PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION

FOR

LTBB ODAWA INDIANS

HARBOR SPRINGS, MICHIGAN

BUILDING DATA

APPLICABLE CONSTRUCTION (BUILDING) CODES
2012 INTERNATIONAL EXISTING BUILDING CODE
2012 INTERNATIONAL BUILDING CODE

CONSTRUCTION TYPE
EX'G. – TYPE 5A/5B SEPARATED – COMBUSTIBLE/UNPROTECTED – PROTECTED
PROPOSED – TYPE 2B – NON–COMBUSTIBLE

USE AND OCCUPANCY CLASSIFICATION
EX'G. – GROUP B/A3 SEPARATED
PROPOSED – GROUP B

REQUIRED FIRE RESISTANCE RATINGS FOR BUILDING ELEMENTS (TABLE 601)
STRUCTURAL FRAME: 0 HOURS
BEARING WALLS (EXT): 0 HOURS
BEARING WALLS (INT): 0 HOURS
NON–BEARING WALLS AND PARTITIONS (EXT): 0 HOURS
NON–BEARING WALLS AND PARTITIONS (INT): 0 HOURS
FLOOR CONSTRUCTION: 0 HOURS
ROOF CONSTRUCTION: 0 HOURS

FIRE SUPPRESSION SYSTEMS
EX'G. – NONE
PROPOSED – CLEAN AGENT FIRE SUPPRESSION IN ADDITION

OCCUPANT LOAD AND EGRESS WIDTH
EX'G. – UNCHANGED
PROPOSED ADDITION – 12 OCCUPANTS

WORK AREA CALCULATIONS
GRADE LEVEL EX'G. – 1,274 sf LEVEL 2 ALTERATION
UPPER LEVEL EX'G. – 739 sf LEVEL 2 ALTERATION

LEVEL 2 ALTERATION < 50% OF TOTAL BUILDING AREA

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C2.1 SITE LAYOUT PLAN
C3.1 SITE GRADING PLAN

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D1.1 WORK AREA DEMOLITION PLAN / GRADE LEVEL
D1.2 WORK AREA DEMOLITION PLAN / BASEMENT AND UPPER LEVELS

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A1.1 WORK AREA FLOOR PLAN / GRADE LEVEL
A1.2 WORK AREA FLOOR PLAN / BASEMENT AND UPPER LEVEL
A2.1 RECEPTION COUNTER PLAN / MILLWORK DETAILS
A3.1 WORK AREA REFLECTED CEILING PLAN / GRADE LEVEL
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S2.1 STRUCTURAL DETAILS AND NOTES

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E3.2 ELECTRICAL POWER NEW WORK PLANS
E4.1 ELECTRICAL DETAILS
E4.2 ELECTRICAL DETAILS
E4.3 ELECTRICAL DETAILS

STATE OF MICHIGAN REGISTRATION

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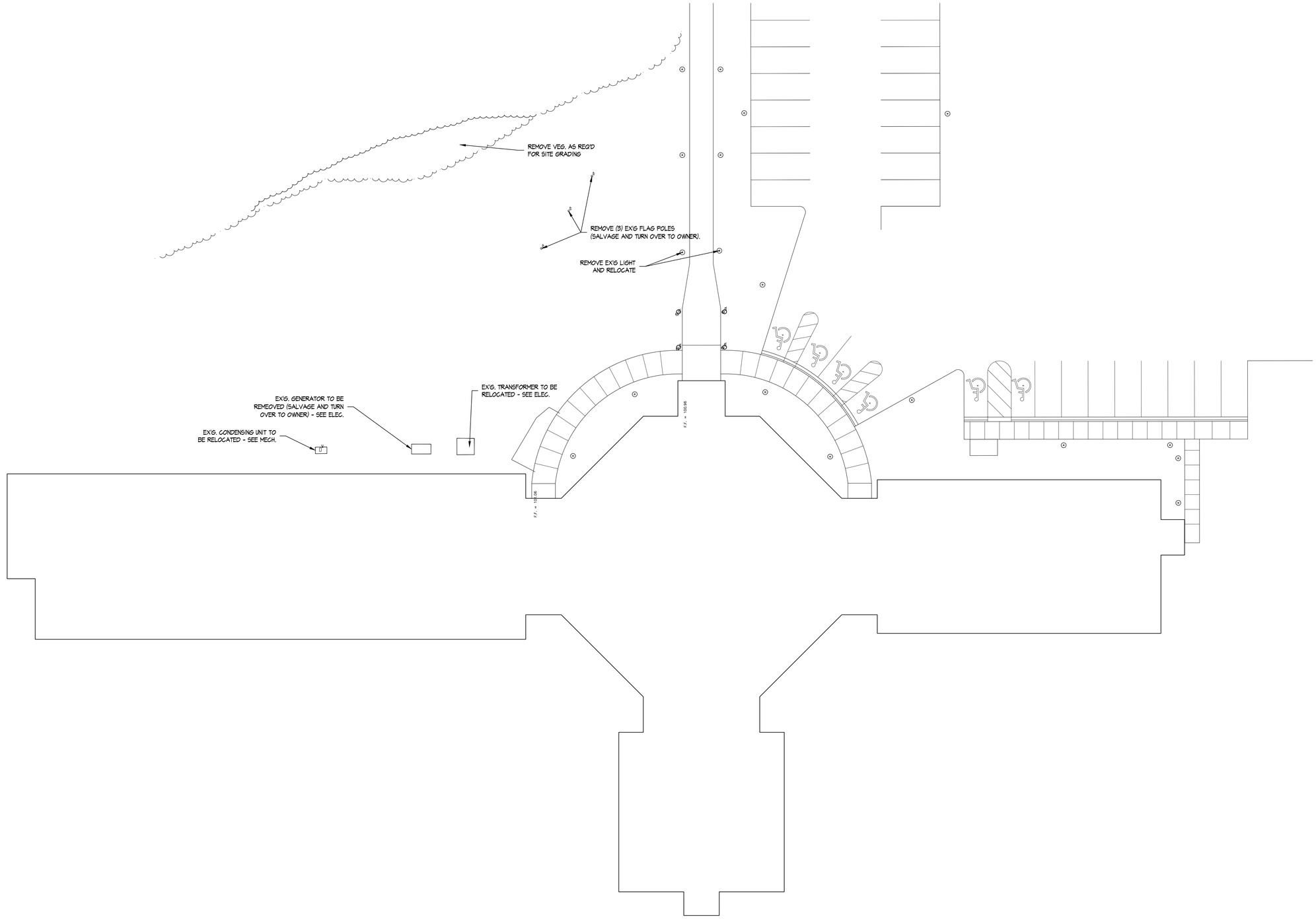
DRAWING TITLE
TITLE SHEET
PROJECT INFORMATION and NOTES

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO.
232-15

DATE
FEB 29, 2016

SHEET
T



NORTH

SITE DEMOLITION PLAN

SCALE: $\frac{1}{8}$" = 1'-0"

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DRAWING TITLE
SITE DEMOLITION PLAN

PROJECT TITLE
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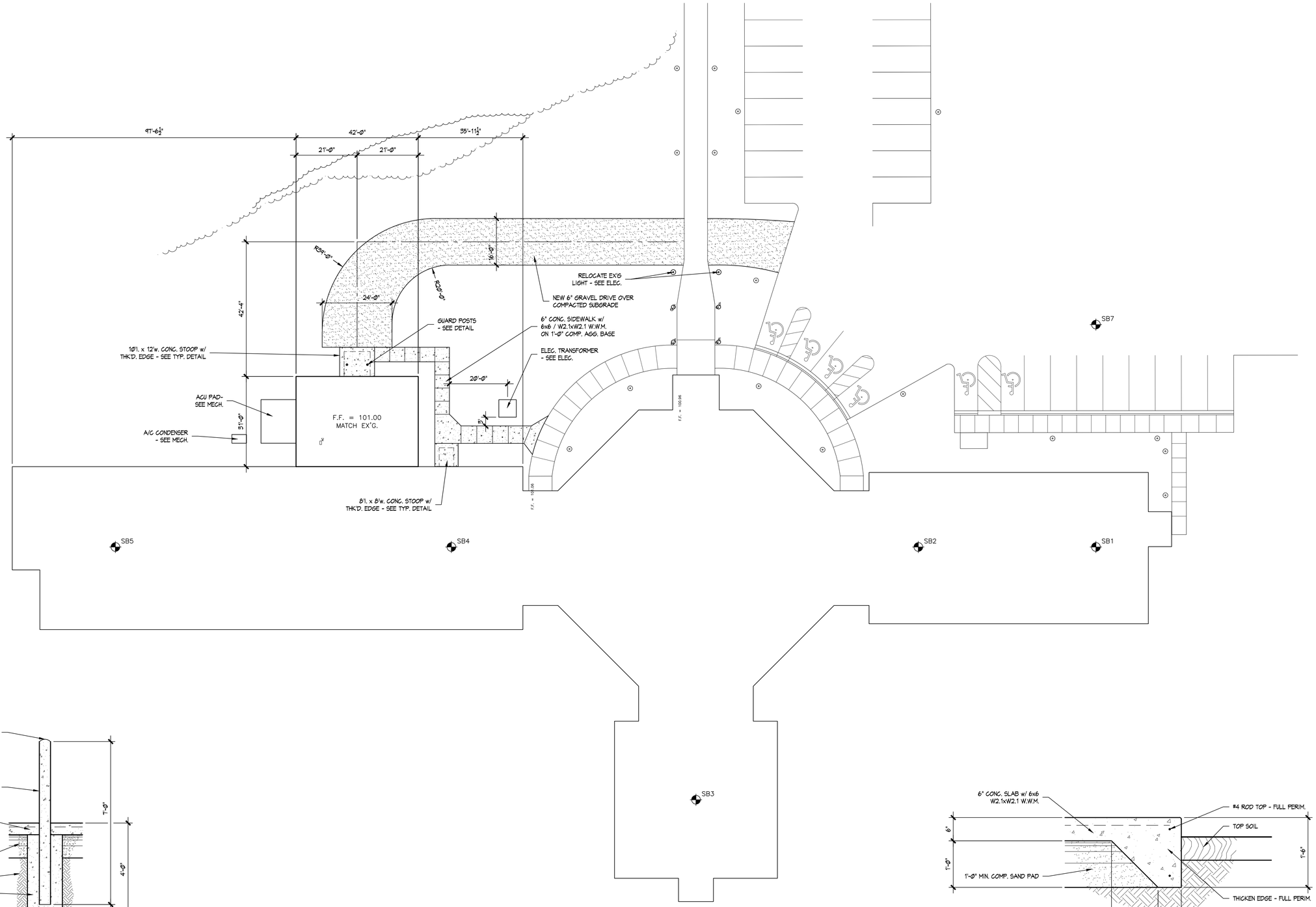
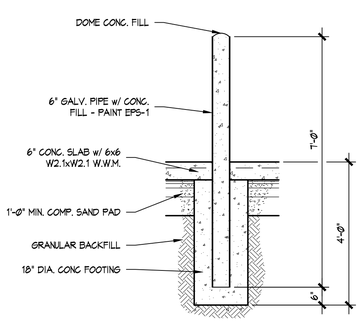
DATE
FEB 29, 2016

SHEET
C1.1





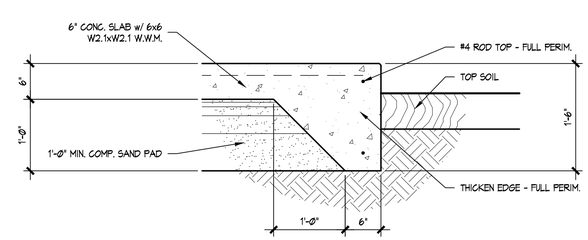
1 C2.1 TYP. GUARD POST

SCALE: ¼" = 1'-0"

NORTH

SITE LAYOUT PLAN

SCALE: 1/8" = 1'-0"



2 C2.1 TYP. STOOP DETAIL

SCALE: 1" = 1'-0"

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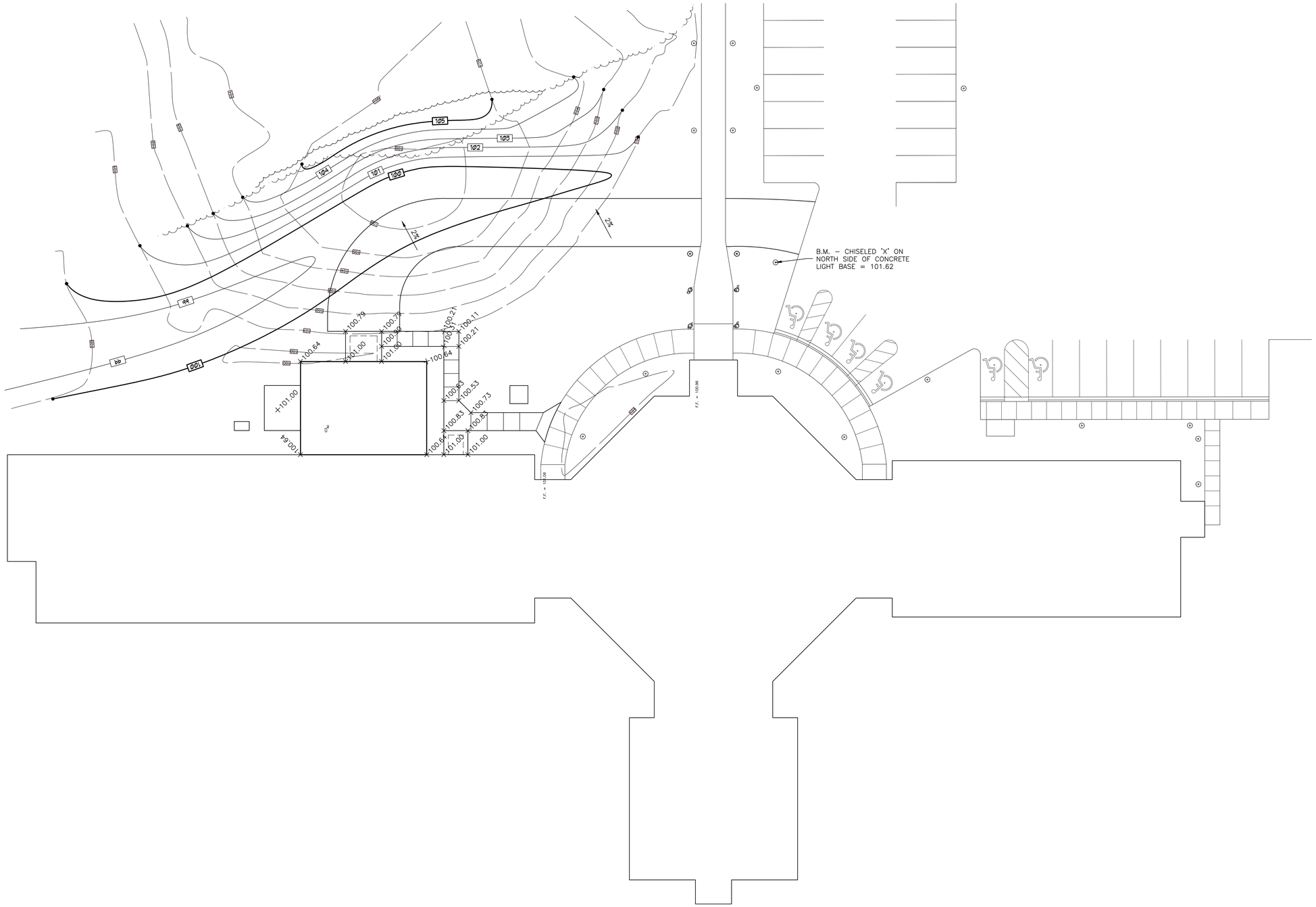
DRAWING TITLE
SITE LAYOUT PLAN
SITE DETAILS

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE FEB 29, 2016

SHEET C2.1



SITE GRADING PLAN

NORTH

SCALE: 1/8" = 1'-0"

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DRAWING TITLE
SITE GRADING PLAN

PROJECT TITLE
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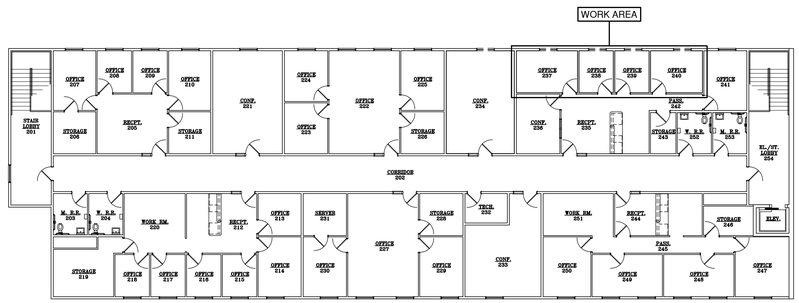
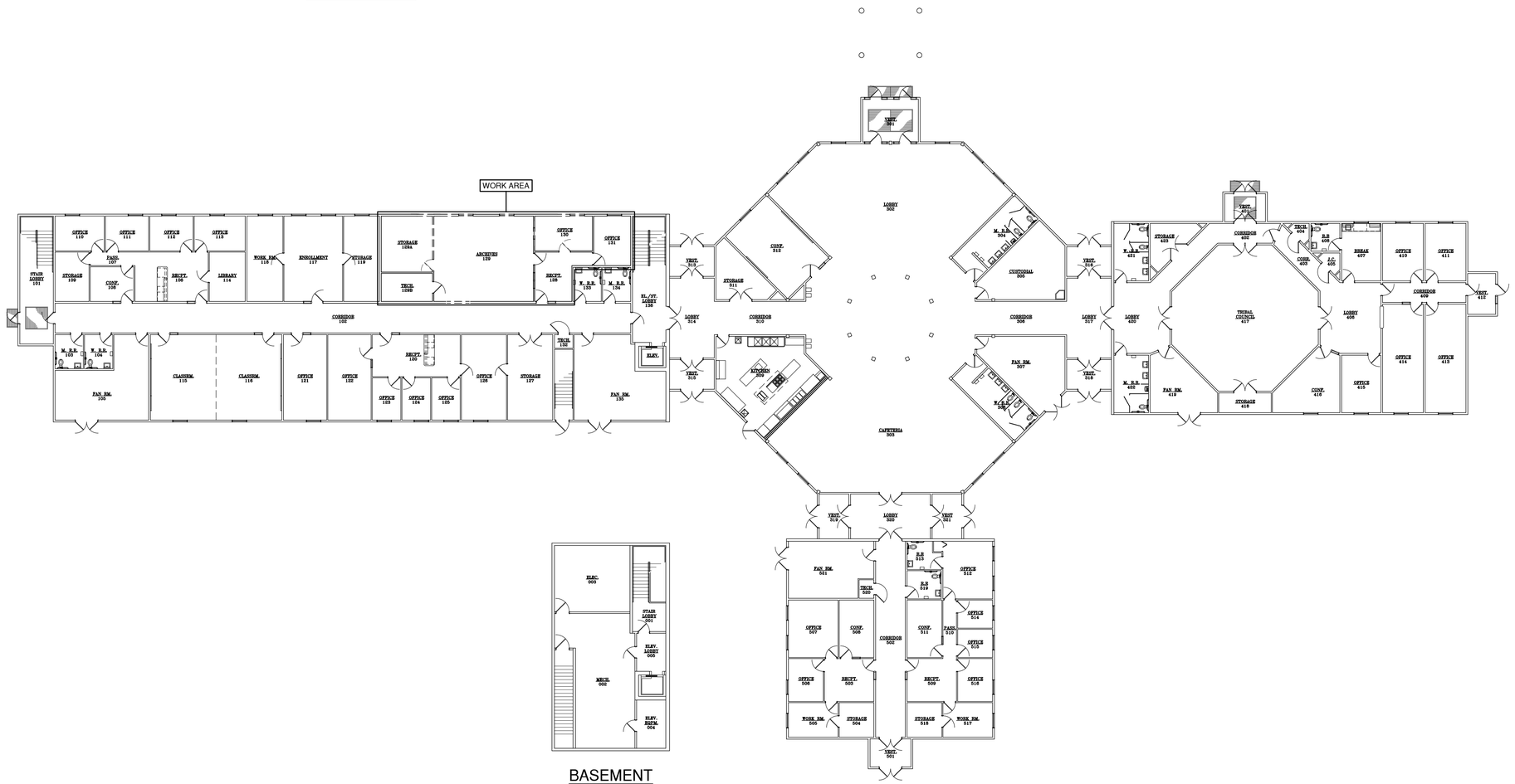
PROJECT NO. 232-15

DATE FEB 29, 2016

SHEET C3.1



UPPER FLOOR



BASEMENT

NORTH

COMPOSITE DEMOLITION PLAN

SCALE: $\frac{1}{8}$" = 1'-0"

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DRAWING TITLE
COMPOSITE DEMOLITION PLAN

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PROJECT NO.
232-15

DATE
FEB 29, 2016

SHEET
D0.1

KEYED DEMOLITION NOTES

- D1 REMOVE FLOORING AND WALL BASE.
- D2 REMOVE EX'G. PARTITION CONSTRUCTION AS REQ'D. TO CREATE NEW WALL OPENING.
- D3 REMOVE EX'G. DOOR AND FRAME.
- D4 REMOVE EX'G. WINDOW AND FRAME.
- D5 REMOVE EX'G. BORROWED LITE WINDOW AND FRAME.
- D6 REMOVE EX'G. LOAD BEARING WALL CONSTRUCTION AS REQ'D. TO CREATE NEW WALL OPENING. SHORE EX'G FRAMING ABOVE PRIOR TO DEMOLITION AND INSTALL NEW HEADER OVER OPENING.
- D7 REMOVE SUSPENDED CEILING. REFER TO MEP FOR ADDITIONAL REQUIREMENTS.
- D8 REMOVE SUSPENDED CEILING AS REQ'D FOR CONSTRUCTION OF NEW WORK.
- D9 REMOVE EXTERIOR SIDING AND TRIM AS REQ'D FOR NEW WORK. REFER TO EXTERIOR ELEVATIONS FOR REMOVAL EXTENTS.

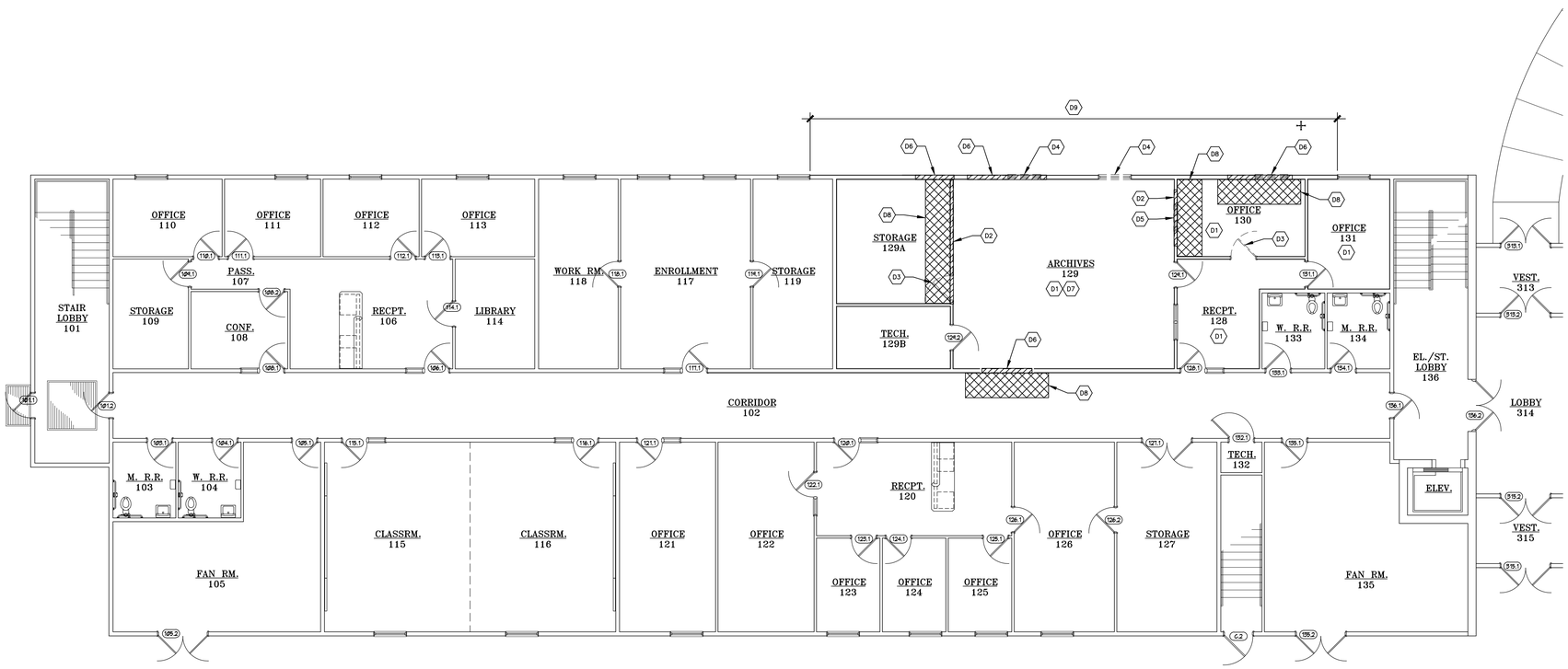
GENERAL DEMOLITION NOTES

REMOVE EX'G ASSEMBLIES TO THE EXTENT REQUIRED FOR THE INSTALLATION OF NEW WORK, AND TO ALLOW FOR CONNECTION OF NEW WORK TO EX'G ADJACENT CONSTRUCTION. ALL EX'G CONDITIONS ARE TO BE FIELD VERIFIED. CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENTS TO DEMOLITION AS REQ'D TO ACHIEVE THE OVERALL DESIGN INTENT.

CONTRACTOR SHALL REMOVE EX'G FLOORING FINISHES AS REQ'D TO ALLOW FOR NEW CONSTRUCTION AND/OR THE INSTALLATION OF NEW FINISHES AS NOTED.

CONTRACTOR SHALL FIELD VERIFY THE EXTENT OF CEILING REMOVAL AND REINSTALLATION NECESSARY TO INSTALL NEW WORK AS DEPICTED.

MODIFICATION OF BUILDING STRUCTURAL LOAD BEARING MEMBERS EXCEPT AS DESCRIBED HEREIN OR APPROVED BY THE ARCHITECT IN WRITING IS STRICTLY PROHIBITED. STRUCTURAL MODIFICATIONS DEPICTED HEREIN ARE BASED UPON INFORMATION DERIVED FROM THE OWNERS RECORD. CONTRACTOR SHALL REMOVE FINISHES FROM FRAMING AND SHALL CONSULT ARCHITECT FOR DIRECTION ON MODIFICATION OR REMOVAL OF LOAD BEARING STRUCTURAL ITEMS (COLUMNS, BEAMS, FLOOR JOISTS, AND TRUSSES) NOT SPECIFICALLY INDICATED HEREIN.



WORK AREA DEMOLITION PLAN - GRADE LEVEL

NORTH

SCALE: 1/8" = 1'-0"

PLAN DIMENSIONS GIVEN ARE FACE-OF-STUD TO FACE-OF-STUD.

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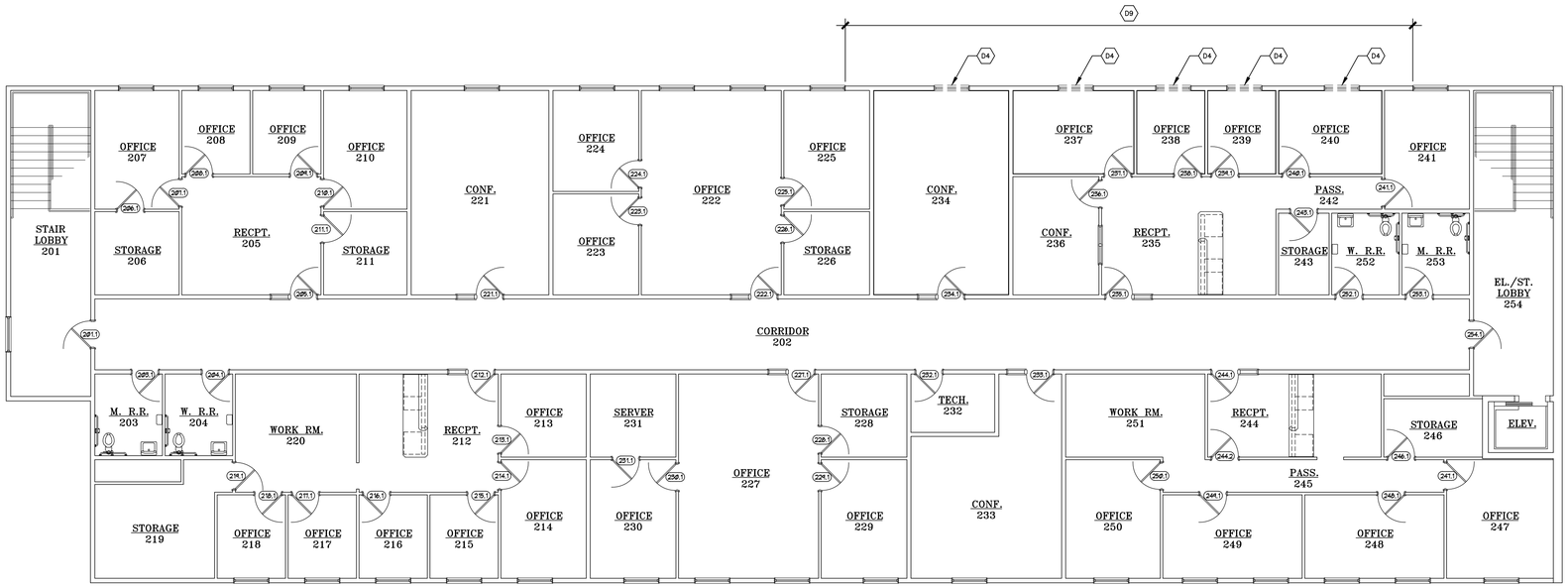
DRAWING TITLE
WORK AREA DEMOLTION PLAN
GRADE LEVEL

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE FEB 29, 2016

SHEET D1.1



WORK AREA DEMOLITION PLAN - UPPER LEVEL

NORTH

SCALE: $\frac{1}{8}$" = 1'-0"

PLAN DIMENSIONS GIVEN ARE FACE-OF-STUD TO FACE-OF-STUD.

KEYED DEMOLITION NOTES

- D1 REMOVE FLOORING AND WALL BASE.
- D2 REMOVE EX'G. PARTITION CONSTRUCTION AS REQ'D. TO CREATE NEW WALL OPENING.
- D3 REMOVE EX'G. DOOR AND FRAME.
- D4 REMOVE EX'G. WINDOW AND FRAME.
- D5 REMOVE EX'G. BORROWED LITE WINDOW AND FRAME.
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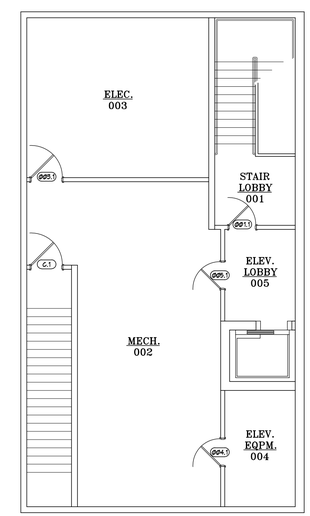

WORK AREA DEMOLITION PLAN - BASEMENT

NORTH

SCALE: $\frac{1}{8}$" = 1'-0"

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DRAWING TITLE
WORK AREA DEMOLITION PLAN
BASEMENT AND UPPER LEVEL

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
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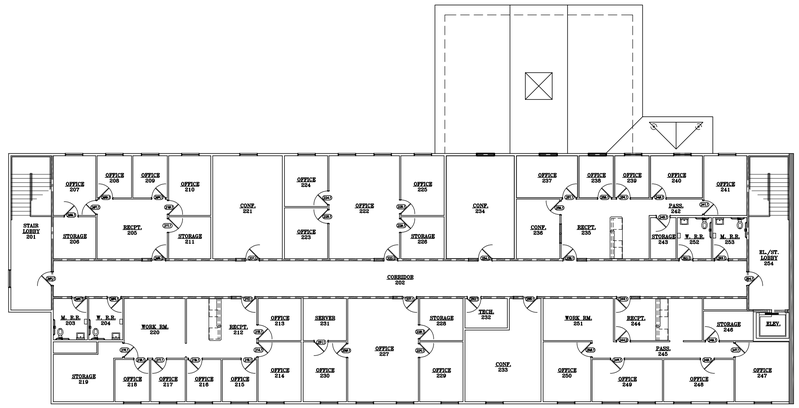
HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

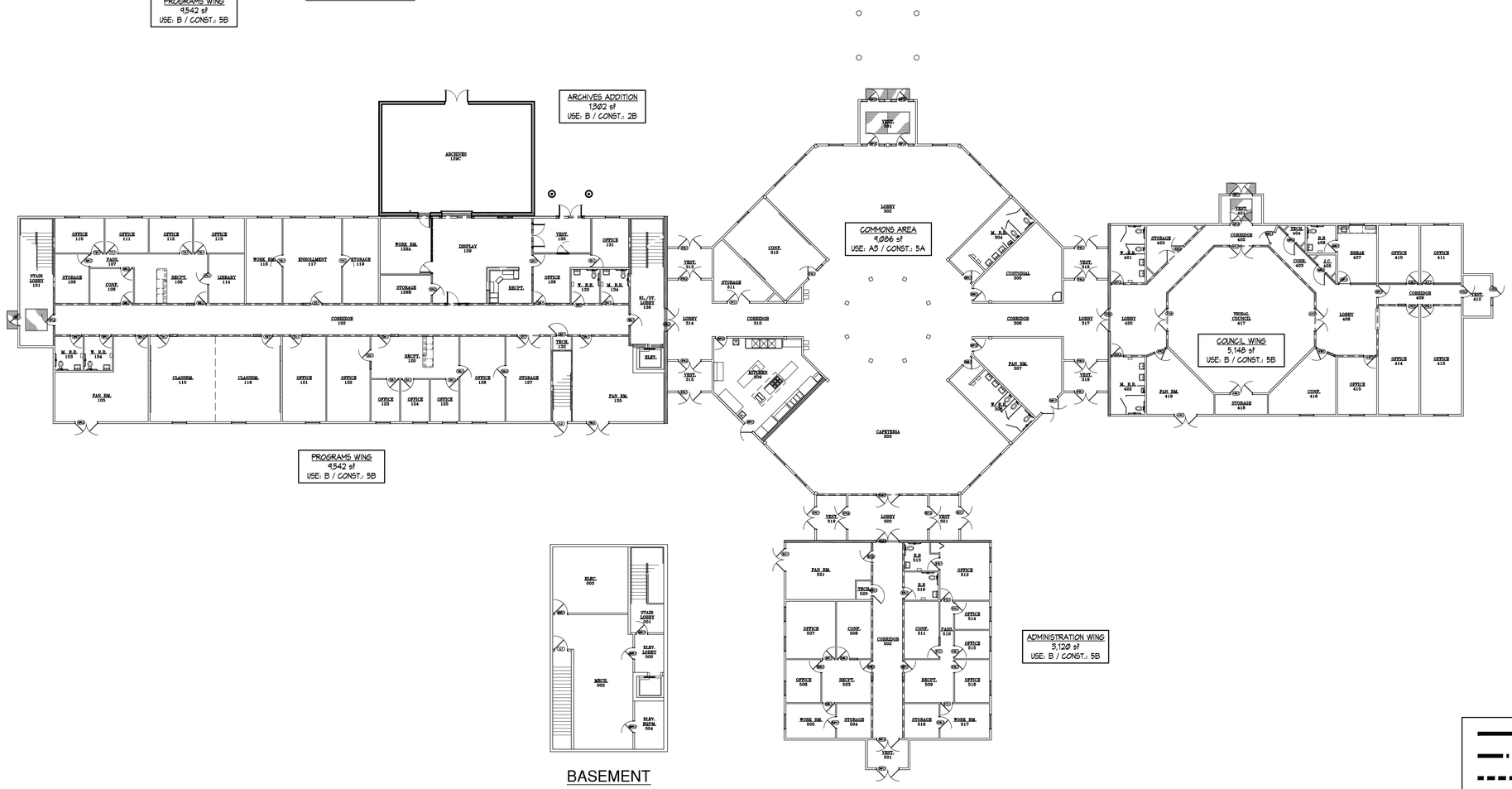
DATE FEB 29, 2016

SHEET D1.2



UPPER FLOOR

PROGRAMS WING
9542 sf
USE: B / CONST.: 5B



2 hr. FIRE RATED FIRE WALL

1 hr. FIRE RATED FIRE BARRIER

1 hr. FIRE RATED PARTITION

ALL ROOF/CEILING AND FLOOR CEILING ASSEMBLIES ARE 1 hr. FIRE RATED w/ (2) LAYERS $\frac{5}{8}$" GYP. BD. ON UNDERSIDE OF TRUSS FRAMING.

NORTH

COMPOSITE FLOOR PLAN

SCALE: $\frac{1}{16}$" = 1'-0"

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DRAWING TITLE
COMPOSITE FLOOR PLAN

PROJECT TITLE
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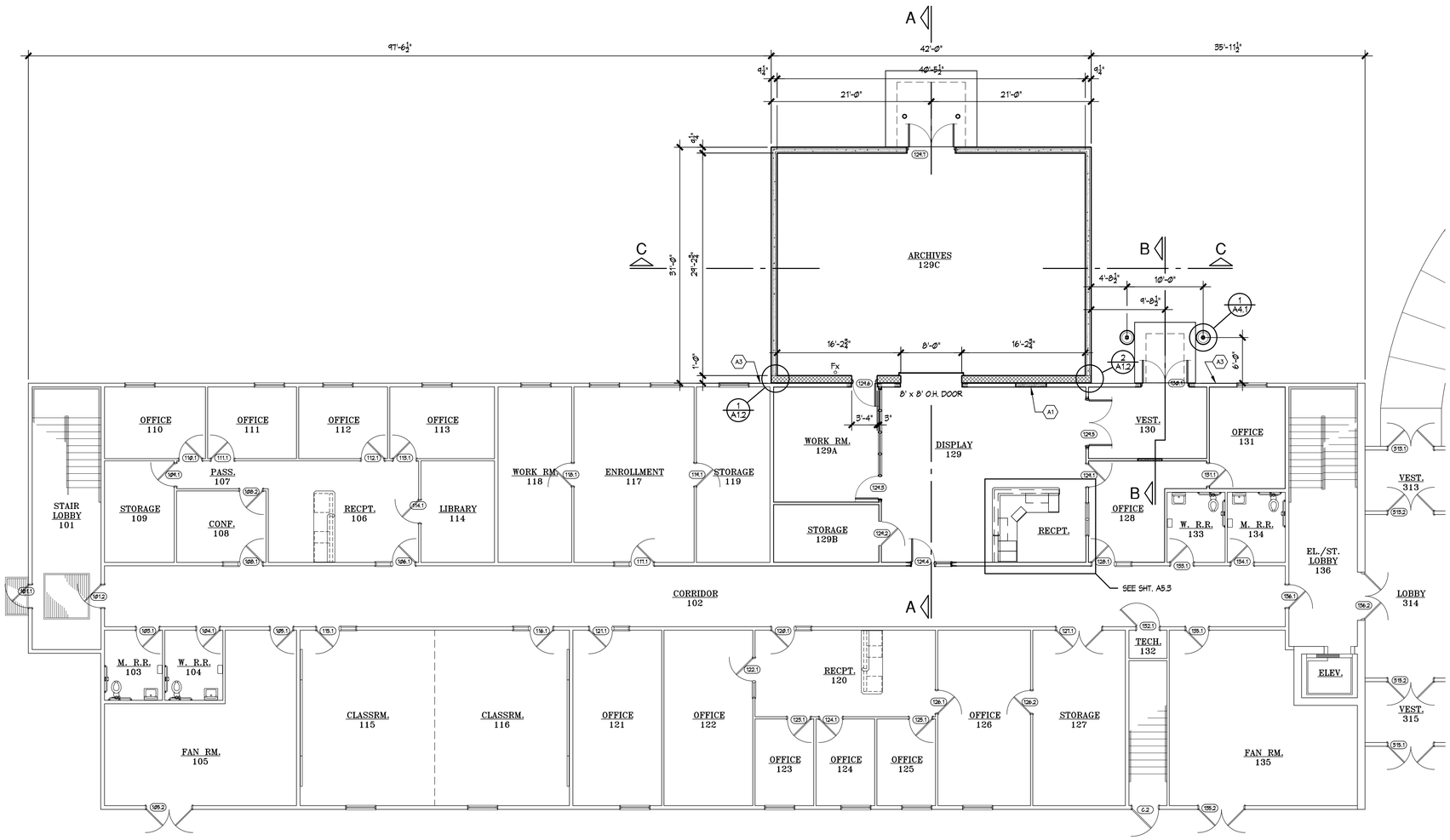
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO.
232-15

DATE
FEB 29, 2016

SHEET
A0.1



KEYED CONSTRUCTION NOTES

A1 INFILL EX'G OPENING w/ 2x6 STUDS, BATT INSULATION, $\frac{5}{8}$" GYP. BD. SHEATHING, AND $\frac{1}{2}$" OSB, ALL TO MATCH EX'G.

A2 INFILL EX'G OPENING w/ 2x6 STUDS, BATT INSULATION, $\frac{5}{8}$" GYP. BD. SHEATHING, AND $\frac{1}{2}$" OSB AS REQ'D TO CREATE NEW OPENING FOR NEW WINDOW.

A3 PATCH EXTERIOR SIDING UNDERLAYMENT AND INSTALL NEW SIDING, TRIM, AND SIMULATED STONE VENEER TO MATCH EXISTING. SEE EXTERIOR ELEVATIONS FOR EXTENTS OF NEW EXTERIOR FINISHES.

GENERAL CONSTRUCTION NOTES

PATCH WALLS AND CEILINGS ADJACENT TO NEW WORK AS REQUIRED TO BLEND NEW WORK INTO EXISTING WITH NEW MATERIALS AND FINISHES MATCHING EXISTING. FIELD VERIFY QUANTITIY AND EXTENT OF WORK REQUIRED AND INCLUDE PROVISIONS FOR PATCHING WORK IN THE BID.

NORTH

WORK AREA FLOOR PLAN - GRADE LEVEL

SCALE: $\frac{1}{8}$" = 1'-0"

PLAN DIMENSIONS GIVEN ARE FACE-OF-STUD TO FACE-OF-STUD.

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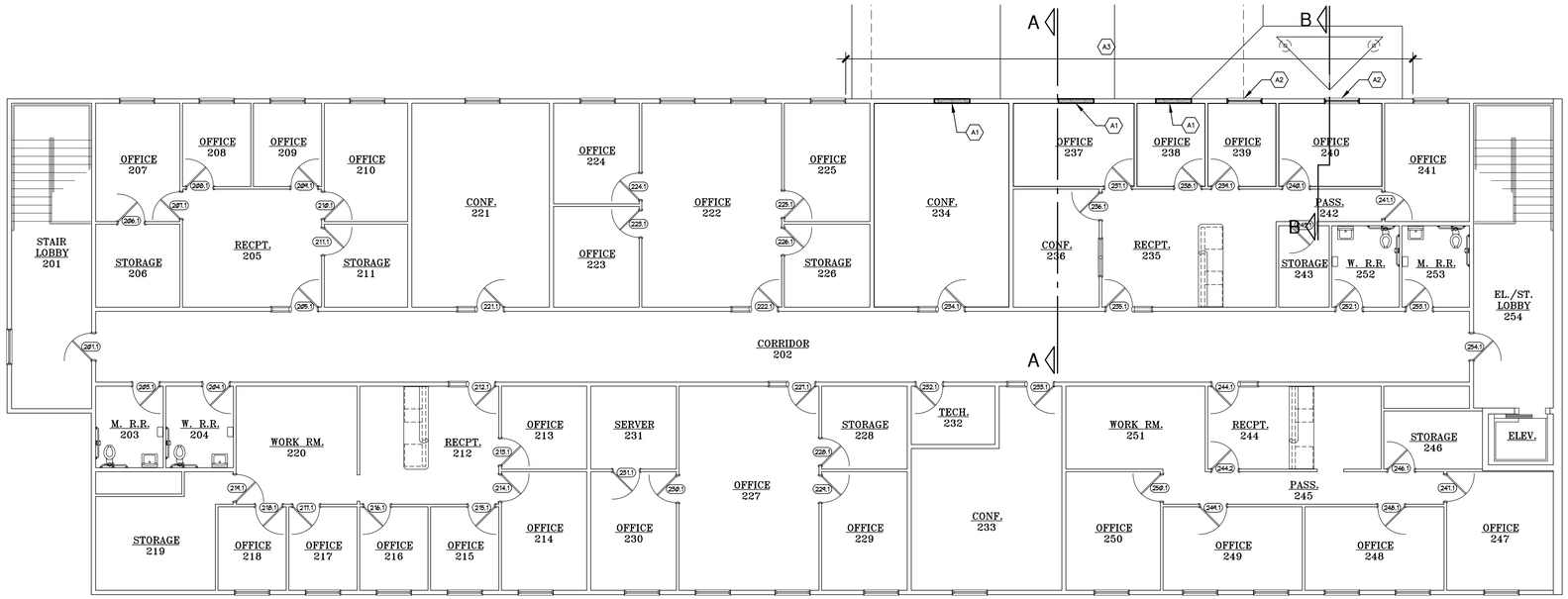
DRAWING TITLE
WORK AREA FLOOR PLAN
GRADE LEVEL

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE FEB 29, 2016

SHEET A1.1



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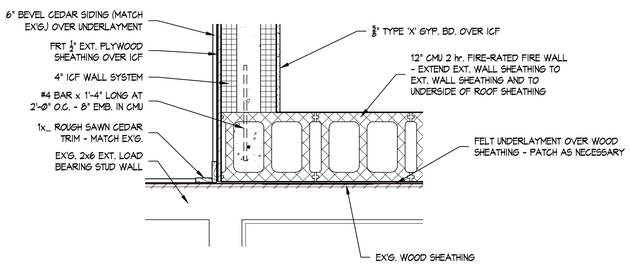
PATCH WALLS AND CEILINGS ADJACENT TO NEW WORK AS REQUIRED TO BLEND NEW WORK INTO EXISTING WITH NEW MATERIALS AND FINISHES MATCHING EXISTING. FIELD VERIFY QUANTITIY AND EXTENT OF WORK REQUIRED AND INCLUDE PROVISIONS FOR PATCHING WORK IN THE BID.

NORTH

WORK AREA FLOOR PLAN - UPPER LEVEL

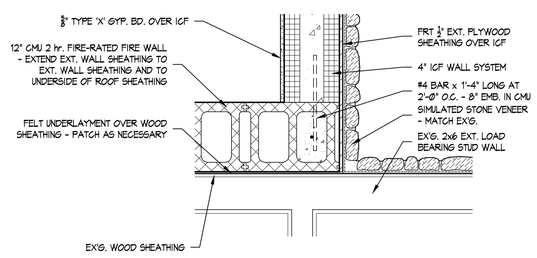
SCALE: $\frac{1}{8}$" = 1'-0"

PLAN DIMENSIONS GIVEN ARE FACE-OF-STUD TO FACE-OF-STUD.



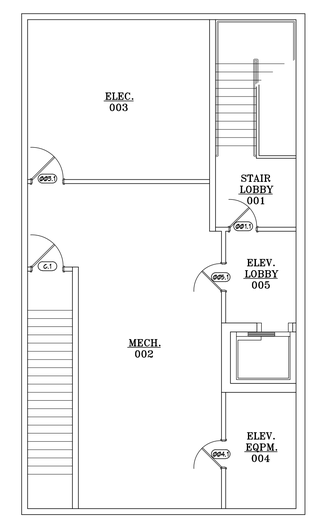
1 A1.2 WALL DETAIL

SCALE: 1" = 1'-0"



2 A1.2 WALL DETAIL

SCALE: 1" = 1'-0"



NORTH

WORK AREA FLOOR PLAN - BASEMENT

SCALE: $\frac{1}{8}$" = 1'-0"

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DRAWING TITLE
WORK AREA FLOOR PLAN
BASEMENT AND UPPER LEVEL

PROJECT TITLE
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HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

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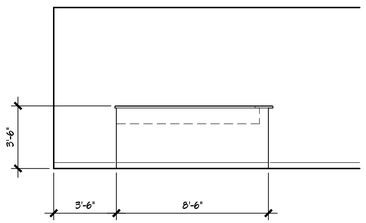
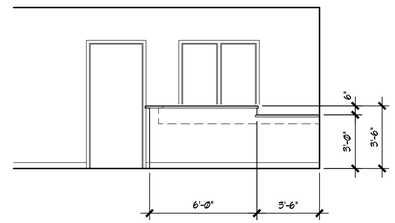
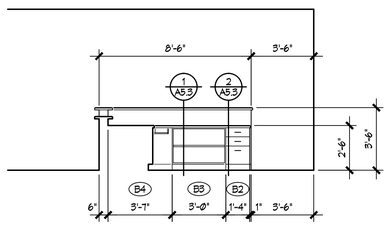
SHEET A1.2



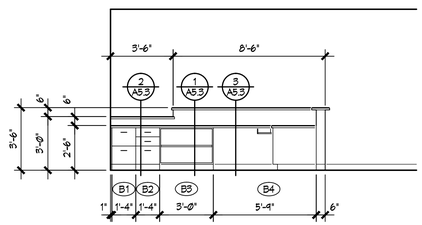
1 A5.3 EAST ELEVATION
SCALE: 1/4" = 1'-0"



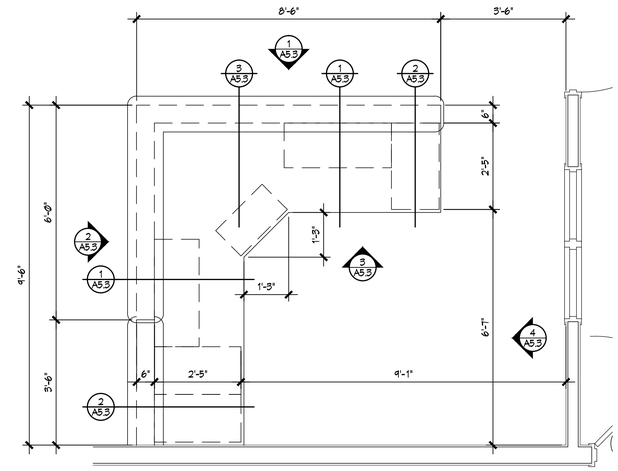
2 A5.3 NORTH ELEVATION
SCALE: 1/4" = 1'-0"



3 A5.3 WEST ELEVATION
SCALE: 1/4" = 1'-0"

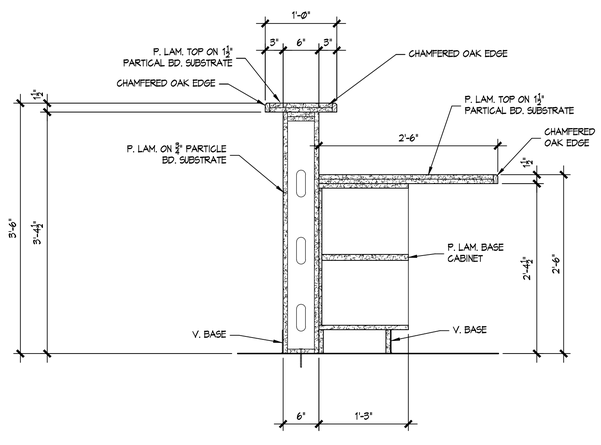


4 A5.3 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

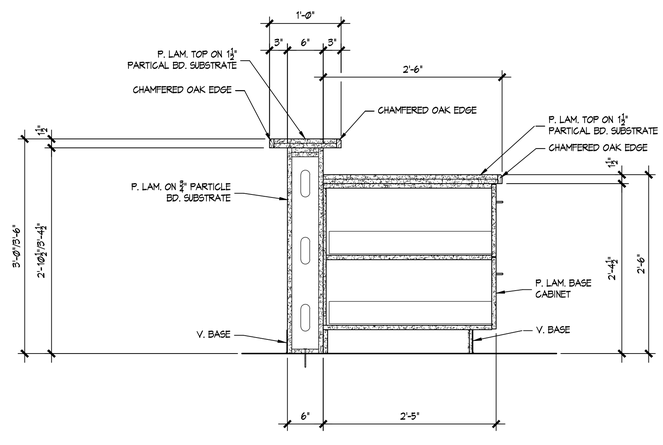


NORTH
RECEPTION COUNTER PLAN
SCALE: 1/4" = 1'-0"

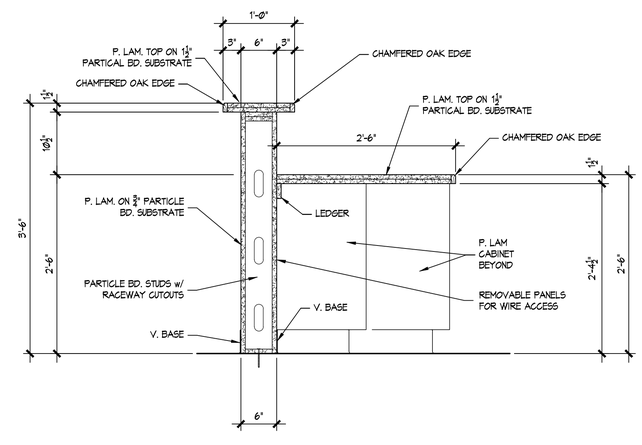
CASEWORK SCHEDULE					
MARK	DESCRIPTION	DIMENSIONS SIZE (WxDx*H)	DOORS	DRAWERS	SHELVES
B1	LOCKING FILE CABINET	16x24x30	0	2	0
B2	LOCKING DRAWER CABINET	16x24x30	0	3	0
B3	OPEN SHELVING BASE	36x15x30	0	0	1
B4	PULL-OUT KEYBOARD TRAY	N.A.	0	0	1
* BASE CABINET HEIGHT DIMENSION IS TO TOP OF COUNTER.					



1 A5.3 RECEPTION COUNTER
SCALE: 1" = 1'-0"



2 A5.3 RECEPTION COUNTER
SCALE: 1" = 1'-0"



3 A5.3 RECEPTION COUNTER
SCALE: 1" = 1'-0"

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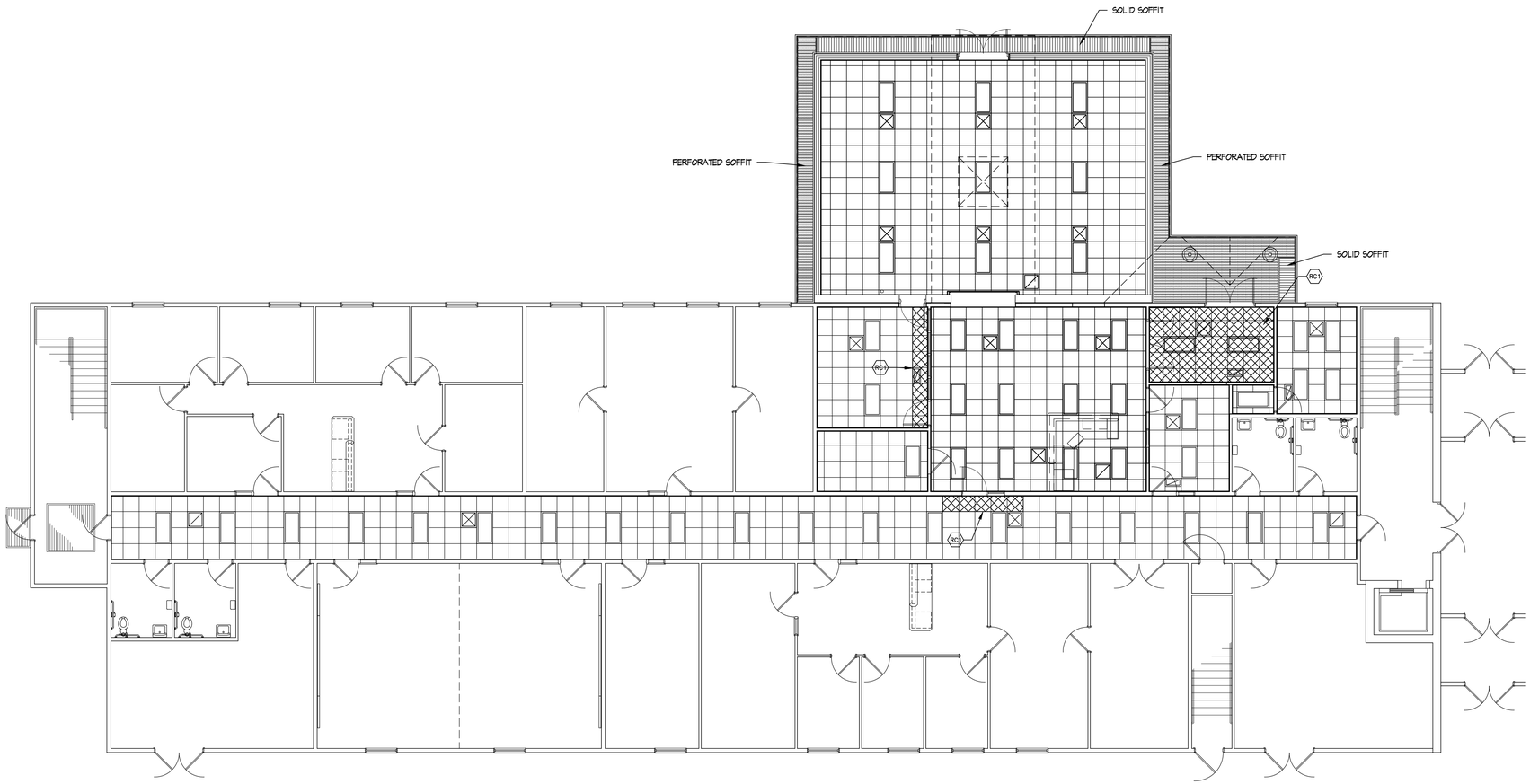
DRAWING TITLE
RECEPTION COUNTER PLAN
MILLWORK DETAILS

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO.
232-15

DATE
FEB 29, 2016

SHEET
A2.1



KEYED CEILING NOTES

RC1 PATCH CEILING REMOVED TO ALLOW INSTALLATION OF NEW WORK WITH NEW MATERIALS TO MATCH EXISTING CEILING.

GENERAL CONSTRUCTION NOTES

PATCH WALLS AND CEILINGS ADJACENT TO NEW WORK AS REQUIRED TO BLEND NEW WORK INTO EXISTING WITH NEW MATERIALS AND FINISHES MATCHING EXISTING. FIELD VERIFY QUANTITIY AND EXTENT OF WORK REQUIRED AND INCLUDE PROVISIONS FOR PATCHING WORK IN THE BID.

NORTH

WORK AREA REFLECTED CEILING PLAN - GRADE LEVEL

SCALE: 1/8" = 1'-0"

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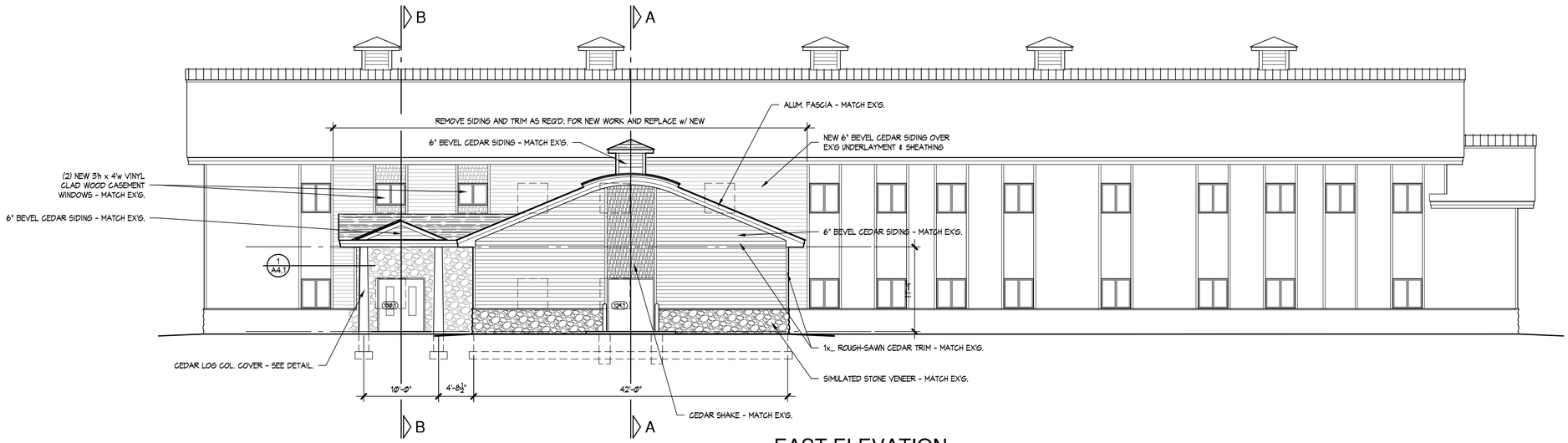
DRAWING TITLE
WORK AREA REFL'D. CEILING PLAN
GRADE LEVEL

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

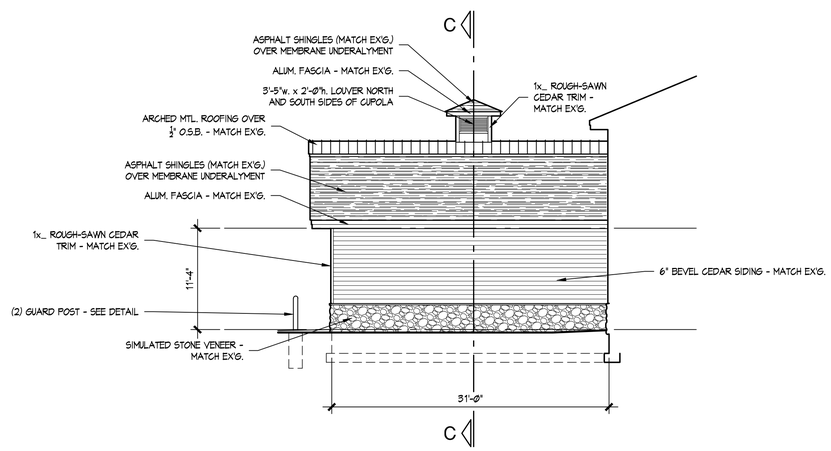
DATE FEB 29, 2016

SHEET A3.1



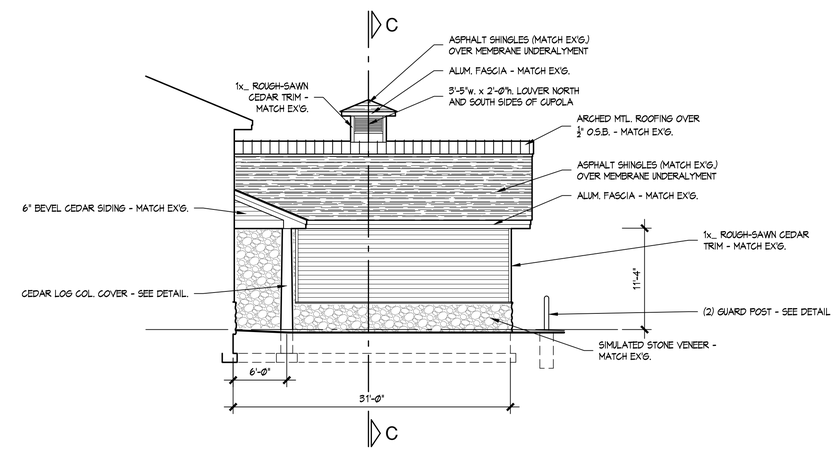
EAST ELEVATION

SCALE: 1/8" = 1'-0"



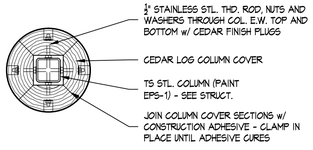
NORTH ELEVATION

SCALE: 1/8" = 1'-0"



SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



1 A4.1 COLUMN DETAIL

SCALE: 1" = 1'-0"

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DRAWING TITLE
EXTERIOR ELEVATIONS
BUILDING DETAILS

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

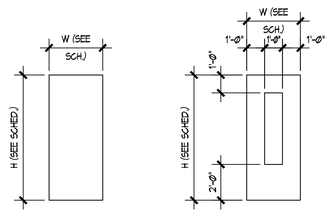
PROJECT NO. 232-15

DATE FEB 29, 2016

SHEET A4.1

DOOR, FRAME AND HARDWARE SCHEDULE

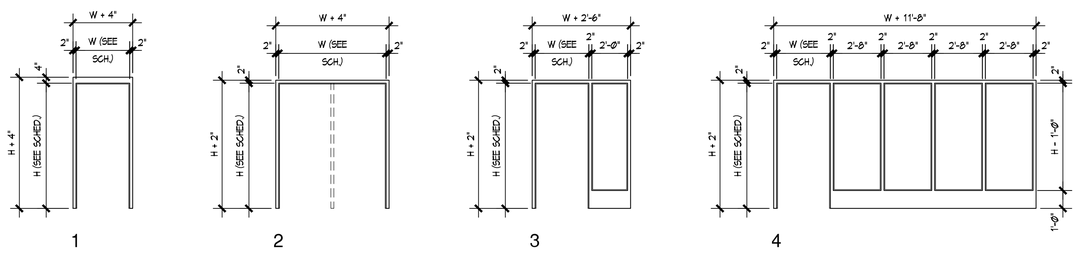
DOOR NO.	DOOR SIZE	DOOR DATA			FRAME DATA			DETAILS		FIRE RATING	HDWE GROUP	REMARKS
		MAT.	TYPE	GLAZING	MAT.	TYPE	GLAZING	HEAD	JAMB			
129.3	3'-0"x7'-0"	WD	A	-	HM	4	1/4" SAFETY	H1	J1	-	4	
129.4	3'-0"x7'-0"	WD	A	-	HM	3	1/4" FIRE	H1	J1	C-20	1	
129.5	PR 3'-0"x7'-0"	WD	B	1/4" SAFETY	HM	2	-	H1	J1	-	3	
129.6	3'-0"x7'-0"	WD	A	-	HM	1	-	H2	J2	B-90	2	
129.7	PR 3'-0"x7'-0"	FRP	A	-	AL	2	-	H3	J3	-	5	
130.1	PR 3'-0"x7'-0"	FRP	B	1" INSUL.	AL	2	-	H4	J4	-	5	



A B

DOOR PROFILES

SCALE: 1/4" = 1'-0"



1 2 3 4

FRAME PROFILES

SCALE: 1/4" = 1'-0"

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR MAT.	WALL BASE	WALL FINISH				CEILING FINISH		REMARKS
				NORTH	EAST	SOUTH	WEST	CEILING FINISH	HEIGHT	
128	OFFICE	C	4" V	EX'G GB / IPS-1 - KEYNOTE 1				ETR	8'-0"	
129	DISPLAY	C	4" V	EX'G GB / IPS-1 - KEYNOTE 1				SAT-1	9'-0"	
129A	WORK ROOM	ETR	ETR	EX'G GB / IPS-1 - KEYNOTE 1				ETR	8'-0"	
129B	STORAGE	ETR	ETR	EX'G GB / IPS-1 - KEYNOTE 1				ETR	8'-0"	
129C	ARCHIVES	FAF	4" V	GB / IPS-1			CMU / IPS-1	SAT-1	9'-0"	
130	VESTIBULE	PT	PT	EX'G GB / IPS-1 - KEYNOTE 1				ETR	8'-0"	
131	OFFICE	C	4" V	EX'G GB / IPS-1 - KEYNOTE 1				ETR	8'-0"	
234	CONFERENCE	ETR	ETR	ETR	EX'G GB / IPS-1 - KEYNOTE 1	ETR		ETR	8'-0"	
237	OFFICE	ETR	ETR	ETR	EX'G GB / IPS-1 - KEYNOTE 1	ETR		ETR	8'-0"	
238	OFFICE	ETR	ETR	ETR	EX'G GB / IPS-1 - KEYNOTE 1	ETR		ETR	8'-0"	
239	OFFICE	ETR	ETR	ETR	EX'G GB / IPS-1 - KEYNOTE 1	ETR		ETR	8'-0"	
240	OFFICE	ETR	ETR	ETR	EX'G GB / IPS-1 - KEYNOTE 1	ETR		ETR	8'-0"	

KEYED ROOM FINISH NOTES:

1. PAINT EX'G GB WALLS AND ANY NEW INFILL IPS-1.

GENERAL ROOM FINISH NOTES:

1. PAINT ALL NEW INTERIOR HOLLOW METAL DOOR FRAMES IPS-2 - COLOR TO MATCH EX'G.

ROOM FINISH SCHEDULE ABBREVIATIONS:

C	CARPET
CMU	CONCRETE MASONRY UNITS
FAF	FLUID APPLIED FLOORING
GB	GYPSUM BOARD
IPS-1	INTERIOR PAINT SYSTEM -1 (LATEX)
IPS-2	INTERIOR PAINT SYSTEM -2 (ENAMEL)
PT	PORCELAIN TILE
SAT-1	SUSPENDED ACOUSTICAL TILE TYPE 1 - 2' x 2'
V	VINYL WALL BASE

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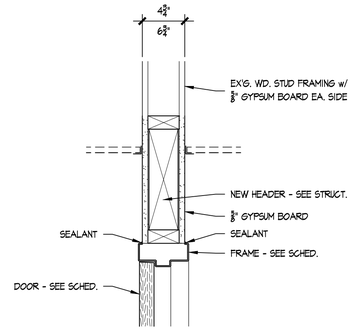
DRAWING TITLE
DOOR SCHEDULE AND DETAILS
ROOM FINISH SCHEDULE

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

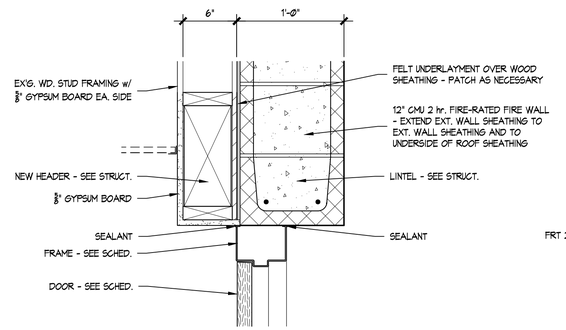
PROJECT NO. 232-15

DATE FEB 29, 2016

SHEET A5.1



H1



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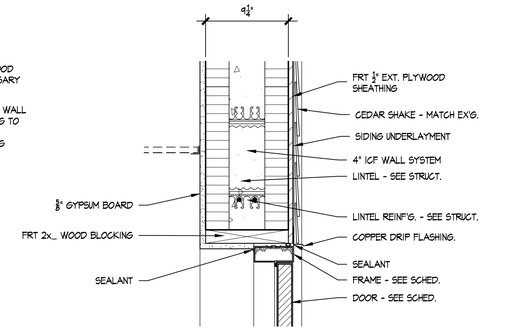

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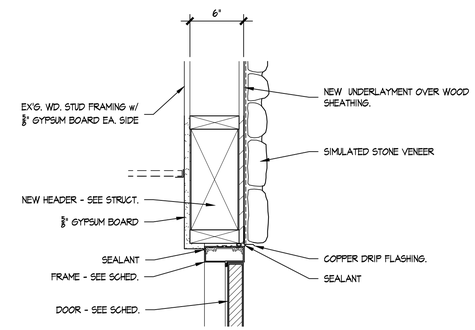

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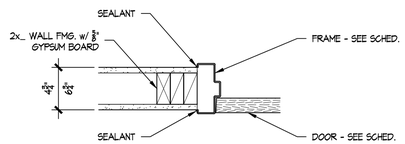

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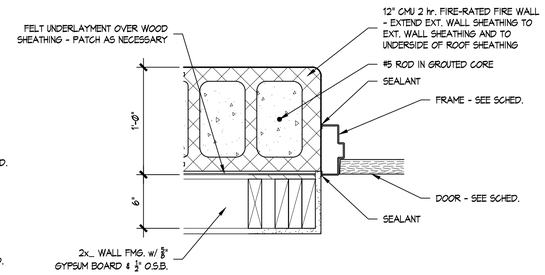

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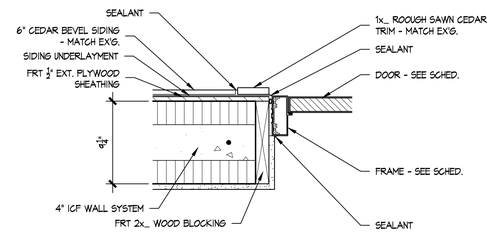
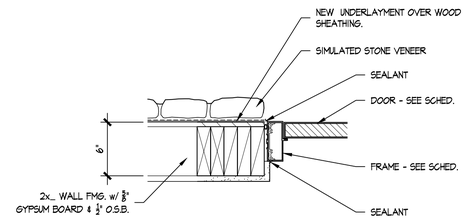
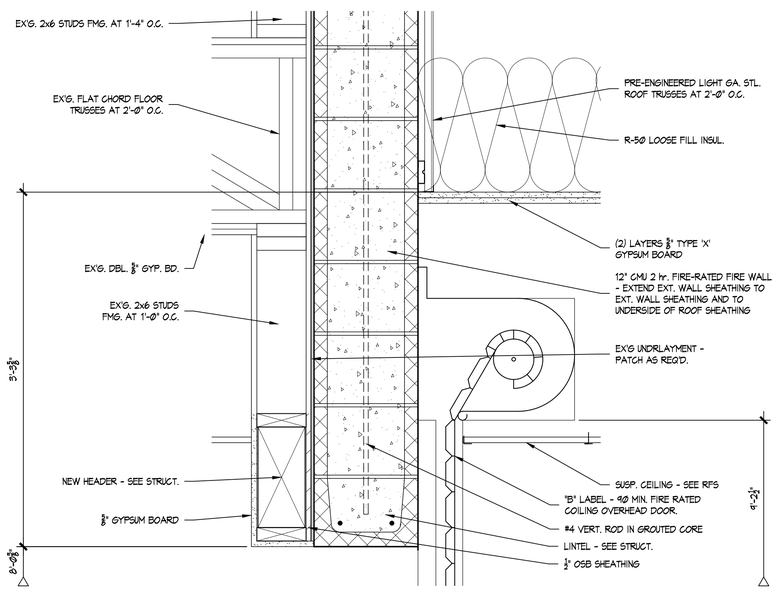


J3

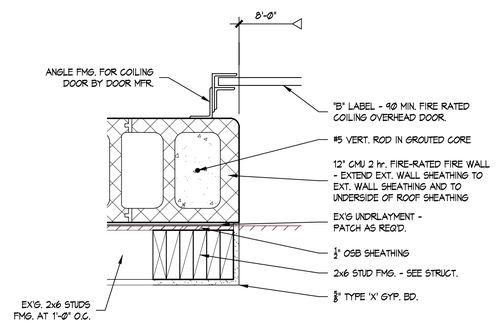


J4



1 / A5.2 COILING DOOR HEAD

SCALE: 1 1/2" = 1'-0"



2 / A5.2 COILING DOOR JAMB

SCALE: 1 1/2" = 1'-0"

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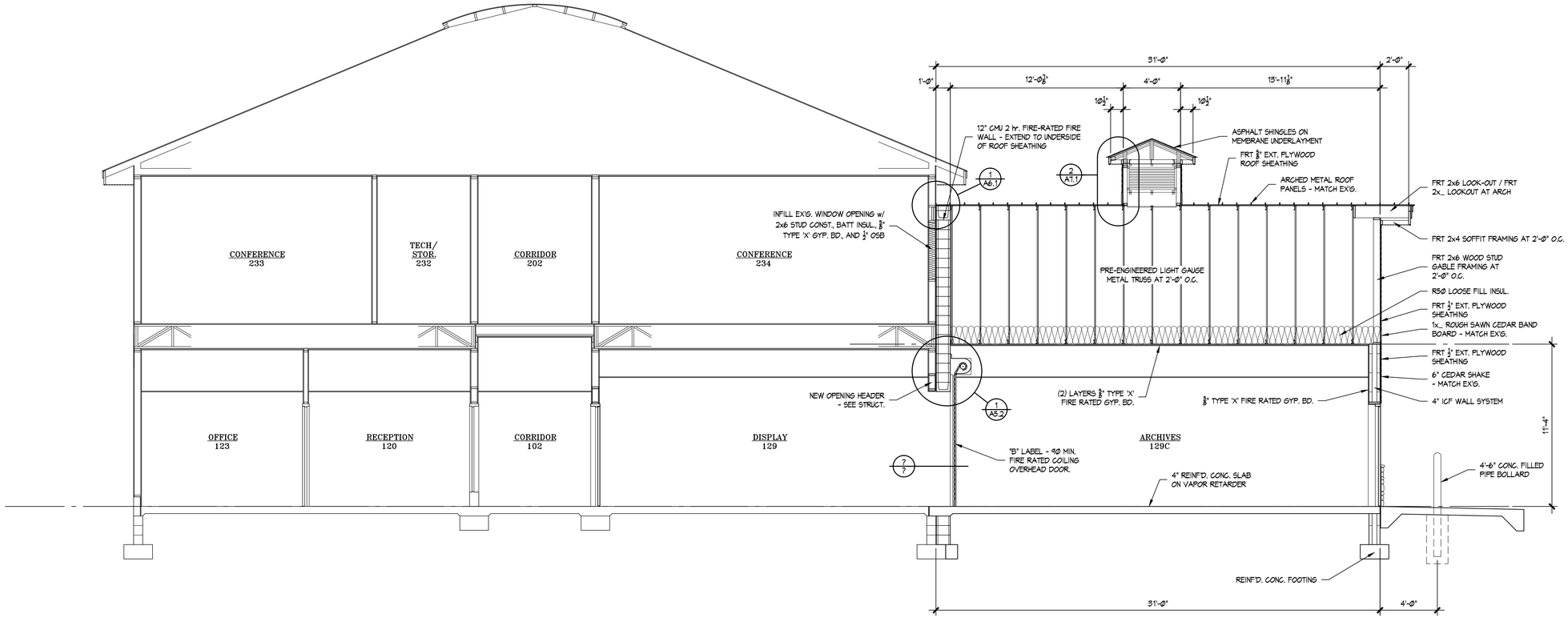
DRAWING TITLE
DOOR HEAD and JAMB DETAILS
BUILDING DETAILS

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

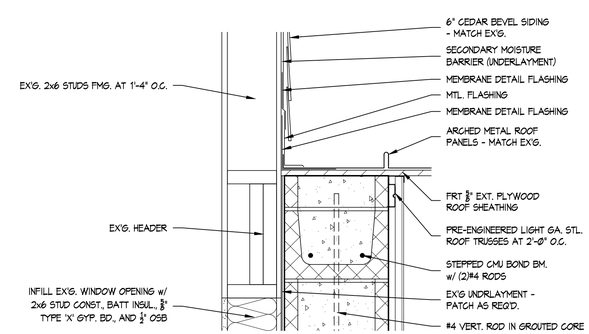
DATE FEB 29, 2016

SHEET A5.2



BUILDING SECTION A-A

SCALE: 1/4" = 1'-0"



WALL DETAIL

1 A6.1

SCALE: 1 1/2" = 1'-0"

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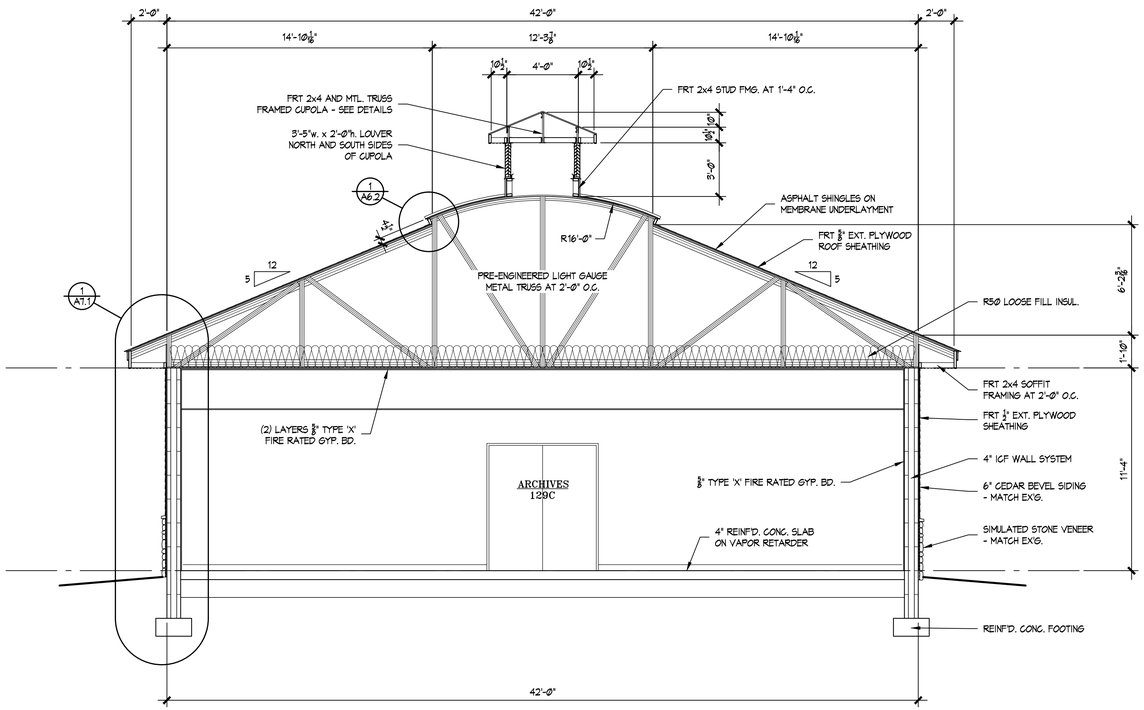
DRAWING TITLE
BUILDING SECTION A-A
BUILDING DETAILS

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO.
232-15

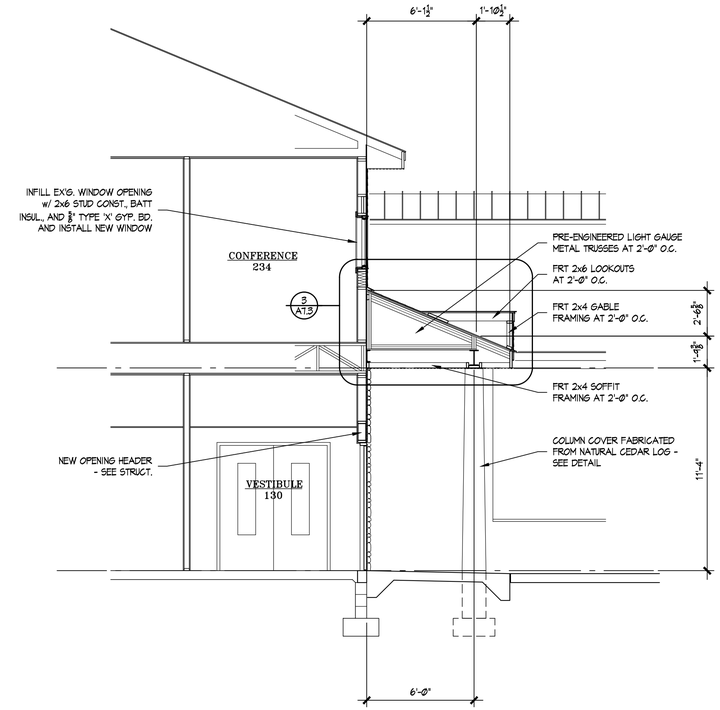
DATE
FEB 29, 2016

SHEET
A6.1



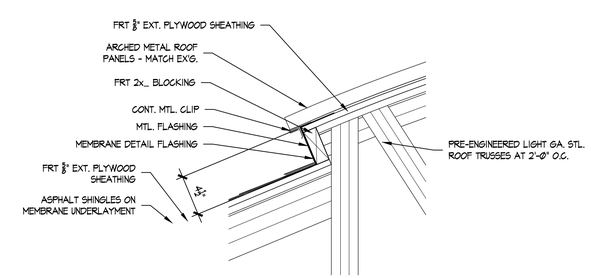
BUILDING SECTION B-B

SCALE: 3/8" = 1'-0"



BUILDING SECTION C-C

SCALE: 3/8" = 1'-0"



ROOF DETAIL

1/A6.2

SCALE: 1 1/2" = 1'-0"

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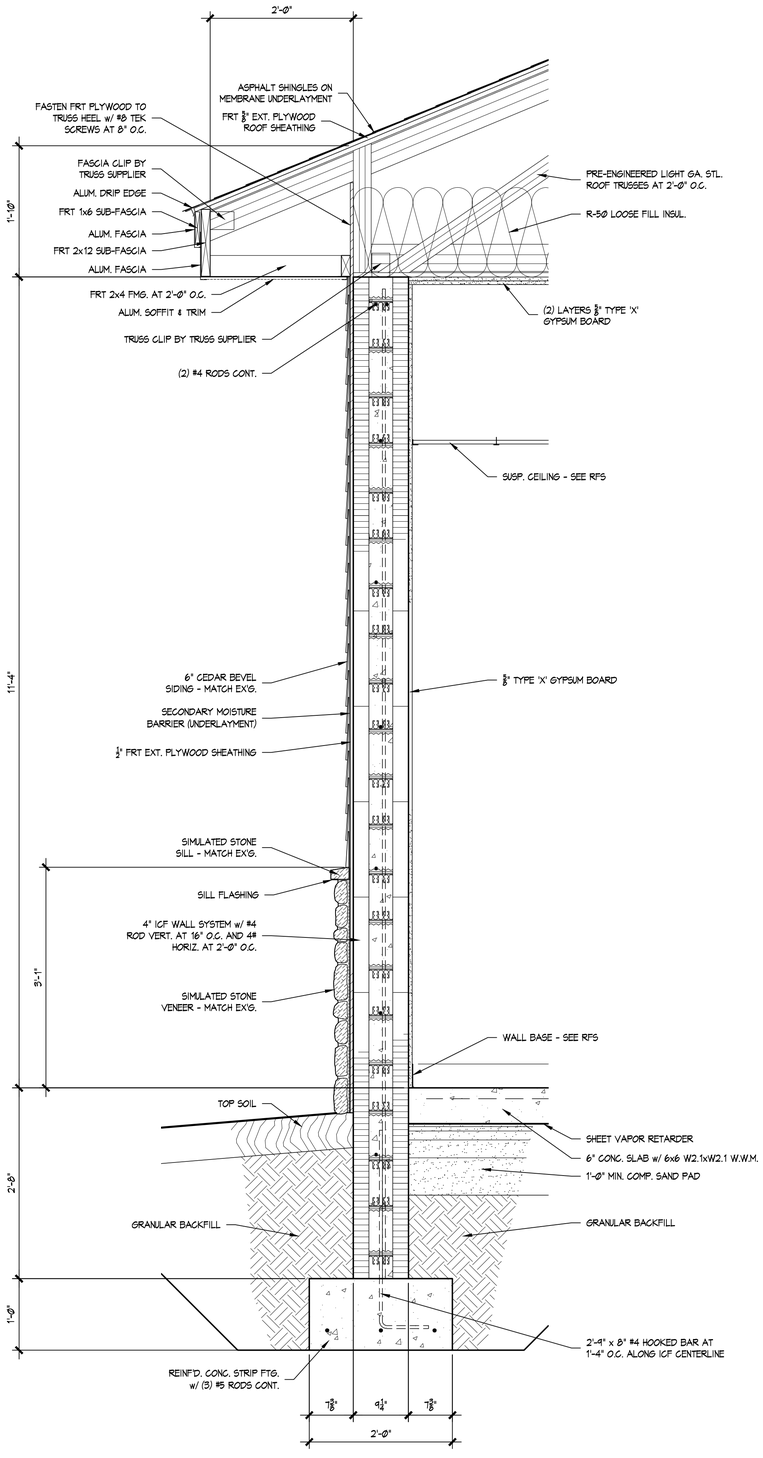
DRAWING TITLE
BUILDING SECTION B-B and C-C
BUILDING DETAILS

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO.
232-15

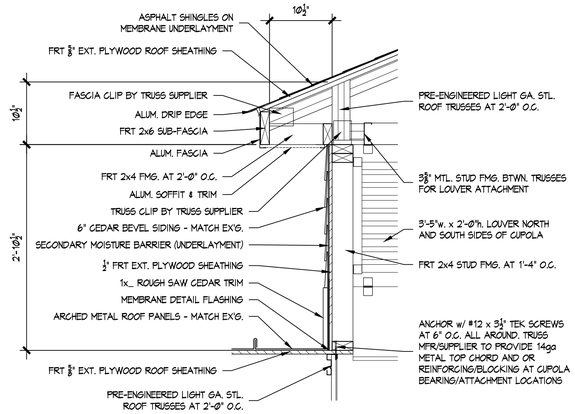
DATE
FEB 29, 2016

SHEET
A6.2



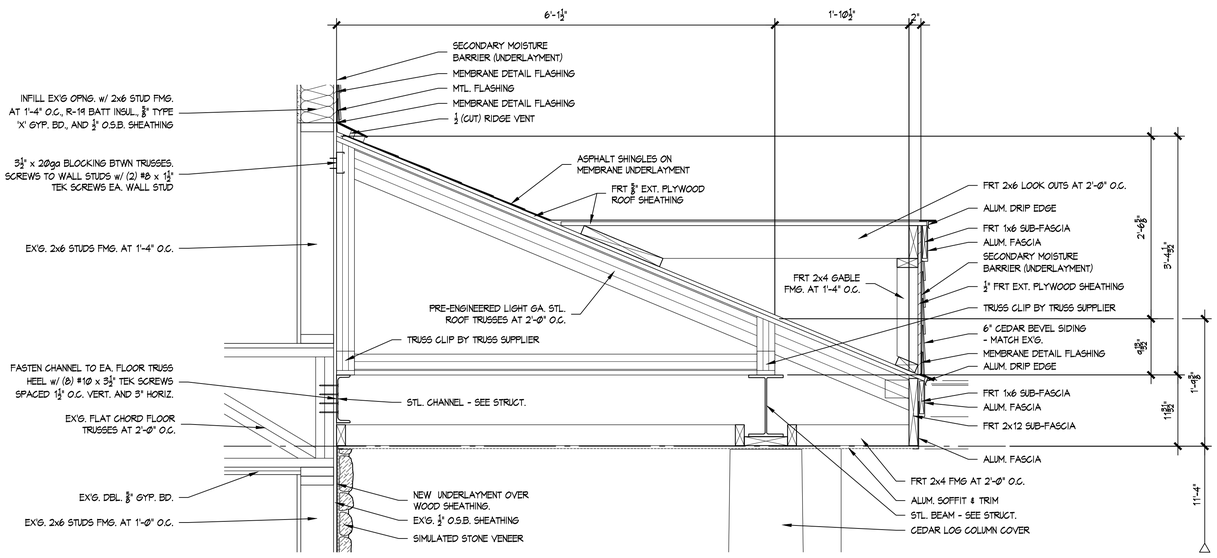
1 / A7.1 TYP. WALL SECTION

SCALE: 1" = 1'-0"



2 / A7.1 CUPOLA DETAIL

SCALE: 1" = 1'-0"



3 / A7.1 CANOPY DETAIL

SCALE: 1" = 1'-0"

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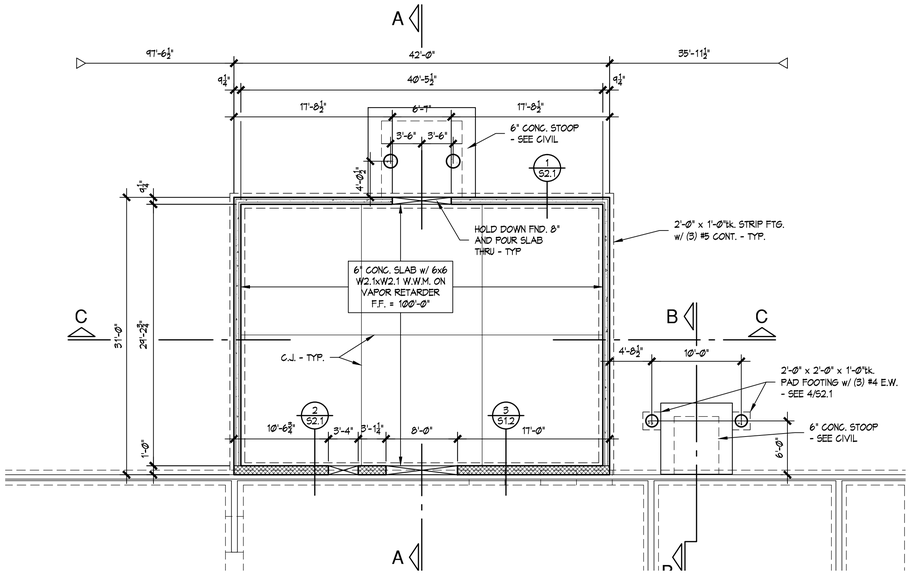
DRAWING TITLE
WALL SECTIONS
BUILDING DETAILS

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO.
232-15

DATE
FEB 29, 2016

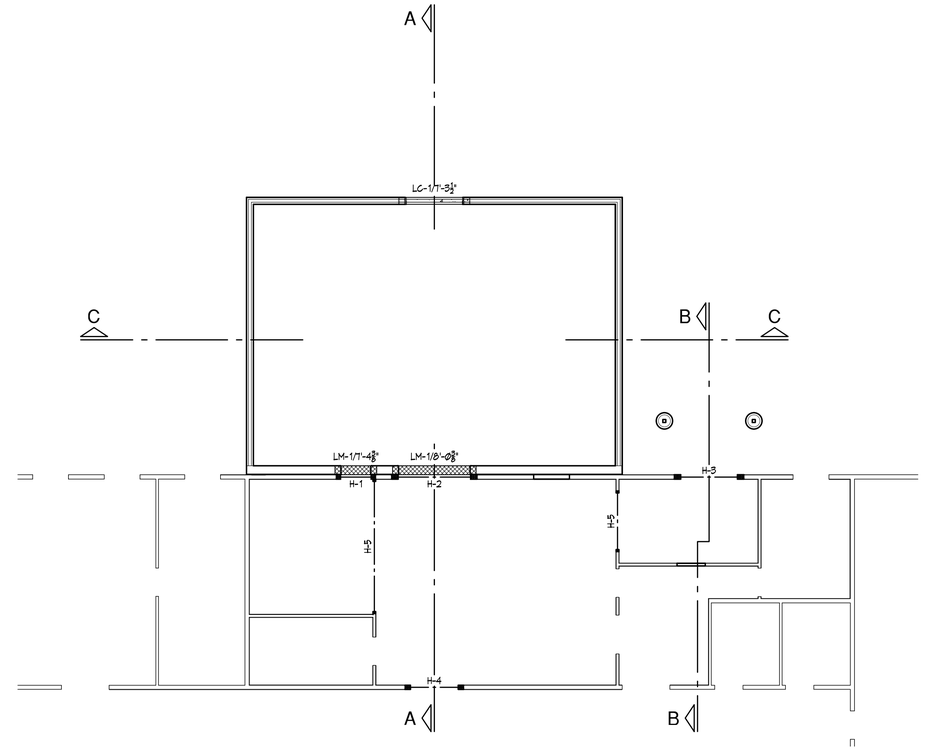
SHEET
A7.1



NORTH

FOUNDATION PLAN

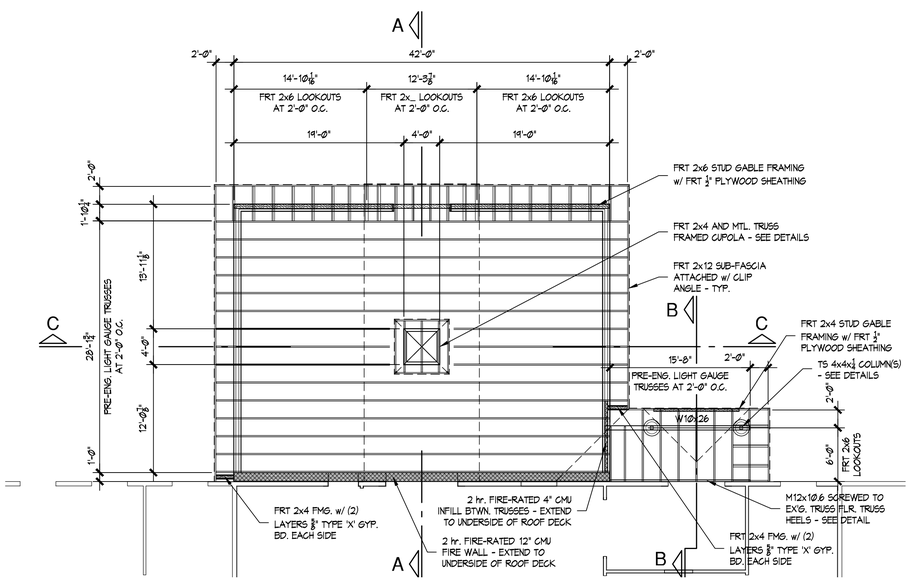
SCALE: 1/8" = 1'-0"



NORTH

WALL FRAMING PLAN

SCALE: 1/8" = 1'-0"



NORTH

ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

ICF LINTEL SCHEDULE

TAG	SIZE	SPAN	REINF'G.
LC-1	4"	SEE PLAN	(2) #4

NOTE: PROVIDE A MASONRY LINTEL w/ (2) #4 RODS @ ALL LOCATIONS WHERE H.V.A.C. DUCTWORK LARGER THAN 12" WIDE PENETRATES ICF WALLS UNLESS INDICATED AND SCHEDULED OTHERWISE. SEE MECHANICAL PLANS.

C-X/YYY'-Y"

C-X = LINTEL NUMBER
YYY'-Y" = ELEVATION ABOVE F.F.

MASONRY REINF'G LAP LENGTH SCHEDULE

BAR SIZE	GRADE 40 SPLICE	GRADE 60 SPLICE
#3	15"	18"
#4	20"	24"
#5	25"	30"
#6	30"	36"
#7	35"	42"
#8	40"	48"
#9	45"	54"
#10	50"	60"
#11	55"	66"

BASED OFF OF ACI 530-99/ASCE 5-99/ TMS 402-99

WOOD HEADER SCHEDULE

TAG	HDR. SIZE/MATERIAL	JACK STUDS	KING STUDS
H-1	(3) 2x10 w/ 2x6 TOP AND BTM.	3	1
H-2	5¼x11⅞ LVL w/ 2x6 TOP AND BTM.	5	1
H-3	5¼x11⅞ LVL w/ 2x6 TOP AND BTM.	4	2
H-4	5¼x9⅞ LVL w/ 2x6 TOP AND BTM.	4	1
H-5	3½x9⅞ LVL TOP AND BTM.	1	1

MASONRY LINTEL SCHEDULE

TAG	SIZE	SPAN	REINF'G.	SHAPE
LM-1	12"x8"	SEE PLAN	(2) #6	

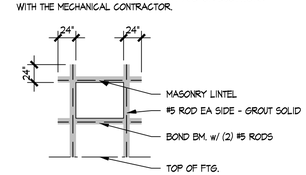
NOTE: PROVIDE A MASONRY LINTEL w/ (2) #4 RODS @ ALL LOCATIONS WHERE H.V.A.C. DUCTWORK LARGER THAN 12" WIDE PENETRATES MASONARY WALLS UNLESS INDICATED AND SCHEDULED OTHERWISE. SEE MECHANICAL PLANS.

C-X/YYY'-Y"

C-X = LINTEL NUMBER
YYY'-Y" = ELEVATION ABOVE F.F.

MASONRY LINTEL NOTES

1. ALL BEARING LOADS SHALL BE DISTRIBUTED THROUGH GROUTED CORES DOWN TO TOP OF FOOTING. REFER TO BEARING REINFORCMENT DIAGRAM THIS SHEET.
2. OPENINGS IN MASONRY WALLS SHALL BE REINFORCED AS DETAILED IN DIAGRAM BELOW.
3. COORDINATE THE LOCATION AND PLACEMENT OF MASONRY LINTELS OVER MECHANICAL EQUIPMENT AND OR DUCTWORK WITH THE MECHANICAL CONTRACTOR.



OPENING REINFORCING
DIAGRAM

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DRAWING TITLE
FOUNDATION PLAN
WALL AND ROOF FRAMING PLANS

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO.
232-15

DATE
FEB 29, 2016

SHEET
S1.1

GENERAL STRUCTURAL NOTES

1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS. AND SPECIFICATIONS. SHOULD CONFLICTS OCCUR BETWEEN THE DRAWINGS AND/OR THE GENERAL STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.
2. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED, SELF SUPPORTING, STABLE STRUCTURE UNLESS OTHERWISE INDICATED. THEY DO NOT INDICATE THE MEANS OR METHOD OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND CONSTRUCTION SEQUENCE AND PROVIDE ALL MEASURES NECESSARY TO ENSURE THE STABILITY AND SAFETY OF THE STRUCTURE AND ITS COMPONENTS THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, SHORING FOR EARTH BANKS FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, SUPPORT AND BRACING FOR CRANES AND GIN POLES, ETC.
3. THE GOVERNING BUILDING CODE IS THE INTERNATIONAL BUILDING CODE 2012.
4. SHOP DRAWINGS PREPARED BY SUPPLIERS, SUBCONTRACTORS, ETC. SHALL BE REVIEWED BY THE ARCHITECT/ENGINEER FOR CONFORMANCE WITH DESIGN INTENT ONLY.
5. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL RELEVANT DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATIONS AGAINST APPROVED MANUFACTURERS CERTIFIED EQUIPMENT DRAWINGS.
6. MECHANICAL FRAMING LOADS, OPENINGS AND STRUCTURE IN ANY WAY RELATED TO MECHANICAL REQUIREMENTS ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL COORDINATE WITH MECHANICAL AND OTHER TRADES TO VERIFY EQUIPMENT SIZE AND LOCATIONS. ANY CHANGES IN EQUIPMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
7. UNLESS NOTED OTHERWISE, REQUIREMENTS GIVEN FOR ONE OR MORE LOCATIONS ALSO APPLY AT OTHER LOCATIONS AT WHICH CONDITIONS ARE SIMILAR. THE REQUIREMENTS GIVEN SHALL BE ADAPTED TO CONDITIONS AT SUCH OTHER LOCATIONS.
8. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE PLANS AND FOR COORDINATING ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS WITH THOSE SHOWN ON THE ARCHITECTURAL AND MECHANICAL DRAWINGS. IF DISCREPANCIES IN THE DIMENSIONS OCCUR, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO BRING THE DISCREPANCY TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
9. CONTRACTOR SHALL NOT MIX GALVANIZED AND STAINLESS STEEL. ANY METAL PARTS IN CONTACT WITH OTHER METAL PARTS SHALL BE OF A SIMILAR MATERIAL.

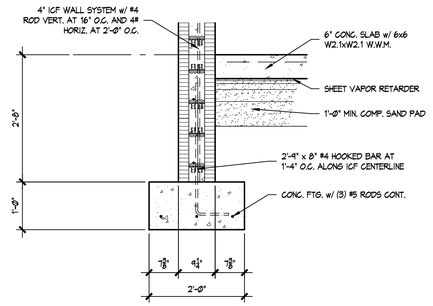
CAST IN PLACE CONCRETE NOTES

1. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ACI 318 CODE REQUIREMENTS AND STANDARDS.
2. CONCRETE SHALL BE A MINIMUM OF F'c = 3,500 psi AT 28 DAYS U.N.O. – REFER TO SPECIFICATIONS FOR CONCRETE MIX SCHEDULE.
3. ALL REBAR SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO ASTM A615 GRADE 60. ALL DETAILS AND ACCESSORIES SHALL CONFORM TO THE LATEST ACI 315 STANDARD DETAILING MANUAL.
4. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
5. ALL WELD PLATES AND MISCELLANEOUS STEEL SHALL BE Fy = 36 ksi.
6. WELDED CONNECTIONS SHALL CONFORM TO THE AWS STRUCTURAL WELDING CODE AND USE 60 ksi ELECTRODES.
7. REINFORCEMENT PROTECTION SHALL BE AS FOLLOWS:
   CONCRETE POURED AGAINST EARTH 3"
   ALL OTHER CONCRETE 2"
8. ALL EMBEDDED ITEMS SHALL BE PLACED IN THE FORMWORK PRIOR TO PLACING CONCRETE. DRILLING AND GROUTING IS ACCEPTABLE SUBJECT TO ARCHITECT APPROVAL.
9. ALL EXCAVATED AREAS AROUND STRUCTURES SHALL BE BACKFILLED WITH GRANULAR MATERIAL. ALL FILL SLOPES SHALL BE PLACED IN 12" LAYERS AND COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR METHOD.
10. ALL FOOTINGS AND SLABS SHALL BEAR ON SAND COMPACTED TO 98% MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR METHOD.
11. FIELD WELDING OF REINFORCEMENT IS NOT PERMITTED WITHOUT WRITTEN CONSENT OF THE ENGINEER.
12. FIELD BEND BARS COLD. DO NOT FIELD BEND BARS WITH HEAT OR BARS PARTIALLY EMBEDDED IN CONCRETE.
13. ALL EXTERIOR CONCRETE INCLUDING WALLS SHALL BE AIR–ENTRAINED.

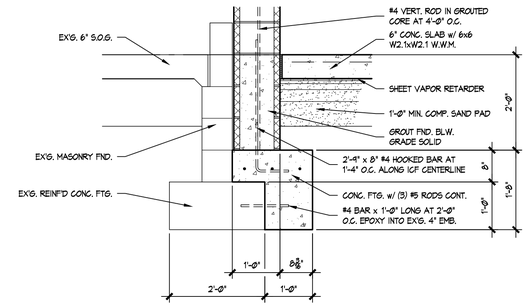
MASONRY:

1. CMU SHALL COMPLY WITH THE APPLICABLE SECTIONS OF THE NATIONAL CONCRETE MASONRY ASSOCIATION, PORTLAND CEMENT ASSOCIATION AND AMERICAN CONCRETE INSTITUTE CODES.
2. ABOVE GRADE CMU SHALL BE LIGHT WEIGHT PER SPECIFICATIONS. BELOW GRADE MASONRY SHALL BE NORMAL WEIGHT PER SPECIFICATIONS.
3. MORTAR SHALL CONFORM TO ASTM C270, TYPE S, WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 psi AT 28 DAYS. (PROPORTION SPECIFICATIONS)
4. GROUT SHALL CONFORM TO ASTM C476, FINE OR COARSE TYPE AS APPROPRIATE. WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 psi AT 28 DAYS. LOW–LIFT GROUT SHALL BE USED IN HEIGHTS OF LESS THAN FOUR FEET.
5. HORIZONTAL AND VERTICAL REINFORCING SHALL COMPLY WITH THE ABOVE CODES AND BE OF TYPE, SIZE AND SPACING INDICATED ON THE DRAWINGS. DEFORMED BARS SHALL COMPLY WITH ASTM A615, GRADE 60. COLD–DRAWN STEEL WIRE SHALL SHALL CONFORM TO ASTM A82. AND DEFORMED STEEL WIRE SHALL CONFORM TO ASTM A496.
6. CONCRETE MASONRY DESIGN PER ACI 530.1 SHALL BE PER UNIT STRENGTH METHOD WITH f'm=1,500 psi.
7. A MIX DESIGN FOR THE MORTAR AND GROUT SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION. THEY SHALL BE IN ACCORDANCE WITH THE APPROPRIATE ASTM SPECIFICATIONS AND INCLUDE THE ACTUAL 28 DAY COMPRESSIVE STRENGTH TESTS.
8. TEST DATA ON THE PROPOSED CMU SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION. THEY SHALL BE IN ACCORDANCE WITH THE APPROPRIATE ASTM SPECIFICATIONS AND INCLUDE THE ACTUAL COMPRESSIVE STRENGTH, ABSORPTION, WEIGHT, MOISTURE CONTENT AND DIMENSIONS.
9. NORMAL MASONRY CONSTRUCTION WEATHER CONDITIONS ASSUME THE AIR TEMPERATURE TO BE BETWEEN 40° AND 90° FAHRENHEIT WITH MINIMUM WIND AND RAIN, PLUS AVERAGE RELATIVE HUMIDITY. IF CONDITIONS OTHER THAN THESE OCCUR, THE CONTRACTOR SHALL MODIFY CONSTRUCTION PROCEDURES IN ACCORDANCE WITH GOOD CONSTRUCTION PRACTICES AND THE ABOVE NOTED CODES.

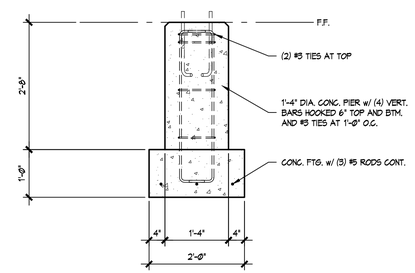
BUILDING LOADS	
ROOF SNOW LOADS Section 1603.1.3	
LOAD TYPE	UNIFORM (PSF)
1. GROUND SNOW LOAD, Pg	70
2. FLAT ROOF SNOW LOAD, Pf	53.9
3. SLOPED ROOF SNOW LOAD, Ps	53.9
4. UNBALANCED SNOW LOADS	16.2/91.8
5. SNOW DRIFT LOADS (ON LOWER CANOPY ROOFS)	135.5 (14')
SNOW LOAD FACTORS	VALUE
1. SNOW EXPOSURE FACTOR, Ce	1.0
2. SNOW LOAD IMPORTANCE FACTOR, Is	1.0
3. THERMAL FACTOR, Ct	1.1
4. ROOF SLOPE FACTOR, Cs	1.0
WIND LOADS Section 1603.1.4	
LOAD OR VARIABLE	VALUE
1. BASIC WIND SPEED (3–SECOND GUST)	115 MPH
2. MAIN WIND FORCE RESISTING SYSTEM (MAX ROOF UPLIFT)	48.6 PSF
3. MAIN WIND FORCE RESISTING SYSTEM (MAX WALL)	37.2 PSF
4. COMPONENTS AND CLADDING – ZONE 1	18.5/–29.4 PSF
5. COMPONENTS AND CLADDING – ZONE 2	18.5/–51.2 PSF
6. COMPONENTS AND CLADDING – ZONE 3	18.5/–75.6 PSF
7. COMPONENTS AND CLADDING – ZONE 4	32.1/–34.8 PSF
8. COMPONENTS AND CLADDING – ZONE 5	32.1/–43.1 PSF
9. INTERNAL PRESSURE COEFFICIENT	±0.18
EARTHQUAKE DESIGN DATA Section 1603.1.5	
LOAD OR VARIABLE	VALUE
1. RISK CATEGORY	II
2. SEISMIC IMPORTANCE FACTOR Ie	1.0
3. MAPPED SPECTRAL RESPONSE ACCELERATION, Ss	0.047g
4. MAPPED SPECTRAL RESPONSE ACCELERATION S1	0.028g
5. SITE CLASS	D
6. SEISMIC DESIGN CATEGORY	A
7. BASIC SEISMIC–FORCE–RESISTING SYSTEM USED: REINFORCED CONCRETE WALLS	
8. SEISMIC RESPONSE COEFFICIENT(s), Cs (SECTION 12.8.1.1)	0.01
9. RESPONSE MODIFICATION COEFFICIENT(s), R (SECTION 12.2–1)	7
10. ANALYSIS PROCEDURE: EQUIVILENT LATERAL FORCE PROCEDURE, SECTION 12.8	
SOIL BEARING STRENGTH Section 1802.6	
ASSUMED SOIL BEARING STRENGTH IS 2,000 PSF. CONTRACTOR SHALL VERIFY BEARING STRENGTH BY SOIL BORINGS OR OTHER MEANS.	
NOTES:	
1. APPLICABLE CODE IS IBC 2012. 2. LOADS ARE BASED ON SECTION 16 OF IBC 2012 UNLESS OTHERWISE NOTED.	



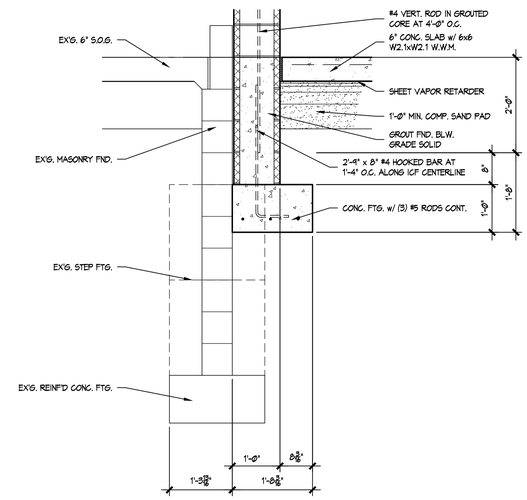
1 / S2.1 TYP. ICF FOUNDATION
SCALE: 3/4" = 1'-0"



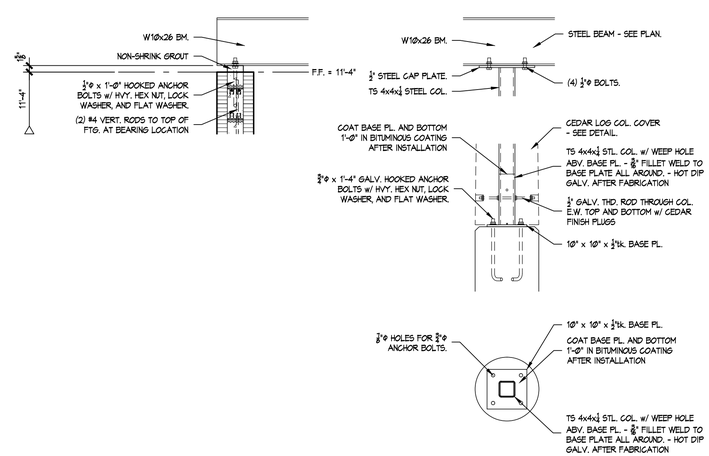
2 / S2.1 FOUNDATION DETAIL
SCALE: 3/4" = 1'-0"



4 / S2.1 TYP. CANOPY FND.
SCALE: 3/4" = 1'-0"



3 / S2.1 FOUNDATION DETAIL
SCALE: 3/4" = 1'-0"



5 / S2.1 CANOPY COL. DETAILS
SCALE: 3/4" = 1'-0"

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DRAWING TITLE
STRUCTURAL DETAILS AND NOTES

PROJECT TITLE
PROPOSED GOVERMNET CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE FEB 29, 2016

SHEET S2.1

CLEAN AGENT FIRE SUPPRESSION (CAFS) SYMBOL LIST

SYMBOL	DESCRIPTION
D	CAFS DOOR RELEASE
P	CAFS PULL STATION (WITH PROTECTIVE GUARD)
AB	CAFS ABORT STATION (WITH PROTECTIVE GUARD)
A	CAFS ALARM CONTACT (SUPERVISED BY FIRE ALARM SYSTEM)
T	CAFS TROUBLE CONTACT (SUPERVISED BY FIRE ALARM SYSTEM)
MS	CAFS MAINTENANCE SUPERVISORY CONTACT (SUPERVISED BY FIRE ALARM SYSTEM)
PS	CAFS PRESSURE SWITCH CONTACT (SUPERVISED BY FIRE ALARM SYSTEM)
CF –WP	CAFS HORN/STROBE – WEATHER–PROOF
C CF –XX	CAFS HORN/STROBE – CEILING MOUNTED (xx CANDELA)

EXISTING (E) DUCTLESS AIR CONDITIONING UNIT SCHEDULE

UNIT #	TOTAL CAPACITY BTU/HR	FAN COIL UNIT								CONDENSING SECTION						REMARKS
		AIR FLOW CFM	NO. FANS	E.D.B. °F	E.W.B. °F	VOLTS	PHASE	TOTAL UNIT FLA	MODEL NO.	UNIT I.D.	AMBIENT TEMP °F	VOLTS	PHASE	TOTAL UNIT FLA	MODEL NO.	
(E) AC–4	22,700	750	1	72	60	277	1	30	MMD18E–XHE0D	(E) CU–4	95	208/230	1	12	PFC020A–PL0	SEE NOTES

EXISTING (E) WORK NOTES:
1. ALL MODEL NUMBERS ARE LIEBERT MINI–MATE (INSTALLED IN 2002).
2. (E) UNITS FEATURES: UNIT MOUNTED DISCONNECT, ELECTRIC REHEAT, CANISTER HUMIDIFIER, FILTER CLOG SWITCH.

NEW WORK NOTES:
A. MECHANICAL CONTRACTOR SHALL HIRE (INCLUDE IN HIS BID) A FACTORY AUTHORIZED LIEBERT TECHNICIAN TO INSPECT AND COMMISSION THIS (E) UNIT TO ENSURE UNIT IS FUNCTIONING PROPERLY. CONTACT JOE HANCOCK AT HEDRICK ASSOCIATES (616–454–1218) FOR PRICING.
B. MECHANICAL CONTRACTOR SHALL PROVIDE TWO (2) EXTRA SETS OF HUMIDIFIER CANISTERS AND FILTERS FOR THIS (E) UNIT.
C. MECHANICAL CONTRACTOR SHALL REMOVE AND REPLACE REFRIGERANT LINES TO/FROM AIR CONDITIONER AC–4 AND IT'S RELOCATED (R) CONDENSING UNIT CU–4 AS REQUIRED TO ACCOMMODATE CU–4 RELOCATION.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

UNIT I.D.	FACE SIZE	NECK SIZE	FRAME TYPE	ACCESSORY	CONSTRUCTION	FINISH	MODEL NO.	REMARKS
S–1	24x24	SEE PLANS	T–BAR FLUSH NOTE 2	–	STEEL	WHITE	TMS	SQUARE CEILING DIFFUSER
R–1	24x24	SEE PLANS	T–BAR FLUSH NOTE 2	–	STEEL	WHITE	PAR	24"x24" PERFORATED RETURN GRILL

NOTES:
1. MODEL NUMBERS ARE TITUS UNLESS OTHERWISE NOTED. PRICE, NAILOR, CARNES, KRUEGER, TUTLE & BAILEY MAY BE BID AS EQUALS.

PACKAGED GAS–FIRED HEAT / ELECTRIC–COOLING AIR CONDITIONING UNIT SCHEDULE (GRADE MOUNTED – DOWNFLOW CONFIGURATION)

UNIT #	SUPPLY FAN						COOLING COIL							AIR COOLED CONDENSER			GAS FIRED (PROPANE) HEAT EXCHANGER					FILTER SECTION	ELECTRICAL DATA				WEIGHT (LBS)	MODEL NUMBER	REMARKS
	CAPACITY CFM	OUTSIDE AIR CFM	ESP IN W.G.	BHP	HP	DRIVE TYPE	CAPACITY (NET) TOTAL MBH	CAPACITY (NET) SENS. MBH	AIR IN EDB °F	AIR IN EWB °F	AIR OUT LDB °F	AIR OUT LWB °F	RERIG. TYPE	# OF COMP.	SEER	LOW AMBIENT TEMP. (°F)	OUTPUT MBH	INPUT MBH	EAT °F	LAT °F	# OF STAGES		VOLTS	PHASE	MCA	MAX FUSE AMPS			
ACU–A	1,600	200	0.50	0.56	1.0	DIRECT	48.8	35.5	80	67	60	57	R–410A	2	17.5	0	64	80	45	82	1	2" MERV 13	460	3	13.7	20	980	TRANE PRECEDENT YHC047E4RYA––P6E1A100B004	DOWNFLOW ARRANGEMENT SEE NOTES

NOTES:
1. ALL MODEL NUMBERS ARE TRANE "PRECEDENT". BASE BID TRANE – CARRIER, YORK, AAON MAY ONLY BE BID AS VOLUNTARY ALTERNATE ADD/DEDUCTS TO THE BASE–BID. CONTACT JOHN LAMARRE AT NELSON TRANE (810–767–7800) FOR PRICING.
2. UNITS SHALL COME EQUIPPED WITH THE FOLLOWING STANDARD FEATURES:
5–YEAR COMPRESSOR WARRANTY; ANTI–SHORT CYCLE TIMER; CRANKCASE HEATERS; FOIL–FACED INSULATION; HEAD PRESSURE CONTROL; LOW AMBIENT COOLING TO 0°F; LOW PRESSURE CONTROL; PHASE BALANCE PROTECTION; PHASE LOSS PROTECTION; PHASE MONITOR; PHASE REVERSAL PROTECTION; "RELIATEL" MICROPROCESSOR CONTROLS; VARIABLE SPEED DIRECT DRIVE MOTOR
3. UNITS SHALL COME EQUIPPED WITH THE FOLLOWING FACTORY INSTALLED OPTIONS:
2" REPLACEABLE MERV13 FILTERS (PROVIDE ONE EXTRA SET FOR OWNER'S USE); DEHUMIDIFICATION HOT GAS REHEAT; FAULT DETECTION & DIAGNOSTICS; HINGED ACCESS DOORS; SINGLE ZONE VAV; STAINLESS STEEL DRAIN PAN; STAINLESS STEEL HEAT EXCHANGER WITH 10–YEAR WARRANTY; THROUGH–THE–BASE ELECTRICAL WITH DISCONNECT SWITCH (NON–FUSED);
LOW LEAK ECONOMIZER WITH COMPARATIVE ENTHALPY CONTROLS (1–100%) & BAROMETRIC RELIEF; CLOGGED FILTER/FAN FAILURE SWITCH (WIRED TO INDICATE/NOTIFY ON THE ZONE SENSOR); STANDARD CONDENSER WITH HAIL GUARD.
4. UNITS SHALL COME WITH THE FOLLOWING FIELD INSTALLED OPTIONS:
CO2 SENSOR (WALL MOUNTED) FOR DEMAND CONTROL VENTILATION TO CONTROL POSITION OF ECONOMIZER (FROM 0 UP TO MAX POSITION 40%); HUMIDITY SENSOR (WALL MOUNTED); DIGITAL DISPLAY ZONE SENSOR (TRANE BAYSENS119 – SEVEN DAY PROGRAMMABLE WITH NIGHT SETBACK/HEAT/COOL/FAN/AUTO/ON AND SERVICE INDICATORS), INSTALL ZONE SENSOR IN CLEAR PLASTIC/LOCKABLE COVERS; ROOF CURB (M.C. TO MOUNT UNIT UP ON FRAME BY CONTRACTOR ABOVE CONCRETE HOUSEKEEPING PAD).
5. MANUFACTURER/SUPPLIER SHALL PROVIDE FACTORY START–UP/TRAINING BY A QUALIFIED/AUTHORIZED TECHNICIAN, AND A 1–YEAR LABOR WARRANTY, ON THIS UNIT.

MECHANICAL & PLUMBING ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A/C	AIR CONDITIONING
AFF	ABOVE FINISHED FLOOR
APD	AIR PRESSURE DROP
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
CAP	CAPICITY
CAFS	CLEAN AGENT FIRE SUPPRESSION
CFM	CUBIC FEET PER MINUTE
CO	CLEAN OUT
COND	CONDENSATE
CONT.	CONTINUATION OR CONTINUED
CORD.	COORDINATE
COS	CENTRAL OPERATOR STATION
CW	DOMESTIC COLD WATER
DB	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREES
DN	DOWN
DWH	DOMESTIC WATER HEATER
DW&V	DRAINAGE WASTE & VENT
(E)	EXISTING
EG	EXHAUST GRILLE OR REGISTER
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
E.C.	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB TEMPERATURE
EF	EXHAUST FAN
ELEV	ELEVATION
ELECT	ELECTRICAL
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
FA	FRESH AIR
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FLR	FLOOR
FPM	FEET PER MINUTE
FT	FEET
(F)	FUTURE
G	GAS (NATURAL GAS / PROPANE)
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HR	HOUR
HTG	HEATING
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
IE	INVERT ELEVATION
IN	INCHES
ISP	INTERNAL STATIC PRESSURE
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB TEMPERATURE
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
M.C.	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
NIC	NOT IN CONTRACT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
P.C.	PLUMBING CONTRACTOR
PD	PRESSURE DROP
PRI	PRIOR TO ROUGH–IN
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAUGE
RAG	RETURN AIR GRILLE OR REGISTER
RA	RETURN AIR
REL.A	RELIEF AIR
RH	RELATIVE HUMIDITY
RFL	REFRIGERANT LIQUID
RFS	REFRIGERANT SUCTION
RPM	REVOLUTIONS PER MINUTE
SAD	SUPPLY AIR DIFFUSER
SAG	SUPPLY AIR GRILLE
SA	SUPPLY AIR
SAN	SANITARY WASTE
SP	STATIC PRESSURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
U/G	UNDERGROUND (BELOW GRADE)
V	VENT
VD	VOLUME DAMPER
VTR	VENT THRU ROOF
W&V	WASTE AND VENT
WB	WET BULB TEMPERATURE
WG	WATER GAUGE

MECHANICAL & PLUMBING SYMBOL LIST

SYMBOL	DESCRIPTION
	PIPE ELBOW UP
	PIPE ELBOW DOWN
	DIRECTION OF FLOW
	UNION
	CONCENTRIC REDUCER
	PIPE CAP OR PLUG
	ISOLATION VALVE
G	GAS PIPING (NATURAL GAS OR PROPANE)
	RECTANGULAR TAKE–OFF (SINGLE LINE)
	RECTANGULAR TAKE–OFF (DOUBLE LINE)
	ROUND TAKE–OFF (SINGLE LINE)
	ROUND TAKE–OFF (DOUBLE LINE)
	SPIN–IN FITTING (WITH VOLUME DAMPER)
	RECTANGULAR ELBOW (WITH TURNING VANES)
	RADIUS RECTANGULAR ELBOW
	RADIUS ROUND ELBOW
	RECTANGULAR ELBOW UP
	ROUND ELBOW UP
	DUCT UP (SINGLE LINE)
	RECTANGULAR ELBOW DOWN
	ROUND ELBOW DOWN
	DUCT DOWN (SINGLE LINE)
	CONCENTRIC TRANSITION (DOUBLE LINE)
	CONCENTRIC TRANSITION (SINGLE LINE)
	ECCENTRIC TRANSITION (DOUBLE LINE)
	ECCENTRIC TRANSITION (SINGLE LINE)
	CROSS SECTION OF SUPPLY AIR DUCT
	CROSS SECTION OF EXHAUST OR RETURN AIR DUCT
	FLEXIBLE CONNECTION (DUCT)
	SQUARE CEILING DIFFUSER
	RETURN OR EXHAUST CEILING GRILLE
	TRANSFER GRILLE
	VOLUME DAMPER (MANUALLY ADJUSTABLE)
M	MOTORIZED DAMPER
T	THERMOSTAT / ZONE SENSOR
CO2	CARBON DIOXIDE SENSOR
H	HUMIDITY SENSOR

METHODS OF NOTATION

S–1
10ø
350–4
SUPPLY DIFFUSER WITH SCHEDULE TAG,
10" DIAMETER NECK SIZE
350 CFM TYPICAL FOR 4.

R–1
22X10
640–2
RETURN REGISTER WITH SCHEDULE TAG,
22x10 NECK SIZE
640 CFM TYPICAL FOR 2
EXHAUST REGISTER (E) DESIGNATION SIMILAR.

ACU 1 — EQUIPMENT DESIGNATION, (i.e. AIR CONDITIONING UNIT NUMBER 1)

1 — CONSTRUCTION KEY NOTE NUMBER

1 — DEMOLITION KEY NOTE NUMBER

EXISTING SYSTEM COMPONENT TO BE REMOVED

NEW SYSTEM COMPONENT

EXISTING SYSTEM COMPONENT TO REMAIN

POINT OF NEW CONNECTION.

MECHANICAL & PLUMBING DRAWING INDEX

M1.0 MECHANICAL & PLUMBING TITLE SHEET
M2.1 MECHANICAL & PLUMBING DEMOLITION PLANS
M3.1 MECHANICAL & PLUMBING NEW WORK PLANS
M4.1 MECHANICAL & PLUMBING DETAILS

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DRAWING TITLE: MECHANICAL & PLUMBING TITLE SHEET

PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE 2/29/2016

SHEET M1.0

GENERAL MECHANICAL & PLUMBING DEMOLITION NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE EXTENT OF DEMOLITION WORK SHALL BE AS REQUIRED BY THE NEW WORK.

2. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING SYSTEMS/EQUIPMENT PRIOR TO ISSUING HIS BID. (IE. ALL EXISTING PIPE/DUCT SIZES AND ROUTINGS/LOCATIONS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR).

3. ALL MECHANICAL AND PLUMBING ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE WITH ALL RELATED ITEMS INCLUDING, BUT NOT LIMITED TO, HANGERS, SUPPORTS, CONTROLS, ETC. REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF OFF SITE. CAP ALL OPEN ENDED PIPING AND DUCTWORK.

4. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED, BY THE OWNER OR OWNER'S REPRESENTATIVE, AT LEAST (7) DAYS IN ADVANCE SO AS NOT TO INTERFERE WITH THE PRESENT BUILDING OPERATION.

5. WHERE DEMOLITION OF EXISTING SERVICES ARE REQUIRED TO ACCOMMODATE THE PROJECT PHASING/SCHEDULING, AND SERVICES ARE TO BE INTERRUPTED IN AREAS THAT ARE REMAINING OCCUPIED, THE CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES AND/OR CONNECTIONS TO THE OCCUPIED AREAS TO MAINTAIN ITS PRESENT OPERATION. IF SYSTEM SHUT DOWNS ARE REQUIRED, THE CONTRACTOR SHALL SCHEDULE WORK TO BE PERFORMED AT UNOCCUPIED HOURS.

6. ALL ITEMS TO BE REMOVED AND/OR RELOCATED SHALL BE REMOVED AND/OR RELOCATED TOGETHER WITH ALL RELATED ITEMS AS REQUIRED BY THE NEW WORK TO BE PERFORMED.

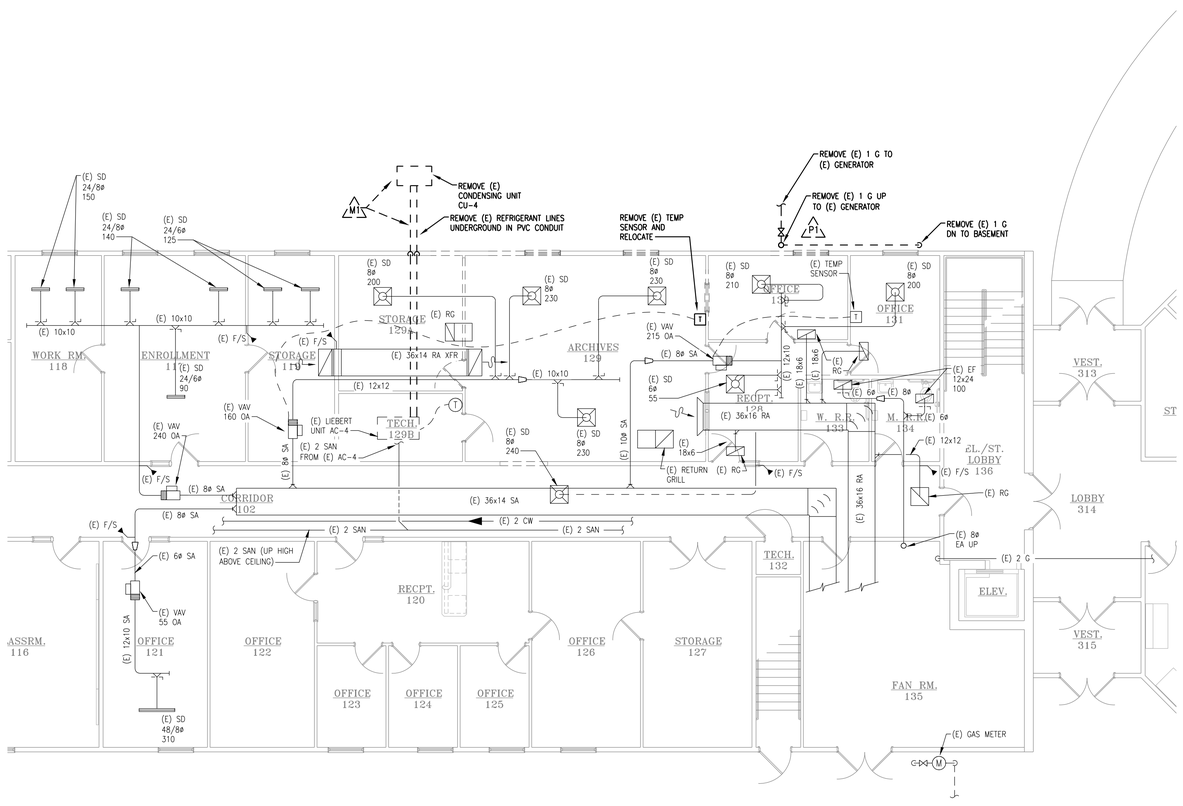
7. CONTRACTOR SHALL COORDINATE ALL REMOVAL AND/OR RELOCATION WITH THE EXTENT OF THE NEW WORK AND WITH ALL OTHER TRADES INVOLVED.

8. UNLESS NOTED OTHERWISE, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CORING, PATCHING ASSOCIATED WITH THEIR WORK. CUTTING, CORING, PATCHING WORK SHALL BE PERFORMED BY A QUALIFIED SUB-CONTRACTOR AND MATCH EXISTING OR NEW FINISHES.

KEYED MECHANICAL & PLUMBING DEMOLITION NOTES:

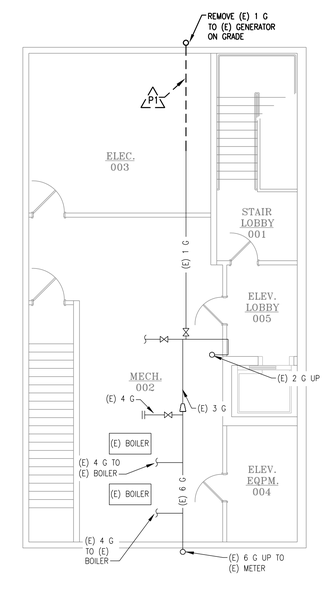
M1 — CAREFULLY REMOVE EXISTING CONDENSING UNIT CU-4 AND ASSOCIATED REFRIGERANT LINES TO/FROM (E) ACU-4 AND PRESERVE FOR RELOCATION. SEE NEW WORK PLANS.

P1 — REMOVE EXISTING (E) 1" GAS PIPING TO (E) GENERATOR (??? MBH).



NORTH

MECHANICAL & PLUMBING DEMOLITION PLAN – GRADE LEVEL
SCALE: 1/8" = 1'-0"



NORTH

MECHANICAL & PLUMBING DEMOLITION PLAN – BASEMENT
SCALE: 1/8" = 1'-0"

JLK Engineering Project Number: AEA 1504-01

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DRAWING TITLE: MECHANICAL & PLUMBING DEMOLITION PLANS

PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE 2/29/2016

SHEET M2.1

GENERAL FIRE SUPPRESSION NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE FIRE SUPPRESSION CONTRACTOR SHALL DESIGN–BUILD A NEW CLEAN AGENT FIRE SUPPRESSION (CAFS) SYSTEM TO PROTECT THE NEW ARCHIVES 129C AREA (VOLUME BELOW THE CEILING), PER APPLICABLE CODES, PER NFPA, PER OWNER'S INSURANCE REQUIREMENTS, AND PER REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION (AHJ). REFER TO DIVISION 21000 SPECIFICATIONS FOR REQUIREMENTS.

2. PREPARE SHOP DRAWINGS, INCLUDING CALCULATIONS, SIGNED/SEALED BY A LICENSED ENGINEER EXPERIENCED IN FIRE PROTECTION SYSTEM DESIGN, AND SUBMIT TO AHJ FOR APPROVAL PRIOR TO CONSTRUCTION.

3. COORDINATE FIRE SUPPRESSION WORK WITH THE WORK OF ALL OTHER TRADES. COORDINATE EQUIPMENT CLEARANCES WITH OTHER TRADES. LOCATE CLEAN AGENT HEADS CENTERED IN CEILING TILES IN (2) DIRECTIONS UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPES. COORDINATE INTERFACES WITH FIRE ALARM CONTRACTOR (I.E. FLOW SWITCHES, TAMPER SWITCHES, ALARM SIGNAL, ETC.) AND ROUGH–INS REQUIRED FOR SENSORS/PULL STATIONS/ABORT STATIONS/ETC. WITH THE ELECTRICAL CONTRACTOR.

4. FIRE SUPPRESSION CONTRACTOR SHALL BE A QUALIFIED CONTRACTOR WITH EXPERIENCE DESIGNING/INSTALLING CLEAN AGENT FIRE SUPPRESSION SYSTEMS. CONTACT DENNIS SARGENT AT NORTHERN FIRE AND SAFETY (231–941–6405) IN TRAVERSE CITY, MICHIGAN FOR PRICING INFORMATION ON APPROVED ANSUL "SAFFIRE" SYSTEM.

5. NOTE THAT NEW ARCHIVES 129C ADDITION IS CONSTRUCTED OF INSULATED CONCRETE FORM (ICF) WALLS AND WILL REQUIRE ROUGH–IN OF BOXES/CONDUIT NECESSARY FOR CAFS SYSTEM DURING POURING OF WALLS. CAFS CONTRACTOR SHALL COORDINATE WITH ICF TRADES DURING ROUGH–IN.

GENERAL MECHANICAL & PLUMBING NEW WORK NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL SCOPE OF WORK. CONTRACTOR SHALL PROVIDE PLUMBING/MECHANICAL/FIRE SUPPRESSION SYSTEMS AND RELATED EQUIPMENT COMPLETE AND INCLUDE ALL NECESSARY OFFSETS, FITTINGS, AND OTHER COMPONENTS REQUIRED DUE TO INTERFERENCES, SPACE CONSTRAINTS, ETC.

2. MECHANICAL/PLUMBING SYSTEMS SHALL BE INSTALLED PER 2012 INTERNATIONAL MECHANICAL CODE, 2012 INTERNATIONAL PLUMBING CODE, 2012 INTERNATIONAL FUEL GAS CODE, APPLICABLE NFPA BUILDING CODES (I.E. 101, 90A, ETC.), AND APPLICABLE BUILDING CODES (I.E. 2012 INTERNATIONAL EXISTING BUILDING CODE, 2012 INTERNATIONAL BUILDING CODE, ETC.).

3. COORDINATE THE INSTALLATION OF MECHANICAL/PLUMBING WORK WITH ALL OTHER TRADES. CONTRACTOR SHALL VERIFY ALL MECHANICAL AND ELECTRICAL CLEARANCES PRIOR TO FABRICATION OF ANY NEW WORK. DUCTWORK, PIPING, ETC. SHALL NOT BE LOCATED DIRECTLY OVER ELECTRICAL EQUIPMENT AND PANELS, OR INTERFERE WITH ELECTRICAL/MECHANICAL EQUIPMENT CLEARANCE SPACES.

4. PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, HANGERS, ETC., FOR THE PROPER INSTALLATION OF ALL MECHANICAL/PLUMBING SYSTEMS. DUCTWORK AND/OR PIPING SHALL NOT BE SUPPORTED FROM/BY EQUIPMENT OR EQUIPMENT CONNECTIONS.

5. VERIFY REQUIREMENTS OF ALL EQUIPMENT WITH SHOP DRAWING SUBMITTALS PRIOR TO INSTALLATION. NOTIFY THE ENGINEER OF ANY CONFLICTS BETWEEN SHOP DRAWINGS AND PLANS.

6. COORDINATE ALL FLOOR, WALL, AND ROOF PENETRATIONS, EQUIPMENT PADS, ETC. WITH ARCHITECTURAL/STRUCTURAL TRADES PRIOR TO ROUGH–IN. UNLESS NOTED OTHERWISE, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CORING, PATCHING ASSOCIATED WITH THEIR WORK. CUTTING, CORING, PATCHING WORK SHALL BE PERFORMED BY A QUALIFIED SUB–CONTRACTOR AND MATCH EXISTING OR NEW FINISHES.

KEYED MECHANICAL & PLUMBING CONSTRUCTION NOTES:

PA ROUTE NEW 1" GAS SUPPLY PIPING UP THROUGH (E) WALL (COORDINATE DEMO/PATCHING NEEDED WITH CARPENTER TRADES PRIOR TO ROUGH–IN). SLEEVE THE NEW GAS PIPING CONCEALED WITHIN THE (E) WALL WITHIN A 3"ø PIPE, AND VENT THE SLEEVE TO THE OUTDOORS, PER CODE.

PB NEW 1/4 CW MAKE–UP TO (E) AC–4's HUMIDIFIER CONNECTION.

PC PROVIDE 1/2 ISOLATION VALVE AND CAP FOR FUTURE (F) USE.

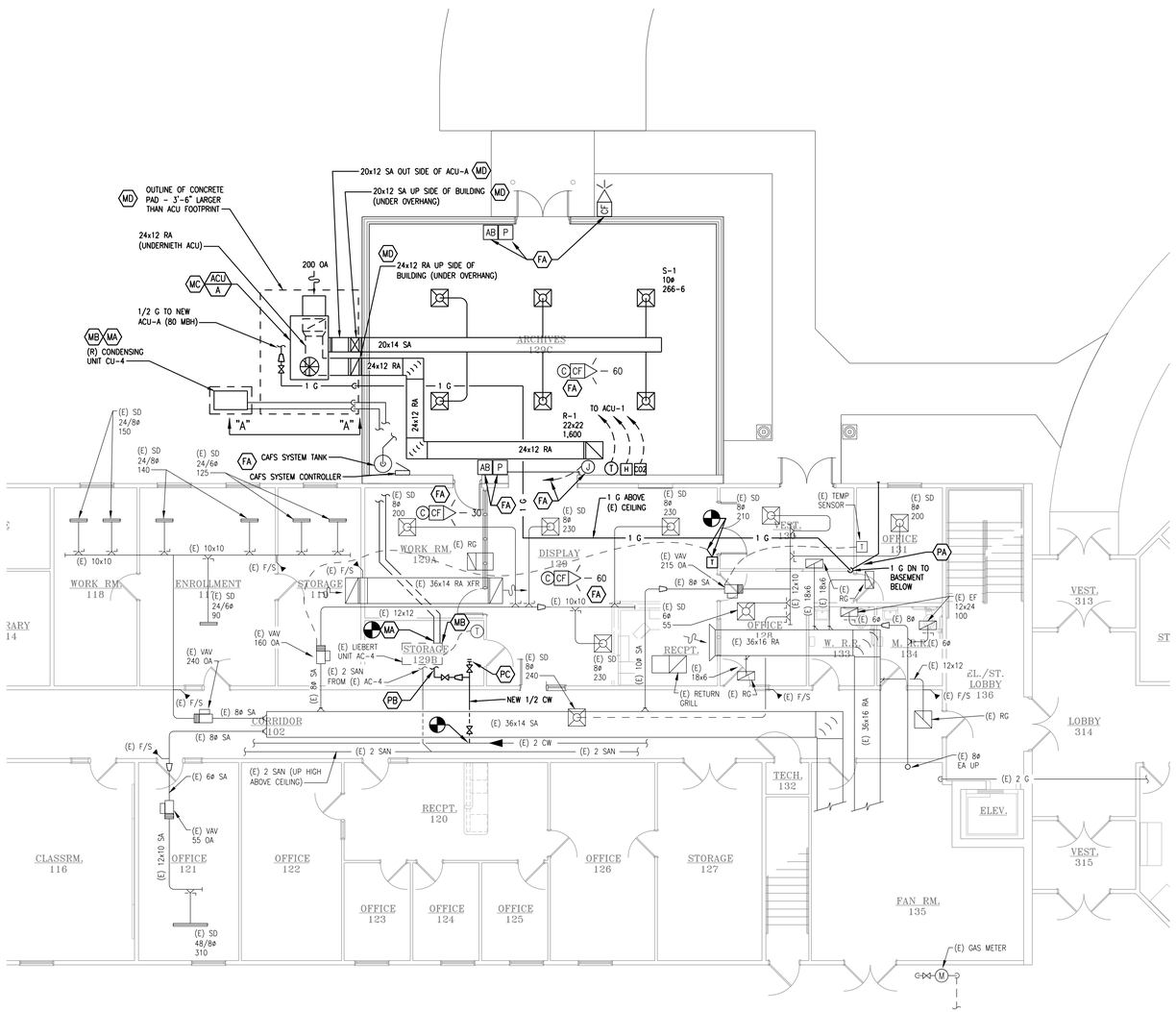
MA RELOCATE (E) CU–4. PROVIDE/INSTALL NEW REFRIGERANT LINE SETS TO/FROM (R) CU–4 AND (E) AC–4 AS REQUIRED. PROVIDE "LINE–HIDE" TO CONCEAL DROPS DOWN EXTERIOR WALL (COORD. COLOR WITH ARCHITECT AND OWNER). LOCATE CU–4 OUTSIDE LIMITS OF ROOF DRIP EDGE.

MB MECHANICAL CONTRACTOR SHALL RE–COMMISSION (E) LIEBERT AC–4/CU–4 SYSTEM INCLUDING, BUT NOT LIMITED TO, NEW HUMIDIFIER CANISTERS AND FILTERS. REFER TO AC–4/CU–4 SCHEDULE FOR MORE DETAIL. PROVIDE NEW CONCRETE HOUSE–KEEPING PAD THAT IS 6" LARGER THAN CONDENSER PAD/SUPPORT. PROVIDE NEW EQUIP PAD/SUPPORT TO MOUNT CU–4 AT LEAST 8" ABOVE CONCRETE PAD.

MC INSTALL AIR CONDITIONING UNIT (ACU) AT 36" ABOVE GRADE AS REQUIRED TO ACCOMMODATE DOWNFLOW DUCT CONNECTIONS. CONTRACTOR SHALL DESIGN/INSTALL A FRAME TO MOUNT ACU ON – FRAME SHALL BE CONSTRUCTED OF HOT DIPPED GALVANIZED STEEL (C–CHANNEL STRUT OR WELDED TUBE/ANGLE STEEL). ACU/FRAME SHALL BE MOUNTED ON TOP OF NEW CONCRETE SLAB (REFER TO DETAIL) – SLAB SHALL BE 3"–6" LARGER THAN UNIT FOOTPRINT ALL AROUND UNIT.

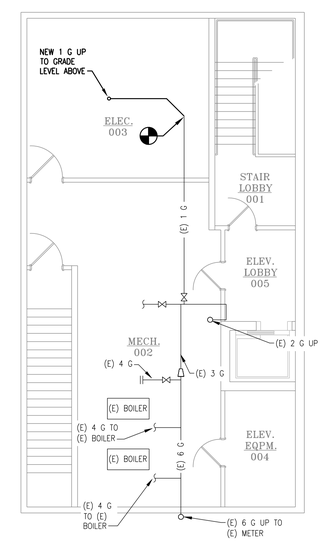
MD ROUTE DUCTWORK FROM ACU @ 4"–6" ABOVE GRADE SUPPORTED FROM BELOW BY HOT DIPPED GALVANIZED STEEL STRUT SYSTEM (ON TOP OF CONCRETE SLAB), AND UP THE SIDE OF THE BUILDING EXTERIOR WALL. EXTERIOR DUCTWORK SHALL BE INSULATED WITH 3" RIGID FIBERGLASS BOARD INSULATION AND WRAPPED WITH 13–PLY LAMINATE JACKET SYSTEM (VENTURECLAD #1579CW JACKET SYSTEM – COORD. FINISH WITH ARCHITECT) PER SPECIFICATIONS.

FA PROVIDE DESIGN & INSTALLATION OF NEW CLEAN AGENT FIRE SUPPRESSION (CAFS) SYSTEM TO PROTECT THE NEW ARCHIVES 129C AREA (APPROX. 1,200 SQFT), BELOW THE CEILING (@ 9' AFF) ONLY. REFER TO DIVISION 21000 SPECIFICATIONS. CAFS SYSTEM AND/OR FIRE ALARM SYSTEM SHALL RELEASE O/H COILING FIRE DOOR UPON CAFS RELEASE AND/OR SMOKE DETECTION VIA FIRE ALARM SMOKE DETECTORS. PROVIDE PULL AND ABORT STATIONS (WITH PROTECTIVE GUARDS) NEAR EACH EXIT FROM ROOM. CAFS SYSTEM SHALL INCLUDE WEATHERPROOF HORN/STROBE ON OUTSIDE OF MAIN ENTRANCE/EXIT. CAFS SYSTEM SHALL INCLUDE CEILING MTD HORN/STROBES IN ARCHIVE ROOM, WORK ROOM, AND DISPLAY ROOM. CAFS SYSTEM SHALL INCLUDE WARNING SIGNAGE INSIDE & OUTSIDE OF EACH ENTRY/EXIT TO/FROM THE ARCHIVES 129C ROOM. COORDINATE ELECTRICAL POWER/CONTROL AND FIRE ALARM INTERFACE WITH ELECTRICAL & FIRE ALARM SUB–CONTRACTORS PRIOR TO ROUGH–IN.



NORTH

MECHANICAL SHEET METAL NEW WORK PLAN – GRADE LEVEL
SCALE: 1/8" = 1'–0"



NORTH

MECHANICAL SHEET METAL NEW WORK PLAN – BASEMENT
SCALE: 1/8" = 1'–0"

JLK Engineering Project Number: AEA 1504–01

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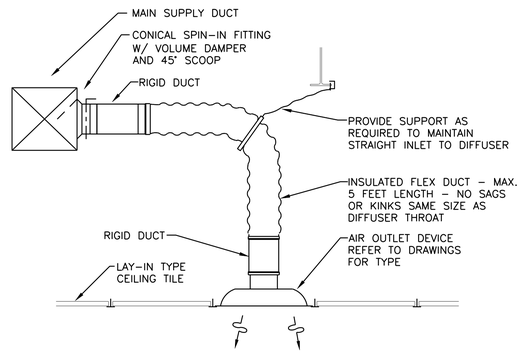
PROJECT NO.: 232-15

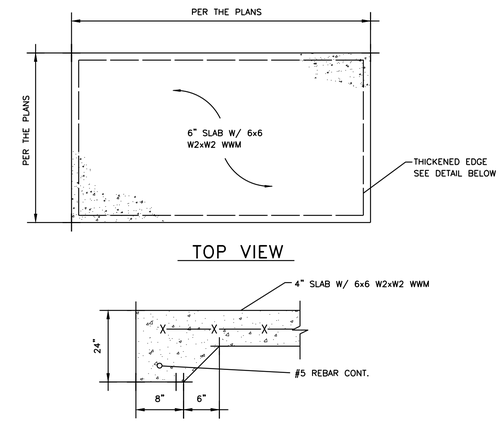
DATE: 2/29/2016

SHEET: M3.1



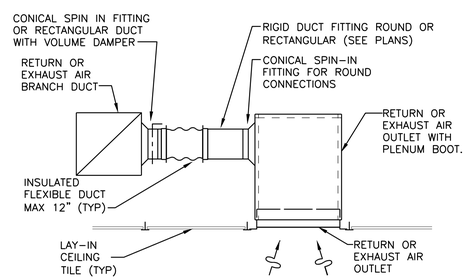
SUPPLY AIR DIFFUSER DETAIL

NO SCALE (TYPICAL FOR ALL SUPPLY AIR TAKE-OFFS)



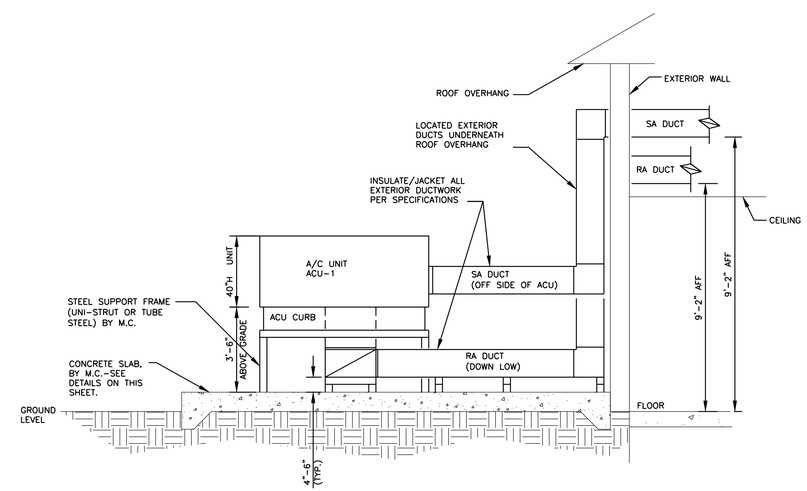
PAD DETAILS – FOR GRADE MOUNTED AIR CONDITIONER

NO SCALE



DUCTED RETURN OR EXHAUST AIR INLET DETAIL

NO SCALE (TYPICAL FOR ALL RETURN/EXHAUST TAKE-OFFS)



ELEVATION "A"–"A"

NO SCALE

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DRAWING TITLE: MECHANICAL & PLUMBING DETAILS

PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO.: 232-15

DATE: 2/29/2016

SHEET: M4.1

ELECTRICAL SYMBOL LIST

SYMBOL	DESCRIPTION
FA	FIXTURE TYPE
	RECESSED OR SURFACE MOUNTED FLUORESCENT LIGHTING FIXTURE
	RECESSED OR SURFACE MOUNTED FLUORESCENT EMERGENCY LIGHTING FIXTURE
	PENDANT OR SURFACE MOUNTED FLUORESCENT LIGHTING FIXTURE
	PENDANT OR SURFACE MOUNTED FLUORESCENT EMERGENCY LIGHTING FIXTURE
	DOWNLIGHT LIGHTING FIXTURE
	DOWNLIGHT EMERGENCY LIGHTING FIXTURE
	WALL SCONCE
	POLE MOUNTED LIGHTING FIXTURE – SINGLE HEAD
	BOLLARD LIGHTING FIXTURE
	OUTDOOR WALL MOUNTED LIGHTING FIXTURE
	EMERGENCY LIGHTING UNIT
	EXIT LIGHTING FIXTURE WITH EMERGENCY EGRESS LIGHTING AND BATTERY
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS – SHADED AREA INDICATES FACE
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS – SHADED AREA INDICATES FACE
	EXIT LIGHTING FIXTURE – WALL MOUNTED
	REMOTE EMERGENCY EXIT DISCHARGE LIGHT
K	KEY OPERATED SWITCH
S	SINGLE POLE TOGGLE SWITCH
S2	TWO POLE TOGGLE SWITCH
S3	3–WAY TOGGLE SWITCH
S4	4–WAY TOGGLE SWITCH
SM	HORSE POWER RATED SWITCH
LC	LIGHTING CONTROLLER/CONTACTOR
C	CONTACTOR
P	PHOTOELECTRIC CONTROLLER
T	T–STAT (BY OTHERS) ROUGHED IN BY E.C. @ 52" AFF WITH CONDUIT PATHWAY TO EQUIPMENT CONTROLS CONNECTION – COORD. WITH MECHANICAL TRADES
CO2	CARBON DIOXIDE SENSOR (BY OTHERS) ROUGHED IN BY E.C. @ 52" AFF WITH CONDUIT PATHWAY TO EQUIPMENT CONTROLS CONNECTION – COORD. WITH MECHANICAL TRADES
T	TEMPERATURE SENSOR (BY OTHERS) ROUGHED IN BY E.C. @ 52" AFF WITH CONDUIT PATHWAY TO EQUIPMENT CONTROLS CONNECTION – COORD. WITH MECHANICAL TRADES
H	HUMIDITY SENSOR (BY OTHERS) ROUGHED IN BY E.C. @ 52" AFF WITH CONDUIT PATHWAY TO EQUIPMENT CONTROLS CONNECTION – COORD. WITH MECHANICAL TRADES

SYMBOL	DESCRIPTION
	SINGLE PHASE MOTOR
	THREE PHASE MOTOR
	COMBINATION MOTOR STARTER WITH DISCONNECT SWITCH
	NON–FUSABLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
SM	HORSE POWER RATED SWITCH
	PUSH BUTTON STATION
J	JUNCTION BOX
	HARD WIRE POWER CONNECTION
	HARD WIRE CONNECTION AT FLOOR BOX
	CONDUIT UP
	CONDUIT DOWN
	COMBINATION TELE/DATA OUTLET – ROUGH–IN ONLY, NO CABLE DROP
	COMBINATION TELE/DATA OUTLET MOUNTED 8" ABOVE COUNTERTOP – ROUGH–IN ONLY NO CABLE DROPS
48"	COMBINATION TELE/DATA OUTLET – WALL MOUNTED @ 48"
	TELECOMMUNICATIONS BACKBOARD
	DUPLEX RECEPTACLE
48"	DUPLEX RECEPTACLE MOUNTED AT 48" ABOVE FLOOR (UNLESS NOTED OTHERWISE) – SIMILAR FOR ISOLATED GROUND, EMERGENCY AND GFI RECEPTACLES
	QUAD RECEPTACLE
	DUPLEX RECEPTACLE MOUNTED 8" ABOVE COUNTERTOP (UNLESS NOTED OTHERWISE) OR AS REQUIRED TO ACCOMMODATE COUNTERS – REFER TO ARCHITECTURAL ELEVATIONS – SIMILAR FOR OTHER DEVICES
	DUPLEX RECEPTACLE – GROUND FAULT INTERRUPTER
WP	DUPLEX RECEPTACLE – GROUND FAULT INTERRUPTER – WEATHERPROOF COVER
	SPECIAL RECEPTACLE – NEMA CONFIGURATION AS NOTED
TV	TELEVISION OUTLET – ROUGH–IN ONLY

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	GROUND
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
A–3	CIRCUIT HOMERUN TO PANEL "A" CIRCUIT #3
	SUB–PANEL
	SUB–PANEL
	DISTRIBUTION PANEL
T	TRANSFORMER
M	UTILITY METER

ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPS INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
COORD.	COORDINATION
CU	CONDENSING UNIT
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DWG	DRAWING
E.C.	ELECTRICAL CONTRACTOR
(E)	EXISTING
EM	EMERGENCY LIGHT
FLA	FULL LOAD AMPS
(F)	FUTURE
FC	FAN COIL
FU	FUSE
GFI	GROUND FAULT INTERRUPTER
GRD	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND–OFF–AUTO
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
JB	JUNCTION BOX
KW	KILOWATT
KWH	KILOWATT – HOURS
KVA	KILO VOLT–AMPERES

ABBREVIATION	DESCRIPTION
LP	LIGHTING PANEL
LC	LIGHTING CONTROLLER
M.C.	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MFS	MAX FUSE SIZE
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTR	MOTOR
NC	NORMALLY CLOSED
N.E.C.	NATIONAL ELECTRIC CODE
NF	NON–FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
P–A	PANEL "A"
P.C.	PLUMBING CONTRACTOR
PRI	PRIOR TO ROUGH–IN
RECEPT.	RECEPTACLE
(R)	RELOCATED
SD	SMOKE DETECTOR
SPEC	SPECIFICATION
TELCOM	TELECOMMUNICATIONS
TTB	TELEPHONE TERMINAL BACKBOARD
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
U/G	UNDERGROUND (BELOW GRADE)
WP	WEATHERPROOF
XFMR	TRANSFORMER

FIRE ALARM SYMBOL LIST

SYMBOL	DESCRIPTION
F	MANUAL FIRE ALARM STATION (WITH PROTECTIVE GUARD)
SD	SMOKE DETECTOR
TD	THERMAL DETECTOR
C –XX	FIRE ALARM STROBE – CEILING MOUNTED (xx CANDELA)
F –XX	FIRE ALARM HORN/STROBE – WALL MOUNTED (xx CANDELA)
C F –XX	FIRE ALARM HORN/STROBE – CEILING MOUNTED (xx CANDELA)
TS	TAMPER SWITCH
FS	FLOW SWITCH
DR	O/H COILING FIRE DOOR RELEASE (24V – COORD. WITH O/H FIRE DOOR SUPPLIER PRIOR TO ROUGH–IN)
FACP	FIRE ALARM CONTROL PANEL (EXISTING SILENT KNIGHT #5208? – FIELD VERIFY LOCATION)
FAA	FIRE ALARM ANNUNCIATOR PANEL

CLEAN AGENT FIRE SUPPRESSION (CAFS) SYMBOL LIST

SYMBOL	DESCRIPTION
D	CAFS DOOR RELEASE
P	CAFS PULL STATION (WITH PROTECTIVE GUARD)
AB	CAFS ABORT STATION (WITH PROTECTIVE GUARD)
A	CAFS ALARM CONTACT (SUPERVISED BY FIRE ALARM SYSTEM)
T	CAFS TROUBLE CONTACT (SUPERVISED BY FIRE ALARM SYSTEM)
MS	CAFS MAINTENANCE SUPERVISORY CONTACT (SUPERVISED BY FIRE ALARM SYSTEM)
PS	CAFS PRESSURE SWITCH CONTACT (SUPERVISED BY FIRE ALARM SYSTEM)
CF – WP	CAFS HORN/STROBE – WEATHER–PROOF
C CF –XX	CAFS HORN/STROBE – CEILING MOUNTED (xx CANDELA)

STANDARD MOUNTING HEIGHTS

CONVENIENCE AND SPECIAL PURPOSE RECEPTACLE OUTLETS, TELE/DATA AND COMMUNICATIONS OUTLETS, NOT OTHERWISE SPECIFIED:
- 18" AFF TO CENTER OF BOX IN CMU WALLS – 16" AFF TO BOTTOM OF BOX.

CONVENIENCE AND SPECIAL PURPOSE RECEPTACLE OUTLETS ABOVE COUNTERS, NOT OTHERWISE SPECIFIED:
- 6" ABOVE COUNTER TO CENTER OF BOX OR AS REQUIRED TO ACCOMMODATE COUNTERS. (REFER TO ARCHITECTURAL ELEVATIONS.)

LIGHT SWITCHES, MOTOR CONTROL DEVICES, AND FIRE ALARM PULL STATIONS, NOT OTHERWISE SPECIFIED:
- 50" AFF TO CENTER OF BOX IN CMU WALLS – 48" AFF TO TOP OF BOX.

T–STATS, TEMP. SENSORS, CO2 SENSORS, NOT OTHERWISE SPECIFIED:
- 50" AFF TO CENTER OF BOX IN CMU WALLS – 48" AFF TO TOP OF BOX.

FIRE ALARM HORNS, SPEAKERS, STROBES, AND COMBINATION DEVICES, NOT OTHERWISE SPECIFIED:
- 96" AFF (TO TOP OF BOX) OR 6" BELOW CEILING, WHICHEVER IS LESS – BUT NO LOWER THAN 80" AFF.

GFI RECEPTACLES IN TOILET ROOMS AND JANITOR CLOSETS, NOT OTHERWISE SPECIFIED:
- 48" AFF TO TOP OF BOX.

LIGHTING AND RECEPTACLE BRANCH CIRCUIT PANELBOARDS AND LIGHTING CONTROLLERS:
- 6'–6" AFF TO TOP OF ENCLOSURE.

METHODS OF NOTATION

FA	LIGHT FIXTURE DESIGNATION (I.E. FIXTURE TYPE "FA" – SEE FIXTURE SCHEDULE)
1	CONSTRUCTION KEY NOTE NUMBER
1	DEMOLITION KEY NOTE NUMBER
?	REVISION SYMBOL
	EXISTING SYSTEM COMPONENT TO BE REMOVED
	NEW SYSTEM COMPONENT
	EXISTING SYSTEM COMPONENT TO REMAIN
	POINT OF NEW CONNECTION.
A–3	CIRCUIT HOMERUN (BACK TO PANEL "A" – REFER TO PANEL SCHEDULE)

ELECTRICAL DRAWING INDEX

E1.0 ELECTRICAL TITLE SHEET

E2.1 ELECTRICAL LIGHTING DEMOLITION PLANS
E2.2 ELECTRICAL POWER DEMOLITION PLANS

E3.1 ELECTRICAL LIGHTING NEW WORK PLANS
E3.2 ELECTRICAL POWER NEW WORK PLANS

E4.1 ELECTRICAL DETAILS
E4.2 ELECTRICAL DETAILS
E4.3 ELECTRICAL DETAILS

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DRAWING TITLE: ELECTRICAL TITLE SHEET

PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE 2/29/2016

SHEET E1.0

GENERAL ELECTRICAL DEMOLITION NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE EXTENT OF DEMOLITION WORK SHALL BE AS REQUIRED BY THE NEW WORK.

2. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING SYSTEMS/EQUIPMENT PRIOR TO ISSUING HIS BID. ALL EXISTING PANEL/WIRE/LIGHT SIZES AND ROUTINGS SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.

3. ALL ELECTRICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE WITH ALL RELATED ITEMS INCLUDING, BUT NOT LIMITED TO, WIRES, CONDUITS, SUPPORTS, FIXTURES, LAMPS, ETC. REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF OFF SITE.

4. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED, BY THE OWNER OR OWNER'S REPRESENTATIVE, AT LEAST (7) DAYS IN ADVANCE SO AS NOT TO INTERFERE WITH THE PRESENT BUILDING OPERATION.

5. WHERE DEMOLITION OF EXISTING SERVICES ARE REQUIRED TO ACCOMMODATE THE PROJECT PHASING/SCHEDULING, AND SERVICES ARE TO BE INTERRUPTED IN AREAS THAT ARE REMAINING OCCUPIED, THE CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES/CONNECTIONS TO THE OCCUPIED AREAS TO MAINTAIN ITS PRESENT OPERATION. IF SYSTEM SHUT DOWNS ARE REQUIRED, THE CONTRACTOR SHALL SCHEDULE WORK TO BE PERFORMED AT UNOCCUPIED HOURS.

6. ALL ITEMS TO BE REMOVED AND/OR RELOCATED SHALL BE REMOVED AND/OR RELOCATED TOGETHER WITH ALL RELATED ITEMS AS REQUIRED BY THE NEW WORK TO BE PERFORMED.

7. CONTRACTOR SHALL COORDINATE ALL REMOVAL AND/OR RELOCATION WITH THE EXTENT OF THE NEW WORK AND WITH ALL OTHER TRADES INVOLVED.

8. INSTALL STAINLESS STEEL BLANK COVER PLATES AT ALL LOCATIONS WHERE DEVICES (SWITCHES, RECEPTACLES, FIRE ALARM, ETC.) ARE TO BE REMOVED.

9. EACH SUBCONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ANY/ALL CEILING TILES AND/OR GRID ASSOCIATED WITH THEIR WORK. THE RESPONSIBLE CONTRACTOR SHALL REPLACE/REPAIR ALL CEILING TILES AND/OR GRID DAMAGED DURING THE CONSTRUCTION WITH NEW CEILING TILES.

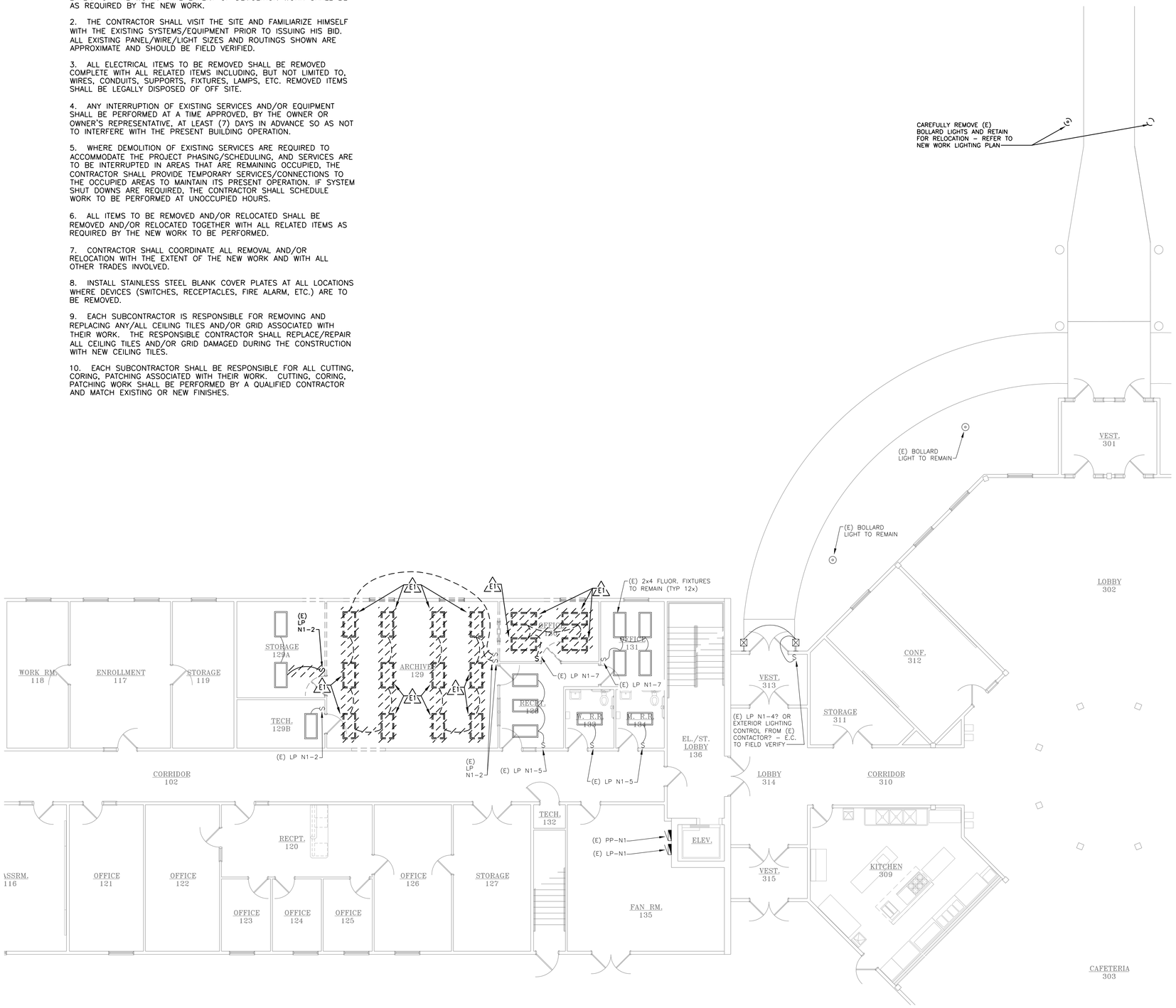
10. EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CORING, PATCHING ASSOCIATED WITH THEIR WORK. CUTTING, CORING, PATCHING WORK SHALL BE PERFORMED BY A QUALIFIED CONTRACTOR AND MATCH EXISTING OR NEW FINISHES.

KEYED ELECTRICAL DEMOLITION NOTES:

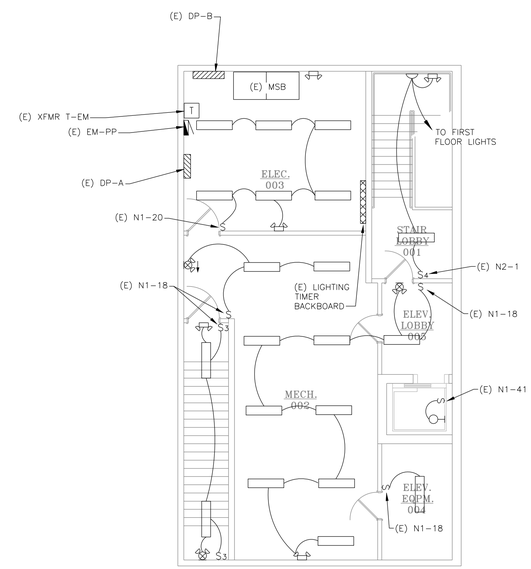
E1 CAREFULLY REMOVE (E) BOLLARD LIGHT FIXTURES AND RETAIN FOR RELOCATION. REFER TO NEW WORK PLAN.

E2 REMOVE EXISTING (E) PRIMARY FEEDERS FROM (E) ELECTRICAL UTILITY TRANSFORMER TO (E) MSB AND PREPARE FOR RELOCATION (R) OF UTILITY TRANSFORMER AS REQUIRED TO ACCOMMODATE NEW ARCHIVES ADDITION/RENOVATION. REFER TO NEW WORK PLANS AND 1-LINE DIAGRAM. COORDINATE WITH ELECTRICAL UTILITY.

E3 CAREFULLY REMOVE EXISTING GENERATOR (10 KW @ 120/240V-1ø), TRANSFER SWITCH (ATS), AND ASSOCIATED FEEDERS. TURN OVER GENERATOR & XFR SWITCH TO OWNER FOR THEIR FUTURE USE. REFER TO NEW WORK PLANS AND 1-LINE DIAGRAM.



ELECTRICAL LIGHTING DEMOLITION PLAN - GRADE LEVEL
SCALE: 1/8" = 1'-0"



ELECTRICAL LIGHTING DEMOLITION PLAN - BASEMENT
SCALE: 1/8" = 1'-0"

JLK Engineering Project Number: AEA 1504-01

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DRAWING TITLE: ELECTRICAL LIGHTING DEMOLITION PLANS

PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE 2/29/2016

SHEET E2.1

GENERAL ELECTRICAL DEMOLITION NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE EXTENT OF DEMOLITION WORK SHALL BE AS REQUIRED BY THE NEW WORK.

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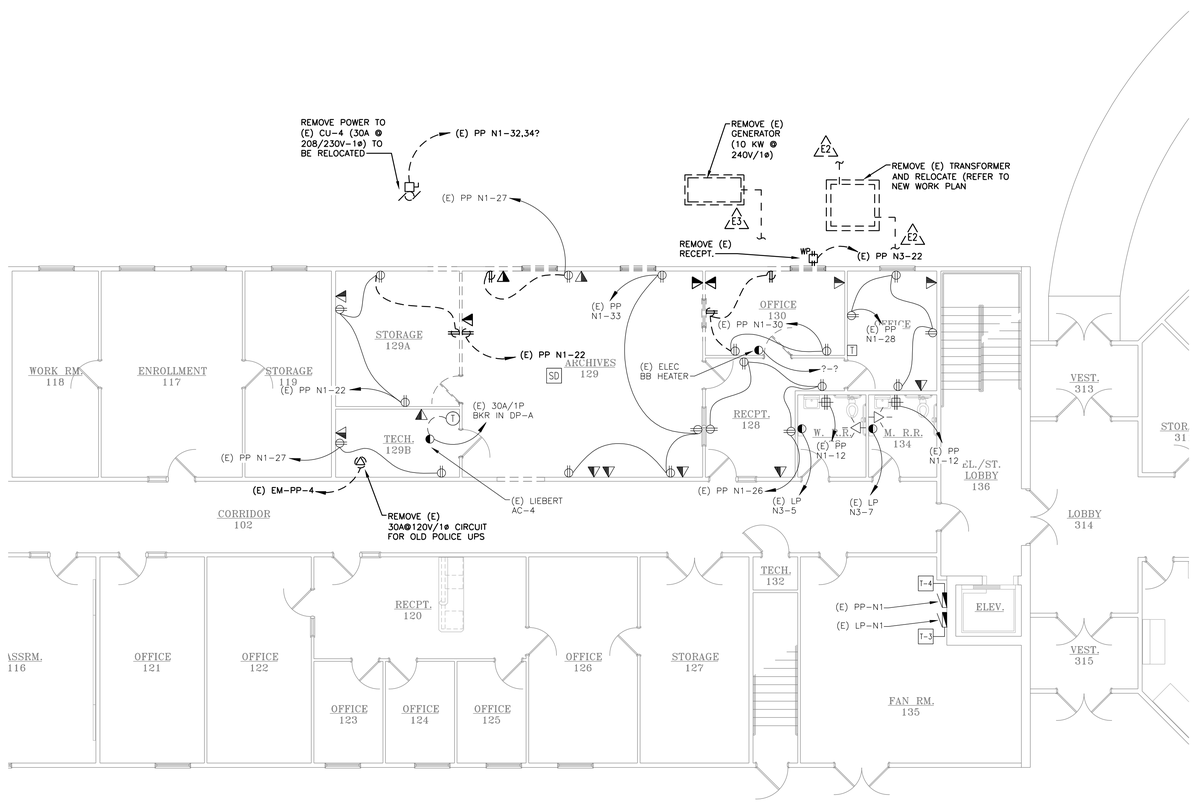
KEYED ELECTRICAL DEMOLITION NOTES:

E1 CAREFULLY REMOVE (E) BOLLARD LIGHT FIXTURES AND RETAIN FOR RELOCATION. REFER TO NEW WORK PLAN.

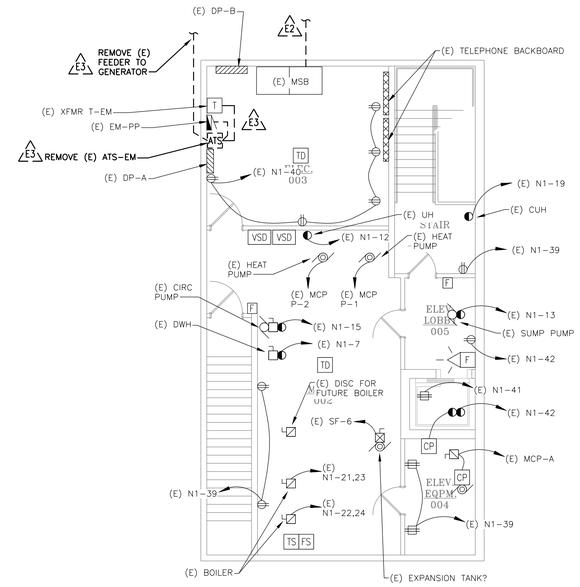
E2 REMOVE EXISTING (E) PRIMARY FEEDERS FROM (E) ELECTRICAL UTILITY TRANSFORMER TO (E) MSB AND PREPARE FOR RELOCATION (R) OF UTILITY TRANSFORMER AS REQUIRED TO ACCOMMODATE NEW ARCHIVES ADDITION/RENOVATION. REFER TO NEW WORK PLANS AND 1-LINE DIAGRAM. COORDINATE WITH ELECTRICAL UTILITY.

E3 CAREFULLY REMOVE EXISTING GENERATOR (10 KW @ 120/240V-1ø), TRANSFER SWITCH (ATS), AND ASSOCIATED FEEDERS. TURN OVER GENERATOR & XFR SWITCH TO OWNER FOR THEIR FUTURE USE. REFER TO NEW WORK PLANS AND 1-LINE DIAGRAM.



NORTH

ELECTRICAL POWER DEMOLITION PLAN – GRADE LEVEL
SCALE: 1/8" = 1'-0"



NORTH

ELECTRICAL POWER DEMOLITION PLAN – BASEMENT
SCALE: 1/8" = 1'-0"

JLK Engineering Project Number: AEA 1504-01

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DRAWING TITLE: ELECTRICAL POWER DEMOLITION PLANS

PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE 2/29/2016

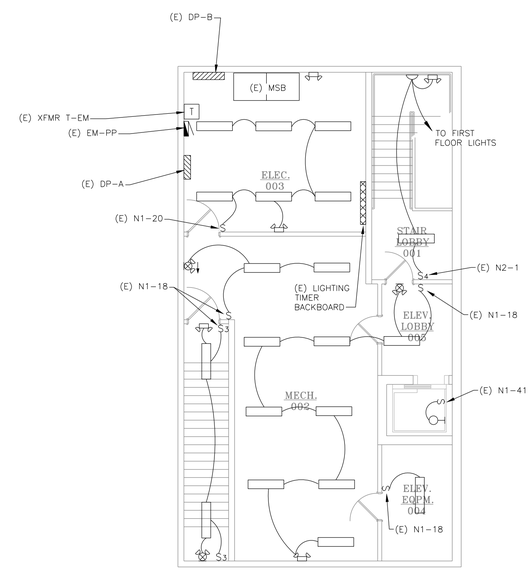
SHEET E2.2

KEYED ELECTRICAL LIGHTING CONSTRUCTION NOTES:

1A RELOCATED 2x4 FLUORESCENT FIXTURE (32W).

1B PROVIDE NEW WALL MOUNTED OCC SENSOR LIGHT SWITCH TO CONTROL NEW VESTIBULE LIGHTING.

ELECTRICAL LIGHTING NEW WORK PLAN – GRADE LEVEL
SCALE: 1/8" = 1'-0"



ELECTRICAL LIGHTING NEW PLAN – BASEMENT
SCALE: 1/8" = 1'-0"

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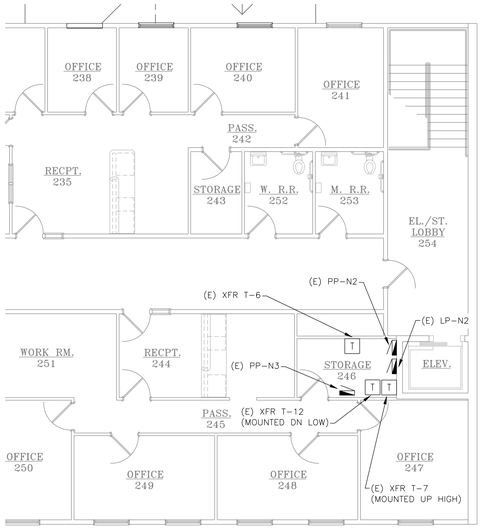
DRAWING TITLE: ELECTRICAL LIGHTING NEW WORK PLANS

PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE 2/29/2016

SHEET E3.1



NORTH

ELECTRICAL POWER NEW WORK PLAN – UPPER LEVEL

SCALE: 1/8" = 1'-0"

KEYED ELECTRICAL POWER CONSTRUCTION NOTES:

EA — PROVIDE SMOKE DETECTORS & FIRE ALARM CONTROL (24V – CONFIRM WITH DOOR SUPPLIER) TO RELEASE O/H COILING FIRE SHUTTER DOOR UPON DETECTION OF SMOKE AND ALARM OF FIRE ALARM SYSTEM. ALSO PROVIDE WIRING/CONTROL TO RELEASE O/H DOOR UPON ACTIVATION OF CLEAN AGENT FIRE SUPPRESSION (CAFS) SYSTEM FROM CAFS PANEL. COORDINATE REQUIREMENTS WITH DOOR SUPPLIER PRIOR TO ROUGH-IN.

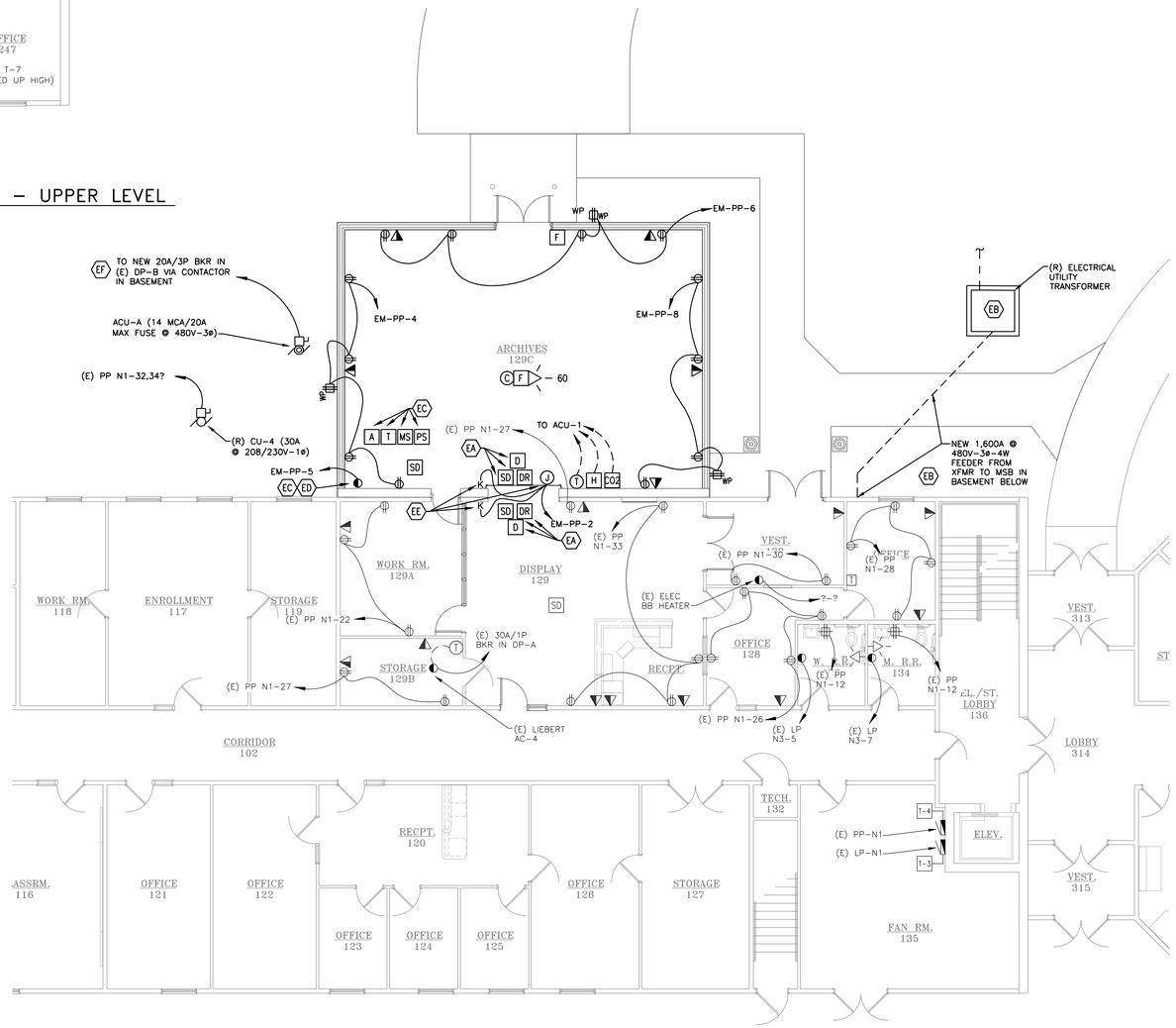
EB — RELOCATE (R) EXISTING UTILITY TRANSFORMER AS REQUIRED TO ACCOMMODATE ARCHIVES ADDITION/RENOVATIONS. PROVIDE NEW SECONDARY FEEDER. REFER TO 1-LINE DIAGRAM. COORDINATE WITH ELECTRICAL UTILITY.

EC — FIRE ALARM SUB-CONTRACTOR SHALL PROVIDE SUPERVISION OF THE NEW CLEAN AGENT FIRE SUPPRESSION (CAFS) SYSTEM'S ALARM, TROUBLE, AND SUPERVISORY CONTACTS. COORDINATE WITH CAFS SUB-CONTRACTOR PRIOR TO ROUGH-IN.

ED — PROVIDE POWER (2A @ 120V) TO NEW CLEAN AGENT FIRE SUPPRESSION (CAFS) SYSTEM CONTROL PANEL – COORDINATE WITH CAFS SUB-CONTRACTOR.

EE — IN ADDITION TO THE O/H COILING FIRE DOOR BEING RELEASED FROM FIRE ALARM SMOKE DETECTORS AND/OR CAFS SYSTEM RELEASE, THE E.C. SHALL PROVIDE ALL POWER & CONTROL WIRING FOR MANUAL OPERATION OF O/H COILING DOOR INCLUDING 120V POWER TO MOTOR (ASSUMED 1/2 HP @ 120V – CONFIRM WITH DOOR SUPPLIER). ALL LOW VOLTAGE CONTROL WIRING TO/FROM KEYED OPERATING SWITCHES (PROVIDED WITH O/H DOOR) ON BOTH SIDES OF DOOR, ETC. COORDINATE ALL POWER/CONTROL REQUIREMENTS WITH DOOR SUPPLIER PRIOR TO ROUGH-IN.

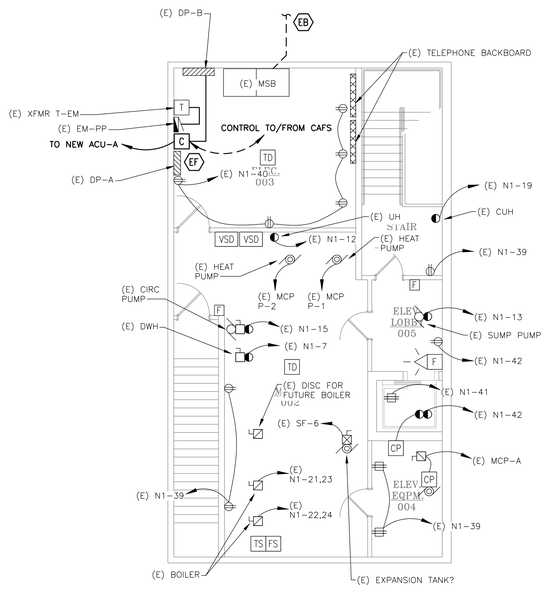
EF — PROVIDE NEW 20A @ 480V/3ø CONTACTOR (IN BASEMENT) AND 24V CONTROL WIRING TO/FROM CAFS PANEL TO DISABLE ACU-A UPON ACTIVATION/RELEASE OF NEW CLEAN AGENT FIRE SUPPRESSION (CAFS) SYSTEM. COORDINATE WITH CAFS CONTRACTOR PRIOR TO ROUGH-IN.



NORTH

ELECTRICAL POWER NEW WORK PLAN – GRADE LEVEL

SCALE: 1/8" = 1'-0"



NORTH

ELECTRICAL POWER NEW WORK PLAN – BASEMENT

SCALE: 1/8" = 1'-0"

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PROJECT NO.: 232-15

DATE: 2/29/2016

SHEET: E3.2

OCCUPANCY SENSOR SYMBOL LEGEND

SYMBOL	MODEL #	DESCRIPTION
M	OSSMT-MDW	WALL MOUNTED MULTI-TECHNOLOGY OCCUPANCY SENSOR
1000	OSC10-MO	CEILING MOUNTED MULTI-TECHNOLOGY OCCUPANCY SENSOR (1000 SQ. FT)
2000	OSC20-MO	CEILING MOUNTED MULTI-TECHNOLOGY OCCUPANCY SENSOR (2000 SQ. FT)
1200	OSW12-MO	MULTI-TECHNOLOGY WALL/CORNER OCCUPANCY SENSOR
	OSWHB-IOW	HIGH BAY WALL MOUNTED PIR OCCUPANCY SENSOR
W	OSWWV-IOW	WIDE VIEW WALL MOUNTED PIR OCCUPANCY SENSOR
	OSP20-RDO	POWER PACK WITH HVAC RELAY
	OSA20-R00	ADD-A-RELAY POWER PACK

NOTES:
1) ALL OCCUPANCY SENSOR MODEL NUMBERS ARE LEVITON. WATT-STOPPER, COPPER, AND SENSOR-SWITCH MAY BE BID AS EQUAL.
2) COORDINATE ALL SENSOR COLORS WITH ARCHITECT PRIOR TO ORDERING.

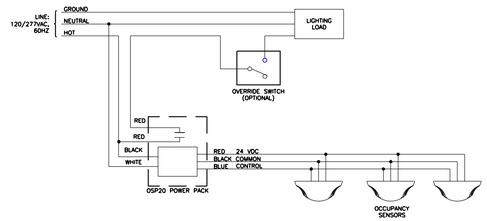
OCCUPANCY SENSOR NOTES:

1. ALL SENSOR LOCATIONS ARE APPROXIMATE-REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND AIM SENSORS IN THE CORRECT LOCATION REQUIRED FOR COMPLETE AND PROPER VOLUMETRIC COVERAGE WITHIN THE RANGE OF COVERAGE(S) OF CONTROLLED AREAS PER THE MANUFACTURER'S RECOMMENDATIONS. ROOMS SHALL HAVE COVERAGE TO COMPLETELY COVER THE CONTROLLED AREA TO ACCOMMODATE ALL OCCUPANCY HABITS OF SINGLE OR MULTIPLE OCCUPANTS AT ANY LOCATION WITHIN THE ROOMS(S). THE LOCATIONS AND QUANTITIES OF SENSORS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE ROOMS WHICH ARE TO BE PROVIDED WITH SENSORS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS IF REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE ROOM.

2. ULTRASONIC CEILING MOUNT SENSORS SHOULD BE LOCATED A MINIMUM OF SIX FEET FROM HVAC SUPPLY/RETURN VENTS.

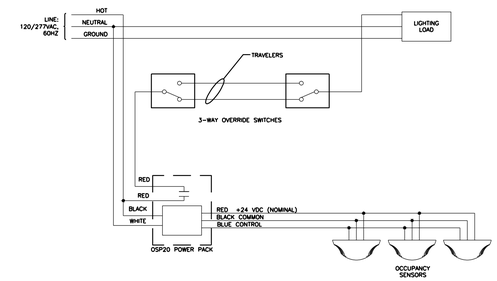
3. CONTRACTOR IS RESPONSIBLE FOR PROPER SENSITIVITY AND TIME DELAY SETTINGS (FOR NON-ADAPTIVE PRODUCTS) MANUFACTURER'S RECOMMENDED PLACEMENT, AND FIELD VERIFICATION OF CIRCUITS WITH RESPECT TO POWER PACK PLACEMENT.

4. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF REQUIRED NUMBER OF POWER PACKS:
A) ONE POWER PACK IS REQUIRED FOR EACH CIRCUIT THAT IS TO BE CONTROLLED.
B) DEPENDING ON THE TYPE OF SENSOR, UP TO THREE SENSORS CAN BE WIRED IN PARALLEL TO A SINGLE POWER PACK.
C) IF MULTIPLE CIRCUITS ARE TO BE CONTROLLED BY A SENSOR, AUXILIARY RELAYS MAY BE USED IN CONJUNCTION WITH A POWER PACK.
D) ALL POWER PACKS SHALL HAVE AN AUXILIARY RELAY FOR HVAC CONTROL.



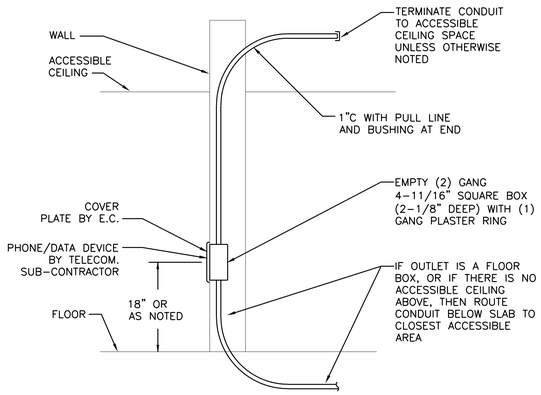
OCCUPANCY SENSOR DETAIL WITH SINGLE SWITCH

NO SCALE



OCCUPANCY SENSOR DETAIL WITH 3-WAY SWITCHES

NO SCALE



NOTES:
1) PROVIDE LABEL ON CONDUIT STATING OUTLET BOX LOCATION (I.E. ROOM NAME & NUMBER).
2) PROVIDE ROUGH-IN ONLY - NO CABLING/DEVICES. ALL TELECOM CABLING & DEVICES SHALL BE DONE BY OTHERS PER OWNER'S IT DEPT'S TELECOM STANDARDS. E.C SHALL COORDINATE WITH OWNER'S IT DEPARTMENT AS REQUIRED PRIOR TO ROUGH-IN.
3) REFER TO ELECTRICAL TITLE SHEET FOR TELECOM SYMBOL INDEX.

TELECOM OUTLET ROUGH-IN DETAIL

NO SCALE

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURERS	LAMPS	VOLTS/WATTS	REMARKS
ECH	EXIT/EMERGENCY LIGHT COMBINATION WITH HIGH POWER BATTERY FOR EMERGENCY REMOTE CAPACITY: LED EXIT LIGHT, THERMOPLASTIC HOUSING WITH WHITE FACE PLATE, EMERGENCY LIGHTING FIXTURE WITH: TWO 3.6V/0.78W LED HEADS; SEALED MAINTENANCE FREE NICKEL CALCIUM BATTERY; AUTOMATIC CHARGER AND TRANSFER CIRCUIT; DUAL 120/277 VOLT AC/EM OPERATION.	1. SURE-LITES "APCH" SERIES APCH7R 2. ENGINEER APPROVED EQUAL	(2) - 3.6V / 0.78W LED EM HEADS & LED EXIT LAMPS	120V / 1.6W	ARROWS AND FACES SHALL BE AS INDICATED ON DRAWINGS. PROVIDE MOUNTING HARDWARE AS REQUIRED FOR SINGLE OR DOUBLE SIDE AS REQUIRED BY CODE.
EM	EMERGENCY LIGHTING UNIT: WALL OR CEILING MOUNTED LIGHTING WITH TWO 3.6V/0.78W LED HEADS. SEALED MAINTENANCE FREE NICKEL CADMIUM BATTERY.	1. SURE-LITES "APEL" SERIES APEL 2. ENGINEER APPROVED EQUAL	(2) - 3.6V / 0.78W LED EM HEADS	120V / 0.5W	
ER2	REMOTE OUTDOOR EMERGENCY LIGHTING: WALL/CEILING MOUNTED WEATHERPROOF FIXTURE WITH TWO 3.6V/0.78W LED HEADS.	1. SURE-LITES "APWR" APWR2 2. ENGINEER APPROVED EQUAL	(2) - 3.6V / 0.78W LED EM HEADS	3.6V / 1.6W	WIRE TO BATTERY IN HIGH POWER CAPACITY EXIT SIGN OR EMERGENCY BATTERY LOCATED INSIDE BUILDING
EX	LED EXIT LIGHT: THERMOPLASTIC HOUSING WITH WHITE FACE PLATE WITH UNIVERSAL DIRECTIONAL ARROWS, RED LED LAMPS AND HIGH IMPACT POLYCARBONATE LENS; FIXTURE SHALL BE DUAL 120/277V AC/EM OPERATION. UL 924 CODE COMPLIANCE. SEALED NICKEL CADMIUM BATTERY - 24 HR RECHARGE.	1. SURE-LITES APX SERIES - APX7R 2. ENGINEER APPROVED EQUAL.	LED EXIT LAMPS	120V / 1W	ARROWS AND FACES SHALL BE AS INDICATED ON DRAWINGS. PROVIDE MOUNTING HARDWARE AS REQUIRED FOR SINGLE OR DOUBLE SIDE AS REQUIRED BY CODE.
F1	2'x4'x3.25"H RECESSED LAY-IN FLUORESCENT TROFFER FIXTURE WITH ACRYLIC PRISMATIC LENS; FLUSH STEEL WHITE FRAME.	1. METALUX "2GC8" SERIES MODEL# 2GC8-332A125-UNV-ER81 2. ENGINEER APPROVED EQUAL	(3)-F32WT8/RS	120V / 91W	
F1E	FIXTURE SHALL BE THE SAME AS "F1" EXCEPT IT SHALL HAVE AN EMERGENCY BATTERY UNIT (EBU). EMERGENCY BALLAST SHALL PROVIDE MINUMUM OF 700 LUMENS (233 LUMENS FOR EACH LAMP).	1. METALUX "2GC8" SERIES #2GC8-332A125-UNV-ELB-ER81 2. ENGINEER APPROVED EQUAL	(3)-F32WT8/RS	120V / 91W	
LE	10.25"Wx5.6"Hx10.25"D WALL MOUNTED (SURFACE) DIE-CAST ALUMINUM WALL PACK; TYPE 3 LIGHT DISTRIBUTION; PUSHBUTTON PHOTOCONTROL; DARK BRONZE COLOR (COORDINATE WITH ARCHITECT)	1. HUBBELL LNC2 #LNC2-18LU-5K-3-1-PC 120V 2. NO SUBSTITUTIONS	LED 3,311 LUMENS 5,000K TEMP	120V / 41W	CONFIRM COLOR WITH ARCHITECT/OWNER PRIOR TO ORDER

GENERAL ELECTRICAL LIGHTING NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL MATERIALS (I.E. CONDUIT, WIRE, PULL BOXES, FIXTURES, ETC.) REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM.

2. ALL LIGHTING SYSTEMS SHALL BE PROVIDED/INSTALLED TO MEET APPLICABLE BUILDING CODES: 2012 INTERNATIONAL BUILDING CODE, MICHIGAN ELECTRICAL CODE, N.E.C., LIFE SAFETY CODE NFPA 101, MICHIGAN ENERGY CODE, ETC.

3. COORDINATE EXACT FIXTURE LOCATIONS WITH ARCHITECTURAL PLANS (REFLECTED CEILING PLANS, BUILDING ELEVATIONS ETC.).

4. ALL NIGHT LIGHTS, EMERGENCY LIGHTS, AND EXIT LIGHTS SHALL BE CIRCUITED TO UNSWITCHED/HOT LEG OF THE GENERAL LIGHTING CIRCUIT OF THE AREA SERVED BY THE NIGHT/EMERGENCY/EXIT LIGHTS.

5. CONTRACTOR SHALL INSTALL ALL MISCELLANEOUS STEEL, STRUT, ETC. REQUIRED TO SUPPORT/HANG FIXTURES. COORDINATE ATTACHMENTS WITH STRUCTURAL TRADES.

6. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL ELECTRICAL WORK WITH ALL OTHER TRADES. CONTRACTOR SHALL VERIFY ALL MECHANICAL AND ELECTRICAL CLEARANCES PRIOR TO FABRICATION OF ANY NEW WORK. ELECTRICAL EQUIPMENT, WIRING, ETC. SHALL NOT INTERFERE WITH MECHANICAL EQUIPMENT CLEARANCE SPACES.

7. ALL CIRCUITS FOR POWER, LIGHTING, FIRE ALARM, ETC. SHALL BE IN CONDUIT AS SPECIFIED. ALL CIRCUITS SHALL BE CONCEALED IN WALLS, INCLUDING (E) WALLS. SURFACE MOUNTED RACEWAY SHALL NOT BE USED, UNLESS NOTED OTHERWISE, OR UNLESS ABSOLUTELY NECESSARY. APPROVAL FROM ARCHITECT/OWNER MUST BE OBTAINED PRIOR TO USING SURFACE MOUNTED RACEWAY.

8. UNLESS NOTED OTHERWISE, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CORING, PATCHING ASSOCIATED WITH THEIR WORK. CUTTING, CORING, PATCHING WORK SHALL BE PERFORMED BY A QUALIFIED CONTRACTOR AND MATCH EXISTING OR NEW FINISHES.

9. NOTE THAT THE NEW ARCHIVES 129C ADDITION WILL BE CONSTRUCTED OF INSULATED CONCRETE FORM (ICF) WALLS. COORDINATE ROUGH-IN OF ALL BOXES/CONDUITS REQUIRED FOR ELECTRICAL SYSTEMS (I.E. LIGHTING, POWER, FIRE ALARM, ETC.) REQUIRED WITH ICF CONTRACTOR PRIOR TO POURING OF CONCRETE WALLS.

GENERAL ELECTRICAL POWER NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MATERIALS (I.E. CONDUIT, WIRE, PULL BOXES, FIXTURES, ETC.) REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM.

2. ALL ELECTRICAL SYSTEMS SHALL BE PROVIDED/INSTALLED TO MEET APPLICABLE BUILDING CODES: 2012 INTERNATIONAL BUILDING CODE, MICHIGAN ELECTRICAL CODE, N.E.C., LIFE SAFETY CODE NFPA 101, MICHIGAN ENERGY CODE, ETC.

3. VERIFY REQUIREMENTS OF ALL MECHANICAL/PLUMBING/ARCHITECTURAL EQUIPMENT WITH SHOP DRAWING SUBMITTALS PRIOR TO INSTALLATION. NOTIFY THE ENGINEER OF ANY CONFLICTS BETWEEN SHOP DRAWINGS AND PLANS.

4. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL OUTLETS WITH LOCATIONS/HEIGHTS OF COUNTERTOPS, SINKS, FURNITURE, CABINETS, ETC. WITH ARCHITECTURAL ELEVATIONS AND OTHER TRADES.

5. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL ELECTRICAL WORK WITH ALL OTHER TRADES. CONTRACTOR SHALL VERIFY ALL MECHANICAL AND ELECTRICAL CLEARANCES PRIOR TO FABRICATION OF ANY NEW WORK. ELECTRICAL EQUIPMENT, WIRING, ETC. SHALL NOT INTERFERE WITH MECHANICAL EQUIPMENT CLEARANCE SPACES.

6. ALL CIRCUITS FOR POWER, LIGHTING, FIRE ALARM, ETC. SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. ALL CIRCUITS SHALL BE CONCEALED IN WALLS, INCLUDING (E) WALLS. SURFACE MOUNTED RACEWAY SHALL NOT BE USED, UNLESS NOTED OTHERWISE, OR UNLESS ABSOLUTELY NECESSARY. APPROVAL FROM ARCHITECT/ENGINEER MUST BE OBTAINED PRIOR TO USING SURFACE MOUNTED RACEWAY.

7. EACH SUBCONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ANY/ALL CEILING TILES AND/OR GRID ASSOCIATED WITH THEIR WORK. THE RESPONSIBLE CONTRACTOR SHALL REPLACE/REPAIR ALL CEILING TILES AND/OR GRID DAMAGED DURING THE CONSTRUCTION WITH NEW CEILING TILES.

8. UNLESS OTHERWISE NOTED, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR SEALING ALL NEW PENETRATIONS THROUGH ALL WALLS WITH FIRE CAULK IN ACCORDANCE WITH CURRENT BUILDING CODE REQUIREMENTS.

9. UNLESS OTHERWISE NOTED, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CORING, PATCHING ASSOCIATED WITH THEIR WORK. CUTTING, CORING, PATCHING WORK SHALL BE PERFORMED BY A QUALIFIED CONTRACTOR AND MATCH EXISTING OR NEW FINISHES.

10. NOTE THAT THE NEW ARCHIVES 129C ADDITION WILL BE CONSTRUCTED OF INSULATED CONCRETE FORM (ICF) WALLS. COORDINATE ROUGH-IN OF ALL BOXES/CONDUITS REQUIRED FOR ELECTRICAL SYSTEMS (I.E. LIGHTING, POWER, FIRE ALARM, ETC.) REQUIRED WITH ICF CONTRACTOR PRIOR TO POURING OF CONCRETE WALLS.

GENERAL AUXILIARY ELECTRICAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MATERIALS (I.E. CONDUIT, WIRE, PULL BOXES, FIXTURES, ETC.) REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM.

2. VERIFY REQUIREMENTS OF ALL EQUIPMENT WITH SHOP DRAWING SUBMITTALS PRIOR TO INSTALLATION.

3. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL TELECOM, JACKS, BOXES, CARD READERS, ETC. WITH LOCATIONS/HEIGHTS OF COUNTERTOPS, FURNITURE, CABINETS, ETC. WITH ARCHITECTURAL ELEVATIONS AND OTHER TRADES.

4. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ROUGH-INS (I.E BOXES, CONDUIT, ETC.) FOR AUXILIARY ELECTRICAL SYSTEMS (I.E. FIRE ALARM, TELECOM, SECURITY, ETC.). COORDINATE REQUIREMENTS WITH AUXILIARY ELECTRICAL SUB-CONTRACTORS PRIOR TO ISSUE OF BID AND VERIFY ALL WORK REQUIRED. ALL CONDUIT ROUGH-INS SHALL TERMINATE AT ACCESSIBLE LOCATIONS (I.E. ABOVE LAY-IN CEILINGS, IT ROOMS, TUNNELS, ETC.).

5. CONTRACTOR SHALL COORDINATE REQUIREMENTS FOR FIRE ALARM SYSTEMS WITH CLEAN AGENT FIRE SUPPRESSION SYSTEMS AND CONTRACTORS (I.E. TAMPER SWITCHES, FLOW SWITCHES, ALARM CONTACTS, ETC.).

6. FIRE ALARM SYSTEM, WIRING, DEVICES, ETC. IS DIAGRAMMATIC AND INDICATES THE GENERAL SCOPE OF WORK. MODIFICATIONS/ADDITIONS TO THE EXISTING FIRE ALARM SYSTEM (SILENT KNIGHT #5208? - FIELD VERIFY) SHALL BE DESIGNED AND INSTALLED BY A CERTIFIED FIRE ALARM CONTRACTOR PER THE SPECIFICATIONS.

7. EACH SUBCONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ANY/ALL CEILING TILES AND/OR GRID ASSOCIATED WITH THEIR WORK. THE RESPONSIBLE CONTRACTOR SHALL REPLACE/REPAIR ALL CEILING TILES AND/OR GRID DAMAGED DURING THE CONSTRUCTION WITH NEW CEILING TILES.

8. EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR SEALING ALL NEW PENETRATIONS THROUGH ALL WALLS WITH FIRE CAULK IN ACCORDANCE WITH CURRENT BUILDING CODE REQUIREMENTS.

9. UNLESS OTHERWISE NOTED, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CORING, PATCHING ASSOCIATED WITH THEIR WORK. CUTTING, CORING, PATCHING WORK SHALL BE PERFORMED BY A QUALIFIED CONTRACTOR AND MATCH EXISTING OR NEW FINISHES.

10. NOTE THAT THE NEW ARCHIVES 129C ADDITION WILL BE CONSTRUCTED OF INSULATED CONCRETE FORM (ICF) WALLS. COORDINATE ROUGH-IN OF ALL BOXES/CONDUITS REQUIRED FOR ELECTRICAL SYSTEMS (I.E. LIGHTING, POWER, FIRE ALARM, ETC.) REQUIRED WITH ICF CONTRACTOR PRIOR TO POURING OF CONCRETE WALLS.

JLK Engineering Project Number: AEA 1504-01

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DRAWING TITLE: ELECTRICAL DETAILS

PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE 2/29/2016

SHEET E4.1

BREAKER PANEL EXISTING (E) PP-N1 AMPS 400A VOLTS 120/240 PHASE 1 WIRES 3 M.BRK 400 M.L.O. ___

CIR. No.	AMP/ POLES	DESCRIPTION	LOAD	Ø	LOAD	DESCRIPTION	AMP/ POLES	CIR. No.
1	1P/20	FAN ROOM 105, GENERAL RECEPTICALS	1080 VA	A	1680 VA	CLASS ROOM & HALL 116/ SOUTHWALL	1P/20	2
3	1P/20	CLASS ROOM 115, NORTHWALL	1680 VA	B	1200 VA	ARCHIVES LAB 121	1P/20	4
5	1P/20	ARCHIVES 122	1440 VA	A	1080 VA	OFFICE 124, RECEPTION 120	1P/20	6
7	1P/20	OFFICE 123, RECEPTION 120	1200 VA	B	1080 VA	OFFICE 125	1P/20	8
9	1P/20	ARCHIVES/ READING 126	1200 VA	A	1440 VA	FAN ROOM 135 & STAIRWAY	1P/20	10
11	1P/20	RECPTION 120 & CORR, 102	1200 VA	B	720 VA	MEN'S & WOMEN'S RESTROOM 133/134, LOBBY 136	1P/20	12
13	1P/20	ROOMS 101, 107, 108, 109	1200 VA	A	1200 VA	OFFICE 110	1P/20	14
15	1P/20	MEN'S & WOMEN'S RESTROOMS 103/104 & OUTSIDE	520 VA	B	1200 VA	OFFICE 111	1P/20	16
17	1P/20	OFFICE 112	1260 VA	A	1440 VA	RECPTION 106, CORR. 102	1P/20	18
19	1P/20	OFFICE 113	1620 VA	B	1200 VA	LIBRARY 114	1P/20	20
21	1P/20	ENROLLMENT ROOM 117, CORR. 102	1620 VA	A	1700 VA	COMPANY STORE, SALES OFFICE	1P/20	22
23	1P/20	STORAGE ROOM 119	900 VA	B	1620 VA	COMMISSION WORK ROOM 118	1P/20	24
25	1P/20	TECH. 132	1000 VA	A	1260 VA	RECEPTION 128	1P/20	26
27	1P/20	COMPANY STORE 129	1200 VA	B	1260 VA	OFFICE 131	1P/20	28
29	1P/20	ARCHIVES STORAGE	540 VA	A	1440 VA	RECEIVING OFFICE 130	1P/20	30
31	1P/20	TECH 132	1000 VA	B	1600 VA	(E) LIEBERT A/C CONDENSING UNIT CU-4	2P/20	32
33	1P/20	COMPANY STORE 129	1440 VA	A	1600 VA	(E) LIEBERT A/C CONDENSING UNIT CU-4	2P/20	34
35	1P/20	CLASS ROOM, EAST WALL	1680 VA	B	0 VA	SPARE - FUTURE LTS 102	1P/20	36
37	1P/20	CLASS ROOM, WEST WALL	1680 VA	A	**850 VA**	**NEW LOAD - LIGHTING FOR ARCHIVES 129C**	1P/20	38
39	1P/20	BASEMENT ELEC/MECH ROOMS	1000 VA	B	1000 VA	BASEMENT ELECTRICAL ROOM, GENERAL REC.	1P/20	40
41	1P/15	ELEVATOR PIT PLUG & LIGHT	500 VA	A	500 VA	BASEMENT HALL GFCI?	1P/20	42

NOTES:
1. EXISTING PANEL IS SQ. D NQOD
2. TOTAL LOAD 45,960VA/ 120 = 383 AMPS
3. PANEL BOARD SURFACE MOUNT

BREAKER PANEL EXISTING (E) LP-N1 AMPS 300 VOLTS 120/240 PHASE 1 WIRES 3 M.BRK 250 M.L.O. ___

CIR. No.	AMP/ POLES	DESCRIPTION	LOAD	Ø	LOAD	DESCRIPTION	AMP/ POLES	CIR. No.
1	1P/20	FAN ROOM 134	500 VA	A	1800 VA	COMPANY STORE 129	1P/20	2
3	1P/20	ARCHIVES 126, 127/ TECH CLOSET 132	960 VA	B	1800 VA	LOBBY 314, VESTIBULE 313, 315	1P/20	4
5	1P/20	RESTROOM 134, 133/RECEPTION 128	600 VA	A	1200 VA	OFFICE 123, 124, 125/RECEPTION 120	1P/20	6
7	1P/20	BASEMENT DOM. WATER HEATER	1200 VA	B	960 VA	ARCHIVES EXHIBIT 122/ARCHIVES LAB 117	1P/20	8
9	1P/20	CLASSROOM 115, 116	1800 VA	A	1080 VA	STORAGE 120/ENROLLMENT 118	1P/20	10
11	1P/20	RESTROOM'S 103, 104/FAN ROOM 105	960 VA	B	1080 VA	RECEPT. 106/CONF. 108/STORAGE 109	1P/20	12
13	1P/20	BASEMENT SUMP PUMP SP-1	300 VA	A	720 VA	LIBRARY 114/COMMISSION WORK ROOM 119	1P/20	14
15	1P/20	BASEMENT MECHANICAL ROOM UNIT HEATER UH-1	300 VA	B	960 VA	OFFICE 110, 111, 112, 113	1P/20	16
17	1P/20	POLICE FURNITURE	? VA	A	1200 VA	MECHANICAL ROOM - BASEMENT	1P/20	18
19	1P/20	BASEMENT STAIR WELL UNIT HEATER CUH-1	300 VA	B	600 VA	ELECTRICAL ROOM - BASEMENT	1P/20	20
21	2P/20	BOILER #1	1200 VA	A	1200 VA	BOILER #2	2P/20	22
23	2P/20	———	1200 VA	B	1200 VA	———	2P/20	24
25	1P/20	BOILER MANAGMENT PANEL	300 VA	A	? VA	POLICE AC	2P/30	26
27	1P/20	CORRIDOR NORTH HALF OF HALL 102	1080 VA	B	? VA	———	2P/30	28
29	1P/15	CORRIDOR SOUTH HALF OF HALL 102	1200 VA	A	200 VA	KITCHEN EXHAUST FAN EF-1	1P/15	30
31	1P/20	HOT WATER PUMP	? VA	B	240 VA	CABINET UNIT HEATER IN COORIDOOR TO PROG. CUH-3	1P/15	32
33	1P/20	SOUTH FAN ROOM HEATER UH-2	300 VA	A	300 VA	NORTH FAN ROOM HEATER UH-2	1P/15	34
35	1P/15	SOUTH STAIRS 1ST FLOOR STAIRS UNIT HEATER CUH-2	300 VA	B	300 VA	NORTH STAIRS 1ST FLOOR STAIRS UNIT HEATER CUH-2	1P/20	36
37	2P/15	AIR CONDITIONER #5	? VA	A	? VA	(E) POLICE AC CONDENSER	2P/30	38
39	2P/15	———	? VA	B	? VA	(E) POLICE AC CONDENSER	2P/30	40
41	1P/20	POLICE FURNITURE	? VA	A	? VA	(E) ROOF HEAT TAPE (N.E.)???	1P/20	42

NOTES:
1. EXISTING PANEL IS SQ. D NQOD
2. TOTAL LOAD 30,040 VA/ 120 = 250 AMPS
3. PANEL BOARD SURFACE MOUNT

BREAKER PANEL EXISTING (E) PP-N3 AMPS 300A VOLTS 120/240 PHASE 1 WIRES 3 M.BRK 300 M.L.O. ___

CIR. No.	AMP/ POLES	DESCRIPTION	LOAD	Ø	LOAD	DESCRIPTION	AMP/ POLES	CIR. No.
1	1P/20	OFFICE 2ND FLOOR ROOM 215	1250 VA	A	1400 VA	OFFICE 2ND FLOOR ROOM 240	1P/20	2
3	1P/20	OFFICE 2ND FLOOR ROOM 217	1200 VA	B	1400 VA	OFFICE 2ND FLOOR ROOM 241	1P/20	4
5	1P/20	SERVER ROOM 231	1080 VA	A	1080 VA	SERVER ROOM 231	1P/20	6
7	1P/20	SERVER ROOM 231	1080 VA	B	1080 VA	SERVER ROOM 231	1P/20	8
9	1P/30	SERVER ROOM 231	1080 VA	A	800 VA	INTERVIEW ROOM 231	1P/20	10
11	1P/20	SERVER ROOM 231	1080 VA	B	1260 VA	OFFICE 2ND FLOOR ROOM 230	1P/20	12
13	1P/20	RECEPTION ROOM 244-NORTH	1080 VA	A	2300 VA	RECEPTION ROOM 235-NORTH	1P/20	14
15	1P/20	RECEPTION ROOM 244-SOUTH	540 VA	B	2300 VA	RECEPTION ROOM 235-SOUTH	1P/20	16
17	1P/20	OFFICE 2ND FLOOR ROOM 224	1200 VA	A	2300 VA	HAND DRYER MENS ROOM 203	1P/25	18
19	1P/20	LIBRARY ROOM 223	1200 VA	B	2300 VA	HAND DRYER WOMENS ROOM 204	1P/25	20
21	1P/25	HAND DRYER MENS ROOM 252	2300 VA	A	720 VA	UPS SERVER ROOM	1P/30	22
23	1P/25	HAND DRYER WOMENS ROOM 253	2300 VA	B		SPARE	1P/20	24
25	1P/30	COMPUTER ROOM OUTLET	180 VA	A	720 VA	UPS SERVER ROOM	1P/30	26
27	1P/30	COMPUTER ROOM OUTLET	180 VA	B		SPARE	1P/20	28
29		SPACE		A		SPARE	1P/20	30
31		SPACE		B		SPARE	1P/20	32
33		SPACE		A		SPARE	1P/20	34
35		SPACE		B		SPARE	1P/20	36
37		SPACE		A		SPARE	1P/20	38
39		SPACE		B		SPARE	1P/20	40
41		SPACE		A		SPARE	1P/20	42

NOTES:
1. EXISTING PANEL IS SQ. D NQOD
2. TOTAL LOAD 30,080 VA/ 120 = 250 AMPS
3. PANEL BOARD SURFACE MOUNT

BREAKER PANEL EXISTING (E) LP-N2 AMPS 300A VOLTS 120/240 PHASE 1 WIRES 3 M.BRK 250 M.L.O. ___

CIR. No.	AMP/ POLES	DESCRIPTION	LOAD	Ø	LOAD	DESCRIPTION	AMP/ POLES	CIR. No.
1	1P/20	LOBBY 254/ STORAGE 246/ LOBBY 136	960 VA	A	960 VA	ACC. PAY 248/PAYROLL 249	1P/20	2
3	1P/20	RECEPTION 244/WORK ROOM 251/CONFRENCE 233	1900 VA	B	1320 VA	OFFICE 247, 250/PASSAGE 245	1P/20	4
5	1P/20	CORRIDOR NORTH HALF OF HALL	1080 VA	A	1440 VA	OFFICE 240, 241/RECEPTION 235/STORAGE 242,243	1P/20	6
7	1P/20	FACILITIES 227/STORAGE 228/OFFICE 229/TECH. 232	1320 VA	B	960 VA	CONFRENCE 236/OFFICE 237, 238, 239	1P/20	8
9	1P/20	INTERVIEW 213/OFFICE 214,215,216, 230/SERVER 231	1200 VA	A	1200 VA	CONFRENCE 234/OFFICE 225/CONFERENCE 226	1P/20	10
11	1P/20	RECEPTION 212/ HR LOBBY 220/ OFFICE 217, 218	1200 VA	B	1344 VA	PLANNING OFFICE 222/LIBRARY 223/OFFICE 224	1P/20	12
13	1P/20	STORAGE 219	300 VA	A	1200 VA	CONFRENCE 221/OFFICE 210/R. STOR. 211	1P/20	14
15	1P/20	RESTROOM 203 & 204/LOBBY 201 & STAIRS 101	550 VA	B	1080 VA	OFFICE 205, 208, 209/STORAGE 206	1P/20	16
17	1P/20	BATHROOM EXHAUST NORTH ROOM 219 STORAGE EF-2	100 VA	A	1200 VA	2ND FLOOR SERVER	2P/20	18
19	1P/20	BATHROOM EXHAUST SOUTH ROOM 242 STORAGE EF-3	100 VA	B	1200 VA	———	2P/20	20
21	1P/20	?	? VA	A	? VA	?	2P/20	22
23	1P/20	CORRIDOR SOUTH HALF OF HALL	1200 VA	B	? VA	———	2P/20	24
25		SPACE		A		SPACE		26
27		SPACE		B	? VA	?	1P/20	28
29	1P/20	FUTURE LIGHTS 102	240 VA	A	400 VA	FUTURE LIGHTS 102	1P/20	30
31	1P/20	FUTURE LIGHTS 102	320 VA	B	600 VA	FUTURE LIGHTS 102	1P/20	32
33	1P/20	FUTURE LIGHTS 202	320 VA	A	800 VA	FUTURE LIGHTS 202	1P/20	34
35	1P/20	FUTURE LIGHTS 202	700 VA	B	600 VA	FUTURE LIGHTS 202	1P/20	36
37	1P/20	FUTURE LIGHTS 244	200 VA	A		SPACE		38
39	1P/20	FUTURE LIGHTS 201	200 VA	B		SPACE		40
41		SPACE		A		SPACE		42

NOTES:
1. EXISTING PANEL IS SQ. D NQOD
2. TOTAL LOAD 27,000 VA/ 120 = 225 AMPS
3. PANEL BOARD SURFACE MOUNT

PANEL (E) EM-PP (E) 30 A 2P-MBK BUSSING SIZE 100A FED FROM (E) T-EM
OF POLES 8 VOLTS 120/240 NEUTRAL BUS 100A MOUNTING SURFACE
PHASE 1 GROUND BUS? YES TVSS? NO AIC RMS AMPS 22,000
HERTZ 60 ISOLATED GRD? NO
LOCATION BASEMENT ELEC ROOM REMARKS **PROVIDE NEW BKRS & CKTS TO FEED NEW ARCHIVES 129C ADDITION/RENOVATIONS**

CIRCUIT	BREAKER	DESCRIPTION	A	B
1	(E) 30A/2P	MAIN BREAKER		
3	MBK	(TO REMAIN)		
5	20A/1P	**NEW CAFS SYSTEM CONTROL PANEL (2A @ 120V)**	250	
7	20A/1P	**SPARE**		0
2	20A/1P	**NEW O/H FIRE DOOR MOTOR (ASSUMED 1/2 HP @ 120V)**	1200	
4	20A/1P	**RECEPTS - ARCHIVES 129C NORTH**		900
6	20A/1P	**RECEPTS - ARCHIVES 129C WEST**	900	
8	20A/1P	**RECEPTS - ARCHIVES 129C SOUTH**		900
KVA 4.15		CONNECTED AMPS 17 PHASE WATTS	2350	1800

NOTES:
1. EXISTING (E) PANEL EM-PP IS A SQUARE D "QO" TYPE.
2. COMPLETELY REMOVE ALL (E) LOADS FEEDING OLD POLICE DEPT. LOADS FROM THE (E) PANEL AND ASSOCIATED CIRCUITING INCLUDING (2)-30A/1P BKRS AND (2)-20A/1P BKRS.
3. INSTALL NEW BKRS, AND ASSOCIATED CIRCUITING, TO SUPPORT NEW ARCHIVES 129C ADDITION/RENOVATIONS PER THE PANEL SCHEDULE ABOVE.

BRANCH CIRCUIT WIRE SIZE/LENGTH SCHEDULE

MAX BRANCH CIRCUIT (AMPS)	MAX CIRCUIT LENGTH (FEET) TO 1ST CONNECTION						
	50	75	100	125	150	< 300	< 500
15	#12	#10	#10	#10	#8	#4	#2
20	#10	#10	#10	#8	#8	#3	#1
30	#8	#8	#6	#6	#4	#2	

NOTES:
1. REFER TO SPECIFICATIONS FOR WIRE TYPE.
2. SCHEDULE IS BASED UPON A MAX 3% VOLTAGE DROP ON 120V CIRCUITS.
3. FOR LENGTHS BETWEEN TABLED VALUES - USE LONGER LENGTH.

JLK Engineering Project Number: AEA 1504-01

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DRAWING TITLE
ELECTRICAL DETAILS

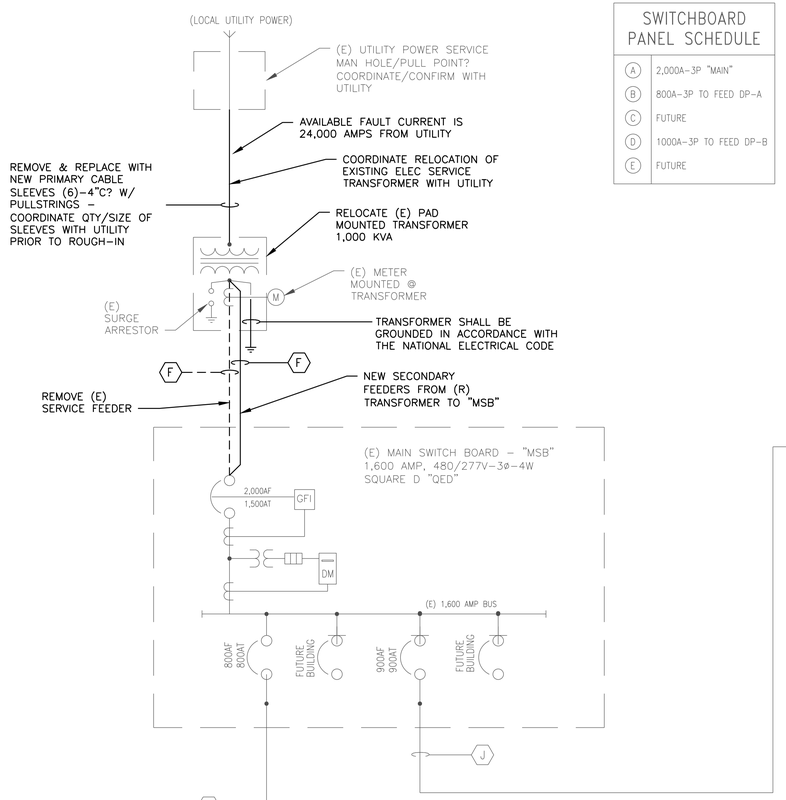
PROJECT TITLE
PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR:
LTBB ODAWA INDIANS
HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

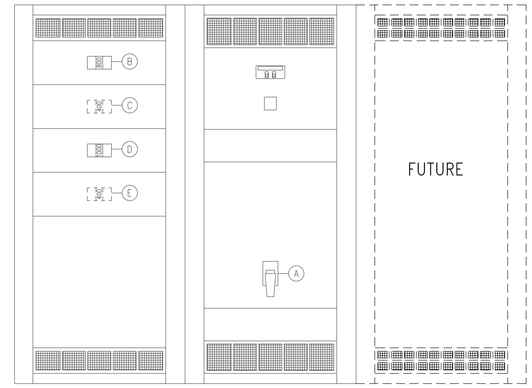
DATE 2/29/2016

SHEET E4.2

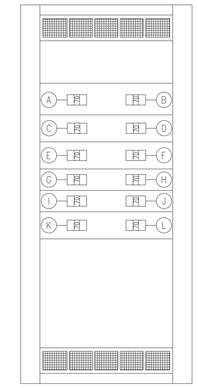
FEEDER SCHEDULE	
TAG	FEEDER SIZE
A	3#6,1#8(GRD)-1"C
B	3#8,1#8(GRD)-3/4"C
C	3#12,1#12(GRD)-3/4"C
D	2- SETS OF 4#600KcMiL,1#1/0(GRD)-3-1/2"C
E	3#4,1#6(GRD)-1-1/4"C
E1	3#10 AWG,1#10(GRD)-3/4"C
F	4 SETS OF 5#600KcMiL-4"C
G	1 SET OF 350 kcmil, THWN-3"C
H	1 SET OF 600 kcmil, THWN-3-1/2"C
J	3 SETS OF 500 kcmil, THWN-3-1/2"C
K	3#8 AWG,1#10(GRD)-3/4"C
L	2#10 AWG,1#10(GRD)-3/4"C



SWITCHBOARD PANEL SCHEDULE	
A	2,000A-3P "MAIN"
B	800A-3P TO FEED DP-A
C	FUTURE
D	1000A-3P TO FEED DP-B
E	FUTURE

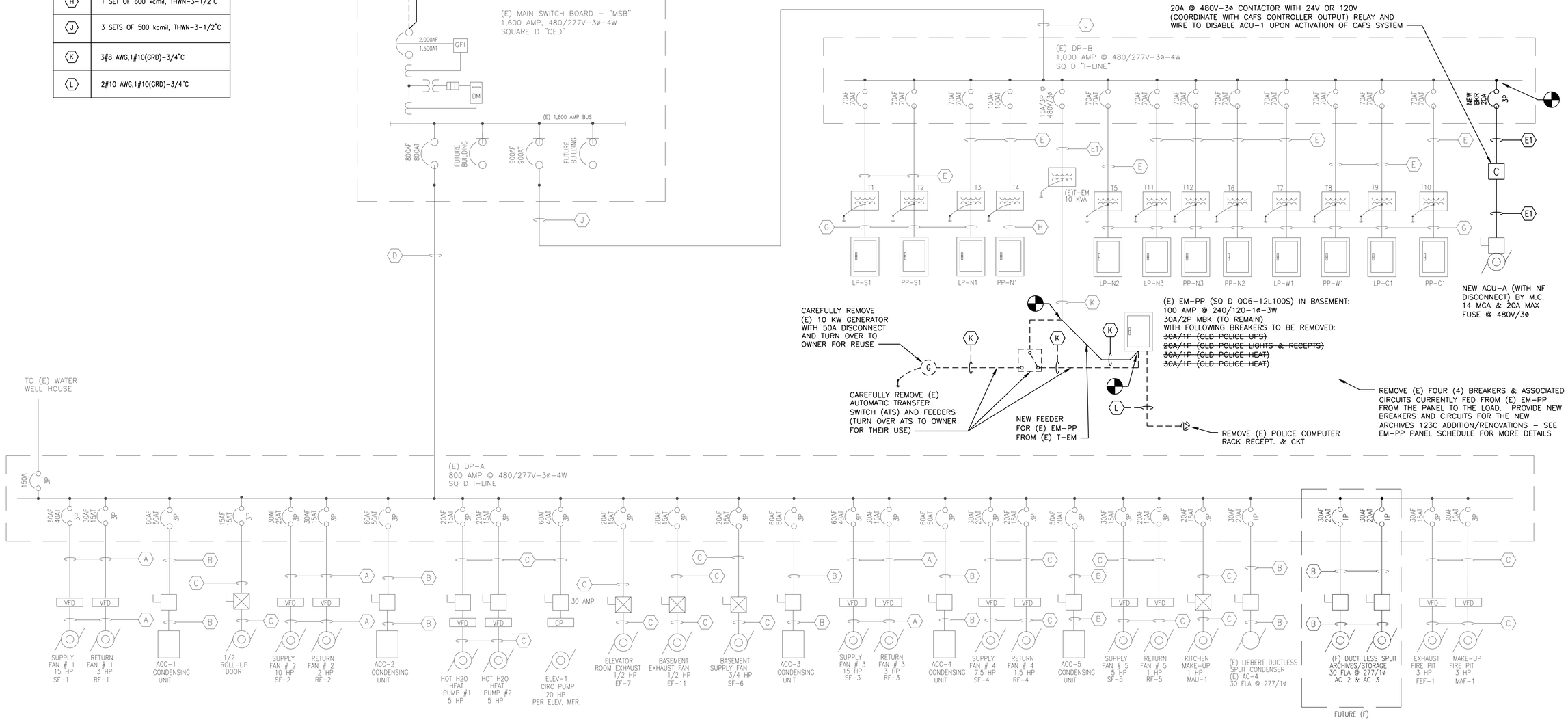


EXISTING MAIN SWITCHBOARD ELEVATION
NO SCALE



SWITCHBOARD PANEL SCHEDULE	
A	70A-2P
B	70A-2P
C	70A-2P
D	70A-2P
E	70A-2P
F	70A-2P
G	70A-2P
H	70A-2P
I	70A-2P
J	70A-2P
K	70A-2P
L	70A-2P

EXISTING SWITCHBOARD DP-B ELEVATION
NO SCALE



EXISTING ELECTRICAL POWER DISTRIBUTION 1-LINE DIAGRAM
NO SCALE

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PROJECT TITLE: PROPOSED GOVERNMENT CENTER ARCHIVES EXPANSION FOR: LTBB ODAWA INDIANS, HARBOR SPRINGS, MICHIGAN

PROJECT NO. 232-15

DATE 2/29/2016

SHEET E4.3