standby Heat Loss	Btu/hr	1000	1500	2000	3000	4000	5000	6000	7000	8000	10000	12000
	Watts	293	440	586	879	1172	1465	1758	2051	2344	2930	3516
ECM Blower Motor Size	Watts	335	335	335	1,700	1,700	1,200	2,400	2,400	2,400	6,000	6,000
Operating Voltage, Blower	Volts/ph/Hz	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60
Control Circuit	Volts/ph/Hz	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60
Max Current Draw, Blower	Amperes	4	4	4	13.5	13.5	13	4	4	4	12.7	12.7
Max Current Draw Control Circuit	Amperes	1.5	1.5	1.5	2	2	2	2	2	2	2	2
Max Over Current Protection	Amperes	20	20	20	20	20	20	20	20	20	20	20
Condensate Qty Firing Nat. Gas & operating @ 120/80 F.	gal/hr	3.5	5	7	10	13.5	17.6	20.6	24.0	27.0	34.0	40.5
Flue Gas Mass Flow @ 100% Firing	lb/hr	557	835	1,113	1,670	2,226	2,863	3,340	3,897	4,452	5,567	6,678
	kg/hr	252	379	505	758	1010	1299	1515	1768	2019	2525	3029

*CFC-E 4000: 8% derate with 9 ppm NOx. If full capacity is required, contact your local Cleaver-Brooks representative for additional information.

e-mail: info@cleaverbrooks.com
Web address: http://www.cleaverbrooks.com

Appendix C
Lighting Cut Sheets

LITHONIA LIGHTING®

DIGITAL NAVIGATION

Ordering Tree nLight Platform Sensor Switch JOT Photometrics Performance Data Drawings

Catalog Number	
Notes	
Type	AA / BA

EPANL LED

1'x4', 2'x2', and 2'x4'



FEATURES & SPECIFICATIONS

INTENDED USE — The EPANL Series LED Edge-Lit Flat Panel provides a fully luminous appearance across the face of the lens. This provides a soft, glare-free solution that is visually comfortable within the space. Suitable for many lighting applications including schools, offices and other commercial spaces, retail, convenience stores, hospitals and healthcare facilities. **Certain airborne contaminants can diminish the integrity of acrylic and/or polycarbonate. Click here for Acrylic-Polycarbonate Compatibility table for suitable uses.**

CONSTRUCTION — Built to last with an aluminum frame for strength and durability, the seamless frame prevents light leak in the corners. The PMMA light guide plate and lens resists yellowing and transmits light with superior efficacy. The satin white lens provides excellent shielding and fully luminous appearance. EPANL's low-profile design provides increased installation flexibility especially in restricted plenum spaces. The back plate includes integral T-bar clips for installation into 15/16" or 9/16" T-grid ceilings. Fixture may be recessed, suspended, surface box mounted or mounted in a hard-ceiling see accessories section for more information. Fixture may be mounted and wired in continuous rows.

Integrated Sensor (nLight Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, CLAIRITY, which allows for simple sensor adjustment

Integrated Wireless Sensor (single room control): Sensor Switch VERTEX JOT or JOTVTX15 luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space. See page 7 for more details on the integrated wireless sensor.

ELECTRICAL — Long-life LEDs, coupled with a high-efficiency driver, provide superior illumination for extended service life. See page 3 for detailed lumen maintenance information. 0-10V dimming driver, dims to 1% or 10% and contains non-isolated dimming leads.

LISTINGS — CSA Certified to meet US and Canadian standards. Tested to meet UL1958. Intended for indoor use only. Product is not to be stored in non-climate controlled spaces. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. Damp location listed. IC rated. IP5X rated. Long nomenclature, configurable product is rated and certified to meet NSF Splash Zone 2. Tested in accordance with ISO 14644-1; suitable for ISO Class 5–9 positive and negative pressure clean rooms. Suitable for ambient temperatures from 32°F (0°C) to 77°F (25°C).

WARRANTY — 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Dimensions

	1x4	2x2	2x4
Length	47.72"	23.70"	47.72"
Width	11.85"	23.70"	23.70"
Depth	2.19"	2.19"	2.19"
Weight	13.9 lbs	7.4 lbs	15.1 lbs

* Base configurations; options may add weight

Embed nLight controls today. Prepare for tomorrow.

Now

- User-friendly install
- Enhanced energy savings
- Code compliance

Tomorrow

- Scalability
- Space configuration
- Future-ready

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® control networks when ordered with drivers marked by a shaded background*
- This luminaire is part of an A+ Certified solution for nLight control networks, providing advanced control functionality at the luminaire level, when selection includes driver and control options marked by a shaded background*

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details

EPANL LED Flat Panel

A+ Capable options indicated by this color background.

ORDERING INFORMATION

Example: EPANL 2X4 4000LM 80CRI 35K MIN1 MVOLT E10WCP NLTAIR2 RIO

Series	Width and Length	Lumens		CRI	Color Temperature	Minimum Dimming Level ‡
		Standard Lumens:	High Efficiency Lumens:			
EPANL LED Flat Panel	1x4 1'x4'	1500LM 1500 Lumens	1500LMHE 1500 Lumens	80CRI 80 CRI	30K 3000K	MIN10 Dims to 10% ‡
		3000LM 3000 Lumens	3000LMHE 3000 Lumens		35K 3500K	MIN1 Dims to 1%
		4000LM 4000 Lumens	4000LMHE 4000 Lumens		40K 4000K	
		4800LM 4800 Lumens	4800LMHE 4800 Lumens		50K 5000K	
		6000LM 6000 Lumens	6000LMHE 6000 Lumens			
	2x2 2'x2'	2000LM 2000 Lumens	2000LMHE 2000 Lumens			
		3400LM 3400 Lumens	3400LMHE 3400 Lumens			
		4000LM 4000 Lumens	4000LMHE 4000 Lumens			
		4800LM 4800 Lumens	4800LMHE 4800 Lumens			
	2x4 2'x4'	3000LM 3000 Lumens	3000LMHE 3000 Lumens			
		4000LM 4000 Lumens	4000LMHE 4000 Lumens			
		4800LM 4800 Lumens	4800LMHE 4800 Lumens			
		5400LM 5400 Lumens	5400LMHE 5400 Lumens			
		6000LM 6000 Lumens	6000LMHE 6000 Lumens			
		6800LM 6800 Lumens	6800LMHE 6800 Lumens			
		7200LM 7200 Lumens	7200LMHE 7200 Lumens			

Dimming ‡	Voltage	Step Level Dimming	Emergency Option
ZT Generic 0-10V Dimming	MVOLT 120-277V	(Blank) None	E10WCP EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS ‡
EZT eldoLED 0-10V Dimming	120 120V	SLD Step Level Dimming ‡	GTD Generator Transfer Device ‡
DALI eldoLED DALI	277 277V		EMG for use with NLIGHT or NLTAIR2 on generator supply EM power ‡
	347 347V ‡		

Control Options

Control Input

nLight Wired:

NLIGHT	nLight enabled, no constant lumen management
CL80 NLIGHT	nLight enabled, constant lumen output 80%

nLight Wireless:

NLTAIR2	nLight AIR Generation 2 enabled ‡

Control

nLight Wired: ‡

(blank)	no control

nLight Wireless:

RIO	nLight AIR Radio module without sensor ‡
RES7	nLight AIR PIR integral occupancy sensor with automatic dimming photocell for Networking Capabilities ‡
RES7PDT	nLight air microphonics dual technology occupancy sensor with automatic dimming photocell ‡

Individual Control

J0T	Wireless room control with "Just One Touch" pairing ‡
J0TVTX15	Wireless occupancy sensor with "Just One Touch" pairing ‡

Options

GLR	Fast-blowing fuse ‡
GMF	Slow-blowing fuse ‡
PWS1836	6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit
PWS1846	6' pre-wire, 3/8" diameter, 18 gauge, 2 circuit
PWS1846 PWSLV	Two cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge ‡
PWS1856LV	6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires ‡
CP	Chicago plenum ‡
NPLT	Narrow Pallet
BDP	Factory Installed Ballast Disconnect Plug
RRL_	RELOC®-ready luminaire ‡

NOTE: ‡ indicates option value has ordering restrictions. Please reference the Option Value Ordering Restictions chart on the next page. Options are sorted alphanumerically.

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LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	AC

BLT Series LED

BLT

1' x 2'
LED



FEATURES & SPECIFICATIONS

INTENDED USE — The BLT Best-in-Value Low Profile LED luminaire features a popular center basket design that offers a clean, versatile style and volumetric distribution. High efficacy LED light engines deliver energy savings and low maintenance compared to traditional sources. An extensive selection of configurations and options make the BLT the perfect choice for many lighting applications including schools, offices and other commercial spaces, retail, hospitals and healthcare facilities. The low profile BLT design (2-3/4") also makes it an excellent choice for renovation projects.

CONSTRUCTION — Prior to fabrication, BLT components are coated with a proprietary paint blend and die-formed for dimensional consistency.

The reflector is finished with a high reflective matte white powder paint for improved aesthetics and increased light diffusion.

End plates contain easy-to-position integral T-bar clips for securely attaching the luminaire to the T-grid. For additional T-grid security, optional screw on T-bar clips are available.

Diffusers are extruded from impact modified acrylic for increased durability.

LED boards and drivers are accessible from the plenum.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces – rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. High performance extruded acrylic diffusers conceal LEDs and efficiently deliver light in a volumetric distribution. Four diffuser choices available - curved and square designs with linear prisms or a smooth frosted finish.

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide superior quantity and quality of illumination for extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). Color Variation within 3-step MacAdam ellipse (3SDCM).

The BLT series is available in High Efficiency (HE) versions for applications where a lower wattage (over the standard product) is required. The High Efficiency versions deliver >130 LPW and can be specified via the Lumen Package designations in the Ordering Information below.

eldoLED driver options deliver choice of dimming range, and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional integrated nLight®controls make each luminaire addressable - allowing them to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Simply connect all the nLight enabled control devices and the BLT luminaires using standard Cat-5 cabling. Unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission.

Lumen Management: Unique lumen management system (option N80) provides on board intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

Step-level dimming option allows system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

SENSOR— Integrated sensor (individual control): Sensor Switch MSD7ADCX ((Passive infrared (PIR)) or MSDPDT7ADCX ((PIR/Microphonics Dual Tech (PDT)) integrated occupancy sensor/automatic dimming photocell allows the luminaire to power off when the space is unoccupied or enough ambient light is entering the space. See page 2 for more details on the integrated sensor.

Integrated Sensor (nLight Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software. See page 2 for the nLight sensor options.

INSTALLATION — The BLT's low profile design of only 2-3/4" provides increased installation flexibility especially in restrictive plenum applications. The BLT fits into standard 15/16" and narrow 9/16" T-grid ceiling systems.

Suitable for damp location.

For recessed mounting in hard ceiling applications, Drywall Grid Adapters (DGA) are available as an accessory. See Accessories section.

LISTINGS — CSA Certified to meet U.S. and Canadian standards. IC rated. Tested in accordance with ISO 14644-1; suitable for ISO Class 5-9 positive and negative pressure clean rooms.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.

All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.

Specifications

Length: 23-3/4 (60.3)

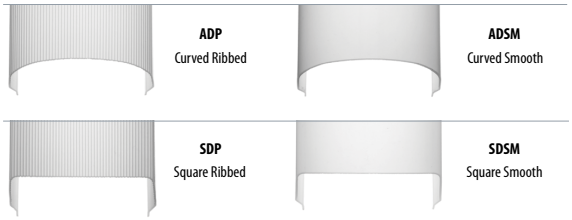
Width: 11-3/4 (29.8)

Depth: 2-3/4 (6.9)



All dimensions are inches (centimeters) unless otherwise specified.

Multiple Diffuser Options



ADP
Curved Ribbed

ADSM
Curved Smooth

SDP
Square Ribbed

SDSM
Square Smooth

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® control networks when ordered with drivers marked by a shaded background*
- This luminaire is part of an A+ Certified solution for nLight control networks, providing advanced control functionality at the luminaire level, when selection includes driver and control options marked by a shaded background*

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details

BLT Volumetric Recessed Lighting 1'x2'

A+ Capable options indicated by this color background.

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative. **Example:** BLT2 20L ADP GZ10 LP835

BLT2

Series	Air function	Lumens[1]		Diffuser	Voltage	Driver	Color temperature
BLT2 1X2 BLT	(blank) Static	**Standard efficiency (>100 LPW)**	**High Efficiency (>130 LPW)**	ADP Curved, linear prisms	(blank) MVOLT	EZ1 eldoLED dims to 1% (0-10 volt dimming)	LP830 82CRI, 3000 K
		10L 1000	40LHE 4000	ADSM Curved, smooth	347 347[2]	GZ1 Dims to 1% (0-10V dimming)[3]	LP835 82CRI, 3500 K
		15L 1500		SDP Square, linear prisms		GZ10 Dims to 10% (0-10V dimming[3]	LP840 82CRI, 4000 K
		20L 2000		SDSM Square, smooth		SLD Step-level dimming[4]	LP850 82CRI, 5000 K
		30L 3000		**Includes trim rings to match sensored version**			LP930 90CRI, 3000K
		40L 4000		ADPT Curved, linear prisms			LP935 90CRI, 3500K
				ADSMT Curved, smooth			LP940 90CRI, 4000K
				SDPT Square, linear prisms			LP950 90CRI, 5000K
				SDSMT Square, smooth			

Controls	Occupancy Control[6]		Standy Mode	Options
(blank) No nLight®	(blank) No sensor control	**Individual Control**	NOC NOC Occupancy sensor disabled[9]	**BDP Disconnect Plug**
N80 nLight® with 80% lumen management	**nLight Wired Networking**	MSD7ADCX PIR integral occupancy sensor with automatic dimming control photocell[4,8]		EL7L 700 lumen battery pack (Noncompliant with CA T20)[10]
N80EMG nLight® with 80% lumen management For use with generator supply EM power[5]	NES7 nLight™ nES 7 PIR integral occupancy sensor[7]	MSDPDT7ADCX PDT integral occupancy sensor with automatic dimming control photocell[4,8]		EL14L 1400 lumen battery pack (Noncompliant with CA T20)[10]
N100 nLight® without lumen management	NESPDT7 nLight™ nES PDT 7 dual technology integral occupancy control[7]			E10WLCP EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS
N100EMG nLight® without lumen management For use with generator supply EM power[5]	NES7ADCX nLight™ nES 7 ADCX PIR integral occupancy sensor with automatic dimming photocell[7]			CP Chicago plenum
	NESPDT7ADCX nLight™ nES PDT 7 dual technology integral occupancy sensor with automatic dimming photocell[7]			BGTD Bodine Generator Transfer Device[11]
				PWS1836 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit
				PWS1846 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuit
				PWS1846 PWSLV Two cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge[12]
				PWS1856LV 6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires[12]
				GLR Fast-blowing fuse[13]
				GMF Slow-blowing fuse[13]
				NPLT Narrow pallet
				RRL_ RELOC®-ready luminaire[14]
				LATC Earthquake clip
				DWAM Anti-Microbial paint

Notes

1. Approximate lumen output.
2. Not available with SLD,EL7L or EL14L battery packs.
3. GZ1, GZ10 drivers not available with any Controls or sensor options.
4. Not available with N80, N80EMG, N100, N100EMG or occupancy control.
5. nLight EMG option requires a connection to existing nLight network. Power is provided from a separate N80 or N100 enabled fixture.
6. Must specify diffuser with trims rings. See sensor options on page 3.
7. Requires N80, N80EMG, N100, or N100EMG.
8. Only available with EZ1 driver option. 0-10v dimming wires not accessible via access plate.
9. Can only be ordered in conjunction with EZ1, NLTAIR2, RES7/RES7PDT. Occupancy sensor disabled at factory but can be re-enabled upon commissioning.
10. When using pre-wire option, use PWS1846 or PWS1846 PWSLV.
11. Must specify voltage. Requires BSE labeling, voltage specific. Consult factory for options.
12. Not available with nLIGHT wired network or individual controls.
13. Must specify voltage, 120 or 277, with GLR and GMF fusing and BGTD.
14. For ordering logic consult: RRL_2013.

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LITHONIA LIGHTING®

DIGITAL NAVIGATION

Ordering Tree nLight Platform Sensor Switch JOT Photometrics Performance Data

Catalog Number	
Notes	
Type	BC

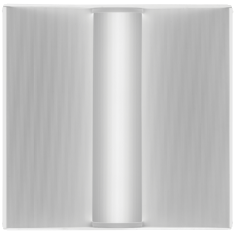
BLT Series LED

2BLT2



ADP Diffuser Option

2' x 2' LED



Ribbed Reflector Option

FEATURES & SPECIFICATIONS

INTENDED USE — The BLT Best-in-Value Low Profile LED luminaire features a popular center basket design that offers a clean, versatile style and volumetric distribution. High efficacy LED light engines deliver energy savings and low maintenance compared to traditional sources. An extensive selection of configurations and options make the BLT the perfect choice for many lighting applications including schools, offices and other commercial spaces, retail, hospitals and healthcare facilities. The low profile BLT design (2-3/8") also makes it an excellent choice for renovation projects.

CONSTRUCTION — Prior to fabrication, BLT components are coated with a proprietary paint blend and die-formed for dimensional consistency.

The BLT reflector is available in both smooth and ribbed finishes. Choose RB from the fixture style section below for a ribbed finish.

End plates contain easy-to-position integral T-bar clips for securely attaching the luminaire to the T-grid. For additional T-grid security, optional screw on T-bar clips are available.

Diffusers are extruded from impact modified acrylic for increased durability.

LED boards and drivers are accessible from the plenum.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces – rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. High performance extruded acrylic diffusers conceal LEDs and efficiently deliver light in a volumetric distribution. Four diffuser choices available - curved and square designs with ribbed or a smooth frosted finish.

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide superior quantity and quality of illumination for extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). Color Variation within 3-step MacAdam ellipse (3SDCM).

Non-Configurable BLT: Generic 0-10 volt dimming driver. Dims to 10%

Configurable BLT: available in High Efficiency (HE) versions for applications where a lower wattage (over the standard product) is required. The High Efficiency versions deliver >130 LPW and can be specified via the Lumen Package designations in the Ordering Information below.

eldoLED driver options deliver choice of dimming range, and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional integrated nLight®controls make each luminaire addressable - allowing them to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Connection to nLight is simple. It can be accomplished with integrated nLight AIR wireless rIO and rES7 sensors, or through standard Cat-5 cabling. nLight offers unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission. nLight AIR is commissioned easily through an intuitive model app.

Lumen Management: Unique lumen management system (option N80) provides on board intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

Step-level dimming option allows system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

SENSOR— Integrated sensor (individual control): Sensor Switch MSD7ADCX ((Passive infrared (PIR)) or MSDPDT7ADCX ((PIR/Microphonics Dual Tech (PDT)) integrated occupancy sensor/automatic dimming photocell allows the luminaire to power off when the space is unoccupied or enough ambient light is entering the space. See page 4 for more details on the integrated sensor.

Integrated Sensor (nLight Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software. See page 4 for the nLight sensor options.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, CL*AIR*ITY, which allows for simple sensor adjustment. See page 4 for more details on the Integrated Smart Sensor.

Integrated Wireless Sensor (single room control): Sensor Switch VERTEX JOT or JOTVTX15 luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space. See page X for more details on the integrated wireless sensor.

INSTALLATION — The BLT's low profile design of only 2-3/8" provides increased installation flexibility especially in restrictive plenum applications. The BLT fits into standard 15/16" and narrow 9/16" T-grid ceiling systems.

Suitable for damp location.

For recessed mounting in hard ceiling applications, Drywall Grid Adapters (DGA) are available as an accessory. See Accessories section.

LISTINGS — CSA Certified to meet U.S. and Canadian standards. IC rated. Tested in accordance with ISO 14644-1; suitable for ISO Class 5-9 positive and negative pressure clean rooms.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

BUY AMERICAN — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT.
Please refer to www.acuitybrands.com/buy-american for additional information.

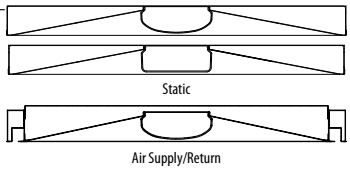
WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

Specifications

Length: 23-3/4 (60.3)
Width: 23-3/4 (60.3)
Depth: 2-3/8 (6.0)
Depth with Air supply/return: 2-3/4 (6.9)

All dimensions are inches (centimeters) unless otherwise specified.



Embed nLight controls today. Prepare for tomorrow.

Now	Tomorrow
User-friendly install	Scalability
Enhanced energy savings	Space configuration
Code compliance	Future-ready

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® control networks when ordered with drivers marked by a shaded background*
- This luminaire is part of an A+ Certified solution for nLight control networks, providing advanced control functionality at the luminaire level, when selection includes driver and control options marked by a shaded background*

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details

2BLT Volumetric Recessed Lighting 2'x2'

A+ Capable options indicated by this color background.

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative.

Example: 2BLT2 33L ADP EZ1 LP835

2BLT2

Series	Fixture Style	Air function	Lumens ‡		Diffuser	Voltage	Driver	Color temperature
2BLT2 2X2 BLT	(blank) Smooth Reflector RB Ribbed Reflector	(blank) Static A Air supply/ return ‡	**Standard efficiency ‡ (>125 LPW)** 20L 2000 33L 3300 40L 4000 48L 4800	**High efficiency ‡ (>130 LPW)** 20LHE 2000 33LHE 3300 40LHE 4000 48LHE 4800	ADP Curved, ribbed ADSM Curved, smooth SDP Square, ribbed SDSM Square, smooth **Includes trim rings to match sensored version** ADPT Curved, ribbed ADSMT Curved, smooth SDPT Square, ribbed SDSMT Square, smooth	(blank) MVOLT 120 120V 277 277V 347 347V ‡	EZ1 eldoLED dims to 1% (0-10 volt dimming) GZ1 Dims to 1% (0-10V dimming)[8] GZ10 Dims to 10% (0-10V dimming) ‡ SLD Step-level dimming ‡	LP830 82CRI, 3000 K LP835 82CRI, 3500 K LP840 82CRI, 4000 K LP850 82CRI, 5000 K LP930 90CRI, 3000K LP935 90CRI, 3500K LP940 90CRI, 4000K LP950 90CRI, 5000K

nLight Interface

nLight Wired

(blank)	no nLight ® interface
N80	nLight with 80% lumen management
N80EMG	nLight with 80% lumen management For use with generator supply EM power ‡
N100	nLight without lumen management
N100EMG	nLight without lumen management For use with generator supply EM power ‡

nLight Wireless

(blank)	no nLight ® interface
NLTAIR2	nLight AIR Generation 2 enabled ‡

Control ‡

nLight Wired

(blank)	No sensor control
NES7	nLight™ nES 7 PIR integral occupancy sensor ‡
NESPDT7	nLight™ nES PDT 7 dual technology integral occupancy control ‡
NES7ADCX	nLight™ nES 7 ADCX PIR integral occupancy sensor with automatic dimming photocell ‡
NESPDT7ADCX	nLight™ nES PDT 7 dual technology integral occupancy sensor with automatic dimming photocell ‡

nLight Wireless

RES7	nLight AIR PIR integral occupancy sensor with automatic dimming photocell for Networking Capabilities
RES7PDT	nLight AIR microphonics dual technology occupancy sensor with automatic dimming photocell
RIO	nLight AIR radio module without sensor
RES7EM	nLight AIR PIR integral occupancy sensor with automatic dimming photocell and UL924 Emergency Operation, via power interrupt detection ‡
RES7PDTEM	nLight AIR microphonics dual technology occupancy sensor with automatic dimming photocell and UL924 Emergency Operation, via power interrupt detection ‡
RIOEM	nLight AIR radio module less sensor, with UL924 Emergency Operation, via power interrupt detection ‡

Individual Control

MSD7ADCX	PIR integral occupancy sensor with automatic dimming control photocell ‡
MSDPDT7ADCX	PDT integral occupancy sensor with automatic dimming control photocell ‡
JOT	Wireless room control with "Just One Touch" pairing ‡
JOTVTX15	Wireless occupancy sensor with "Just One Touch" pairing ‡

Standy Mode

NOC	NOC Occupancy sensor disabled ‡

Options

BDP Disconnect Plug

EL7L	700 lumen battery pack (Noncompliant with CA T20) ‡
EL14L	1400 lumen battery pack (Noncompliant with CA T20) ‡
EL14LSD	1400 lumen battery pack with self-diagnostic testing feature (Noncompliant with CA T20) ‡
E10WLCP	EM Self-Diagnostic battery pack, 10W Constant Power, Certified in CA Title 20 MAEDBS ‡
CP	Chicago plenum ‡
BGTD	Bodine Generator Transfer Device ‡
PWS1836	6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit
PWS1846	6' pre-wire, 3/8" diameter, 18 gauge, 2 circuit
PWS1846 PWSLV	Two cables: one 6' pre-wire, 3/8" diameter, 18 gauge, 2 circuits; one 6' pre-wire, 3/8" diameter, 18 gauge ‡
PWS1856LV	6' pre-wire, 3/8" diameter, 18 gauge, 1 circuit w/low voltage wires ‡
GLR	Fast-blowing fuse ‡
GMF	Slow-blowing fuse ‡
NPLT	Narrow pallet
RRL_	RELOC®-ready luminaire ‡
LATC	Earthquake clip
DWAM	Anti-Microbial paint
JP28	Job packaging ‡
JP36	Job packaging
IP5X	Gasketed diffuser compartment to meet IP5X rating ‡
BAA	Buy America(n) Act Compliant

NOTE: ‡ indicates option value has ordering restrictions. Please reference the Option Value Ordering Restictions chart on the next page. Options are sorted alphanumerically.

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LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	FA

FEATURES & SPECIFICATIONS

INTENDED USE — Available in several color temperatures, lumen packages and lengths. Ideal for use in commercial, retail, office, warehouse and display applications. **Certain airborne contaminants can diminish integrity of acrylic and/or polycarbonate.** **Click here for Acrylic-Polycarbonate Compatibility table for suitable uses.**

Certain airborne contaminants may adversely affect the functioning of LEDs and other electronic components, depending on various factors such as concentrations of the contaminants, ventilation, and temperature at the end-user location. **Click here for a list of substances that may not be suitable for interaction with LEDs and other electronic components.**

CONSTRUCTION — Compact-design channel and cover are formed from code compliant, 22 gauge cold-rolled steel.

SENSOR SWITCH JUST ONE TOUCH TECHNOLOGY — Single room control wireless technology available for easy install and commissioning to aid in code compliance. The JOT option enables the fixture with Just One Touch pairing capability. The JOTVTX15 option features a luminaire-embedded occupancy and ambient light sensor allows the luminaire to power off when the space is unoccupied or when enough ambient light is entering the space.

FINISH — High-gloss, baked white enamel (standard).

OPTICS — LEDs provide 80+ color rendering index (CRI) at 3500K, 4000K and 5000K. Diffuse acrylic lens with ultra-sonically welded end caps provides smooth, linear illumination.

ELECTRICAL — Luminaire Surge Protection Level: Designed to withstand up to 2.5kV/0.75kA per ANSI C82.77-5-2015. For applications requiring higher level of protection additional surge protection must be provided.

Driver is standard 0-10V dimming class 2.

INSTALLATION — Fixture may be surface or suspension mounted with appropriate mounting options (see accessories). Easy to install row aligner bracket included for continuous row mounting.

LISTINGS — CSA certified to US and Canadian safety standards and listed suitable for damp locations. Minimum starting temperature of -40°F (-40°C). Maximum ambient operating temperature of 95°F (35°C). See notes for controls temperature restrictions.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

LED Strip Light

CSS



DAMP LOCATION™ · C SP US · A+ CAPABLE · DLC QPL LISTED · DIMMABLE LED · JOT JUST ONE TOUCH

A+ Capable Luminaire

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- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® or XPoint™ Wireless control networks marked by a shaded background*

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details

CSS LED Strip Light

Looking for Contractor Select readily available configurations? Click here to visit Contractor Select™ spec sheet or go to www.contractorselect.com

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative. **Example:** CSS L96 ALO4 MVOLT SWW3 80CRI

Series	Length	Lumen Output	Voltage	Color temperature	Color rendering index	Options
CSS Contractor Single Strip LED	L48 48"	4000LM 4000 Lumens ‡ ALO3 Switchable lumens, 3000LM / 4000LM / 5000LM	MVOLT 120-277V 347 347V ‡	35K 3500K ‡ 40K 4000K ‡ 50K 5000K ‡ SWW3 Switchable white, 35K / 40K / 50K	80CRI 80 CRI	JOT Enabled Wireless Controls: ‡ JOT Wireless room control with "Just One Touch" pairing JOTVTX15 Wireless occupancy sensor with "Just One Touch" pairing Individual Controls: SFR30CSS Factory installed 360°, large motion, high bay sensor, SFR 30 ‡ SFR7CSS Factory installed 360°, small motion, low bay sensor, SFR 7 ‡ Wire Guard: WG Wire Guard
	L96 96"	8000LM 8000 Lumens ‡ ALO4 Switchable lumens, 6000LM / 8000LM / 10000LM				

NOTE: ‡ indicates option chosen has ordering restrictions. Please reference ordering restrictions chart.

Accessories: *Order as separate catalog number.*	
HC36 M12	Hanger chain, 36" (1 pair)
ZACVH M100	Adjustable 10' aircraft cable with Y hanger (1 pair)
SQ_	Swivel stem hanger (specify length in 2" increments up to 48")
rPP20D	nLight® air dimming/switching module
SFR30CSS	Field installed 360°, large motion, high bay sensor, SFR 30 ‡
SFR7CSS	Field installed 360°, small motion, low bay sensor, SFR 7 ‡
Y J10	Y hanger in multiples of 10 (five pair)
WGCSS	Wire Guard with Mounting hardware (one 4ft)
MNLK JBOXCVR M12	Junction box cover and hardware, white

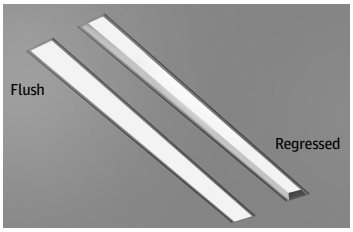
‡ Option Value Ordering Restrictions	
Option value	**Restriction**
35K, 40K, 50K	Not available with ALO lumen packages.
4000LM, 8000LM	Not available with SWW3.
JOT Enabled Controls	Not available with ALO3, ALO4, 347V or SWW3. Not intended for continuous row mount applications. Minimum starting temp of 14°F (-10°C). Maximum operating temp of L48 at 95°F (35°C) & L96 at 86°F (30°C).
SFR Sensors	Not available with 347V. Can only be mounted at the end of continuous row mount applications. On/off function only. Minimum starting temp of 14°F (-10°C).
Wire Guard	Does not cover Controls.

EMERGENCY BATTERY PACKS

Factory-Installed Nomenclature	Battery Part Number	Suitable for Field Installation	T20?
-	ILBLP-CP10-HE-SD-A	Yes	Yes

INDUSTRIAL: One Lithonia Way, Conyers, GA 30012 Phone: 800-705-SERV (7378) techsupport-Industrial@acuitybrands.com www.lithonia.com
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MARK ARCHITECTURAL LIGHTING™



Slot 2 LED
Recessed Linear

Slot 2 LED takes both form and function a step further with increased efficacy and integral controls creating a digitally addressable luminaire that is perfect where visually harmonious illumination and energy efficiency are desired.

Slot 2 LED is the ideal choice for spaces that emphasize lines and clean contemporary design. It is a perfect fit for Armstrong TechZone™ ceiling systems. A regressed lens option provides added dimension to the sleek, slender design and the flush lens now has a Wet Label option.

Type:

LA

Project:

Catalog Number:

DO NOT TYPE HERE. Autopopulated field.

Specification Features

Housing
Nominal 2" x 2', 3', 4', 5', 6', 7', 8' and continuous rows in 1" increments as standard, upper housing fabricated from cold-rolled steel with extruded aluminum ceiling trim.

Finish
Painted high reflectance matte white powder coat.

Reflector
Precision-formed steel; high reflectance matte white powder coat; 93% reflectivity.

Shielding
Flush Lens: Snap-in 90% transmissive satin acrylic lens.

Regressed Lens: Lay-in 90% transmissive satin acrylic lens.

Mounting
Recessed. Available for sheetrock, 9/16" slot grid or 15/16" inverted tee ceilings, or 9/16" inverted tee.

Certification
CSA tested to UL 1598 standards. Optional Damp or Wet location listings available, see ordering tree. This product is IC rated.

Warranty
5-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

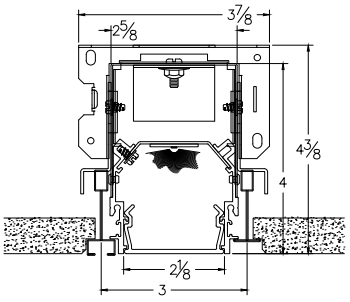
Note: *Actual performance may differ as a result of end-user environment and application.*
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

Fixture Performance - SL2L*

Lumens Output	400 LMF		600 LMF**		800LMF**		1000LMF	
Fixture Style	RLP	FLP	RLP	FLP	RLP	FLP	RLP	FLP
Delivered Lumens/FT	234	308	404	533	534	705	654	862
Input Watts/FT	4	4	6	6	8	8	11	11
Lumen/Watt	68	89	69	91	67	88	62	82

** CCT (35K)*
** Consult factory for customized lumen output and wattage*
***Based on calculated values*

Technical Drawing



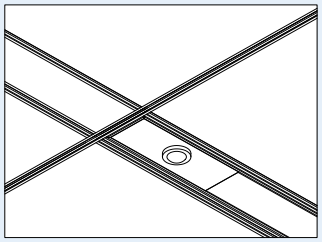
Flush - (FLP)

LED Components
Linear: Nichia® - 757 Series LED chips (available in 80 or 90 CRI)

LED Life
Rated 65,000 hours (L80) at 25 °C ambient temperature.

Color Consistency
The Acuity Brands circuit boards for the linear LED components use a precise binning algorithm which creates a consistent color temperature from board to board. Color variation is no greater than a 2.5 Step MacAdam (2.5SDCM) along the black body locus from board to board.

Driver
eldoLED constant current driver options delivers ultra-smooth dimming resolution from 100% to 0.1%, while assuring flicker free, low current inrush, 89% efficiency and low EMI.


Occupancy Sensor (PDT) and/or Photocell (ADC)

Integrated Controls
Optional nLight® embedded controls make luminaire addressable- allowing it to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Simply connect all the nLight enabled control devices using standard CAT5 Cabling. (Input option: NLIGHT)

Photometry
For photometric information refer to www.marklighting.com.

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MARK ARCHITECTURAL LIGHTING™

Slot 2 LED
Recessed Linear

A+ Capable options indicated by this color background.

Ordering

Example: SL2L LOP 4FT FLP FL 80CRI 30K 600LMF DARK 277 EC NLIGHT

Series

SL2L	Slot 2 LED Linear Recessed

Linear Length Plan

LOP	Linear Optimized Plan

Total Run Length

2FT	2′
3FT	3′
4FT	4′
5FT	5′
6FT	6′
7FT	7′
8FT	8′
_FT_	*Specify continuous linear feet in 1" increments (7FT6 = 7FT 6IN)

Fixture Style

RLP[1,3]	Regressed Lens
FLP[2]	Flush Lens

Ceiling Trim

FL[4]	5/8" Flange(sheetrock)
TG	9/16" or 15/16" Flat or Inverted Tee
GB[4]	Trimless (sheetrock)
WFL	Perimeter Mount, 5/8" Flange (Sheetrock)
WTG	9/16" Flat or Inverted Tee, Perimeter Mount

*For metal pan, hard wood or other ceiling types consult factory.

Direct Light Source Color Rendering

80CRI	80 CRI
90CRI	90 CRI

Direct LED Color Temp

27K*	2700K
30K	3000K
35K	3500K
40K	4000K
50K*	5000K

Direct LED Light Output

400LMF	400 Lumens per FT
600LMF	600 Lumens per FT
800LMF	800 Lumens per FT
1000LMF	1000 Lumens per FT
_LMF* [9]	## Lumens per FT (Limited to 300LMF to 1000LMF in 50LMF increments)

Direct Distribution

(blank)	Standard Distribution
WW[5]	Wall Wash

Minimum Dimming Level

NODIM	Non - Dim
MIN1	Constant current, dimming to 1%
DARK	Constant current, dimming to 0.1%
MIN5[6]	Constant current, dimming to 5%
MIN10[15]	Constant current, dimming to 10%

Voltage

120	120V
277	277V
347[7]	347V

Finish

(blank)	White, textured
xxx/BLKT	Black, textured
xxx/SLVT	Silver, textured
xxx/RALTBD	RAL paint finish

xxx = fill in with the appropriate ceiling trim. Only trims are painted. RALTBD is for pricing only. Replace with applicable RAL number and texture when placing order.

Emergency Options

(blank)	No Emergency
_E10WLCP[8]	Number of 4ft Emergency Section(s) with battery pack
_EC[10]	# of Emergency Circuits

Control Input

(blank)	Non-dim [11]
ZT	0 10V
NLIGHT	nLight enabled
NLTAIR2[17]	nLight Air (Wireless Enabled)
ECOD*[,16]	Lutron Hi-Lume digital driver
ECOD2*[,16]	Lutron Hi-Lume 2-wire (1% dimming)
ECOD5*[,6]	Lutron 5-series digital driver (5% dimming)
DALI[19]	Dali

Primary Sensor[12]

(blank)	Single Zone, No Sensor
NS	Multi-zone, No Sensor Main Zone
PDT[13]	Dual Technology Occupancy Sensor, PIR and Microphonics Sensor
ADC[13]	Daylight Dimming Sensor
API[14]	Passive Infrared Occupancy Sensor and Daylight Dimming Sensor
APD[14]	Dual Technology Occupancy Sensor and Daylight Dimming Sensor

Secondary Sensor[12]

(blank)	No additional zones/sensors
SNS	Multi-zone, with no sensor in secondary zone
SPDT[13]	Dual Technology Occupancy Sensor, PIR and Microphonics Sensor
SADC[13]	Daylight Dimming Sensor
SAPI[14]	Passive Infrared Occupancy Sensor and Daylight Dimming Sensor
SAPD[14]	Dual Technology Occupancy Sensor and Daylight Dimming Sensor

Tertiary Zone

(blank)	No additional zones/sensors
TNS	Multi-zone, with no sensor in tertiary zone

Options

CP[18]	Chicago Plenum
USPOM	US point of assembly
WL[3,9]	Wet Location Listing
DPL	Damp Location Listing
PWS	6' Pre-Wire, 3/8" Diameter, 18 Gauge

* Requires longer lead time.

Notes

1. Supplied with lift and shift lay-in lens.
2. Supplied with snap-in lens.
3. Wet Location label not available with regressed lens, sensor options or PWS. Cannot be installed on vertical surfaces.
4. Not intended for post sheetrock installation.
5. Wall wash not available with RLP lens option.
6. MIN5 requires ECOD5 Control Input. ECOD5 only available with MIN5 dimming.
7. Not available with 2ft fixture sections or with E10WLCP, NLIGHT, sensors, or ECO options. Must select MIN1 option.
8. Default battery pack is integral, battery pack will be remote on 2′ & 3′ (RE10WLCP) If 5′ or 6′ unit, integral battery pack is only available with ZT or NLTAIR2. Battery will be remote with RLP, WW or sensors. Only 1 integral battery pack per unit. CP listing must have an intergral battery. Remote batteries are not wet location listed, they may be used with a wet location fixture is the battery itself is mounted in a dry location.
9. Not available with ECOD, ECOD2 and ECOD5.
10. Standard 4′ EC section, defaults to end of run. 2ft, 3ft and 5ft powers entire fixture, 6ft powers 3ft EC section.
11. Only available with NODIM option.
12. Sensors not available with WW, NODIM driver, WL, RLP, downlights or 2′ or 3′ units. Not available with 347 & NLIGHT together. Default location for sensor is the left side of the fixture. For runs, the first fixture will include the sensor.
13. Requires ZT or NLIGHT Control Input.
14. Requires ZT, NLIGHT or NLTAIR2 Control Input.
15. MIN10 not available with 347, sensors, NLIGHT or NLTAIR2, requires ZT
16. ECOD and ECOD2 not available with sensors, requires MIN1 dimming. Must use 120 volt for ECOD2.
17. Must select MIN1 or DARK. Not available with RLP, WW, PDT, ADC or 347, DPL or WL. If with EC, cannot be on individual units, and on runs, the EC cannot be on the same section as NLTAIR2.
18. CP not available with NLTAIR2.
19. DALI is only available with DARK or MIN1. It is not available with sensors or downlights.

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- This luminaire is part of an A+ Certified solution for nLight control networks, providing advanced control functionality at the luminaire level, when selection includes driver and control options marked by a shaded background*

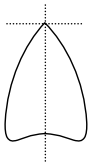
To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details

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gotham® | EVO®

Multiple Layers of Light

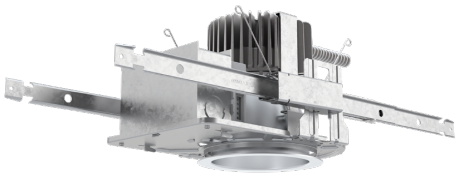


Luminaire Type: RA

Catalog Number:

Buy American

General Illumination Round Downlight 4"



OVERVIEW

Feature Set

- Bounding Ray™ optical design
- Unitized optics mechanically attach the light engine to the lower reflector for complete optical alignment.
- 45° cutoff to source and source image
- Fully serviceable and upgradeable lensed LED light engine
- 70% lumen maintenance at 60,000 hours
- 2.5 SDCM; 85 CRI typical, 90+ CRI optional
- Fixtures are wet location, covered ceiling
- Available with 10% dimming, 1% dimming, or dim to dark
- Batwing distribution with feathered edges provides even illumination on horizontal and vertical surfaces
- ENERGY STAR® certified product

Distribution



Superior Perfomance

Nominal Lumens	250	500	750	1000	1500	2000	2500	3000	3500
Delivered Lumens	271	573	808	1001	1527	1994	2580	3110	3612
Wattage	3.1	7.2	7.9	8.8	13.7	19.5	25.7	31.2	38.4
Lumens per Watt	87.4	79.6	102.3	113.8	111.5	102.3	100.4	99.7	94.1

COMPLEMENTARY PRODUCTS

Coordinated Apertures | Multiple Layers of Light



General Illumination Layer | EVO



High Center Beam Layer | Incito



EVO + Incito — Multiple Layers of Light

Core



Healthcare



Special Applications



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ORDERING INFORMATION

A+ Capable options indicated by this color background.

Design2Ship Quick Ship Program: Options in green text qualify for Design2Ship — 5 business days from order entry to ship. Refer to Design2Ship Brochure for complete program details. **Maximum Order Quantity: 100 units; 50 for Chicago Plenum.**

Luminaire Type:

Catalog Number:

EXAMPLE: EV04 35/25 AR MWD LSS 120 EZ1

Series	Color Temperature	Nominal Lumen Values	Reflector & Flange Color	Trim Style	Distribution	Finish	Voltage
EV04	27/ 2700 K 30/ 3000 K 35/ 3500 K 40/ 4000 K 50/ 5000 K	02 250 lumens 05 500 lumens 07 750 lumens 10 1000 lumens 15 1500 lumens 20 2000 lumens 25 2500 lumens 30 3000 lumens 35 3500 lumens 40 4000 lumens 45 4500 lumens	AR Clear PR Pewter WTR Wheat GR Gold WR[1] White BR[1] Black WRAMF[1] White Anti-microbial	(blank) Self-flanged FL Flangeless	MD Medium (0.9 s/mh) MWD Medium wide (1.0 s/mh) WD Wide (1.2 s/mh)	LSS Semi-specular LD Matte-diffuse LS Specular	MVOLT 120 277 347[2,3]

Driver[4]	
GZ10	0-10V driver dims to 10%
GZ1	0-10V driver dims to 1%
EZ10	eldoLED 0-10V ECOdrive. Linear dimming to 10% min.
EZ1	eldoLED 0-10V ECOdrive. Linear dimming to 1% min.
EZB	eldoLED 0-10V SOLOdrive. Logarithmic dimming to <1%.
EDAB[4]	eldoLED SOLOdrive DALI. Logarithmic dimming to <1%.
EDXB[4]	eldoLED POWERdrive DMX with RDM (remote device management). Square Law dimming to <1%. Minimum 1000 lumens. Includes termination resistor. Refer to DMXR Manual.
ECOS2[5]	Lutron® Hi-Lume® 2-wire forward-phase driver.120V only. Minimum dimming level 1%. Min: 1000LM; Max: 2500LM
ECOD[5]	Lutron Ecosystem digital Hi-Lume 1% soft-on, fade to black. Min: 250LLM; Max: 4000LM.

Control Interface	
NLT[6]	nLight® dimming pack controls
NLTER[2,6,10]	nLight® dimming pack controls emergency circuit
NLTAIR2[13]	nLight® Air enabled
NLTAIRER2[2,10,13]	nLight® AIR Dimming Pack Wireless Controls. Controls fixtures on emergency circuit
NLTAIREM2[2,13]	nLight® AIR Dimming Pack Wireless Controls. Controls fixtures on emergency circuit with battery pack options.
EXA1	XPoint Wireless, eldoLED 0-10V ECOdrive. Linear dimming to 1%. Refer to XPoint tech sheet.
EXAB	XPoint Wireless, eldoLED 0-10V SOLOdrive. Logarithmic dimming to <1%. Refer to XPoint tech sheet.

Options	
SF	Single Fuse. Specify 120V or 277V
TRW[7]	White painted flange
TRBL[8]	Black painted flange
EL[9]	Emergency battery pack, 10W, with integral test switch
ELR[9]	Emergency battery pack, 10W, with remote test switch
ELSD[9]	Emergency battery pack, 10W, with self-diagnostics, integral test switch
ELRSD[9]	Emergency battery pack, 10W, with self-diagnostics, remote test switch
E10WCP[9]	Emergency battery pack, 10W Constant Power, CA Title 20 compliant with integral test switch
E10WCPR[9]	Emergency battery pack, 10W Constant Power, CA Title 20 compliant with remote test switch
N80[11]	nLight® Lumen Compensation
BGTD	Bodine generator transfer device. Specify 120V or 277V.
90CRI	High CRI (90+)
CP[12]	Chicago Plenum. Specify 120V or 277V for 5000lm and above.
RRL__	RELOC®-ready luminaire connectors enable a simple and consistent factory installed option across all ABL luminaire brands. Refer to RRL for complete nomenclature.

ACCESSORIES — order as separate catalog numbers (shipped separately)

SCA4	Sloped ceiling adapter. Degree of slope must be specified (5D, 10D, 15D, 20D, 25D, 30D). Ex: SCA4 10D. Refer to TECH-190.
CTAEV04	4" Aperture ceiling thickness adapter (extends mounting frame to accommodate ceiling thickness up to 5").
CTA4-8 YK	4"-8" Aperture ceiling thickness adapter (extends mounting frame to accommodate ceiling thickness up to 5"). For use with CWW/DWW trims, EDXB, CP or nTune options.
ISD BC	0-10V wallbox dimmer. Refer to ISD-BC.

ORDERING NOTES

1. Not available with finishes.
2. Not available with emergency battery pack options.
3. Supplied with factory installed step down transformer.
4. Refer to TECH-240 for compatible dimmers.
5. Not available with nLight® and XPoint options.
6. Must specify voltage.
7. For use with different reflector finish only (i.e. AR, PR, WTR, GR options). Not applicable with WR (white reflector) or FL (flangeless) option.
8. For use with different reflector finish only (i.e. AR, PR, WTR, GR options). Not applicable with BR (black reflector) or FL (flangeless) option.
9. 11" of plenum depth or top access required for battery pack maintenance.
10. ER for use as UL924 Emergency Operation via power sense lead. Will require an emergency hot feed and normal hot feed. EM for use as UL924 Emergency Operation via power interrupt detection.
11. Fixture begins at 80% light level. Must be specified with NLT or NLTER. Only available with EZ10 and EZ1 drivers.
12. Not available with ELR, HAO, EXA1, or EXAB options.
13. Not available DALI or DMX drivers. Not available with CP or N80 options. Not recommended for metal ceiling installations.

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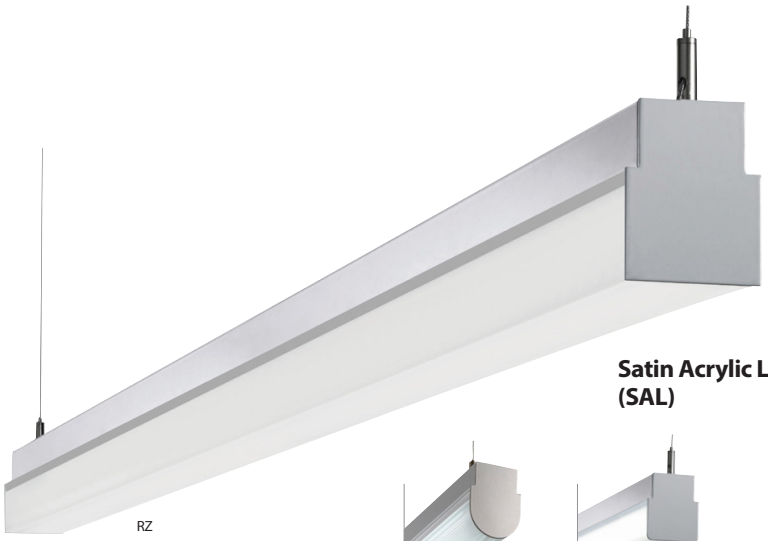
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Snap™ | Linear, Surface & Wall
Satin Acrylic

PRUDENTIAL LTG.
PRULITE.COM 213.746.0360

Type: WS

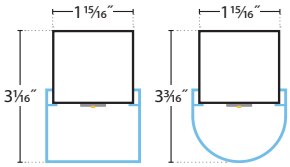
Job:



Satin Acrylic Lens (SAL)

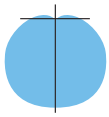






Our basic lighting building block.

This perfectly scaled wrap simply snaps quickly, neatly and securely into a wide range of spaces. Industry-leading optical performance and integrated controls help make Snap one of our best-selling fixtures. Our Linear Prismatic (LLP) lens turns Snap into an outstanding Stack fixture ideal for warehouses, manufacturing, libraries and more. See HalfSnap for a smaller profile.



Medium Output:
R1-LED35-MO-04-SAL

2480	Delivered Lumens
22	Watts
114	lm/w

UP TO 114 LM/W

	LO	MO	SO
lm/ft	480	620	900
w/ft	4.2	5.5	9

CLICK HERE

5 YEAR LED WARRANTY

LED Details

Made in the USA

Lumen output may vary +/- 5%
3500K used for lm/ft estimates above
4000K +2% llf, 3000K –2%, 2700K –4%
-10% LLF for 90 CRI (4K, 3500K and 3K)

See LED Details PDF for more info

SERIES	LED COLOR	OUTPUT	NOMINAL LENGTH	SHIELDING	COLOR/ FINISH	VOLTAGE	MOUNTING	CEILING SYSTEMS	DRIVERS	OPTIONS, SENSORS & CORNERS
R1 Round S1 Square RZ Razor Sharp Edged Lens	LED27 2700K (90CRI) LED3 3000K LED35 3500K LED4 4000K LED3-90 90CRI LED35-90 90CRI LED4-90 90CRI	LO Low MO Medium SO Standard PROG Programmable Light Output (Specify desired lm/ft or w/ft)	2´ 3´ 4´ 6´ 8´ R___ (Row length in 1´ increments) SRL Symmetric Row Length Row lengths are typically made up of 8' and 4' fixtures, (eg. 12' row is (1) 8' and (1) 4'), unless SRL Symmetric Row Lengths are spec'd **NOTE**: Individual fixtures are NOT intended for row mounting	SAL Satin Acrylic LLP Linear Prismatic Acrylic for LED (Stack optics, R1 Only) **NOTE:** See other Snap LED spec sheet for White Acrylic Lens	TMW Textured Matte White YGW Gloss White (Standard) Y__ Premium Color CC Custom Color **NOTE**: All canopies are painted the same color as the fixture. Consult factory to specify	UNV (120-277) 347 (Emergency battery requires a Step Down transformer)	SUR Surface or Wall Mount CA48", 96" or 144" Aircraft Cable (Adjustable)	X1 T-Bar 15/16" or 9/16" Exposed (Standard) Consult factory for 9/16" Tegular X3 Hard Ceiling X6 Slot Grid or Interlude	ND Non-Dimming DM01 0-10v, 1% Dimming (Standard) LDE5 Lutron 5-Series EcoSystem LED LDE1 Lutron Hi-lume 1% EcoSystem LED (Soft fade on, fade-to-black dimming) ECO 1% 0-10v, EldoLED (Logarithmic dimming std) ECDA 1% DALI, EldoLED (Logarithmic dimming std) SOLO 0.1% 0-10v, EldoLED (Dim-to-dark, Logarithmic dimming std) SODA 0.1% DALI, EldoLED (Dim-to-dark, Logarithmic dimming std)	EMHE Emergency Battery (1100 delivered lumens, CA Title 20 compliant, *4´ or longer (remote for < 4´)* TRS Tamper-Resistant Screws EBCP1G /2G Single / Dual Gang (Electrical Box Cover Plate/Mud Ring) PRUBIN Meticulous Binning and Labeling every LED Board within a 2-Step MacAdams Ellipse **SENSORS:** 205-ON/OFF† WattStopper PIR Occupancy **205-STEP:** Dim to 50% **205-DM:** Dim to 1% 211-FSP WattStopper DLH & Infrared Occupancy **211-FSP-L2:** 8' Mtg. Height, 48' Dia. Coverage **211-FSP-L3:** 20' Mtg. Height, 40' Dia. Coverage (Adds 6" to fixture length) LUX† Phillips DLH 505 WattStopper Ultrasonic Occupancy (SUR on wall mount only) **505-STEP:** Dim to 50% **505-DM:** Dim to 1% **NOTE :** NA <4' Sensor off center for 6' or 8' fixtures ENL† Enlighted 2-Wire DLH & Environmental † Adds 3" to fixture length **CORNERS:** C2 Unlit 90° 2-Way C2-120 Unlit 120° 2-Way C3 Unlit 90° 3-Way C3-120 Unlit 120° 3-Way C4 Unlit 90° 4-Way All corners available S1 Square Only

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Satin Acrylic

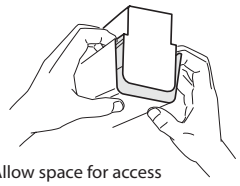
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YSW – Seashell White (Matte) | YCH – Champagne (Metallic)
YSL – Silver (Metallic) | YPE – Pewter (Matte)
YRG – Rain Grey (Gloss) | YSTM – Storm Grey (Matte)
YBK – Black (Matte) | YBB – Black (Semi Gloss)
YSKM – Sky (Matte) | YMB – Military Blue (Matte)
YIB – Interstate Blue (Matte) | YSAM – Sapphire (Matte)
YFGM – Forest Green (Matte) | YBR – Bronze (Matte)
YBY – Boysenberry (Matte) | YSRM – Sunset Red (Matte)
YOR – Orange (Matte) | YDAM – Daffodil (Matte)

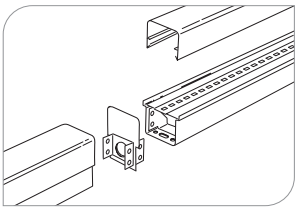
Choose from one of our Premium Colors with no set-up fee.

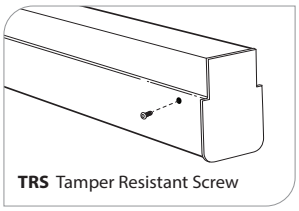
For paint chip samples, please email:
info@prulite.com

ADJOINING DETAIL



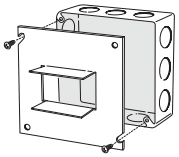
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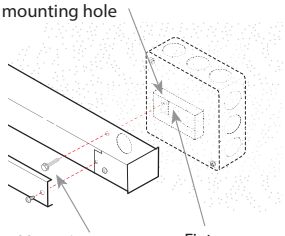


TRS Tamper Resistant Screw

EBCP Electrical Box Cover Plate



Wall cutout to clear fixture mounting hole



OPTIONAL ELECTRICAL BOX COVERS
7/8″ Dia. K.O. will accommodate 2″x 4″ or 4″x 4″ J-Box

CONTROL SENSORS



S1 SENSOR BOX:
205, LUX, ENL

NOTE: Adds 3″ to length, ENL: enlighted control module required



R1 SENSOR BOX:
205, LUX, ENL

NOTE: Adds 3″ to length, ENL: enlighted control module required



211:
WattStopper High/Low Passive Infrared Occupancy/DLH Sensor

NOTE: Adds 6″ to fixture length in center of fixture, FSP - L2 or L3 lens only

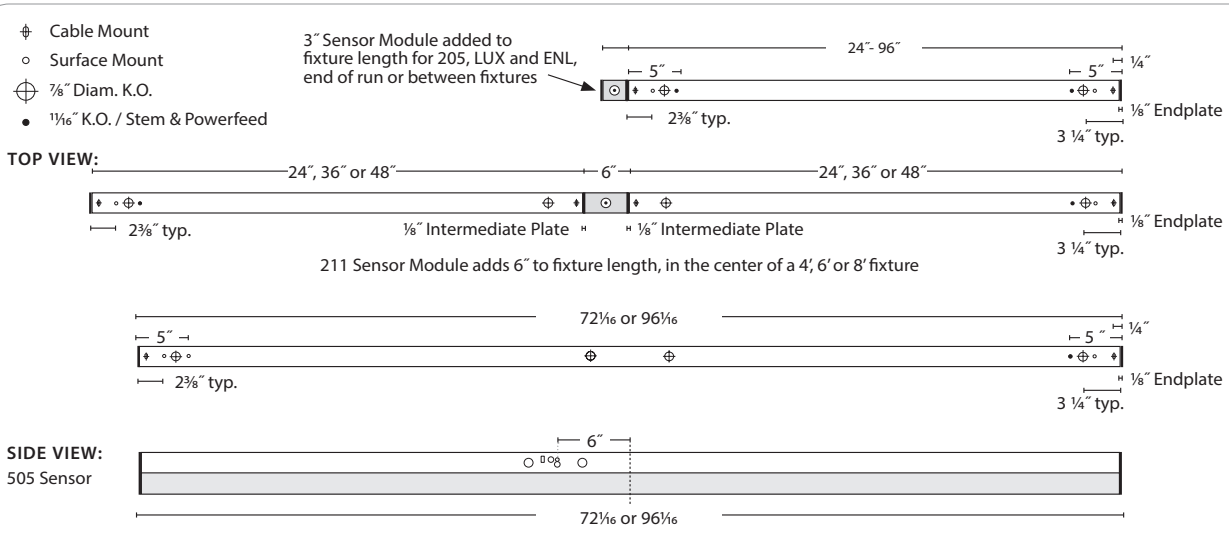


505:
WattStopper Ultrasonic Occupancy Sensor

NOTE: Small cut-out of lens around sensor, Surface mount on walls only

MOUNTING LOCATIONS

- Cable Mount
- Surface Mount
- ⅞″ Diam. K.O.
- 1⅛″ K.O. / Stem & Powerfeed



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