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PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PHASE 3: RESTROOM BUILDING RESTORATION

PROJECT LOCATION MAPS

NOT TO SCALE

DRAWINGS INDEX (SITE WORK)		
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BID SET

JANUARY, 2023

PROJECT NUMBER: 2075140801

CONSTRUCTION NOTES

1. PRE-CONSTRUCTION MEETING
   A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO ANY WORK BEING PERFORMED ON THE PROJECT. THE MEETING TIME, PLACE, AND ATTENDEES SHALL BE ARRANGED BY THE PROJECT ENGINEER. PITTSFIELD CHARTER TOWNSHIP SHALL BE INVITED, AT A MINIMUM TO THE PRE-CONSTRUCTION MEETING.

2. SHOP DRAWINGS AND MATERIAL CERTIFICATES
   PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL FURNISH MATERIAL SOURCE LISTS AND CERTIFICATIONS TO THE PROJECT ENGINEER. VERIFYING THAT ALL MATERIALS USED ON THE PROJECT ARE IN ACCORDANCE WITH PROJECT DOCUMENTS. SHOP DRAWINGS AND/OR CATALOG CUTS SHALL BE REQUIRED FOR MAJOR MATERIALS.

3. MISS DIG UTILITY ALERT AND FIELD LOCATION OF UTILITIES
   THREE (3) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT MISS DIG UTILITY PROTECTION SERVICE (811) TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES. UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THE PLANS WERE OBTAINED FROM UTILITY OWNERS AND WERE NOT FIELD LOCATED. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ALL UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH LIKE MATERIAL IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. THE CONTRACTOR SHALL VERIFY THE DEPTH AND HORIZONTAL LOCATION OF ALL EXISTING UTILITIES. THE EXACT LOCATION OF EXISTING UTILITIES SHALL BE DETERMINED BY HAND DIGGING.

4. UTILITY INFORMATION
   PUBLIC UTILITY INFORMATION IS DELINEATED IN ACCORDANCE WITH LOCATIONS PROVIDED BY UTILITY OWNERS. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION OR THE LOCATION AT WHICH THESE SERVICES EXIST. DIFFERING FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

   THE LOCATION OF ALL PUBLIC UTILITIES SHOWN ON THE PLANS ARE TAKEN FROM THE BEST AVAILABLE DATA. THE OWNER WILL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATIONS FROM THE LOCATIONS SHOWN.

   CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER AS TO INSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED. REPARATIONS OF UTILITIES DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR IN ACCORDANCE WITH THE AFFECTED UTILITY OWNERS REQUIREMENTS.

   ALL PRIVATE UTILITY STRUCTURES WILL BE ADJUSTED TO GRADE BY THE OWNER OF THE FACILITY. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH THREE (3) WORKING DAYS NOTICE PRIOR TO THE START OF SUCH WORK.

5. STORMWATER DRAINAGE DURING CONSTRUCTION
   THE CONTRACTOR SHALL MAINTAIN DITCH DRAINAGE DURING CONSTRUCTION AND SHALL NOT OBSTRUCT SUMP PUMP LEADS DISCHARGING TO THE DITCH. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT ALL STORM SEWER FACILITIES SUCH AS CATCH BASINS, CULVERTS AND HEADWALLS DURING CONSTRUCTION. CULVERTS AND CATCH BASINS CONTAMINATED DURING CONSTRUCTION SHALL BE CLEANED AND THE COSTS SHALL BE INCLUDED IN THE EROSION CONTROL AND PROJECT CLEAN UP PAY ITEMS.

6. EXISTING UTILITIES
   THE CONTRACTOR SHALL MAINTAIN ALL EXISTING SANITARY SEWER, WATER OR STORM SEWER SERVICE CONNECTIONS IN SERVICE THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL PROVIDE OR ARRANGE FOR TEMPORARY SUPPORT OF GAS MAIN AND UTILITY POLES WHERE NEEDED. ALL STORM SEWERS DAMAGED OR REMOVED OR RELOCATED BY THE CONTRACTOR SHALL BE REPLACE WITH THE SAME SIZE AND QUALITY PIPE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT. ALL UTILITIES UNDERMINED BY THE EXCAVATION SHALL HAVE COMPACTED CLASS II SAND BACKFILL PLACED UNDER THEM.

7. UTILITY COORDINATION
   FOR UTILITIES THAT NEED TO BE RELOCATED DURING CONSTRUCTION, THE CONTRACTOR WILL COORDINATE WITH THE RESPECTIVE UTILITY OWNER TO COMPLETE THIS TASK. THE COST TO RELOCATE UTILITIES WILL BE PAID FOR BY OTHERS. NO ADDITIONAL COST FOR COORDINATION EFFORTS INCURRED BY THE CONTRACTOR WILL BE PROVIDED.

8. PROTECTION OF HAZARDOUS AREAS / OPEN EXCAVATIONS
   EXCAVATIONS AND HAZARDOUS AREAS SHALL BE PROTECTED BY BARRICADES OR SNOW FENCE.

   THE PLACEMENT OF PROTECTIVE FENCING MEETING MIOSHA STANDARDS IS REQUIRED AROUND ALL OPEN EXCAVATIONS. THIS WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED AS HAVING BEEN IN THE CONTRACT UNIT PRICE BID FOR MINOR TRAFFIC DEVICES.

9. DISPOSAL OF EXCESS EXCAVATED MATERIAL
   ALL EXCESS EXCAVATED MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR AT A LOCATION PROVIDED BY THE CONTRACTOR. ADJACENT PROPERTY OWNERS SHALL BE GIVEN PREFERENCE FOR DISPOSAL SITES.

10. SALVAGED MATERIALS
    SALVAGEABLE MATERIALS SHALL BECOME THE PROPERTY OF THE OWNER, AND SHALL BE STORED AS DIRECTED BY THE ENGINEER.

    ALL SIGNS RELOCATED BY CONSTRUCTION SHALL BE REPLACED. SIGNS AND POSTS REMOVED SHALL BE STOCKPILED AT A LOCATION SPECIFIED BY THE ENGINEER.

11. SAW CUTS
    ALL SAW CUTS SHOWN ON THE PLANS OR AS SPECIFIED WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE BUILDING RENOVATION COST.

PROJECT AND UTILITY CONTACTS:

NAME: PITTSFIELD CHARTER TOWNSHIP (GRANTEE)
ADDR: 6201 WEST MICHIGAN AVE. ANN ARBOR, MI 48108
PHONE: 734-822-3125
EMAIL: WEILANDK@PITTSFIELD-MI.GOV
CONTACT: KURT WEILAND

NAME: PITTSFIELD CHARTER TOWNSHIP (UTILITIES)
ADDR: 6201 WEST MICHIGAN AVE. ANN ARBOR, MI 48108
PHONE: 734-822-2110
EMAIL: UTILITIES@PITTSFIELD-MI.GOV
CONTACT: BILLY WEIRICH

NAME: PITTSFIELD CHARTER TOWNSHIP (PARKS AND RECREATION)
ADDR: 701 ELLSWORTH RD. ANN ARBOR, MI 48108
PHONE: 734-822-2114
EMAIL: WADER@PITTSFIELD-MI.GOV
CONTACT: RICH WADE

NAME: WASHTENAW COUNTY WATER
RESOURCES COMMISSION
ADDR: 705 N. ZEEB RD. ANN ARBOR, MI 48103
PHONE: 734-222-6860
EMAIL: MILLERS@WASHTENAW.ORG
CONTACT: SCOTT MILLER, PE

NAME: STANTEC CONSULTING MICHIGAN INC.
(PRIME PROFESSIONAL)
ADDR: 1168 OAK VALLEY DRIVE STE 100,
ANN ARBOR, MI 48108
PHONE: 734.277.7266
EMAIL: MARK.PASCOE@STANTEC.COM
CONTACT: MARK PASCOE

GENERAL NOTES

1. IF PROJECT DISTURBANCE AREA DOES NOT EXCEED 5 ACRES, NPDES PERMIT NOT REQUIRED
2. RESTROOM BUILDING RENOVATION TO MEET ALL BARRIER FREE UNIVERSAL ACCESS REQUIREMENTS.

TRAFFIC NOTES

1. ACCESS TO ALL DRIVEWAYS MUST BE MAINTAINED AT ALL TIMES. AT LEAST ONE PARKING LOT IN MONTIBELLER PARK MUST REMAIN OPEN AT ALL TIMES. WORK MUST BE COORDINATED WITH THE SITE WORK CONTRACTOR SUCH THAT ONE PARKING LOT REMAINS OPEN TO THE PUBLIC.
2. ALL TRAFFIC CONTROL DEVICES AND THEIR USAGE MUST CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD), LATEST EDITION.
3. ALL SIGNS MATERIALS AND SUPPORTS MUST MEET NCHRP-350 CRASH WORTHY REQUIREMENTS.
4. THERE MUST BE NO HAULING OF MATERIALS INCLUDING TRUCKS ENTERING AND EXITING IN OR OUT OF THE SITE (WORK ZONE) BETWEEN THE HOURS OF 6:00 A.M. TO 9:00 A.M. AND 2:00 P.M. TO 7:00 P.M., MONDAY THROUGH FRIDAY.

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
835	EXIST. CONTOUR		EXIST. CURB AND GUTTER
835	PROP. CONTOUR		PROP. CURB AND GUTTER
× 854.6	EXIST. SPOT ELEVATION		CENTERLINE OF DITCH
× 854.6	PROP. SPOT ELEVATION		EDGE OF WATER
T/C	TOP OF CURB		EDGE OF WETLAND
T/P	TOP OF PAVEMENT		EXISTING FENCE
G	GUTTER		PROPOSED FENCE
12"ST	EXIST. STORM SEWER	T	TREE PROTECTION FENCE
12"ST	PROP. STORM SEWER		SILT FENCE
D S E	EXIST. MANHOLE		CLEARING LIMITS
D S	PROP. MANHOLE		EXIST. GUARDRAIL
	PROP. EDGE DRAIN		PROP. GUARDRAIL
	EXIST. CATCH BASIN/INLET	P	PROPERTY LINE
	PROP. CATCH BASIN/INLET	℄	CENTERLINE
	END SECTION/HEAD WALL		EXIST. SIGN
	CULVERT		PROP. SIGN
M	INLET FILTER		ENCLOSED TRASH AREA
C.O.	PROP. CLEANOUT		DRAINAGE DIRECTION
8"S	EXIST. SANITARY SEWER		SIDEWALK RAMP
8"S	PROP. SANITARY SEWER		BARRIER FREE PARKING
8"W	EXIST. WATER MAIN	F.F.	FINISH FLOOR ELEV.
8"W	PROP. WATER MAIN	F.G.	FINISH GRADE ELEV.
	EXIST. HYDRANT	B.F.	BASEMENT FLOOR ELEV.
	PROP. HYDRANT	G.F.	GARAGE FLOOR ELEV.
P.I.V.	EXIST. POST INDICATOR VALVE		SECTION CORNER
	EXIST. GATE VALVE AND BOX/STOP BOX		CONTROL POINT
	PROP. CURB STOP BOX		FOUND IRON PIPE
V	EXIST. GATE VALVE AND WELL	S	SET IRON PIPE
	PROP. GATE VALVE AND WELL		FOUND CONCRETE MONUMENT
	PROP. REDUCER	S	SET CONCRETE MONUMENT
	PROP. END CAP	× F	FOUND PK NAIL
OHP	EXIST. OVERHEAD ELECTRIC	× S	SET PK NAIL
OHP	PROP. OVERHEAD ELECTRIC	F	FOUND LEADED CHISEL HOLE
UGE	EXIST. UNDERGROUND ELECTRIC	S	SET LEADED CHISEL HOLE
UGE	PROP. UNDERGROUND ELECTRIC	F-RR	FOUND REROD
	EXIST. LIGHT POLE		APPROX. LOCATION OF SOIL BORING
	PROP. LIGHT POLE		APPROX. LOCATION OF MONITORING WELL
U.P.	EXIST. UTILITY POLE		APPROX. LOCATION OF PENETRATION TEST
	GUY WIRE		EXIST. DECIDUOUS TREE
E	EXIST. ELECTRIC TRANSFORMER		EXIST. EVERGREEN TREE
E	PROP. ELECTRIC TRANSFORMER		EXIST. SHRUB
OHT	EXIST. OVERHEAD TELEPHONE		EXIST. TREE OR BRUSH LIMIT
OHT	PROP. OVERHEAD TELEPHONE		TREE TO BE REMOVED
UGT	EXIST. UNDERGROUND TELEPHONE		REMOVE AND REPLACE
UGT	PROP. UNDERGROUND TELEPHONE		
2"G	EXIST. GAS		BITUMINOUS PAVEMENT
2"G	PROP. GAS		
	EXIST. MAILBOX		GRAVEL PAVEMENT
G	EXIST. GAS RISER		
T	EXIST. TELEPHONE RISER		CONCRETE PAVEMENT
	COMPACTED SAND BACKFILL		BRICK PAVERS

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Notes

A	BID SET PHASE 3	CAM	MDP	2023.01.03
Issued		By	Appd	YYYY.MM.DD
File Name: 140801_G-002		JDA	AMS	MDP	2020.03.10
		Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

STATE OF MICHIGAN
CLAIRE A. MARTIN
ENGINEER
No. 64386
LICENSED PROFESSIONAL ENGINEER

Client/Project Logo

PITTSFIELD CHARTER TOWNSHIP

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

NOTE:
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING MISS DIG PRIOR TO CONSTRUCTION.

Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS
PHASE 3: RESTROOM BUILDING RENOVATION

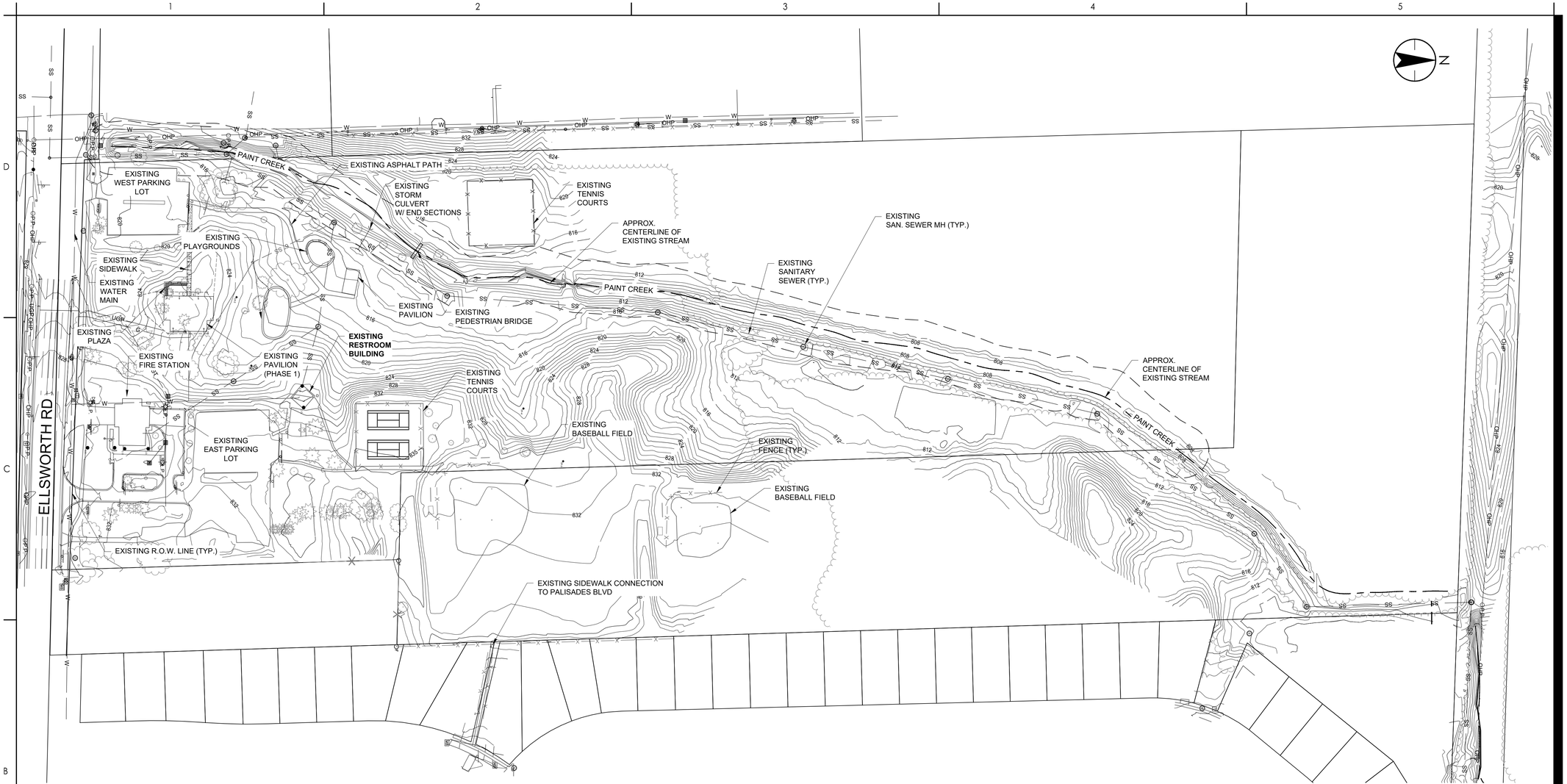
Pittsfield Township, Michigan

Title

GENERAL NOTES, LEGEND, ABBREVIATIONS AND SYMBOLS

Project No. 2075140801
Scale

Revision 0
Sheet 02 of 24
Drawing No. G002



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Notes

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MONTIBELLER PARK IMPROVEMENTS
PHASE 3: RESTROOM BUILDING RENOVATION

Pittsfield Township, Michigan

Title

OVERALL EXISTING CONDITIONS

Project No.
2075140801

Scale
0 100' 200'

Revision 0

Sheet 03 of 24

Drawing No.
C001

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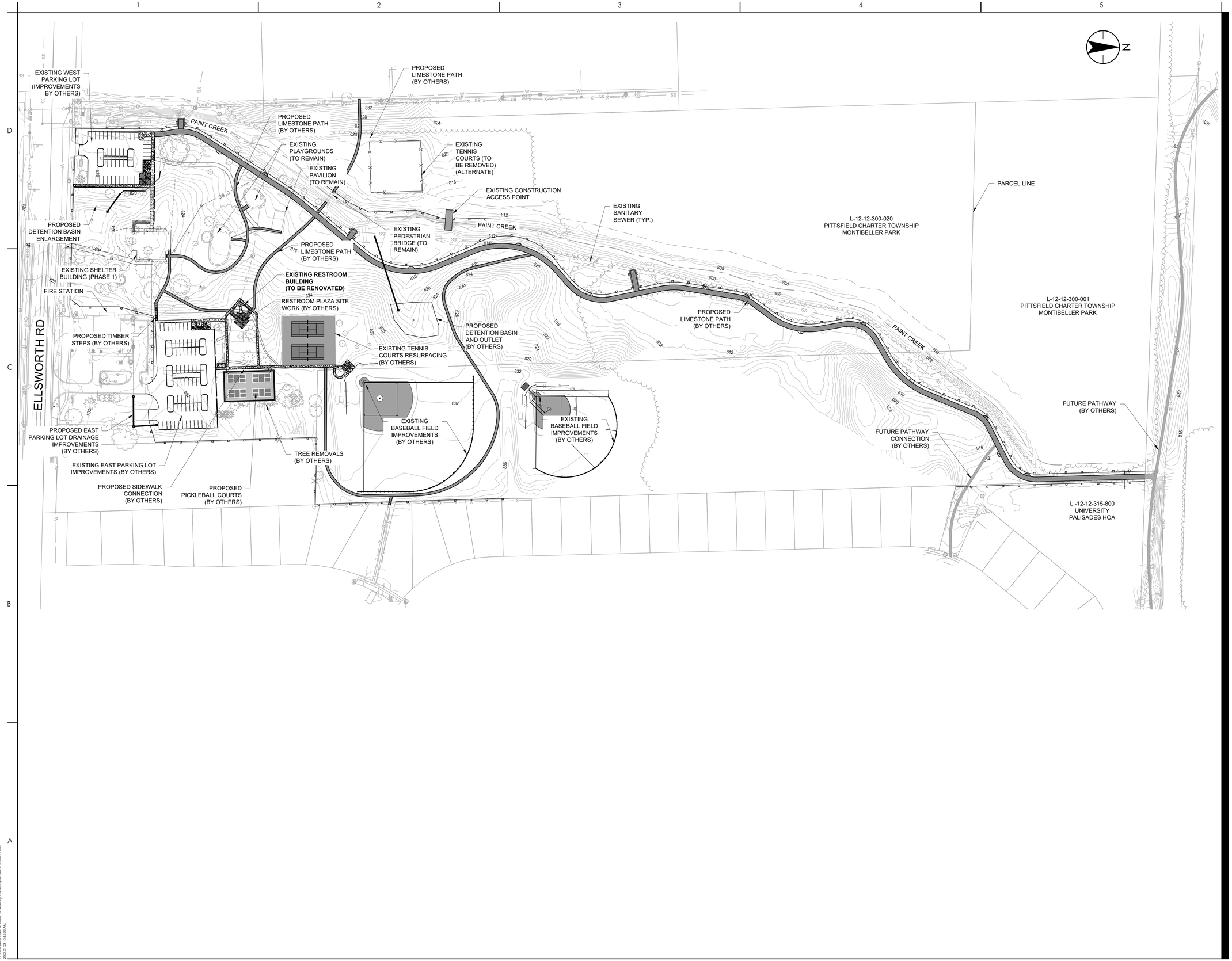

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Notes

1. SITE WORK TO BE DONE BY OTHERS. RESTROOM BUILDING CONTRACTOR MUST COORDINATE WITH SITE WORK CONTRACTOR FOR CONSTRUCTION ACCESS AND WORK ADJACENT TO RESTROOM BUILDING.

A	BID SET PHASE 3	CAM	MDP	2023.01.03
Issued		By	Appd	YYYY.MM.DD
File Name: 140801C-002		JDA	AMS	MDP	2020.03.10
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Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS
PHASE 3: RESTROOM BUILDING RENOVATION

Pittsfield Township, Michigan

Title

OVERALL PROPOSED SITE PLAN

Project No. 2075140801

Scale 0 100' 200'

Revision 0

Sheet 04 of 24

Drawing No. C002

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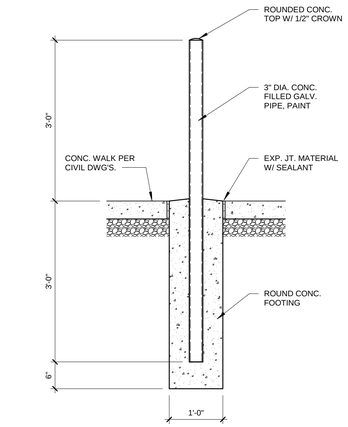
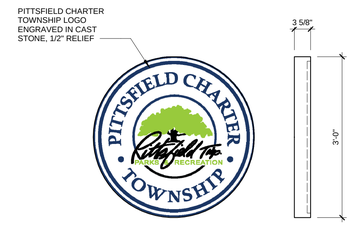


8 A502 DETAIL
SCALE: 3/4" = 1'-0"



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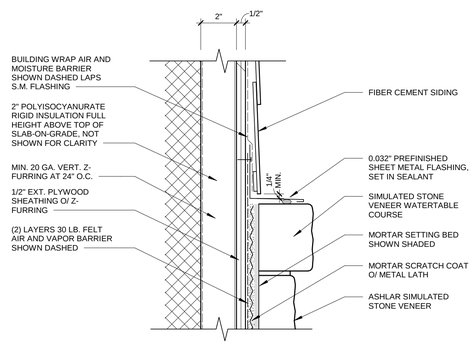

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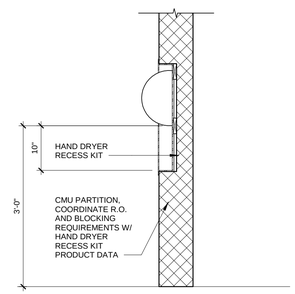
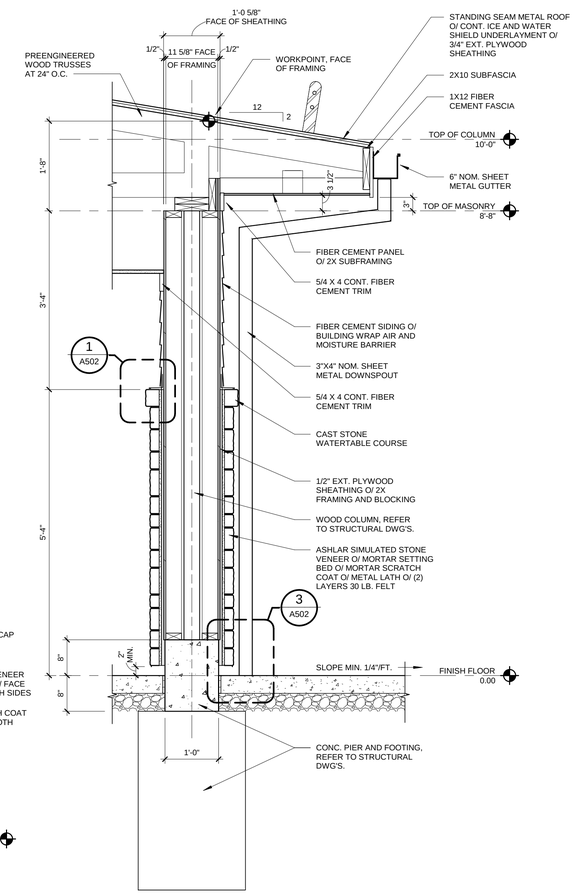
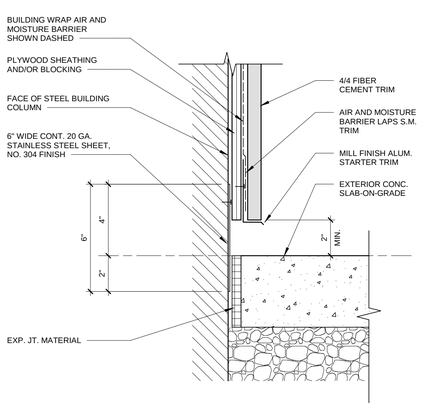


2 A502 WALL SECTION
SCALE: 3/4" = 1'-0"





7 A502 DETAIL
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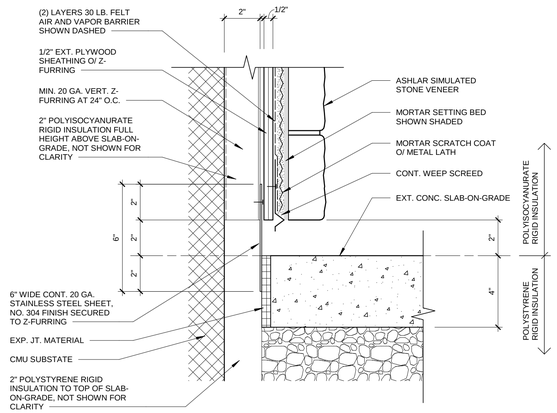

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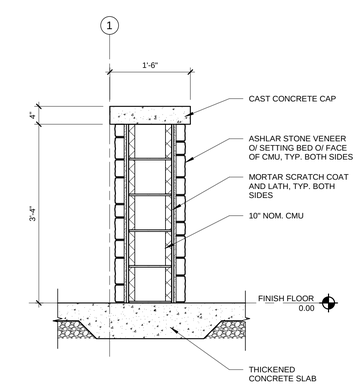

4 A502 WALL SECTION
SCALE: 3/4" = 1'-0"

6 A502 WALL SECTION
SCALE: 3/4" = 1'-0"

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Notes

B. FINAL DESIGN PLAN			20.08.07

Issued

	By	Appd.	YY.MM.DD
File Name: Pittsfield Township - Large Shelter.rvt	Author	Checker	Designer	03/20/20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

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STATE OF MICHIGAN
MICHAEL G. DOMOKUR
ARCHITECT
No. 39496
LICENSED ARCHITECT

Client/Project Logo

Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

Pittsfield Township, Michigan

Title

WALL SECTIONS

Project No. 2075140801
Scale As indicated
Revision
Sheet 34 of 74
Drawing No. A502

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8/4/2020 10:54:51 AM

ORIGINAL SHEET - ARCH D

ROOM FINISH SCHEDULE						
ROOM NAME	ROOM NUMBER	WALL	BASE	FLOOR	CEILING	REMARKS
WOMEN'S	106	P-1	RB-1	EXISTING TO REMAIN	P-2	WALL FINISH TO TOP OF MASONRY. CEILING FINISH OVER ALL WOOD PLANK AND BEAM SURFACES.
MEN'S	108	P-1	RB-1	EXISTING TO REMAIN	P-2	WALL FINISH TO TOP OF MASONRY. CEILING FINISH OVER ALL WOOD PLANK AND BEAM SURFACES.
CHASE	107	P-1	RB-1	EXISTING TO REMAIN	P-2	WALL FINISH TO TOP OF MASONRY. CEILING FINISH OVER ALL WOOD PLANK AND BEAM SURFACES.

INTERIOR FINISH LEGEND

INTERIOR WALL FINISHES

P-1 PAINT
MANF.: SHERWIN WILLIAMS
COLOR: DRIFT OF MIST SW9166
SHEEN: SEMI-GLOSS

P-2 PAINT
MANF.: SHERWIN WILLIAMS
COLOR: HIGH REFLECTIVE WHITE SW7757
SHEEN: SEMI-GLOSS

BASE FINISHES

RB-1 RUBBER BASE
MANF.: JOHNSONITE
STYLE: 4" COVE BASE
COLOR: BURNT UMBER 63

TOILET PARTITION FINISHES

TP-1 SOLID PLASTIC PARTITION
MANF.: HADRIAN
COLOR: BONE 213

TRANSPARENT FINISHES

TF-1 TRANSPARENT FINISH
MANF.: SHERWIN WILLIAMS
COLOR: COVERED BRIDGE SW3508

TF-2 TRANSPARENT FINISH
MANF.: SHERWIN WILLIAMS
COLOR: CUSTOM COLOR TO MATCH EXIST.

FLOOR FINISHES

SC-1 SEALED CONCRETE

EXTERIOR FINISH LEGEND

RF-1 STANDING SEAM METAL ROOFING
MANF.: DIMENSIONAL METALS, INC.
COLOR: CHARCOAL GREY

SD-1 CEMENT BOARD SIDING
MANF.: JAMES HARDIE
COLOR: COBBLESTONE

ST-1 STONE
MANF.: CULTURED STONE
PRODUCT: COUNTRY LEDGESTONE
STYLE: ECHO RIDGE

EXTERIOR HORIZONTAL LAP SIDING

BASIS-OF-DESIGN PRODUCT: JAMES HARDIE, HARDIEPLANK LAP SIDING, SELECT CEDARMILL, 6" EXPOSURE. FACTORY-APPLIED FINISH. COLOR AS SELECTED BY ARCHITECT. ALTERNATE SIDING MANUFACTURERS: ALLURA USA OR BORAL COMPOSITES, INC. INSTALL SIDING PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

NOTE: TRIM PAINT COLOR SHALL BE DIFFERENT THAN SIDING PAINT COLOR. HOLLOW METAL PAINT COLOR SHALL BE DIFFERENT THAN SIDING AND/OR TRIM PAINT COLORS. BIDDING CONTRACTORS SHALL ASSUME MINIMUM THREE (3) EXTERIOR PAINT COLORS.

EXTERIOR TRIM

BASIS-OF-DESIGN PRODUCT: JAMES HARDIE, 5/4 AND 4/4 NT3 SMOOTH. PRIMED FOR FIELD PAINT. COLOR AS SELECTED BY ARCHITECT.
PAINT BASIS-OF-DESIGN PRODUCT: SHERWIN WILLIAMS, DURATION EXTERIOR ACRYLIC, SATIN, 2 COATS. ALTERNATE TRIM MANUFACTURERS: ALLURA USA OR BORAL COMPOSITES, INC. INSTALL TRIM PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

NOTE: WHERE TRIM GROUND CLEARANCE IS LESS THAN 6" AND/OR WHERE TRIM IS IN CONTACT W/ SLABS-ON-GRADE (WHERE DEPTH OF ROOF OVERHANG IS LESS THAN WALL HEIGHT), SUBSTITUTE TRIM PRODUCTS SUITABLE FOR GROUND CONTACT. BASIS-OF-DESIGN PRODUCTS: BORAL COMPOSITES, INC. TRUEXTERIOR POLY-ASH TRIM OR AZEK BUILDING PRODUCTS CELLULAR PVC TRIM.

NOTE: TRIM PAINT COLOR SHALL BE DIFFERENT THAN SIDING PAINT COLOR. HOLLOW METAL PAINT COLOR SHALL BE DIFFERENT THAN SIDING AND/OR TRIM PAINT COLORS. BIDDING CONTRACTORS SHALL ASSUME MINIMUM THREE (3) EXTERIOR PAINT COLORS.

INTERIOR WOOD SIDING AND TRIM

FINISH PER SPECIFICATIONS. COLOR AS SELECTED BY ARCHITECT.

MBC CODE DATA

CODE REVIEW: MICHIGAN BUILDING CODE (MBC) 2015 EDITION W/ UPDATES.

BUILDING DEPARTMENT JURISDICTION =
PITTSFIELD CHARTER TOWNSHIP, MI
BUILDING SERVICES
6201 W. MICHIGAN AVE.
ANN ARBOR, MI 48108

MBC 312.1 - USE AND OCCUPANCY CLASSIFICATION, GENERAL:
UTILITY OCCUPANCY U.

MBC TABLE 504.3 - ALLOWABLE BUILDING HEIGHT:
OCCUPANCY U, CONSTRUCTION TYPE 5B, 40'-0".

MBC TABLE 504.4 - ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE:
OCCUPANCY U, CONSTRUCTION TYPE 5B, 1 STORY.

MBC 506.2 - ALLOWABLE AREA DETERMINATION:

MBC 506.2.1 - SINGLE-OCCUPANCY, ONE STORY BUILDING:
Aa = At + (NS x If)
Aa (ALLOWABLE AREA)
At (TABULAR ALLOWABLE AREA FACTOR) = 5,500 SF.
NS (NONSPRINKLED BUILDING TABULAR ALLOWABLE AREA FACTOR) = 5,500 SF.
If (AREA FACTOR FRONTAGE INCREASE) = 0.00

Aa = 5,500 SF + (5,500 SF x 0.00).
Aa = 5,500 SF.

MBC TABLE 506.2 - ALLOWABLE AREA FACTOR:
OCCUPANCY U, CONSTRUCTION TYPE 5B, 5,500 SF.

EXISTING BUILDING HEIGHT EQUALS 18'-0"
EXISTING BUILDING AREA EQUALS 1,075 SF UNDER ROOF.
BUILDING ADDITION OCCURS WITHIN EXISTING BUILDING ROOF EDGE PERIMETER.

MBC 602.1 - CONSTRUCTION CLASSIFICATION:
TYPE 5.

MBC TABLE 601 - FIRE-RESISTANCE RATING FOR BUILDING ELEMENTS: TYPE 5

PRIMARY STRUCTURAL FRAME:	0 HR.
BEARING WALLS (EXTERIOR):	0 HR.
BEARING WALLS (INTERIOR):	0 HR.
NONBEARING WALLS AND	0 HR. PER IBC
PARTITIONS (EXTERIOR):	TABLE 602
NONBEARING WALLS AND PARTITIONS (INTERIOR):	0 HR.
FLOOR CONSTRUCTION:	0 HR.
ROOF CONSTRUCTION:	0 HR.

MBC 718.2.2 - FIREBLOCKING, CONCEALED WALL SPACES:
FIREBLOCKING SHALL BE INSTALLED IN CONCEALED SPACES OF STUD WALLS VERTICALLY AT THE CEILING AND FLOOR LEVELS AND HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET.

MBC 718.4.3 - DRAFT STOPPING:
DRAFTSTOPPING SHALL BE INSTALLED IN ATTICS AND CONCEALED ROOF SPACES, SUCH THAT ANY HORIZONTAL AREA DOES NOT EXCEED 3,000 SQUARE FEET.

MBC TABLE 803.11 - INTERIOR WALL AND CEILING FINISH REQUIREMENTS: OCCUPANCY U, NONSPRINKLERED:

EXIT ENCLOSURES AND EXIT PASSAGEWAYS	NO RESTRICTIONS
CORRIDORS	NO RESTRICTIONS
ROOMS AND ENCLOSED SPACES	NO RESTRICTIONS

MBC 1004.1 - DESIGN OCCUPANT LOAD:

OCCUPANT LOAD BY TABLE 1004.1.2:
1,075 SF / 300 GROSS SF/OCCUPANT = 4 OCCUPANTS (3.58)

MBC TABLE 1006.2.1 - COMMON PATH OF EGRESS TRAVEL:
REFER TO FLOOR PLANS FOR COMMON PATH OF EGRESS TRAVEL LESS THAN 75' FOR OCCUPANCY U.

MBC TABLE 1006.3.2(2) - SPACES W/ ONE MEANS OF EGRESS:
TWO OR MORE EXITS PROVIDED WHERE MAXIMUM OCCUPANT LOAD EXCEEDS 49 FOR OCCUPANCY U.

MBC 1010.1.7 - DOOR THRESHOLDS SHALL NOT EXCEED 1/2" IN HEIGHT. REFER TO SPECIFICATIONS AND FIGURE 'A' THIS SHEET.

MBC 1010.1.9 EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

MBC 1010.1.9.1 - DOOR HANDLES SHALL BE LEVER TYPE. REFER TO SPECIFICATIONS AND FIGURE 'B' ON THIS SHEET.

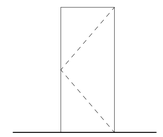
MBC 1104.1 - ACCESSIBLE ROUTE, SITE ARRIVAL POINTS:
REFER TO SITE PLAN FOR SITE ACCESSIBLE ROUTE INCLUDING ACCESSIBLE PARKING SPACES.

MBC CHAPTER 3403.1 - EXISTING BUILDING ADDITIONS:
ALTERATIONS TO THE EXISTING BUILDING OR STRUCTURE SHALL BE MADE TO ENSURE THAT THE EXISTING BUILDING OR STRUCTURE TOGETHER WITH THE ADDITION ARE NO LESS CONFORMING WITH THE PROVISIONS OF THIS CODE THAN THE EXISTING BUILDING OR STRUCTURE WAS PRIOR TO THE ADDITION.

MBC CHAPTER 3404.1 - EXISTING BUILDING ALTERATIONS:
ALTERATIONS SHALL BE SUCH THAT THE EXISTING BUILDING OR STRUCTURE IS NO LESS COMPLYING WITH THE PROVISIONS OF THIS CODE THAN THE EXISTING BUILDING OR STRUCTURE WAS PRIOR TO THE ALTERATION.

DOOR & FRAME SCHEDULE

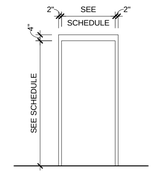
DOOR NO.	ROOM NAME	ROOM NO.	DOOR TYPE	SIZE WD	SIZE HT	THK	MAT'L	GLAZ.	FRAME DETAIL HEAD	JAMB	SILL	MAT'L	TYPE	FIRE LABEL	HDW	NOTE
106	WOMEN'S	106	A	3'-0"	7'-0"	1 3/4"	HM	--	H-2	J-2	S-1	HM	A	-	8	GALV. DOOR AND DOORFRAME.
108	MEN'S	108	A	3'-0"	7'-0"	1 3/4"	HM	--	H-2	J-2	S-1	HM	A	-	8	GALV. DOOR AND DOORFRAME.



A

DOOR TYPES

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



A

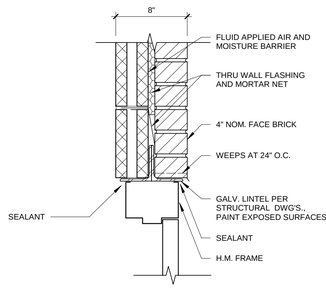
FRAME TYPES

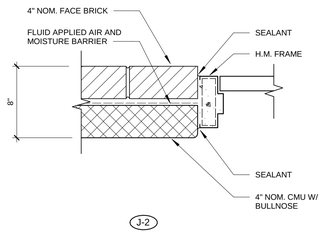
SCALE: 1/4" = 1'-0"

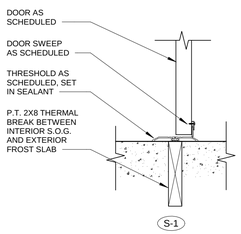
DOOR HARDWARE

SET NO. 8

HINGES	1-1/2 PR., HAGER, BB1191 4.5"X4.5" NRP, US 26D FINISH, OR EQUIVALENT PRODUCT BY IVES OR STANLEY
MORTISE LEVERSET	SCHLAGE, CLASSROOM FUNCTION, L9070 06, US 26D FINISH, OR EQUIVALENT PRODUCT BY BEST OR CORBIN RUSSWIN
CLOSER	4040 XP, PUSH SIDE MOUNTING, ALUMINUM FINISH, OR EQUIVALENT PRODUCT BY SARGENT OR YALE
OVERHEAD STOP	GLYNN-JOHNSON, 100S, US 26D FINISH, OR EQUIVALENT PRODUCT BY ARCHITECTURAL BUILDERS HARDWARE
WEATHER-STRIPPING	QTY. 1 SET, NATIONAL GUARD PRODUCTS, 130SDKB, OR EQUIVALENT PRODUCT BY REESE OR ZERO
THRESHOLD	NATIONAL GUARD PRODUCTS, 425, OR EQUIVALENT PRODUCT BY REESE OR ZERO
MORTISE CYLINDER	FIELD VERIFY AND MATCH OWNER'S BUILDING AND KEYING STANDARD







HEAD, JAMB AND SILL DETAILS

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

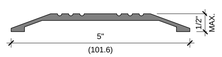
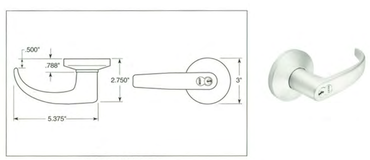


FIGURE A

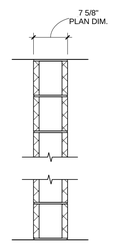
SCALE: 6" = 1'-0"



BASIS-OF-DESIGN DOOR LEVER - SCHLAGE D-SERIES SPARTA (SPA-17) LEVER, OR APPROVED EQUAL

FIGURE B

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



15 INTERIOR PARTITION - 8" NOMINAL BLOCK LAID IN FULL BED OF MORTAR IN RUNNING BOND PATTERN. PARTITION FULL HT. TO UNDERSIDE OF DECK. HORIZ. JT. REINF. AT 16" O.C. VERTICAL TOOL JOINTS CONCAVE. REFER TO STRUCTURAL DRAWINGS FOR STEEL REINFORCEMENT.

WALL TYPES

SCALE: 3/4" = 1'-0"

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B. FINAL DESIGN PLAN				20.08.07

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File Name: Pittsfield Township - Large Shelter.rvt	Author	Checker	Designer	20.06.16
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit/Seal

STATE OF MICHIGAN
MICHAEL G. DOMOKUR
ARCHITECT
No. 39496
LICENSED ARCHITECT

Client/Project Logo

PITTSFIELD CHARTER TOWNSHIP

Client/Project

Pittsfield Charter Township

Montibeller Park Improvements Restroom

Pittsfield Township, Michigan

Title

RESTROOM DOOR SCHEDULE, DOOR AND WINDOW TYPES

Project No. 2019124

Scale As indicated

Revision

Sheet 35 of 74

Drawing No. A600

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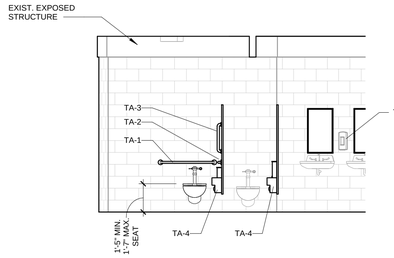
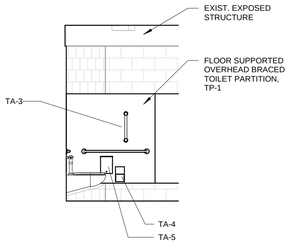
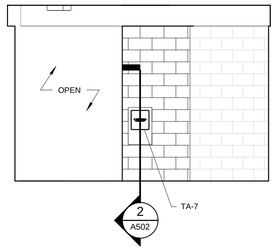


3 A601 ELEVATION
SCALE: 1/4" = 1'-0"



4 A601 ELEVATION
SCALE: 1/4" = 1'-0"



5 A601 ELEVATION
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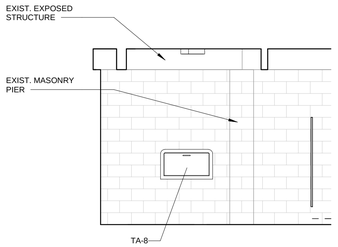

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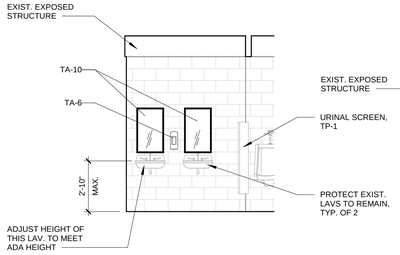
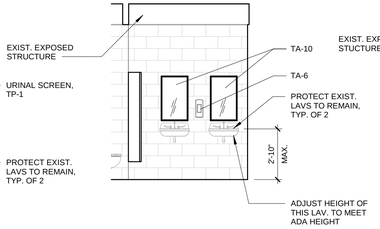
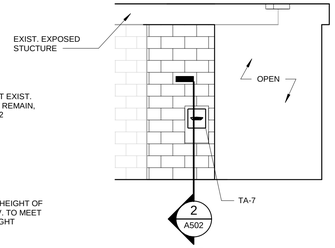
SCALE: 1/4" = 1'-0"



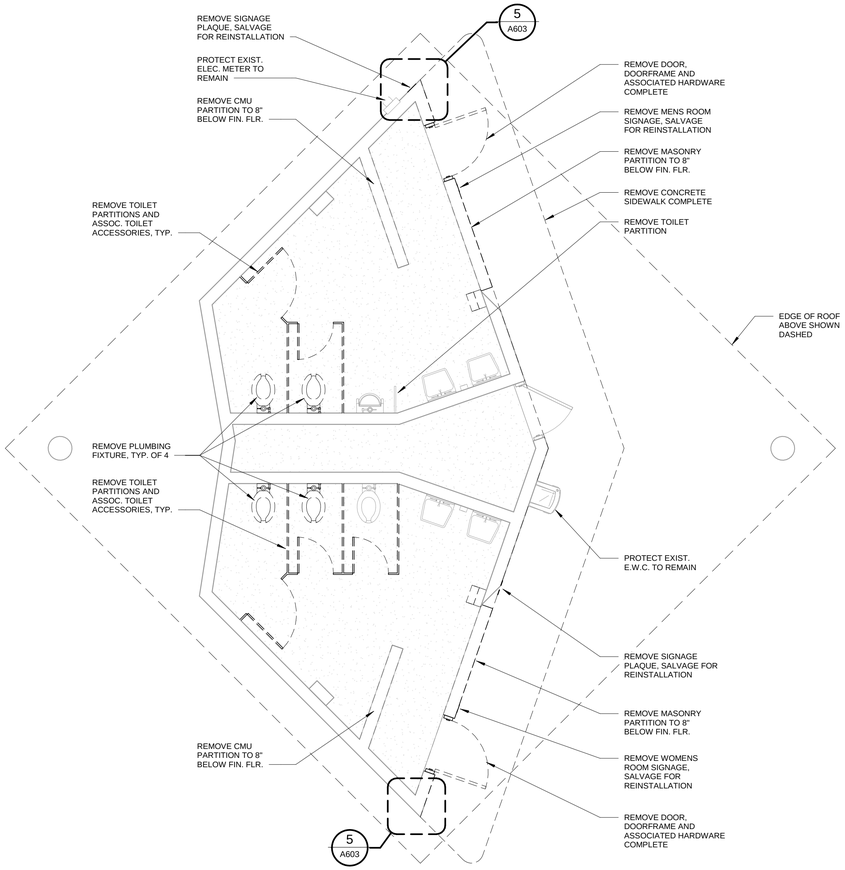
7 A601 ELEVATION
SCALE: 1/4" = 1'-0"



8 A601 ELEVATION
SCALE: 1/4" = 1'-0"

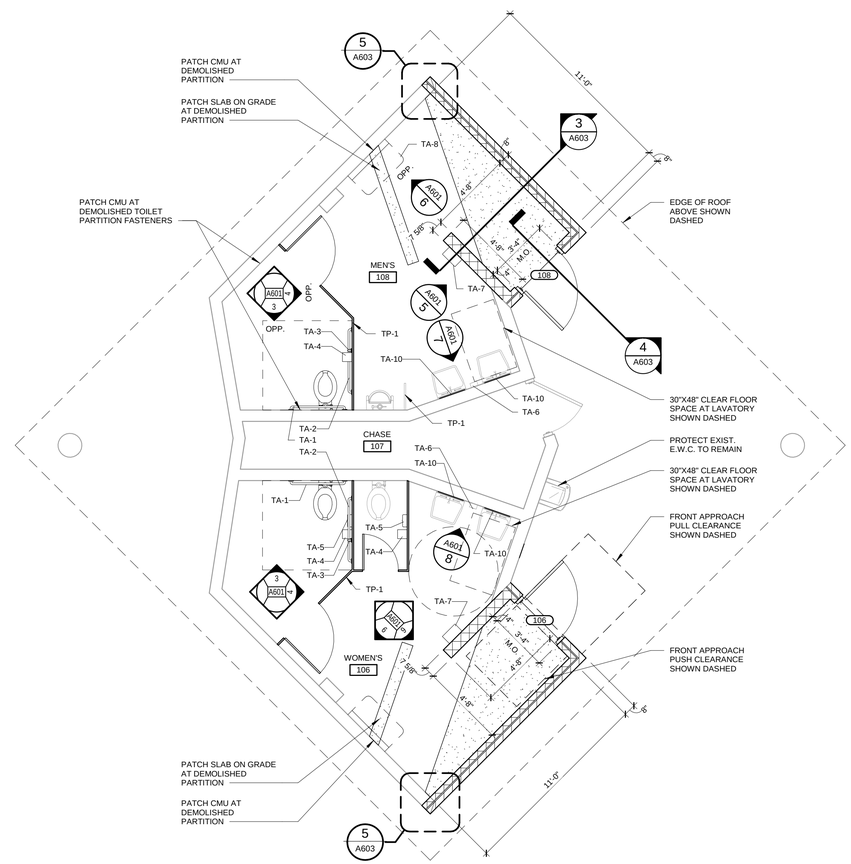


9 A601 ELEVATION
SCALE: 1/4" = 1'-0"



1 A601 DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

NORTH



2 A601 FLOOR PLAN
SCALE: 1/4" = 1'-0"

NORTH

TOILET ACCESSORY SCHEDULE

TA-1	36" Long Grab Bar
TA-2	42" Long Grab Bar
TA-3	18" Vertical Grab Bar
TA-4	Toilet Paper Dispenser
TA-5	Sanitary Napkin Disposal
TA-6	Surface Mounted Soap Dispenser
TA-7	XLERATOR Hand Dryer
TA-8	Baby Changing Station
TA-10	18"x30" Mirror

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Notes

B. FINAL DESIGN PLAN				20.08.07

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	Dwn.	Chkd.	Dsgn.	YY.MM.DD

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STATE OF MICHIGAN
MICHAEL G. DOMOKUR
ARCHITECT
No. 39496
LICENSED ARCHITECT

Client/Project Logo

PITTSFIELD CHARTER TOWNSHIP

Client/Project
Pittsfield Charter Township

Montibeller Park Improvements Restroom

Pittsfield Township, Michigan

Title

RESTROOM FLOOR PLAN, ELEVATIONS AND DETAILS

Project No. 2019124
Scale 1/4" = 1'-0"
Revision
Sheet 36 of 74
Drawing No. A601

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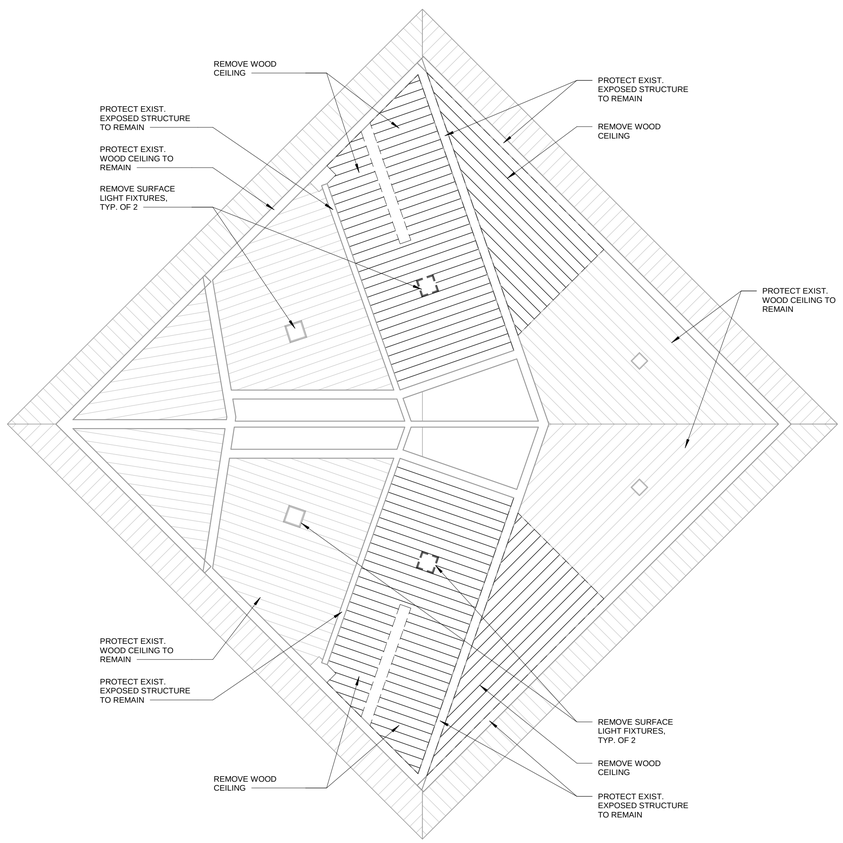
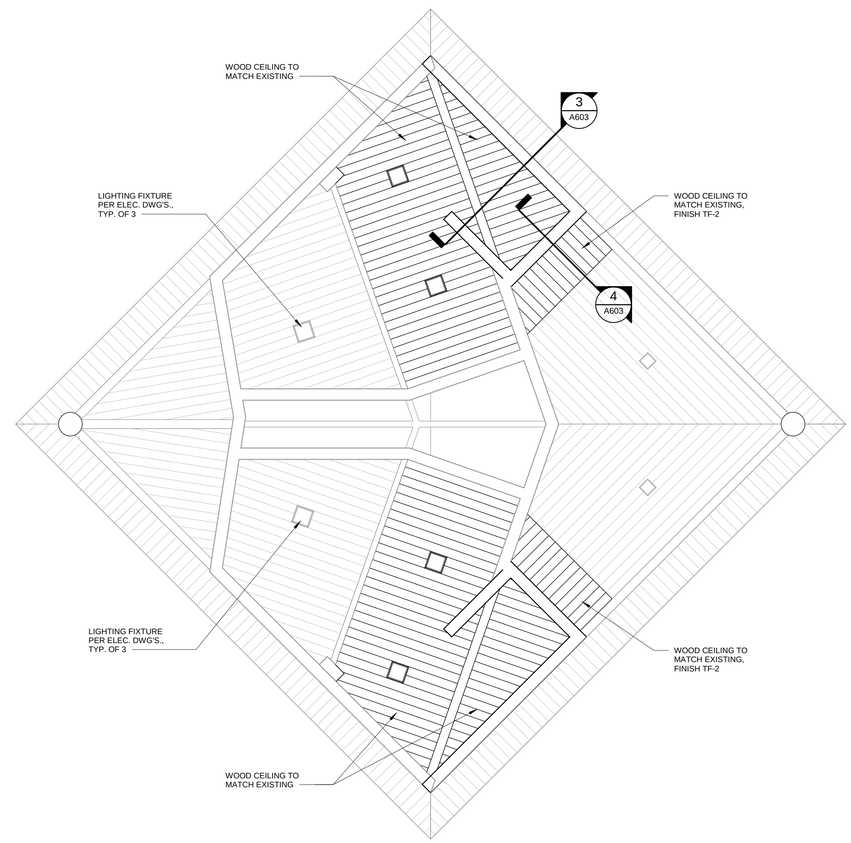


1 A602 DEMOLITION CEILING PLAN

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

NORTH



2 A602 REFLECTED CEILING PLAN

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

NORTH

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MICHAEL G. DOMOKUR
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No. 39496
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Pittsfield Charter Township

Montibeller Park Improvements Restroom

Pittsfield Township, Michigan

Title

RESTROOM CEILING PLANS AND DETAILS

Project No. 2019124

Scale 1/4" = 1'-0"

Revision

Sheet 37 of 74

Drawing No. A602

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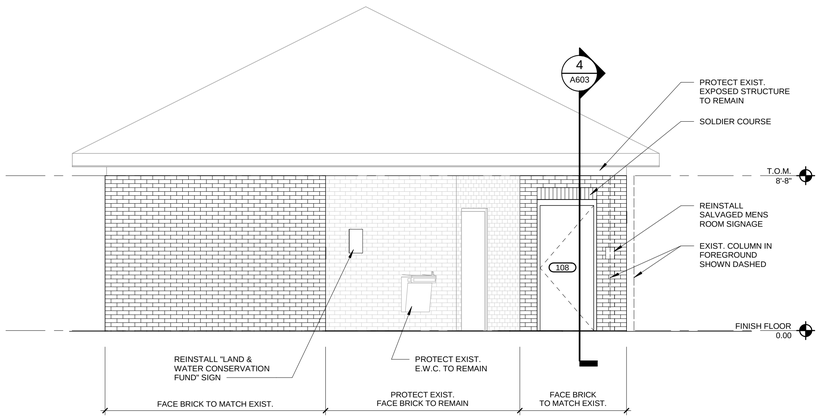
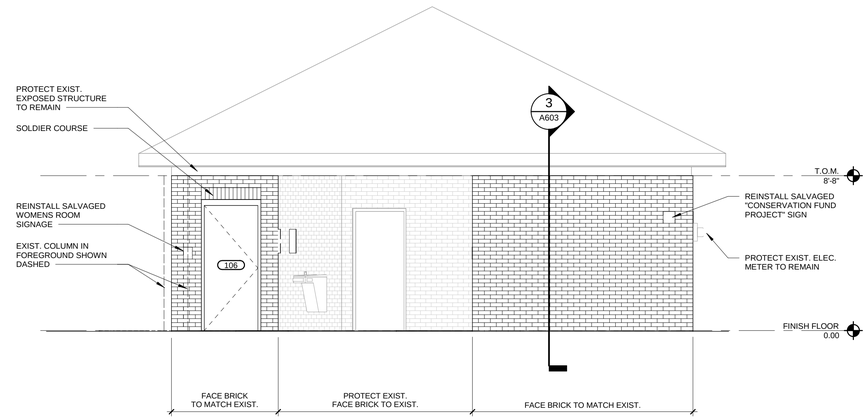


2 / A603 SOUTHEAST ELEVATION

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



1 / A603 NORTHEAST ELEVATION

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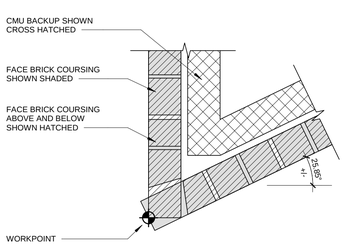
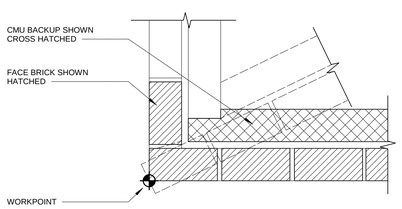


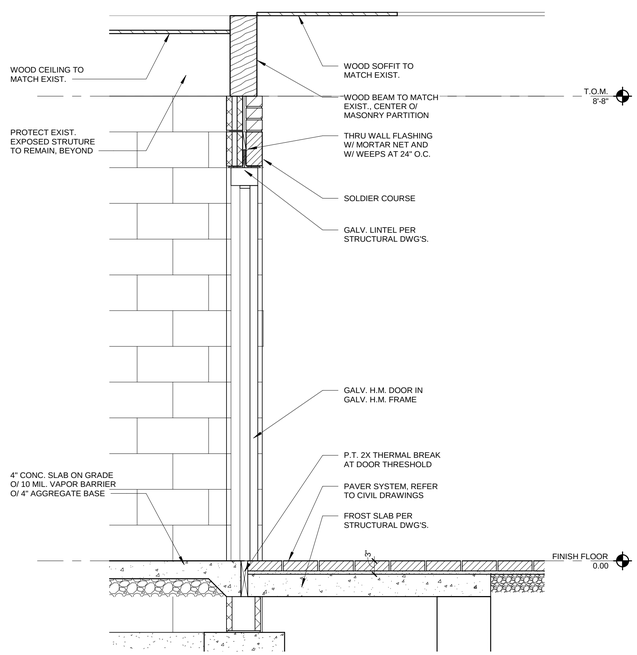
EXISTING CONDITION



NEW WORK CONDITION

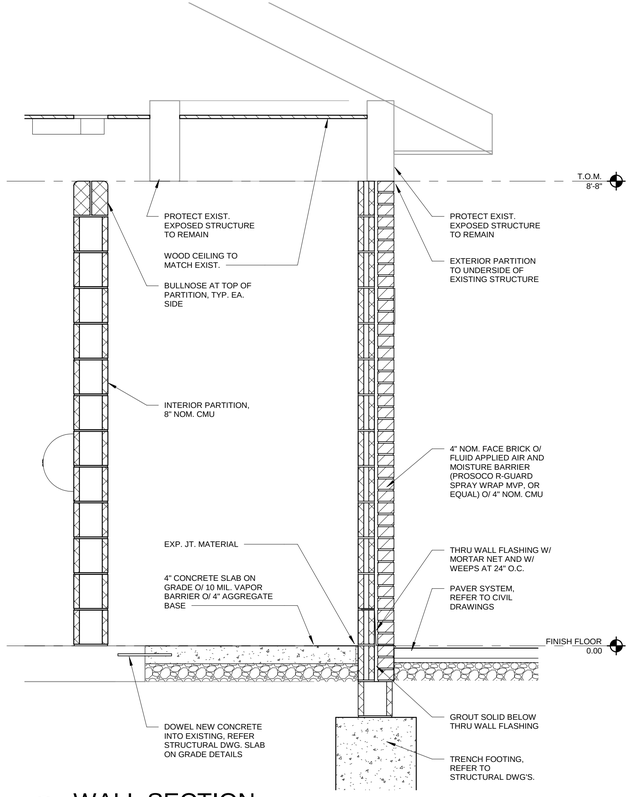
5 / A603 DETAIL

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



4 / A603 WALL SECTION

SCALE: 3/4" = 1'-0"



3 / A603 WALL SECTION

SCALE: 3/4" = 1'-0"

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B. FINAL DESIGN PLAN				20.08.07
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Pittsfield Township, Michigan

Title

RESTROOM BUILDING ELEVATIONS AND DETAILS

Project No. 2019124

Scale As indicated

Revision

Sheet 38 of 74

Drawing No. A603

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ORIGINAL SHEET - ARCH D

BUILDING DESIGN CRITERIA

GOVERNING CODE: 2017 MICHIGAN BUILDING CODE IN CONJUCTION WITH ASCE 7-10

RISK CATEGORY:	II
ROOF LIVE LOAD:	20 PSF

SNOW LOAD:

GROUND SNOW LOAD, Pg:	20 PSF
FLAT ROOF SNOW LOAD, Pf:	20 PSF
SNOW EXPOSURE FACTOR, Ce:	1.0
SNOW IMPORTANCE FACTOR:	1.0
THERMAL FACTOR, Ct:	1.0
SNOW DRIFT:	PER ASCE-7

WIND LOAD:

ULTIMATE DESIGN WIND SPEED (Vult):	115 MPH
NOMINAL DESIGN WIND SPEED (Vasd):	90 MPH
RISK CATEGORY:	II
WIND EXPOSURE:	C
INTERNAL PRESSURE COEFFICIENT:	±0.18
COMPONENTS AND CLADDING:	SEE TABLE

GENERAL CONDITIONS:

1. SEE SPECIFICATIONS FOR QUALITY OF CONSTRUCTION REQUIRED, QUALITY OF WORK, MANUFACTURING AND INDUSTRY STANDARDS, PHYSICAL PROPERTIES OF MATERIALS, CONFORMANCE TO CODES AND REGULATIONS GUARANTEE AND WARRANTY REQUIREMENTS.
2. SEE ARCHITECTURAL, HVAC, PLUMBING, ELEVATOR, FIRE PROTECTION & ELECTRICAL DRAWINGS FOR OTHER PERTINENT INFORMATION RELATED TO STRUCTURAL WORK AND COORDINATE AS REQUIRED. CONTRACTOR SHALL COORDINATE STRUCTURAL DRAWINGS WITH ALL OTHER DRAWINGS WITHIN THE CONTRACT DOCUMENTS.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS RELATED TO EXISTING CONSTRUCTION, EXISTING SERVICES, AND THE SITE BEFORE BEGINNING WORK.
4. CONSTRUCTION LOADS SHALL NOT EXCEED DESIGN LIVE LOADS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DESIGN REQUIRED TO SUPPORT CONSTRUCTION EQUIPMENT USED IN CONSTRUCTING THIS PROJECT. ALL EQUIPMENT SUPPORT DESIGN SHALL BE PERFORMED BY AN ENGINEER LICENSED IN THE STATE OF THE PROJECT. SHORING AND RESHORING IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.
6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE FOLLOWING ITEMS THAT WILL NOT BE REVIEWED BY THE OWNER, ARCHITECT OR ENGINEER:
   - A. DEVIATIONS FROM CONTRACT DOCUMENTS.
   - B. DIMENSIONS, ELEVATIONS AND CONDITIONS TO BE CONFIRMED AND CORRELATED AT THE SITE.
   - C. FABRICATION PROCESS INFORMATION.
   - D. MEANS, METHODS, TECHNIQUES, PROCEDURES OF CONSTRUCTION AND CONSTRUCTION SAFETY.
   - E. COORDINATION OF THE WORK OF ALL TRADES.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS AND DIMENSIONS. CONTRACTOR IS TO REPORT ANY DISCREPANCIES TO THE A/E PRIOR TO PROCEEDING.
8. ANY CHANGES TO THE STRUCTURAL SYSTEMS SHALL BE REDESIGNED BY A PROFESSIONAL ENGINEER AT NO COST TO THE OWNER OR THE A/E AND SUBMITTED TO THE A/E FOR REVIEW. SUBMITTAL SHALL BE ACKNOWLEDGED IN WRITING BEFORE BEGINNING CONSTRUCTION. IF CHANGES ARE MADE WITHOUT WRITTEN APPROVAL SUCH CHANGES SHALL BE THE LEGAL AND FINANCIAL RESPONSIBILITY OF THE PARTY MAKING THE CHANGE TO REPLACE OR REPAIR THE CONDITION AS DIRECTED BY THE A/E.
9. CONTRACTOR IS RESPONSIBLE TO UNCOVER AND VISUALLY FIELD VERIFY THE EXISTING CONSTRUCTION PRIOR TO THE START OF ANY WORK AFFECTING THE EXISTING STRUCTURE. CONTRACTOR IS TO REPORT ANY CHANGES OR DISCREPANCIES FROM THOSE SHOWN TO THE A/E.

DEMOLITION:

1. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE DEMOLITION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE EXISTING BUILDING AND ITS COMPONENT PARTS DURING DEMOLITION AND FUTURE ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF ANY OR ALL TEMPORARY BRACING, GUYS OR TIE-DOWNS WHICH MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
2. THE CONTRACTOR SHALL SUPPORT, BRACE AND SECURE EXISTING STRUCTURE AS REQUIRED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY OF THE EXISTING BUILDING DURING DEMOLITION AND CONSTRUCTION. FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS AND CONDITIONS WHICH AFFECT THE DEMOLITION AND NEW CONSTRUCTION.
3. THE EXTENT OF THE WORK SHOWN SHALL INCLUDE REMOVAL AND DISPOSAL, OFF SITE, OF THE ELEMENTS INDICATED WITHIN THESE DEMOLITION DRAWINGS U.N.O.
4. THE EXISTING STRUCTURE SHALL BE DISASSEMBLED IN A MANNER WHICH DOES NOT DAMAGE OR DEFORM ANY EXISTING STRUCTURE TO REMAIN. EXISTING SLABS SHALL BE SAWCUT IN A MANNER WHICH DOES NOT CAUSE THE SLAB SUPPORTING MEMBER TO BE CUT OR DAMAGED.
5. CONFORM TO ALL APPLICABLE CODES FOR DEMOLITION OF STRUCTURES, SAFETY OF EXISTING AND ADJACENT STRUCTURES, DUST CONTROL, AND DISPOSAL.
6. USE OF EXPLOSIVES SHALL NOT BE PERMITTED.
7. EXISTING SLABS SHALL BE CORE DRILLED AT RE-ENTRANT CORNERS OF NEW FLOOR OPENINGS TO PREVENT OVER CUTTING.
8. THE DEMOLISHED STRUCTURE SHALL BE REDUCED TO A WEIGHT AND TRANSPORTED ACROSS THE EXISTING STRUCTURE IN A MANNER WHICH DOES NOT OVERSTRESS THE EXISTING BUILDING STRUCTURE.
9. FRAMING SHALL BE REMOVED ONLY AFTER THE LOAD SUPPORTED BY THAT FRAMING IS REMOVED. THE FRAMING REMOVAL PROCESS SHALL NOT DEFORM OR INDUCE STRESS TO EXISTING FRAMING TO REMAIN.

GEOTECHNICAL REPORT:

1. REFERENCE THE GEOTECHNICAL REPORT COMPLETED FOR THIS SITE BY MATERIALS TESTING CONSULTANTS, INC. DATED APRIL 2020 MTC PROJECT NO. 191828 FOR FURTHER INFORMATION RELATING TO THE EXISTING SUBSURFACE SOIL CONDITIONS.
2. DESIGN SOIL BEARING PRESSURE = 3000 PSF.
3. ENGINEERED FILL SHALL BE PLACED IN LIFTS NOT EXCEEDING 8". FILL FOR SLAB ON GRADE CONSTRUCTION SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DENSITY BY ASTM D698. FILL FOR FOOTINGS BEARING ON ENGINEERED FILL SHALL BE COMPACTED TO A MINIMUM OF 98% MAXIMUM BY ASTM D698.

EXCAVATION:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDANCE AND CLEANUP OF STREET SPILLAGE OF EXCAVATED OR BACKFILL MATERIALS ENTERING OR LEAVING THE SITE. CLEANUP OF MAJOR SPILLS SHALL BE COMPLETED IMMEDIATELY. OTHER SPILLS SHALL BE CLEANED, AT A MINIMUM, DAILY. ALL CLEANUP SHALL BE COMPLETED TO THE FULL SATISFACTION OF THE OWNER AND CONSTRUCTION MANAGER.
2. THE CONTRACTOR SHALL PROPERLY MOISTEN SURFACES AS REQUIRED TO PREVENT SOILS FROM BECOMING AIRBORNE AND CREATING A NUISANCE TO NEIGHBORING FACILITIES, THE PUBLIC, AND ANY CONCURRENT WORK ACTIVITIES. THE FINAL DETERMINATION OF THE SUCCESS OF DUST CONTROL MEASURES SHALL BE THE OWNER AND CONSTRUCTION MANAGER.
3. ANY SITE DE-WATERING NECESSARY TO MAINTAIN A SAFE AND EFFICIENT EXCAVATION EFFORT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES, RULES, ORDINANCES AND REGULATIONS PERTAINING TO SITE EXCAVATION, FILL AND SHORING ACTIVITIES.
5. ALL SITE GRADING SHALL BE SLOPED AS NOTED ON THE DRAWINGS, AS NOTED IN THE GEOTECHNICAL REPORT, OR AT A SHALLOWER SLOPE IF REQUIRED TO PROTECT WORKERS AND WORK IN PROGRESS FROM SOIL SLIPPAGE. ALL EXCAVATION ACTIVITIES SHALL BE COMPLETED IN ACCORDANCE WITH OCCUPATIONAL SAFETY AND HEALTH (OSHA) REQUIREMENTS AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
6. ANY SHARP OR LARGE OBJECTS PROTRUDING ABOVE THE FINAL ROUGH GRADE SHALL BE REMOVED. RESULTING HOLES SHALL BE FILLED WITH SELECT FILL MEETING THE REQUIREMENTS AS SET IN THE PROJECT SPECIFICATIONS.
7. ALL EXCESS EXCAVATED MATERIALS THAT ARE NOT REUSABLE SHALL BE REMOVED FROM THE SITE PROPERLY AND LEGALLY DISPOSED AT ON OFF SITE LOCATION. REFERENCE SPECIFICATIONS FOR REQUIREMENTS RELATED TO THE IDENTIFICATION OF HAZARDOUS MATERIAL IN EXCAVATIONS AND REUSE OF EXCAVATED MATERIAL FOR BACKFILL.
8. MUD-MATTING MAY BE REQUIRED TO PROVIDE STABLE SURFACE FOR FORMING AND PLACEMENT OF REINFORCING STEEL AND SUBSEQUENTLY PLACEMENT OF CONCRETE, SEE PROJECT SPECIFICATIONS.

FOUNDATIONS:

1. THE GENERAL CONTRACTOR AND THE FOUNDATION CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE SURVEY AND THE GEOTECHNICAL REPORT BEFORE STARTING CONSTRUCTION.
2. NOTIFY THE A/E AND OWNER'S REPRESENTATIVE OF ANY UNUSUAL SOIL CONDITION THAT ARE IN VARIANCE WITH TEST BORINGS, SUCH AS SPRING OR SEEPAGE WATER ENCOUNTERED, OR WHEN A DIFFERENT BEARING MATERIAL IS EVIDENT AND THERE IS A QUESTION OF THE BEARING CAPACITY.
3. SET FOUNDATION AT ELEVATION SHOWN, OR ON FIRM UNDISTURBED MATERIAL OF DESIGN BEARING CAPACITY, WHICHEVER IS LOWER. THE GEOTECHNICAL ENGINEER SHALL VERIFY THAT EACH FOOTING PLACED IS BEARING ON DESIGN MATERIAL.
   - A. ALL SOIL SURROUNDING AND UNDER ALL FOOTINGS, FLOOR SLABS, ETC. SHALL BE PROTECTED FROM FREEZING AND FROST ACTION DURING CONSTRUCTION.
   - B. WHERE FOOTINGS ARE IN CLOSE PROXIMITY OF SEWERS, DRAINS, CONDUITS UNDER FLOOR PIPES, ETC., BOTTOM OF ALL FOOTINGS SHALL BE AT OR BELOW INVERT ELEVATIONS OF ELEMENTS NOTED HEREIN.
4. STEP FOOTINGS AT A RATIO OF ONE (1) VERTICAL TO TWO (2) HORIZONTAL, WITH A MAXIMUM VERTICAL STEP OF 2'-0" UNLESS NOTED OTHERWISE.
5. SITE PREPARATION, STRIPPING, PROOF ROOLING, FILLING AND BACKFILLING SHALL BE DONE IN COMPLIANCE WITH PROJECT SPECIFICATIONS AND IN CONJUNCTION WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT. ALL FILL MATERIAL SHALL MEET THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.
6. INUNDATION AND LONG TERM EXPOSURE OF BEARING SURFACES, WHICH WILL RESULT IN DETERIORATION OF BEARING FORMATIONS SHALL BE PREVENTED. EXCAVATION TO FINAL BEARING ELEVATION SHALL NOT BE MADE UNTIL JUST PRIOR TO PLACING FOUNDATIONS.
7. BACKFILLING AGAINST FOUNDATION/BASEMENT WALLS SHALL NOT BE PERMITTED UNTIL THE SUPPORTING FLOORS ARE IN PLACE AND ARE ABLE TO RESIST THE IMPOSED LATERAL FORCES. EXCEPT FOR CANTILEVER RETAINING WALLS OR UNLESS NOTED OTHERWISE ON DRAWINGS, THE WALLS ARE SUPPORTED BY THE FLOOR ABOVE AND BELOW. PROPER TEMPORARY BRACING MAY BE USED IN LIEU OF THE FLOOR SUPPORT BASED UPON THE DESIGN BY A PROFESSIONAL ENGINEER. THE DESIGN OF TEMPORARY BRACING IS THE RESPONSIBILITY OF THE CONTRACTOR.
8. BACKFILL AND FILL MATERIALS SHALL BE FREE OF DEBRIS, WASTE, FROZEN MATERIAL, ORGANIC AND OTHER DELETERIOUS MATTER,
   - A. POROUS FILL (SUB-BASE FOR SLAB ON GRADE) SHALL BE CRUSHED LIMESTONE COMPACTED, (MINIMUM 4" THICK UNDER FLOOR SLABS). GRADATION SHALL CONFORM WITH ASTM C33 SIZE #57.
   - B. DRAINAGE FILL SHALL BE WASHED, UNIFORMLY GRADED MIXTURE OF CRUSHED STONE OR UNCRUSHED GRAVEL AT EXTERIOR WALLS AND RETAINING WALL HAVING THE FOLLOWING GRADATION:

SIEVE SIZE	TOTAL % PASSING
1"	100
3/4"	90-100
3/8"	20-55
NO. 4	0-10
NO. 8	0-5

   - C. WELL GRADED GRANULAR MATERIAL (#8) SHALL CONFORM WITH ASTM C33.
9. ALL EXCAVATIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER AND TESTING AGENCY WHO SHALL BE CONSULTED WHEN POOR SOIL, WATER, OBSTRUCTIONS, PIPING, ADJACENT SEWERS, EXISTING FOOTINGS, EXCAVATIONS, ETC. ARE ENCOUNTERED.

FOUNDATIONS (CONT):

10. EXCAVATION AND COMPACTION:
    - A. CARE SHALL BE TAKEN TO NOT TO DISTURB THE BOTTOM OF THE EXCAVATION. EXCAVATION TO FINAL GRADE SHALL NOT BE MADE UNTIL JUST PRIOR TO PLACING CONCRETE.
    - B. KEEP FOUNDATION EXCAVATIONS FREE OF WATER AT ALL TIMES. REPLACE WEAKENED SOIL WITH LEAN CONCRETE (1500 PSI).
    - C. BACKFILL AND FILL SHALL BE PLACED IN LIFTS OF 8" MAXIMUM LOOSE DEPTH. EACH LIFT SHALL BE COMPACTED WITH A POWER VIBRATING COMPACTOR OR SIMILAR EQUIPMENT TO ASSURE MAXIMUM COMPACTION OF THE MATERIAL.
11. DEWATERING OF THE SITE MAY BE REQUIRED. METHODS FOR DEWATERING ARE THE CONTRACTORS RESPONSIBILITY. KEEP THE AREA OF WORK DRAINED AND FREE FROM ACCUMULATION OF SURFACE WATER AT ALL TIMES. PROVIDE, OPERATE AND MAINTAIN PUMPS, PUMPING EQUIPMENT, ETC. AS REQUIRED.
12. A TESTING AGENCY, PROVIDED BY THE OWNER, SHALL INSPECT THE CONDITION AND ASSURE THE ADEQUACY OF ALL SUBGRADES, BEARING CAPACITY, FILL AND BACKFILLS BEFORE PLACEMENT OF FOUNDATIONS. TEST RESULTS SHALL BE SENT TO THE ENGINEER AND TO THE OWNER.
    - A. AT FOOTING SUBGRADES, AT LEAST ONE TEST OF EACH SOIL STRATUM WILL BE PERFORMED TO VERIFY DESIGN BEARING CAPACITIES.
    - B. TESTING AGENCY WILL TEST COMPACTION OF SOILS IN PLACE ACCORDING TO ASTM D1556, D2167, D2922, AND ASTM D2937, AS APPLICABLE. TEST PER FOLLOWING:
      - a. PAVED AND BUILDING SLAB AREAS: AT SUBGRADE AND AT EACH COMPACTED FILL LAYER, AT LEAST ONE TEST FOR EVERY 2000 SQ. FT., BUT IN NO CASE LESS THAN 3 TESTS.
      - b. FOOTINGS: AT EACH COMPACTED BACKFILL LAYER AT EACH FOOTING OR ONE TEST FOR EACH 100 FT OF WALL FOOTING.
    - C. CONTRACTOR SHALL RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION IS OBTAINED.

REINFORCING LAP LENGTH SCHEDULE F'c=4000 PSI NORMAL WEIGHT

BAR SIZE	TOP BAR LENGTH (IN.) CATEGORY 1	2	3	4	5	6	OTHER BAR LENGTH (IN.) CATEGORY 1	2	3	4	5	6
3	18"	18"	18"	18"	18"	18"	16"	16"	16"	16"	16"	16"
4	26"	24"	24"	24"	24"	24"	20"	19"	19"	19"	19"	19"
5	40"	32"	30"	30"	30"	30"	31"	25"	23"	23"	23"	23"
6	57"	45"	40"	36"	36"	36"	44"	35"	31"	28"	28"	28"
7	77"	62"	54"	43"	42"	42"	59"	48"	42"	33"	33"	33"
8	102"	81"	71"	57"	51"	48"	78"	63"	55"	44"	39"	37"
9	129"	103"	90"	72"	64"	55"	99"	79"	69"	56"	50"	42"
10	163"	131"	114"	92"	82"	65"	126"	101"	88"	70"	63"	50"
11	200"	160"	140"	112"	100"	80"	154"	123"	108"	86"	77"	62"

CATEGORY DETERMINATION TABLE FOR SCHEDULES ABOVE

CONCRETE COVER d = NOMINAL BAR DIAMETER	CENTER TO CENTER BAR SPACING ≤ 3d	> 3d < 4d	≥ 4d < 6d	≥ 6d	STRUCTURAL ELEMENTS
< d	1	3	5	6	LONGITUDINAL BARS IN BEAMS, COLUMNS, INNER LAYER OF WALLS AND SLABS
> d, < 2d	1	3	3	4	ALL OTHER REINFORCING BARS
< 2d	1	3	5	6	ALL OTHER REINFORCING BARS
d = bar diameter					

CAST IN PLACE CONCRETE:

1. CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE CODES AND STANDARDS. ACI 301 "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE" IS HEREBY MADE A PART OF THESE DRAWINGS. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301, EXCEPT AS EXPLICITLY MODIFIED HEREIN.
2. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318, "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
3. ALL CONCRETE SHALL BE IN ACCORDANCE WITH ACI 350 "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES".
4. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTHS AT 28 DAYS:
   - A. 4000 PSI WITHOUT ENTRAINED AIR FOR ALL CONCRETE WITH A MAXIMUM WATER/CEMENT RATIO = 0.45 UNLESS SPECIFICALLY NOTED OTHERWISE.
   - B. 4000 PSI WITH A MAXIMUM WATER/CEMENT RATIO = 0.45 AND WITH AN ENTRAINED AIR ADMIXTURE CONFORMING WITH ASTM C260 FOR ALL CONCRETE PERMANENTLY EXPOSED TO THE WEATHER. THE AMOUNT OF ENTRAINED AIR SHALL BE 6% ± 1%.
   - C. 4000 PSI WITH A MAXIMUM WATER/CEMENT RATIO = 0.50 FOR FOUNDATIONS.
5. WELDED WIRE FABRIC: ASTM A82 AND A185 FOR SMOOTH STEEL WIRE [ASTM A496 AND A497 FOR DEFORMED STEEL WIRE
6. REINFORCING BARS: ASTM 615, GRADE 60 (U.N.O.) WELDING OR TACK WELDING A615 BARS SHALL NOT BE PERMITTED. PROVIDE #5 @ 12"oc, EACH WAY IN ALL CAST-IN-PLACE CONCRETE U.N.O.
7. PROVIDE 6x6-W1.4xW1.4 WELDED WIRE FABRIC IN ALL TOPPING SLABS U.N.O., AND PROVIDE 6x6-W2.9xW2.9. W.W.F. IN STAIR LANDINGS, EQUIPMENT PADS AND ALL SLABS ON GROUND U.N.O. USE ONLY FLAT SHEETS. PLACE WELDED WIRE FABRIC IN SLABS ON GRADE AT 1/3 THE SLAB THICKNESS DOWN FROM TOP OF SLAB, UNLESS NOTED OTHERWISE.
8. ALL WELDED WIRE FABRIC SHALL BE CHAIRED TO ITS PROPER HEIGHT AND MAINTAINED AT THE PROPER LEVEL THROUGHOUT THE CONCRETE PLACING OPERATION. LIFTING OF WELDED WIRE FABRIC WITH A HOOK DURING CONCRETE PLACEMENT SHALL NOT BE PERMITTED.
9. BEND ALL HORIZONTAL WALL AND BEAM BARS AROUND ALL CORNERS, UNLESS OTHERWISE NOTED. PROVIDE ACI LAP EACH SIDE.
10. REINFORCING BARS REQUIRED FOR PROPER SUPPORT OF PRINCIPAL REINFORCING SHALL BE DETAILED AND SUPPLIED BY THE CONTRACTOR WHETHER OR NOT THEY ARE INDICATED ON THE DRAWINGS. THE MINIMUM BAR SIZE SHALL BE #4 AND THE MAXIMUM SPACING SHALL BE 36" ON CENTER FOR ALL BARS THAT NEED SUPPORT. WELDED WIRE FABRIC SHALL NOT BE USED FOR THE SUPPORT OF PRINCIPAL REINFORCING.
11. PROVIDE CORROSION RESISTANT ACCESSORIES SUCH AS GRAY PLASTIC CHAIRS OR CHAIRS WITH COATED TIPS, IN ALL EXPOSED CONCRETE CONSTRUCTION. PRECAST CONCRETE CUBES OR SAND PLATE CHAIRS SHALL BE USED FOR THE SUPPORT OF REINFORCING ON GRADE. CONCRETE BLOCK OR CLAY MASONRY BRICK ARE NOT PERMITTED.
12. NO CONCRETE SHALL BE PLACED UNTIL THE PROPOSED CONCRETE MIX AND TEST HAVE BEEN SUBMITTED TO AND REVIEWED BY THE ARCHITECT AND AFTER THE CONTRACTOR HAS RECEIVED WRITTEN ACKNOWLEDGEMENT.
13. ALL CEMENT SHALL BE TYPE I OR TYPE III, BLENDED CEMENTS SHALL NOT BE USED.
14. CONCRETE SHALL BE DISCHARGED AT THE SITE WITHIN 1 1/2 HOURS AFTER WATER HAS BEEN ADDED TO THE CEMENT AND AGGREGATES, ADDITION OF WATER TO THE MIX AT THE PROJECT SITE WILL NOT BE PERMITTED. ALL WATER MUST BE ADDED AT THE BATCH PLANT. SLUMP MAY BE ADJUSTED ONLY THROUGH THE USE OF ADDITIONAL WATER REDUCING ADMIXTURE OR HIGH RANGE WATER REDUCING ADMIXTURE.
15. ALL CONCRETE SHALL CONTAIN A WATER REDUCING ADMIXTURE CONFORMING TO ASTM C494, TYPE A, F OR G.

CAST IN PLACE CONCRETE (CONT):

16. CALCIUM CHLORIDE SHALL NOT BE PERMITTED NOR SHALL ANY ADMIXTURE CONTAINING CALCIUM CHLORIDE BE PERMITTED.
17. ALL CONCRETE EXPOSED TO THE WEATHER OR IN A LOCATION VULNERABLE TO DEICERS SHALL CONTAIN AN AIR-ENTRAINED ADMIXTURE CONFORMING TO ASTM C260. THE AMOUNT OF ENTRAINED AIR SHALL BE 6%±1%.
18. PROVIDE CONSTRUCTION JOINTS IN ACCORDANCE WITH ACI 318. SUBMIT DRAWINGS SHOWING SEQUENCE AND DIRECTION OF POUR TO PERMIT SLAB SHRINKAGE FOR ENGINEER'S REVIEW.
19. WHERE CONSTRUCTION JOINTS ARE REQUIRED BUT ARE NOT INDICATED ON THE DRAWINGS, THEY SHALL BE LOCATED AT MIDSPAN OF BEAMS, SLABS, AND WALLS, AND SHALL BE SUBJECT TO REVIEW BY THE A/E OR OWNER. UNLESS OTHERWISE NOTED OR SHOWN ON THE DRAWINGS, PROVIDE A CONTINUOUS SHEAR KEY IN SLABS AND WALLS, AND A MINIMUM OF TWO CONTINUOUS HORIZONTAL KEYS IN BEAMS AND EACH JOIST. THE MINIMUM KEY SIZE SHALL BE 1 1/2" DEEP BY 1/3 THE DEPTH OR WIDTH OF THE MEMBER. AT CONCRETE SLABS ON STEEL DECK, SUPPORTED BY STEEL BEAMS, CONSTRUCTION JOINTS SHALL BE PLACED AT MIDSPAN OF DECK AND MID-WAY BETWEEN BEAMS.
20. ALL CONSTRUCTION JOINTS BELOW GRADE SHALL HAVE WATERSTOPS, UNLESS NOTED OTHERWISE.
21. 3/4" CHAMFER FOR EXPOSED EDGES OF CONCRETE U.N.O.
22. VERIFY WITH ARCHITECTURAL DRAWINGS FOR TOP OF STRUCTURAL SLAB, BONDED TOPPING, WEARING SLAB AND SLAB ON GRADE ELEVATIONS.
23. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND EXTENT OF SPECIAL FINISHES OR TREATMENTS TO CONCRETE.
24. COORDINATE ALL WORK RELATED TO OWNER-SUPPLIED EQUIPMENT OR EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR BY USING ONLY CERTIFIED EQUIPMENT DRAWINGS.
25. DETERMINE SIZE AND LOCATION OF MECHANICAL EQUIPMENT, AND MAKE PROVISIONS FOR BOLTS, SLEEVES, PADS, OPENINGS, DRAINS, ANCHOR RODS AND EMBEDDED ITEMS ETC. IN ACCORDANE WITH THE MANUFACTURER'S CERTIFIED DRAWINGS. THIS WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED.
26. PROVIDE SAWCUT CONTROL JOINTS IN ALL SLABS ON GRADE. THE MAXIMUM SPACING OF JOINTS SHALL BE 36 TIMES THE SLAB THICKNESS IN BOTH DIRECTIONS, UNLESS OTHERWISE NOTED.
27. PROVIDE BOND BREAKER BETWEEN MASONRY BEARING WALLS AND ALL CAST-IN-PLACE CONCRETE SLABS AND BEAMS U.N.O.
28. FOR BONDED TOPPING SLAB OVER PRECAST SEE PLANS. PROVIDE ULTIMATE COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS. PROVIDE 6x6-W4xW4 W.W.F. IN BONDED TOPPING WITH 3/4" COVER. PRIOR TO PLACING CONCRETE TOPPING, THE PRECAST SURFACE MUST BE CLEAN AND DAMP WITH NO STANDING WATER.
29. OPENINGS:
    1. OPENINGS SHOWN ARE FOR BIDDING PURPOSES ONLY. RECONCILE THEIR EXACT SIZES AND LOCATIONS WITH HVAC, PLUMBING, AND OTHER REQUIREMENTS BEFORE PROCEEDING WITH WORK.
    2. PROVIDE 1/2 NUMBER OF BARS INTERRUPTED PLUS ONE TYPICAL EACH FACE OF OPENING. PROVIDE TWO #5 BARS AROUND ALL SLAB AND WALL OPENINGS, EXTENDING 2'-0" BEYOND OPENING IN EVERY DIRECTION UNLESS NOTED. OPENINGS NOT EXCEEDING 16"x16" MAY BE SLEEVED AS REQUIRED BY WORKING THE REINFORCING STEEL AROUND THEM.
30. REINFORCING BAR LAP SPLICES AND ANCHORAGE LENGTH SHALL CONFORM WITH TABLE MINIMUM LAP SPLICE AND ANCHORAGE DIMENSION TABLE AS PROVIDED WITHIN THESE GENERAL NOTES.
31. TOP LAYER OF REINFORCING STEEL IN BEAMS, SLABS, JOISTS AND FOOTINGS SHALL BE CONSIDERED TOP BARS REGARDLESS OF THICKNESS OF CONCRETE BELOW THE BARS.
32. MECHANICAL BAR SPLICE DEVICES THAT PROVIDE A FULL TENSION SPLICE WITH A CAPACITY IF 125 PERCENT OF THE BAR YIELD STRENGTH MAY BE USED. ALL SPLICES SHALL BE VISUALLY INSPECTED BY A QUALIFIED INSPECTOR TO VERIFY THAT THE SPLICE HAS BEEN MADE PROPERLY.
33. CONCRETE FIELD QUALITY CONTROL:
    - A. THE OWNER SHALL EMPLOY A TESTING LABORATORY TO TAKE AND TEST CONCRETE CYLINDERS, PERFORM SLUMP TESTS, PERFORM TESTS FOR AIR CONTENT, AND TO PERFORM STRENGTH TEST IN ACCORDANCE WITH ASTM C39.
    - B. MINIMUM OF THREE CYLINDERS SHALL BE TAKEN FOR EACH 50 CU YD OF CONCRETE OR FRACTION THEREOF FOR EACH STRENGTH AND TYPE OF CONCRETE BEING CAST THAT DAY.
    - C. NO CONCRETE SHALL BE PLACED THAT DOES NOT MEET SLUMP OR AIR CONTENT REQUIREMENTS. ALL TESTS FOR AIR CONTENT SHALL BE MADE BY THE PRESSURE METHOD. SLUMP TESTS SHALL BE TAKEN AT EACH 20 CU YD OF CONCRETE BEING PLACED.
    - D. SLUMP EXCEEDING THE SPECIFIED MAXIMUM, WHEN OCCURRING IN CONSECUTIVE TESTS MADE ON DIFFERENT PORTIONS OF THE SAME SAMPLE, WILL BE CAUSE FOR REJECTION OF THAT TRUCKLOAD AND SHALL BE REPORTED TO THE A/E IMMEDIATELY. THE REPLACEMENT OF SUCH CONCRETE WITH THE SPECIFIED CONCRETE SHALL BE DONE AT NO ADDITIONAL EXPENSE TO THE OWNER.
    - E. THE CONCRETE TEST REPORTS SHALL CONTAIN THE FOLLOWING INFORMATION: CONCRETE SUPPLIER, QUANTITY OF CONCRETE REPRESENTED, LOCATION OF ALL SAMPLES TAKEN, STRENGTH REQUIREMENT IN PSI AT 28 DAYS, LIST OF ALL MATERIALS USED (QUANTITY, AND BRAND OR SOURCE) ACTUAL SLUMP, ACTUAL AIR CONTENT PERCENT BY VOLUME, AIR TEMPERATURE, CONCRETE TEMPERATURE, WEATHER, CYLINDER WEIGHT AS RECEIVED, AIR DRIED UNIT WEIGHT FOR LIGHTWEIGHT CONCRETE, DATE MOLDED, NUMBER OF DAYS ON JOB SITE, DATE TESTED, TEST RESULTS FOR 7 AND 28 DAYS AGE, AND ANY OTHER INFORMATION NECESSARY TO EVALUATE TESTS. TWO COPIES OF THESE REPORTS SHALL BE SENT DIRECTLY TO THE OWNER.

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Notes

A FINAL DESIGN PLAN			20.08.07
Issued	By	Appd.	YY.MM.DD
File Name: J20191489-000 Pittsfield - Montibeller Park Improvements-S20.rvt	MG	AC	JAL	09/03/10
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit/Seal

STATE OF MICHIGAN
JACOB A. LONGTON
ENGINEER
No. 6201056663
LICENSED PROFESSIONAL ENGINEER

Client/Project Logo

PITTSFIELD CHARTER TOWNSHIP

Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP, MICHIGAN

Title
GENERAL NOTES

Project No. 2075140801
Scale 12" = 1'-0"
Revision A
Sheet 39 of 74
Drawing No. S001

STRUCTURAL WOOD:

1. DETAIL, FABRICATE, AND ERECT STRUCTURAL WOOD IN ACCORDANCE WITH THE LATEST "NATIONAL DESIGN SPECIFICATION" AND THE "ALLOWABLE STRESS DESIGN (ASD) MANUAL FOR ENGINEERED WOOD CONSTRUCTION" OF THE AMERICAN WOOD FOREST AND PAPER ASSOCIATION.
2. DETAIL, FABRICATE, AND ERECT STRUCTURAL GLUED LAMINATED AND HEAVY TIMBER MEMBERS IN ACCORDANCE WITH THE LATEST AMERICAN INSTITUTE OF TIMBER CONSTRUCTION STANDARDS AND SPECIFICATIONS.
3. STRESS-GRADE LUMBER FOR JOISTS, BEAMS, TRUSSES, AND COLUMNS SHALL DEVELOP WORKING STRESSES AND MODULUS OF ELASTICITY AS FOLLOWS:

A. SPECIES	DFL
B. BENDING	1,200 PSI
C. COMPRESSION PARALLEL TO GRAIN	625 PSI
D. MODULUS OF ELASTICITY	1,800,000 PSI

4. LAMINATED VENEER LUMBER (LVL) MEMBERS SHALL CONFORM WITH ASTM D 5456 AND SHALL DEVELOP WORKING STRESSES AND A MODULUS OF ELASTICITY AS FOLLOWS:

A. BENDING	2,600 PSI
B. MODULUS OF ELASTICITY	2,000,000 PSI

5. ALL PLYWOOD SHALL BE APA RATED.
6. ALL LUMBER SHALL BE PRESERVATIVE TREATED IN CONFORMANCE WITH AWPA U1 AND SHALL BE KLIN DRIED AFTER TREATMENT TO A MAXIMUM MOISTURE CONTENT OF 19 PERCENT.
7. ALL WOOD ELEMENTS EXPOSED TO THE EXTERIOR SHALL BE PRESERVATIVE TREATED PER AWPA STANDARDS FOR SERVICE CONDITION AND USE CATEGORY SPECIFIC TO THE PROJECT.
8. MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 AND BOLTS SHALL CONFORM TO ASTM A307.
9. PROVIDE 1 x 3 BRIDGING IN ALL SPANS AT 8'-0" O.C. SOLID BRIDGING MAY BE SUBSTITUTED. SOLID BRIDGING TO CONSIST OF THE SAME MEMBERS AS JOISTS AND OFFSET NOT MORE THAN 6" BETWEEN BRIDGING SPANS.
10. PLACE A SINGLE PLATE AT THE BOTTOM AND A DOUBLE PLATE AT THE TOP OF ALL STUD WALLS. 2x4 SILL PLATES SHALL BE BOLTED, STRAPPED OR SHOT TO FOUNDATION AT A MAXIMUM OF 4'-0" O.C.
11. STUDS SHALL BE DOUBLED AT ALL ANGLES, CORNERS AND AROUND OPENINGS.
12. UNLESS NOTED OTHERWISE, ALL HANGERS, COLUMN CAPS, COLUMN BASES, HOLD DOWNS, TIES, STRAPS, ETC. SHALL BE MANUFACTURED BY SIMPSON STRONG TIE.
13. ALL GALVANIZED METAL IN CONTACT WITH WOOD TREATED WITH ALKALINE COPPER QUAT SHALL BE RATED G-185 FOR HOT DIPPED GALVANIZED OR 40 FOR ELECTROGALVANIZED. VERIFY NAILS, SCREWS AND ANY OTHER CONNECTOR SHALL BE VERIFIED AS ACCEPTABLE FOR CONTACT. ALUMINUM CAN NOT COME INTO CONTACT.
14. ALL BRIDGING AND BLOCKING SHALL BE PROVIDED IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATION AND THE BUILDING CODE REQUIREMENTS.
15. WOOD LINTELS OVER OPENINGS SHALL BE TRIPLE 2 x 6 HEADERS FOR UP TO 6'-0" AND TRIPLE 2 x 8 HEADERS FROM 6'-0" TO 7'-0". SEE PLANS FOR SPANS GREATER THAN 7'-0".
16. WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE "GUIDELINE METAL PLATE CONNECTED WOOD TRUSSES" IN THE "ALLOWABLE STRESS DESIGN (ASD) MANUAL FOR ENGINEERED WOOD CONSTRUCTION" OF THE AMERICAN FOREST AND PAPER ASSOCIATION.
17. TRUSS LAYOUT AND PROFILES INDICATED ON THE DRAWINGS ARE SHOWN FOR SCHEMATIC INFORMATION ONLY. ACTUAL DESIGN AND LAYOUT SHALL BE THE RESPONSIBILITY OF THE TRUSS MANUFACTURER.
18. TRUSS MANUFACTURER SHALL SUBMIT CALCULATIONS, CONNECTIONS, AND SHOP DRAWINGS STAMPED AND SIGNED BY THE DESIGN ENGINEER REGISTERED IN THE PROJECT STATE. DESIGN NOTES TO INCLUDE THE RATED LOAD CAPACITY OF THE CONNECTORS USED TO SECURE THE MEMBERS, SHOP DRAWINGS ARE TO INDICATE LOCATIONS, CONFIGURATION SPACING, SIZES AND STRESS GRADES OF LUMBER TO BE USED.
19. BOTTOM CHORD OF WOOD TRUSSES SHALL BE DESIGNED FOR A 10 PSF DEAD LOAD.
20. THE CONTRACTOR SHALL APPROVE WOOD TRUSS FABRICATION AND INSTALLATION DRAWINGS SHOWING SIZE, SHAPE AND LAYOUT PRIOR TO SUBMITTAL FOR REVIEW BY THE A/E AND BEFORE FABRICATION HAS BEGUN.
21. INSTALL AND FASTEN PERMANENT BRACING DURING TRUSS ERECTION AND BEFORE CONSTRUCTION LOADS ARE APPLIED. ANCHOR ENDS OF PERMANENT BRACING WHERE TERMINATING AT WALLS OR BEAMS.
22. ROOF DIAPHRAGM NOTES:
    A. ROOF SHEATHING SHALL BE 3/4" MIN. APA RATED PLYWOOD WITH CLIPS
    B. SHEETS SHALL BE LAID OUT TO SPAN 4 SUPPORTS WITH STAGGERED ENDS
    C. NAILING
        a. ROOF EDGE @ END WALLS - 10d @ 6" O.C.
        b. TYPICAL PANEL EDGES - 10d @ 6" O.C.
        c. INTERMEDIATE SUPPORTS - 10d @ 12" O.C.
23. WHERE CONNECTIONS FOR STRESS-GRADE LUMBER, GLUED LAMINATED MEMBERS, LAMINATED VENEER LUMBER (LVL) OR PARALLEL STRAND LUMBER (PSL) ARE NOT SPECIFICALLY DETAILED ON THESE DRAWINGS. THE WOOD CONTRACTOR/MANUFACTURER SHALL SUBMIT CONNECTION DESIGN ON SHOP DRAWINGS FOR REVIEW BY ENGINEER.

STRUCTURAL STEEL:

1. DETAIL, FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH THE LATEST AISC AND OTHER RELATED CODES, STANDARDS AND SPECIFICATIONS LISTED IN THE PROJECT SPECIFICATIONS, EXCEPT AS MODIFIED THEREIN OR ON THE DRAWINGS.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL MISCELLANEOUS/ORNAMENTAL STEEL NOT SHOWN ON THE STRUCTURAL DRAWINGS.
3. STRUCTURAL STEEL:
    A. ASTM A992 Fy = 50 KSI FOR ROLLED STEEL WIDE FLANGE SHAPES
    B. ASTM A36 Fy = 36 KSI FOR CHANNELS, ANGLES, PLATES, BARS, RODS, U.N.O.
    C. ASTM A53 TYPE E OR S, GRADE B FOR STEEL PIPE
    D. ASTM A500 GRADE C FOR HSS TUBING
4. HIGH STRENGTH BOLTS: ASTM A325 OR A490, 3/4" DIAMETER MINIMUM U.N.O.
5. ANCHOR RODS: ASTM F1554, GRADE 36 U.N.O.ANCHOR RODS: ASTM F1554, GRADE 36 U.N.O.
6. WORK STRUCTURAL DRAWINGS WITH ARCHITECTURAL, HVAC, PLUMBING, FIRE PROTECTION & ELECTRICAL DRAWINGS FOR CLEARANCES, ATTACHMENTS, ETC.
7. ALL FABRICATION AND ERECTION WORK SHALL BE PERFORMED BY AISC CERTIFIED FABRICATORS AND ERECTORS.
8. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS D1.1 AND SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY STANDARDS. PROVIDE MINIMUM 1/4" FILLET WELD, UNO.
9. CONCTRACTOR SHALL ASSUME THAT ANY MODIFICATIONS TO EXISTING STEEL FRAMING SHALL REQUIRE AN ABATEMENT OF EXISTING LEAD PAINT IN CONFORMANCE WITH LOCAL CODES.
10. PROVIDE ANGLE WALL ANCHORS, PER PART 4, AISC MANUAL OF STEEL CONSTRUCTION, FOR BEAMS BEARING ON MASONRY WALLS. ANGLE ANCHORS SHALL BE WELDED TO BEAMS.
11. CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED:
    A. CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THE CITED AISC SPECIFICATION.
    B. WHERE THE REACTION VALUES OF BEAMS ARE NOT SHOWN ON THE DRAWINGS, EACH END CONNECTION SHALL BE DESIGNED TO SUPPORT 55% OF THE TOTAL UNIFORM LOAD CAPACITY DERIVED FROM THE ASD VALUE OF THE TABLES AND FORMULA OF THE MAXIMUM TOTAL UNIFORM LOAD IN PART 3, FOURTEENTH EDITION, OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN MEMBER SIZE, SPAN, AND YIELD STRENGTH. COMPOSITE BEAM CONNECTIONS MUST DEVELOP 75% OF THE TOTAL BEAM ALLOWABLE UNIFORM LOAD CAPACITY, AS GIVEN IN THE AISC TABLES BASED ON SIZE, SPAN, & YIELD STRENGTH.WHERE THE REACTION VALUES OF BEAMS ARE NOT SHOWN ON THE DRAWINGS, EACH END CONNECTION SHALL BE DESIGNED TO SUPPORT 55% OF THE TOTAL UNIFORM LOAD CAPACITY DERIVED FROM THE ASD VALUE OF THE TABLES AND FORMULA OF THE MAXIMUM TOTAL UNIFORM LOAD IN PART 3, FOURTEENTH EDITION, OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN MEMBER SIZE, SPAN, AND YIELD STRENGTH. COMPOSITE BEAM CONNECTIONS MUST DEVELOP 75% OF THE TOTAL BEAM ALLOWABLE UNIFORM LOAD CAPACITY, AS GIVEN IN THE AISC TABLES BASED ON SIZE, SPAN, & YIELD STRENGTH.
    C. THE MINIMUM LENGTH OF CONNECTION ANGLES SHALL BE EQUAL TO ONE HALF THE DEPTH OF THE MEMBER TO BE SUPPORTED.
    D. ONE SIDED CONNECTIONS WILL NOT BE PERMITTED UNLESS SPECIFICALLY DETAILED ON THE DRAWINGS OR SEALED DESIGN CALCULATIONS ARE SUBMITTED WITH THE SHOP DRAWINGS.
    E. THE MINIMUM NUMBER OF BOLTS IN BOLTED CONNECTIONS SHALL BE TWO (2) BOLTS.
    F. MINIMUM 1/4" FILLET WELD SHALL APPLY UNLESS NOTED OTHERWISE.
    G. MINIMUM SIZE OF CLIP ANGLE SHALL BE 3x3x5/16" UNLESS NOTED OTHERWISE.
12. UTILIZE THROUGH PLATES FOR ALL CONNECTIONS TO TUBES AND PIPE UNLESS SHOWN OTHERWISE.
13. TRUSS AND BRACING MEMBER CONNECTIONS SHALL BE DESIGNED FOR THE FORCES INDICATED ON THE DRAWINGS.
14. TYPICAL CONNECTION DETAILS INDICATED ON THE STRUCTURAL DESIGN DRAWINGS SHALL DICTATE THE FORM AND GEOMETRY OF THE CONNECTIONS. THE FABRICATOR SHALL DETERMINE OR VERIFY TYPE, SIZE AND NUMBER OF BOLTS, PLATE THICKNESS AND SIZES, WELD SIZES AND LENGTHS, AND ALL REQUIRED INFORMATION NOT SPECIFIED ON THE TYPICAL CONNECTION DETAILS.
15. THE DESIGN OF ALL STEEL CONNECTIONS (EXCEPT PREDESIGNED CONNECTIONS THAT HAVE BEEN ENGINEERED ON THESE DRAWINGS) SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT, EMPLOYED BY THE FABRICATOR. THE FABRICATOR'S REGISTERED PROFESSIONAL ENGINEER SHALL SUBMIT COMPLETE DESIGN CALCULATIONS FOR EACH CONNECTION. SUCH CALCULATIONS SHALL SHOW DETAILS OF THE ASSEMBLED JOINT WITH ALL BOLTS AND WELDS REQUIRED.
16. ALL DESIGN CALCULATIONS SHALL BE SEALED BY THE FABRICATOR'S PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF [OHIO]. SHOP DRAWINGS SUBMITTED WITHOUT COMPLETE DESIGN CALCULATIONS WILL NOT BE REVIEWED.
17. WELDING ELECTRODES SHALL BE E 70XX OR BETTER. FOR WELDING SYMBOLS WITH NO LENGTH DIMENSION GIVEN, THE WELDING SHALL BE CONTINUOUS BETWEEN ABRUPT CHANGES IN DIRECTION.
18. UTILIZE SLIP CRITICAL BOLTS AT ALL MOMENT CONNECTIONS, HANGING CONNECTIONS, BRACING CONNECTIONS, AND COLUMN SPLICES.
19. ALL STRUCTURAL STEEL MEMBERS EXPOSED TO THE EXTERIOR SHALL BE GALVANIZED UNLESS NOTED OTHERWISE. THIS INCLUDES BUT IS NOT LIMITED TO MASONRY LINTELS AND SHELF ANGLES, INCLUDING BEARING PLATES AND ANCHOR BOLTS, AND ANY OTHER ITEM LISTED ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS.

STRUCTURAL STEEL (CON'T):

20. UNLESS NOTED OTHERWISE, ALL PIPE AND TUBE COLUMNS SHALL BE SEAL WELDED WITH CLOSURE PLATES TO BE AIR TIGHT. ARCHITECTURAL PIPES AND TUBULAR BEAMS SHALL BE PROVIDED WITH 3/8" DIAMETER WEEP HOLES.
21. LOCATION OF ANCHOR RODS SHALL BE CONFIRMED BY A LICENSED SURVEYOR BEFORE ERECTION OF STEEL.
22. COLUMNS AND BEAMS WITH BASE, CAP OR END PLATES SHALL HAVE SQUARE CUT OR MILLED ENDS.
23. THE FRAMING SHALL BE ERECTED TRUE AND PLUMB. TEMPORARY BRACING SHALL BE PROVIDED AND SHALL REMAIN IN PLACE UNTIL THE LATERAL BRACING SYSTEM IS IN PLACE AND CONNECTIONS OF ALL MEMBERS ARE FINAL AND ALL DECK IS COMPLETELY ERECTED, WELDED AND SCREWED IN PLACE.
24. NON-METALLIC, NON-SHRINK, NON-STAINING GROUT UNDER ALL COLUMN BASE PLATES AND BEAM BEARING PLATES SHALL CONSIST OF A PREMIXED PRODUCT COMPLYING WITH ALL REQUIREMENTS OF CRD-C621, ASTM C827, AND C109.
25. ALL DISSIMILAR METALS TO BE SEPARATED BY ELECTROLYTIC SEPARATORS.
26. DO NOT PAINT:
    A. SURFACES OF CONNECTIONS INDICATED AS SLIP CRITICAL.
    B. SURFACES OF CONNECTIONS TO BE FIELD WELDED.
    C. SURFACES TO RECEIVE HEADED SHEAR CONNECTIONS.
    D. MEMBERS TO BE EMBEDDED IN CONCRETE OR MASONRY.
    E. SURFACES TO RECEIVE SPRAYED ON INSULATION,
    F. MEMBERS TO BE GALVANIZED.
27. TESTING OF STRUCTURAL STEEL
    A. THE OWNER SHALL ENGAGE AN INDEPENDENT TESTING AND INSPECTION AGENCY, TO INSPECT HIGH STRENGTH BOLTED CONNECTIONS AND WELDED CONNECTIONS, AND TO PERFORM TESTS AND SUBMIT TEST REPORTS. THE CONTRACTOR SHALL REMAIN SOLELY RESPONSIBLE FOR ALL WORK PERFORMED, REGARDLESS OF THE DEGREE OF INSPECTION PROVIDED BY THE OWNER.
    B. THE TESTING AGENCY SHALL CONDUCT AND INTERPRET THE TESTS, STATE IN EACH REPORT WHETHER THE TEST SPECIMENS COMPLY WITH THE CONTRACT DOCUMENTS, AND SPECIFICALLY STATE ANY DEVIATIONS. REPORTS SHALL BE DELIVERED TO THE A/E ON A TIMELY SCHEDULE.
    C. PROVIDE ACCESS FOR THE TESTING AGENCY TO PLACES WHERE STRUCTURAL STEEL WORK IS BEING FABRICATED OR PRODUCED AND PROVIDE INFORMATION, SPACE, AND FACILITIES FOR CHECKING SHOP DRAWINGS SO REQUIRED INSPECTION AND TESTING CAN BE ACCOMPLISHED. THE STEEL FABRICATOR SHALL INFORM THE OWNER WHEN FABRICATION IS TO START AND SCHEDULE THE SHOP DRAWINGS TO FOLLOW IN ORDER OF FABRICATION OF THE MEMBERS.
    D. THE TESTING AGENCY MAY INSPECT STRUCTURAL STEEL AT THE PLANT BEFORE SHIPMENT; HOWEVER, THE A/E RESERVES THE RIGHT TO REJECT MATERIAL NOT COMPLYING WITH SPECIFIED REQUIREMENTS.
    E. CORRECT DEFICIENCIES IN STRUCTURAL STEEL WORK WHICH INSPECTIONS AND LABORATORY TEST REPORTS INDICATE ARE NOT IN COMPLIANCE WITH CONSTRUCTION DOCUMENTS. PERFORM ADDITIONAL TESTS, AT CONTRACTOR'S EXPENSE, AS MAY BE NECESSARY TO RECONFIRM ANY DEVIATION OF THE ORIGINAL WORK, AND WHICH MAY BE NECESSARY TO SHOW COMPLIANCE OF CORRECTED WORK.
28. SHOP AND FIELD BOLTED CONNECTIONS:
    A. INSPECT IN ACCORDANCE WITH AISC SPECIFICATION A325.
29. WELDING: SHOP AND FIELD
    A. INSPECT AND TEST DURING FABRICATION OF STRUCTURAL STEEL ASSEMBLIES.
    B. CERTIFY WELDERS AND CONDUCT INSPECTIONS AND TESTS AS REQUIRED. RECORD TYPES AND LOCATIONS OF ALL DEFECTS FOUND IN THE WORK. RECORD WORK REQUIRED AND PERFORMED TO CORRECT DEFICIENCIES. THE SHOP WELDING SHALL BE INSPECTED AT FIT UP AS WELL AS AFTER WELDING COMPLETION.
    C. PERFORM VISUAL INSPECTION OF ALL WELDING. SUCH INSPECTION SHALL BE MADE WHILE THE OPERATORS ARE MAKING THE WELDS AND AGAIN AFTER THE WORK IS COMPLETED. AFTER THE WELDING IS COMPLETED WELDS SHALL BE HAND OR POWER WIRE BRUSHED AND CLEANED BEFORE THE INSPECTOR MAKES THE CHECK INSPECTION. WELDS SHALL BE INSPECTED WITH MAGNIFIERS UNDER STRONG, ADEQUATE LIGHT FOR SURFACE CRACKING, POROSITY, SLAG INCLUSIONS, EXCESSIVE ROUGHNESS, UNFILLED CRATERS, GAS POCKETS, UNDERCUTS, OVERLAPS, SIZE, SUFFICIENT THROAT AND CONCAVITY. WELD AREAS CONTAINING DEFECTS SHALL BE REPAIRED AND REINSPECTED AT NO ADDITIONAL EXPENSE TO THE OWNER.
30. PERFORM TESTS ON FULL PENETRATION WELDS USING ONE OF THE METHODS LISTED BELOW:
    A. LIQUID PENETRATE INSPECTION: ASTM E165.
    B. MAGNETIC PARTICLE INSPECTION: ASTM E109, PERFORMED ON THE ROOT PASS AND ON THE FINISHED WELD. CRACKS OR ZONES OF INCOMPLETE FUSION OR PENETRATION ARE NOT ACCEPTABLE.
    C. RADIOGRAPHIC INSPECTION: ASTM E94 AND ASTM E142, MINIMUM QUALITY LEVEL "2-2T".
    D. ULTRASONIC INSPECTION ASTM E164.
31. IF THE RATE OF ACCEPTABILITY OF WELDS IS POOR OR DECREASED SIGNIFICANTLY DURING A PROJECT, THE A/E MAY REQUIRE INSPECTION OF WELDS PREVIOUSLY NOT INSPECTED. THE CONTRACTOR SHALL PROVIDE ACCESS AND REASONABLE CONDITIONS TO INSPECT SUCH WELDS AT NO EXPENSE TO THE OWNER.

MASONRY:

1. MASONRY SHALL CONFORM TO LATEST EDITIONS OF THE REFERENCES AND STANDARDS LISTED BELOW, EXCEPT AS MODIFIED HEREIN, IN ADDITION TO ALL OTHER REQUIREMENTS OF THE CONTRACT DOCUMENTS AND STANDARD PRACTICES:
    A. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530/ASCE 5/TMS 402) AND SPECIFICATION FOR MASONRY STRUCTURES (ACI 530.1/ASCE 6/TMS 602).
    B. BRICK INSTITUTE OF AMERICA (BIA).
    C. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA).
2. HOLLOW AND SOLID CONCRETE MASONRY UNITS SHALL CONFORM WITH ASTM C90, TYPE I WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI, EACH MASONRY UNIT, NET CROSS SECTIONAL AREA. NET AREA COMPRESSIVE STRENGTH OF MASONRY f'm = 2000 PSI.
3. UNITS SHALL BE MEDIUM WEIGHT UNITS WITH A DRY NET WEIGHT OF NOT MORE THAN 115 PCF.
4. UNITS SHALL BE MANUFACTURER'S STANDARD UNITS WITH NOMINAL FACE DIMENSION OF 16" LONG.
5. PROVIDE SPECIAL SHAPES WHERE SHOWN AND WHERE REQUIRED FOR LINTELS, CORNERS, JAMBS, SASH, JOINTS, HEADERS, BONDING AND OTHER SPECIAL CONDITIONS.
6. MORTAR FOR ALL LOAD BEARING WALLS AND SHEAR WALLS SHALL BE ASTM C270 TYPE S UNLESS OTHERWISE NOTED, WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI IN 28 DAYS.
7. PREMIXED MASONRY CEMENT IS PROHIBITED.
8. GROUT SHALL CONFORM WITH ASTM C476 COARSE GROUT, 3/8" MAXIMUM SIZE COARSE AGGREGATE, WITH A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS.
9. DO NOT USE CALCIUM CHLORIDE OR ANY ADMIXTURES THAT CONTAINS CALCIUM CHLORIDE IN THE MORTAR OR GROUT.
10. ALL WALLS SHALL BE DOWELED INTO GRADE BEAMS OR SLAB WITH #5@48" OC U.N.O. MINIMUM.
11. ALL VERTICALLY REINFORCED WALLS SHALL HAVE DOWELS THAT MATCH THE WALL BAR SIZE AND SPACING.
12. ALL MASONRY BELOW GRADE SHALL BE GROUTED SOLID.
13. THE FIRST COURSE OF ALL WALLS SHALL BE GROUTED SOLID.
14. ALL WELDED REINFORCING BARS SHALL BE ASTM A706.
15. PROVIDE THE FOLLOWING WALL CONSTRUCTION AT ALL MASONRY WALLS UNLESS NOTED OTHERWISE:
    A. MASONRY GROUTED SOLID, 32" LONG AND 16" HIGH UNLESS NOTED OTHERWISE, CENTERED UNDER WALL BEARING STEEL BEAM, PRECAST BEAM, CAST IN PLACE CONCRETE BEAM, OR BOND BEAM AS DETAILED ON THE DRAWINGS.
    B. CONTINUOUS MASONRY GROUTED SOLID 8" HIGH, UNDER WALL BEARING PRECAST SLABS OR CAST IN.
16. ALL CORES WHICH CONTAIN VERTICAL REINFORCING SHALL BE GROUTED SOLID FULL HEIGHT OF WALL. MAXIMUM GROUT POUR SHALL BE 5 FEET.
17. ALL MASONRY WALLS SHALL HAVE GALVANIZED HORIZONTAL JOINT REINFORCING OF ONE OF THE FOLLOWING:
    A. TRUSS TYPE, #9 GAGE SIDE AND CROSS RODS, FOR INTERIOR NON-BEARING WALLS AND PARTITIONS, SPACED 16" ON CENTER VERTICALLY.
    B. TRUSS TYPE, 3/16" SIDE RODS AND 3/16" CROSS RODS, FOR ALL EXTERIOR WALLS AND BEARING WALLS, SPACED 16" ON CENTER VERTICALLY.
    C. LADDER TYPE, 3/16" SIDE RODS AND 3/16" CROSS RODS, FOR ALL PARAPETS, SHEAR WALLS, AND VERTICALLY REINFORCED OR GROUTED WALLS, SPACED 16" ON CENTER VERTICALLY.
18. JOINT REINFORCING SHALL BE BENT AROUND CORNERS, BUT SHALL NOT BE CONTINUOUS THROUGH EXPANSION OR CONTROL JOINTS.
19. JOINT REINFORCING, ANCHORS AND TIES SHALL BE HOT DIP GALVANIZED CONFORMING WITH ASTM.
20. CONVENTIONAL REINFORCING, HORIZONTAL AND VERTICAL, SHALL BE A615 GRADE 60 KSI YIELD STRENGTH.
21. ALL UNITS SHALL BE LAID WITH FULL MORTAR COVERAGE ON HEAD, BED (FACE SHELLS) WEBS, AND COLLAR JOINTS, UNLESS NOTED OTHERWISE.

MASONRY (cont):

22. COMPLY WITH THE RECOMMENDATIONS OF THE BRICK INSTITUTE OF AMERICA, NATIONAL CONCRETE, MASONRY ASSOCIATION AND THE PREVIOUSLY MENTIONED CODES AND SPECIFICATIONS FOR HOT WEATHER MASONRY CONSTRUCTION.
23. PROTECT ALL MASONRY FROM FREEZING WHEN TEMPERATURE IS 40 DEGREES FAHRENHEIT AND FALLING, COMPLY WITH THE RECOMMENDATIONS OF THE BRICK INSTITUTE OF AMERICA, NATIONAL CONCRETE MASONRY ASSOCIATION AND THE PREVIOUSLY MENTIONED CODES AND SPECIFICATIONS FOR COLD WEATHER MASONRY CONSTRUCTION.
24. DO NOT USE FROZEN MATERIALS OR MATERIALS MIXED OR COATED WITH ICE OR FROST.
25. DO NOT BUILD ON FROZEN WORK, REMOVE AND REPLACE MASONRY WORK DAMAGED BY FROST OR FREEZING.
26. TEMPORARILY BRACE ALL MASONRY WALLS TO PROVIDE STABILITY DURING CONSTRUCTION UNTIL THE DESIGNED STRUCTURE IS COMPLETED AND CAN STABILIZE THE WALLS.
27. PREMOLDED CONTROL JOINT STRIPS: SOLID RUBBER STRIPS WITH A SHORE "A" DUROMETER HARDNESS OF 80. DESIGNED TO FIT STANDARD SASH BLOCK AND MAINTAIN LATERAL STABILITY IN MASONRY WALL.
28. NO CHASES, RISERS, CONDUITS, OR TOOTHING OF MASONRY SHALL OCCUR WITHIN 17" ON CENTERLINE OF BEAM BEARING OR LOAD CONCENTRATION.
29. ALL INTERSECTING LOAD BEARING WALLS SHALL BE TIED TOGETHER IN MASONRY BOND UNLESS NOTED OTHERWISE.
30. TESTING AND INSPECTION:
    A. THE OWNER WILL ENGAGE AN INDEPENDENT TESTING AND INSPECTION AGENCY TO PERFORM TESTS AND SUBMIT TEST AND INSPECTION REPORTS.
    B. THE TESTING AGENCY SHALL CONDUCT AND INTERPRET THE TESTS AND STATE IN EACH REPORT WHETHER THE SPECIMENS COMPLY WITH THE REQUIREMENTS STATED HEREIN AND SPECIFICALLY STATE ANY DEVIATIONS IN CONSTRUCTION FROM THE CONTRACT DOCUMENTS.
    C. THE CONTRACTOR SHALL CORRECT DEFICIENCIES IN WORK WHICH INSPECTIONS AND LABORATORY TEST REPORTS HAVE INDICATED NOT BE IN COMPLIANCE WITH REQUIREMENTS. PERFORM ADDITIONAL TESTS, AT CONTRACTORS EXPENSE, AS MAY BE NECESSARY TO RECONFIRM ANY DEVIATIONS IN CONSTRUCTION FROM THE CONTRACT DOCUMENTS.
    D. TESTING: INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
        a. PERFORM LABORATORY TESTING IN ACCORDANCE WITH THE FOLLOWING USING THE ACTUAL MATERIALS AND PROPORTIONS TO BE USED IN CONSTRUCTION.
        b. ASTM C270 AND C780 - MORTAR
        c. ASTM C1019 - GROUT
    E. TEST THE ABSORPTION RATE OF EACH TYPE OF MASONRY UNITS THAT ARE TO BE USED. THE MASONRY SHALL BE TESTED FROM THE STOCKPILE OF UNITS THAT ARE BEING USED ON THE PROJECT.
    F. PERFORM FIELD SAMPLING AND TESTING OF MORTAR AND GROUT IN ACCORDANCE WITH ACI 530.1. FIELD TESTS SHALL BE PERFORMED ON AT LEAST 3 SPECIMENS TAKEN EACH DAY OF EACH TYPE OF MORTAR AND GROUT USED AND WHENEVER THERE IS A CHANGE IN MIX PROPORTIONS, MATERIALS OR METHOD OF MIXING.
    G. RANDOMLY SELECTED MASONRY UNITS FROM STOCKPILE AND TEST FOR COMPLIANCE WITH ASTM SPECIFICATIONS.
    H. INSPECTION INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
        a. PERFORM INSPECTION IN ACCORDANCE WITH THE PREVIOUSLY MENTIONED CODES AND CODES AND SPECIFICATIONS AND THE APPLICABLE BUILDING CODE.
        b. KEEP A COMPLETE JOB RECORD OF DAILY TEMPERATURES AND WEATHER CONDITIONS.
        c. INSPECT THE STORAGE AND STACKING OF MASONRY MATERIAL.
        d. REJECT BROKEN, CRACKED OR DIRTY MASONRY UNITS.
        e. INSPECTION REINFORCING STEEL SIZE, POSITIONING AND EMBEDMENT.
        f. INSPECT LAYING, MORTARING AND GROUTING OF MASONRY UNITS AND OTHER ELEMENTS.
        g. INSPECT ADHERENCE TO HOT OR COLD WEATHER CONDITIONS.

MASONRY LINTEL NOTES:

1. ALL LINTEL BEAMS SHALL HAVE A MINIMUM END BEARING OF 8" OR 1" PER FOOT OF CLEAR SPAN, WHICHEVER IS LARGER.
2. ALL LINTEL BEAMS SHALL HAVE A MINIMUM OF 16" OF SOLID MASONRY UNDER BEARING ENDS FOR THE LENGTH STATED IN NOTE 1.
3. ALL REINFORCING SHALL BE CONTINUOUS AND EXTEND TO THE END OF THE LINTEL BEAM.
4. FILL LINTEL BEAMS WITH 3000 PSI GROUT.
5. SPAN SHALL BE CONSIDERED AS THE CLEAR MASONRY OPENING.
6. ALL CANTILEVERED LINTEL BEAMS SHALL HAVE TOP REINFORCING HOOKED 90 DEGREES WITH STANDARD HOOK, PER ACI.
7. ALL CANTILEVERED LINTEL BEAMS SHALL HAVE BEARING EXTENDED BACK INTO MASONRY WALL FROM EDGE OF OPENING 1.5 TIMES THE OPENING DIMENSION.

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Notes

A FINAL DESIGN PLAN			20.08.07
Issued	By	Appd.	YY.MM.DD
File Name: J20191489-000 Pittsfield - Montibeller Park Improvements-S20.rvt	MG	AC	JAL	01/15/20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit/Seal

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Client/Project Logo

PITTSFIELD CHARTER TOWNSHIP

Client/Project
PITTSFIELD CHARTER TOWNSHIP

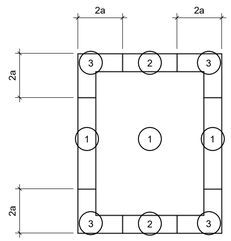
MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP, MICHIGAN

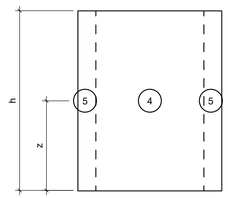
Title

GENERAL NOTES

Project No. 2075140801
Scale 12" = 1'-0"
Revision A
Sheet 40 of 74
Drawing No. S002



ROOF PLAN

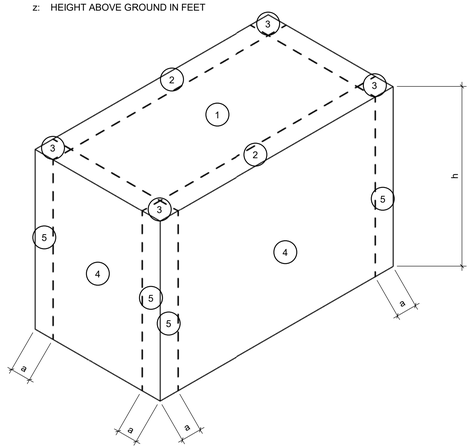


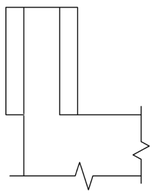
WALL ELEVATION

a: END ZONE WIDTH IN FEET = 10 PERCENT OF BUILDING LEAST HORIZONTAL DIMENSION OR 0.4h WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4% OF LEAST HORIZONTAL DIMENSION OR 3 FEET.

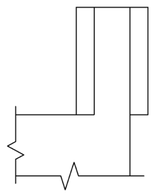
h: MEAN ROOF HEIGHT IN FEET, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR EAVE ANGLES < 10°

z: HEIGHT ABOVE GROUND IN FEET





CASE A: WINDWARD PARAPET



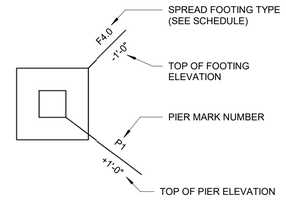
CASE B: LEEWARD PARAPET

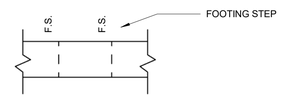
COMPONENT AND CLADDING LOAD CRITERIA										
COMPONENT AREA	ROOF ZONE 1		ROOF ZONE 2		ROOF ZONE 3		WALL ZONE 4		WALL ZONE 5	
	PRESSURE	SUCTION	PRESSURE	SUCTION	PRESSURE	SUCTION	PRESSURE	SUCTION	PRESSURE	SUCTION
10 SF	26	-37	26	-69	26	-107	39	-42	39	-49
20 SF	25	-36	25	-69	25	-98	38	-40	38	-47
50 SF	23	-35	23	-69	23	-86	36	-39	36	-43
100 SF	21	-34	21	-69	21	-77	35	-37	35	-40

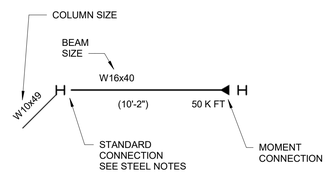
LEGEND

= TRUSS/JOIST SPAN DIRECTION

= NEW BEAM







HORIZONTAL BRIDGING

DIAGONAL BRIDGING

ABBREVIATIONS

&	AND	FAB	FABRICATE	PCF	POUNDS PER CUBIC FOOT
@	AT	FND	FOUNDATION	PCI	PRESTRESSED CONCRETE INSTITUTE
AR	ANCHOR ROD	FIN	FINISH	PL	PLATE
ACI	AMERICAN CONCRETE INSTITUTE	FLR	FLOOR	PREFAB	PREFABRICATED
A/E	ARCHITECT/ENGINEER	FRM	FRAMING	PROJ	PROJECTION
ADD'L	ADDITIONAL	FS	FAR SIDE	PSF	POUNDS PER SQUARE FOOT
AFF	ABOVE FINISH FLOOR	FSP	FOOTING STEP	PSI	POUNDS PER SQUARE INCH
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	FT	FOOT	PT	POINT
ARCH	ARCHITECT	FTG	FOOTING	PVC	POLYVINYL CHLORIDE
ASD	ALLOWABLE STRENGTH DESIGN	GA	GA	QTY	QUANTITY
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	GALV	GALVANIZED	R	RISER
AWS	AMERICAN WELDING SOCIETY	GB	GRADE BEAM	RAD	RADIUS
B/	BOTTOM OF	GLULAM	GLULED LAMINATED	REF	REFERENCE
BLDG	BUILDING	GR	GRADE	REINF	REINFORCING (REINFORCEMENT)
BOT	BOTTOM	GRTG	GRATING	REQ'D	REQUIRED
BRDG	BRIDGING	HGT	HEIGHT	REV	REVISION
BRG	BEARING	HEF	HORIZONTAL EACH FACE	RF	ROOF
BTWN	BETWEEN	HORIZ	HORIZONTAL	RM	ROOM
CL	CENTERLINE	HK	HOOK	SC	SLIP CRITICAL
C/C	CENTER TO CENTER	HP	HIGH POINT	SCHED	SCHEDULE
CALCS	CALCULATIONS	HSS	HOLLOW STRUCTURAL SECTION	SDI	STEEL DECK INSTITUTE
CANT	CANTILEVER	HVAC	HEATING, VENTILATION, AIR CONDITIONING	SECT	SECTION
CLG	CEILING	ID	INSIDE DIAMETER	SF	SQUARE FOOT
CF	CUBIC FEET, CUBIC FOOT	IN	INCH	SIM	SIMILAR
CIP	CAST IN PLACE	INT	INTERIOR	SHT	SHEET
CJ	CONTROL JOINT	JST	JOIST	SJI	STEEL JOIST INSTITUTE
CLR	CLEAR	JT	JOINT	SLBB	SHORT LEG BACK TO BACK
CM	CENTIMETER	K	KIP	SOG	SLAB ON GRADE
CMU	CONCRETE MASONRY UNIT	KF	KIP FEET	SPA	SPACE(S)
COL	COLUMN	KLF	KIPS PER LINEAL FOOT	SPECS	SPECIFICATIONS
COMP	COMPOSITE	KSF	KIPS PER SQUARE FOOR	SQ	SQUARE
CONC	CONCRETE	KSI	KIPS PER SQUARE INCH	SQ FT	SQUARE FOOT
CONT	CONTINUOUS	LL	LIVE LOAD	SQ IN	SQUARE INCH
CY	CUBIC YARD	LG	LONG	STD	STANDARD
DBL	DOUBLE	LB	POUND	STIFF	STIFFENER
DEFL	DEFLECTION	LLBB	LONG LEG BACK TO BACK	STL	STEEL
DEMO	DEMOLITION	LLH	LONG LEG HORIZONTAL	STRUCT	STRUCTURAL
DEPR	DEPRESSION	LLV	LONG LEG VERTICAL	SY	SQUARE YARD
DET	DETAIL	LTWT	LIGHT WEIGHT	SYM	SYMMETRICAL
DIA	DIAMETER	LVL	LEVEL	T	TREAD
DIAG	DIAGONAL	LP	LOW POINT	T & B	TOP AND BOTTOM
DIM	DIMENSION	M	METER	T/	TOP OF
DL	DEAD LOAD	MFR	MANUFACTURER	T/BM	TOP OF BEAM
DN	DOWN	MAS	MASONRY	T/SLAB	TOP OF SLAB
DO	DITTO	MAX	MAXIMUM	T/STL	TOP OF STEEL
DWG	DRAWING	MATL	MATERIAL	THRU	THROUGH
DWL	DOWEL	MECH	MECHANICAL	THK	THICKNESS
EA	EACH	MEP	MECHANICAL, ELECTRICAL, PLUMBING	T.J.	TIE JOIST
EF	EACH FACE	MEZZ	MEZZANINE	TYP.	TYPICAL
EL	ELEVATION	MIN	MINIMUM	U.N.O.	UNLESS NOTED OTHERWISE
EMBED	EMBEDMENT	MISC	MISCELLANEOUS	VERT	VERTICAL
EOD	EDGE OF DECK	MM	MILLIMETER	VOL	VOLUME
EOS	EDGE OF SLAB	NIC	NOT IN CONTRACT	W/	WITH
EQ	EQUAL	NO	NUMBER	W/O	WITH OUT
EQUIP	EQUIPMENT	NOM	NOMINAL	WD	WOOD
ES	EACH SIDE	NS	NEAR SIDE	W.P.	WORK POINT
EW	EACH WAY	NTS	NOT TO SCALE	WT	WEIGHT
EWEF	EACH WAY EACH FACE	OBC	OHIO BUILDING CODE	W.W.F.	WELDED WIRE FABRIC
EX	EXISTING	O/O	OUT TO OUT	X-BRACE	CROSS BRACING
EXP	EXPANSION	OC	ON CENTER	YD	YARD
EXP JT	EXPANSION JOINT	OD	OUTSIDE DIAMETER		
EXT	EXTERIOR	OPNG	OPENING		
		OPP	OPPOSITE		
		OSB	ORIENTATED STRAND BOARD		

DEFERRED STRUCTURAL SUBMITTALS:

1. SOME STRUCTURAL SYSTEMS ARE DEFINED AS VENDOR-DESIGNED COMPONENTS PER THE STRUCTURAL DOCUMENTS. THESE ELEMENTS OF THE DESIGN ARE DEFERRED SUBMITTAL COMPONENTS AND HAVE NOT BEEN PERMITTED UNDER THE BASE BUILDING APPLICATION.
2. DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT, WHO SHALL REVIEW THEM FOR GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE CONTRACTOR SHALL SUBMIT THESE REVIEWED DEFERRED SUBMITTAL DOCUMENTS TO THE BUILDING OFFICIAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.
3. THE FOLLOWING LIST INCLUDES THE ITEMS THAT DEFINED AS DEFERRED STRUCTURAL SUBMITTAL COMPONENTS. REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND CIVIL DRAWINGS FOR ADDITIONAL SUBMITTAL COMPONENTS.

   A. PRE-ENGINEERED WOOD TRUSSES

SPECIAL INSPECTIONS:

1. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION AND TESTING PER IBC SECTION 1704. THIS WORK SHALL BE PERFORMED BY A SPECIAL INSPECTOR CERTIFIED BY THE GOVERNING MUNICIPALITY WHERE THE PROJECT IS LOCATED TO PERFORM THE TYPES OF INSPECTIONS AND TESTS SPECIFIED. THE FREQUENCY OF INSPECTIONS AND TESTING SHALL BE AS OUTLINED IN THE IBC TABLE ITEMS LISTED BELOW. DEFICIENCIES SHALL BE REPORTED DAILY TO THE CONTRACTOR. SUMMARY REPORTS SHALL BE DISTRIBUTED WEEKLY TO THE OWNER, ARCHITECT, CONTRACTOR, BUILDING OFFICIAL AND STRUCTURAL ENGINEER. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SPECIAL INSPECTION AND TESTING.

STRUCTURAL TESTS AND SPECIAL INSPECTIONS

(PER OBC CHAPTER 17)

CONSTRUCTION MATERIAL	APPLICABLE OBC SECTION /TABLE	ITEMS REQUIRING VERIFICATION AND INSPECTION
STRUCTURAL STEEL	SECTION 1705.2.1	PER ASCI 360 - CHAPTER N
COLD FORMED STEEL DECK	SECTION 1705.2.2	PER SDI QA/QC
OPEN WEB STEEL JOISTS AND JOIST GIRDERS	TABLE 1705.2.3	ALL ITEMS
CONCRETE	TABLE 1705.3	ALL ITEMS, EXCEPT 9A, 9B, 10 AND 11 [NOTES 9A, 9B 10 REFER TO PRESTRESSED CONCRETE NOTE 11 REFERS TO POST TENSIONED CONCRETE]
MASONRY	SECTION 1705.4	PER TMS 402 / ACI 5340/ ASCE5 AND TMS602/ ACI530.1 / ASCE6
SOILS	SECTION 1705.6	ALL ITEMS
COLD FORMED STEEL TRUSSES SPANNING 60 FEET OR GREATER	SECTION 1705.2.4	
METAL PLATE CONNECTED WOOD TRUSSES SPANNING 60 FEET OR GREATER	SECTION 1705.5.2	

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Notes

A FINAL DESIGN PLAN			20.08.07

Issued

	By	Appd.	YY.MM.DD
File Name: J20191489-000 Pittsfield - Montibeller Park Improvements-S20.rvt	MG	AC	JAL	01/15/20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

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STATE OF MICHIGAN
JACOB A. LONGTON
ENGINEER
No. 6201056663
LICENSED PROFESSIONAL ENGINEER

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PITTSFIELD CHARTER TOWNSHIP

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PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP, MICHIGAN

Title

GENERAL NOTES

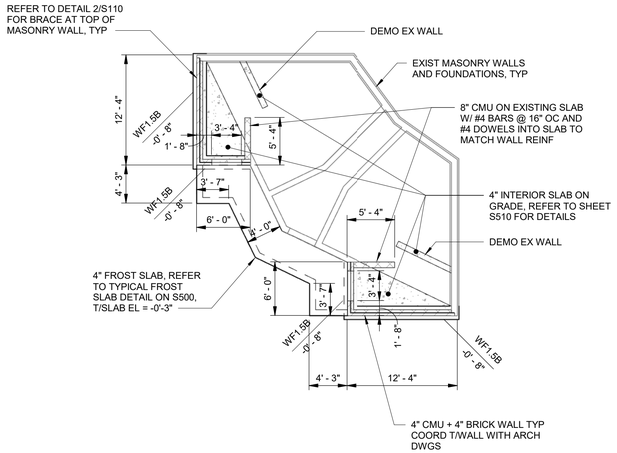
Project No. 2075140801

Scale 12" = 1'-0"

Revision A

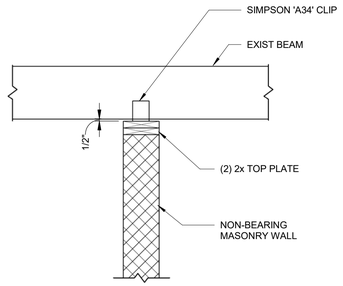
Sheet 41 of 74

Drawing No. S003



1 RESTROOM FOUNDATION/SLAB PLAN

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



2 TOP OF WALL BRACE

SCALE: NONE

FOUNDATION NOTES:

1. FINISHED FLOOR ELEVATION TO MATCH EXISTING, UNO. ELEVATIONS NOTED THUS (+) OR (-) INDICATE DISTANCE ABOVE OR BELOW ELEVATION 0'-0".
2. TYPICAL FLOOR CONSTRUCTION UNO: 4" CONCRETE SLAB ON 15 MIL VAPOR BARRIER ON 4" GRANULAR FILL W/ 6x6-W2.9xW2.9 WWF PLACED IN UPPER THIRD OF SLAB. (UNLESS NOTED OTHERWISE).
3. VERIFY ALL DIMENSIONS SHOWN WITH ARCHITECTURAL DRAWINGS.
4. FOR STRUCTURAL GENERAL NOTES AND ABBREVIATIONS SEE DRAWING S001 THROUGH S003.
5. COORDINATE WITH ALL DRAWINGS FOR LOCATION OF UNDER FLOOR DRAINS, CONDUITS, DEPRESSIONS, THICKENED SLAB, TRENCHES, WALL PENETRATIONS, ETC.
6. PROVIDE #5 @ 3'-0" LONG AT ALL RE-ENTRANT CORNERS.
7. TOP OF EXTERIOR FOOTING EL = (-0'-8") TYP UNO.
8. COORDINATE WITH PLUMBING DRAWINGS FOR FLOOR DRAIN LOCATIONS. SLAB MAY SLOPE AT FLOOR DRAIN LOCATIONS. SEE ARCHITECTURAL DRAWINGS.

WALL FOOTING SCHEDULE

TYPE MARK	SIZE		REINFORCING	REMARKS
	WIDTH	DEPTH		
WF1.5B	1' - 6"	3' - 4"	2 #5	

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Notes

A FINAL DESIGN PLAN			20.08.07
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File Name: J20191489-000 Pittsfield - Montibeller Park Improvements Small Shelter-S20.rvt	Author / Dwn.	Checker / Chkd.	Designer / Dsgn.	09/03/10 YY.MM.DD

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Title

RESTROOM FOUNDATION/SLAB PLAN

Project No. 00000

Scale As indicated

Revision A

Sheet 44 of 74

Drawing No. S110

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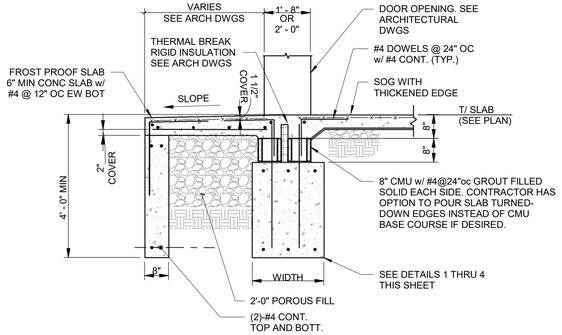
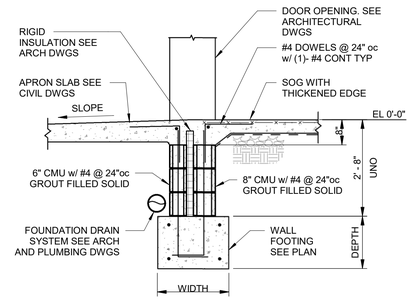
ORIGINAL SHEET - ARCH D



1 TYPICAL FROST SLAB DETAIL
SCALE: NONE



2 TYPICAL OVERHEAD DOOR THRESHOLD DETAIL
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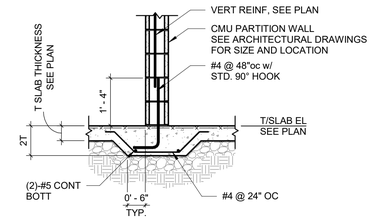
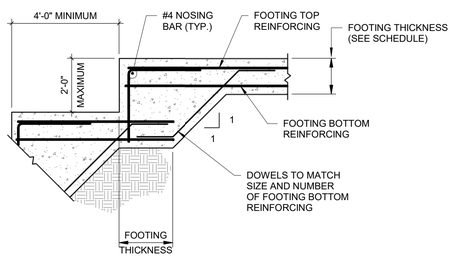


3 TYPICAL THICKENED SLAB DETAIL
SCALE: NONE



4 TYPICAL FOOTING STEP DETAIL
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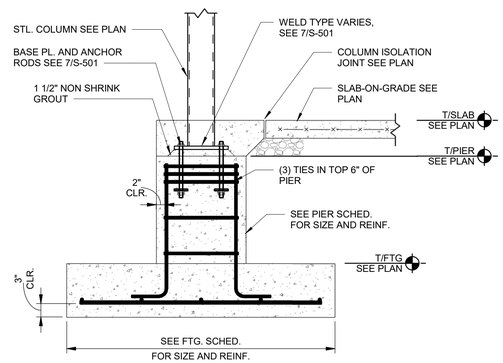
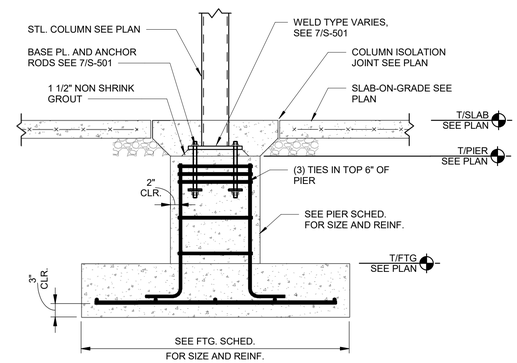
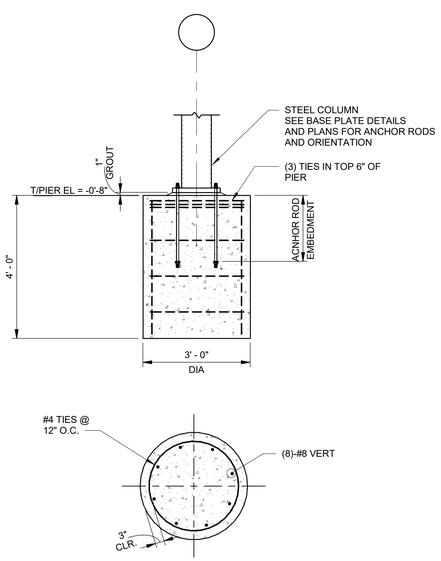


5 TYP EXTERIOR FOUNDATION
SCALE: NONE



6 TYP INTERIOR FOUNDATION
SCALE: NONE



7 DRILLED PIER
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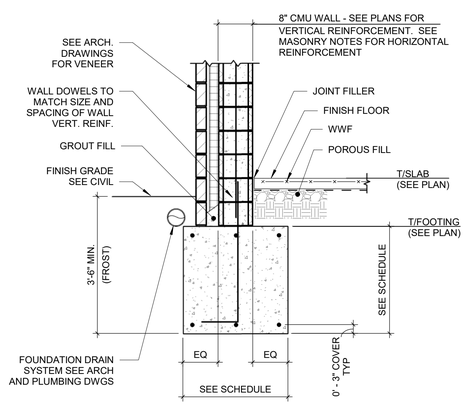
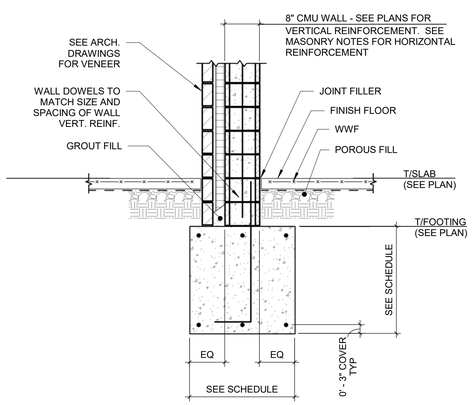
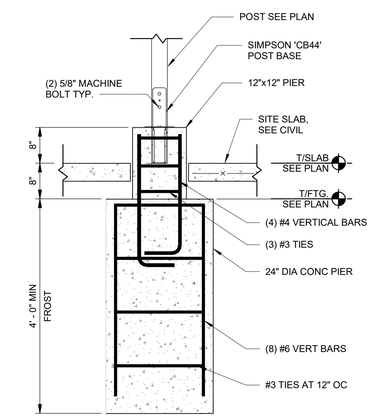


8 TYPICAL EXTERIOR CMU TRENCH FOOTING DETAIL
SCALE: NONE



9 TYPICAL INTERIOR CMU TRENCH FOOTING DETAIL
SCALE: NONE



10 WOOD POST BASE FOUNDATION
SCALE: NONE

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Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP, MICHIGAN

Title

FOUNDATION DETAILS

Project No. 2075140801
Scale As indicated
Revision A
Sheet 45 of 74
Drawing No. S500

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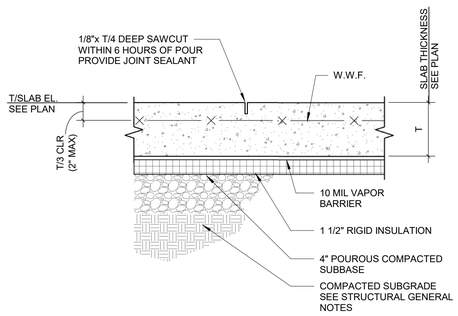
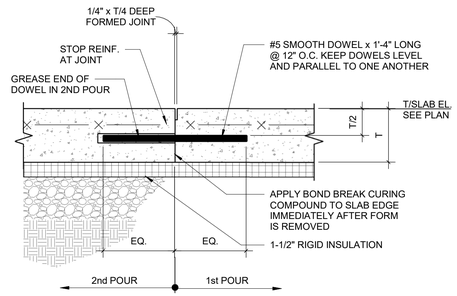
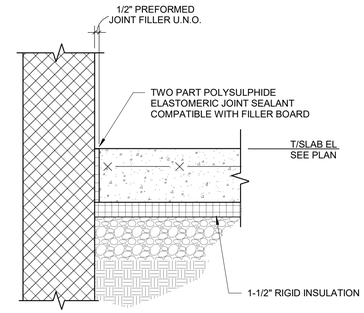
ORIGINAL SHEET - ARCH D



AT CONTROL JOINT



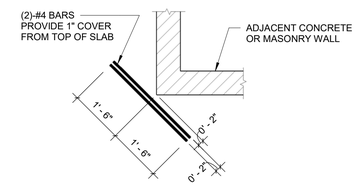
AT CONSTRUCTION JOINT



AT WALL EDGE

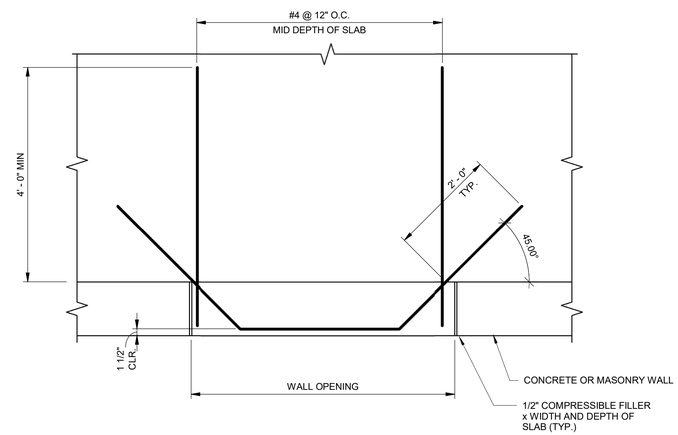
1 SLAB ON GRADE DETAILS

SCALE: NONE



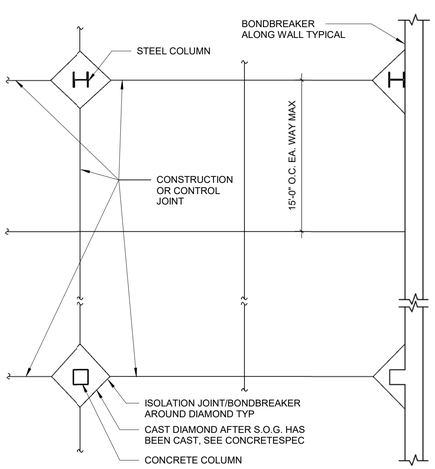
2 SLAB RE-ENTRANT BARS

SCALE: NONE



3 TYPICAL SLAB REINFORCING IN SLAB ON GRADE AT WALL

SCALE: NONE



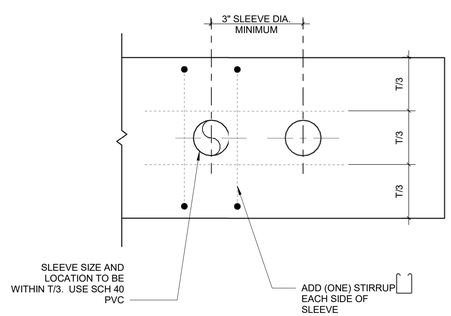
NOTE:

1. USE THIS DETAIL IN CONJUNCTION WITH SAWCUT JOINTS LOCATED ON PLAN

2. IN HALLWAYS CONTROL JOINTS SHALL BE LOCATED A MAXIMUM OF 1 1/2 X (WIDTH) OF HALLWAY OR 12'-0".

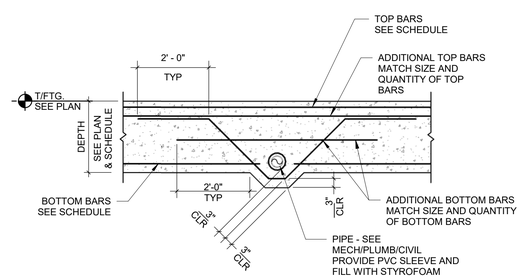
4 TYPICAL S.O.G. CONTROL JOINT PATTERN U.N.O.

SCALE: NONE



5 TYPICAL FOOTING SLEEVE DETAIL

SCALE: NONE



6 TYPICAL FOOTING PENETRATION DETAIL

SCALE: NONE

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Notes

A FINAL DESIGN PLAN			20.08.07
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	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit/Seal

STATE OF MICHIGAN
JACOB A. LONGTON
ENGINEER
No. 6201056663
LICENSED PROFESSIONAL ENGINEER

Client/Project Logo

PITTSFIELD CHARTER TOWNSHIP

Client/Project

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MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP, MICHIGAN

Title

CONCRETE DETAILS

Project No. 2075140801

Scale As indicated

Revision A

Sheet 46 of 74

Drawing No. S510

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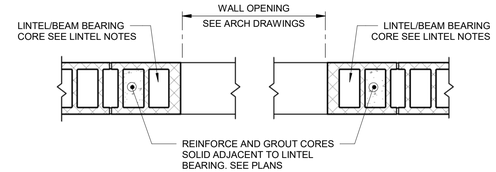
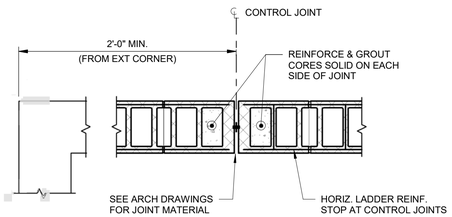


4 TYPICAL CMU OPENING DETAIL

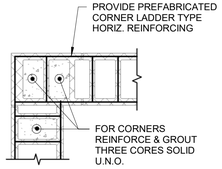
SCALE: NONE



NOTE:
FOR CMU EXPANSION JOINT DETAILS, SEE ARCHITECTURAL DRAWINGS

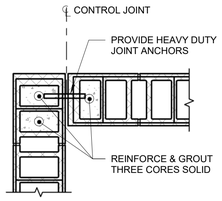
5 TYPICAL CMU CONTROL JOINT DETAIL

SCALE: NONE



3 CMU CORNER DETAIL

SCALE: NONE

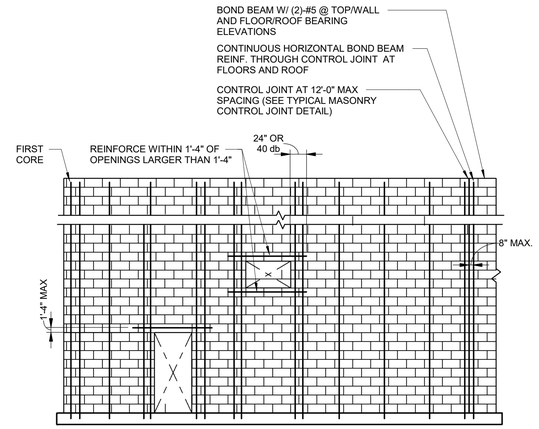


6 TYPICAL CMU CONTROL JOINT DETAIL AT CORNER

SCALE: NONE

MASONRY LINTEL SCHEDULE					
WALL WIDTH	LINTEL DEPTH	LINTEL TYPE	MAX. CLR. SPAN	TOP AND BOTT REINF	TYPE
8"	8"	I	4' - 0"	(2)-#3	ML1
8"	8"	I	7' - 0"	(2)-#6	ML2

MASONRY LAP AND SPLICE TABLE 2000 PSI				
TABLE 2 - MIN LAP SPLICE TABLE				
2000 PSI f'm, Fy=60 KSI REINF IN CENTER OF CMU CORE, NON-COATED REBAR				
BAR SIZE	REQ'D LAP @ 6" CMU WALL	REQ'D LAP @ 8" CMU WALL	REQ'D LAP @ 10" CMU WALL	REQ'D LAP @ 12" CMU WALL
#3	14"	14"	14"	14"
#4	18"	18"	18"	18"
#5	25"	22"	22"	22"
#6	46"	35"	35"	35"
#7	62"	46"	40"	40"
#8	94"	69"	55"	53"
#9	118"	87"	69"	59"



NOTES:

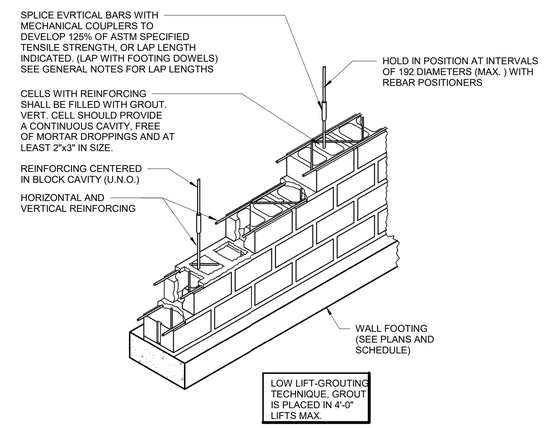
1. USE REINFORCING SHOWN IN THIS DETAIL FOR ALL MASONRY WALLS SHOWN ON STRUCTURAL DRAWINGS, U.N.O.

2. TYPICAL VERTICAL WALL REINFORCING: #5 @ 24" O.C. (U.N.O.) WITH DOWELS TO MATCH VERT. REINF. INTO WALL SUPPORTING ELEMENT. ADDITIONAL REINFORCING: (2)-#4 CONTINUOUS (1-#5 IN EACH OF THE FIRST TWO CORES) AT EA. CORNER, #5 WITHIN 16" OF EA. SIDE OF OPENINGS, #5 WITHIN 16. OF EA. SIDE OF CONTROL JOINTS, AND #5 WITHIN 8" OF WALLS AND AT A MAXIMUM SPACING OF 24" U.N.O.

3. TYPICAL HORIZONTAL JOINT REINFORCING - SEE STRUCTURAL NOTES.

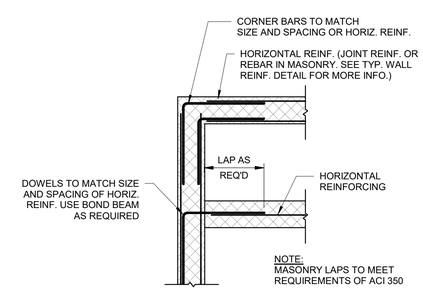
4. REINFORCING SHALL BE COORDINATED WITH ARCHITECTURAL ELEVATIONS, PLANS AND DETAILS.

5. PROVIDE CONTINUOUS 8" BOND BEAM REINF. W/ (2)-#5 BARS AT BEARING ELEVATIONS AND AT TOP OF WALL ELEVATIONS U.N.O.



2 TYPICAL MASONRY REINFORCING DETAIL

SCALE: NONE



1 TYPICAL INTERSECTION MASONRY WALL DETAIL

SCALE: NONE

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MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP,
MICHIGAN

Title

MASONRY DETAILS

Project No. 2075140801

Scale As indicated

Revision A

Sheet 47 of 74

Drawing No. S520

GENERAL PLUMBING NOTES:

1. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE PLUMBING SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY STATE AND LOCAL CODES.
2. ANY EXISTING CONDITIONS SHOWN ON DRAWINGS REFLECT INFORMATION FURNISHED BY THE OWNER AND ARE ACCURATE TO THE BEST KNOWLEDGE OF THE ENGINEER. FIELD CONDITIONS MAY VARY FROM THOSE SHOWN ON DRAWINGS. THE CONTRACTOR IS TO MAKE ARCHITECT/OWNER'S REPRESENTATIVE AWARE OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO COMMENCING WORK.
3. PRIOR TO COMMENCING WORK, PLUMBING CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF SERVICES, INVERT ELEVATIONS OF UNDERFLOOR SANITARY LINES, AND SIZES OF PIPING TO BE RE-USED.
4. CONTRACT DOCUMENT DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
5. INSTALL ALL PLUMBING FIXTURES, EQUIPMENT, AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
6. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
7. COORDINATE CONSTRUCTION OF ALL PLUMBING WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
8. COORDINATE EXACT LOCATIONS OF ALL GAS, COLD WATER, AND MAKE-UP WATER CONNECTIONS TO HVAC EQUIPMENT AND EXACT LOCATIONS OF FLOOR AND HUB DRAINS FOR HVAC EQUIPMENT WITH THE HVAC CONTRACTOR PRIOR TO INSTALLATION.
9. ALL PLUMBING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO OWNER.
10. VERIFY EXACT LOCATIONS OF ALL FLOOR AND ROOF DRAINS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR PROPER PLACEMENT WITH RESPECT TO SLOPES. COORDINATE THE INSTALLATION WITH THE APPROPRIATE CONTRACTOR.
11. UNLESS OTHERWISE INDICATED, PLUMBING WORK STOPS AT A POINT 5'-0" OUTSIDE THE BUILDING. COORDINATE EXACT LOCATION INCLUDING INVERT ELEVATION WITH SITE UTILITY CONTRACTOR.
12. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES AND SUSPENDED EQUIPMENT THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
13. ALL TESTS SHALL BE COMPLETED BEFORE ANY PLUMBING EQUIPMENT OR PIPING INSULATION IS APPLIED.
14. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
15. CONCRETE HOUSEKEEPING PADS TO SUIT PLUMBING EQUIPMENT SHALL BE SIZED AND LOCATED BY THE PLUMBING CONTRACTOR. MINIMUM CONCRETE PAD THICKNESS SHALL BE 4 INCHES. PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 4 INCHES ON EACH SIDE. CONCRETE HOUSEKEEPING PADS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO COORDINATE SIZE AND LOCATION OF CONCRETE HOUSEKEEPING PADS WITH GENERAL CONTRACTOR & WITH APPROVAL OF THE OWNER'S REPRESENTATIVE.
16. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR.
17. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE VALVES AND OTHER CONCEALED PLUMBING EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO GENERAL CONTRACTOR FOR INSTALLATION.
18. ALL EQUIPMENT, PIPING, ETC. SHALL BE SUPPORTED AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
19. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.
20. ALL PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. SEE STRUCTURAL NOTES AND SHEET SF-001 AND SPECIFICATION SECTION 22 05 29 FOR REQUIRED PRODUCTS AND INSTALLATION OF HANGERS AND SUPPORTS. PLUMBING EQUIPMENT AND PIPING SHALL NOT BE SUPPORTED FROM METAL DECK.
21. CONTRACTOR TO INFORM THE STRUCTURAL ENGINEER IN WRITING OF ANY SINGLE SUSPENDED LOAD IN EXCESS OF 400 LBS.
22. RUN ALL SANITARY AND STORM PIPING WITH 1% MINIMUM GRADE UNLESS OTHERWISE NOTED. HORIZONTAL VENT PIPING SHALL BE GRADED TO DRIP BACK TO SOIL OR WASTE PIPE BY GRAVITY. 2" PIPING SHALL BE RUN AT 2% MINIMUM SLOPE.
23. ELEVATIONS AS SHOWN ON THE DRAWINGS ARE TO THE CENTERLINE OF ALL PRESSURE PIPING AND TO THE INVERT OF ALL GRAVITY PIPING.
24. ADJUST SEWER INVERTS TO KEEP TOPS OF PIPE IN LINE WHERE PIPE SIZE CHANGES.
25. MAINTAIN A MINIMUM OF 4'-6" OF GROUND COVER OVER ALL UNDERGROUND WATER MAINS AND A MINIMUM OF 3'-0" OF GROUND COVER OVER ALL UNDERGROUND SEWERS AND DRAINS OUTSIDE OF BUILDING.
26. PROVIDE SHUTOFF VALVES IN ALL DOMESTIC HOT AND COLD WATER PIPING SYSTEM BRANCHES.
27. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
28. WHERE DOMESTIC COLD AND HOT WATER PIPING DROPS INTO A CHASE, THE SIZE SHOWN FOR THE PIPE DROPS SHALL BE USED TO THE LAST FIXTURE.
29. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING AND CLEAR OF DOORS AND WINDOWS.
30. ALL ABOVE GROUND PIPING SHALL GRADE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
31. ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE (FULL PORT) OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS AND SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
32. PROVIDE CHAINWHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 7'-0" ABOVE FLOOR LEVEL; CHAIN SHALL EXTEND TO 5'-0" ABOVE FLOOR LEVEL.
33. PROVIDE ALL PLUMBING FIXTURES AND EQUIPMENT WITH ACCESSIBLE STOPS.
34. PROVIDE CLEANOUTS IN SANITARY AND STORM DRAINAGE SYSTEMS AT ENDS OF RUNS, AT CHANGES IN DIRECTION, NEAR THE BASE OF STACKS, EVERY 100 FEET IN HORIZONTAL RUNS AND ELSEWHERE AS INDICATED. ALL CLEANOUTS SHALL BE FULL SIZE OF PIPE FOR PIPE SIZES 4 INCHES AND SMALLER AND SHALL BE 4 INCHES FOR PIPE SIZES LARGER THAN 4 INCHES.
35. ALL BALANCING VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
36. ALL FLOOR DRAINS AND FLOOR SINKS SHALL BE TRAP PRIMED. FLOOR DRAINS IN TOILET ROOMS SHALL BE PRIMED THROUGH THE NEAREST WATER CLOSET FLUSH VALVE. ALL OTHERS SHALL HAVE DEDICATED TRAP PRIMERS.
37. WATER AND DRAIN PIPING SHALL NOT BE RUN THROUGH OR ABOVE ELECTRICAL SWITCH GEAR OR ROOMS, ELEVATOR SHAFTS, ELEVATOR MACHINE ROOMS, OR TELEPHONE ROOMS.
38. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COMPONENTS, ADAPTERS, AND FITTINGS TO MAKE FINAL CONNECTIONS TO ALL PLUMBING FIXTURES AS WELL AS FIXTURES PROVIDED BY OTHER CONTRACTORS.
39. THE DRAWINGS AND SPECIFICATIONS ARE COMPLIMENTARY; WHATEVER IS CALLED FOR IN ONE SHALL BE REQUIRED AS IF CALLED FOR IN BOTH. WHERE CONFLICTS BETWEEN THE SPECIFICATIONS AND DRAWINGS MAY OCCUR, THE MOST COSTLY OF THE TWO OPTIONS SHALL TAKE PRECEDENCE.

CERTAIN ABBREVIATIONS LISTED BELOW MAY NOT APPLY TO THIS PROJECT.

PLUMBING ABBREVIATIONS

AAV	AIR ADMITTANCE VALVE	I.E.	INVERT ELEVATION
AD	AREA DRAIN	IW	INDIRECT WASTE
AFF	ABOVE FINISHED FLOOR	IWH	INSTANTANEOUS WATER HEATER (TANKLESS)
AFG	ABOVE FINISHED GRADE	L	LAVATORY
AG	AIR GAP	LF	LAVATORY FAUCET
BFF	BELOW FINISHED FLOOR	MB	MOP BASIN
BFG	BELOW FINISHED GRADE	MS	MOP SINK
BFP	BACKFLOW PREVENTER	NO	NORMALLY OPEN
BOP	BOTTOM OF PIPE	NC	NORMALLY CLOSED
CA	COMPRESSED AIR	PC	PLUMBING CONTRACTOR
CB	CATCH BASIN	PRV	PRESSURE REDUCING VALVE
CW	COLD WATER (DOMESTIC)	PD	PUMP DISCHARGE
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	PS	PREFAB SHOWER STALL
DD	DECK DRAIN	PSIG	POUNDS PER SQUARE INCH GAUGE
DF	DRINKING FOUNTAIN	RD	ROOF DRAIN
DN	DOWN	RP	HOT WATER RECIRCULATION PUMP
DS	DOWNSPOUT	RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
DWG	DRAWING	RPDA	REDUCED PRESSURE DETECTOR ASSEMBLY
DWH	DOMESTIC WATER HEATER	SAN	SANITARY
(E)	EXISTING	SH	SHOWER FAUCET
ERD	EMERGENCY ROOF DRAIN	SI	SEDIMENT INTERCEPTOR
EDS	EMERGENCY DOWNSPOUT	SR	SHOWER RECEPTOR
EEW	EMERGENCY EYEWASH	SS	SERVICE SINK
ES	EMERGENCY STORM LINE	SV	STACK VENT
ESH	EMERGENCY SHOWER	TD	TRENCH DRAIN
EWC	ELECTRIC WATER COOLER	TMV	THERMOSTATIC MIXING VALVE
FCO	FLOOR CLEANOUT	TP	TRAP PRIMER
FD	FLOOR DRAIN	TYP	TYPICAL
FF	FINISHED FLOOR	TW	TEMPERED WATER
FFD	FUNNEL FLOOR DRAIN	UG	UNDERGROUND
FG	FINISHED GRADE	UR	URINAL
FS	FLOOR SINK	V	VENT
G	NATURAL GAS	VS	VENT STACK
GC	GENERAL CONTRACTOR	VTR	VENT THROUGH ROOF
GW	GREASE WASTE	W	WASTE
HB	HOSE BIBB	WC	WATER CLOSET
HCO	HORIZONTAL CLEANOUT	WCO	WALL CLEANOUT
HSR	WHEELCHAIR SHOWER RECEPTOR	WH	WALL HYDRANT (FREEZEPROOF)
HW	HOT WATER (DOMESTIC)	WS	WASTE STACK
HWR	HOT WATER RECIRC.		

CERTAIN ITEMS IN THE LEGEND BELOW MAY NOT APPLY TO THIS PROJECT.
DARK PIPING INDICATES NEW PIPING AND LIGHT INDICATES EXISTING.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
#" SAN	SANITARY
#" SAN	UNDERGROUND SANITARY
#" V	SANITARY VENT
#" ST	STORM
#" ST	UNDERGROUND STORM
#" ES	EMERGENCY STORM
#" CW	DOMESTIC COLD WATER
#" HW	DOMESTIC HOT WATER (140 °F)
#" HWR	DOMESTIC HOT WATER RECIRC. (140 °F)
#" TW	TEMPERED WATER (X °F)
#" RRW	RECYCLED RAINWATER
#" G	NATURAL GAS
#" PFD	PERFORATED PVC FOUNDATION DRAIN
	PIPE WITH HEAT TRACE
#" XX	EXISTING TO BE DEMOLISHED
	FLOOR DRAIN W/ TRAP
	FLOOR SINK W/ TRAP
	BALL VALVE
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	CAP
	CONNECTION - TOP
	CONNECTION - BOTTOM
	ELBOW - TURNED DOWN
	ELBOW - TURNED UP
	VENT THROUGH ROOF
	CONNECT TO EXISTING
	LIMIT OF DEMOLITION

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Notes

B	FINAL DESIGN PLAN		20.08.07

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File Name: 20200807 MPI - FINAL DESIGN PLAN - PLUMBING	By	Appd.	YY.MM.DD
	RAB	KAF	SPE	20.08.03
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

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KIRK ALLEN FRY ENGINEER No. 6201049355 LICENSED PROFESSIONAL ENGINEER
8-4-20

Client/Project Logo

PITTSFIELD CHARTER TOWNSHIP

Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP, MICHIGAN

Title

PLUMBING SYMBOL LEGEND AND NOTES

Project No. 2075140801
Scale 1/8" = 1'-0"
Revision B
Sheet 51 of 74
Drawing No. P001

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PLUMBING SPECIFICATIONS

A. SELECT REFERENCES DEFINITIONS

AHRI - AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE

ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE INTERNATIONAL

ASHRAE - AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS

ASSE - AMERICAN SOCIETY OF SANITARY ENGINEERING

ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS INTERNATIONAL

ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS INTERNATIONAL

AWWA - AMERICAN WATER WORKS ASSOCIATION

EPA - U.S. ENVIRONMENTAL PROTECTION AGENCY

ICC IPC - INTERNATIONAL CODE COUNCIL INTERNATIONAL PLUMBING CODE

MSS - MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY

MSS SP-58 (2009) - PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN AND MANUFACTURE, SELECTION, APPLICATION, AND INSTALLATION

MSS SP-69 (2003 - NOTICE 2012) PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION (ANSI APPROVED AMERICAN NATIONAL STANDARD)

NFPA - NATIONAL FIRE PROTECTION ASSOCIATION

NSF-61 - NSF/ANSI STANDARD 61: DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS

PDI - PLUMBING AND DRAINAGE INSTITUTE

UL - UNDERWRITERS LABORATORIES

B. SUBMITTALS

1. PRODUCT DATA - ALL EQUIPMENT, FIXTURES, PIPING, PIPING ACCESSORIES AND PIPING INSULATION.

2. TEST REPORTS - PRESSURE TESTS, FLUSHING AND DISINFECTION, TEST OF BACKFLOW PREVENTION ASSEMBLIES.

3. OPERATION AND MAINTENANCE DATA - INSTALLATION, OPERATION AND MAINTENANCE MANUALS OF ALL SPECIFIED EQUIPMENT, FIXTURES, PIPING, PIPING ACCESSORIES AND PIPING INSULATION. FURNISH 2 BOOKS AND 2 CD'S OF BOOK.

C. PIPE AND FITTINGS

1. ALL PIPES, FITTINGS, ACCESSORIES UTILIZED TO CONVEY POTABLE WATER SHALL COMPLY WITH NSF-61.

2. DOMESTIC WATER

a. INSIDE BUILDING 6 INCH AND SMALLER - TYPE "L" HARD DRAWN SEAMLESS COPPER TUBE (ASTM B88)

b. INSIDE BUILDING 8 INCH AND LARGER - SCHEDULE 40 GALVANIZED STEEL PIPE (ASTM A53, TYPE E GRADE B)

c. UNDERGROUND SERVICE 2 INCH AND SMALLER" - TYPE "K" SOFT COPPER TUBE WITHOUT JOINTS (ASTM B88)

3. NATURAL GAS

a. INSIDE BUILDING - SCHEDULE 40 BLACK STEEL (ASTM A53, TYPE E, GRADE B).

b. OUTSIDE BUILDING ABOVE GROUND - SCHEDULE 40 BLACK STEEL (ASTM A53, TYPE E, GRADE B) FIELD PAINTED YELLOW.

c. UNDERGROUND SERVICE - SCHEDULE 40 BLACK STEEL (ASTM A53 TYPE E , GRADE B) COATED PIPE PER ANSI B36.10 OR HIGH DENSITY POLYETHYLENE "DRISCO PIPE 8300" MEETING LOCAL GAS COMPANY REQUIREMENTS.

4. BUILDING SEWERS AND DRAINS "UNDERGROUND" (STORM AND SANITARY SEWERS TO 5'-0" OUTSIDE BUILDING WALLS) - SERVICE WEIGHT CAST IRON, BELL AND SPIGOT, SOIL PIPE, AND FITTINGS (ASTM A74), WITH TYLER "TY-SEAL" OR EQUAL, NEOPRENE PIPE GASKETS (ASTM C564).

6. SOIL, WASTE, VENT AND DRAIN PIPING "ABOVE GROUND INTERIOR" - NO HUB CAST IRON PIPE AND FITTINGS (ASTM A888, CISPI-301), AS MANUFACTURED BY CHARLOTTE, TYLER, OR AB + I, OR (VENT ONLY) COPPER DRAINAGE TUBE DWV, ASTM B306.

7. STORM DRAIN PIPING "ABOVE GROUND INTERIOR" (ABOVE GROUND INSIDE BUILDING AND INTERIOR STORM LEADER STACKS AND RAIN WATER CONDUCTORS) - NO HUB CAST IRON PIPE AND FITTINGS (ASTM A888, CISPI-301) AS MANUFACTURED BY CHARLOTTE, TYLER OR AB + I.

8. NO PVC PIPING SHALL BE INSTALLED IN A CEILING PLENUM SPACE.

9. DOMESTIC WATER "UNDERFLOOR" 2 INCHES AND SMALLER - TYPE "K" SOFT COPPER WITHOUT JOINTS (ASTM B88).

10. TRAP PRIMER FEED PIPING - TYPE "K" SOFT COPPER WITHOUT JOINTS (ASTM B88) FOR ELEVATED FLOORS WITH DRAINS AND CROSS-LINKED POLYETHYLENE (PEX) PLASTIC TUBING (ASTM F 877) FOR SLAB ON GRADE WITH DRAINS.

11. WATER SERVICE "UNDERGROUND EXTERIOR" 3 INCHES AND LARGER - AS REQUIRED BY THE SERVING UTILITY BUT NOT LESS THAN ANSI A21.51/AWWA C151 CEMENT MORTAR LINED (ANSI A21.4/AWWA C104) DUCTILE IRON PIPE. FURNISH WITH RUBBER GASKETED PUSH ON JOINTS (ANSI A21.1/AWWA C111).

12. ELEVATOR SUMP PUMP DISCHARGE - SCHEDULE 40 GALVANIZED STEEL.

13. FITTINGS FOR GALVANIZED STEEL PIPE - 150 PSIG STEAM WORKING PRESSURE, GALVANIZED MALLEABLE IRON SCREWED FITTINGS.

14. FITTINGS FOR NATURAL GAS PIPING - 150 PSIG, STEAM WORKING PRESSURE MALLEABLE IRON SCREWED FITTINGS ON SIZES THROUGH 2 INCHES AND STANDARD FACTORY FORMED WELDING FITTINGS ON SIZES OVER 2 INCHES.

15. FITTINGS FOR COPPER PIPE - WROUGHT COPPER SOLDER JOINT TYPE ASTM B16.22. WHERE SILVER BRAZING ALLOY IS USED TO JOIN PIPE AND FITTINGS, FITTINGS TO BE SUITABLE FOR BRAZING.

16. FITTINGS FOR WATER SERVICE PIPING "UNDERGROUND EXTERIOR"- PUSH ON JOINTS WITH RUBBER GASKET MEETING ANSI A21.11/AWWA C111

17. GROOVED PIPING SYSTEMS: AT THE CONTRACTORS OPTION, THE FOLLOWING GROOVED PIPING SYSTEMS MAY BE USED FOR PIPE SIZES 2-1/2" AND LARGER, FOR DOMESTIC WATER IN LIEU OF THE PIPE MATERIALS SPECIFIED ABOVE.

a. PIPING: 2-1/2 INCHES THROUGH 6 INCHES - TYPE L HARD DRAWN COPPER TUBING ASTM B88 ROLL GROOVED.

b. GASKETS: GRADE E, EPDM, FLUSHSEAL (FOR COPPER TUBING), GREEN COLOR STRIPE, TEMPERATURE RANGE MINUS 30 DEGREES F TO 230 DEGREES F. GRADE E GASKETS UL CLASSIFIED IN ACCORDANCE WITH ASNI/NSF-61 FOR POTABLE WATER SERVICE.

c. PIPE COUPLINGS: COPPER TUBING: RIGID TYPE, CONSISTING OF TWO PIECES OF DUCTILE IRON, CAST WITH OFFSETTING, ANGLE-PATTERN BOLT PADS TO COPPER-TUBE DIMENSIONS. COUPLING GASKETS WILL BE A SYNTHETIC RUBBER EPDM GASKET WITH A FLUSHSEAL PRESSURE RESPONSIVE DESIGN. VICTAULIC QUICK 607.

d. FITTINGS: COPPER TUBING: FULL FLOW WROUGHT COPPER OR CAST BRONZE GROOVED END FITTINGS, ASTM B75 TUBE OR B152 AND ASME B16.22. FITTINGS SHALL BE MANUFACTURED TO COPPER TUBING SIZES.

e. BUTTERFLY VALVES (SHUTOFF SERVICE) COPPER TUBING: 2-1/2 INCHES THROUGH 6 INCHES. CAST BRONZE BODY WITH COPPER-TUBING SIZED GROOVED ENDS. TRIPLE SEAL TYPE. DESIGNED FOR BUBBLE TIGHT, SHUT OFF SERVICE UP TO 300 PSI, MAXIMUM TEMPERATURE RATING 230 DEG F. FURNISH WITH LEVER LOCK HANDLE. VICTAULIC SERIES 608.

f. MANUFACTURER: VICTAULIC COMPANY OF AMERICA, EQUIVALENT BY ANVIL INTERNATIONAL, INC. - GRUVLOCK, GRINNEL MECHANICAL PRODUCTS.

18. COPPER PRESS SYSTEM: AT THE CONTRACTOR'S OPTION, THE FOLLOWING PRESS SYSTEM MAY BE USED FOR DOMESTIC HOT AND COLD WATER SYSTEMS (SIZES 1/2" TO 4") IN LIEU OF THE PIPE MATERIALS / JOINTS SPECIFIED ABOVE.

a. PRESS FITTINGS: COPPER PRESS FITTINGS SHALL CONFORM TO THE MATERIAL AND SIZING REQUIREMENTS OF ASME B16.18 OR ASME B16.22. O-RINGS FOR COPPER PRESS FITTINGS SHALL BE EPDM.

b. MANUFACTURER: VIEGA PRO-PRESS OR ENGINEER APPROVED EQUAL.

19. VALVES

a. PROVIDE ALL VALVES OF THE SAME MANUFACTURER WHERE POSSIBLE. MANUFACTURERS: APOLLO, MILWAUKEE, NIBCO, HAMMOND, OR WATTS. ALL VALVES TO BE OF DOMESTIC MANUFACTURE.

b. VALVES IN WATER PIPING 2 INCHES AND SMALLER: TWO-PIECE BALL VALVES WITH CAST BRONZE BODY, TEFLON SEATS, CONVENTIONAL PORT, BLOW-OUT PROOF STEM, ADJUSTABLE PACKING GLAND, CHROME PLATED SOLID BRONZE BALL, SOLDERED OR THREADED ENDS, MINIMUM 150 WSP, 600 WOG. MILWAUKEE BA-150.

c. VALVES IN WATER PIPING 2-1/2 INCHES AND LARGER: BUTTERFLY TYPE, CLASS B CAST IRON BODY, STAINLESS STEEL STEM, ALUMINUM BRONZE DISC, AND EPDM LINER; 175 WOG. LUG TYPE WITH LUG DRILLED AND TAPPED, EXTENDED NECK.

d. VALVES IN WATER PIPING SYSTEMS WITH PRESSURE-SEAL-JOINT FITTINGS (PROPRESS), PRESS-END VALVES BY VIEGA OR ENGINEER APPROVED EQUAL WITH THE SAME CHARACTERISTICS AS THE STANDARD VALVES LISTED ABOVE SHALL BE UTILIZED.

e. NATURAL GAS AUTOMATIC EMERGENCY SHUT-OFF VALVES SHALL BE U.L. LISTED F.M. APPROVED FOR NATURAL GAS SERVICE, 2-WAY ELECTRICALLY TRIPPED SOLENOID TYPE; FAIL SAFE CLOSED; MANUAL RESET; TYPE 1 SOLENOID ENCLOSURE; NBR SEALS AND DISC; STAINLESS STEEL CORE TUBE AND SPRINGS; COPPER COIL; MANUFACTURED BY ASCO RED HAT SERIES 8044 OR EQUAL BY HONEYWELL OR JEFFERSON.

f. NATURAL GAS LINE PRESSURE REGULATORS SHALL BE SPRING LOADED, SELF-OPERATED REGULATOR WITH AND INTERNAL MONITORING DEVICE AS WELL AS A BACK-UP INTERNAL RELIEF VALVE PROVIDING AN ADDED LEVEL OF OVERPRESSURE PROTECTION. VALVE BODY SHALL BE OF HIGH TENSILE STRENGTH CAST IRON (ASTM A-126, CLASS A) WITH BRASS ORIFICE, BUNa-N VALVE SEAT, ALUMINUM VALVE STEM, AND BUNa-N AND NYLON REINFORCING FABRIC DIAPHRAGM. VENT LINES SHALL BE ROUTED OUTDOORS, BE AS SHORT AS POSSIBLE, AND TERMINATE WITH A TURNDOWN AND INSECT SCREEN.

g. OPERATORS: ON-OFF THROTTLING LEVER HANDLES ON SIZES 2-1/2 INCHES TO 6 INCHES, TOTALLY ENCLOSED WORM GEAR OR ACME SCREW OPERATORS WITH HAND WHEEL ON SIZES 8 INCHES TO 20 INCHES. EQUIP VALVES USED FOR BALANCING WITH MEMORY STOP. MILWAUKEE CL123 SERIES. INSTALL CHAINWHEELS ON OPERATORS FOR GATE VALVES NPS 4 AND LARGER AND MORE THAN 96 INCHES ABOVE FLOOR. EXTEND CHAINS TO 60 INCHES ABOVE FINISHED FLOOR.

h. HORIZONTAL CHECK VALVES 2 INCHES AND SMALLER: SWING TYPE DESIGN, CLASS 125, 200 WOG, WITH BRONZE BODY AND CAP WITH THREADED OR SOLDERED ENDS. CONFORM TO ASTM B62. MILWAUKEE 509 OR 1509.

i. HORIZONTAL CHECK VALVES 2-1/2 INCHES AND LARGER: SWING TYPE DESIGN, CLASS 125, 200 WOG, CAST IRON BODY, FLANGED ENDS, BRONZE TRIM AND BOLTED CAP CONFORMING TO ASTM A126, CLASS B. MILWAUKEE F2974.

j. VERTICAL CHECK VALVES 2 INCHES AND SMALLER: 250 WOG. CENTER GUIDED, SILENT, NON-SLAM TYPE. BRONZE BODY, SPRING, AND DISC HOLDER, THREADED ENDS. METRAFLEX 700.

k. VERTICAL CHECK VALVES 2-1/2 INCHES AND LARGER: 125 POUND FLANGED ENDS, WAFER STYLE, SILENT TYPE, CAST IRON BODY, BRONZE TRIM, STAINLESS STEEL SPRING. METRAFLEX 900.

l. SHUTOFF VALVES FOR NATURAL GAS PIPING: 2 INCHES AND SMALLER, U.L. LISTED BALL VALVE, 175 PSI WORKING PRESSURE, CAST BRONZE BODY, VITON SEALS, FULL PORT, THREADED ENDS, STAINLESS STEEL TRIM, AGA CERTIFIED AND UL LISTED FOR FLAMMABLE LIQUIDS AND LP GAS. MILWAUKEE VALVE BB2-100, NIBCO T-585-70-UL OR T-580-70-UL.

m. SHUTOFF VALVES FOR NATURAL GAS PIPING: 2-1/2 INCHES AND LARGER, ASME/ANSI COMPLIANT API APPROVED BALL VALVE. CLASS 150 CARBON STEEL FIRE SAFE SPLIT BODY, STAINLESS STEEL VENTED FULL PORT BALL VALVE WITH BLOW OUT PROOF STEM, STAINLESS STEEL TRIM, FLANGED ENDS. MILWAUKEE F20CS150F, OR NIBCO F-515CSF66FS.

n. VALVES FOR USE IN GROOVED PIPING SYSTEMS: REFER TO GROOVED PIPING SYSTEM SPECIFICATION.

o. AUTOMATIC FLOW REGULATING VALVE INSTALLED IN DOMESTIC HOT WATER SYSTEM'S RE-CIRCULATING CIRCUIT PIPING: NSF / ANSI 61-G CERTIFIED 2-32 PSID, 400 PSIG COLD WORKING PRESSURE, 180 °F RATED MAXIMUM OPERATING TEMPERATURE, 300 STAINLESS STEEL CONSTRUCTION WITH NICKEL PLATED UNION, FACTORY SET FLOW CONTROL CARTRIDGE SET TO SPECIFIED FLOW-RATE TO WITHIN 5% ACCURACY MINIMUM. COMPLETE INSTALLATION WITH SHUT-OFF BALL VALVES, INLINE 20 MESH STRAINER, AND DOWNSTREAM CHECK VALVE TO ENABLE CLEANING OF STRAINER AND CARTRIDGE REPLACEMENT WITHOUT CUTTING OR DRAINING OF PIPE. MANUFACTURED BY FLOW DESIGN INC. MODEL ICSS, OR EQUIVALENT BY NEXUS OR GRISWOLD.

p. CALIBRATED BALANCING VALVES INSTALLED AT DOMESTIC HOT WATER SYSTEM'S RE-CIRCULATING PUMP: 2 INCHES AND SMALLER: WORKING PRESSURE: 125 PSIG. MAXIMUM OPERATING TEMPERATURE: 250 DEGREES F. BRONZE BODY, BRASS BALL CONSTRUCTION WITH CALIBRATED ORIFICE. THREADED END CONNECTIONS. EQUIP WITH READOUT VALVES TO FACILITATE THE CONNECTING OF A DIFFERENTIAL METER. READOUT VALVES SHALL HAVE INTEGRAL EPT CHECK VALVE. BALANCING VALVE SHALL HAVE INDEXING POINTER, CALIBRATED NAMEPLATE, AND EPT 0-RING SEALS. MANUFACTURED BY BELL AND GOSSETT MODEL CB OR EQUIVALENT BY ARMSTRONG, NEXUS, FDI, OR VICTAULIC.

20. STRAINERS

a. 2 INCHES AND SMALLER, 'Y' TYPE PIPE LINE STRAINER, BRASS OR BRONZE BODY, THREADED ENDS, 304 STAINLESS STEEL SCREEN WITH 20 MESH OPENINGS, 400 PSIG AT 210 DEGREE F. COMPLETE WITH SOLID RETAINER CAP AND GASKET. WATTS SERIES 777 OR EQUIVALENT BY CLA-VAL, CONBRACO, FEBCO, OR WILKINS.

b. 2-1/2 INCHES AND LARGER 'Y' PATTERN PIPELINE STRAINER, NSF AND FDA APPROVED EPOXY COATED IRON BODY, 125 POUND FLANGED ENDS, BOLTED COVER, 200 PSIG WATER, OIL, GAS OPERATING PRESSURE, AND OF # 304 STAINLESS STEEL SCREEN. COMPLETE WITH BLOW DOWN CONNECTION WITH CLOSURE PLUG. WATTS SERIES 77F-DI-FDA-125 OR EQUIVALENT BY CLA-VAL, CONBRACO, FEBCO, OR WILKINS.

21. UNIONS

a. UNIONS IN STEEL PIPING 2 INCHES AND SMALLER, MALLEABLE IRON, GROUND JOINT BRASS TO IRON SEAT SUITABLE FOR 175 PSI WORKING PRESSURES.

b. UNIONS IN COPPER PIPING 2 INCHES AND SMALLER, CAST BRASS SOLDER FITTINGS WITH MACHINED AND LAPPED SEATS SUITABLE FOR 175 PSI WORKING PRESSURES.

c. UNIONS ON ALL PIPING 2-1/2 INCHES AND LARGER: USE FLANGED CONNECTIONS. GASKETS USED WITH FLANGED FITTINGS: 1/16 INCH THICK, RING TYPE, COMPRESSED GRAPHITE SHEET.

d. WHERE GROOVED JOINT PIPING SYSTEMS ARE UTILIZED, UNIONS ARE NOT REQUIRED. COUPLINGS SHALL SERVE AS UNIONS.

22. DIELECTRIC CONNECTIONS - PROVIDE AT CONNECTIONS BETWEEN COPPER AND FERROUS METAL PIPING MATERIALS IN DOMESTIC COLD WATER SYSTEMS ASTM F441, SCHEDULE 80, CPVC THREADED PIPE NIPPLES, 4 INCHES MINIMUM LENGTH. PROVIDE FOR DIELECTRIC CONNECTIONS IN PIPE SIZES 2 INCHES AND SMALLER. PROVIDE AT CONNECTIONS BETWEEN COPPER AND FERROUS PIPING IN DOMESTIC HOT WATER SYSTEMS VICTAULIC CLEARFLOW DIELECTRIC WATERWAY STYLE 47. FITTING CONSISTS OF ZINC PLATED CASING WITH A CHEMICALLY INERT NSF/FDA LISTED DIELECTRIC THERMOPLASTIC LINING.

23. WATER HAMMER ARRESTORS -BELLOWS TYPE, WITH STAINLESS STEEL CASING AND BELLOWS, TESTED AND CERTIFIED IN ACCORDANCE WITH PDI STANDARD WH-201. PROVIDE A PRESSURE REDUCING VALVE ON THE INLET TO THE DEVICE WHERE SYSTEM PRESSURES ARE ABOVE 80PSI. MANUFACTURER: JAY R. SMITH. OTHER ACCEPTABLE MANUFACTURERS ARE: JOSAM, WADE, AND ZURN.

24. EXPANSION COMPENSATORS:- EXC-1: FOR COPPER PIPE 2 INCHES AND SMALLER. CONSTRUCTED OF A MULTI-PLY STAINLESS STEEL BELLOWS WITH CARBON STEEL SHROUD WITH AN INTERNAL, POSITIVE, ANTI-TORQUE DEVICE. SOLDER JOINTS. MAXIMUM WORKING PRESSURE: 150 PSIG. MAXIMUM OPERATING TEMPERATURE: 500 DEGREES F. MAXIMUM STROKE: 1-3/4 INCH. METRAFLEX MODEL HPFF OR EQUIVALENT BY KEFLEX OR FLEXONICS.

25. FLEXIBLE CONNECTORS - FLEXIBLE CONNECTORS SHALL BE PROVIDED AT THE SUCTION AND DISCHARGE OF EACH PUMP THAT IS 1 HP OR LARGER. CONNECTORS SHALL BE CONSTRUCTED OF NEOPRENE, RUBBER, OR BRAIDED BRONZE, WITH CLASS 150 STANDARD FLANGES. FLEXIBLE CONNECTORS SHALL BE LINE SIZE AND SUITABLE FOR THE PRESSURE AND TEMPERATURE OF THE INTENDED SERVICE.

26. PIPE GUIDES:- GUIDES CONSISTING OF STEEL SEGMENTED SPIDER SIZED TO THE OUTSIDE DIAMETER OF THE PIPE OR INSULATION AND FREE TO MOVE AXIALLY AT THE SEGMENTED STEEL CYLINDER. PROVIDE A MINIMUM OF 2 GUIDES ON EACH SIDE OF EXPANSION COMPENSATORS OR EXPANSION JOINTS AND ELSE ELSEWHERE AS INDICATED. PROVIDE GUIDES OF LENGTH RECOMMENDED BY MANUFACTURER TO ALLOW REQUIRED TRAVEL. METRAFLEX OR EQUIVALENT BY KEFLEX, FEE AND MASON OR FLEXONICS.

27. PIPE ANCHORS: - INSTALL IN CONJUNCTION WITH GUIDES.

28. PIPE HANGERS (SUPPORTS) - PROVIDE MSS SP-58 AND MSS SP-69, TYPE 1 WITH ADJUSTABLE TYPE STEEL SUPPORT RODS, EXCEPT AS SPECIFIED OR INDICATED OTHERWISE. ATTACH TO STEEL JOISTS WITH TYPE 19 OR 23 CLAMPS AND RETAINING STRAPS. ATTACH TO STEEL W OR S BEAMS WITH TYPE 21, 28, 29, OR 30 CLAMPS. ATTACH TO STEEL ANGLES AND VERTICAL WEB STEEL CHANNELS WITH TYPE 20 CLAMP WITH BEAM CLAMP CHANNEL ADAPTER. ATTACH TO HORIZONTAL WEB STEEL CHANNEL AND WOOD WITH DRILLED HOLE ON CENTERLINE AND DOUBLE NUT AND WASHER. ATTACH TO CONCRETE WITH TYPE 18 INSERT OR DRILLED EXPANSION ANCHOR. PROVIDE TYPE 40 INSULATION PROTECTION SHIELD FOR INSULATED PIPING.

D. GAUGES

PRESSURE AND VACUUM INDICATING DIAL TYPE - ELASTIC ELEMENT: ASME B40.100.

E. THERMOMETERS

DIRECT-MOUNTED, METAL CASE, VAPOR ACTUATED THERMOMETERS: ASME B40.200 MERCURY SHALL NOT BE USED IN THERMOMETERS.

F. PIPE INSULATION MATERIAL

ACCEPTABLE MANUFACTURERS: OWENS-CORNING, KNAUF, CERTAINTEED, PITTSBURG-CORNING DOMESTIC HOT, HOT WATER RECIRC., & COLD WATER SHALL BE INSULATED WITH 1" GLASS FIBER NON-COMBUSTABLE PREFORMED INSULATION, ASTM C547 WITH A "K" VALUE OF .23" AT 75°F AND FACTORY APPLIED VAPOR BARRIER JACKET. VAPOR BARRIER JACKETS SHALL BE KRAFT REINFORCED WHITE VAPOR BARRIER WITH SELF-SEALING ADHESIVE JOINTS.

HORIZONTAL STORMWATER AND EMERGENCY DRAIN: INSULATION SHALL BE MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1 INCH THICK. ROOF DRAIN AND EMERGENCY DRAIN BODIES: INSULATION SHALL BE MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1 INCH INSERT THICKNESS THICK.

EXPOSED SANITARY DRAINS, DOMESTIC WATER, DOMESTIC HOT WATER, AND STOPS AT LAVATORIES SHALL BE INSULATED AND FINISHED WITH TRUEBRO MODEL NO. 102 "LAV-GUARD" OR BROCAR "TRAP-WRAP" WHITE INSULATION KIT.

G. FLOOR, CEILING, AND WALL PLATES

FIT ALL PIPE PASSING EXPOSED THROUGH WALLS, FLOORS, OR CEILINGS IN FINISHED ROOMS WITH STEEL OR BRASS ESCUTCHEONS. WHERE SURFACE IS TO RECEIVE A PAINT FINISH MAKE ESCUTCHEONS PRIME PAINTED; OTHERWISE MAKE ESCUTCHEONS NICKEL OR CHROME PLATED. WHERE PIPING IS INSULATED, FIT ESCUTCHEONS OUTSIDE INSULATION.

H. EQUIPMENT PADS

EXCEPT WHERE OTHERWISE NOTED, PROVIDE PADS FOR ALL FLOOR MOUNTED EQUIPMENT INSTALLED UNDER THIS DIVISION. MAKE ALL EQUIPMENT PADS A MINIMUM OF 4 INCHES THICK. CONSTRUCT EQUIPMENT PADS OF 5000 POUND CONCRETE COMPLETE WITH ALL NECESSARY ANCHOR BOLTS, SLEEVES ANCHOR PLATES, WASHERS AND NUTS. SMOOTH ALL EXPOSED PORTIONS OF PADS AND BEVEL CORNERS.

I. SLEEVES

WHERE PIPES PASS THROUGH MASONRY OR CONCRETE WALLS, SET MACHINE CUT STEEL PIPE SLEEVES 1 INCH LARGER THAN OUTSIDE DIAMETER OF PIPE, WITH ENDS OF SLEEVES FLUSH WITH WALL FACES. SLEEVES IN PARTITIONS OTHER THAN MASONRY OR CONCRETE WHERE FIRESTOPPING IS REQUIRED: 28 GAGE GALVANIZED STEEL SHEET. WHERE PIPES PASS THROUGH FLOORS, SET SCHEDULE 40 GALVANIZED STEEL PIPE SLEEVES 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE. TOP OF SLEEVE TO BE 4 INCHES ABOVE FINISHED FLOOR IN MACHINE ROOMS AND WET FLOOR LOCATIONS. WHERE PIPES ARE INSULATED, PROVIDE SLEEVES LARGE ENOUGH TO ALLOW INSULATION TO PASS THROUGH SLEEVE. CENTER PIPES IN SLEEVES. PROVIDE FIRE STOPPING BETWEEN PIPE AND SLEEVE OR OPENING AS REQUIRED TO MAINTAIN THE INTEGRITY OF THE FIRE RATING OF ALL WALLS AND FLOORS FIRE STOPPING PRODUCTS SHALL BE MANUFACTURED BY SPECIFIED TECHNOLOGIES, INC. (STI) AND INSTALLED BY A UL QUALIFIED FIRESTOP CONTRACTOR THAT HAS ALSO COMPLETED THE "CLEVELAND CLINIC FIRESTOP TRAINING CLASS WHERE PIPES PASS THROUGH EXTERIOR WALLS BELOW GRADE, SET SCHEDULE 40 STEEL PIPE OR MANUFACTURED CASTINGS OR SLEEVES 1-1/2 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE. MAKE THE PIPE TO WALL PENETRATION CLOSURE WITH "LINK-SEAL" AS MANUFACTURED BY THE THUNDERLINE CORP. OR METRASEAL.

J. ESCUTCHEON PLATES

PROVIDE ONE PIECE OR SPLIT HINGE METAL PLATES FOR PIPING ENTERING FLOORS, WALLS, AND CEILINGS IN EXPOSED SPACES. PROVIDE CHROMIUM-PLATED ON COPPER ALLOY PLATES OR POLISHED STAINLESS STEEL FINISH IN FINISHED SPACES. PROVIDE PAINT FINISH ON PLATES IN UNFINISHED SPACES.

K. PLUMBING IDENTIFICATION

1. NAMEPLATES- PROVIDE 0.125 INCH THICK MELAMINE LAMINATED PLASTIC NAMEPLATES, BLACK MATTE FINISH WITH WHITE CENTER CORE, FOR EQUIPMENT, GAGES, THERMOMETERS, AND VALVES; VALVES IN SUPPLIES TO FAUCETS WILL NOT REQUIRE NAMEPLATES. KEY NAMEPLATES TO A CHART AND SCHEDULE FOR EACH SYSTEM. FRAME CHARTS AND SCHEDULES UNDER GLASS AND PLACE WHERE DIRECTED NEAR EACH SYSTEM. FURNISH TWO COPIES OF EACH CHART AND SCHEDULE.

2. SELF-ADHESIVE PIPE LABELS: PRINTED PLASTIC WITH CONTACT-TYPE, PERMANENT-ADHESIVE BACKING. PIPE LABEL CONTENTS: INCLUDE IDENTIFICATION OF PIPING SERVICE USING SAME DESIGNATIONS OR ABBREVIATIONS AS USED ON DRAWINGS, PIPE SIZE, AND AN ARROW INDICATING FLOW DIRECTION.

3. INSTALL WARNING LABELS STATING "CAUTION: NON-POTABLE WATER. DO NOT DRINK" ON ALL NON-POTABLE WATER PIPING AFTER IT HAS BEEN INSULATED.

L. INSTALLATION

1. THE PIPING SHALL BE EXTENDED TO FIXTURES, OUTLETS, AND EQUIPMENT. THE HOT-WATER AND COLD-WATER PIPING SYSTEM SHALL BE ARRANGED AND INSTALLED TO PERMIT DRAINING. THE SUPPLY LINE TO EACH ITEM OF EQUIPMENT OR FIXTURE, EXCEPT FAUCETS, FLUSH VALVES, OR OTHER CONTROL VALVES WHICH ARE SUPPLIED WITH INTEGRAL STOPS, SHALL BE EQUIPPED WITH A SHUTOFF VALVE TO ENABLE ISOLATION OF THE ITEM FOR REPAIR AND MAINTENANCE WITHOUT INTERFERING WITH OPERATION OF OTHER EQUIPMENT OR FIXTURES. SUPPLY PIPING TO FIXTURES, FAUCETS, HYDRANTS, SHOWER HEADS, AND FLUSHING DEVICES SHALL BE ANCHORED TO PREVENT MOVEMENT.

2. THE WORK SHALL BE CAREFULLY LAID OUT IN ADVANCE, AND UNNECESSARY CUTTING OF CONSTRUCTION SHALL BE AVOIDED. DAMAGE TO BUILDING, PIPING, WIRING, OR EQUIPMENT AS A RESULT OF CUTTING SHALL BE REPAIRED BY MECHANICS SKILLED IN THE TRADE INVOLVED.

3. PIPE OPENINGS SHALL BE CLOSED WITH CAPS OR PLUGS DURING INSTALLATION. FIXTURES AND EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT, WATER, CHEMICALS, AND MECHANICAL INJURY. UPON COMPLETION OF THE WORK, THE FIXTURES, MATERIALS, AND EQUIPMENT SHALL BE THOROUGHLY CLEANED, ADJUSTED, AND OPERATED. SAFETY GUARDS SHALL BE PROVIDED FOR EXPOSED ROTATING EQUIPMENT.

4. PIPING SHALL BE INSTALLED AS INDICATED. PIPE SHALL BE ACCURATELY CUT AND WORKED INTO PLACE WITHOUT SPRINGING OR FORCING. STRUCTURAL PORTIONS OF THE BUILDING SHALL NOT BE WEAKENED. ABOVEGROUND PIPING SHALL RUN PARALLEL WITH THE LINES OF THE BUILDING, UNLESS OTHERWISE INDICATED. BRANCH PIPES FROM SERVICE LINES MAY BE TAKEN FROM TOP, BOTTOM, OR SIDE OF MAIN, USING CROSSOVER FITTINGS REQUIRED BY STRUCTURAL OR INSTALLATION CONDITIONS.

5. SUPPLY PIPES, VALVES, AND FITTINGS SHALL BE KEPT A SUFFICIENT DISTANCE FROM OTHER WORK AND OTHER SERVICES TO PERMIT NOT LESS THAN 1/2 INCH BETWEEN FINISHED COVERING ON THE DIFFERENT SERVICES. BARE AND INSULATED WATER LINES SHALL NOT BEAR DIRECTLY AGAINST BUILDING STRUCTURAL ELEMENTS SO AS TO TRANSMIT SOUND TO THE STRUCTURE OR TO PREVENT FLEXIBLE MOVEMENT OF THE LINES. WATER PIPE SHALL NOT BE BURIED IN OR UNDER FLOORS UNLESS SPECIFICALLY INDICATED OR APPROVED. CHANGES IN PIPE SIZES SHALL BE MADE WITH REDUCING FITTINGS. USE OF BUSHINGS WILL NOT BE PERMITTED EXCEPT FOR USE IN SITUATIONS IN WHICH STANDARD FACTORY FABRICATED COMPONENTS ARE FURNISHED TO ACCOMMODATE SPECIFIC ACCEPTED INSTALLATION PRACTICE. CHANGE IN DIRECTION SHALL BE MADE WITH FITTINGS.

5. PIPE DRAINS INDICATED SHALL CONSIST OF 3/4 INCH HOSE BIBB WITH RENEWABLE SEAT AND BALL VALVE AHEAD OF HOSE BIBB. AT OTHER LOW POINTS, 3/4 INCH BRASS PLUGS OR CAPS SHALL BE PROVIDED. DISCONNECTION OF THE SUPPLY PIPING AT THE FIXTURE IS AN ACCEPTABLE DRAIN.

6. ALLOWANCE SHALL BE MADE THROUGHOUT FOR EXPANSION AND CONTRACTION OF WATER PIPE. BRANCH CONNECTIONS FROM RISERS SHALL BE MADE WITH AMPLE SWING OR OFFSET TO AVOID UNDUE STRAIN ON FITTINGS OR SHORT PIPE LENGTHS. HORIZONTAL RUNS OF PIPE OVER 50 FEET IN LENGTH SHALL BE ANCHORED TO THE WALL OR THE SUPPORTING CONSTRUCTION ABOUT MIDWAY ON THE RUN. SUFFICIENT FLEXIBILITY SHALL BE PROVIDED ON BRANCH RUNOUTS FROM MAINS AND RISERS TO PROVIDE FOR EXPANSION AND CONTRACTION OF PIPING. FLEXIBILITY SHALL BE PROVIDED BY INSTALLING ONE OR MORE TURNS IN THE LINE.

7. COMMERCIAL-TYPE WATER HAMMER ARRESTERS SHALL BE PROVIDED ON HOT- AND COLD-WATER SUPPLIES AND PRECISE LOCATION AND SIZING TO BE IN ACCORDANCE WITH PDI WH 201. WATER HAMMER ARRESTERS, WHERE CONCEALED, SHALL BE ACCESSIBLE BY MEANS OF ACCESS DOORS OR REMOVABLE PANELS. COMMERCIAL-TYPE WATER HAMMER ARRESTERS SHALL CONFORM TO ASSE 1010. VERTICAL CAPPED PIPE COLUMNS WILL NOT BE PERMITTED.

8. FIRE SEAL - WHERE PIPES PASS THROUGH FIRE WALLS, FIRE-PARTITIONS, FIRE-RATED PIPE CHASE WALLS OR FLOORS ABOVE GRADE, A FIRE SEAL SHALL BE PROVIDED.

9. INSTALL AIR ADMITTANCE VALVES IN ACCORDANCE WITH CODE AND MANUFACTURER'S INSTRUCTIONS. INSTALL AIR ADMITTANCE VALVES AFTER DRAINAGE AND WASTE SYSTEM HAS BEEN ROUGHED IN. LOCATE VALVES MINIMUM 4 INCHES ABOVE HORIZONTAL BRANCH DRAIN OR FIXTURE DRAIN BEING VENTED. INSTALL VALVES IN ACCESSIBLE LOCATIONS. CONNECT VALVES TO PIPING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. INSTALL VALVES IN UPRIGHT POSITION, WITHIN 15 DEGREES OF TRUE VERTICAL. EXTEND MINIMUM OF ONE VENT TO OPEN ATMOSPHERE FOR EACH BUILDING DRAINAGE SYSTEM. DO NOT INSTALL VALVES IN SUPPLY AND RETURN AIR PLENUMS.

10. INSTALL AIR-GAP FITTINGS ON DRAINING-TYPE BACKFLOW PREVENTERS AND ON INDIRECT-WASTE PIPING DISCHARGE INTO SANITARY DRAINAGE SYSTEM.

11. HANGERS USED TO SUPPORT PIPING 2 INCHES AND LARGER SHALL BE FABRICATED TO PERMIT ADEQUATE ADJUSTMENT AFTER ERECTION WHILE STILL SUPPORTING THE LOAD. PIPE GUIDES AND ANCHORS SHALL BE INSTALLED TO KEEP PIPES IN ACCURATE ALIGNMENT, TO DIRECT THE EXPANSION MOVEMENT, AND TO PREVENT BUCKLING, SWAYING, AND UNDUE STRAIN. PIPING SUBJECTED TO VERTICAL MOVEMENT WHEN OPERATING TEMPERATURES EXCEED AMBIENT TEMPERATURES SHALL BE SUPPORTED BY VARIABLE SPRING HANGERS AND SUPPORTS OR BY CONSTANT SUPPORT HANGERS.IN THE SUPPORT OF MULTIPLE PIPE RUNS ON A COMMON BASE MEMBER, A CLIP OR CLAMP SHALL BE USED WHERE EACH PIPE CROSSES THE BASE SUPPORT MEMBER. SPACING OF THE BASE SUPPORT MEMBERS SHALL NOT EXCEED THE HANGER AND SUPPORT SPACING REQUIRED FOR AN INDIVIDUAL PIPE IN THE MULTIPLE PIPE RUN. THREADED SECTIONS OF RODS SHALL NOT BE FORMED OR BENT.

12. PIPE HANGERS, INSERTS, AND SUPPORTS

a. INSTALLATION OF PIPE HANGERS, INSERTS AND SUPPORTS SHALL CONFORM TO

b. MSS SP-58 AND MSS SP-69, EXCEPT AS MODIFIED HEREIN.

i. TYPES 5, 12, AND 26 SHALL NOT BE USED.

ii. TYPE 3 SHALL NOT BE USED ON INSULATED PIPE.

c. TYPE 18 INSERTS SHALL BE SECURED TO CONCRETE FORMS BEFORE CONCRETE IS PLACED. CONTINUOUS INSERTS WHICH ALLOW MORE ADJUSTMENT MAY BE USED IF THEY OTHERWISE MEET THE REQUIREMENTS FOR TYPE 18 INSERTS.

d. TYPE 19 AND 23 C-CLAMPS SHALL BE TORQUED PER MSS SP-69 AND SHALL HAVE BOTH LOCKNUTS AND RETAINING DEVICES FURNISHED BY THE MANUFACTURER.

e. FIELD-FABRICATED C-CLAMP BODIES OR RETAINING DEVICES ARE NOT ACCEPTABLE.

f. TYPE 20 ATTACHMENTS USED ON ANGLES AND CHANNELS SHALL BE FURNISHED WITH AN ADDED MALLEABLE-IRON HEEL PLATE OR ADAPTER.

g. TYPE 24 MAY BE USED ONLY ON TRAPEZE HANGER SYSTEMS OR ON FABRICATED FRAMES.

h. TYPE 39 SADDLES SHALL BE USED ON INSULATED PIPE 4 INCHES AND LARGER WHEN THE TEMPERATURE OF THE MEDIUM IS 60 DEGREES F OR HIGHER. TYPE 39 SADDLES SHALL BE WELDED TO THE PIPE.

i. TYPE 40 SHIELDS SHALL:

i. BE USED ON INSULATED PIPE LESS THAN 4 INCHES.

ii. BE USED ON INSULATED PIPE 4 INCHES AND LARGER WHEN THE TEMPERATURE OF THE MEDIUM IS 60 DEGREES F OR LESS.

iii. HAVE A HIGH DENSITY INSERT FOR ALL PIPE SIZES. HIGH DENSITY INSERTS SHALL HAVE A DENSITY OF 8 PCF OR GREATER.

j. HORIZONTAL PIPE SUPPORTS SHALL BE SPACED AS SPECIFIED IN MSS SP-69 AND A SUPPORT SHALL BE INSTALLED NOT OVER 1 FOOT FROM THE PIPE FITTING JOINT AT EACH CHANGE IN DIRECTION OF THE PIPING. PIPE SUPPORTS SHALL BE SPACED NOT OVER 5 FEET APART AT VALVES. HORIZONTAL PIPE RUNS SHALL INCLUDE ALLOWANCES FOR EXPANSION AND CONTRACTION.

k. VERTICAL PIPE SHALL BE SUPPORTED AT EACH FLOOR, EXCEPT AT SLAB-ON-GRADE, AT INTERVALS OF NOT MORE THAN 15 FEET (FOR STEEL PIPING, 10 FEET MAXIMUM FOR COPPER SYSTEMS) NOR MORE THAN 8 FEET FROM END OF RISERS, AND AT VENT TERMINATIONS. VERTICAL PIPE RISERS SHALL INCLUDE ALLOWANCES FOR EXPANSION AND CONTRACTION.

l. TYPE 35 GUIDES USING STEEL, REINFORCED POLYTETRAFLUOROETHYLENE (PTFE) OR GRAPHITE SLIDES SHALL BE PROVIDED TO ALLOW LONGITUDINAL PIPE MOVEMENT. SLIDE MATERIALS SHALL BE SUITABLE FOR THE SYSTEM OPERATING TEMPERATURES, ATMOSPHERIC CONDITIONS, AND BEARING LOADS ENCOUNTERED. LATERAL RESTRAINTS SHALL BE PROVIDED AS NEEDED. WHERE STEEL SLIDES DO NOT REQUIRE PROVISIONS FOR LATERAL RESTRAINT THE FOLLOWING MAY BE USED:

i. ON PIPE 4 INCHES AND LARGER WHEN THE TEMPERATURE OF THE MEDIUM IS 60 DEGREES F OR HIGHER, A TYPE 39 SADDLE, WELDED TO THE PIPE, MAY FREELY REST ON A STEEL PLATE.

ii. ON PIPE LESS THAN 4 INCHES A TYPE 40 SHIELD, ATTACHED TO THE PIPE OR INSULATION, MAY FREELY REST ON A STEEL PLATE.

iii. ON PIPE 4 INCHES AND LARGER CARRYING MEDIUM LESS THAT 60 DEGREES F A TYPE 40 SHIELD, ATTACHED TO THE PIPE OR INSULATION, MAY FREELY REST ON A STEEL PLATE.

m. PIPE HANGERS ON HORIZONTAL INSULATED PIPE SHALL BE THE SIZE OF THE OUTSIDE DIAMETER OF THE INSULATION. THE INSULATION SHALL BE CONTINUOUS THROUGH THE HANGER ON ALL PIPE SIZES AND APPLICATIONS.

n. WHERE THERE ARE HIGH SYSTEM TEMPERATURES AND WELDING TO PIPING IS NOT DESIRABLE, THE TYPE 35 GUIDE SHALL INCLUDE A PIPE CRADLE, WELDED TO THE GUIDE STRUCTURE AND STRAPPED SECURELY TO THE PIPE. THE PIPE SHALL BE SEPARATED FROM THE SLIDE MATERIAL BY AT LEAST 4 INCHES OR BY AN AMOUNT ADEQUATE FOR THE INSULATION, WHICHEVER IS GREATER.

o. HANGERS AND SUPPORTS FOR PLASTIC PIPE SHALL NOT COMPRESS, DISTORT, CUT OR ABRADE THE PIPING, AND SHALL ALLOW FREE MOVEMENT OF PIPE EXCEPT WHERE OTHERWISE REQUIRED IN THE CONTROL OF EXPANSION/CONTRACTION.

STRUCTURAL ATTACHMENTS - ATTACHMENT TO BUILDING STRUCTURE CONCRETE AND MASONRY SHALL BE BY CAST-IN CONCRETE INSERTS, BUILT-IN ANCHORS, OR MASONRY ANCHOR DEVICES. INSERTS AND ANCHORS SHALL BE APPLIED WITH A SAFETY FACTOR NOT LESS THAN 5. SUPPORTS SHALL NOT BE ATTACHED TO METAL DECKING. SUPPORTS SHALL NOT BE ATTACHED TO THE UNDERSIDE OF CONCRETE FILLED FLOOR OR CONCRETE ROOF DECKS UNLESS APPROVED BY THE STRUCTURAL ENGINEER. MASONRY ANCHORS FOR OVERHEAD APPLICATIONS SHALL BE CONSTRUCTED OF FERROUS MATERIALS ONLY.

15. PIPE CLEANOUTS -PIPE CLEANOUTS SHALL BE THE SAME SIZE AS THE PIPE EXCEPT THAT CLEANOUT PLUGS LARGER THAN 4 INCHES WILL NOT BE REQUIRED. A CLEANOUT INSTALLED IN CONNECTION WITH CAST-IRON SOIL PIPE SHALL CONSIST OF A LONG-SWEEP 1/4 BEND OR ONE OR TWO 1/8 BENDS EXTENDED TO THE PLACE SHOWN. AN EXTRA-HEAVY CAST-BRASS OR CAST-IRON FERRULE WITH COUNTERSUNK CAST-BRASS HEAD SCREW PLUG SHALL BE CAULKED INTO THE HUB OF THE FITTING AND SHALL BE FLUSH WITH THE FLOOR. CLEANOUTS IN CONNECTION WITH OTHER PIPE, WHERE INDICATED, SHALL BE T-PATTERN, 90-DEGREE BRANCH DRAINAGE FITTINGS WITH CAST-BRASS SCREW PLUGS, EXCEPT PLASTIC PLUGS SHALL BE INSTALLED IN PLASTIC PIPE. CLEANOUT TEE BRANCHES WITH SCREW PLUG SHALL BE INSTALLED AT THE FOOT OF SOIL AND WASTE STACKS, AT THE FOOT OF INTERIOR DOWNSPOUTS, ON EACH CONNECTION TO BUILDING STORM DRAIN WHERE INTERIOR DOWNSPOUTS ARE INDICATED, AND ON EACH BUILDING DRAIN OUTSIDE THE BUILDING. CLEANOUTS ON PIPE CONCEALED IN PARTITIONS SHALL BE PROVIDED WITH CHROMIUM PLATED BRONZE, NICKEL BRONZE FLUSH TYPE ACCESS COVER PLATES. ROUND ACCESS COVERS SHALL BE PROVIDED AND SECURED TO PLUGS WITH SECURING SCREW. CLEANOUTS IN FINISHED WALLS SHALL HAVE ACCESS COVERS AND FRAMES INSTALLED FLUSH WITH THE FINISHED WALL. CLEANOUTS INSTALLED IN FINISHED FLOORS SUBJECT TO FOOT TRAFFIC SHALL BE PROVIDED WITH A NICKEL BRONZE COVER SECURED TO THE PLUG OR COVER FRAME AND SET FLUSH WITH THE FINISHED FLOOR. HEADS OF FASTENING SCREWS SHALL NOT PROJECT ABOVE THE COVER SURFACE.

D. TESTS, FLUSHING AND DISINFECTION

1. PRESSURE TESTS SHALL BE PERFORMED ON THE PLUMBING SYSTEM IN ACCORDANCE WITH ICC IPC.

2. ROUGH IN DRAINAGE AND VENT SYSTEMS TEST SHALL INCLUDE CLOSING ALL OPENINGS IN SYSTEM AND FILLING TO THE POINT OF OVERFLOW, BUT NOT LESS THAN 10-FOOT HEAD OF WATER FOR A PERIOD OF 15 MINUTES. DURING TEST WATER LEVEL MUST NOT DROP. FINISHED PLUMBING SANITARY AND VENT TEST SHALL BE PERFORMED AFTER ALL FIXTURES ARE SET, TRAPS ARE FILLED WITH WATER AND VENT OPENINGS SEALED. INTRODUCE 1-INCH WG AIR PRESSURE INTO SYSTEM AND MAINTAIN DURING VISUAL INSPECTION OF SYSTEM FOR AND GAS OR WATER LEAKS. AIR PRESSURE MUST REMAIN CONSTANT WITHOUT INTRODUCTION OF ANY ADDITIONAL AIR DURING TEST INSPECTION.

3. TEST OF BACKFLOW PREVENTION ASSEMBLIES - BACKFLOW PREVENTION ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF STATE OR LOCAL REGULATORY AGENCIES.

4. DEFECTIVE WORK - IF INSPECTION OR TEST SHOWS DEFECTS, SUCH DEFECTIVE WORK OR MATERIAL SHALL BE REPLACED OR REPAIRED AS NECESSARY AND INSPECTION AND TESTS SHALL BE REPEATED. REPAIRS TO PIPING SHALL BE MADE WITH NEW MATERIALS. CAULKING OF SCREWED JOINTS OR HOLES WILL NOT BE ACCEPTABLE.

5. ALL PLUMBING AND NATURAL GAS TESTING IS REQUIRED TO BE WITNESSED BY THE PLUMBING INSPECTOR FOR THE AUTHORITY HAVING JURISDICTION.

N. SYSTEM FLUSHING

1. BEFORE OPERATIONAL TESTS OR DISINFECTION, POTABLE WATER PIPING SYSTEM SHALL BE FLUSHED WITH POTABLE WATER. SUFFICIENT WATER SHALL BE USED TO PRODUCE A WATER VELOCITY THAT IS CAPABLE OF ENTRAINING AND REMOVING DEBRIS IN ALL PORTIONS OF THE PIPING SYSTEM. THIS REQUIRES SIMULTANEOUS OPERATION OF ALL FIXTURES ON A COMMON BRANCH OR MAIN IN ORDER TO PRODUCE A FLUSHING VELOCITY OF APPROXIMATELY 4 FPS THROUGH ALL PORTIONS OF THE PIPING SYSTEM. CONTRACTOR SHALL PROVIDE ADEQUATE PERSONNEL TO MONITOR THE FLUSHING OPERATION AND TO ENSURE THAT DRAIN LINES ARE UNOBSTRUCTED IN ORDER TO PREVENT FLOODING OF THE FACILITY. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FLOOD DAMAGE RESULTING FROM FLUSHING OF THE SYSTEM. FLUSHING SHALL BE CONTINUED UNTIL ENTRAINED DIRT AND OTHER FOREIGN MATERIALS HAVE BEEN REMOVED AND UNTIL DISCHARGE WATER SHOWS NO DISCOLORATION ALL FAUCETS AND DRINKING WATER FOUNTAINS, TO INCLUDE ANY DEVICE CONSIDERED AS AN END POINT DEVICE BY NSF/ANSI 61, SECTION 9, SHALL BE FLUSHED A MINIMUM OF 0.25 GALLONS PER 24 HOUR PERIOD, TEN TIMES OVER A 14 DAY PERIOD.

2. AFTER FLUSHING - SYSTEM SHALL BE DRAINED AT LOW POINTS. STRAINER SCREENS SHALL BE REMOVED, CLEANED, AND REPLACED. AFTER FLUSHING AND CLEANING, SYSTEMS SHALL BE PREPARED FOR TESTING BY IMMEDIATELY FILLING WATER PIPING WITH CLEAN, FRESH POTABLE WATER. ANY STOPPAGE, DISCOLORATION, OR OTHER DAMAGE TO THE FINISH, FURNISHINGS, OR PARTS OF THE BUILDING DUE TO THE CONTRACTOR'S FAILURE TO PROPERLY CLEAN THE PIPING SYSTEM SHALL BE REPAIRED BY THE CONTRACTOR. WHEN THE SYSTEM FLUSHING IS COMPLETE, THE HOT-WATER SYSTEM SHALL BE ADJUSTED FOR UNIFORM CIRCULATION.

3. FLUSHING DEVICES AND AUTOMATIC CONTROL SYSTEMS SHALL BE ADJUSTED FOR PROPER OPERATION ACCORDING TO MANUFACTURER'S INSTRUCTIONS. COMPLY WITH ASHRAE 90.1 - IP FOR MINIMUM EFFICIENCY REQUIREMENTS. UNLESS MORE STRINGENT LOCAL REQUIREMENTS EXIST, LEAD LEVELS SHALL NOT EXCEED LIMITS ESTABLISHED BY 40 CFR 141.80 (C)(1). THE WATER SUPPLY TO THE BUILDING SHALL BE TESTED SEPARATELY TO ENSURE THAT ANY LEAD CONTAMINATION FOUND DURING POTABLE WATER SYSTEM TESTING IS DUE TO WORK BEING PERFORMED INSIDE THE BUILDING.

O. OPERATIONAL TEST

1. UPON COMPLETION OF FLUSHING AND PRIOR TO DISINFECTION PROCEDURES, THE CONTRACTOR SHALL SUBJECT THE PLUMBING SYSTEM TO OPERATING TESTS TO DEMONSTRATE SATISFACTORY INSTALLATION, CONNECTIONS, ADJUSTMENTS, AND FUNCTIONAL AND OPERATIONAL EFFICIENCY. SUCH OPERATING TESTS SHALL COVER A PERIOD OF NOT LESS THAN 8 HOURS FOR EACH SYSTEM AND SHALL INCLUDE THE FOLLOWING INFORMATION IN A REPORT WITH CONCLUSION AS TO THE ADEQUACY OF THE SYSTEM:

q. TIME, DATE, AND DURATION OF TEST.

r. WATER PRESSURES AT THE MOST REMOTE AND THE HIGHEST FIXTURES.

s. OPERATION OF EACH FIXTURE AND FIXTURE TRIM.

t. OPERATION OF EACH VALVE, HYDRANT, AND FAUCET.

u. PUMP SUCTION AND DISCHARGE PRESSURES.

v. TEMPERATURE OF EACH DOMESTIC HOT-WATER SUPPLY.

w. OPERATION OF EACH FLOOR AND ROOF DRAIN BY FLOODING WITH WATER.

x. OPERATION OF EACH VACUUM BREAKER AND BACKFLOW PREVENTER.

y. COMPLETE OPERATION OF EACH WATER PRESSURE BOOSTER SYSTEM, INCLUDING PUMP START PRESSURE AND STOP PRESSURE.

P. DISINFECTION

1. AFTER ALL SYSTEM COMPONENTS ARE PROVIDED AND OPERATIONAL TESTS ARE COMPLETE, THE ENTIRE DOMESTIC HOT- AND COLD-WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED. BEFORE INTRODUCING DISINFECTING CHLORINATION MATERIAL, ENTIRE SYSTEM SHALL BE FLUSHED WITH POTABLE WATER UNTIL ANY ENTRAINED DIRT AND OTHER FOREIGN MATERIALS HAVE BEEN REMOVED.

2. WATER CHLORINATION PROCEDURE SHALL BE IN ACCORDANCE WITH AWWA C651 AND AWWA C652 AS MODIFIED AND SUPPLEMENTED BY THIS SPECIFICATION. THE CHLORINATING MATERIAL SHALL BE HYPOCHLORITES OR LIQUID CHLORINE. THE CHLORINATING MATERIAL SHALL BE FED INTO THE WATER PIPING SYSTEM AT A CONSTANT RATE AT A CONCENTRATION OF AT LEAST 50 PARTS PER MILLION (PPM). ISOLATE AND ALLOW SYSTEM TO STAND FOR A MINIMUM OF 24 HOURS OR FILL SYSTEM WITH A CHLORINE/WATER SOLUTION AT A CONCENTRATION OF AT LEAST 200 PPM AND ALLOW TO STAND FOR A MINIMUM OF 3 HOURS.

3. FLUSH WITH CLEAN POTABLE WATER UNTIL NO CHLORINE IS PRESENT AND TEST SYSTEM FOR BIOLOGICAL CONTAMINATION. REPEAT ABOVE PROCEDURES SHOULD ANY BIOLOGICAL CONTAMINATION BE DETECTED. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO THE AUTHORITY HAVING JURISDICTION.

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Permit/Seal

KIRK ALLEN FRY
ENGINEER
No. 6201049359
8-4-20

Client/Project Logo

Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP,
MICHIGAN

Title

PLUMBING SPECIFICATIONS

Project No.
2075140801

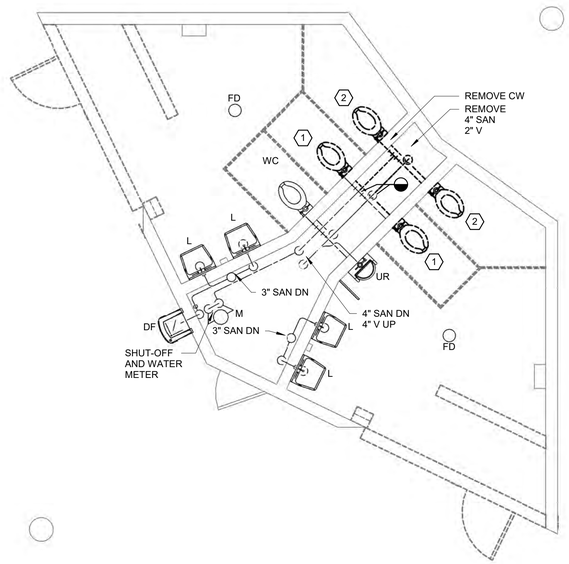
Scale
12" = 1'-0"

Revision
B

Sheet
52 of 74

Drawing No.
P002

ORIGINAL SHEET - ARCH D



1 RESTROOM PLUMBING DEMOLITION PLAN

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

GENERAL SHEET NOTES

1. IN EVERY INSTANCE OF DEMOLITION THE PLUMBING CONTRACTOR SHALL FIGURE A COMPLETE JOB AS NONE OTHER SHALL BE ACCEPTED.
2. THE DRAWINGS ARE TO BE USED ONLY AS A GUIDELINE FOR DEMOLITION. THE PLUMBING CONTRACTOR SHALL VERIFY ALL WORK REQUIRED PRIOR TO PROVIDING BID.
3. ALL WALLS, CEILINGS, FLOORS, ETC. BEING DISTURBED BY THE WORK SHALL BE RETURNED TO FINISHED CONDITIONS TO MATCH EXISTING BY THE PLUMBING CONTRACTOR.
4. THE PLUMBING CONTRACTOR SHALL DO THEIR OWN CUTTING AND PATCHING AS NECESSARY UNDER THEIR CONTRACT.

⬡ SHEET KEYNOTES

1. REMOVE EXISTING WATER CLOSET AND CARRIER. MAINTAIN BOWL AND FLUSH VALVE FOR REINSTALLATION. COORDINATE DEMOLITION WITH LOCATION OF NEW. PREPARE WASTE AND SUPPLY PIPING FOR RECONNECTION
2. REMOVE EXISTING WATER CLOSET, CARRIER, AND ASSOCIATED PIPING.

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PITTSFIELD TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP,
MICHIGAN

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RESTROOM PLUMBING
DEMOLITION PLAN

Project No. 2075140801

Scale 1/4" = 1'-0"

Revision B

Sheet 53 of 74

Drawing No. PD101

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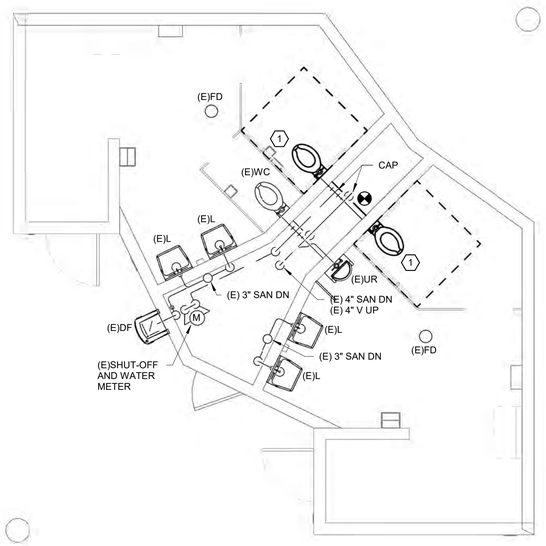

1 RESTROOM PLUMBING PLAN
SCALE: 1/4" = 1'-0"

PLAN NORTH

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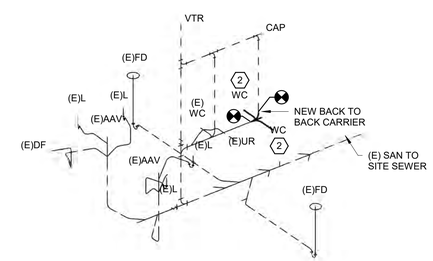

2 SANITARY ISOMETRIC
SCALE: NONE

GENERAL SHEET NOTES

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND PROPER INSTALLATION OF ALL PLUMBING SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS AND FITTINGS WHICH MAY BE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER CONDITIONS
2. THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION OF ALL PLUMBING SYSTEMS
3. THE CONTRACTOR SHALL COORDINATE FLOOR, WALL, AND ROOF PENETRATIONS, ETC. WITH GENERAL TRADES
4. THE CONTRACTOR SHALL VERIFY ALL CLEARANCES PRIOR TO FABRICATION OF ANY WORK.
5. PIPING SHALL NOT BE LOCATED ABOVE ANY ELECTRICAL PANELS OR EQUIPMENT

⬡ SHEET KEYNOTES

1. REINSTALL WATER CLOSET AND FLUSH VALVE IN LOCATION SHOWN. PROVIDE NEW CARRIER. CONNECT WASTE, VENT, AND SUPPLY PIPING AS REQUIRED. SEAT HEIGHT TO BE 17" MIN, 19" MAX.
2. RELOCATED

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Client/Project
PITTSFIELD TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP, MICHIGAN

Title

RESTROOM PLUMBING PLAN

Project No. 2075140801

Scale 1/4" = 1'-0"

Revision B

Sheet 54 of 74

Drawing No. P101

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ORIGINAL SHEET - ARCH D

POWER & EQUIPMENT SYMBOL LEGEND

SYMBOL	DESCRIPTION
HALF TONE LINES	DENOTES BACKGROUND OR EXISTING TO REMAIN (E).
THIN SOLID LINES	DENOTES DEVICES, EQUIPMENT, ETC. EXISTING TO REMAIN (E).
HEAVY SOLID LINES	DENOTES NEW (N) OR RELOCATED (R) DEVICES, EQUIPMENT, ETC.
DASHED LINES	DENOTES DEVICES, EQUIPMENT, ETC. TO BE DISCONNECTED AND REMOVED (D&R).
HEAVY PHANTOM LINES	DENOTES NEW (N) OR RELOCATED (R) CONDUIT, EQUIPMENT, ETC.UNDERGROUND OR BELOW GRADE.
ZZZ / #,#,#	BRANCH CIRCUITING. "ZZZ" INDICATES PANEL DESIGNATION. "#,#,#," INDICATES CIRCUIT NUMBER(S).
▥	208Y/120 VOLT, 3-PHASE, 4-WIRE ELECTRICAL DISTRIBUTION TYPE PANELBOARD.
▱	208Y/120 VOLT, 3-PHASE, 4-WIRE, SURFACE MOUNTED ELECTRICAL PANELBOARD.
⊠	DRY-TYPE DISTRIBUTION TRANSFORMER.
AS ▭ WP	NON-FUSED DISCONNECT SWITCH. "AS" INDICATES SWITCH SIZE. "WP" INDICATES WEATHERPROOF (NEMA 3R) ENCLOSURE.
AF AS ▱ WP	FUSED DISCONNECT SWITCH. "AF" INDICATES FUSE SIZE. "AS" INDICATES SWITCH SIZE. "WP" INDICATES WEATHERPROOF (NEMA 3R) ENCLOSURE.

LIGHTING SYMBOL LEGEND

SYMBOL	DESCRIPTION
ZZZ / #,#,#	ROOM LIGHTING CIRCUIT TAG. ALL FIXTURES IN ROOM/SPACE TO BE CIRCUITED TO PANEL "ZZZ" / CIRCUIT NUMBER(S) "#,#,#" AS INDICATED, UNLESS OTHERWISE NOTED.
X y #	RECESSED LUMINAIRE. "X" INDICATES TYPE; "y" INDICATES SWITCHING; "#" BRANCH CIRCUITING. SEE LUMINAIRE SCHEDULE.
X y #	SURFACE MOUNTED LUMINAIRE. "X" INDICATES TYPE; "y" INDICATES SWITCHING; "#" BRANCH CIRCUITING. SEE LUMINAIRE SCHEDULE.
◩ NL	LUMINAIRE WITH INTEGRAL EMERGENCY BATTERY PACK OR WIRED TO EMERGENCY CIRCUIT (LIFE SAFETY). "NL" DENOTES NIGHT LIGHT WITH 24/7 OPERATION. SEE LUMINAIRE SCHEDULE.
▨ NL	LUMINAIRE WITH INTEGRAL EMERGENCY BATTERY PACK OR WIRED TO EMERGENCY CIRCUIT (CRITICAL BRANCH). "NL" DENOTES NIGHT LIGHT WITH 24/7 OPERATION. SEE LUMINAIRE SCHEDULE.
○ / □	RECESSED DOWN LIGHT OR WALL WASH. SEE LUMINAIRE SCHEDULE.
○ / □	SURFACE MOUNTED DOWNLIGHT OR WALL WASH. SEE LUMINAIRE SCHEDULE.
▭	LINEAR PENDANT MOUNTED LUMINAIRE. SEE LUMINAIRE SCHEDULE.
⊗	ILLUMINATED EXIT SIGNAGE LUMINAIRE - CEILING MOUNTED. REFER TO PLANS FOR FACING AND CHEVRON CONFIGURATION. SEE LUMINAIRE SCHEDULE.
⊗	ILLUMINATED EXIT SIGNAGE LUMINAIRE - WALL MOUNTED. REFER TO PLANS FOR FACING AND CHEVRON CONFIGURATION. SEE LUMINAIRE SCHEDULE.
◁□▷	EMERGENCY LIGHTING BATTERY UNIT WITH HEADS AS INDICATED. SEE LUMINAIRE SCHEDULE.
$Xy	SINGLE POLE, 120/277V, 20A TOGGLE SWITCH. "X" INDICATES THE FOLLOWING: 3 THREE WAY DT DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH LVB LOW VOLTAGE 1-ZONE ON/OFF ONLY. LVD LOW VOLTAGE 2-ZONE ON/OFF WITH DIMMING. y LOWERCASE LETTER INDICATES SCENE CONTROL OF SPECIFIC LUMINAIRES
"X"	CEILING MOUNTED OCCUPANCY SENSOR WITH 20 AMP RATED POWER PACK. "X" DENOTES THE FOLLOWING: OS CELING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR WITH 20AMP RATED POWER PACK - ACUITY CM PDT 9R SERIES OR EQUAL DT LOW VOLTAGE DUAL TECHNOLOGY SENSOR PC LOW VOLTAGE PHOTOCONTROL SENSOR
PC	PHOTOCELL TO BE MOUNTED ROOF DIRECTED NORTH AND AWAY FROM ANY ARTIFICIAL LIGHT SOURCES THAT MAY AFFECT OPERATION. COORDINATE EXACT LOCATION ON FIELD.
TC	ASTRONOMICAL DIGITALLY CONTROLLED 4 ZONE LIGHTING CONTROL TIME SWITCH. TORK "DLC400BP' WITH PHOTOCELL: 'EPC2' AND TIMED OVERRIDE SWITH: 'SSA200R-24'. COORDINATE INITIAL PROGRAMMING WITH OWNER. PROVIDE INITIAL PROGRAMMING AS REQUIRED.

OUTLET SYMBOL LEGEND

SYMBOL	DESCRIPTION
⊖ +XX" ZZ/##	DUPLEX RECEPTACLE, 20 AMPERE, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE, NEMA 5-20R, MOUNTED 18"A.F.F. UNLESS OTHERWISE NOTED. "+XX" INDICATES MOUNTING HEIGHT OTHER THAN 18". "ZZ / ##" INDICATES BRANCH CIRCUITING.
⊕ +XX" ZZ/##	DOUBLE DUPLEX (QUAD) RECEPTACLE, 20 AMPERE, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE, NEMA 5-20R, MOUNTED 18"A.F.F. UNLESS OTHERWISE NOTED. REFER TO ABOVE FOR MOUNTING HEIGHT AND CIRCUITING INFORMATION.
⊖ +XX" ZZ/##	SINGLE RECEPTACLE, 20 AMPERE, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE, NEMA 5-20R, MOUNTED 18"A.F.F. UNLESS OTHERWISE NOTED. REFER TO ABOVE FOR MOUNTING HEIGHT AND CIRCUITING INFORMATION.
⊗ +XX" ZZ/##	SPECIAL PURPOSE RECEPTACLE. REFER TO ABOVE FOR MOUNTING HEIGHT AND CIRCUITING INFORMATION. COORDINATE EXACT NEMA CONFIGURATION WITH EQUIPMENT PRIOR TO ROUGH-IN.
	RECEPTACLES WITH ADDITIONAL SUBSCRIPT DESIGNATES TYPE OR SPECIFIC REQUIREMENTS AS FOLLOWS: G GROUND FAULT CIRCUIT INTERRUPTER TYPE. AC DEVICE MOUNTED 6" ABOVE COUNTER. TR TAMPER RESISTANT TYPE. WP WEATHERPROOF "WHILE-IN-USE" (HUBBELL #WP26M) COVER.
Ⓙ	JUNCTION BOX (SIZED AS REQUIRED PER N.E.C. ARTICLE 314).
m $	FRACTIONAL HORSEPOWER MOTOR STARTER - 120 VOLT, 20 AMP, 1 POLE, PILOT LIGHT, UNLESS OTHERWISE NOTED.

GENERAL GROUNDING NOTES:

1. GROUNDING INSTALLATION SHALL COMPLY WITH OSHA AND THE NATIONAL ELECTRICAL CODE, EXCEPT WHERE LOCAL CODE PREVAILS.
2. GROUNDING TO BE SUFFICIENT TO PROVIDE AN EFFECTIVE GROUND PATH BETWEEN THE EQUIPMENT AND THE GROUND, OF NOT MORE THAN 5 OHMS FOR THE FOLLOWING:
   A. NEUTRAL OF 120/240V.
   B. DATA/TELEPHONE SYSTEMS.
   C. SMALL TRANSFORMER HOUSINGS (LOW VOLTAGE).
   D. MOTOR FRAMES.
   E. STEEL FABRICATED ELECTRICAL EQUIPMENT RACK ASSEMBLIES.
   F. AT TWO POINTS FOR THE FOLLOWING EQUIPMENT:
      a. ALL TRANSFORMERS
      b. MAIN SWITCH GEAR
   G. STRUCTURAL STEEL COLUMN OF BUILDING.
3. COMPONENTS WHICH ARE INTRINSIC TO THE ELECTRICAL CONTROL AND/OR EQUIPMENT PANEL SHALL BE CONSIDERED GROUNDED WHEN THE ENCLOSURE IS GROUNDED.
4. MINIMUM OF #12 COPPER GROUND WIRE TO BE RUN THROUGH ALL LIGHTING/POWER AND SYSTEM DISTRIBUTION CONDUITS.
5. ALL SURFACES TO BE GROUNDED SHALL BE THOROUGHLY CLEANED TO BARE METAL BEFORE ATTACHING GROUND CONNECTIONS.
6. WHEN STUBBING-UP GROUND WIRES AT BUILDING COLUMNS, MOTOR, FRAMES, ETC. STUB-UP 3'-0" PIGTAIL MINIMUM ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED. PROVIDE MINIMUM OF 15'-0" PIGTAILS TO MISCELLANEOUS EQUIPMENT FROM BUILDING COLUMNS.
7. ALL GROUND CONNECTIONS SHALL BE EXOTHERMIC-WELD UNLESS OTHERWISE NOTED.
8. SEE DWG. E-501 FOR GROUNDING RISER, DETAILS, AND ADDITIONAL NOTES.
9. ALL EQUIPMENT GROUNDS SHALL BE TERMINATED WITH COMPRESSION FITTINGS AND STAINLESS STEEL BOLTS OR IN PANEL GROUND BAR.

ABBREVIATIONS

GENERAL

AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CP	CONTROL PANEL
CR	CRITICAL BRANCH
CT	CURRENT TRANSFORMER
CU	COPPER
EG	EQUIPMENT GROUND
ELEV	ELEVATOR
EM	EMERGENCY
GAP	GENERATOR ANNUNCIATOR PANEL
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
IG	ISOLATED GROUND
IPP	ISOLATED PPOWER PANEL
LCP	LIGHTING CONTROL PANEL
LS	LIFE SAFETY
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MEGB	MAIN ELECTRIC GROUND BUS
MLO	MAIN LUG ONLY
MTGB	MAIN TECHNOLOGY GROUND BUS
MTS	MANUAL TRANSFER SWITCH
(N.I.C.)	NOT IN CONTRACT
NL	NIGHT LIGHT
OS	OCCUPANCY SENSOR
PNL	PANEL
REC	RECEPTACLE
SB	OPTIONAL STAND-BY
SE	SERVICE ENTRANCE
SW	SWITCH
SWBD	SWITCHBOARD
UC	UNDER COUNTER
UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE
VP	VANDAL PROOF
VT	VOLTAGE TRANSFORMER
WIU	WHILE IN USE
WP	WEATHERPROOF

RACEWAY TYPES

AC	ARMORED CABLE
C	CONDUIT
EMT	ELECTRIC METALIC TUBING
MC	METAL CLAD
PVC	POLYVINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL

MECHANICAL EQUIPMENT

AC	AIR CONDITIONING UNIT
ACC	AIR COOLED CHILLER
AHU	AIR HANDLING UNIT
B	BOILER
BAS	BUILDING AUTOMATION SYSTEM
CH	CHILLER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
DDC	DIGITAL DIRECT CONTROL
EF	EXHAUST FAN
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
F	FURNACE
FCU	FAN COIL UNIT
FPVAV	FAN-POWERED VARIABLE AIR VOLUME
HP	HEAT PUMP
MAU	MAKE-UP AIR UNIT
P	PUMP
RTU	ROOFTOP UNIT
SAHU	SPLIT SYSTEM AIR HANDLING UNIT
UH	UNIT HEATER
UST	UNDERGROUND STORAGE TANK
VAV	VARIABLE AIR VOLUME

SCOPE OF WORK

(D&R)	**DISCONNECT AND REMOVE**
(E)	**EXISTING (TO REMAIN)**
(NIC)	**NOT IN CONTRACT**
(R)	**RELOCATED**
(R&R)	**REMOVE AND RELOCATE**
(REP)	**REPLACE**
EC	**ELECTRICAL CONTRACTOR**
GC	**GENERAL CONTRACTOR**
MC	**MECHANICAL CONTRACTOR**
TC	**TECHNOLOGY CONTRACTOR**

DEMOLITION / NEW WORK ANNOTATION LEGEND:

(E)	DENOTES EXISTING DEVICE/EQUIPMENT TO BE MAINTAINED.
(D&R)	DENOTES EXISTING DEVICE/EQUIPMENT TO BE REMOVED IN ITS ENTIRETY INCLUDING JUNCTION BOXES, CONDUITS AND CIRCUITRY, ETC. COMPLETE BACK TO SOURCE OR NEXT ACTIVE DEVICE BEING MAINTAINED ON CIRCUIT.
(R&R)	DENOTES EXISTING DEVICE/EQUIPMENT TO BE REMOVED AND RELOCATED IN ITS ENTIRETY. MAINTAIN ALL BRANCH CIRCUIT WIRING, CONDUIT, ETC. AS REQUIRED FOR RELOCATION TO NEW LOCATION (R) INDICATED ON "NEW WORK" DRAWINGS.
(R)	DENOTES NEW LOCATION OF REMOVED AND RELOCATED (R&R) DEVICE/EQUIPMENT. DEVICE SHALL BE CLEANED PRIOR TO REINSTALLATION. EXTEND/REWORK ALL BRANCH CIRCUITING TO NEW LOCATION AS REQUIRED FOR PROPER OPERATION. NEW BRANCH CIRCUITING SHALL MATCH EXISTING IN SIZE, TYPE, AND/OR MATERIAL.
(N)	DENOTES NEW DEVICE/EQUIPMENT TO BE PROVIDED IN ITS ENTIRETY, INCLUDING ALL FEEDER/BRANCH CIRCUIT WIRING, CONDUIT, ETC. AS REQUIRED FOR COMPLETE AND OPERATIONAL INSTALLATION.

GENERAL ELECTRICAL NOTES:

1. ANY AND ALL "BUILDING STANDARDS" AND/OR "BUILDING" SPECIFICATIONS" SHALL BE CONSIDERED AN INTEGRAL PART OF THESE DOCUMENTS AND THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN A COPY OF THESE DOCUMENTS AND COMPLY WITH ALL REQUIREMENTS AND STANDARDS CONTAINED WITHIN.
2. ELECTRICAL DRAWINGS ARE GENERALLY DIAGRAMMATIC, ARE INTENDED TO CONVEY THE SCOPE OF WORK, AND INDICATE GENERAL ARRANGEMENT OF LIGHTING FIXTURES, DEVICES, CONTROLS, ELECTRICAL FIXTURES, MOTORS, PANELBOARDS, EQUIPMENT, ETC. THE LOCATIONS OF ALL ITEMS SHOWN ON ELECTRICAL DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT EXPLICITLY FIXED BY DIMENSIONS ARE APPROXIMATE. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED AT THE PROJECT. ALL LOCATIONS OF WORK EXPOSED TO VIEW ARE SUBJECT TO APPROVAL OF THE ARCHITECT PRIOR TO ROUGH-INS.
3. THE ELECTRICAL CONTRACTOR SHALL LAYOUT ALL EQUIPMENT ROOMS TO MAKE SURE THE EQUIPMENT, AS PURCHASED, FITS IN THE ROOM OR SPACE SHOWN. EXACT LOCATION OF ALL EQUIPMENT SHALL BE VERIFIED IN THE FIELD AND ROUTING OF CONDUITS SHALL SUITE FIELD CONDITIONS.
4. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK TO FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND HIS PROPOSAL SHALL INCLUDE ALL CONTINGENCIES NECESSARY FOR THE COMPLETION OF HIS WORK REGARDING SUCH EXISTING CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL VERIFY EXISTING CONDITIONS TO INSURE THAT ALL NEW WORK WILL FIT INTO THE EXISTING STRUCTURE AND CONDITIONS IN THE MANNER INTENDED AND AS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/OWNERS REPRESENTATIVE PRIOR TO ANY ROUGH-INS, FABRICATIONS, OR PERFORMING ANY WORK IN THE AREA INVOLVING DIFFERENCES. NOTIFICATION SHALL BE IN THE FORM OF A DRAWING OR SKETCH INDICATING FIELD MEASUREMENTS AND NOTES RELATED TO THE AREA.
5. ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION DURING THE BIDDING PERIOD. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF HIS FAILURE TO HAVE BROUGHT SAID DISCREPANCIES TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PERIOD OR OF ANY ERROR ON THE CONTRACTOR'S PART.
6. THERE SHALL BE NO SUBSTITUTIONS UNLESS THE CONTRACTOR HAS OBTAINED WRITTEN APPROVAL FROM THE OWNER AFTER HAVING SUBMITTED AN ALTERNATIVE PROPOSAL COMPLETE WITH A DESCRIPTION OF DEVIATION FROM THE SPECIFICATIONS AND A STATEMENT OF BENEFITS TO BE DERIVED SHOULD SUCH A PROPOSED SUBSTITUTE BE ACCEPTED.
7. ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT, PROFESSIONAL AND WORKMANLIKE MANNER, RECTILINEAR TO FINISHES AND BUILDING STRUCTURE.
8. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL ELECTRICAL CODE, OSHA REQUIREMENTS, AND LOCAL REQUIREMENTS, ALL AS INTERPRETED BY THOSE HAVING JURISDICTION.
9. REFER TO ARCHITECTURAL ELEVATIONS TO DERIVE EXACT LOCATIONS OF ALL RECEPTACLES, OUTLETS/JACKS, SWITCHES, WALL AND PENDANT/CABLE MOUNTED LUMINAIRES, ETC. LUMINAIRES AND CEILING MOUNTED EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.
10. BEFORE DOING ANY WORK WHICH MIGHT ENTAIL A FULL OR PARTIAL SHUTDOWN, THE ELECTRICAL CONTRACTOR SHALL INFORM THE OWNER SO THAT A SCHEDULED SHUTDOWN ARRANGEMENT CAN BE MADE, TAKING EVERY PRECAUTION THAT THE ELECTRICAL SYSTEM IS OPERATING SATISFACTORILY.
11. THE ELECTRICAL CONTRACTOR SHALL SECURE ALL PERMITS AND PAY ALL FEES THAT ARE REQUIRED BY THE APPLICABLE LOCAL AND STATE LAWS.
12. CONDUIT HOME RUNS SHOWN ON THE DRAWING WITH MORE THAN THREE (3) CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGRAMMATICALLY. THIS CONTRACTOR SHALL NOT INSTALL MORE THAN THREE (3) CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS NATIONAL ELECTRIC CODE (N.E.C), ARTICLE 310.15 DERATING FACTORS ARE APPLIED.
13. THE ELECTRICAL CONTRACTOR SHALL REFER TO THE ELECTRICAL SPECIFICATIONS FOR ACCEPTABLE CONDUIT TYPES/LOCATIONS. ALL CONDUIT SIZES ON THE DRAWINGS ARE BASED ON THE LATEST EDITION OF THE N.E.C. CONDUIT FILL TABLES FOR ELECTRICAL METALLIC TUBING (E.M.T). CONDUIT SIZES SHALL BE REVISED TO THE SIZE REQUIRED, RELATIVE TO THE ACTUAL CONDUIT TYPE TO BE INSTALLED.
14. ALL COMPONENTS SHOWN ON THE RISER/ONE-LINE DIAGRAMS, BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH.
15. IT IS NOT INTENDED THAT THE PLANS INDICATE ALL OBSTRUCTIONS, NECESSARY BENDS, OFFSETS, AND PULL BOXES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO N.E.C. REQUIREMENTS, THE STRUCTURE, MAINTAIN HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. REFER TO THE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AS REQUIRED.
16. IT IS NOT INTENDED THAT THE PLANS INDICATE ALL CONDUIT ROUTES, PULL BOXES, JUNCTION BOXES, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ACTUAL CONDUIT ROUTING, QUANTITY AND LOCATION OF PULL BOXES WITHIN ACCESSIBLE LOCATIONS.
17. PROVIDE SCREW-COVER PULL BOXES IN CONDUIT RUNS AS REQUIRED TO LIMIT THE NUMBER OF BENDS TO NO MORE THAN FOUR (4) 90° OR 360° TOTAL. SIZE PULL BOXES IN ACCORDANCE WITH NEC, ARTICLE 314.28. DOCUMENT ON RECORD DRAWINGS, SIZE AND LOCATION OF PULL BOXES USED IN FEEDER CONDUIT RUNS.
18. WHERE MULTIPLE DEVICES OF THE SAME TYPE/STYLE ARE SHOWN NEXT TO EACH OTHER, GANG INTO A SINGLE COVER PLATE.
19. ALL RACEWAYS RUNNING THROUGH BUILDING EXPANSION JOINTS SHALL BE EQUIPPED WITH APPROPRIATE EXPANSION FITTINGS.
20. IDENTIFY WITH LEGIBLE AND DURABLE MARKING, EACH DISCONNECTING MEANS INDICATING ITS PURPOSE.
21. ALL RECEPTACLES, SWITCHES AND DEVICES SHALL HAVE PANEL AND CIRCUIT NUMBER IDENTIFY WITH LEGIBLE AND DURABLE MARKING ON COVER PLATE. OWNER WILL INDICATE IF MARKINGS ARE ON THE FRONT OR BACK OF COVER.
22. ALL LABOR AND MATERIAL FURNISHED BY THE CONTRACTOR AS PART OF THIS CONTRACT SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY THE OWNER. ANY DEFECTS WHICH APPEAR WITHIN THE GUARANTEE PERIOD SHALL BE PROMPTLY REPAIRED OR REPLACED AT THE OWNER'S DISCRETION, WITHOUT ADDITIONAL COST TO THE OWNER.
23. ALL EQUIPMENT GROUNDS SHALL BE TERMINATED WITH COMPRESSION FITTINGS AND STAINLESS STEEL BOLTS OR IN PANEL GROUND BAR.
24. BEFORE DRILLING ANY HOLES IN WALLS OR FLOORS THE AREA MUST BE CHECKED FOR EXISTING EMBEDDED CONDUITS AND WIRE. IF ANY EXISTING CONDUITS OR WIRING ARE DAMAGED BY THIS CONTRACTOR IT IS THIS CONTRACTORS RESPONSIBILITY TO MAKE ALL REPAIRS TO CONDUITS, WIRE, FLOORS AND BUILDING FINISHES IN KIND AT NO COST TO OWNER.
25. PROVIDE UL LISTED FIRE STOP ASSEMBLY AT ALL NEW AND EXISTING PENETRATIONS IN FIRE RATED STRUCTURES.
26. ALL 120 VOLT, SINGLE PHASE 15 AND 20 AMPERE RECEPTACLE OUTLETS USED BY THE WORKMEN SHALL BE PROTECTED BY A "GROUND FAULT INTERRUPTER".

GENERAL ELECTRICAL DEMOLITION NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC ONLY AND ARE TO BE USED AS A GUIDELINE ONLY FOR THE SCOPE OF DEMOLITION WORK. THE CONTRACTOR SHALL VISIT THE PROJECT SITE DURING THE BID PHASE TO VERIFY THE EXACT CONDITIONS AND SCOPE OF WORK REQUIRED FOR A COMPLETE AND INCLUSIVE DEMOLITION PACKAGE.
2. THE CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE PREMISES AND SITE SO AS TO COMPARE THEM WITH THE CONTRACT DOCUMENTS AND TO HAVE SATISFIED HIMSELF AS TO THE CONDITIONS OF THE PREMISES, THE SITE, ANY OBSTRUCTIONS, THE ACTUAL LEVELS, ACCESS PANELS, AND ALL OTHER EXISTING CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD, SHALL CHECK LOCATION OF AND CONNECTION TO EXISTING FACILITIES, AND SHALL ASSUME ALL RESPONSIBILITY FOR SAME.
3. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL EXISTING UTILITIES IN WORK AREA PRIOR TO INITIATION OF DEMOLITION ACTIVITIES. BEGINNING OF DEMOLITION SHALL SIGNIFY CONTRACTORS ACCEPTANCE OF EXISTING CONDITIONS AND THE COST OF REWORKING ANY EXISTING SYSTEMS DUE TO CONFLICTS WITH EXISTING CONDITIONS SHALL BE PAID BY CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED DEMOLITION WHETHER SHOWN ON THE PLANS OR NOT.
4. THE CONTRACTOR SHALL COORDINATE WITH THE TENANT AND/OR BUILDING MANAGEMENT ALL INTERRUPTION OF ELECTRICAL SERVICES WITHIN THE TENANT SPACE AND/OR BUILDING.
5. THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL, MECHANICAL HVAC, AND PLUMBING DEMOLITION DRAWINGS FOR ALL EQUIPMENT BEING DEMOLISHED, AND SHALL DISCONNECT AND REMOVE COMPLETE THE ELECTRICAL SERVICES TO ALL EQUIPMENT AND WIRING DEVICES. DEMOLITION DRAWINGS OF ALL DISCIPLINES MUST BE CHECKED AND ALL ASSOCIATED ELECTRICAL DEVICES OF EQUIPMENT REMOVED BY OTHERS MUST BE REMOVED.
6. ALL EXISTING LUMINAIRES AND ASSOCIATED CONTROLS, ELECTRICAL EQUIPMENT, WIRING DEVICES, FIRE ALARM DEVICES, ETC. NOT INDICATED ON THIS PLAN SHALL BE EXISTING TO REMAIN, UNLESS SPECIFICALLY NOTED OTHERWISE.
7. FOR ALL RENOVATION/REMOLDING WORK, INCLUDING ALL AREAS OF NO OR MINIMAL WORK, EXISTING ELECTRICAL SERVICES SHALL BE MAINTAINED TO LUMINAIRES, EQUIPMENT, WIRING DEVICES, ETC. (POWER, LIGHTING, ETC.), THAT ARE REQUIRED TO BE MAINTAINED. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THESE SERVICES, EQUIPMENT, WIRING DEVICES THAT ARE EXISTING TO REMAIN, WHETHER OR NOT INDICATED ON THE PLANS.
8. DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, WIRING DEVICES, TELECOM DEVICES, BLANK COVER PLATES, ETC. LOCATED IN WALLS/PARTITIONS LABELED AS "TO BE REMOVED". REMOVE ALL EXISTING BRANCH CIRCUITING (CONDUCTORS AND CONDUIT) BACK TO LAST ACTIVE DEVICE (OR SOURCE IF NO ACTIVE DEVICES REMAIN).
9. ALL ELECTRICAL LUMINAIRES, EQUIPMENT, WIRING DEVICES, TELECOMMUNICATIONS VOICE/DATA CABLING, ETC. SHALL BE REMOVED COMPLETE, BACK TO SOURCE, (PANELBOARD, TERMINAL BOARDS, ETC.), INCLUDING ALL BRANCH CIRCUITING, (CONDUCTORS AND CONDUIT), FEEDERS, SUPPORTS, JUNCTION BOXES, PULL BOXES, ETC.
10. PROVIDE AND MAINTAIN TEMPORARY ELECTRICAL SERVICES, SUCH AS LIGHTING AND POWER IN ALL AREAS OF DEMOLITION AND SURROUNDING AREAS NOT IN DEMOLITION FOR THE DURATION OF THE PROJECT. COORDINATE ALL TEMPORARY ELECTRICAL SERVICES WITH OWNER'S SITE REPRESENTATIVE AND/OR LOCAL ELECTRIC UTILITY.
11. EQUIPMENT AND WIRING DEVICES INDICATED AS (R&R) - EXISTING TO BE RELOCATED, SHALL BE STORED FOR RE-USE AS INDICATED (R) - NEW LOCATION OF EXISTING RELOCATED DEVICE, ON NEW PLAN DRAWINGS. DEVICES SHALL BE CLEANED, LUMINAIRES RE-LAMPED PER SPECIFICATIONS, AND BALLAST REPLACED WHERE FOUND TO BE INOPERABLE.
12. ANY CIRCUITS FEEDING THROUGH EQUIPMENT OR DEVICES THAT ARE BEING DEMOLISHED, REWORKED, OR RELOCATED, AND FEEDING OTHER EQUIPMENT/DEVICES THAT REMAIN ARE TO BE MAINTAINED.
13. ALL EQUIPMENT AND/OR DEVICES THAT ARE REMOVED AND NOT RE-USED SHALL BE TURNED OVER TO THE TENANT AND/OR BUILDING MANAGEMENT OR DISPOSED OF PER THEIR DIRECTION. MATERIAL OF NO SALVAGEABLE VALUE INCLUDING CONDUIT, WIRE AND TRASH RESULTING FROM THE DEMOLITION WORK SHALL BE REMOVED BY THE ELECTRICAL CONTRACTOR PROMPTLY FROM THE JOB SITE AND PROPERLY DISPOSED OF IN A LEGAL MANNER. NO BURNING SHALL BE PERMITTED ON THE SITE.
14. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO CONDUCT ALL DEMOLITION IN ACCORDANCE WITH OSHA, EPA, AND ALL OTHER APPLICABLE CODES AND REGULATIONS FOR TYPE OF WORK.
15. ANY AND ALL ABANDONED CONDUIT AND/OR WIRING FOUND DURING DEMOLITION SHALL BE REMOVED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL EXPENSE.
16. REMOVE ALL ELECTRICAL EQUIPMENT, DEVICES, BOXES, CONDUIT AND WIRE IN THE AREA OF NEW CONSTRUCTION UNLESS OTHERWISE NOTED. CONDUIT, WIRE AND ELECTRIC DEVICES WHICH MAY PASS THRU THE AREA OF NEW CONSTRUCTION AND/OR MAY BE AFFECTED BY DEMOLITION SHALL REMAIN OR, IF REQUIRED, SHALL BE RE-WORKED TO KEEP THOSE ITEMS OPERATIONAL.
17. AREAS AND SERVICES ADJACENT TO DEMOLITION AREAS SHALL BE PROTECTED FROM THE DEMOLITION PROCESS. PROTECTIVE MEASURES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL WORK AND SHALL BE MAINTAINED CONTINUOUSLY UNTIL DEMOLITION IS COMPLETED.
18. ALL DEMOLITION AND MATERIAL REMOVAL OPERATIONS SHALL BE CAREFULLY AND SAFELY CARRIED OUT. ELECTRICAL CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR HIS SAFE PRACTICES AND OPERATIONS.
19. PROTECTIVE MEASURES SHALL BE TAKEN DURING DEMOLITION TO KEEP THE INTERIOR OF THE REMAINING BUILDING WEATHERTIGHT. ANY OPENINGS IN THE BUILDING SHELL RESULTING FROM THE DEMOLITION PROCESS SHALL BE PROMPTLY SEALED.
20. ANY ITEM INTENDED TO BE REMOVED BUT NOT SHOWN SHALL BE VERIFIED AND REMOVED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST.
21. ALL EXISTING CONDUITS PENETRATING FLOORS OR WALLS NOT REQUIRED TO BE REMOVED AND ALL NEW CONDUITS SHALL BE SEALED WITH FIRESTOPPING SEALANT.
22. SHIFT AND REROUTE (IF REQUIRED) ANY EXISTING CONDUIT WHICH MAY INTERFERE WITH NEW CONSTRUCTION. ALL DEVICES REMAINING MUST BE LEFT IN A CLEAN AND OPERATING CONDITION.
23. ALL DEMOLITION WORK SHALL BE PERFORMED IN AN ORDERLY FASHION WITHOUT ANY DAMAGE TO EXISTING STRUCTURE AND SYSTEMS.
24. THE EC SHALL FURNISH AND INSTALL ADDITIONAL CONDUIT AND WIRE AS REQUIRED AND EXTEND EXISTING CIRCUITING TO FIXTURES AND DEVICES WHICH REMAIN BUT WHICH MAY BE AFFECTED BY EXISTING FIXTURES AND DEVICES BEING REMOVED AND/OR RELOCATED. FULL EXTENT OF WORK REQUIRED SHALL BE FIELD VERIFIED.

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ORIGINAL SHEET - ARCH D

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Notes

B FINAL DESIGN PLAN			20.08.07
Issued	By	Appd.	YY.MM.DD

File Name				
J20191489-000 Pittsfield - Montibeller Park Improvements-E20	BTF	JRB	BTF	09/09/10
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit/Seal

JEFFREY R. BODWAY

Client/Project Logo

Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP
MICHIGAN

Title
ELECTRICAL SYMBOL LEGEND AND NOTES

Project No. 2019124
Scale

Revision B
Sheet 65 of 74
Drawing No. E001

DIVISION 26 SPECIFICATIONS:

A. GENERAL

1. REQUIREMENTS SPECIFIED IN DIVISION 1, INSTRUCTIONS TO BIDDERS, SUPPLEMENTAL GENERAL CONDITIONS, SPECIAL CONDITIONS, ADDENDA, ALTERNATES, CONTRACT AND PROPOSAL, ALONG WITH THESE SPECIFICATIONS AND ALL ITS SECTIONS, COMPRISE THE CONTRACT DOCUMENTS FOR THE ELECTRICAL CONTRACT. DRAWINGS AND ALL THEIR REVISIONS UP TO THE BID SUBMITTAL DATE BECOME A BINDING PART OF THE CONTRACT, ALONG WITH THESE SPECIFICATIONS AS THOUGH THEY WERE ONE, AND ANYTHING IMPLIED BY THE SPECIFICATIONS SHALL BE INTERPRETED AS ALSO IMPLIED BY THE DRAWINGS AND VICE VERSA. PROVIDE NECESSARY ITEMS FOR A COMPLETE INSTALLATION OF ALL ELECTRICALLY OPERATED EQUIPMENT LISTED IN THE SPECIFICATIONS OR SHOWN ON THE CONTRACT DRAWINGS.

2. THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, TECHNOLOGY AND EQUIPMENT DRAWINGS AND SPECIFICATIONS ARE INCORPORATED INTO, AND BECOME A PART OF THIS SPECIFICATION. THIS CONTRACTOR SHALL EXAMINE ALL SUCH DRAWINGS AND SPECIFICATIONS AND BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS CONTAINED THEREIN. THE SUBMISSION OF HIS BID SHALL INDICATE SUCH KNOWLEDGE.

3. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. THEY ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT AND CONDUIT. DIMENSIONS GIVEN ON THE PLANS, IN FIGURES, SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS AND SHALL BE VERIFIED IN THE FIELD. THE ELECTRICAL CONTRACTOR SHALL LAYOUT ALL EQUIPMENT ROOMS TO MAKE SURE THE EQUIPMENT, AS PURCHASED, FITS IN THE ROOM OR SPACE SHOWN. EXACT LOCATION OF ALL EQUIPMENT SHALL BE VERIFIED IN THE FIELD AND ROUTING OF CONDUITS SHALL SUITE FIELD CONDITIONS.

4. UNTIL THE TIME OF INSTALLATION, THE ARCHITECT RESERVES THE RIGHT TO MAKE MINOR CHANGES IN THE LOCATION OF CONDUIT AND EQUIPMENT WITHOUT ADDITIONAL COST TO THE CONTRACT.

5. THE ELECTRICAL DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER. MATERIAL AND LABOR NECESSARY TO THE PROJECT SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. LABOR AND/OR MATERIALS NEITHER SHOWN NOR SPECIFIED, BUT OBVIOUSLY NECESSARY FOR THE COMPLETION AND PROPER FUNCTIONING OF THE SYSTEM, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

6. ARRANGE ALL EQUIPMENT SUBSTANTIALLY AS SHOWN ON THE DRAWINGS. MAKE DEVIATIONS ONLY WHERE NECESSARY TO AVOID INTERFERENCE. CHECK ALL EQUIPMENT SIZES AGAINST AVAILABLE SPACE PRIOR TO SHIPMENT TO AVOID INTERFERENCE.

7. EXAMINE THE WORK OF OTHER TRADES INSOFAR AS THEIR WORK COMES IN CONTACT WITH OR IS COVERED BY THIS WORK IN NO CASE ATTACH TO, OR FINISH AGAINST ANY DEFECTIVE WORK OR INSTALL WORK IN A MANNER WHICH WILL PREVENT PROPER INSTALLATION OF THE WORK OF OTHER TRADES.

8. ELECTRICAL CONTRACTOR SHALL VERIFY WITH OTHER TRADES ALL ELECTRICAL CHARACTERISTICS OF EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS, CONTRACTOR SHALL VERIFY VOLTAGE, PHASE AND HORSEPOWER AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO START OF WORK. ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECTING MEANS AND OVERLOAD PROTECTION FOR ALL EQUIPMENT, UNLESS FURNISHED INTEGRAL WITH EQUIPMENT PACKAGE.

9. IT IS THE INTENT OF THESE DRAWINGS THAT THIS BE A COMPLETE ELECTRICAL JOB, ANY ERRORS OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BIDDING THE JOB.

B. VISIT TO THE SITE

1. THIS CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING HIS WORK. THE SUBMISSION OF HIS PROPOSAL SHALL INDICATE SUCH KNOWLEDGE. NO ADDITIONAL PAYMENT SHALL BE MADE ON CLAIMS THAT ARISE FROM A LACK OF KNOWLEDGE OF THE EXISTING CONDITIONS.

C. CODES, PERMITS, AND FEES

1. INSTALLATION SHALL BE IN FULL ACCORDANCE WITH ALL CODES, RULES AND REGULATIONS OF MUNICIPAL, CITY, COUNTY, STATE, AND PUBLIC UTILITIES, AND ALL OTHER AUTHORITIES HAVING JURISDICTION OVER THE PREMISES.

2. COMPLY WITH ANY SPECIFICATION REQUIREMENTS THAT ARE IN EXCESS BUT NOT IN CONFLICT WITH CODE REQUIREMENTS.

3. SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES OF INSPECTIONS INCIDENTAL TO THIS WORK, AS REQUIRED BY ALL FOREGOING AUTHORITIES. BE RESPONSIBLE FOR PAYMENTS TO ALL PUBLIC UTILITIES FOR WORK PERFORMED BY THEM IN CONNECTION WITH PROVISION OF SERVICE CONNECTIONS REQUIRED UNDER THIS DIVISION OF SPECIFICATIONS. TURN OVER CERTIFICATES OF APPROVAL TO THE CONSTRUCTION MANAGER AND/OR OWNER PROMPTLY WHEN RECEIVED, AND BEFORE PAYMENT IS MADE FOR THE WORK. DELIVER ALL CERTIFICATES TO ARCHITECT IN DUPLICATE.

D. AS-BUILT DRAWINGS

1. SUBMIT TO THE OWNER ONE SET OF RED LINED ELECTRICAL DRAWINGS SHOWING THE AS-BUILT CONDITIONS.

E. STANDARDS AND SUBSTITUTIONS

1. THE BASIS OF DESIGN IS BASED UPON THE FIRST MANUFACTURER LISTED OR CALLED OUT IN PANEL SCHEDULES, FIXTURE SCHEDULES, ETC. WHERE OTHER MANUFACTURES ARE CHOSEN AND ALTER THE DESIGN OR SPACE REQUIREMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COST ASSOCIATED WITH CHANGES REQUIRED FROM THE BASIS OF DESIGN. THIS INCLUDES ALL ITEMS OF COST FOR THE REVISED DESIGN AND CONSTRUCTION INCLUDING COST OF ALL ALLIED TRADES INVOLVED.

2. WHEREVER THE WORDS "APPROVED BY", "APPROVED EQUAL", "AS DIRECTED" OR SIMILAR PHRASES ARE USED IN THE FOLLOWING SPECIFICATIONS, THEY SHALL BE UNDERSTOOD TO REFER TO THE OWNER AS THE APPROVING AGENCY. THE NAME OR MAKE OF ANY EQUIPMENT OR MATERIALS NAMED IN THIS SPECIFICATION (WHETHER OR NOT THE WORDS "OR APPROVED EQUAL" ARE USED) SHALL BE KNOWN AS THE "STANDARD".

3. THESE SPECIFICATIONS ESTABLISH QUALITY STANDARD OF MATERIALS AND EQUIPMENT TO BE PROVIDED. SPECIFIC ITEMS ARE IDENTIFIED BY MANUFACTURER, TRADE NAME OR CATALOG DESIGNATION. THIS CONTRACTOR SHALL SUBMIT HIS BASE BID PRICE BASED UPON STANDARD SPECIFIED EQUIPMENT DESCRIBED HEREIN AND AS DETAILED ON DRAWINGS AND ASSOCIATED CONTRACT DOCUMENTS. THESE SPECIFICATIONS ARE NOT TO BE CONSIDERED PROPRIETARY. THE CONTRACTOR MAY SUBMIT INFORMATION ON MATERIALS AND MANUFACTURERS (OTHER THAN THOSE LISTED) FOR REVIEW BY THE ARCHITECT AND ENGINEER NO LATER THAN TEN (10) DAYS BEFORE BIDS ARE SUBMITTED. IN ADDITION, SAMPLES OF PROPOSED EQUIPMENT MAY BE REQUIRED TO BE SUBMITTED TO THE ENGINEER FOR REVIEW NO LATER THAN TEN (10) DAYS BEFORE BIDS ARE SUBMITTED. MANUFACTURERS OF PRODUCTS ACCEPTED BY THE ARCHITECT AND ENGINEER WILL BE LISTED IN AN ADDENDUM TO THE SPECIFICATIONS AS AN ACCEPTABLE SUBSTITUTION EQUIPMENT ACCEPTED AS DETAILED BELOW AND SHALL BE SHOWN AS A SEPARATE ADD OR DEDUCT PRICE TO BE FACTORED INTO THE BASE BID PRICE BY THE ARCHITECT AND OWNER IF ACCEPTED.

4. SHOULD THE CONTRACTOR PROPOSE TO FURNISH MATERIALS AND EQUIPMENT OTHER THAN THOSE SPECIFIED OR APPROVED BY ADDENDUM, SUBMIT A WRITTEN REQUEST FOR SUBSTITUTIONS TO THE ARCHITECT AT THE BID OPENING. THE REQUEST SHALL BE AN ALTERNATE TO THE ORIGINAL BID; BE ACCOMPANIED WITH COMPLETE DESCRIPTIVE (MANUFACTURER, BRAND NAME, CATALOG NUMBER, ETC.) AND TECHNICAL DATA FOR ALL ITEMS. FAILURE BY THIS CONTRACTOR TO SUBMIT THE REQUISITE DOCUMENTATION DETAILED ABOVE SHALL BE UNDERSTOOD BY THE ARCHITECT AND ENGINEER TO INDICATE THAT SUBSTITUTE EQUIPMENT WILL NOT BE PRESENTED BY THE CONTRACTOR FOR CONSIDERATION. SUCH SUBSTITUTIONS WILL NOT BE CONSIDERED AFTER THE BID OPENING DATE AND DELAY OF PROJECT WILL NOT BE PERMITTED FOR FURTHER INSPECTION AND EVALUATION AFTER THIS DATE.

5. WHERE SUCH SUBSTITUTIONS ALTER THE DESIGN OR SPACE REQUIREMENTS INDICATED ON THE DRAWINGS, INCLUDE ALL ITEMS OF COST FOR THE REVISED DESIGN AND CONSTRUCTION INCLUDING COST OF ALL ALLIED TRADES INVOLVED.

6. ACCEPTANCE OR REJECTION OF THE PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO APPROVAL OF THE ARCHITECT AND ENGINEER. IF REQUESTED, THE CONTRACTOR SHALL SUBMIT (AT HIS COST) INSPECTION SAMPLES OF BOTH THE SPECIFIED AND PROPOSED SUBSTITUTE ITEMS.

7. IN ALL CASES WHERE SUBSTITUTIONS ARE PERMITTED, THE CONTRACTOR SHALL BEAR ANY EXTRA COST OF EVALUATING THE QUALITY OF THE MATERIAL AND EQUIPMENT TO BE PROVIDED.

F. INTERFERENCES

1. BEFORE THE INSTALLATION OF ANY ITEM BEGINS, THE ELECTRICAL CONTRACTOR SHALL CAREFULLY ASCERTAIN THAT IT DOES NOT INTERFERE WITH CLEARANCES FOR THE ERECTION OF FINISH BEAMS, COLUMNS, PILASTERS, WALLS OR OTHER STRUCTURAL OR ARCHITECTURAL MEMBERS AS SHOWN ON THE ARCHITECTURAL DRAWINGS. IF ANY WORK IS INSTALLED AND THE ARCHITECTURAL DESIGN CANNOT BE FOLLOWED, THIS CONTRACTOR SHALL, AT HIS OWN EXPENSE, MAKE CHANGES IN HIS WORK AS DIRECTED BY THE ARCHITECT TO PERMIT THE COMPLETION OF THE ARCHITECTURAL WORK IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.

2. IT SHALL BE THE DUTY OF THIS CONTRACTOR TO REPORT ANY INTERFERENCES BETWEEN HIS WORK AND THAT OF ANY OF THE OTHER CONTRACTORS AS SOON AS THEY ARE DISCOVERED. THE ARCHITECT SHALL DETERMINE WHICH EQUIPMENT WILL BE RELOCATED, REGARDLESS OF WHICH WAS INSTALLED FIRST. HIS DECISION WILL BE FINAL.

G. EXECUTION

1. THE ELECTRICAL WORK FOR CONSTRUCTION PURPOSED SHALL CONFORM TO ALL FEDERAL (OSHA), STATE, ALL SPECIFIC SAFETY REQUIREMENTS AND THE REQUIREMENTS OF THE CURRENT EDITION OF THE NEC.

2. CHECK THE ARCHITECTURAL, HVAC, PLUMBING, FIRE PROTECTION AND TECHNOLOGY SPECIFICATIONS FOR ELECTRICAL REQUIREMENTS AND INCLUDE THE SAME IN THE CONTRACT COST.

3. EQUIPMENT CONNECTIONS, STARTERS, DISCONNECT SWITCHES, CONTROL TRANSFORMERS AND PUSHBUTTON STATIONS FOR THE EQUIPMENT FURNISHED BY THE OWNER OR UNDER A SEPARATE CONTRACT SHALL BE INSTALLED AND CONNECTED UNDER THIS DIVISION, AS INDICATED ON THE CONTRACT DRAWINGS.

4. ALL CUTTING, PATCHING, EXCAVATING, BACKFILLING AND CONCRETE WORK RELATED TO THIS CONTRACT WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL ASSUME THE RESPONSIBILITY OF PROVIDING THE SLEEVES, CHASES AND OPENINGS NECESSARY FOR THE ELECTRICAL INSTALLATION AND FOR THEIR REPAIR IN AN ACCEPTABLE MANNER, AS DETERMINED BY THE ARCHITECT. ALL HOLES SHALL BE CORE-DRILLED. PROVIDE FIRE STOP IN ALL OPENINGS CREATED THROUGH FIRE-RATED WALLS, FLOORS OR CEILINGS.

5. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL REQUIRED ACCESS PANELS NECESSARY FOR HIS WORK, COORDINATE WITH ARCHITECT PRIOR TO INSTALLATION.

H. MATERIALS AND WORKMANSHIP

1. ALL WORK SHALL BE INSTALLED IN A PRACTICAL AND WORKMANLIKE MANNER, BY MECHANICS SKILLED IN THE SEVERAL TRADES NECESSARY.

2. ALL MATERIALS SHALL BE NEW AND FREE FROM DEFECTS AND SHALL BE THE BEST OF THEIR SEVERAL KINDS UNLESS SPECIFIED OR INDICATED ON THE DRAWINGS TO THE CONTRARY.

3. DURING EACH PHASE AND AT THE COMPLETION OF THE CONSTRUCTION, THIS CONTRACTOR SHALL REMOVE ALL DEBRIS AND EXCESS MATERIALS CAUSED BY HIS WORK. HE SHALL LEAVE THE AREA OF OPERATION BROOM CLEAN.

4. ALL ELECTRICAL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OR ETL LABEL.

5. THIS CONTRACTOR SHALL GUARANTEE HIS WORKMANSHIP AND MATERIAL (LAMPS EXCEPTED) FOR A PERIOD OF ONE YEAR FROM THE DATE OF BUILDING OPENING AND LEAVE HIS WORK IN PERFECT ORDER AT THE COMPLETION. SHOULD DEFECTS DEVELOP WITHIN THE GUARANTEE PERIOD, THE CONTRACTOR SHALL, UPON NOTICE OF THE SAME, REMEDY THE DEFECTS AND HAVE ALL DAMAGES TO OTHER WORK OR FURNISHINGS CAUSED BY THE REPAIRS CORRECTED AT HIS EXPENSE TO THE CONDITION BEFORE SUCH DAMAGE.

I. WORK INCLUDES

1. INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, SERVICES, AND PERMITS NECESSARY FOR THE PROPER COMPLETION OF ALL ELECTRICAL WORK SHOWN. ITEMS OMITTED, BUT NECESSARY TO MAKE THE ELECTRICAL SYSTEM COMPLETE AND WORKABLE, SHALL BE UNDERSTOOD TO FORM PART OF THE WORK.

2. IT IS THE PURPOSE OF THE ELECTRICAL DRAWINGS TO INDICATE THE APPROXIMATE LOCATION OF ALL EQUIPMENT, OUTLETS, ETC. ASCERTAIN EXACT LOCATIONS AND ARRANGE WORK ACCORDINGLY. THE RIGHT IS RESERVED TO EFFECT REASONABLE CHANGES IN THE LOCATION OF OUTLETS UP TO THE TIME OF ROUGHING-IN, WITHOUT ADDITIONAL COST TO THE OWNER. CHANGES IN LOCATION OF OUTLETS OR EQUIPMENT NECESSITATED BY INTERFERENCE WITH THE WORK OF OTHER TRADES SHALL BE MADE ONLY WITH THE CONSENT OF THE ARCHITECT AND ENGINEER OR OWNER'S REPRESENTATIVE, AND AT NO ADDITIONAL COST.

3. AS USED IN THIS SPECIFICATION, "PROVIDE" MEANS "FURNISH AND INSTALL", "FURNISH" MEANS "TO PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT", AND "INSTALL" MEANS "TO UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY FOR PROPER INSTALLATION PER CODES AND MANUFACTURERS REQUIREMENTS, TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT."
ACT MATERIAL AND RATINGS AND EXACT DETAILS FOR FIRE STOPPING MATERIALS AND INSTALLATIONS PER ALL NFPA AND UL REQUIREMENTS.

J. PRODUCT DELIVERY, STORAGE, AND HANDLING

1. DELIVER PRODUCTS TO THE PROJECT PROPERLY IDENTIFIED WITH NAMES, MODEL NUMBERS, TYPES, COMPLIANCE LABELS AND SIMILAR INFORMATION NEEDED FOR IDENTIFICATION. MATERIALS MUST BE ADEQUATELY PACKAGED OR PROTECTED TO PREVENT DETERIORATION DURING SHIPMENT, STORAGE AND HANDLING.

2. THE CONTRACTOR SHALL MAKE PROVISIONS FOR THE DELIVERY AND SAFE STORAGE OF HIS MATERIALS AND EQUIPMENT IN COORDINATION WITH THE WORK OF OTHERS. MATERIALS AND EQUIPMENT SHALL BE DELIVERED AT SUCH STAGES OF THE WORK AS WILL EXPEDITE THE WORK AS A WHOLE AND SHALL BE MARKED AND STORED IN SUCH A WAY AS TO BE EASILY CHECKED AND INSPECTED. THE ARRIVAL AND PLACING OF LARGE EQUIPMENT ITEMS SHALL BE SCHEDULED EARLY ENOUGH TO PERMIT ENTRY AND SETTING WHEN THERE IS NO RESTRICTION OR PROBLEM DUE TO SIZE AND WEIGHT.

3. MATERIALS SHALL BE STORED TO PROTECT THEM FROM INJURY PRIOR TO INSTALLATION. MATERIAL SHOULD NOT BE STORED DIRECTLY ON THE GROUND OR FLOOR AND SHALL BE KEPT AS CLEAN AND DRY AS POSSIBLE AND FREE FROM DAMAGE OR DETERIORATING ELEMENTS.

4. IN GENERAL, DO NOT DELIVER ITEMS OF ELECTRICAL EQUIPMENT TO THE PROJECT SUBSTANTIALLY BEFORE THE TIME OF INSTALLATION. LIMIT EACH SHIPMENT OF BULK AND MULTIPLE-USE MATERIALS TO THE QUANTITIES NEEDED FOR INSTALLATION WITHIN 3-WEEKS OF RECEIPT.

K. PROTECTION OF WORK AND PROPERTY

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING WORK, PROPERTY, AND FACILITIES AGAINST DAMAGE, BOTH HIS OWN AS WELL AS OTHERS, WITH WHICH HE MAY COME INTO CONTACT IN THE PERFORMANCE OF HIS WORK.

2. STORED MATERIALS SHALL BE PROTECTED AGAINST DAMAGE FROM WEATHER. PIPE AND DUCT OPENINGS SHALL BE CLOSED WITH CAPS OR PLUGS DURING INSTALLATION. ALL FIXTURES AND EQUIPMENT SHALL BE COVERED AND PROTECTED AGAINST DAMAGE. ANY MATERIALS OR EQUIPMENT DAMAGED AT ANY STAGE IN THE CONSTRUCTION SHALL BE REPLACED OR REPAIRED AND AT THE FINAL COMPLETION, ALL WORK SHALL BE IN A CLEAN, UNBLEMISHED CONDITION.

3. FURNISH INFORMATION TO GENERAL CONTRACTOR AS TO SIZE AND LOCATION OF ALL BUILT-IN OPENINGS REQUIRED. DO NOT CUT, REMOVE OR PIERCE: GENERAL OR MECHANICAL INSULATION; FIRE RATED WALLS OR CEILINGS; OR STEEL WORK; WITHOUT PRIOR PERMISSION AND INSTRUCTION.

L. CUTTING AND PATCHING

1. GENERAL: ALL CUTTING AND PATCHING FOR THE INSTALLATION OF THIS BRANCH OF THE WORK SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR.

2. PERFORM CUTTING AND PATCHING IN ACCORDANCE WITH DIVISION 1 SECTION "PROCEDURES, SEPARATE PRIMES. " IN ADDITION TO THE REQUIREMENTS SPECIFIED IN DIVISION 1, PERFORM CUTTING, FITTING AND PATCHING OF MECHANICAL EQUIPMENT AND MATERIALS REQUIRED TO:
   a. INSTALL NEW WORK.
   b. UNCOVER WORK TO PROVIDE FOR INSTALLATION OF ILL-TIMED WORK.
   c. REMOVE AND REPLACE DEFECTIVE WORK.
   d. REMOVE AND REPLACE WORK NOT CONFORMING TO REQUIREMENTS OF THE CONTRACT DOCUMENTS.
   e. INSTALL EQUIPMENT AND MATERIALS IN EXISTING STRUCTURE.
   f. UPON WRITTEN INSTRUCTIONS FROM THE ENGINEER, UNCOVER AND RESTORE WORK TO PROVIDE FOR ENGINEER OBSERVATION OF CONCEALED WORK.
   g. CUT, REMOVE AND LEGALLY DISPOSE OF SELECTED ELECTRICAL EQUIPMENT, COMPONENTS AND MATERIALS AS INDICATED, INCLUDING BUT NOT LIMITED TO REMOVAL OF CONDUITS AND CONDUCTORS, JUNCTION BOXES, LUMINAIRES AND TRIM, AND OTHER ELECTRICAL ITEMS MADE OBSOLETE BY THE NEW WORK.

3. PROTECTION OF INSTALLED WORK: DURING CUTTING AND PATCHING OPERATIONS, PROTECT ADJACENT INSTALLATIONS.

4. PROVIDE AND MAINTAIN TEMPORARY PARTITIONS OR DUST BARRIERS ADEQUATE TO PREVENT THE SPREAD OF DUST AND DIRT TO ADJACENT AREAS.

5. ALL OPENINGS REQUIRED FOR THIS BRANCH OF WORK SHALL BE ACCOMPLISHED IN TIME TO BE INCORPORATED IN, AND BE COMPATIBLE WITH THE CONSTRUCTION PROGRAM, OTHERWISE THIS CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ALL CHANGES MADE NECESSARY FOR HIS FAILURE TO DO SO. PIPE HOLES IN FLOORS AND WALLS SHALL BE CORE DRILLED.

6. PATCH EXISTING FINISHED SURFACES AND BUILDING COMPONENTS USING NEW MATERIALS MATCHING EXISTING MATERIALS AND EXPERIENCED INSTALLERS. FOR INSTALLERS' QUALIFICATIONS, REFER TO THE MATERIALS AND METHODS REQUIRED FOR THE SURFACE AND BUILDING COMPONENTS BEING PATCHED.

M. FIRE STOPPING

1. ANY CORE DRILLING OR CUTTING OF FIRE RATED FLOORS, SHAFTS AND WALLS SHALL BE FIRE STOPPED PRIOR TO FINISH PATCHING. ALL FIRE STOPPING MATERIALS SHALL BE U.L. "CLASSIFIED", INTUMESCING COMPOUND, DEVICE, OR SHEET RATED TO FUNCTION FOR THIS PURPOSE. ACCORDING TO INSTRUCTIONS PROVIDED, ALL PENETRATIONS IN 1-HOUR, 2-HOUR, AND 3-HOUR FIRE RATED WALLS, FLOORS OR PARTITION ASSEMBLIES SHALL BE SEALED WITH 3M BRAND FIRE BARRIER CAULK, CP-25, OR COMPOSITE SHEET CS-195, OR EQUIVALENT. ALL PENETRATIONS SHALL BE SEALED IN ACCORDANCE WITH UL FIRE RESISTANCE VOLUME II.

2. CAULK P-25 FILL MATERIAL TO COMPLETELY FILL THE ANNULAR SPACE BETWEEN THE INDIVIDUAL CONDUIT AND GYPSUM WALLBOARD WITH A MINIMUM ¼" DIAMETER BEAD OF CAULK APPLIED TO THE PERIMETER OF CONDUIT (UL SYSTEM WL1001).

3. MULTIPLE CONDUITS SHALL BE CONTAINED WITHIN A 28 GAUGE STEEL SLEEVE. CAULK CP-25 FILL MATERIAL TO A DEPTH OF 1 " COMPLETELY AROUND THE STEEL SLEEVE. A NOMINAL ¼ " DIAMETER BEAD SHALL BE APPLIED ON BOTH SIDES OF WALL ASSEMBLE. A MINIMUM 1 " THICKNESS OF MINERAL WOOL BATT INSULATION SHALL BE PACKED FIRMLY INTO THE STEEL SLEEVE ON BOTH SIDES OF WALL ASSEMBLY AS A PERMANENT FORM. PACKING MATERIAL SHALL BE RECESSED 5/8" FROM SURFACE OF WALL ON BOTH SIDES OF WALL ASSEMBLY. FILL RECESSED CAVITY WITH 1 " OF CP-25 CAULK (UL SYSTEMS WL1016).

4. A MINIMUM 1" THICKNESS OF MINERAL WOOL BATT INSULATION SHALL BE PACKED FIRMLY INTO THE MAXIMUM 2 " ANNULAR SPACE AS A PERMANENT FORM. A MINIMUM OF 1" OF CP-25 CAULK SHALL FILL THE RECESSED CAVITY, (FOR WALLS, THIS SHALL BE APPLIED ON BOTH SIDES OF THE WALL) (UL SYSTEM CAJ1044).

5. COORDINATE WITH THE ARCHITECT FOR ALL EXACT MATERIAL AND RATINGS AND EXACT DETAILS FOR FIRE STOPPING MATERIALS AND INSTALLATIONS PER ALL NFPA AND UL REQUIREMENTS.

N. INTERRUPTION OF SERVICE

1. WHEN WORK PROGRESS MAKES TEMPORARY SHUTDOWN OF SERVICES UNAVOIDABLE, SHUTDOWN SHALL BE COORDINATED WITH AND APPROVED BY OWNER SO AS TO CAUSE MINIMUM DISRUPTION TO ESTABLISHED OPERATING ROUTINE. ARRANGE TO WORK AS NECESSARY TO RE-ESTABLISH SERVICE WITHIN SHORTEST POSSIBLE DOWNTIME. IN THOSE INSTANCES WHERE THE LENGTH OF TIME REQUIRED FOR THE SERVICE INTERRUPTION IS NOT ACCEPTABLE TO THE OWNER, UNLESS OTHERWISE INDICATED, FURNISH AND INSTALL TEMPORARY CONNECTIONS AS REQUIRED TO REDUCE THE LENGTH OF TIME OF SERVICE INTERRUPTION TO AN ACCEPTABLE LEVEL.

2. REPORT ANY INTERFERENCE BETWEEN WORK UNDER THIS DIVISION AND THAT OF ANY OTHER CONTRACTORS TO ARCHITECT AS SOON AS THEY ARE DISCOVERED. ARCHITECT WILL DETERMINE WHICH EQUIPMENT SHALL BE RELOCATED, REGARDLESS OF WHICH WAS FIRST INSTALLED, AND HIS DECISION SHALL BE FINAL.

O. TESTING AND PLACING IN SERVICE

1. ANY MATERIAL OR EQUIPMENT FAILING A TEST SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

2. TESTS SHALL INCLUDE THE FOLLOWING:
   a. MEASURE THE LOAD ON EACH PHASE OF THE MAIN SERVICE AND EACH PHASE OF EVERY FEEDER UNDER FULL LOAD CONDITIONS.
   b. MEASURE THE NO-LOAD AND FULL-LOAD VOLTAGES (PHASE TO PHASE, PHASE TO NEUTRAL AND PHASE TO GROUND FOR EACH PHASE OF EACH SERVICE, OF EACH SEPARATELY DERIVED SYSTEM, AND AT EACH PANELBOARD OR TRANSFORMER).
   c. MEASURE THE GROUND RESISTANCE OF THE MAIN SERVICE GROUNDING ELECTRODE AND THE GROUND RESISTANCE OF EACH SEPARATELY DERIVED SYSTEM'S GROUNDING ELECTRODE.
   d. MAKE INSULATION RESISTANCE TESTS ON ALL DRY TYPE TRANSFORMERS AND MOTORS.

P. DEMONSTRATION OF COMPLETE ELECTRICAL SYSTEM

1. BEFORE FINAL PAYMENT, DEMONSTRATE TO THE OWNER'S SATISFACTION THE PROPER OPERATION OF EACH OF THE SYSTEMS COMPRISING THIS CONTRACT.

2. INSTRUCT THE OWNER'S MAINTENANCE PERSONNEL IN THE OPERATION AND MAINTENANCE OF ALL ELECTRICAL EQUIPMENT AND CONTROLS.

3. DELIVER TO THE OWNER ALL SPECIAL TOOLS AND APPURTENANCES FOR PROPER OPERATION AND MAINTENANCE OF THE EQUIPMENT PROVIDED AND REQUEST RECEIPT FOR SAME. ATTACH TO THE CONTRACTOR'S REQUEST FOR FINAL PAYMENT.

Q. CLEANING AND FINISHING

1. GENERAL: FOLLOW THE REQUIREMENTS SPECIFIED IN DIVISION 1 SECTION "PROJECT CLOSEOUT."

2. IN SO FAR AS THIS DIVISION IS CONCERNED, AT ALL TIMES KEEP PREMISES AND BUILDING IN A NEAT AND ORDERLY CONDITION, FOLLOW EXPLICITLY ANY INSTRUCTIONS OF ARCHITECT AND OWNER IN REGARD TO STORING OF MATERIALS, PROTECTIVE MEASURES, CLEANING-UP OF DEBRIS, ETC.

3. UPON COMPLETION OF WORK, THIS CONTRACTOR SHALL THOROUGHLY CLEAN ALL EQUIPMENT LEAVING EVERYTHING IN WORKING ORDER AT THE COMPLETION OF THIS COMPLETED THEIR CLEAN LUMINAIRES, OUTLET BOX PLATES, PANEL AND CABINET INTERIORS AND EXTERIORS, ETC., OF DIRT, DUST, DEBRIS, PAINT, ETC.

R. WIRE AND CABLE

1. ACCEPTABLE MANUFACTURER'S SHALL BE GENERAL CABLE CORPORATION, OKONITE, OR SOUTHWIRE COMPANY. ALL WIRE AND CABLE SHALL BE BY THE SAME MANUFACTURER.

2. CONDUCTORS SHALL BE SOFT ANNEALED COPPER INSULATED FOR 600 VOLTS UNLESS SPECIFICALLY INDICATED OTHERWISE.
   a. ALUMINUM CONDUCTORS ARE NOT PERMITTED UNDER ANY CIRCUMSTANCES, UNLESS EXPRESSLY PERMITTED BY OWNER IN WRITING.

3. INSULATION TYPE SHALL BE TYPE THW FOR WIRE SIZES #8 AWG AND LARGER AND THHN OR THWN FOR #10AWG AND SMALLER. THHN SHALL NOT BE USED IN WET OR DAMP LOCATIONS.

4. FLEXIBLE CORD SHALL BE HEAVY DUTY TYPE SO WITH AN EQUIPMENT GROUND CONDUCTOR IN ADDITION TO THE CURRENT CARRYING CONDUCTORS.

5. METAL CLAD (MC) CABLE SHALL BE 600 V COPPER WITH FULL-SIZED INSULATED GROUND CONDUCTOR. MINIMUM SIZE SHALL BE 12-AWG UNLESS SPECIFIED OTHERWISE.
   a. METAL CLAD (MC) CABLE SHALL BE PERMITTED TO BE RUN IN CONCEALED WALLS AND ACCESSIBLE CEILING SPACES WHERE NOT SUBJECT TO PHYSICAL DAMAGE. MC CABLE SHALL ONLY BE PERMITTED FROM LAST JUNCTION/SPLICE BOX TO LAST OUTLET. LIMIT RUNS OF MC CABLE TO 12 LINEAR FEET OR LESS. MC CABLE MAY BE USED FOR LIGHTING FIXTURE WHIPS NOT TO EXCEED 6 LINEAR FEET. MC CABLE SHALL NOT BE USED FOR HOME RUNS. MC CABLE SHALL NOT BE USED FOR FEEDERS.

6. PROVIDE #12 CONDUCTORS, UNLESS OTHERWISE INDICATED.
   a. CONTROL CONDUCTORS SHALL BE #14 MINIMUM FOR NEC CLASS I AND #16 FOR NEC CLASS II.

7. CONDUCTORS #10 AWG AND LARGER SHALL BE STRANDED.

8. CONDUCTORS #12 AWG AND SMALLER SHALL BE SOLID.

9. COLOR CODE CONDUCTORS (EXCEPT CONTROL AND INSTRUMENTATION CONDUCTORS) AS FOLLOWS: 208/120 VOLT 480/277 SYSTEM, SYSTEM PHASE A BLACK BROWN, PHASE B RED ORANGE, PHASE C BLUE YELLOW, NEUTRAL WHITE GREY, GROUND GREEN GREEN.

10. #12 AND #10 CONDUCTORS SHALL HAVE CONTINUOUS INSULATION COLOR, AS LISTED ABOVE.

11. COLOR CODE CONDUCTORS LARGER THAN ABOVE, WHICH DO NOT HAVE CONTINUOUS INSULATION COLOR BY APPLICATION OF AT LEAST TWO LAPS OF COLORED TAPE ON EACH CONDUCTOR AT ALL POINTS OF ACCESS INCLUDING JUNCTION BOXES. COLOR TAPE SHALL BE THE EQUAL OF 3M PRODUCTS SCOTCH #35.

12. INSTALL WIRING IN CONDUIT.

13. CONNECT #10 AND SMALLER WIRES WITH CONSTANT PRESSURE EXPANDABLE SPRING TYPE CONNECTORS, "SCOTCHLOK" BY 3M OR B-CAP BY BUCHANAN.

14. CONNECT #8 AND LARGER WIRES WITH COMPRESSION CONNECTORS OR SPLICES AS MANUFACTURED BY BURNDY OR T&B.

15. INSULATE SPLICING CONNECTORS TO AT LEAST 200% OF THE WIRE INSULATION. USE PRE-STRETCHED TUBING CONNECTOR INSULATORS, 3M PST FOR #2 AND LARGER CONDUCTORS.

16. MAKE SPLICES IN BRANCH CIRCUIT WIRING WITH UL-LISTED, SOLDERLESS CONNECTORS RATED 600 V, OF SIZES AND TYPES REQUIRED BY MANUFACTURER'S RECOMMENDATIONS WITH TEMPERATURE RATINGS EQUAL TO THOSE OF WIRES. SPLICE CONNECTORS SHALL BE SCREW-ON. INSULATE SPLICES WITH INTEGRAL COVERS OR WITH PLASTIC OR RUBBER FRICTION TAPE TO PRESERVE CHARACTERISTICS OF WIRE AND CABLE INSULATION.

17. MAKE TERMINATIONS AND SPLICES FOR CONDUCTORS 6-AWG AND LARGER WITH CORROSION RESISTANT, HIGH CONDUCTIVITY PRESSURE INDENT, HEX SCREW OR BOLT CLAMP CONNECTORS, WITH OR WITHOUT TONGUES, DESIGNED SPECIFICALLY FOR INTENDED SERVICE. CONNECTORS FOR CABLES 250 KCMIL AND LARGER SHALL HAVE TWO CLAMPING ELEMENTS OR COMPRESSION INDENTS. TERMINALS FOR BUS CONNECTIONS SHALL HAVE TWO BOLT HOLES.

18. AMPACITY OF SPLICES AND CONNECTORS SHALL BE EQUAL TO THOSE OF ASSOCIATED WIRES AND CABLES.

19. PULL CONDUCTORS USING RECOGNIZED METHODS AND EQUIPMENT LEAVING AT LEAST 6" WIRE AT ALL JUNCTION BOXES FOR CONNECTIONS. CLEAN OUT EACH CONDUIT SYSTEM BEFORE PULLING WIRE.

20. PROVIDE POLYETHYLENE ROPES FOR PULLING WIRE.

21. PROVIDE FISH WIRES IN TELEPHONE CONDUITS AND OTHER EMPTY CONDUIT SYSTEMS REQUIRED, WITHOUT SPLICES AND WITH AMPLE EXPOSED LENGTHS AT EACH END.

22. PROVIDE WIRE PULLING LUBRICANTS THAT MEET APPLICABLE UL REQUIREMENTS AS NECESSARY.

23. FORM AND TIE ALL WIRING IN PANELBOARDS.

24. THERE SHALL BE NO WIRENUT JOINTS OR SPLICES MADE INSIDE SWITCHBOARDS/PANELBOARDS.

25. BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL AND THE LOADS DOES NOT EXCEED LIMIT OF 3%.

26. WIRE SIZES SHALL BE BASED ON THE 75 DEGREES C. AMPACITIES FOR WIRE SIZES NO. 14-1 A.W.G., AND #1/0 A.W.G. AND LARGER.

27. CIRCUITS MAY BE MULTI-PLEXED IN CONDUIT PROVIDED WIRE IS PROPERLY DERATED AND CONDUIT SIZED PER CODE. UNDER NO CIRCUMSTANCES SHALL MORE THAN (9) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT.

28. NEUTRAL WIRES SHALL NOT BE SHARED ON ANY CIRCUITS.

S. GROUNDING

1. GROUND ALL EQUIPMENT PER N.E.C.

2. PROVIDE EQUIPMENT GROUNDING SYSTEM AS SHOWN ON DRAWINGS. EQUIPMENT GROUNDING SYSTEM SHALL BE DESIGNED SO METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINETS, MACHINE FRAMES, PORTABLE EQUIPMENT AND OTHER CONDUCTIVE ITEMS IN CLOSE PROXIMITY WITH ELECTRICAL CIRCUITS OPERATE CONTINUOUSLY AT GROUND POTENTIAL AND PROVIDE LOW IMPEDANCE PATH FOR POSSIBLE GROUND FAULT CURRENTS.

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Notes

Issued	By	Appd.	YY.MM.DD
B FINAL DESIGN PLAN			20.08.07

File Name: J20191489-000 Pittsfield - Montibeller Park Improvements-E20

BTF	JRB	BTF	03/02/11
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Permit/Seal

JEFFREY R. BODWAY
ENGINEER

Client/Project Logo

Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP
MICHIGAN

Title

ELECTRICAL SPECIFICATIONS

Project No.
2019124

Scale
12" = 1'-0"

Revision
B

Sheet
66 of 74

Drawing No.
E011

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ORIGINAL SHEET - ARCH D

3. PROVIDE SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT. INSTALL GROUNDING CONDUCTOR IN COMMON CONDUIT WITH RELATED PHASE AND/OR NEUTRAL CONDUCTORS. PARALLEL FEEDERS INSTALLED IN MORE THAN ONE RACEWAY SHALL HAVE INDIVIDUAL FULL SIZE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTORS. WHERE CIRCUIT CONDUCTORS ARE INCREASED IN SIZE FOR VOLTAGE DROP, THE EQUIPMENT GROUNDING CONDUCTOR SIZE SHALL BE INCREASED PROPORTIONATELY.

4. DETERMINE NUMBERS AND SIZES OF SCREW TERMINALS FOR EQUIPMENT GROUNDING BARS IN PANELBOARDS AND OTHER ELECTRICAL EQUIPMENT. PROVIDE SCREW TERMINALS FOR ACTIVE CIRCUITS, SPARES AND SPACES.

T. HANGERS, SUPPORTS, MOUNTING ACCESSORIES, AND PADS

1. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL ANGLE IRON, CHANNEL IRON, RODS, SUPPORTS, HANGERS, CONCRETE OR PLYWOOD REQUIRED TO INSTALL, MOUNT AND SUPPORT ANY ELECTRICAL EQUIPMENT OR DEVICE CALLED FOR ON THE PLANS.

2. SUPPORTING MATERIAL SHALL BE COMPLETE WITH HANGERS, CONNECTORS, BOLTS, CLAMPS AND NECESSARY ACCESSORIES TO MAKE A COMPLETE INSTALLATION. SUPPORTING MATERIAL SHALL BE GALVANIZED, PAINTED OR OTHERWISE SUITABLY FINISHED. PRODUCTS BY BINKLEY, STEEL CITY OR RACO WILL BE ACCEPTABLE.

3. ALL SURFACE-MOUNTED EQUIPMENT ON BLOCK WALLS SHALL BE MOUNTED ON 3/4" PLYWOOD BACKBOARD.

4. ALL SURFACE-MOUNTED EQUIPMENT ON STUD WALLS SHALL BE MOUNTED TO UNISTRUT. UNISTRUT SHALL BE RUN HORIZONTALLY, AND SHALL BE MOUNTED AND SCREWED TO WALL FRAMING AT EVERY FRAMING MEMBER INTERSECTING THE UNISTRUT.

U. RACEWAYS

1. METALLIC CONDUITS AND FITTINGS PRODUCTS OF ALL MANUFACTURERS ARE ACCEPTABLE PROVIDED THEY HAVE A SMOOTH INTERIOR, AND ARE UL LISTED AND LABELED AS DEFINED IN NFPA 70 FOR THE INTENDED LOCATION AND APPLICATION. CONDUIT AND FITTINGS SHALL BE OBTAINED FROM THE SAME MANUFACTURER.

2. NONMETALLIC CONDUITS AND FITTINGS PRODUCTS OF ALL MANUFACTURERS ARE ACCEPTABLE PROVIDED THEY ARE SUNLIGHT RESISTANT, AND ARE UL LISTED AND LABELED AS DEFINED IN NFPA 70 FOR THE INTENDED LOCATION AND APPLICATION. CONDUIT AND FITTINGS SHALL BE OBTAINED FROM THE SAME MANUFACTURER.

3. RIGID METAL CONDUIT SHALL BE ELECTRO-GALVANIZED STEEL (EMT) OR HOT DIPPED GALVANIZED STEEL INSIDE AND OUT (GRC).

4. FLEXIBLE METAL CONDUIT (FMC) SHALL CONSIST OF CONTINUOUS LENGTHS OF SPIRALLY WOUND AND INTERLOCKED GALVANIZED STEEL, MANUFACTURED IN ACCORDANCE WITH UL 1. LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC) SHALL BE USED IN WET LOCATIONS.

5. CONDUIT EXPANSION FITTINGS SHALL BE THREADED HOT-DIPPED GALVANIZED MALLEABLE IRON WITH INTERNAL BONDING ASSEMBLY.

6. PROVIDE THREADED MALLEABLE IRON OR STEEL CONNECTORS AND COUPLINGS WITH INSULATED THROATS; MANUFACTURED ELBOWS; LOCKNUTS; AND PLASTIC OR BAKELITE BUSHINGS AT TERMINATIONS, AS NECESSARY. COUPLINGS AND CONNECTORS SHALL BE GLAND AND RING COMPRESSION OR STAINLESS STEEL MULTIPLE POINT LOCKING OR STEEL CONCRETE-TIGHT SET SCREW. COMPRESSION COUPLINGS AND CONNECTORS SHALL FORM POSITIVE GROUND. SET-SCREW CONNECTORS AND COUPLINGS SHALL HAVE WALL THICKNESS EQUAL TO CONDUIT, CASE-HARDENED, HEX-HEAD SCREWS AND SEPARATE GROUND WIRE. BUSHINGS FOR RIGID STEEL AND CONNECTORS FOR EMT SHALL HAVE INSULATING INSERTS THAT MEET REQUIREMENTS OF UL 514 FLAME TEST.

7. ALL WIRE SHALL BE RUN IN ACCORDANCE WITH CODE IN CORROSION RESISTANT, RIGID, THREADED, METAL CONDUIT OR ELECTRICAL METALLIC TUBING (E.M.T.) UNLESS OTHERWISE SPECIFICALLY STATED HEREIN.
   a. CONDUIT IN EXTERIOR WALLS, BELOW FLOOR SLAB, OR UNDERGROUND SHALL BE RIGID, THREADED, GALVANIZED, HEAVY WALL TYPE.
   b. PVC TYPE 40 HEAVY WALL CONDUIT WITH GROUND WIRE MAY BE USED BELOW FLOOR SLAB OR UNDERGROUND IN LIEU OF RIGID, THREADED, GALVANIZED CONDUIT. PVC 40 CONDUIT SHALL NOT BE RUN IN OR ABOVE FLOOR SLAB. PVC CONDUIT SHALL TERMINATE BELOW FLOOR SLAB WITH RIGID, THREADED METAL CONDUIT ADAPTER. CONDUIT ABOVE SLAB SHALL BE METAL.
   c. CONDUIT RUN EXPOSED TO THE WEATHER SHALL BE HEAVY WALL, METAL THREADED TYPE.

8. CONDUIT SIZE SHALL BE 3/4" MINIMUM.

9. CONDUIT SHALL BE SECURELY FASTENED IN PLACE.

10. ALL CONDUIT SHALL BE CONCEALED IN WALLS, FLOOR AND CEILINGS WHEREVER POSSIBLE. EXPOSED CONDUIT IN FINISHED AREAS WILL NOT BE PERMITTED. EXPOSED CONDUIT WILL BE PERMITTED IN UNFINISHED AREAS WITH THE SPECIFIC APPROVAL OF THE ARCHITECT.

11. USE FLEXIBLE CONDUIT FOR THE CONNECTION TO RECESSED OR SEMI RECESSED LIGHTING FIXTURES (6' LENGTH MAXIMUM). USE LIQUID TIGHT METAL CONDUIT FOR ALL CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION AND IN AREAS SUBJECT TO MOISTURE.

12. USE WATERTIGHT JOINTS WITH BURIED AND CONCRETE ENCASED CONDUIT. ALL BURIED CONDUITS OUTSIDE OF BUILDINGS SHALL HAVE A MINIMUM OF 24" OR COVER. METAL CONDUITS BURIED IN EARTH SHALL BE PAINTED (TWO COATS) WITH HEAVY ASPHALTUM PAINT.

13. SUPPORT RUNS OF CONDUIT AS DETAILED IN THE APPROPRIATE TABLE OF THE NATIONAL ELECTRICAL CODE (NEC).

14. INSTALL EXPOSED RUNS OF CONDUIT AND CONDUIT ABOVE LAY-IN CEILINGS PARALLEL OR PERPENDICULAR TO THE WALLS, STRUCTURAL MEMBERS OF INTERSECTIONS OF VERTICAL PLANES AND CEILINGS. PROVIDE RIGHT ANGLE TURNS USING FITTINGS OR SYMMETRICAL BENDS. SUPPORT CONDUITS WITHIN 1" OF ALL CHANGES IN DIRECTION.

15. IF A CONDUIT IS SUSPENDED, IT SHALL BE SUPPORTED ON TRAPEZE HANGERS WHICH USE "ALL-THREAD" RODS FROM THE STRUCTURAL STEEL. THE USE OF CEILING SUPPORT WIRE OR SIMILAR MATERIAL WILL NOT BE ACCEPTED.

16. INSTALL EMPTY CONDUIT FOR FUTURE USE AS INDICATED ON THE DRAWINGS. CONDUIT SHALL BE COMPLETE WITH JETLINE OR PULL ROPE, JUNCTION/OUTLET BOXES, TILE RINGS AND APPROPRIATE COVER PLATES.

17. PROVIDE PITCHPOCKETS WHERE CONDUITS PENETRATE THE ROOF.

18. THREAD LUBRICATION/SEALANT IS REQUIRED ON OUTDOOR AND UNDERGROUND THREADED METAL JOINTS.

19. INSTALL FIRE SEAL FITTINGS WHERE CONDUITS PENETRATE CONCRETE FLOOR SLABS OR MASONRY WALLS REQUIRED TO BE FIRE RATED.

20. HORIZONTAL PORTION OF CONDUIT EXPOSED ON THE ROOF AND FEEDING EQUIPMENT SHALL NOT BE MORE THAN 5'-0" UNLESS THE WRITTEN APPROVAL FROM ARCHITECT OR ENGINEER IS OBTAINED.

V. PULL BOXES AND JUNCTION BOXES

1. PROVIDE CODE GAUGE GALVANIZED STEEL JUNCTION AND PULL BOXES FOR CONDUIT 1-1/4" TRADE SIZE AND LARGER, WHERE NECESSARY TO FACILITATE INSTALLATION, OF REQUIRED DIMENSIONS, WITH ACCESSIBLE, REMOVABLE SCREW-ON COVERS. PROVIDE JUNCTION AND PULL BOXES IN SPECIAL SIZES AND SHAPES DETERMINED IN FIELD WHERE NECESSARY. PULL BOXES EXPOSED TO RAIN OR IN WET LOCATIONS SHALL BE WEATHERPROOF (NEMA 3R).

2. PROVIDE CAST IRON BOXES, HOT DIPPED GALVANIZED INSIDE AND OUTSIDE WHERE SHOWN ON THE DRAWINGS AND WHERE INSTALLED IN CONCRETE PADS/FLOORS. FURNISH REMOVABLE COVERS WITH GASKETS AND STAINLESS STEEL, BRASS OR BRONZE SCREWS.

3. PROVIDE CONCRETE BOXES FOR UNDERGROUND WORK UNLESS OTHERWISE INDICATED ON THE DRAWINGS. FURNISH STEEL FRAMES AND COVERS WITH THE COVER ATTACHED TO THE FRAME WITH HEXAGON HEAD, BRASS OR BRONZE CAP SCREWS, 3/8" IN. DIAMETER. PROVIDE A RUBBER GASKET FOR SEALING BETWEEN THE COVER AND THE FRAME. PAINT THE COVER WITH TWO COATS OF HEAVY ASPHALTUM.

4. JUNCTION BOX COVERS SHALL BE ACCESSIBLE. DO NOT INSTALL JUNCTION BOXES ABOVE SUSPENDED CEILINGS EXCEPT WHERE CEILING IS REMOVABLE OR WHERE ACCESS PANEL IS PROVIDED.

5. INSTALL PULL AND JUNCTION BOXES WHERE SHOWN ON THE DRAWINGS, AND WHERE REQUIRED FOR CHANGES IN DIRECTION, AT JUNCTION POINTS, AND TO FACILITATE WIRE PULLING. FURNISH BOX SIZES IN ACCORDANCE WITH NEC UNLESS LARGER BOXES ARE INDICATED.

6. PULL BOXES SHALL BE SUPPORTED ADEQUATELY TO MAINTAIN SHAPE. LARGER BOXES SHALL HAVE STRUCTURAL STEEL BRACING WELDED INTO RIGID ASSEMBLY FORMED ADEQUATELY TO MAINTAIN ALIGNMENT IN SHIPMENT AND INSTALLATION. SECURE COVERS WITH CORROSION RESISTANT SCREWS.
   a. PROVIDE CLAMPS, GRIDS AND OTHER APPURTENANCES TO SECURE CABLES WITHIN PULL BOX. NO CABLE SHALL BE UNSUPPORTED FOR MORE THAN 30".
   b. PULL BOXES CONNECTED TO CONCEALED CONDUITS SHALL BE MOUNTED WITH COVERS FLUSH WITH FINISHED WALL OR CEILING.

W. OUTLET BOXES

1. WALL BOX SIZES (MINIMUM) SHALL BE 4" SQUARE X 2-1/2" DEEP WHERE WALL CONSTRUCTION PERMITS. WHERE WALL CONSTRUCTION DICTATES, THE WIDTH MAY BE REDUCED TO 2-1/8" OR 1-1/2" UNDER SPECIAL CONDITIONS.

2. FIXTURE OUTLETS IN CEILINGS (MINIMUM) SHALL BE 4" OCTAGONAL X 1-1/2" DEEP (4-11/16" OCTAGONAL X 2-1/2" DEEP WHERE REQUIRED TO ACCOMMODATE LARGER CONDUIT OR LARGER NUMBER OF WIRES).

3. GANG BOXES SHALL BE ONE PIECE (MINIMUM), 2-1/8" DEEP.

4. USE SHEET STEEL BOXES, ZINC COATED OR CADMIUM PLATED, FOR CONCEALED INTERIOR WORK.

5. USE CAST BOXES, ZINC-CADMIUM FINISH MALLEABLE IRON, FOR EXPOSED INTERIOR WORK, AND FOR EXPOSED OR CONCEALED WORK IN WET, DAMP OR EXTERIOR LOCATIONS. CAST BOXES SHALL BE SERIES FD BY CROUSE HINDS OR APPLETON.

6. PROVIDE CAST IRON, CONCRETE-TITE FLOOR BOXES WITH ADJUSTABLE COVERS SET FLUSH AND LEVEL WITH THE FINISHED FLOOR, WITH OUTLETS AS INDICATED ON THE DRAWINGS. PROVIDE HUBBELLL #B-2400, 4200, OR 4300 SERIES BOXES WITH LEVELING SCREWS. FLUSH TYPE COVERS AND OPENINGS TO SERVE OUTLETS USED. FURNISH FLUSH CAPS FOR CLOSING OFF BOX WHEN NOT IN USE.

7. FLUSH MOUNT BOXES IN ALL FINISHED WALLS, INSTALL THE PLASTER RINGS IN DRYWALLED PLASTERED WALLS AND RAISED COVERS AS REQUIRED IN WALLS WITH OTHER FINISHES SO THAT THE COVER PLATES FIT TIGHTLY AGAINST BOXES OR RINGS, 3/16" MAXIMUM GAPS ARE ALLOWED FOR NONCOMBUSTIBLE WALLS.

8. ADJUST LOCATION OF OUTLETS IN MASONRY OR TILE CONSTRUCTION TO OCCUR IN THE NEAREST JOINT TO THE HEIGHT SPECIFIED. HEIGHTS SHALL MEET A.D.A. REQUIREMENTS.

9. SUPPORT ALL BOXES TO MAINTAIN PROPER ALIGNMENT AND RIGIDITY.

10. CLEAN BOXES OF ALL FOREIGN MATTER PRIOR TO THE INSTALLATION OR WIRING OR DEVICES.

11. MOUNTING HEIGHTS ON THE DRAWINGS ARE TO THE CENTERLINE OF THE BOX UNLESS OTHERWISE NOTED.

X. LUMINAIRES

1. ALL LUMINAIRES, LAMPING (INCLUDING LED MODULES, FLUORESCENT, INCANDESCENT, ETC.), EQUIPMENT, AND COMPONENTS SHALL BE PROVIDED WHERE SHOWN ON DRAWINGS, AS LISTED IN LUMINAIRE SCHEDULE, AND AS SPECIFIED, WIRED AND ASSEMBLED. PROVIDE APPROVED ALIGNING EQUIPMENT, CANOPIES, HANGERS AND OTHER APPURTENANCES AS REQUIRED FOR A COMPLETE SYSTEM PER MANUFACTURER'S INSTRUCTIONS AND N.E.C. REQUIREMENTS.

2. REFER TO LUMINAIRE SCHEDULE FOR THE FOLLOWING REQUIREMENTS:
   a. LUMINAIRE DESCRIPTION AND DIMENSIONS.
   b. MANUFACTURER.
   c. CATALOG SERIES AND/OR MODEL/PART NUMBER.
   d. LIGHT SOURCE/LAMPING REQUIREMENTS.
   e. BALLAST/DRIVER REQUIREMENTS.
   f. VOLTAGE REQUIREMENTS.

3. ALL LUMINAIRES SHALL BEAR THE UL LABEL AND SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

4. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE LUMINAIRES WITH THE MOUNTING METHOD REQUIRED FOR THE CEILING SYSTEM SET FORTH ON THE ARCHITECTURAL DRAWINGS, SUCH AS THE REFLECTED CEILING PLANS, ROOM FINISH SCHEDULES, ETC.

5. COORDINATE INSTALLATION OF ALL LUMINAIRES WITH ALL TRADES AND THE INSTALLATION OF CEILING MATERIALS AND SUSPENSION SYSTEMS PRIOR TO ANY ROUGH-INS.

6. LUMINAIRES WITH LOUVERS, BASKETS, OR LENSES SHALL BE PROVIDED WITH POLYESTER COVERS TO PROTECT LUMINAIRES DURING CONSTRUCTION.

7. DO NOT INSTALL LUMINAIRES UNTIL WORK OF OTHER TRADES THAT MAY DAMAGE LUMINAIRES IS COMPLETED.

8. INVESTIGATE LUMINAIRE LOCATIONS AND SUPPORTS TO ENSURE THAT NO INTERFERENCE EXISTS WITH HANGERS, DUCTS, SPRINKLERS, PIPES AND ALL OTHER EQUIPMENT.

9. PROVIDE PROPER PLASTER FRAMES FOR LUMINAIRES RECESSED IN GYPSUM BOARD OR PLASTER CEILING.

10. DO NOT SUSPEND OR SUPPORT LUMINAIRES OR SAFETY CHAINS FROM HUNG CEILING, CONDUIT OR DUCT. SUPPORT LUMINAIRES FROM STRUCTURAL BUILDING MEMBERS ONLY.

11. FRAMING MEMBERS OF SUSPENDED CEILING SYSTEMS USED TO SUPPORT LUMINAIRES SHALL BE SECURELY FASTENED TO EACH OTHER AND SHALL BE SECURELY ATTACHED TO THE BUILDING STRUCTURE AT APPROPRIATE INTERVALS PER CEILING MANUFACTURER'S RECOMMENDATIONS. LUMINAIRES SHALL BE SECURELY FASTENED TO THE CEILING FRAMING MEMBER BY MECHANICAL MEANS SUCH AS BOLTS, SCREWS, OR RIVETS. LISTED CLIPS IDENTIFIED FOR USE WITH THE TYPE OF CEILING FRAMING MEMBER(S) AND LUMINAIRE(S) SHALL ALSO BE PERMITTED PER N.E.C. ARTICLE 410.36(B).

12. PROVIDE STRUT BELOW DUCTS WHERE LUMINAIRE LOCATIONS COINCIDE WITH DUCT RUNS. PROVIDE A COMPLETE THREADED ROD SYSTEM TO SUPPORT STRUT.

13. PATCH ALL EXISTING SPRAY-ON FIREPROOFING DAMAGED DURING INSTALLATION.

14. SUPPORT SURFACE-MOUNTED LUMINAIRES FROM AT LEAST TWO POINTS TO PREVENT ROTATION.

15. LOCATE CEILING AND WALL MOUNTED LUMINAIRES AS SHOWN ON ARCHITECTURAL REFLECTED CEILING PLANS AND ELEVATIONS.

16. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY SUPPORT MEDIA FOR ALL LIGHTING FIXTURES INCLUDING STRUCTURAL STEEL, ANGLE, RODS, ETC. IN GENERAL, FLUORESCENT AND HIGH INTENSITY DISCHARGE FIXTURES SHALL BE SUPPORTED IN A MANNER ACCEPTABLE TO THE LOCAL INSPECTION AUTHORITIES. ALL FIXTURES SHALL BE FIRMLY SUPPORTED FROM BEAMS OR JOISTS.
   a. PROVIDE ALL NECESSARY BACKING, BLOCKING AND SUPPORTS FOR WALL MOUNTED FIXTURES.
   b. FIXTURES SHALL NOT BE SUPPORTED FROM ROOF DECK.

17. RECESSED LUMINAIRES IN FIRE RATED CEILING OR SUPPLY AIR PLENUMS SHALL BE APPROVED FOR THE FIRE RATING OF THE CEILING. PROVIDE AIR- TIGHT GASKETS TO SEAL AROUND OPENINGS.

18. ALL ADJUSTABLE LUMINAIRES SHALL BE AIMED AND ADJUSTED DURING EVENING HOURS TO THE SATISFACTION OF THE ARCHITECT.

Y. NAMEPLATES AND ELECTRICAL SYSTEM IDENTIFICATION

1. EQUIPMENT IDENTIFICATION NAMEPLATES SHALL BE ENGRAVED, LAMINATED ACRYLIC OR MELAMINE WITH A MINIMUM LETTER HEIGHT OF 1/2". REFER TO DRAWINGS FOR NAMEPLATE DETAILS.

2. EQUIPMENT REQUIRING IDENTIFICATION NAMEPLATES SHALL BE AS FOLLOWS:
   a. BRANCH CIRCUIT PANELBOARDS
   b. SAFETY SWITCHES (FUSED AND NON-FUSED)

3. ALL WIRING SHALL BE IDENTIFIED BY PANELBOARD AND CIRCUIT NUMBER(S) IN ALL CABINETS, JUNCTION BOXES, WIRING TROUGHS, ENCLOSURES, SPLICE OR TERMINATION POINTS, ETC.

Z. WIRING DEVICES

1. ACCEPTABLE MANUFACTURERS SHALL BE HUBBELL, PASS & SEYMOUR, EATON (COOPER WIRING DEVICES), OR LEVITON.

2. CONVENIENCE RECEPTACLES:
   a. STRAIGHT BLADE CONVENIENCE RECEPTACLE DEVICES SHALL BE TAMPER-RESISTANT, EXTRA HEAVY DUTY INDUSTRIAL SPECIFICATION GRADE AND SHALL AT A MINIMUM INCORPORATE THE FOLLOWING FEATURES AND BENEFITS.
   b. RECEPTACLES, 20 A, 125V, 2-POLE, 3-WIRE, GROUNDING TYPE WITH SELF GROUNDING FEATURE: COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, AND UL 498.
   c. COLOR SHALL BE AS SELECTED BY ARCHITECT.

3. GFCI RECEPTACLES:
   a. STRAIGHT BLADE TAMPER-RESISTANT GFCI TYPE RECEPTACLE DEVICES SHALL BE, NON FEED THROUGH TYPE. COMPLY WITH NEMA WD 1, NEMA WD 6, UL 498, AND UL 943, CLASS A, GROUP I SOLID STATE SENSING AND SIGNALING WITH FIVE (5) MILLI-AMPERE FAULT TRIP LEVEL AND INCLUDE INDICATOR LIGHT THAT IS LIGHTED WHEN DEVICE IS TRIPPED.
   b. DUPLEX GFCI RECEPTACLES, 20 A, 125V, 2-POLE, 3-WIRE, GROUNDING TYPE WITH SELF GROUNDING FEATURE.
   c. COLOR SHALL BE AS SELECTED BY ARCHITECT.

4. RECEPTACLES REQUIRING AMPERAGES, VOLTAGES OR NEMA CONFIGURATIONS DIFFERENT FROM THE DUPLEX CONVENIENCE RECEPTACLES ABOVE SHALL BE AS INDICATED ON THE DRAWINGS, OR AS REQUIRED BY EQUIPMENT MANUFACTURER.

5. PROVIDE OTHER RECEPTACLES OF A QUALITY, MATERIAL AND WORKMANSHIP EQUAL TO THAT SPECIFIED FOR DUPLEX CONVENIENCE RECEPTACLES.

6. SWITCHES - AC TOGGLE SWITCHES:
   a. AC TOGGLE SWITCHES SHALL BE EXTRA HEAVY DUTY INDUSTRIAL (COMMERCIAL) SPECIFICATION GRADE QUIET TYPE, AND SHALL AT A MINIMUM SHALL COMPLY WITH NEMA WD1 AND U.L. 20.
   b. COLOR SHALL BE AS SELECTED BY ARCHITECT.

7. ALL RECEPTACLES, SWITCHES AND OTHER WIRING DEVICES SHALL BE LABELED WITH CIRCUIT NUMBER AND PANEL NAME ON COVER. USE ENGRAVED BLACK LETTERS ON PLASTIC COVERS OR CLEAR TAPE WITH BLACK LETTERS ON OTHER FACEPLATE TYPES.

8. WIRING DEVICE WALL PLATES: SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES.
   a. FINISHED SPACES: SMOOTH HIGH-IMPACT THERMO PLASTIC MATERIAL.
   b. UNFINISHED SPACES: GALVANIZED STEEL, ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL AS APPROPRIATE FOR THE TYPE OF BOX.
   c. EXTERIOR SPACES: COPPER FREE ALUMINUM WITH GRAY, POWDER EPOXY FINISH, GASKET, WEATHERPROOF, "HUBBELL WP8M" WEATHERPROOF WHILE IN USE COVER.
   d. VOICE/DATA JACKS SHALL UTILIZE THE SAME TYPE OF PLATE USED FOR RECEPTACLES.
   e. DEVICES PLATES SHALL BE BY THE SAME MANUFACTURER AS THE WIRING DEVICE.
   f. COLOR SHALL BE AS SELECTED BY ARCHITECT.
   g. ALL OUTLET AND/OR JUNCTION BOXES SHALL BE COMPLETE WITH A COVER PLATE BY THIS CONTRACTOR.
   h. WHERE DEVICES ARE GANGED, THEY SHALL BE INSTALLED UNDER A COMMON WALL PLATE.

9. LOCATE SWITCHES AT 46" ABOVE FINISHED FLOOR ELEVATION TO CENTER OF SWITCH OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS), UNLESS OTHERWISE INDICATED. THE LONG DIMENSION OF THE SWITCHES SHALL BE VERTICAL. ALL SWITCHES SHALL BE "OFF" IN THE DOWN POSITION.

10. LOCATE RECEPTACLES AT 18" ABOVE FINISHED FLOOR ELEVATION TO CENTER OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS), UNLESS NOTED OTHERWISE. THE LONG DIMENSION OF RECEPTACLES SHALL BE VERTICAL AND GROUND POLE UP.

AA. PANELBOARDS

1. ACCEPTABLE MANUFACTURERS SHALL BE EATON, SQUARE D, GE, OR SIEMENS. ALL SWITCHBOARDS SHALL BE BY ONE MANUFACTURER.

2. RATINGS
   a. EQUIPMENT RATED 240V AC OR LESS SHALL HAVE SHORT-CIRCUIT RATINGS AS SHOWN ON THE DRAWINGS OR AS HEREIN SCHEDULED, BUT NOT LESS THAN 10,000 AMPERES RMS SYMMETRICAL.
   b. EQUIPMENT SHALL BE FULLY RATED AND CAPABLE OF WITHSTANDING THE FULL SHORT-CIRCUIT CURRENT AVAILABLE AT THAT POINT IN THE SYSTEM.
   c. EQUIPMENT SHALL BE LABELED WITH A UL SHORT-CIRCUIT RATING.

3. CONSTRUCTION
   a. INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED DEVICES. THEY SHALL BE DESIGNED SUCH THAT SWITCHING AND PROTECTIVE DEVICES CAN BE REPLACED WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT REMOVING THE MAIN BUS CONNECTORS.
   b. TRIMS FOR BRANCH CIRCUIT PANELBOARDS SHALL BE SUPPLIED WITH A HINGED DOOR OVER ALL CIRCUIT BREAKER HANDLES. DOORS IN PANELBOARD TRIMS SHALL NOT UNCOVER ANY LIVE PARTS. DOORS SHALL HAVE A SEMI FLUSH CYLINDER LOCK AND CATCH ASSEMBLY. DOORS OVER 48 INCHES IN HEIGHT SHALL HAVE AUXILIARY FASTENERS.
   c. SURFACE TRIMS SHALL BE SAME HEIGHT AND WIDTH AS BOX. FLUSH TRIMS SHALL OVERLAP THE BOX BY 3/4 OF AN INCH ON ALL SIDES.
   d. A DIRECTORY CARD WITH A CLEAR PLASTIC COVER SHALL BE SUPPLIED AND MOUNTED ON THE INSIDE OF EACH DOOR.
   e. ALL LOCKS SHALL BE KEYED ALIKE.

5. BUS
   a. ALL BUS BARS SHALL BE HARD DRAWN COPPER WITH 98% CONDUCTIVITY AND SIZED IN ACCORDANCE WITH UL STANDARDS TO LIMIT TEMPERATURE RISE ON ANY CURRENT CARRYING PART TO A MAXIMUM OF 65 DEGREES C ABOVE AN AMBIENT OF 40 DEGREES C MAXIMUM.
   b. A SYSTEM GROUND BUS SHALL BE INCLUDED IN ALL PANELS.
   c. FULL-SIZE (100%-RATED) INSULATED NEUTRAL BARS SHALL BE INCLUDED FOR PANELBOARDS SHOWN WITH NEUTRAL. BUS BAR TAPS FOR PANELS WITH SINGLE POLE BRANCHES SHALL BE ARRANGED FOR SEQUENCE PHASING OF THE BRANCH CIRCUIT DEVICES. NEUTRAL BUSING SHALL HAVE A SUITABLE LUG FOR EACH OUTGOING FEEDER AND/OR BRANCH CIRCUIT REQUIRING A NEUTRAL CONNECTION.

6. "LOAD CENTER" STYLE CONSTRUCTION SHALL NOT BE CONSIDERED ACCEPTABLE.

7. BRANCH CIRCUIT PANELBOARDS
   a. BOLT-ON TYPE, HEAVY-DUTY, QUICK-MAKE, QUICK-BREAK, SINGLE AND MULTI-POLE CIRCUIT BREAKERS OF THE TYPES SPECIFIED HEREIN, SHALL BE PROVIDED FOR EACH CIRCUIT WITH TOGGLE HANDLES THAT INDICATE WHEN UNIT HAS TRIPPED.
   b. CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC TYPE WITH COMMON TYPE HANDLE FOR ALL MULTIPLE POLE CIRCUIT BREAKERS. CIRCUIT BREAKERS SHALL BE MINIMUM 100-AMPERE FRAME AND THROUGH 100-AMPERE TRIP SIZES SHALL TAKE UP THE SAME POLE SPACING. CIRCUIT BREAKERS SHALL BE UL LISTED AS TYPE 'SWD' FOR LIGHTING CIRCUITS, AND UL LISTED AS TYPE 'HACR' FOR HEATING, AIR-CONDITIONING AND REFRIGERATING EQUIPMENT.
   c. CIRCUIT BREAKER HANDLE LOCKS SHALL BE PROVIDED FOR ALL CIRCUITS THAT SUPPLY EXIT SIGNS, EMERGENCY LIGHTS, ENERGY MANAGEMENT, AND CONTROL SYSTEM (EMCS) PANELS AND FIRE ALARM CONTROL PANELS.

8. ENCLOSURE
   a. ENCLOSURES SHALL BE AT LEAST 20 INCHES WIDE MADE FROM GALVANIZED STEEL. PROVIDE MINIMUM GUTTER SPACE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. WHERE FEEDER CABLES SUPPLYING THE MAINS OF A PANEL ARE CARRIED THROUGH ITS BOX TO SUPPLY OTHER ELECTRICAL EQUIPMENT, THE BOX SHALL BE SIZED TO INCLUDE THE ADDITIONAL REQUIRED WIRING SPACE. AT LEAST FOUR INTERIOR MOUNTING STUDS WITH ADJUSTABLE NUTS SHALL BE PROVIDED.
   b. ENCLOSURES SHALL BE PROVIDED WITH BLANK ENDS.
   c. ENCLOSURES SHALL BE RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.
      - INDOOR DRY AND CLEAN: NEMA 1
      - OUTDOOR: NEMA 3R
      - KITCHEN AND WASH DOWN AREAS: NEMA 4X
      - OTHER WET OR DAMP LOCATIONS: NEMA 4

9. FUTURE DEVICES - PANELBOARDS SHALL BE FULLY PROVISIONED WITH ALL NECESSARY MOUNTING BRACKETS, BUS CONNECTIONS AND APPURTENANCES REQUIRED FOR INSTALLATION OF FUTURE DEVICES AS INDICATED ON DRAWINGS.

10. NAMEPLATES - PROVIDE AN ENGRAVED NAMEPLATE FOR EACH PANEL BOARD SECTION. SEE NAMEPLATE SPECIFICATION FOR ADDITIONAL INFORMATION.

11. WARNING LABEL - PROVIDE ARC-FLASH HAZARD WARNING LABEL FOR EACH PANELBOARD SECTION PER N.E.C. ARTICLE 110.16.

12. FINISH - SURFACES OF THE TRIM ASSEMBLY SHALL BE PROPERLY CLEANED, PRIMED, AND A FINISH COAT OF GRAY ANSI 61 PAINT APPLIED.

13. INSTALLATION
   a. INSTALL CABINETS TO ENSURE THAT CENTER OF THE TOP BREAKER DOES NOT EXCEED 6'-6" ABOVE THE FINISHED FLOOR.
   b. ENTRIES ON DIRECTORY CARDS SHALL BE TYPED, COMPLETE AND ACCURATELY REPRESENT THE "AS-BUILT" CIRCUIT CONDITIONS.
   c. ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS.
   d. ELECTRICAL CONTRACTOR SHALL ARRANGE CIRCUITS AS NEAR AS POSSIBLE TO CIRCUIT NUMBERS ON THE DRAWINGS. AT COMPLETION OF JOB, ELECTRICAL CONTRACTOR SHALL TAKE CURRENT READING CHECKS OF RESPECTIVE PHASES. A MINIMUM OF CIRCUIT CONNECTIONS SHALL BE REARRANGED TO BALANCE, AS CLOSELY AS POSSIBLE, THE LOAD IN THE PANEL.
   e. PROVIDE (3) SPARE 1" CONDUITS INTO ACCESSIBLE CEILING SPACE WHERE PANELS ARE FLUSH-MOUNTED.

AB. SAFETY SWITCHES

1. ACCEPTABLE MANUFACTURERS SHALL BE EATON, SQUARE D, GE, OR SIEMENS. ALL SAFETY SWITCHES SHALL BE BY ONE MANUFACTURER.

2. SAFETY SWITCHES SHALL BE THE ENCLOSED HEAVY-DUTY TYPE (TYPE HD) WITH QUICK-MAKE, QUICK-BREAK MECHANISM AND EXTERNAL PAD LOCKABLE OPERATING HANDLE.

3. SWITCHES SHALL INCORPORATE SAFETY COVER INTERLOCKS TO PREVENT OPENING THE COVER WITH THE SWITCH IN THE "ON" POSITION OR PREVENT PLACING THE SWITCH IN THE "ON" POSITION WITH THE COVER OPEN. PROVIDE DEFEATER FOR AUTHORIZED PERSONNEL. HANDLES SHALL HAVE PROVISIONS FOR PADLOCKING AND SHALL CLEARLY INDICATE THE "ON" OR "OFF" POSITION. FRONT COVER DOORS SHALL BE PAD LOCKABLE IN THE CLOSED POSITION.

4. SAFETY SWITCHES SHALL BE RATED FOR 240 VOLTS OR 600 VOLTS AS APPLICABLE. THEY SHALL BE HORSEPOWER RATED WHEN USED IN MOTOR CIRCUITS.

5. SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE 2, 3, OR 4 POLE AS INDICATED ON THE DRAWINGS.

6. SAFETY SWITCHES SHALL BE SINGLE THROW UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

7. ENCLOSURES SHALL BE RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.
   a. INDOOR DRY AND CLEAN: NEMA 1
   b. OUTDOOR: NEMA 3R
   c. KITCHEN AND WASH DOWN AREAS: NEMA 4X
   d. OTHER WET OR DAMP LOCATIONS: NEMA 4

8. MOUNT THE SAFETY SWITCHES SECURELY BETWEEN THE 3'-0" AND THE 6'-0" LEVELS ABOVE THE FLOOR UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

9. SWITCHES ON BLOCK WALLS SHALL BE MOUNTED ON A 3/4" PLYWOOD BACKBOARD, WHERE LOCATED INDOORS.

10. PROVIDE ARC-FLASH HAZARD WARNING LABEL FOR EACH SAFETY SWITCH PER NATIONAL ELECTRIC CODE (N.E.C.) ARTICLE 110.16.

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JEFFREY R. BODWAY

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ELECTRICAL SPECIFICATIONS

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Project No.
2019124

Scale
12" = 1'-0"

Revision
B

Sheet
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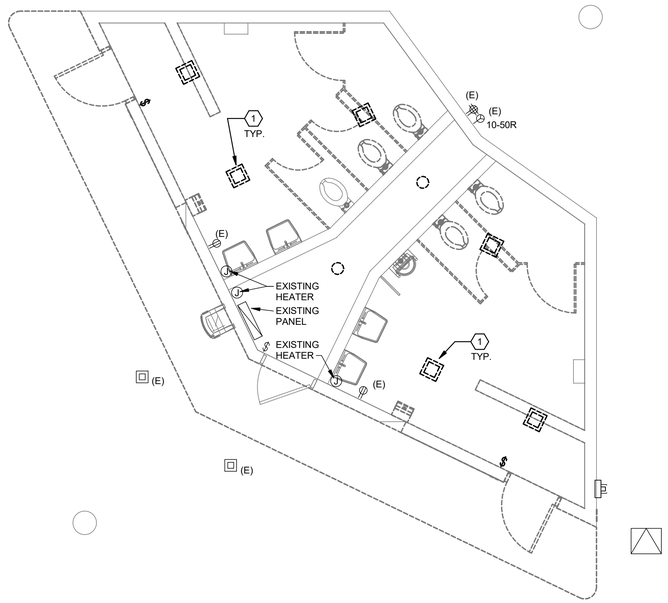
Drawing No.
E012



1 RESTROOM DEMOLITION PLAN

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

PLAN NORTH

0 1' 2' 4' 8'

DEMOLITION SHEET GENERAL NOTES:

1. FOR ANY WIRES THAT REMAIN IN JUNCTION BOXES, LABEL THE SOURCE AND CAP WIRES.
2. IN AREAS OF DEMOLITION WHERE EXISTING BRANCH CIRCUITS ARE TO BE RE-USED FOR NEW WORK, CAP ALL DISCONNECTED ELECTRICAL CIRCUITRY IN JUNCTION BOXES ABOVE ACCESSIBLE CEILINGS, WITHIN EXISTING WALLS, ETC. AND MAINTAIN FOR EXTENSION.
3. REFER TO NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

SHEET KEY NOTES:

1. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURES. CONDUIT AND WIRING TO REMAIN AND FEED NEW FIXTURES. REFER TO NEW WORK.

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RESTROOM DEMOLITION PLAN

Project No. 2019124

Scale 1/4" = 1'-0"

Revision B

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Drawing No. ED101

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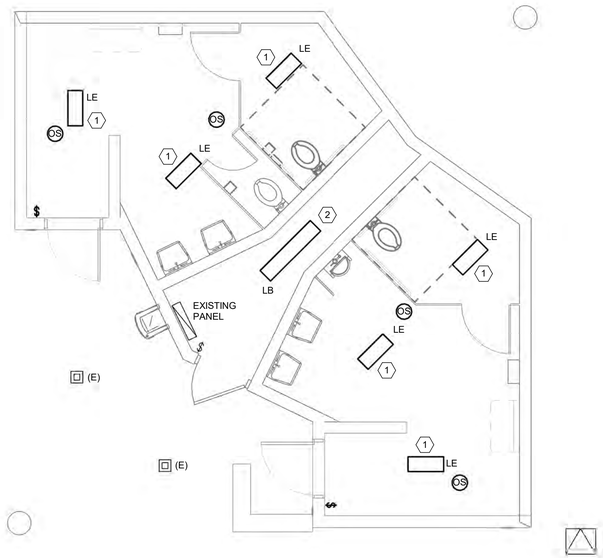
ORIGINAL SHEET - ARCH D

SHEET KEY NOTES:

1. CONNECT NEW FIXTURES TO EXISTING CIRCUIT. REFER TO LUMINAIRE SCHEDULE ON E-601 FOR ADDITIONAL INFORMATION.
2. CONNECT NEW FIXTURE TO EXISTING CIRCUIT AND CONTROLS. REFER TO LUMINIARE SCHEDULE ON E-601 FOR ADDITIONAL INFORMATION.



1 RESTROOM LIGHTING PLAN

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

PLAN NORTH

0 1' 2' 4' 8'

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RESTROOM LIGHTING PLAN

Project No. 2019124

Scale 1/4" = 1'-0"

Revision B

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Drawing No. E102

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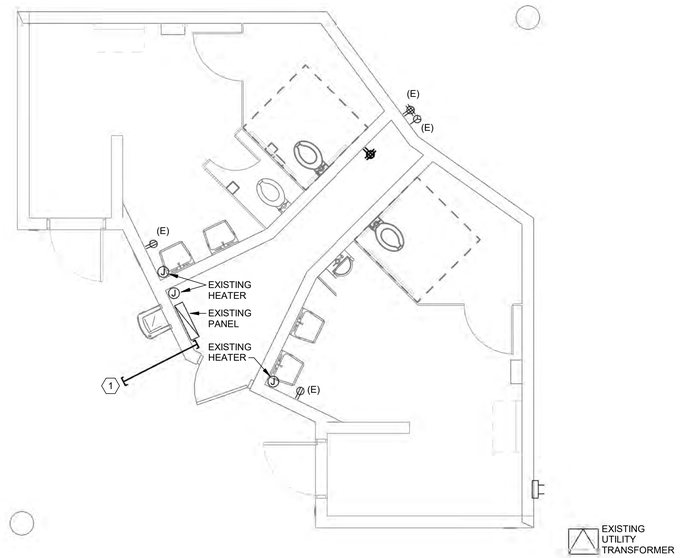
ORIGINAL SHEET - ARCH D

SHEET KEY NOTES:

1. STUB 1" CONDUIT 24" BEYOND PAVEMENT INTO LAWN AND CAP BOTH SIDES FOR FUTURE USE. BURY CONDUIT MINIMUM OF 18" BELOW GRADE.



1 RESTROOM POWER PLAN

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

PLAN NORTH

0 1' 2' 4' 8'

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RESTROOM POWER PLAN

Project No. 2019124

Scale 1/4" = 1'-0"

Revision B

Sheet 72 of 74

Drawing No. E202

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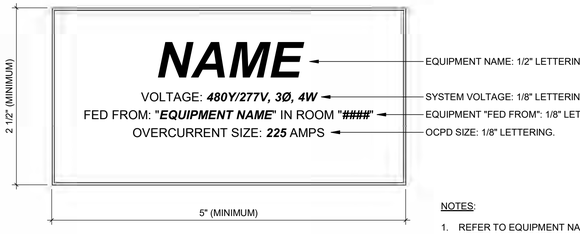
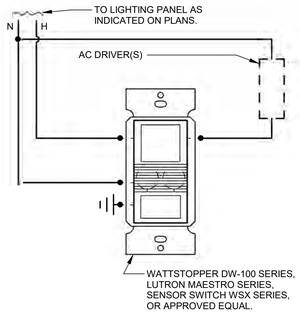


NOTES:

1. REFER TO EQUIPMENT NAMEPLATE DETAIL NOTES AND ELECTRICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

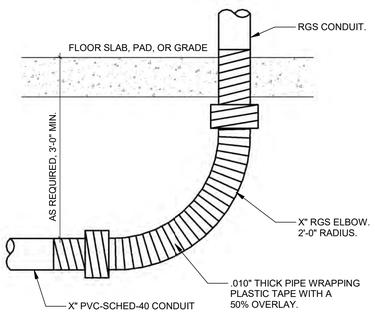
1 TYPICAL PANEL NAMEPLATE DETAIL

SCALE: NONE



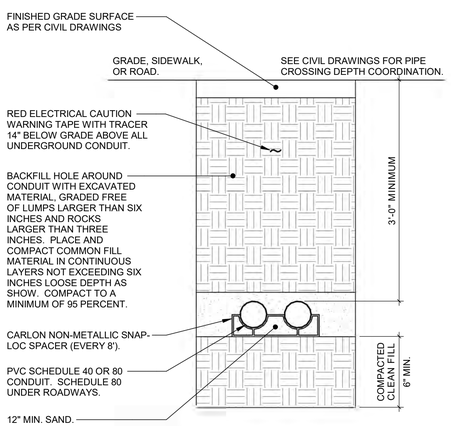
2 DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH WIRING DIAGRAM

SCALE: NONE



3 TYPICAL CONDUIT TRANSITION PVC TO RGS DETAIL

SCALE: NONE

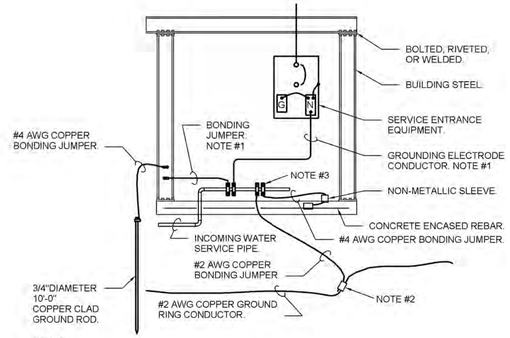


NOTES:

1. REFER TO PLANS FOR QUANTITY AND SIZE(S) OF CONDUITS.
2. MAINTAIN A MINIMUM SEPARATION OF 12" BETWEEN ELECTRICAL AND TECHNOLOGY RACEWAYS THROUGH ALL DIRECT BURY CONDUIT DUCT BANKS.

8 TYPICAL DIRECT BURY CONDUIT SECTION

SCALE: NONE



NOTES:

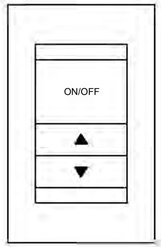
1. BONDING JUMPER / GROUNDING ELECTRODE CONDUCTOR SHALL BE #4 AWG COPPER.
2. ALL CONDUCTOR CONNECTIONS ARE TO BE EXOTHERMIC WELD TYPE.
3. UL LISTED WATER PIPE CLAMP SIZED ACCORDINGLY.

ALL GROUNDING AND BONDING ELECTRODES AND CONDUCTORS SHALL BE INSTALLED PER N.E.C. ARTICLE 250 REQUIREMENTS

4 GROUNDING ELECTRODE SYSTEM DETAIL

SCALE: NONE

TYPE "$LVB" FACEPLATE

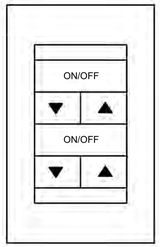


WALL SWITCH WITH 0-10V DIMMING. nLIGHT CATALOG #nPODM DX OR EQUAL.

6 TYPE "LVB" FACEPLATE

SCALE: NONE

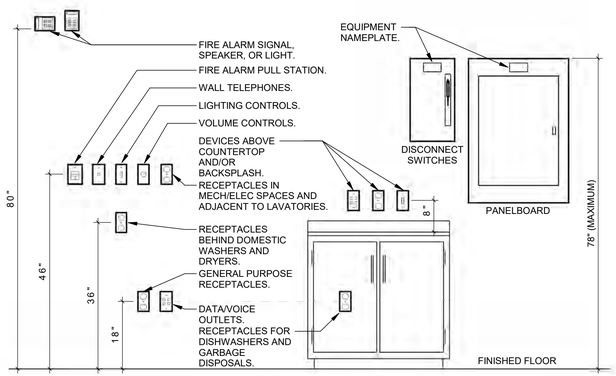
TYPE "$LVD" FACEPLATE



WALL SWITCH WITH 2 LIGHTING ZONES AND 0-10V DIMMING. nLIGHT CATALOG #nPODM 2P DX OR EQUAL.

7 TYPE "LVD" FACEPLATE

SCALE: NONE

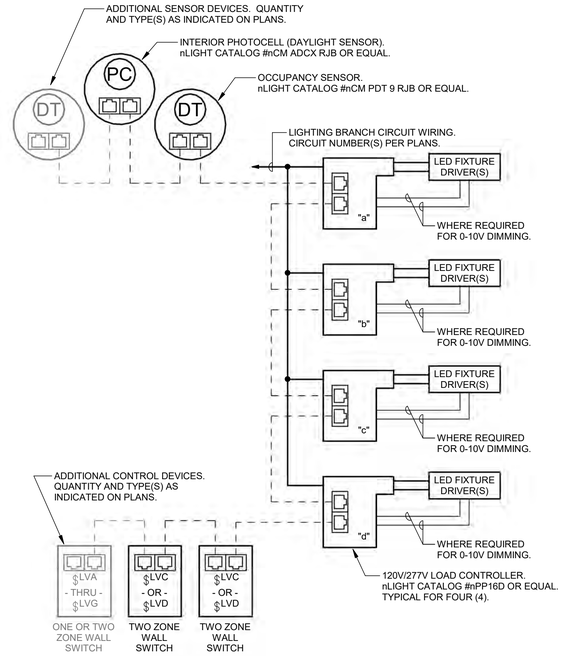


NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO THE CENTERLINE OF DEVICES EXCEPT FIRE ALARM A/V DEVICES.
2. NO WIRING DEVICES OR OUTLET BOXES SHALL BE MOUNTED BACK TO BACK.
3. ALL MOUNTING HEIGHTS SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS NOTED OTHERWISE.
4. FOR ALL ELEVATIONS (WHERE APPLICABLE), CASEWORK DETAILS, FIRE WALLS, SMOKE WALLS, LOCATION OF COUNTERTOP RECEPTACLES, LIGHTING FIXTURE SWITCHES, TELEPHONE OUTLETS, EQUIPMENT ROUGH-INS, HEADWALLS, ETC., SEE ARCHITECTURAL DRAWINGS. WHERE NO ARCHITECTURAL ELEVATIONS OR DETAILS OCCUR, CONTRACTOR SHALL USE MEANS AND METHODS AS WELL AS HIS/HER FIELD KNOWLEDGE TO SPOT DEVICES IN BEST LOCATIONS FOR THE PROJECT.
5. ALL MOUNTING HEIGHTS SHALL COMPLY WITH ADA REQUIREMENTS:
   A. GENERAL DEVICES: 15" MINIMUM, 48" MAXIMUM.
   B. ABOVE COUNTER DEVICES: 44" MAXIMUM.
   C. FIRE ALARM SIGNAL, SPEAKER, AND/OR LIGHT DEVICES: 80" MINIMUM, 96" MAXIMUM.

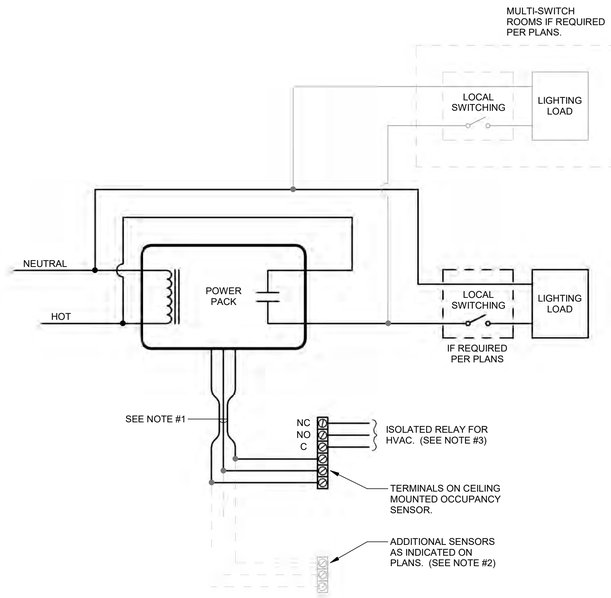
5 TYPICAL MOUNTING HEIGHTS DETAIL

SCALE: NONE



10 TYPICAL FOUR ZONE LIGHTING CONTROL WIRING DIAGRAM

SCALE: NONE



NOTES:

1. ALL LOW VOLTAGE WIRING AND TERMINATIONS TO BE BY ELECTRICAL CONTRACTOR.
2. MAXIMUM NUMBER OF SENSORS PER POWER PACK IS DEPENDANT ON MANUFACTURER. COORDINATE QUANTITY OF POWER PACKS WITH MANUFACTURER.
3. AUXILIARY RELAY IS ENERGIZED DURING 'OCCUPIED' STATE.

9 CEILING MOUNTED OCCUPANCY SENSOR WIRING DIAGRAM

SCALE: NONE

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ELECTRICAL DETAILS

Project No.	Scale
2019124	NONE

Revision	Sheet	Drawing No.
B	73 of 74	E501

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ORIGINAL SHEET - ARCH D

LUMINAIRE SCHEDULE

FIXTURE TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	VOLTAGE	WATTS	REMARKS
LA	SURFACED MOUNT 1x4 LED FIXTURE, 5000 LUMENS, 4000K, 80CRI	LITHONIA	FML4W 48 5000LM 840ZT MVOLT	LED	120 V	54 W	
LB	1x4 STRIPLIGHT, 3000 LUMENS, 4000K, 0-10V DIMMING, PENDANT MOUNTED	LITHONIA	FEM L48 3000LM LPPCL MD MVOLT GZ10 40K 80CRI, DPMB	LED	120 V	30 W	
LC	RECESSED 6" SQUARE DOWNLIGHT, 4000K, 0-10V DIMMING	LITHONIA	SGTP6XQLEDOS 15L 30K DS10 1 GS	LED	120 V	18 W	ARCHITECT TO SELECT FINISH
LD	ROUND HIGH BAY LED FIXTURE WITH ALUMINUM REFLECTOR, 12,000 LUMENS, 4000K, 80 CRI, 0-10V DIMMING, PENDANT MOUNTED	LITHONIA	JEBL 12L 40K 80CRI WH	LED	120 V	92 W	PROVIDE MOUNTING ACCESSORIES AND SAFETY CHAIN AS REQUIRED FOR PENDANT MOUNT INSTALLATION
LE	SURFACED MOUNTED 1x2 LED FIXTURE, 3000 LUMENS, 80CRI, 4000K	LITHONIA	FEM L24 IMAFL MD MVOLT GZ10 40K 80CRI	LED	120 V	20 W	

PANEL ID: RP-A

POWER SUPPLIED FROM:
MOUNTING: SURFACE
ENCLOSURE: PER SPECIFICATIONS

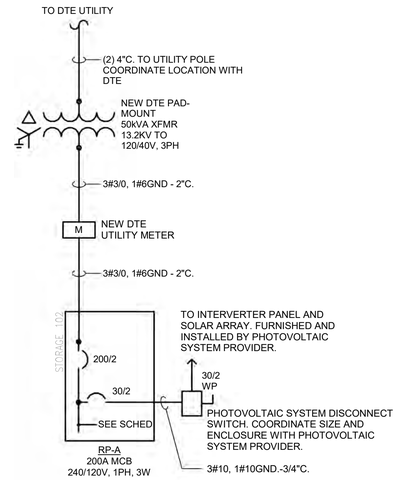
VOLTAGE: 240/120 Single
PHASE: 1
WIRES: 3

kAIC RATING: 22,000
LUG RATING: 200.0 A
MAIN OCPD RATING: 200A

CIRCUIT DESCRIPTION	TRIP	POLE	CKT	A		B		CKT	POLE	TRIP	CIRCUIT DESCRIPTION
RECEPT. - RESTROOMS, STORAGE	20 A	1	1	1080 VA	1000 VA			2	1	20 A	HAND DRYER
RECEPT. PROGRAM AREA	20 A	1	3			360 VA	360 VA	4	1	20 A	EF-1, EF-2
DWH-1	20 A	1	5	180 VA	2000 VA			6	2	25 A	UH-1
LTG. PROGRAM AREA	20 A	1	7			652 VA	2000 VA	8			
UH-2, UH-5	20 A	2	9	1500 VA	2000 VA			10	2	25 A	UH-3
			11			1500 VA	2000 VA	12			
MOTORIZED OVERHEAD DOOR	20 A	1	13	1632 VA	1632 VA			14	1	20 A	MOTORIZED OVERHEAD DOOR
MOTORIZED OVERHEAD DOOR	20 A	1	15			1632 VA	1632 VA	16	1	20 A	MOTORIZED OVERHEAD DOOR
MOTORIZED OVERHEAD DOOR	20 A	1	17	1632 VA	1632 VA			18	1	20 A	MOTORIZED OVERHEAD DOOR
MOTORIZED OVERHEAD DOOR	20 A	1	19			1632 VA	1632 VA	20	1	20 A	MOTORIZED OVERHEAD DOOR
MOTORIZED OVERHEAD DOOR	20 A	1	21	1632 VA	1632 VA			22	1	20 A	MOTORIZED OVERHEAD DOOR
MOTORIZED OVERHEAD DOOR	20 A	1	23			1632 VA	1500 VA	24	1	20 A	HAND DRYER
HAND DRYER	20 A	1	25	1500 VA	720 VA			26	1	20 A	RADIANT HEATERS
LTG. EXTERIOR	20 A	1	27			144 VA	360 VA	28	1	20 A	RECEPT. COUNTER
RECEPT. COUNTER	20 A	1	29	360 VA	360 VA			30	1	20 A	RECEPT. COUNTER
RECEPT. COUNTER	20 A	1	31			360 VA	180 VA	32	1	20 A	RECEPT. WATER COOLER
PV SYSTEM ARRAY	30 A	2	33	2880 VA	540 VA			34	1	20 A	LTG. RESTROOMS, STORAGE
			35			2880 VA	0 VA	36	1	20 A	SPARE
UH-4	20 A	2	37	1000 VA	0 VA			38	1	20 A	SPARE
			39			1000 VA	0 VA	40	1	20 A	SPARE
(SPACE)	--	--	41	0 VA	0 VA			42	--	--	(SPACE)
			Total Amps:	207.6 A		178.8 A					
			Total Load:	24912 VA		21456 VA					

LOAD CLASSIFICATION:	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
HVAC	42692 VA	65.00%	27750 VA		
LIGHTING	1336 VA	100.00%	1336 VA	**kVA (CONNECTED):**	46.4 kVA
RECEPTACLE	2340 VA	100.00%	2340 VA	**kVA (ESTIMATED DEMAND):**	31426 VA
				CURRENT (CONNECTED):	193.2 A
				CURRENT (ESTIMATED...	130.9 A

NOTES:



1 ONE LINE DIAGRAM
SCALE: NONE

ONE LINE DIAGRAM GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE VOLTAGE WIRING BETWEEN CONTROL PANELS AND/OR VFD's AND THEIR CORRESPONDING MOTORS. CONTROL PANELS AND/OR VFD's AND MOTORS ARE PROVIDED BY MECHANICAL HVAC CONTRACTOR. COORDINATE EXACT LOCATION OF ALL CONTROL PANELS, VFD's AND MOTORS AND THEIR REQUIREMENTS WITH MECHANICAL HVAC AND/OR CONTROLS CONTRACTOR PRIOR TO ROUGH-IN.
2. THE PANELBOARD LABELED AS RP-A ON DRAWING SHALL BE SUITABLE FOR USE AS SERVICE ENTRANCE (SE) EQUIPMENT AND LABELED IN ACCORDANCE WITH ALL U.L. REQUIREMENTS.
3. SEE "GROUNDING ELECTRODE SYSTEM" DETAIL FOR ADDITIONAL GROUNDING AND BONDING REQUIREMENTS.
4. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS BID, ALL ELECTRIC UTILITY COMPANY CHARGES FOR PROVIDING SERVICE TO THE BUILDING; INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING: TRANSFORMERS, CONCRETE PADS/VAULTS, CABLES, DUCTS, TRENCHING, BACKFILL, CONCRETE ENCASEMENT, METERING, GROUNDING, ALL ANCILLARY EQUIPMENT AND DEVICES, ETC., AND ASSOCIATED LABOR FOR A COMPLETE INSTALLATION PER N.E.C. AND ELECTRIC UTILITY COMPANY REQUIREMENTS. ANY LOCAL UTILITY COMPANY CHARGES FOR PROVISION OF ELECTRICAL SERVICE SHALL BE INCLUDED IN THE ELECTRICAL CONTRACTOR'S BASE PRICE. AS A MINIMUM, THE INSTALLATION SHALL MEET THE SERVICE AND INSTALLATION REGULATIONS OF THE LOCAL UTILITY.
5. ROUTE UNDERGROUND PVC CONDUIT INCLUDING AT LEAST ONE SPARE CONDUIT IN ACCORDANCE WITH LOCAL UTILITY REGULATIONS TO THE LOCAL UTILITY CONNECTION POINT. PROVIDE PRIMARY CONDUCTORS PER THE LOCAL UTILITY UNLESS IT IS REQUIRED THAT CONDUCTORS BE PROVIDED BY THE LOCAL UTILITY. CONDUCTOR SIZE AND TYPE TO BE DETERMINED WITH THE LOCAL UTILITY. REVIEW THE CONNECTION POINT AND ROUTING WITH THE LOCAL UTILITY PRIOR TO START OF WORK. CONFIRM TRENCHING AND BURIAL DETAILS WITH LOCAL UTILITY PRIOR TO START OF WORK.
6. PROVIDE A TRANSFORMER PAD AND/OR VAULT OF THE PROPER SIZE AND MATERIAL TO MEET TO SERVICE AND INSTALLATION REGULATIONS OF THE LOCAL UTILITY. COORDINATE THE TRANSFORMER LOCATION WITH THE LOCAL UTILITY PRIOR TO START OF WORK. PROVIDE A GROUND LOOP AND GROUNDING RODS AS REQUIRED TO MEET THE SERVICE AND INSTALLATION REGULATIONS OF THE LOCAL UTILITY. ALL GROUNDING CONNECTIONS SHALL BE MADE USING AN EXOTHERMIC WELD PROCESS.

LUMINAIRE SCHEDULE:

1. LUMINAIRE INDICATED IN SCHEDULE IS BASIS OF DESIGN. CONTRACTOR MAY SUBMIT ALTERNATE BY EATON, ACUITY, HUBBELL, PHILIPS, OR APPROVED EQUAL. FOR ANY LUMINAIRES SUBMITTED OTHER THAN BASIS OF DESIGN LUMINAIRES, A POINT-BY-POINT PHOTOMETRIC PLAN SHALL BE PROVIDED FOR THE PROPOSED LUMINAIRE AS PART OF THE SHOP DRAWING SUBMITTAL. POINT-BY-POINT CALCULATIONS SHALL FOLLOW IESNA RECOMMENDED PRACTICES AND INCLUDE LIGHT LOSS FACTOR (LLF) USED FOR ALL LUMINAIRE TYPES, SURFACE REFLECTANCES, AVERAGE FOOTCANDLE LEVEL, MINIMUM FOOTCANDLE LEVEL(S), AND MAXIMUM-TO-MINIMUM RATIO FOR ALL AREAS WHERE ALTERNATE PROPOSED LUMINAIRE IS TO BE INSTALLED (ONE CALCULATION FOR TYPICAL AREAS IS ACCEPTABLE.
2. ALL LUMINAIRES SHALL BE IN ACCORDANCE WITH THE LUMINAIRE SCHEDULE. THE LUMINAIRE SCHEDULE PROVIDES THE MANUFACTURER AND CATALOG NUMBER. THE LUMINAIRE PROVIDED SHALL CONFORM TO THE DESCRIPTION IN THE LUMINAIRE SCHEDULE, THE MANUFACTURER AND CATALOG NUMBER, AND ALL PROVISIONS OF THE CONTRACT DOCUMENTS.
3. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL CEILINGS TYPES, LUMINAIRE COLORS, LENGTHS, TRIMS, FINISHES, MOUNTING HARDWARE, CONFIGURATIONS AND HEIGHTS OF SUSPENDED LUMINAIRES, ETC. WITH ARCHITECT PRIOR TO ANY ROUGH-INS AND PLACING FINAL PURCHASE ORDERS.
4. VERIFY FINAL LUMINAIRE LOCATIONS WITH OTHER CEILING MOUNTED EQUIPMENT SUCH AS DIFFUSERS, FIRE ALARM DEVICES, SPEAKERS, ETC. WITH ARCHITECTURAL RCP (REFLECTED CEILING PLANS).
5. VERIFY EXACT HEIGHT AND LOCATIONS OF ALL WALL MOUNTED AND PENDANT/CABLE MOUNTED LUMINAIRES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ANY ROUGH-IN.
6. LUMINAIRES SHALL NOT BE SUPPORTED FROM SUSPENDED CEILING SUPPORTS UNLESS ADDITIONAL CEILING FRAMING AND SUPPORTS ARE ADDED BY THE CEILING CONTRACTOR ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, U.L. LISTINGS, AND ANY APPLICABLE STATE OR LOCAL CODES.
7. CONNECTIONS TO RECESSED LUMINAIRES SHALL BE MADE WITH MINIMUM 1/2" FLEXIBLE METAL CONDUIT (FMC) FROM FIXTURE TO OUTLET BOX. LENGTH OF FMC SHALL NOT EXCEED 6'.
8. AT THE CONCLUSION OF THE WORK, EACH LUMINAIRE MUST BE CLEANED PER MANUFACTURER'S INSTRUCTIONS, EQUIPPED WITH THE PROPER TYPE, NUMBER OF LAMPS, INCLUDING KELVIN TEMPERATURE AND WATTAGE, AND ALL IN GOOD OPERATING CONDITION.
9. LIGHT FIXTURE COLOR TEMPERATURE SHALL BE 3500K MINIMUM UNLESS OTHERWISE NOTED.
10. NOMINAL LUMEN VALUES MAY VARY BETWEEN DIFFERENT MANUFACTURERS OF SAME TYPE OF LUMINAIRE. NOMINAL LUMEN VALUES GIVEN IN SCHEDULE ARE THE VALUES USED FOR DESIGN.
11. FINAL COLOR SELECTION BY ARCHITECT/OWNER AT FIXTURE SUBMITTAL.
12. LENSED FIXTURES SHALL HAVE A MINIMUM OF 0.125" THICK ACRYLIC LENS UNLESS OTHERWISE NOTED.

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Notes

B FINAL DESIGN PLAN			20.08.07
Issued	By	Appd.	YY.MM.DD
File Name: J20191489-000 Pittsfield - Montibeller Park Improvements-E20	BTF Dwn.	JRB Chkd.	BTF Dsgn.	03/02/11 YY.MM.DD

Permit/Seal

Client/Project Logo

Client/Project
PITTSFIELD CHARTER TOWNSHIP

MONTIBELLER PARK IMPROVEMENTS

PITTSFIELD TOWNSHIP
MICHIGAN

Title
ELECTRICAL ONE-LINE DIAGRAM AND SCHEDULES

Project No. 2019124
Scale NONE
Revision B
Sheet 74 of 74
Drawing No. E601