RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY

IKE SKELTON TRAINING SITE
JEFFERSON CITY, MISSOURI

OWNER:

STATE OF MISSOURI
MIKE PARSON,
GOVERNOR

DEPARTMENT OF PUBLIC SAFETY
OFFICE OF THE ADJUTANT GENERAL
MISSOURI NATIONAL GUARD
FACILITIES DIVISION

PROJECT MANAGEMENT:

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION

APPLICABLE CODES:

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2017 NATIONAL ELECTRICAL CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL FUEL GAS CODE

DESIGNER:

CASCO DIVERSIFIED
CORPORATION

PROJECT NUMBER: T1921-01

SITE NUMBER: 6300

ASSET NUMBER: 8136300017

CASCO
12 SUNNEN DR. SUITE 100
ST. LOUIS, MO 63143
ARCHITECTS / ENGINEERS
314-821-1100

CASCO DIVERSIFIED CORPORATION
MISSOURI STATE CERTIFICATE OF AUTHORITY #000613 (ENG)
MISSOURI STATE CERTIFICATE OF AUTHORITY #000329 (ARCH)

ADDRESS:
2302 MILITIA DRIVE
JEFFERSON CITY, MO
65101

VICINITY MAP

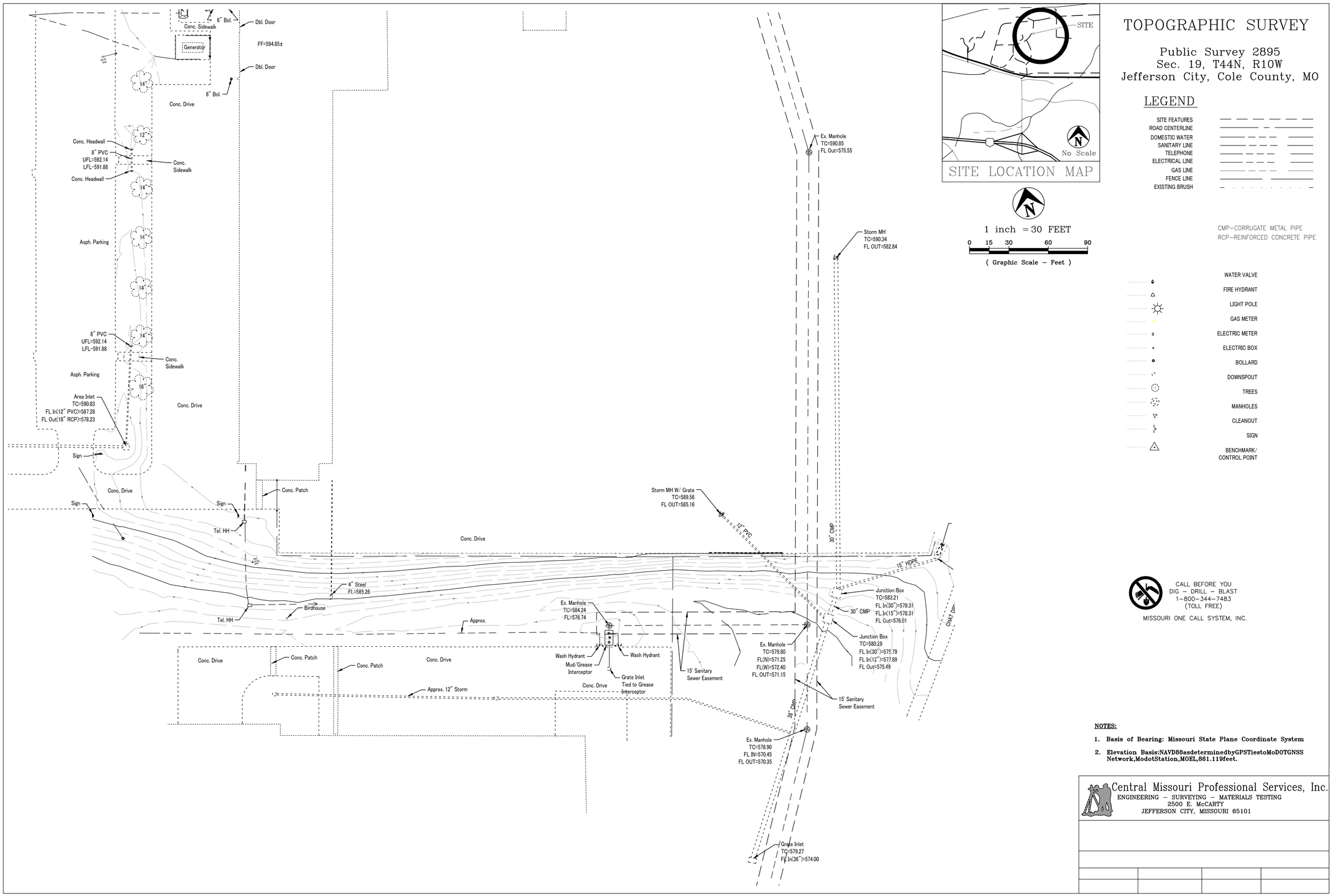
NORTH

SHEET INDEX

SHEET NUMBER:

G-001

1 OF 46 SHEETS
APRIL 22, 2020



TOPOGRAPHIC SURVEY

Public Survey 2895
Sec. 19, T44N, R10W
Jefferson City, Cole County, MO

LEGEND

- SITE FEATURES
- ROAD CENTERLINE
- DOMESTIC WATER
- SANITARY LINE
- TELEPHONE
- ELECTRICAL LINE
- GAS LINE
- FENCE LINE
- EXISTING BRUSH

CMP–CORRUGATE METAL PIPE
RCP–REINFORCED CONCRETE PIPE

- WATER VALVE
- FIRE HYDRANT
- LIGHT POLE
- GAS METER
- ELECTRIC METER
- ELECTRIC BOX
- BOLLARD
- DOWNSPOUT
- TREES
- MANHOLES
- CLEANOUT
- SIGN
- BENCHMARK/ CONTROL POINT

CALL BEFORE YOU
DIG – DRILL – BLAST
1–800–344–7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

NOTES:

1. **Basis of Bearing: Missouri State Plane Coordinate System**
2. **Elevation Basis:NAVD88asdeterminedbyGPSTiestoMoDOTGNSS Network,ModotStation,MOEL,861.119feet.**

Central Missouri Professional Services, Inc.
ENGINEERING – SURVEYING – MATERIALS TESTING
2500 E. McCARTY
JEFFERSON CITY, MISSOURI 65101

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

CASCO Diversified Corporation
MO Certificate of Authority #000329 Arch.
MO Certificate of Authority #000613 Eng.

CASCO
12 Sunnen Drive, Suite 100, St. Louis, MO 63143 T: 314.821.1100

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

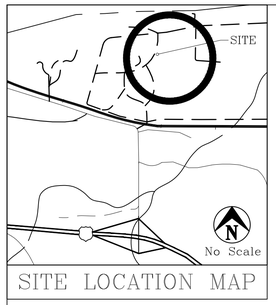
SHEET TITLE:

SURVEY- FOR REFERENCE ONLY

SHEET NUMBER:

V-101

2 OF 46 SHEETS
04/22/2020



SITE LOCATION MAP

TOPOGRAPHIC SURVEY

Public Survey 2895
Sec. 19, T44N, R10W
Jefferson City, Cole County, MO

1 inch = 10 FEET

0 5 10 20 30

(Graphic Scale – Feet)

LEGEND

SITE FEATURES	
ROAD CENTERLINE	
DOMESTIC WATER	
SANITARY LINE	
TELEPHONE	
ELECTRICAL LINE	
GAS LINE	
FENCE LINE	
EXISTING BRUSH	

15' SANITARY SEWER EASEMENT

	WATER VALVE
F.H.	FIRE HYDRANT
	LIGHT POLE
G.M.	GAS METER
Elec. Meter	ELECTRIC METER
Elec. Box	ELECTRIC BOX
	BOLLARD
D.S.	DOWNSPOUT
	TREES
	MANHOLES
	CLEANOUT
	SIGN
	BENCHMARK/ CONTROL POINT

CONSTRUCTION STAGING AREA, SEE ARCHITECTURAL SITE

2499
△ 594.29
PK NAIL

BH1

BH2

BH3

6" Bol.

Dbl. Door

OH Door

Door

Elec. Box

Ds

FF=594.85±

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CHECKED BY:
DESIGNED BY:

SHEET TITLE:

SURVEY FOR REFERENCE ONLY

SHEET NUMBER:

V-102

3 OF 46 SHEETS
04/22/2020

BUILDING DESIGN DATA:

GOVERNING BUILDING CODE: 2018 INTERNATIONAL BUILDING CODE (IBC)

1. ROOF DEAD LOADS, D

MEMBRANE (UNBALLASTED)	= 1.0 PSF
INSULATION	= 3.0 PSF
METAL DECK	= 2.0 PSF
JOISTS	= 3.0 PSF
GIRDERS	= 2.0 PSF
CEILING, MECHANICAL, ELECTRICAL, & FIRE PROTECTION	= 5.0 PSF
TOTAL DEAD LOAD	= 16.0 PSF

2. MINIMUM ROOF LIVE LOADS, Lr
   - A. METAL DECK = 20 PSF
   - B. JOISTS, JOIST GIRDERS, BEAMS, COLUMNS, & FOOTINGS
     - 1- TRIBUTARY LOADED AREA (At): 0 TO 200 SF. = 20 PSF
     - 2- TRIBUTARY LOADED AREA (At): 201 TO 599 SF. = 20*(1.2-0.001*At) PSF
     - 3- TRIBUTARY LOADED AREA (At): 600 SF. AND GREATER = 12 PSF

3. ROOF SNOW LOADS, S
   - A. GROUND SNOW LOAD, Pg = 20 PSF
   - B. SNOW EXPOSURE FACTOR, Ce = 1.0
   - C. SNOW LOAD IMPORTANCE FACTOR, Is = 1.0
   - D. THERMAL FACTOR, Ct = 1.0
   - E. FLAT-ROOF SNOW LOAD*, Pf = 20 PSF *INCLUDES 5.0 PSF RAIN-ON-SNOW SURCHARGE
   - F. ALL APPLICABLE EFFECTS DUE TO UNBALANCED SNOW LOADING AND SNOW DRIFTING

4. WIND LOADS, W
   - A. BASIC WIND SPEED (3 SECOND GUST), V = 115 MPH
   - B. WIND LOAD IMPORTANCE FACTOR, Iw = 1.0
   - C. BUILDING CATEGORY: ENCLOSED, SIMPLE DIAPHRAGM
   - D. OVERALL EXPOSURE CATEGORY: C
   - E. HEIGHT AND EXPOSURE ADJUSTMENT COEFFICIENT = 1.26 (Kzt=1.0)
   - F. MAIN-WIND-FORCE-RESISTING-SYSTEM WIND DESIGN (ULTIMATE) PRESSURES, W:

MWFRS WIND DESIGN PRESSURES		
LOCATION		DESIGN PRESSURE (PSF)
HORIZONTAL	-INTERIOR ZONE -END ZONE **	17.5 26.4
	* THE TOTAL HORIZONTAL LOAD EFFECT ON THE BUILDING SHALL NOT BE LESS THAN THAT BY ASSUMING THAT THE WIND PRESSURES IN ALL ZONES IS EQUAL TO 16.0 PSF	
	** END ZONE PRESSURES SHALL APPLY WITHIN 15 FEET OF EACH BUILDING CORNER	
VERTICAL	MAXIMUM WINDWARD ROOF PRESSURE -INTERIOR ZONE -END ZONE **	 -22.0 -31.7
	MAXIMUM LEEWARD ROOF PRESSURE -INTERIOR ZONE -END ZONE **	 -14.0 -18.0

   - G. COMPONENTS AND CLADDING WIND DESIGN (SERVICE LOAD) PRESSURES: PER TABLE BELOW.

COMPONENTS AND CLADDING WIND DESIGN PRESSURES (PSF)				
	ZONE*	EFFECTIVE WIND AREA (SF)	WINDWARD PRESSURE	LEEWARD PRESSURE
ROOF	1	10	10.0	-18.0
		20	10.0	-17.5
		50	10.0	-16.9
		100	10.0	-16.5
	2	10	10.0	-30.1
		20	10.0	-26.9
		50	10.0	-22.7
		100	10.0	-19.5
	3	10	10.0	-45.4
		20	10.0	-37.6
		50	10.0	-27.2
		100	10.0	-19.5
WALLS	4	10	18.0	-19.5
		20	17.1	-18.6
		50	16.1	-17.6
		100	15.2	-16.8
		500	13.4	-14.9
	5	10	18.0	-24.1
		20	17.1	-22.4
		50	16.1	-20.3
		100	15.2	-18.6
		500	13.4	-14.9

* ZONE 1 INCLUDES THOSE ROOF ELEMENTS LOCATED OUTSIDE OF 8 FEET OF A ROOF EDGE.
ZONE 2 INCLUDES THOSE ROOF ELEMENTS LOCATED WITHIN 8 FEET A ROOF EDGE.
ZONE 3 INCLUDES THOSE ROOF ELEMENTS LOCATED WITHIN 8 FEET OF A ROOF EDGE AND WITHIN 12 FEET OF A BUILDING CORNER.
ZONE 4 INCLUDES THOSE WALL ELEMENTS LOCATED OUTSIDE OF 8 FEET OF A BUILDING CORNER.
ZONE 5 INCLUDES THOSE WALL ELEMENTS LOCATED WITHIN 8 FEET OF A BUILDING CORNER.

6. SEISMIC DESIGN DATA
   - A. SEISMIC USE GROUP = I
   - B. MAPPED SPECTRAL RESPONSE COEFFICIENTS
     - 1- S_S = 0.207
     - 2- S_1 = 0.108
   - C. SITE CLASS = E
   - D. SPECTRAL RESPONSE COEFFICIENTS
     - 1- S_{DS} = 0.322
     - 2- S_{D1} = 0.305
   - E. SEISMIC DESIGN CATEGORY = D
   - F. BASIC SEISMIC-FORCE-RESISTING SYSTEM: BEARING WALL INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
   - G. RESPONSE MODIFICATION COEFFICIENT = 3.5
   - H. DEFLECTION AMPLIFICATION FACTOR = 4.0
   - I. SYSTEM OVERSTRENGTH FACTOR = 2.5
   - J. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
   - K. BASE SHEAR: V = 33.2 kips

FOUNDATIONS:

1. THE FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE "SUBSURFACE INVESTIGATION, ANLAYSIS AND GEOTECHNICAL ENGINEERING RECOMMENDATIONS FOR T1921-01 CSMS RENOVATION, JEFFERSON CITY, MISSOURI" DATED JANUARY 31, 2020, PREPARED BY GREDELL ENGINEERING RESOURCES, INC.
2. SPREAD FOOTINGS SHALL BEAR ON SOIL CAPABLE OF SUSTAINING A NET ALLOWABLE BEARING PRESSURE OF 3.0 KSF FOR INDIVIDUAL COLUMN FOOTINGS AND 3.0 KSF FOR CONTINUOUS WALL FOOTINGS UNDER FULL SERVICE DEAD AND LIVE LOADS.
3. THE EXISTING SITE SUBGRADE SHALL BE PREPARED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS IN THE PROJECT GEOTECHNICAL ENGINEERING REPORT.
4. ALL BEARING MATERIAL SHALL BE INSPECTED BY THE INDEPENDENT TESTING AGENCY PRIOR TO CONCRETE PLACEMENT. THE INDEPENDENT TESTING AGENCY SHALL BE THE SOLE JUDGE AS TO THE SUITABILITY OF THE BEARING MATERIAL. FOOTING ELEVATIONS SHALL BE ADJUSTED AS REQUIRED.
5. FOOTINGS MAY BE POURED INTO AN EARTH-FORMED TRENCH IF SOIL CONDITIONS PERMIT.
6. THE TOP OF EXTERIOR FOOTING ELEVATION SHALL BE SET A MINIMUM OF 8" BELOW LOWEST FINAL ADJACENT EXTERIOR GRADE AND A MINIMUM 16" BELOW FINISHED FLOOR. THE BOTTOM OF EXTERIOR FOOTINGS SHALL BEAR A MINIMUM OF 30" BELOW LOWEST FINAL ADJACENT EXTERIOR GRADE.
7. FOUNDATION WALLS THAT RETAIN EARTH SHALL BE BRACED AGAINST BACKFILLING PRESSURES UNTIL FLOOR SLABS AT TOP AND BOTTOM ARE IN PLACE, OR UNTIL THE CONCRETE OR MASONRY HAS ATTAINED ITS FULL COMPRESSIVE STRENGTH FOR CANTILEVER WALLS.
8. WHERE FOUNDATION WALLS ARE TO HAVE EARTH PLACED ON EACH SIDE, PLACE FILL SIMULTANEOUSLY SO AS TO MAINTAIN A COMMON ELEVATION ON EACH SIDE OF THE WALL.
9. VERIFY THE USE AND EXTENT OF PERIMETER INSULATION WITH THE ARCHITECTURAL DRAWINGS PRIOR TO THE INSTALLATION OF FOUNDATIONS. INSTALL PERIMETER INSULATION AS REQUIRED.

CONCRETE:

1. ALL CONCRETE SHALL BE NORMAL-WEIGHT (DENSITY=145 PCF) AND SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH IN ACCORDANCE WITH THE FOLLOWING:
   - ALL FOUNDATIONS, INTERIOR SLAB ..... 3000 PSI
   - EXTERIOR SLABS, CURBS, SIDEWALKS ..... 4000 PSI
   - ALL OTHER CONCRETE (U.N.O.) ..... 3000 PSI
2. THE SLUMP OF ALL CONCRETE SHALL NOT EXCEED 4 IN. UNLESS A HIGH RANGE WATER-REDUCING ADMIXTURE IS USED. THE SLUMP OF CONCRETE PRIOR TO ADDITION OF A HIGH-RANGE WATER-REDUCING ADMIXTURE SHALL NOT EXCEED 4 IN. THE SLUMP OF CONCRETE CONTAINING A HIGH RANGE WATER-REDUCING ADMIXTURE SHALL NOT EXCEED 8 IN.
3. ALL EXTERIOR CONCRETE SHALL BE AIR-ENTRAINED WITH 5% +/- 1.5% AIR CONTENT.
4. THE COARSE AGGREGATE SIZE SHALL MEET AASHTO #57.
5. THE MINIMUM PORTLAND CEMENT CONTENT (ASTM C150 TYPE I/II) OF ALL CONCRETE SHALL CONFORM TO THE FOLLOWING TABLE (FLY ASH NOT PERMITTED):

SPECIFIED COMPRESSIVE STRENGTH (PSI)	NON AIR-ENTRAINED CONCRETE (LBS.)	AIR-ENTRAINED CONCRETE (LBS.)
3000	470	517
4000	564	611

6. THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS FOR REVIEW A MINIMUM OF ONE WEEK PRIOR TO THE PLACEMENT OF ANY CONCRETE. THE CONCRETE MIX DESIGNS SHALL INCLUDE ALL STRENGTH DATA NECESSARY TO SHOW COMPLIANCE WITH THE PROJECT SPECIFICATIONS FOR EITHER THE TRIAL BATCH OR FIELD EXPERIENCE METHOD.
7. CONCRETE REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
8. CONCRETE REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706.
9. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
10. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE DETAILING MANUAL.
11. ALL REINFORCING SHALL BE SUPPORTED IN FORMS, SPACED WITH NECESSARY ACCESSORIES AND SHALL BE SECURELY WIRED TOGETHER, IN ACCORDANCE WITH THE LATEST EDITION OF THE CRSI "MANUAL OF STANDARD PRACTICE".
12. THE MINIMUM CONCRETE CLEAR COVER OVER REINFORCING STEEL, UNLESS NOTED OTHERWISE, SHALL BE:
    - UNFORMED SURFACE IN CONTACT WITH THE GROUND ..... 3 IN.
    - FORMED SURFACES EXPOSED TO EARTH OR WEATHER:
      - #5 BARS AND SMALLER ..... 1 1/2 IN.
    - SLABS, WALLS, AND JOISTS:
      - #11 BARS AND SMALLER ..... 3/4 IN.
13. ALL BASE PLATES, ANCHOR BOLTS, SUPPORT ANGLES, ETC., WHICH ARE BELOW GRADE SHALL BE COVERED WITH A MINIMUM OF 3" OF CONCRETE.
14. ALL LAP SPLICES SHALL BE IN ACCORDANCE WITH THAT SHOWN ON THE DRAWINGS.

REINFORCED MASONRY:

1. THE REINFORCED CONCRETE MASONRY FOR THIS PROJECT HAS BEEN DESIGNED AND DETAILED IN ACCORDANCE WITH THE ALLOWABLE STRESS DESIGN METHOD OF THE BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES.
2. REINFORCED MASONRY SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH, f'm, OF 2000 PSI. MASONRY UNITS SHALL BE NORMAL WEIGHT BLOCK CONFORMING TO ASTM C90 AND SHALL HAVE A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 2000 PSI. MORTAR SHALL CONFORM TO ASTM C270, TYPE S. GROUT SHALL CONFORM TO ASTM C476 AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2000 PSI.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706.
4. CONTINUOUS WIRE REINFORCING (JOINT REINFORCING) SHALL BE GALVANIZED TRUSS OR LADDER TYPE FORMED FROM 9 GAUGE COLD - DRAWN STEEL WIRE COMPLYING WITH ASTM A82. JOINT REINFORCING SHALL BE SPACED AT 16" O.C. VERTICALLY IN ALL MASONRY WALLS.
5. ALL REINFORCED CELLS, ALL CELLS BELOW GRADE AND ALL CELLS BELOW FINISH FLOOR SHALL BE GROUTED SOLID.
6. WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL BLOCK CORE, IT SHALL NOT BE SLOPED MORE THAN ONE HORIZONTAL IN 6 VERTICAL. DOWELS MAY BE GROUTED INTO A CELL IN VERTICAL ALIGNMENT, EVEN THOUGH IT IS IN AN ADJACENT CELL TO THE VERTICAL WALL REINFORCING. GROUT THE CELL FOR THE FULL HEIGHT OF THE DOWEL.
7. REINFORCING STEEL SHALL BE CENTERED IN THE MASONRY UNIT CELL, UNLESS NOTED OTHERWISE.
8. VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM GROUT COVER OF 1/2 OF AN INCH TO THE INSIDE FACE OF MASONRY UNIT AND A MINIMUM TOTAL MASONRY COVER NOT LESS THAN TWO INCHES.
9. PARALLEL ADJACENT VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM CLEAR DISTANCE NOT LESS THAN 1 1/2 BAR DIAMETERS NOR 1 1/2 INCHES.
10. VERTICAL CELLS THAT WILL BE GROUTED SHALL HAVE A VERTICAL ALIGNMENT TO MAINTAIN A CONTINUOUS UNOBSTRUCTED CELL AREA NOT LESS THAN 3"x4".
11. GROUTING SHALL BE STOPPED 1-1/2" BELOW THE TOP OF A COURSE SO AS TO FORM A KEY AT THE POUR JOINT.
12. GROUTING OF MASONRY BEAMS OVER OPENINGS SHALL BE DONE IN ONE CONTINUOUS OPERATION.
13. ALL BOLTS, ANCHORS, ETC., INSERTED IN THE WALLS, SHALL BE GROUTED SOLID INTO POSITION.
14. SPLICED REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 72 BAR DIAMETERS.

STRUCTURAL STEEL:

1. STEEL SHALL CONFORM TO THE FOLLOWING GRADES:
   - WIDE FLANGE SHAPES ..... A992 OR A572 GR. 50 (Fy = 50 KSI)
   - CHANNELS, ANGLES, PLATES, ETC. (UNO) ..... A36 (Fy = 36 KSI)
   - STRUCTURAL TUBE ..... A500 (Fy = 46 KSI)
   - STEEL PIPE ..... A53 (Fy = 35 KSI)
   - THREADED RODS ..... F1554, A36 OR A307
   - BOLTS A325
   - WELDING ELECTRODES E70XX
2. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE (AISC 303-16), EXCEPT AS MODIFIED IN THESE NOTES AND THE PROJECT SPECIFICATIONS.
3. ALL STRUCTURAL STEEL TO HAVE A SHOP GRADE PRIMER UNLESS NOTED OTHERWISE.

METAL ROOF DECK:

1. METAL ROOF DECK SHALL COMPLY WITH THE REQUIREMENTS OF THE STEEL DECK INSTITUTE "STANDARD FOR STEEL ROOF DECK" (2017).
2. ALL METAL ROOF DECK SHALL BE OF CONFIGURATION, DEPTH, AND MINIMUM GAUGE, AS SPECIFIED ON THE DRAWINGS. ATTACHMENT OF METAL DECK TO THE SUPPORTING STRUCTURAL MEMBERS SHALL BE, AT A MINIMUM, AS SPECIFIED ON THE DRAWINGS. SEE THE ROOF PLAN NOTES.
3. DO NOT HANG OR SUPPORT ANY LOADS FROM METAL ROOF DECK.
4. ALL METAL ROOF DECK SHEETS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS.
5. METAL DECK SHEET ENDS SHALL BE LAPPED A MINIMUM OF 2". BUTTED ENDS ARE NOT PERMITTED. END LAPS SHALL BE STAGGERED WHEN THE THICKNESS OF THE DECK EXCEEDS 20 GA.
6. E60XX WELDING ELECTRODES SHALL BE USED WHEN WELDING METAL ROOF DECK.

MISCELLANEOUS:

1. NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE PROFESSIONAL OF RECORD.
2. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS AND WORK.
3. NO OPENINGS SHALL BE MADE IN ANY STRUCTURAL MEMBER WITHOUT THE WRITTEN APPROVAL OF THE PROFESSIONAL OF RECORD.
4. DO NOT SCALE THESE DRAWINGS, USE DIMENSIONS.
5. THE CONTRACTOR SHALL INFORM THE PROFESSIONAL OF RECORD IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY OF SUCH DEVIATION BY THE PROFESSIONAL OF RECORD REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE PROFESSIONAL OF RECORD OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE PROFESSIONAL OF RECORD HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.
6. ANY DETAIL TITLED AS A TYPICAL DETAIL IS APPLICABLE THROUGHOUT THE DESIGN DRAWINGS. THESE DETAILS ARE DEFINED AS GENERAL STANDARDS THAT ARE USUALLY NOT IDENTIFIED BY SPECIFIC REFERENCE WITHIN THE DRAWINGS. THESE DETAILS MAY BE MODIFIED OR SUPERSEDED BY SPECIFIC DETAILS THAT ARE REFERENCED WITHIN THE DRAWINGS.
7. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON THE STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.

EXISTING CONSTRUCTION:

1. WORK SHOWN IS NEW UNLESS INDICATED AS EXISTING.
2. EXISTING CONSTRUCTION SHOWN IS BASED UPON ASSUMED EXISTING CONDITIONS AND CAN BE USED FOR BIDDING PURPOSES. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING JOB CONDITIONS, REVIEW ALL DRAWINGS AND VERIFY DIMENSIONS, ELEVATIONS, AND MEMBER SIZES PRIOR TO CONSTRUCTION OR MATERIAL PURCHASE. THE CONTRACTOR SHALL NOTIFY THE PROFESSIONAL OF RECORD IN WRITING OF ALL DISCREPANCIES AND EXCEPTIONS BEFORE PROCEEDING WITH THE WORK.
3. THE REMOVAL, CUTTING, DRILLING, ETC. OF EXISTING CONSTRUCTION SHALL BE PERFORMED WITH GREAT CARE IN ORDER NOT TO JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE BUILDING. IF STRUCTURAL MEMBERS OR MECHANICAL, ELECTRICAL, OR ARCHITECTURAL FEATURES NOT INDICATED FOR REMOVAL INTERFERE WITH THE NEW WORK, THE PROFESSIONAL OF RECORD SHALL BE IMMEDIATELY NOTIFIED AND PRIOR WRITTEN APPROVAL SHALL BE OBTAINED BEFORE REMOVAL OR MODIFICATION OF MEMBERS.
4. THE CONTRACTOR SHALL RESTORE ALL EXISTING INCIDENTAL CONSTRUCTION REQUIRED TO BE REMOVED TO ACCOMMODATE THE ERECTION OF THE NEW JOIST CONSTRUCTION TO ITS ORIGINAL WORKING CONDITION.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS & METHOD OF ALL DEMOLITION WORK & FOR PROVIDING ALL NECESSARY TEMPORARY SHORING, BRACING & PROTECTION AS NECESSARY FOR SAFETY, STABILITY & PROTECTION OF ALL BUILDING ELEMENTS & STRUCTURE DURING CONSTRUCTION & DEMOLITION.

SPECIAL INSPECTIONS:

1. THE CONTRACTOR WILL EMPLOY THE SERVICES OF ONE OR MORE SPECIAL INSPECTORS (ACCEPTABLE TO THE STATE OF MISSOURI) TO PROVIDE SPECIAL INSPECTIONS DURING CONSTRUCTION FOR THE REQUIRED SPECIAL INSPECTION ITEMS.
2. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE STATE OF MISSOURI AND THE REGISTERED DESIGN PROFESSIONAL RESPONSIBLE FOR THE DESIGN OF THE STRUCTURE, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
3. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
   - A. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS. THE INSPECTOR MAY NOT ALTER, MODIFY, ENLARGE OR WAVE ANY OF THE REQUIREMENTS OF THE DOCUMENTS.
   - B. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE STATE OF MISSOURI, THE PROFESSIONAL-OF-RECORD, AND THE CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, SUBMIT A COMPLETE LIST OF ALL OUTSTANDING DISCREPANCIES ON A WEEKLY BASIS TO THE STATE OF MISSOURI AND THE PROFESSIONAL-OF-RECORD, UNTIL ALL CORRECTIONS HAVE BEEN COMPLETED.
   - C. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE BUILDING CODE.
4. WHERE SPECIAL INSPECTION REQUIREMENTS DUPLICATE THE REQUIREMENTS OF OTHER SPECIFIED TESTING, DUPLICATE INSPECTIONS SHALL NOT BE REQUIRED.
5. STRUCTURAL OBSERVATION (AS DEFINED IN CHAPTER 17 OF THE BUILDING CODE) IS NOT REQUIRED, UNLESS SPECIFICALLY REQUIRED BY THE STATE OF MISSOURI.
6. SPECIAL INSPECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING TABLE:

SPECIAL INSPECTIONS SCHEDULE		
SPECIAL INSPECTION	FREQ.	REFERENCED STANDARD(S)
STEEL CONSTRUCTION:		
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS, AND WASHERS, HIGH-STRENGTH BOLTING:		
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	PERIODIC	APPLICABLE ASTM MATERIAL SPECIFICATIONS;AISC ASD Sec. A3.4;AISC LRFD Sec. A3.3
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	PERIODIC	
2. INSPECTION OF BEARING-TYPE CONNECTIONS	PERIODIC	AISC LRFD Sec. M2.5
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL:		AISC LRFD Sec. M2.5
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	---	ASTM A-6 OR ASTM A-568
B. MANUFACTURER'S CERTIFIED MILL TEST REPORTS REQUIRED	---	
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:		
A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS	---	AISC ASD Sec. A3.6; AISC LRFD Sec. A3.5
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	---	
5. INSPECTION OF WELDING:		
SINGLE-PASS FILLET WELDS ≤ 5/16"	PERIODIC	AWS D1.1
6. INSPECTION OF STEEL FRAME TO VERIFY COMPLIANCE WITH THE DETAILS ON THE APPROVED CONSTRUCTION DOCUMENTS:		
A. DETAILS SUCH AS BRACING AND STIFFENING	PERIODIC	IBC 1704.3.2
B. MEMBER LOCATIONS		
C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION		
MASONRY CONSTRUCTION:		
1. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:		
A. PROPORTIONS OF SITE PREPARED MORTAR.	PERIODIC	ACI 530.1/ASCE 6/TMS 602:Art. 2.6A
B. CONSTRUCTION OF MORTAR JOINTS.		ACI 530.1/ASCE 6/TMS 602:Art. 3.3B
C. LOCATION OF REINFORCEMENT AND CONNECTORS.		ACI 530.1/ASCE 6/TMS 602: Art. 3.4, 3.6A
2. THE INSPECTION PROGRAM SHALL VERIFY:		
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.		ACI 530.1/ASCE 6/TMS 602:Art.3.3G
B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION.		ACI 530/ASCE 5/TMS 402-SEC. 1.2.2(e), 2.1.4, 3.1.6, 1.12, 2.1.10.6.2, 3.2.3.4(b)
C. SPECIFIED SIZE, GRADE, AND TYPE OF REINFORCEMENT	PERIODIC	ACI 530.1/ASCE 6/TMS 602: Sec. 1.12;ACI 530.1/ASCE 6/TMS 602:Art. 2.4, 3.4
D. WELDING OF REINFORCING BARS.		ACI 530/ASCE 5/TMS 402: Sec. 2.1.10.2, 3.2.3.4(b)
E. PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40° F) OR HOT WEATHER (TEMPERATURE ABOVE 90° F)		ACI 530.1/ASCE 6/TMS 602: Art. 1.8C, 1.8D
3. PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:		
A. GROUT SPACE IS CLEAN.	PERIODIC	ACI 530.1/ASCE 6/TMS 602:Art. 3.2D
B. PLACEMENT OF REINFORCEMENT AND CONNECTORS.		ACI 530/ASCE 5/TMS 402:Sec. 1.12; ACI 530.1/ASCE 6/TMS 602:Art. 3.4
C. PROPORTIONS OF SITE PREPARED GROUT.		ACI 530.1/ASCE 6/TMS 602:Art. 2.6B
D. CONSTRUCTION OF MORTAR JOINTS.		ACI 530.1/ASCE 6/TMS 602:Art. 3.3B
4. GROUT PLACEMENT SHALL BE VERIFIED TO ENSURE COMPLIANCE WITH CODE AND CONSTRUCTION DOCUMENT PROVISIONS.	CONTINUOUS	ACI 530/ASCE 6/TMS 602-ART. 3.5
5. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS SHALL BE OBSERVED.	CONTINUOUS	ACI 530/ASCE 6/TMS 602-ART. 1.4. AND IBC SEC. 2105.2.2 AND 2105.3
6. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED.	PERIODIC	ACI 530/ASCE 6/TMS 602-ART. 1.5.
ADHESIVE ANCHORS/REINFORCEMENT:		
1. DURING PLACEMENT OF ADHESIVE ANCHORS OR REINFORCEMENT EMBEDDED WITH ADHESIVE (AS SPECIFIED ON THE CONSTRUCTION DOCUMENTS) IN MASONRY AND CONCRETE:		
A. SIZE AND EMBEDMENT OF ANCHORS/REINF.	CONTINUOUS	MANUFACTURERS INSTALLATION INSTRUCTIONS
B. ANCHORS/REINFORCEMENT INSTALLED PER MANUFACTURERS RECOMMENDATIONS.	CONTINUOUS	
CONCRETE CONSTRUCTION:		
1. INSPECTION OF REINFORCING STEEL AND PLACEMENT	PERIODIC	IBC1913.4; ACI 318: 3.5, 7.1-7.7
2. INSPECTION OF BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE.	CONTINUOUS	IBC1911.5, 1912.1; ACI 318: 8.1.3, 21.2.8
3. INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE.	PERIODIC	IBC1912.1; ACI 318: 3.8.6, 8.1.3, 21.2.8
4. VERIFYING USE OF REQUIRED DESIGN MIX	PERIODIC	IBC:1904.2.2, 1913.2, 1913.3; ACI 318:Ch. 4, 5.2-5.4
5. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	CONTINUOUS	IBC1913.10; ASTM C172; ASTM C31; ACI 318: 5.6, 5.8
6. INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	CONTINUOUS	IBC:1913.6, 1913.7, 1913.8; ACI 318:5.9, 5.10
7. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	PERIODIC	IBC1913.9; ACI 318: 5.11-5.13
8. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	PERIODIC	ACI 318: 6.1.1

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

MARK A. SPALINGER
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DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION: _____
DATE: _____
REVISION: _____
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DATE: _____
ISSUE DATE: 04/22/2020

CAD DWG FILE: _____
DRAWN BY: BWT
CHECKED BY: RCK
DESIGNED BY: RCK

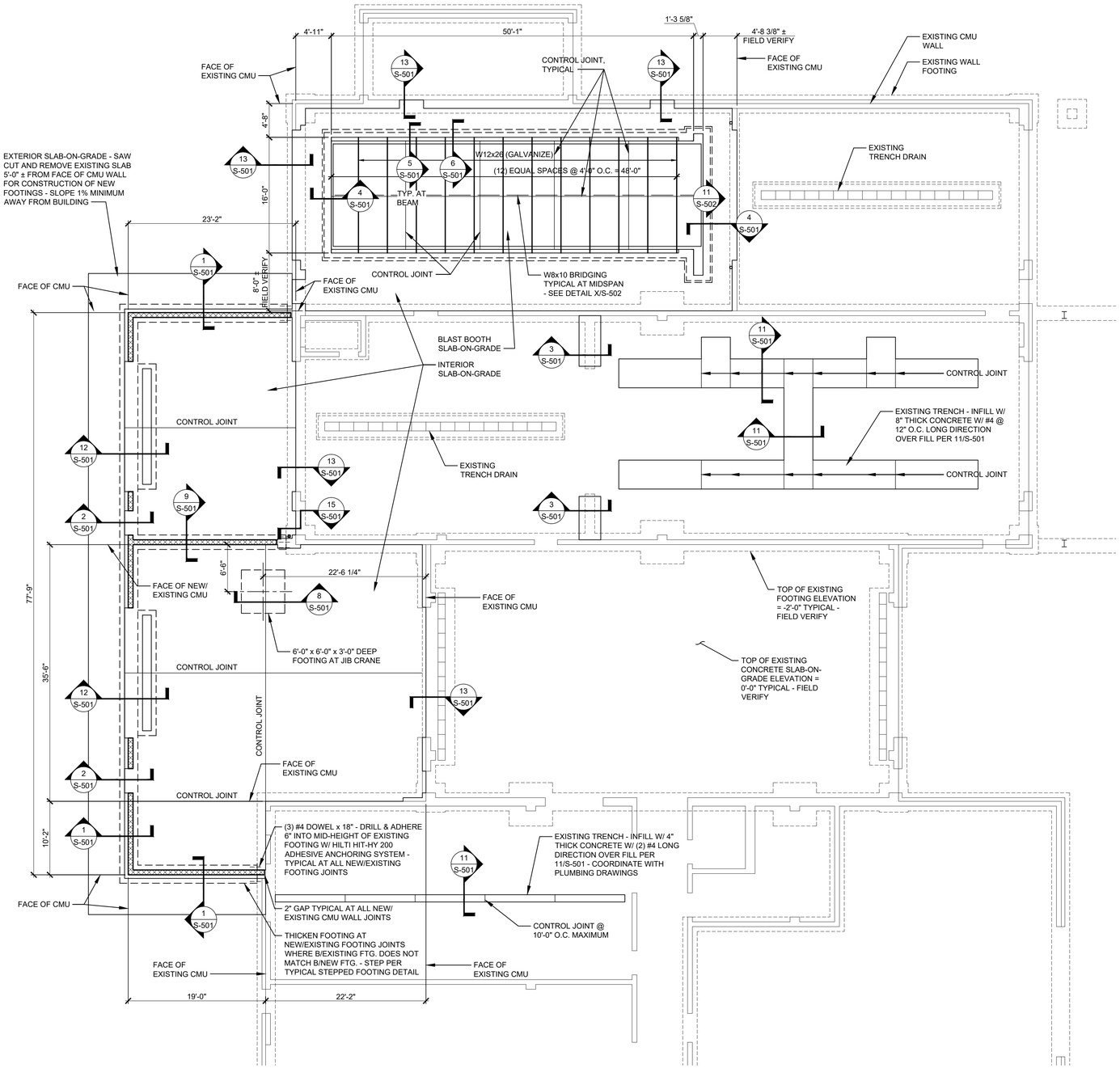
SHEET TITLE:

STRUCTURAL GENERAL NOTES

SHEET NUMBER:

S-001

4 OF 46 SHEETS
04/22/2020



1 S-101 PARTIAL EXISTING FOUNDATION PLAN

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

FOUNDATION PLAN NOTES

1. SEE SHEET S-001 & S-501 FOR GENERAL NOTES AND TYPICAL DETAILS
2. ALL ELEVATIONS BASED ON FINISH FLOOR ELEVATION = 0'-0" FOR REFERENCE ONLY.
3. SEE FOUNDATION NOTE #6 ON SHEET S-001 FOR TOP OF EXTERIOR FOOTING ELEVATIONS. THE GENERAL CONTRACTOR SHALL COORDINATE ALL TOP OF FOOTING ELEVATIONS WITH SITE CONDITIONS. FOOTINGS SHALL BE STEPPED IN ACCORDANCE WITH THE "TYPICAL STEPPED FOOTING DETAIL".
4. CENTER ALL FOOTINGS ON COLUMN AND WALL CENTERLINES, UNLESS NOTED OTHERWISE.
5. INJECTABLE ANCHORING ADHESIVE AT REFERENCED AND TYPICAL DETAILS:
   A. BASIS OF DESIGN: HILTI HIT-HY 200
   B. APPROVED EQUAL: SIMPSON AT-XP; RED HEAD C6+

SLAB SCHEDULE

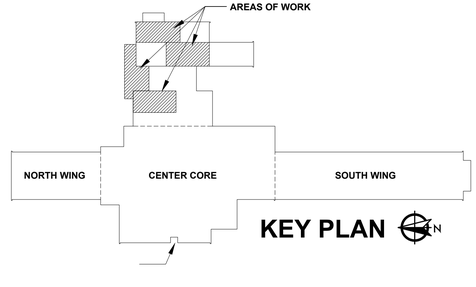
LOCATION	THICKNESS [1] AND REINFORCING	REMARKS
INTERIOR SLAB ON GRADE	8" CONCRETE SLAB ON GRADE REINFORCED WITH 4x4-W2.1xW2.1 W.W.F. - CHAIR TO 2" FROM TOP OF SLAB	VAPOR RETARDER PER SPECIFICATION OVER COMPACTED GRANULAR SUB-GRADE PER GEOTECHNICAL REPORT [2]
BLAST BOOTH SLAB ON GRADE	4" CONCRETE SLAB ON GRADE REINFORCED WITH 6x6-W1.4xW1.4 W.W.F. - CHAIR TO 2" FROM TOP OF SLAB	VAPOR RETARDER PER SPECIFICATION OVER COMPACTED GRANULAR SUB-GRADE PER GEOTECHNICAL REPORT [2]
EXTERIOR SLAB ON GRADE	6" CONCRETE SLAB ON GRADE REINFORCED WITH 6x6-W2.1xW2.1 W.W.F. - CHAIR TO 2" FROM TOP OF SLAB	COMPACTED SUB-GRADE PER GEOTECHNICAL REPORT [2], SLOPE MINIMUM 1% FROM BUILDING TO EXISTING PAVEMENT

NOTES:

1. THICKNESS OF SLABS AS SPECIFIED IN SCHEDULE ARE MINIMUMS. THERE SHALL BE NO TOLERANCE FOR SLABS THINNER THAN THOSE SPECIFIED IN SCHEDULE.
2. SECTIONS OF THE GEOTECHNICAL REPORT RELEVANT TO COMPACTED GRANULAR SUB-GRADE HAVE BEEN REPRODUCED BELOW. REFER TO THE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.

"SECTION 9.3 - SUBGRADE PREPARATION
FOLLOWING THE REMOVAL OF THE EXISTING SITE PAVEMENTS AND EXCAVATION TO FLOOR SLAB SUBGRADE, THE GEOTECHNICAL ENGINEER SHOULD EVALUATE THE RESULTANT SOIL SUBGRADE TO DETERMINE IF ANY OVER-EXCAVATION OF EXISTING SOFT, OR OTHERWISE DELETERIOUS SOIL IS NECESSARY. ADDITIONALLY, THE FLOOR SLAB SOIL SUBGRADE SHOULD BE COMPACTED IN ACCORDANCE WITH SECTION 9.7 OF THIS REPORT PRIOR TO CONTROLLED FILL PLACEMENT."

"SECTION 9.7 - ENGINEERED FILL
MATERIALS. MATERIAL USED AS ENGINEERED FILL OR BACKFILL SHOULD BE FREE OF SIGNIFICANT ORGANIC MATTER, FROZEN MATERIAL, SIGNIFICANT CONSTRUCTION DEBRIS, AND CORRODIBLE OR OTHER DELETERIOUS MATERIAL. EXISTING ON SITE SOILS MAY BE USED AS FILL IN ACCORDANCE WITH THE PLACEMENT AND COMPACTION RECOMMENDATIONS BELOW. BECAUSE OF THE LIMITED FILL ANTICIPATED FOR THIS ADDITION, WE RECOMMEND ALL IMPORTED MATERIALS BE LIMITED TO CRUSHED AGGREGATES IN CONFORMANCE WITH MSSHC SECTION 1007 AGGREGATE FOR BASE, OR MSSHC SECTION 1009 GRADE 4 AGGREGATE FOR DRAINAGE (OR SIMILAR APPROVED GRADATIONS). IF IMPORTED SOILS ARE PROPOSED FOR USE AS FILL OR BACKFILL, THEY SHOULD BE REVIEWED AND ANALYZED BY THE GEOTECHNICAL ENGINEER PRIOR TO USE ON SITE.
PLACEMENT AND COMPACTION. FIN-GRAINED SOILS USED AS GENERAL SITE FILL SHOULD BE PLACED AND COMPACTED IN UNIFORM, HORIZONTAL LIFTS WITH A MAXIMUM LOOSE THICKNESS OF EIGHT INCHES. LOOSE LIFT THICKNESS SHOULD BE REDUCED TO SIX INCHES FOR COMPACTION WITH COMPACTION EQUIPMENT SUCH AS WALK-BEHIND ROLLERS, GAS-POWERED TAMPERS, OR SKIT STEER ROLLER ATTACHMENTS. CRUSHED AGGREGATE PRODUCTS SHOULD BE PLACED AND COMPACTED IN UNIFORM, HORIZONTAL LIFTS WITH A MAXIMUM LOOSE LIFT THICKNESS OF SIX INCHES.
ENGINEERED FILL COMPOSED OF FINE GRAINED SOIL SHOULD BE COMPACTED TO A MINIMUM OF 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698 (STANDARD PROCTOR), AT A MOISTURE CONTENT RANGING FROM TWO PERCENT BELOW OPTIMUM MOISTURE TO FOUR PERCENT ABOVE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 698. OTHERWISE SUITABLE FILL MATERIALS THAT ARE OUTSIDE THIS RANGE OF MOISTURE CONTENTS MAY BE WETTED OR DRIED, AS APPROPRIATE, TO BRING THEM TO AN ACCEPTABLE MOISTURE CONTENT. SOILS THAT BECOME SATURATED DUE TO WEATHER OR DISTURBED BY CONSTRUCTION ACTIVITIES MAY BE USED AS FILL OR BACKFILL SUBJECT TO PRECEDING MATERIALS RECOMMENDATIONS, FINAL DESIGN REQUIREMENTS, AND COMPACTION AND MOISTURE CONTENT REQUIREMENTS RECOMMENDED IN THIS REPORT. EXCESSIVELY WET SOILS MAY REQUIRE SPREADING, AERATION, DISKING OR OTHER MANIPULATION TO REDUCE THEIR MOISTURE CONTENT.
DENSE GRADED AGGREGATE BASE SHOULD BE COMPACTED TO A MINIMUM OF 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698. ALTHOUGH MOISTURE CONTROL IS NOT NECESSARY WITH THESE MATERIALS TO CONTROL VOLUME CHANGE CHARACTERISTICS, ADEQUATE MOISTURE IS ESSENTIAL TO EFFICIENT COMPACTION. THESE MATERIALS GENERALLY SHOULD BE PLACED AND COMPACTED AT MOISTURE CONTENTS WITHIN TWO TO THREE PERCENTAGE POINTS OF THEIR OPTIMUM MOISTURE CONTENT. A SMOOTH, STEEL-WHEELED ROLLER (STATIC OR VIBRATORY) IS EXPECTED TO PROVIDE EFFICIENT COMPACTION OF DENSE GRADED AGGREGATE BASE MATERIALS. IN CLOSE QUARTERS, WHERE HAND OPERATED EQUIPMENT IS NECESSARY, A LARGE VIBRATORY PLATE COMPACTOR OR A "JUMPING JACK" TAMPER IS RECOMMENDED. LOOSE LIFT THICKNESS SHOULD BE LIMITED TO ABOUT SIX INCHES.
OPEN GRADED OR CLEAN ROCK FILL MATERIAL WITH A THICKNESS EQUAL TO OR GREATER THAN THREE INCHES OR IN TRENCH AND WALL BACKFILL APPLICATIONS SHOULD BE COMPACTED TO A MINIMUM RELATIVE DENSITY OF 70 PERCENT, AS DETERMINED IN ACCORDANCE WITH ASTM D 4253 AND 4254."



STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

4/22/20

MARK A. SPALINGER
License Number: E-27576
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COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
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PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

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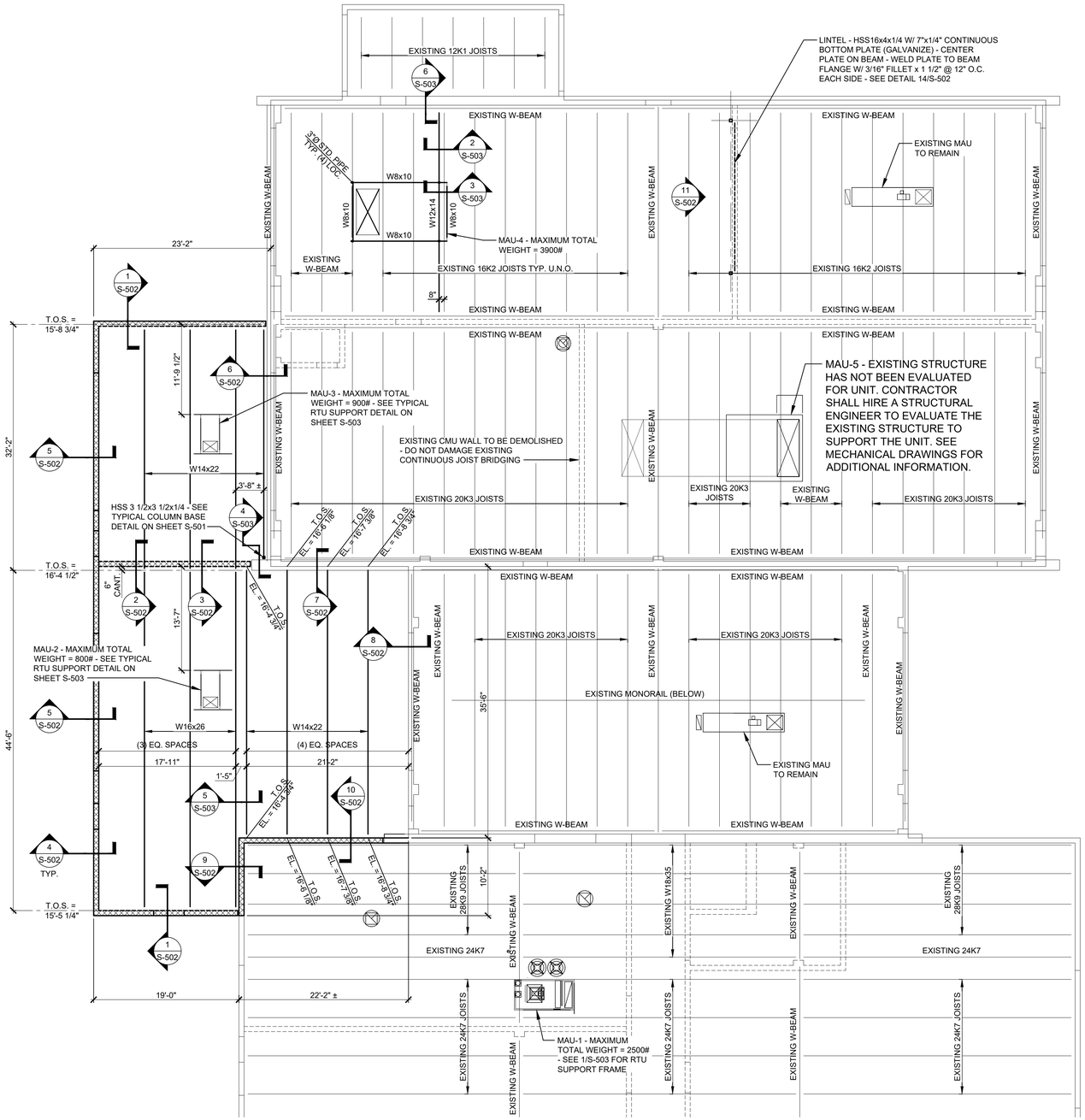
CAD DWG FILE:
DRAWN BY: BWT
CHECKED BY: RCK
DESIGNED BY: RCK

SHEET TITLE:
FOUNDATION PLAN

SHEET NUMBER:
S-101

5 OF 46 SHEETS
04/22/2020

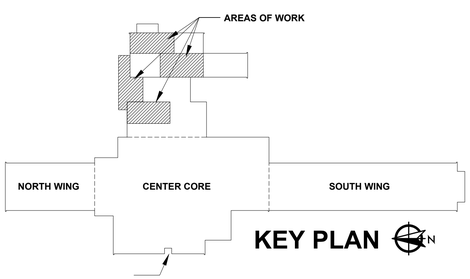


1 S-101 PARTIAL EXISTING ROOF FRAMING PLAN

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

ROOF FRAMING PLAN NOTES

1. SEE SHEET S-001 FOR DESIGN ROOF LOADS AND GENERAL NOTES.
2. TOP OF STEEL (T.O.S.) EQUALS TOP OF STEEL BEAM / UNDERSIDE OF METAL DECK.
3. MAIN BUILDING METAL ROOF DECK SHALL BE 22 GAUGE, 36" WIDE, 1 1/2" DEEP, GALVANIZED, TYPE "B" WIDE RIB ROOF DECK AND SHALL BE CONNECTED TO FRAMING MEMBERS AS FOLLOWS:
   A. TO ALL TRANSVERSE SUPPORTS, #12 SELF-DRILLING SCREWS, (3) PER SHEET.
   B. TO SUPPORTS PARALLEL TO FLUTES, #12 SELF-DRILLING SCREWS, AT 12" O.C.
   C. SIDE SEAMS, #10 SELF-DRILLING SCREWS, (2) PER SPAN.
4. INJECTABLE ANCHORING ADHESIVE AT REFERENCED AND TYPICAL DETAILS:
   A. BASIS OF DESIGN: HILTI HIT-HY 200
   B. APPROVED EQUAL: SIMPSON AT-XP; RED HEAD C6+



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DRAWN BY: BWT
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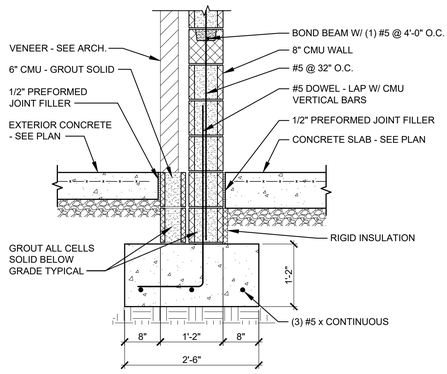
SHEET TITLE:

ROOF FRAMING PLAN

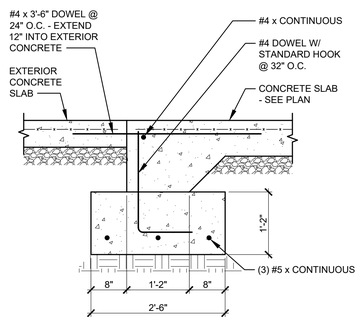
SHEET NUMBER:

S-102

6 OF 46 SHEETS
04/22/2020



1 S-501 SECTION
SCALE: 3/4" = 1'-0"



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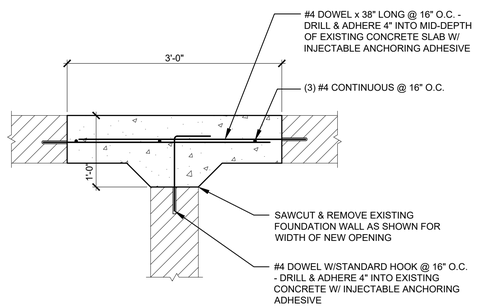

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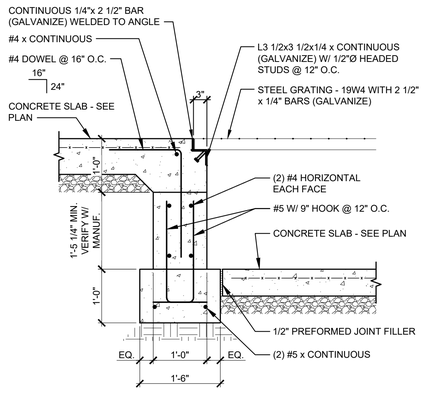

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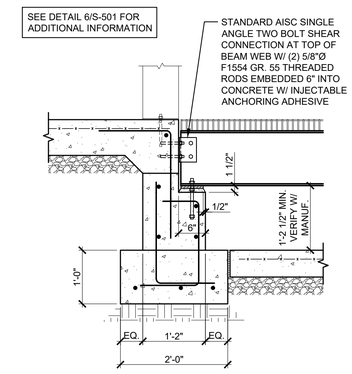

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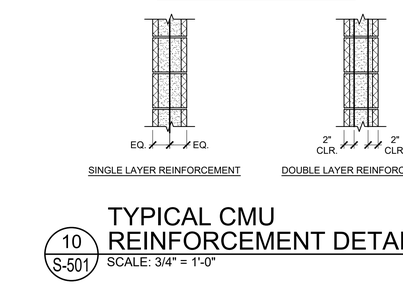

6 S-501 SECTION
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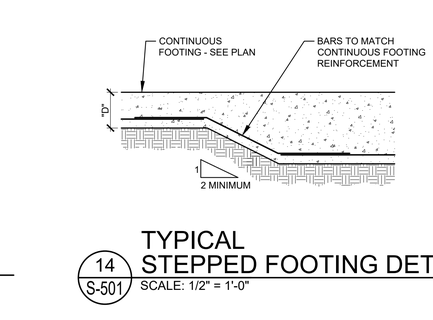
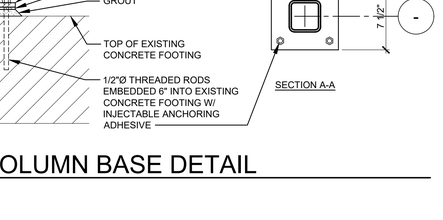


LINTEL REINFORCEMENT SCHEDULE			
MARK	OPENING SIZE	NO. OF CMU COURSES	REINFORCEMENT
A	LESS THAN 4'-6"	2	(1) #5 TOP AND BOTTOM
B	EQUAL TO 4'-6" AND LESS THAN 18-4"	4	(1) #6 TOP AND BOTTOM
NOTE: GROUT ALL CELLS OF MASONRY LINTEL IN ONE CONTINUOUS POUR, UNLESS KEYED PER GENERAL NOTES.			

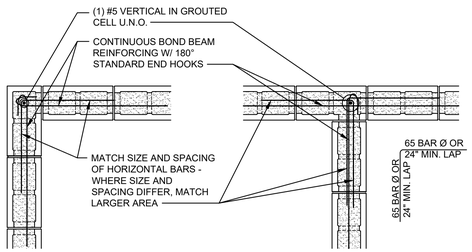
JAMB REINFORCEMENT SCHEDULE			
MARK	OPENING SIZE	GROUT CELL	REINFORCEMENT
A	LESS THAN 4'-6"	1'-4"	(1) #5 PER CELL
B	EQUAL TO 4'-6" AND LESS THAN 18-6"	1'-4"	(2) #5 PER CELL

7 S-501 TYPICAL MASONRY DETAILS
SCALE: 3/4" = 1'-0"

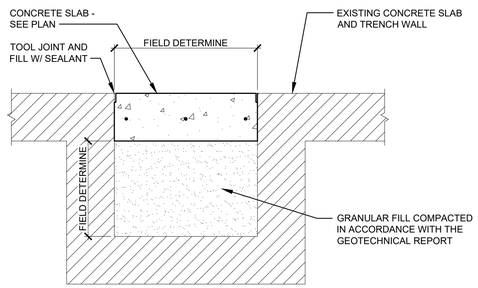


8 S-501 SECTION
SCALE: 1/2" = 1'-0"

9 S-501 SECTION
SCALE: 3/4" = 1'-0"



10 S-501 TYPICAL CMU REINFORCEMENT DETAILS
SCALE: 3/4" = 1'-0"



11 S-501 SECTION
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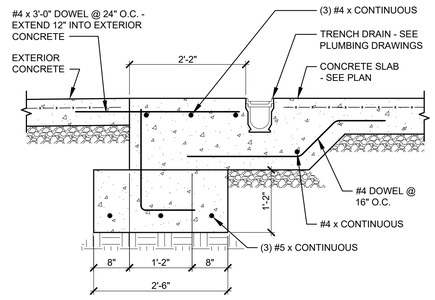

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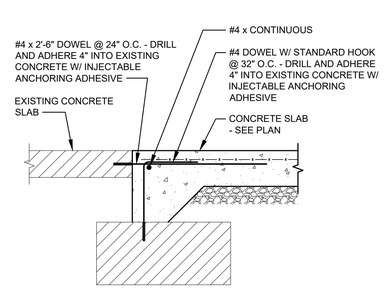

13 S-501 SECTION
SCALE: 3/4" = 1'-0"

14 S-501 TYPICAL STEPPED FOOTING DETAIL
SCALE: 1/2" = 1'-0"

15 S-501 TYPICAL COLUMN BASE DETAIL
SCALE: 1 1/2" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

4/22/20

MARK A. SPALINGER
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COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
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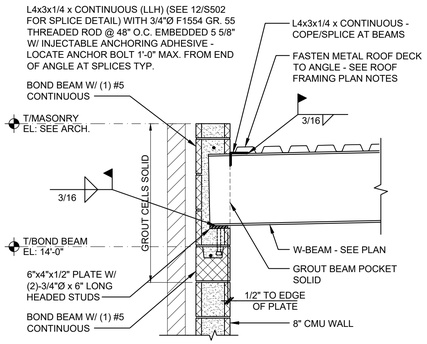
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: BWT
CHECKED BY: RCK
DESIGNED BY: RCK

SHEET TITLE:
DETAILS

SHEET NUMBER:
S-501
7 OF 46 SHEETS
04/22/2020



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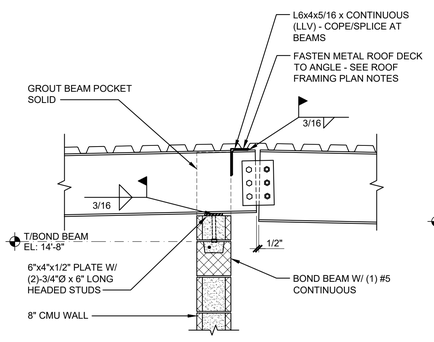

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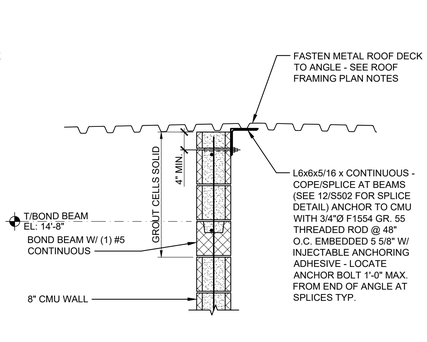

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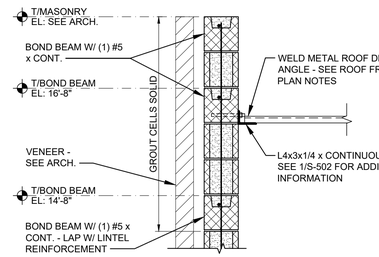

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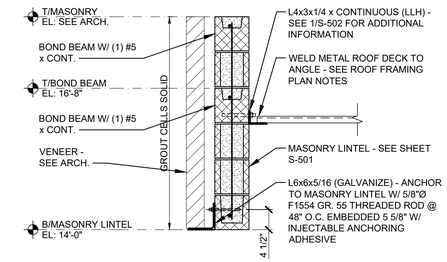

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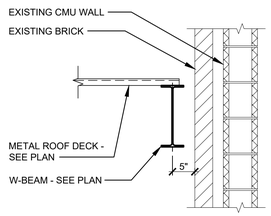

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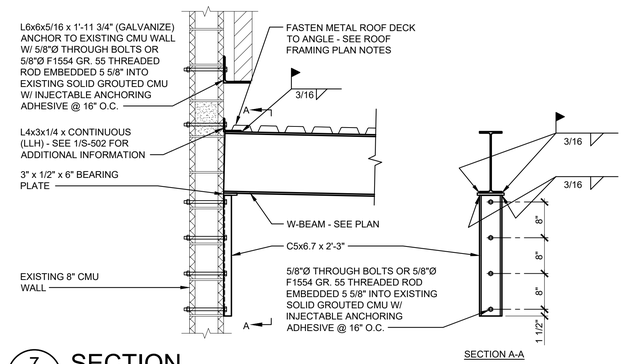

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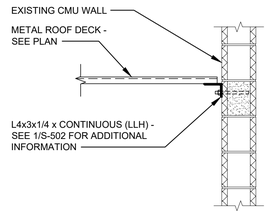

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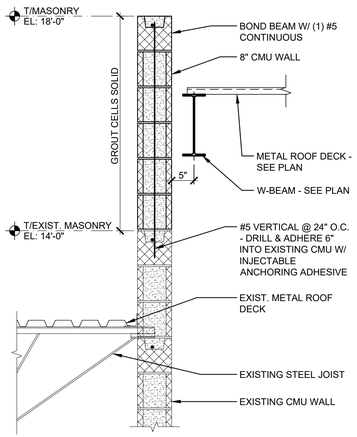

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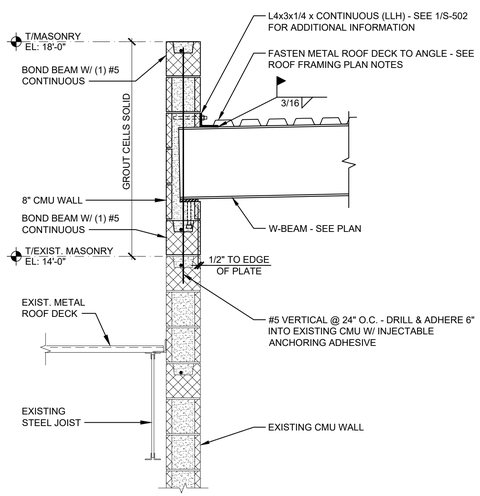

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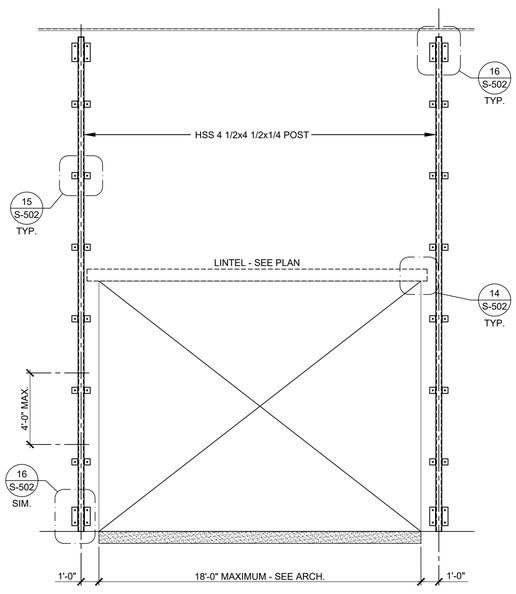

11 S-502 ELEVATION
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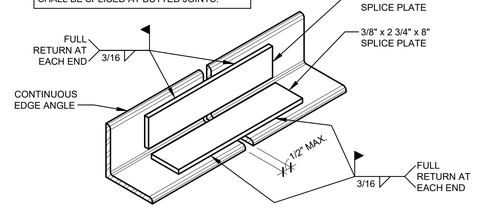
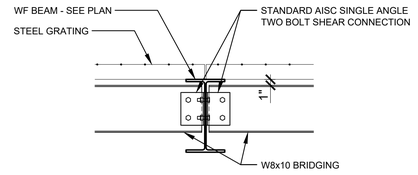


12 S-502 TYPICAL EDGE ANGLE SPLICE DETAIL
SCALE: 3" = 1'-0"



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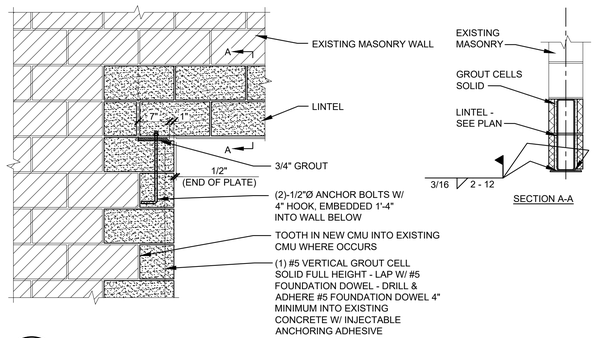

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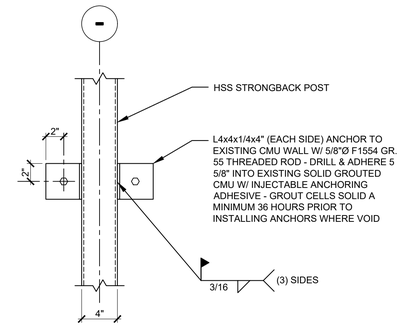

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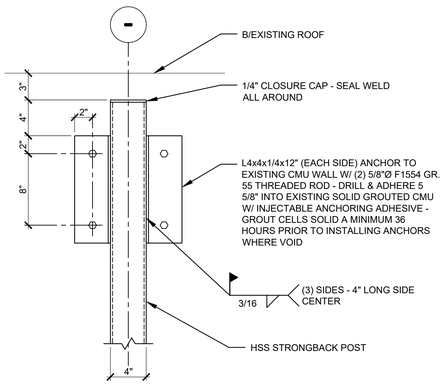

16 S-502 DETAIL
SCALE: 1 1/2" = 1'-0"

STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: BWT
CHECKED BY: RCK
DESIGNED BY: RCK

SHEET TITLE:

DETAILS

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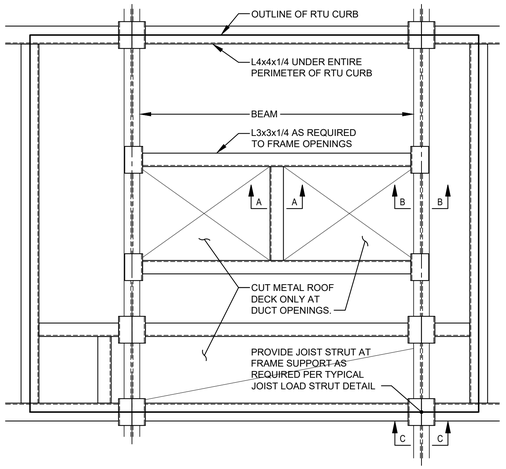
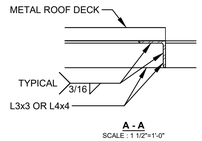
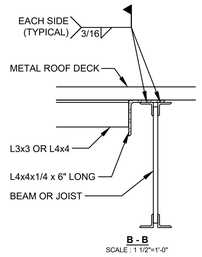
S-502
8 OF 46 SHEETS
04/22/2020





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



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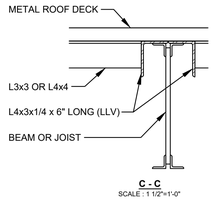
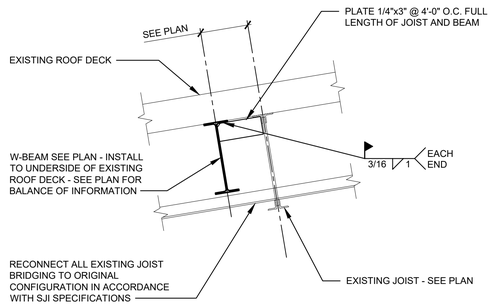


C - C
SCALE : 1 1/2"=1'-0"

1 S-503 TYPICAL RTU SUPPORT DETAIL
SCALE: 3/4" = 1'-0"



2 S-503 SECTION
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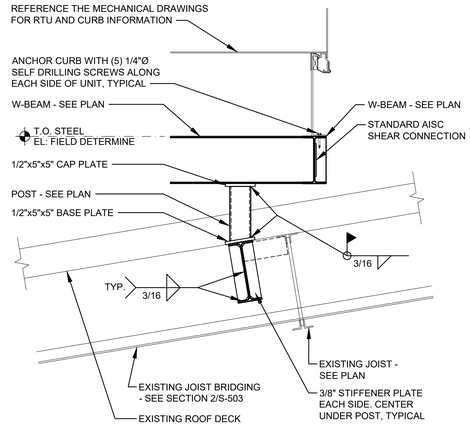

3 S-503 SECTION
SCALE: 1" = 1'-0"

4 S-503 SECTION
SCALE: 3/4" = 1'-0"

5 S-503 SECTION
SCALE: 1" = 1'-0"

6 S-503 SECTION
SCALE: 3/4" = 1'-0"

STATE OF MISSOURI
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DESIGNED BY: RCK

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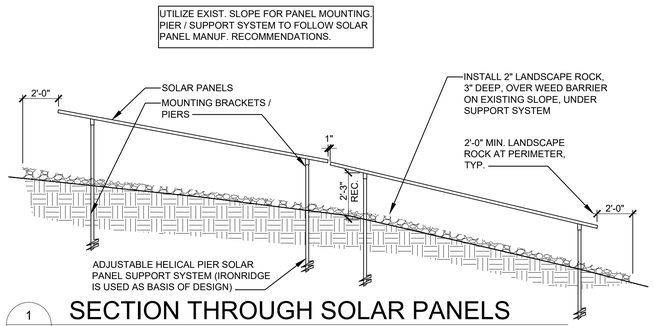
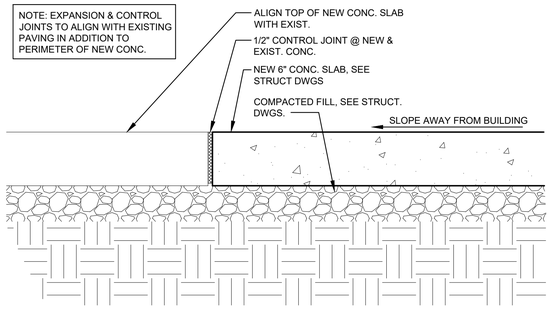
9 OF 46 SHEETS
04/22/2020



1 A-001 SECTION THROUGH SOLAR PANELS

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



2 A-001 CONC. PAVING DETAIL

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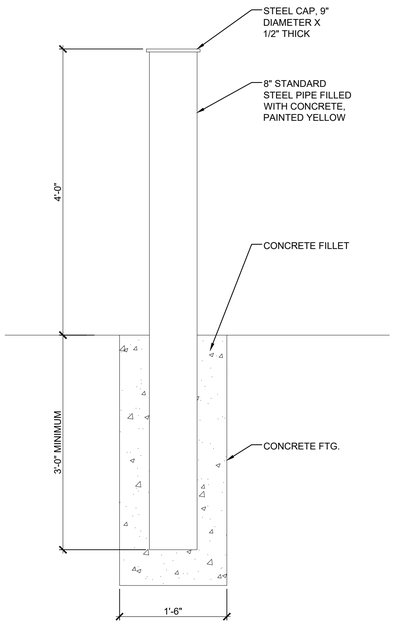

3 A-001 BOLLARD DETAIL

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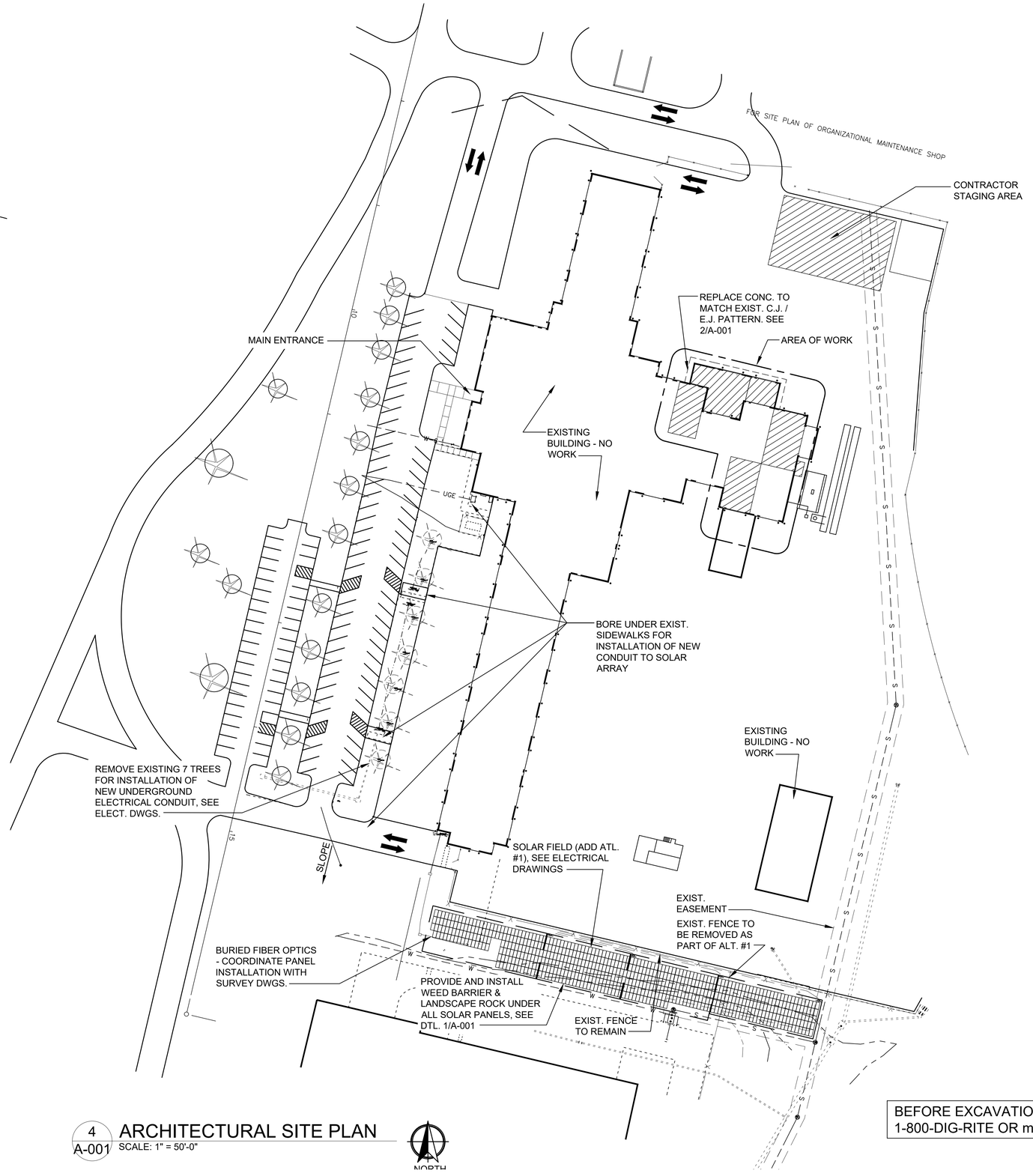

4 A-001 ARCHITECTURAL SITE PLAN

SCALE: 1" = 50'-0"

BEFORE EXCAVATION CALL:
1-800-DIG-RITE OR mo1call.com

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
MICHAEL S. SUNDERMEYER
NUMBER A-2014026855
ARCHITECT

4/22/20

MICHAEL S. SUNDERMEYER
LICENSE NUMBER: 2014026855
EXPIRATION DATE: 12/31/2020

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SITE #	6300
ASSET#	8136300017

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DATE:
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ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:

ARCHITECTURAL SITE PLAN

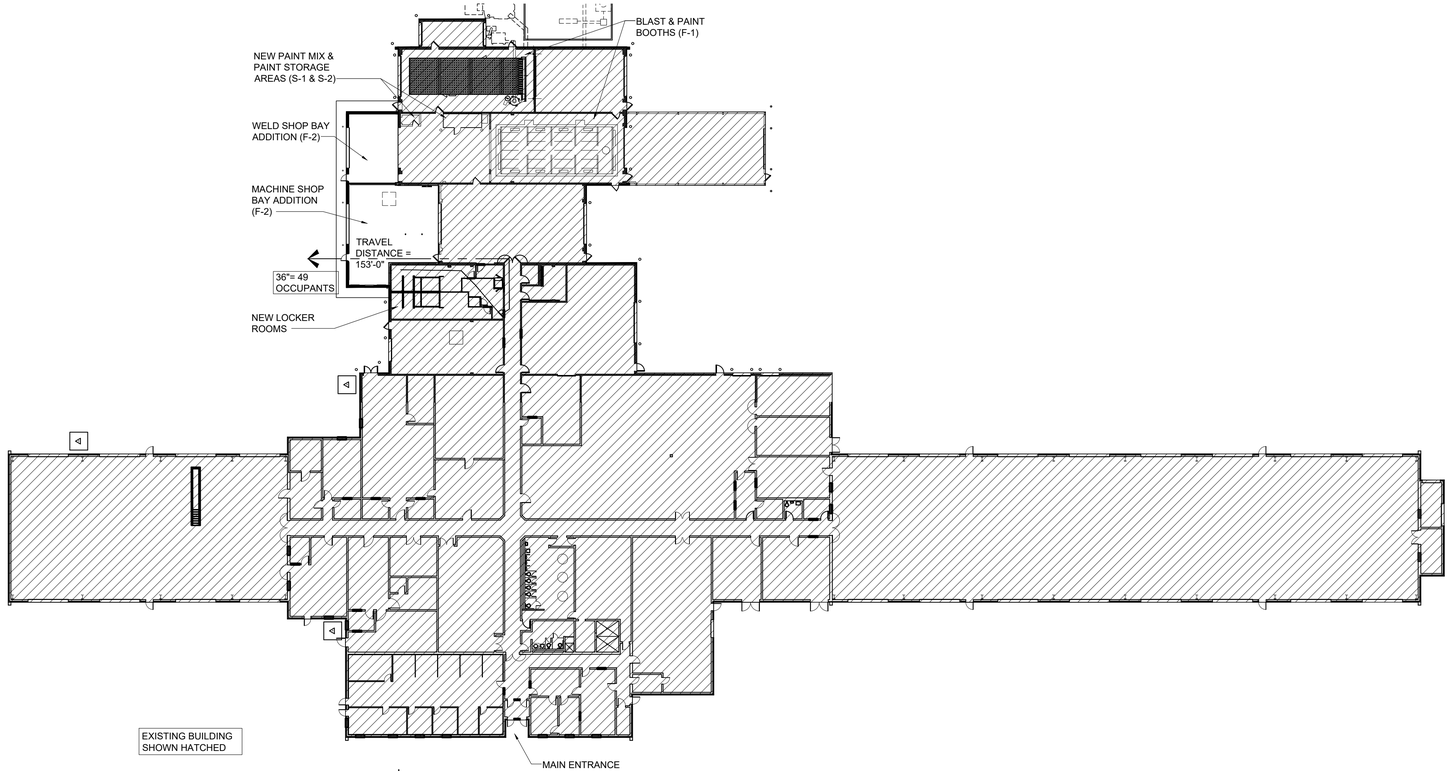
SHEET NUMBER:

A-001

10 OF 46 SHEETS
04/22/2020

GENERAL NOTES:

1. CONSTRUCTION SHALL BE PHASED, SEE NOTES ON A-101 AND A-102.
2. ALL MACHINE SHOP EQUIPMENT WILL BE RELOCATED BY OWNER UPON SUBSTANTIAL COMPLETION OF THE NEW MACHINE SHOP. SEE PHASING NOTES.
3. ALL NEW BUILDING MATERIALS TO BE OF NON-COMBUSTIBLE OR WOOD FIRE RETARDANT TREATED MATERIAL.
4. THE CONTRACTOR SHALL COMPLY WITH FEDERAL ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION REGULATIONS AND ALL LOCAL AND STATE HEALTH DEPARTMENT REQUIREMENTS AND RECOMMENDATIONS REGARDING MOLD AND MILDEW.
5. IN THE EVENT THE CONTRACTOR DISCOVERS, AT ANY TIME THE PRESENCE OF MOLD AND / OR MILDEW, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND THE ARCHITECT / ENGINEER OF RECORD, IN WRITING, OF THE CONCERNS AND/OR SUSPICIONS.
6. THE GENERAL CONTRACTOR SHALL CONTAIN ALL CONSTRUCTION ACTIVITY (WHICH SHALL INCLUDE STORAGE OF MATERIALS AND EQUIPMENT) WITHIN THE LIMITS OF CONSTRUCTION OR WITHIN THE DESIGNATED STAGING AREA.
7. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY SURFACES DAMAGED BY CONSTRUCTION ACTIVITY THAT IS UNDER THE CONTROL OF THE GENERAL CONTRACTOR (THIS INCLUDES ALL SUBCONTRACTOR WORK). REPAIRS SHALL MATCH EXISTING MATERIALS AND BE APPROVED BY THE OWNER.
8. THE GENERAL CONTRACTOR SHALL REMOVE CONSTRUCTION DEBRIS FROM THE JOBSITE ON A REGULAR BASIS, AS IDENTIFIED IN THE SPECIFICATIONS. KEEP DEBRIS CONTAINED TO THE LIMITS OF CONSTRUCTION.
9. THE GENERAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO FABRICATION.
10. THE GENERAL CONTRACTOR SHALL ENSURE THAT ALL MOISTURE AND DEBRIS HAVE BEEN ELIMINATED PRIOR TO INSTALLING NEW MATERIALS AND PREPARE SURFACE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. REFERENCE SPECIFICATIONS FOR FURTHER DIRECTION.
11. SHOULD THE GENERAL CONTRACTOR OBSERVE ANY DETERIORATED MATERIALS OR DAMAGED STRUCTURAL CONDITIONS, THE ARCHITECT AND OWNER SHALL BE NOTIFIED.
12. GENERAL CONTRACTOR SHALL INSPECT ALL INTERNAL ROOF DRAINS AND INCLUDE ALL COMPONENTS NECESSARY TO CONSTRUCT A COMPLETE DRAINAGE SYSTEM.
13. ANY EQUIPMENT NOT IDENTIFIED TO BE REMOVED IS TO REMAIN UNLESS NOTED OTHERWISE.
14. THE CONTRACT WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, TOOLS, LABOR & SERVICES NECESSARY FOR COMPLETION OF THE PROJECT.
15. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE QUALITY OF WORKMANSHIP & FOR COMPLIANCE WITH THE DESIGN. THE GENERAL CONTRACTOR SHALL CORRECT ALL ERRORS & DEVIATIONS AS REQUESTED BY THE OWNER.
16. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR QUALITY OF ALL REFURBISHED MATERIALS. ALL REFURBISHED MATERIALS TO APPEAR NEW.
17. THE G.C. SHALL VERIFY ALL RELEVANT DIMENSIONS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH THE AFFECTED WORK AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY. ALL DISCREPANCIES SHALL BE RESOLVED PRIOR TO PROCEEDING WITH AFFECTED WORK.
18. SHOULD ANY OF THE DETAILED INSTRUCTIONS ON THE DRAWINGS CONFLICT WITH THE NOTES OR SPECIFICATIONS OR WITH EACH OTHER, THE STRICTEST PROVISION SHALL APPLY.
19. JOB SITE CLEANING: DURING DEMOLITION & CONSTRUCTION, THE JOB SITE SHALL BE CLEANED ON A DAILY BASIS, INCLUDING REMOVAL OF TRASH, RUBBLE, DEBRIS & ORGANIZATION OF MATERIALS & EQUIPMENT. UPON COMPLETION OF THE WORK, THE JOB SITE SHALL BE THOROUGHLY CLEANED, INCLUDING AREAS OF THE BUILDING MADE DIRTY BY CONSTRUCTION WORK. THE G.C. SHALL REMOVE TRASH, RUBBLE, TOOLS, EQUIPMENT & EXCESS MATERIALS FROM THE PREMISES. THE BUILDING IS TO BE LEFT IN A CLEAN CONDITION.
20. THE GENERAL CONTRACTOR IS TO PROVIDE SUPERVISION OF ALL TRADES / SUBS, AS WELL AS ON-SITE SUPERVISION.
21. THE GENERAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL DUMPSTERS REQUIRED FOR EXECUTION OF THE PROJECT SCOPE INCLUDING DISPOSAL OF ALL NON-REUSED FIXTURES.
22. IF ROOF PENETRATIONS ARE REQUIRED ON EXISTING ROOF, THEN THE CONTRACTOR SHALL EMPLOY A ROOFING CONTRACTOR TO MAINTAIN EXISTING WARRANTIES.

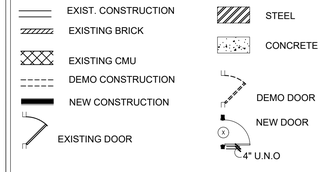


1 A-002 **EGRESS PLAN**
SCALE: 1/32" = 1'-0"

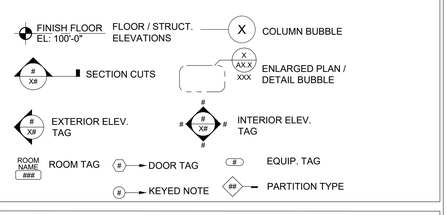
BID ALTERNATES:

1. **SOLAR PHOTOVOLTAIC RELATED ITEMS** - ALL PANELS, PLATFORMS, UNDERGROUND CONDUIT TO SOLAR ARRAY, LANDSCAPE WEED BARRIER AND ROCK - SHALL BE BID AS ALTERNATE #1. SEE ARCHITECTURAL SITE PLAN AND ELECTRICAL DRAWINGS FOR MORE INFORMATION.
2. **NEW DRIVE-THRU DOOR AT BLAST AND WASH BAYS** - REMOVAL OF EXISTING PORTION OF WALL AND RELOCATION OF ALL EFFECTED DEVICES, ADDITION OF STRUCTURAL STRONG BACK SUPPORTS AND NEW COILING OVERHEAD DOOR TO MATCH EXISTING SIZE AND TYPE. SEE WALL SECTIONS, DOOR SCHEDULES, AND STRUCTURAL DRAWINGS FOR MORE INFORMATION.
3. **REMOVAL OF EXISTING CMU WALL AT EXIST. PREP AND PAINT BAYS** - RELOCATION OF ALL EXISTING DEVICES, PIPE BOLLARDS, AND OVERHEAD DOOR. CLEAN, PATCH, REPAIR CONCRETE SLAB AND WALLS IMPACTED BY WALL REMOVAL.

MATERIAL KEY



SYMBOL LEGEND



CODE RELATED NOTES

1. THE MISSOURI NATIONAL GUARD'S CENTRAL SUPPORT AND MAINTENANCE SHOP (CSMS) PERFORMS MAINTENANCE, REPAIR, AND MAJOR OVERHAUL OF MILITARY EQUIPMENT. THE CSMS REQUIRES MAINTENANCE BAYS, TECHNICAL SUPPLY, PRODUCTION CONTROL, AND QUALITY CONTROL AREAS DIRECTLY RELATED TO THE MAINTENANCE AND SUPERVISION OF EQUIPMENT, COMPONENT AND ASSEMBLY REBUILDING, AND QUALITY CONTROL OF EQUIPMENT MAINTENANCE. THE ORIGINAL BUILDING WAS CONSTRUCTED IN 1991 AND IS CLASSIFIED AS "MIXED OCCUPANCY".
2. THE MAINTENANCE SHOP AND WELD SHOP, AND LOCKER ROOMS ADDITION IS CLASSIFIED AS "MIXED OCCUPANCY" PER 2018 IBC SECTIONS 302 AND 508.1.
3. HAZARDOUS MATERIAL USED IN THIS FACILITY IS STATED BY THE MISSOURI NATIONAL GUARD TO BE IN QUANTITIES BELOW THE REQUIRED MAXIMUMS LISTED IN TABLE 307.1 IN ORDER TO AVOID AN "H" CLASSIFICATION (IBC 406 & 307.1(2)). THE CLASSIFICATION THAT MOST NEARLY REPRESENTS THE FUNCTIONS DESCRIBED IN IBC 307.1 (1, 2, & 3) IS THAT OF USE GROUP F-1.
4. THIS BUILDING WAS DETERMINED TO ALLOW UNLIMITED AREA PER IBC 507. THE BUILDING ADDITION SHALL BE CLASSIFIED AS A ONE-STORY, CONTAINING USE GROUPS F, B & S, HAVING AN AUTOMATIC SPRINKLER SYSTEM THROUGHOUT AND BEING SURROUNDED ON ALL SIDES BY A 60'-0" PUBLIC WAY (IBC 507.3).

CODE DATA

THESE PLANS WERE PREPARED AND SHALL COMPLY WITH THE FOLLOWING CODES:

2018 INTERNATIONAL BUILDING CODE
2012 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL MECHANICAL CODE
2017 NATIONAL ELECTRICAL CODE

OCCUPANCY CLASSIFICATION (MIXED OCCUPANCY):

USE GROUP TYPES:

F-1: FACTORY INDUSTRIAL, MODERATE-HAZARD (IBC 306.2)
F-2: FACTORY INDUSTRIAL, LOW-HAZARD (IBC 306.3)
S-1: STORAGE, MODERATE-HAZARD (IBC 311.2)
S-2: STORAGE, LOW-HAZARD (IBC 311.3)

BUILDING AREA - PRIMARY COMBINED SUPPORT MAINTENANCE SHOP (CSMS):

AREA RESTRICTIONS: PER IBC 506.2 THIS FACILITY IS ALLOWED UNLIMITED AREA

BASE BUILDING SQUARE FOOTAGE:	76,155 S.F.
ADDITION SQUARE FOOTAGE:	2,374 S.F.

HEIGHT RESTRICTIONS: PER IBC 504.3 THIS FACILITY WILL BE KEPT TO ONE STORY
BUILDING CONSTRUCTION TYPE: 2-B (NON-COMBUSTIBLE, UNPROTECTED)
BUILDING IS FULLY SPRINKLERED

MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT: (IBC TABLE 1004.5):

-MAINTENANCE SHOP	100 GROSS
-WELD SHOP	100 GROSS
-LOCKER ROOMS	50 GROSS
-ACCESSORY STORAGE AREAS	500 GROSS

MINIMUM OCCUPANT LOAD (TABLE 1004.1.2):

163 S.F. AT 500 S.F. / PERSON =	1 PERSONS (MAINTENANCE / WELD)
1,200 S.F. AT 50 S.F. / PERSON =	24 PERSONS (LOCKER ROOMS)
2,347 S.F. AT 100 S.F. / PERSON =	24 PERSONS (STORAGE/UTILITY AREA)
	TOTAL = 49 PERSONS

MEANS OF EGRESS (SECTION 1005):
EXIT DOORS - .2" PER PERSON x 49 = 9.8" (10") < 36"

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AC	ACOUSTICAL
A/C	AIR CONDITIONING
ALT	ALTERNATE
ALUM	ALUMINUM
AB	ANCHOR BOLT
ARCH	ARCHITECT(URAL)
BRG	BEARING
BM	BENCH MARK
BLK	BLOCK
BLKG	BLOCKING
BD	BOARD
B.O.	BOTTOM OF
BRK	BRICK
BLDG	BUILDING
CAB	CABINET
CLG	CEILING
CL	CENTER LINE
C/O	CENTER OF
CC	CENTER TO CENTER
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONST	CONSTRUCTION
CONTR	CONTRACTOR
CONT	CONTINUOUS
CNTR	COUNTER
CFL	COUNTER FLASHING
CISK	COUNTERSUNK
CRS	COURSE(S)
CF	CUBIC FOOT
CY	CUBIC YARD
DL	DEAD LOAD
DEMO	DEMOLISH, DEMOLITION
DTL	DETAIL
DIAG	DIAGONAL
DIAM	DIAMETER
DIM	DIMENSION
DR	DOOR
DS	DOWN SPOUT
D	DRAIN
DWG	DRAWING
DF	DRINKING FOUNTAIN
E	EAST
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
ELEC	ELECTRIC(AL)
EWC	ELECTRIC WATER COOLER
ELEV	ELEVATION
EMER	EMERGENCY
EQ	EQUAL
EXIST	EXISTING
EXP	EXPOSED
EXT	EXTERIOR
FOF	FACE OF FINISH
FO	FACE OF
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FRP	FIBERGLASS REINFORCED PLASTIC
FIN	FINISH(ED)
FFE	FINISHED FLOOR ELEV.
FFL	FINISHED FLOOR LINE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FT	FIRE TREATED
FLG	FLASHING
FLR	FLOOR
FD	FLOOR DRAIN
FTG	FOOTING
FDN	FOUNDATION
FUR	FURRED(ING)
GA	GAGE, GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACT(OR)
GL	GLASS, GLAZING
GYP	GYPSUM
GWB	GYPSUM WALL BOARD
HTG	HEATING
HVAC	HEATING/VENTILATION /AIR CONDITIONING
HT	HEIGHT
HC	HOLLOW CORE
HM	HOLLOW METAL
HK	HOOK(S)
HOR	HORIZONTAL
HB	HOSE BIBB
INSUL	INSULATE(D), (ION)
INT	INTERIOR
JST	JOIST
JT	JOINT
LH	LEFT HAND
LF	LINEAL FOOT
L	LINTEL
LL	LIVE LOAD
MACH	MACHINE
MH	MANHOLE
MFR	MANUFACTURER
MAS	MASONRY
MO	MASONRY OPENING
MAX	MAXIMUM
MECH	MECHANIC(AL)
MED	MEDIUM
MTL	METAL
M	METER(S)
MWK	MILLWORK
MIN	MINIMUM
MISC	MISCELLANEOUS
MT	MOUNT(ED), (ING)
NOM	NOMINAL
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER(S)
OPNG	OPENING
OPH	OPPOSITE HAND
OD	OUTSIDE DIAMETER
OO	OUT TO OUT
OA	OVERALL
OH	OVERHEAD
PTD	PAINT(ED)
PKG	PARKING
PLAM	PLASTIC LAMINATE
PL	PLATE
PWD	PLYWOOD
PVC	POLYVINYL CHLORIDE
PSF	POUNDS PER SQUARE FT.
PSI	POUNDS PER SQUARE IN.
PT	PRESSURE TREATED
PL	PROPERTY LINE
REM	REMOVE
RET	RETURN
RH	RIGHT HAND
RD	ROOF DRAIN
RFG	ROOFING
RM	ROOM
RO	ROUGH OPENING
SLNT	SEALANT
SECT	SECTION
SHTHG	SHEATHING
SHT	SHEET
SIM	SIMILAR
SC	SOLID CORE
S	SOUTH
SF	SQUARE FOOT
SI	SQUARE INCH
SY	SQUARE YARD
STD	STANDARD
STO	STORAGE
SUSP	SUSPENDED
SYM	SYMMETRY, (ICAL)
TEL	TELEPHONE
TV	TELEVISION
THK	THICK(NESS)
T&G	TONGUE & GROOVE
TOM	TOP OF MASONRY
TPO	THERMOPLASTIC POLYOLEFIN
TS	TOP OF STEEL
TOS	TOP OF STEEL
TW	TOP OF WALL
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VT	VINYL TILE
WSCT	WAINSCOT
WC	WATER CLOSET
WWF	WELDED WIRE FABRIC
W	WEST
W	WIDTH, WIDE
WIN	WINDOW
W/O	WITHOUT
WD	WOOD

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JEFFERSON CITY, MISSOURI 65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

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CAD DWG FILE:
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CHECKED BY:
DESIGNED BY:

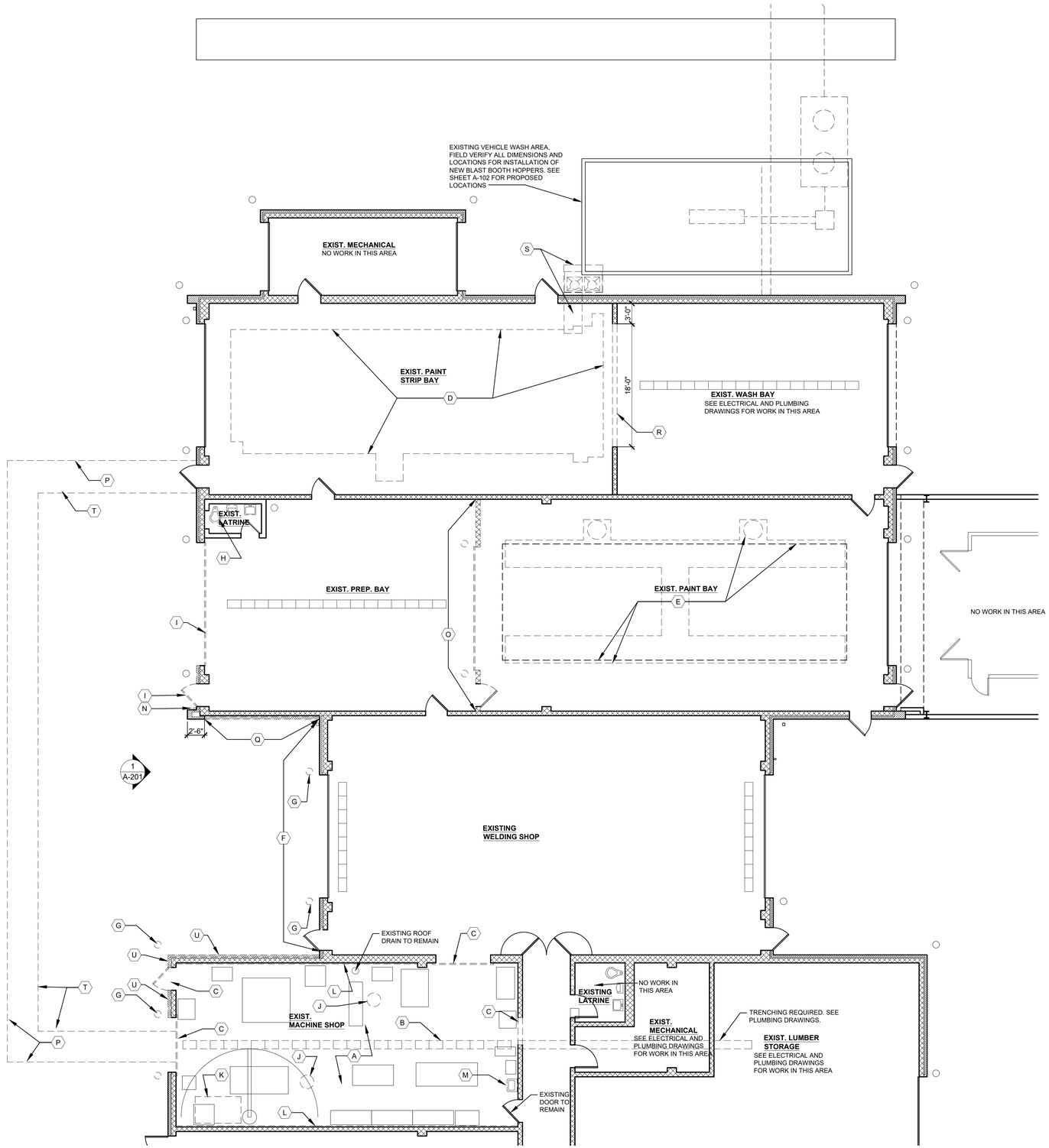
SHEET TITLE:

CODE DATA, EGRESS FLOOR PLAN, NOTES & LEGENDS

SHEET NUMBER:

A-002

11 OF 46 SHEETS
04/22/2020



1 A-101 DEMO PLAN

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

GENERAL DEMOLITION NOTES:

1. REFER TO DEMOLITION SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. REFER TO FLOOR PLAN FOR PROPOSED NEW CONSTRUCTION, SHEET A-102.
3. ALL EXISTING MECHANICAL DIFFUSERS & DUCTWORK, ELECTRICAL DEVICES, LIGHTS, OUTLETS, SWITCHES & EQUIPMENT WHICH IS TO BE REMOVED SHALL BE IN ENTIRETY (WITHIN WALL PARTITIONS, CEILING SYSTEMS, ETC.) OR UNLESS NOTED OTHERWISE.
4. REFER TO STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR ADDITIONAL DEMOLITION SCOPE AND REQUIREMENTS.
5. REMOVE ALL EXISTING SITE CONSTRUCTION AND DELETERIOUS MATERIALS UNLESS NOTED OTHERWISE.

DEMO KEYED NOTES:

- (A) REMOVE ALL EXISTING EQUIPMENT IN MACHINE ROOM AND SALVAGE FOR REINSTALLATION BY OWNER IN NEW MACHINE ROOM ADDITION.
- (B) REMOVE EXISTING TRENCH DRAIN AND GRATES. SALVAGE GRATES FOR REINSTALLATION AT NEW TRENCH DRAIN LOCATIONS. SEE SHEET A-102 AND PLUMBING DWGS.
- (C) REMOVE AND DISPOSE OF EXISTING WINDOWS, DOORS AND FRAMES. INFILL OPENINGS TO MATCH EXISTING. SEE DETAILS ON A-502.
- (D) REMOVE EXISTING BLAST BOOTH AND RELATED EQUIPMENT INCLUDING METAL PLATFORM, LADDER, HOPPER AND EXHAUST SYSTEM. SAWCUT CONCRETE FLOOR FOR INSTALLATION OF NEW BLAST BOOTH AND BELOW SLAB PARTICULATE RECOVERY SYSTEM. SEE STRUCT. DWGS FOR EXTENTS OF SLAB REMOVAL.
- (E) REMOVE EXISTING PAINT BOOTH, EXHAUST TOWERS, AND ALL RELATED EQUIPMENT, SAWCUT AND REMOVE EXISTING SLAB, EXTENTS OF NEW PAINT BOOTH. SEE SHEET A-102. SEE STRUCT. DRAWINGS FOR FURTHER INFORMATION.
- (F) REMOVE EXIST FACE BRICK FROM 14'-0" A.F.F., FASCIA, SOFFIT, AND DOWNSPOUT. SEE 1/A201 FOR EXTENT OF DEMO.
- (G) REMOVE EXISTING PIPE BOLLARDS.
- (H) REMOVE EXISTING PLUMBING FIXTURES, CAP UTILITIES BELOW CONCRETE SLAB, PATCH SLAB TO MATCH EXISTING FINISH.
- (I) REMOVE AND DISPOSE OF EXISTING DOOR AND FRAME.
- (J) REMOVE EXISTING FLOOR DRAIN AND COVER. SEE PLUMBING DWGS.
- (K) REMOVE EXISTING VENT HOOD, DUCTWORK AND ROOF MOUNTED EXHAUST FANS. SEE ROOF PLAN, A-103.
- (L) REMOVE AND DISPOSE OF ALL EXISTING ACOUSTICAL WALL PANELS.
- (M) DISCONNECT SINK AND SALVAGE FOR RELOCATION IN NEW MACHINE SHOP. SEE PLUMBING DWGS.
- (N) REMOVE EXISTING DOWNSPOUT, SEE ROOF PLAN.
- (0) ADD ALTERNATE #3 FOR REMOVAL OF EXISTING CMU WALL TO ROOF STRUCTURE, INCLUDING ALL DOORS, BOLLARD PROTECTION, SUPPORTS AND PIPING. SEE STRUCTURAL AND MECHANICAL DRAWINGS.
- (P) AREA OF EXCAVATION FOR WELD & MACHINE SHOP ADDITION. SEE STRUCTURAL DRAWINGS FOR EXTENTS.
- (Q) REMOVE EXISTING FACE BRICK, INSULATION, MASONRY TIES, AND WEEPS FROM FINISH FLOOR TO ABOVE NEW BEAM LOCATIONS - 8" MAX.
- (R) REMOVE 18'-0" W x 14'-0" H PORTION OF EXISTING CMU PARTITION. SEE PLUMBING, MECHANICAL, AND ELECTRICAL DWGS. FOR PIPE AND CONDUIT REROUTING. SEE STRUCTURAL DRAWINGS FOR NEW STEEL SUPPORTS AND EXTENTS OF EXTENTS OF SLAB REMOVAL.. THIS WORK IS INCLUDED AS ALTERNATE #2.
- (S) REMOVE EXISTING DUST COLLECTOR, DUCT WORK AND PLATFORM FOR INSTALLATION OF NEW DUST COLLECTOR. SEE MECHANICAL DRAWINGS FOR FURTHER INFORMATION.
- (T) OUTLINE OF BUILDING EXPANSION
- (U) REMOVE EXISTING FACE BRICK, INSULATION, MASONRY TIES, AND WEEPS FROM FINISH FLOOR TO TOP OF WALL.

CONSTRUCTION PHASING:

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GENERAL SEQUENCING OF WORK AS FOLLOWS:

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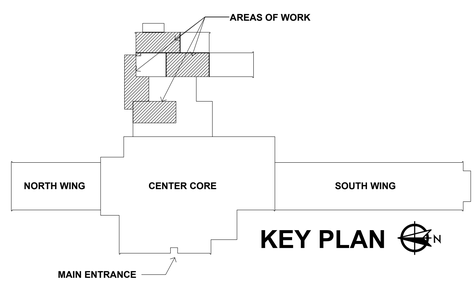
2. REMOVAL OF OF BLAST AND PAINT BOOTHS AND ALL ACCESSORY ITEMS. DEMOLITION AND CONSTRUCTION OF WALLS, FLOORS, AND REMOVAL OR RELOCATION OF ASSOCIATED BUILDING SYSTEMS IN EXISTING BLAST AND PAINT BAYS FOR INSTALLATION OF NEW BLAST AND PAINT BOOTHS. DEMO OF EXISTING MACHINE ROOM AND CONSTRUCTION OF NEW LOCKER ROOM AREA.



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DEMO FLOOR PLAN

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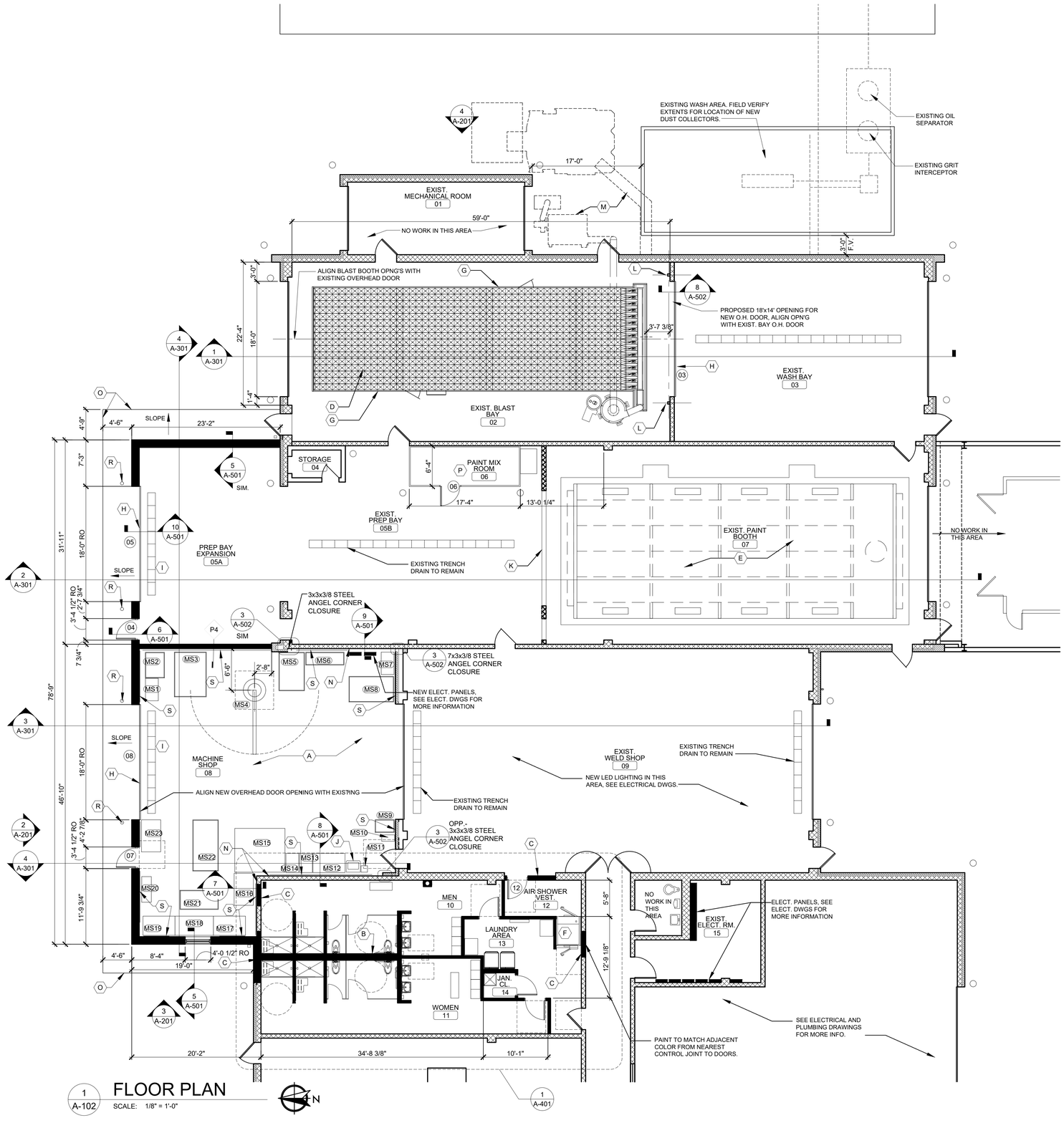
12 OF 46 SHEETS
04/22/2020



1 A-102 **FLOOR PLAN**
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. REFER TO GENERAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. ALL NEW BUILDING MATERIALS TO BE OF NON-COMBUSTIBLE OR WOOD FIRE RETARDANT TREATED MATERIAL.
3. REFER TO DEMOLITION PLANS FOR LOCATIONS OF ALL ITEMS TO BE REMOVED UNLESS NOTED OTHERWISE.
4. REFER TO INTERIOR FINISH SCHEDULE FOR NEW WALL FINISHES, FLOOR FINISH AND CEILING HEIGHTS. (A-601)
5. ALL INTERIOR WALL DIMENSIONS ARE FROM FACE OF EXISTING OR NEW CMU AND GYPSUM WALLBOARD UNLESS NOTED OTHERWISE.
6. ALL EXISTING CONSTRUCTION TO REMAIN SHALL BE CLEANED. PATCH AND REPAIR TO LIKE NEW CONDITION. COORDINATE WITH PROJECT ADMINISTRATOR FOR REPAINTING IF REQUIRED.
7. PORTABLE FIRE EXTINGUISHERS: PROVIDE PORTABLE FIRE EXTINGUISHERS (MIN.10-LB, QUANTITY OF 1) AS REQUIRED PER LOCAL FIRE MARSHAL.
8. SEE PARTITION TYPES ON A-502.
9. SEE ELECT. DWGS. FOR LIGHTING PLANS.

KEYED NOTES:

- (A) OWNER TO RELOCATE EXISTING MACHINE EQUIPMENT IN NEW MACHINE SHOP. SEE STRUCT. DWGS FOR FTG DETAILS AT JIB HOIST.
- (B) NEW PLUMBING CHASE AT EXISTING TRENCH DRAIN LOCATION. SEE PLUMBING DWGS.
- (C) INFILL DOOR AND WINDOW OPENINGS, SEE DETAILS ON SHEET A-601.
- (D) NEW BLAST BOOTH BY CONTRACTOR (PRE-MANUFACTURED) SEE SPECS, SEE MEP DWGS FOR CONNECTIONS AND STRUCT. DWGS FOR CONCRETE / STEEL PIT DETAILS.
- (E) NEW PAINT BOOTH BY CONTRACTOR (PRE-MANUFACTURED) SEE SPECS, SEE MEP DWGS FOR CONNECTIONS. SEE STRUCT. DWGS FOR CONCRETE SLAB DETAILS.
- (F) NEW AIR SHOWER BY CONTRACTOR, SEE SHEET A-401, MEP DWGS AND SPECIFICATIONS FOR MORE INFORMATION.
- (G) CONCRETE PIT FOR PARTICULATE COLLECTION UNDER NEW BLAST BOOTH. SEE STRUCTURAL DWGS FOR MORE INFORMATION.
- (H) NEW 18'-0" x 14'-0" COILING OVERHEAD DOOR, SEE DOOR SCHEDULE ON SHT. A-601, ADD ALTERNATE #2.
- (I) NEW TRENCH DRAINS, REUSE EXISTING TRENCH DRAIN COVERS TO EXTENT POSSIBLE. INSTALL NEW AS NEEDED. SEE PLUMBING DWGS FOR INFORMATION ON DRAINS.
- (J) REUSE EXISTING SINK SALVAGED FROM DEMO, SEE PLUMBING DRAWINGS. COORDINATE WITH OWNER EQUIPMENT LOCATIONS.
- (K) ALTERNATE #3 - REPAIR, PATCH AND FINISH FLOOR AND WALLS TO LIKE NEW CONDITION, WHERE EXISTING FLOOR AND WALL WAS REMOVED. SEE MEP DWGS FOR RELOCATED OR DISCONNECTED CONDUIT AND PIPING. SEE ROOM FINISH SCHEDULE FOR WALL PAINT.
- (L) NEW STEEL STRONG-BACK SUPPORT AT NEW OVERHEAD DOOR OPENING. SEE STRUCT. DWGS. ALTERNATE#2
- (M) NEW PARTICULATE AND DUST HOPPERS, PART OF BLAST BOOTH PACKAGE, SEE STRUCTURAL AND MEP DRAWINGS FOR COORDINATION.
- (N) CLEAN, PATCH, AND REPAIR EXISTING CMU TO LIKE NEW CONDITION WHERE EXISTING BRICK, BLOCK, INSULATION AND MASONRY TIES HAVE BEEN REMOVED. SEE ROOM FINISH SCHEDULE FOR PAINT FINISH ON SHEET A-601.
- (O) AREA OF NEW CONCRETE PAVING. SEE DETAILS ON SHEEET A-001.
- (P) NEW PREMANUFACTURED PAINT MIX BOOTH BY CONTRACTOR. SEE MEP DWGS. FOR POWER LIGHTS AND VENTING.
- (R) NEW BOLLARD, SEE DETAIL 3/A-001
- (S) 48"x48" ACOUSTICAL PANELS (92 L.F. - VERIFY QUANTITY AND LOCATIONS IN FIELD WITH OWNER) - SEE ROOM FINISH SCHEDULE AND SPECIFICATIONS.

EXISTING MACHINE SHOP EQUIPMENT LIST:

- (MS1) SAW MILL
- (MS2) PARTS WASHER
- (MS3) 100 TON PRESS
- (MS4) JIB CRANE
- (MS5) DRILL PRESS
- (MS6) "E" DRILL CENTER
- (MS7) "B" CABINET
- (MS8) BAND SAW
- (MS9) DRILL
- (MS10) LOCKERS
- (MS11) LOCKERS
- (MS12) DESK
- (MS13) VID BLUE
- (MS14) VID BLUE
- (MS15) MILL
- (MS16) SNAP ON
- (MS17) "K"
- (MS18) "J" MACH LOAD
- (MS19) "A" TAPS
- (MS20) 10 TON PRESS
- (MS21) LATHE
- (MS22) B LATHE
- (MS23) 100 TON PRESS

ACCESSIBLE CLEARANCE

ALL MACHINE SHOP EQUIPMENT TO BE RELOCATED BY NATIONAL GUARD STAFF, FINAL ELECTRICAL CONNECTIONS BY G.C. SEE ELECTRICAL DWGS.

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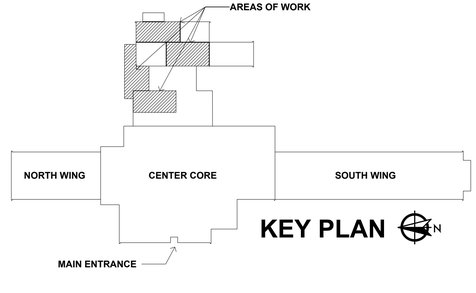
2. REMOVAL OF BLAST AND PAINT BOOTHS AND ALL ACCESSORY ITEMS. DEMOLITION AND CONSTRUCTION OF WALLS, FLOORS, AND REMOVAL OR RELOCATION OF ASSOCIATED BUILDING SYSTEMS IN EXISTING BLAST AND PAINT BAYS. FOR INSTALLATION OF NEW BLAST AND PAINT BOOTHS. DEMO OF EXISTING MACHINE ROOM AND CONSTRUCTION OF NEW LOCKER ROOM AREA.



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13 OF 46 SHEETS
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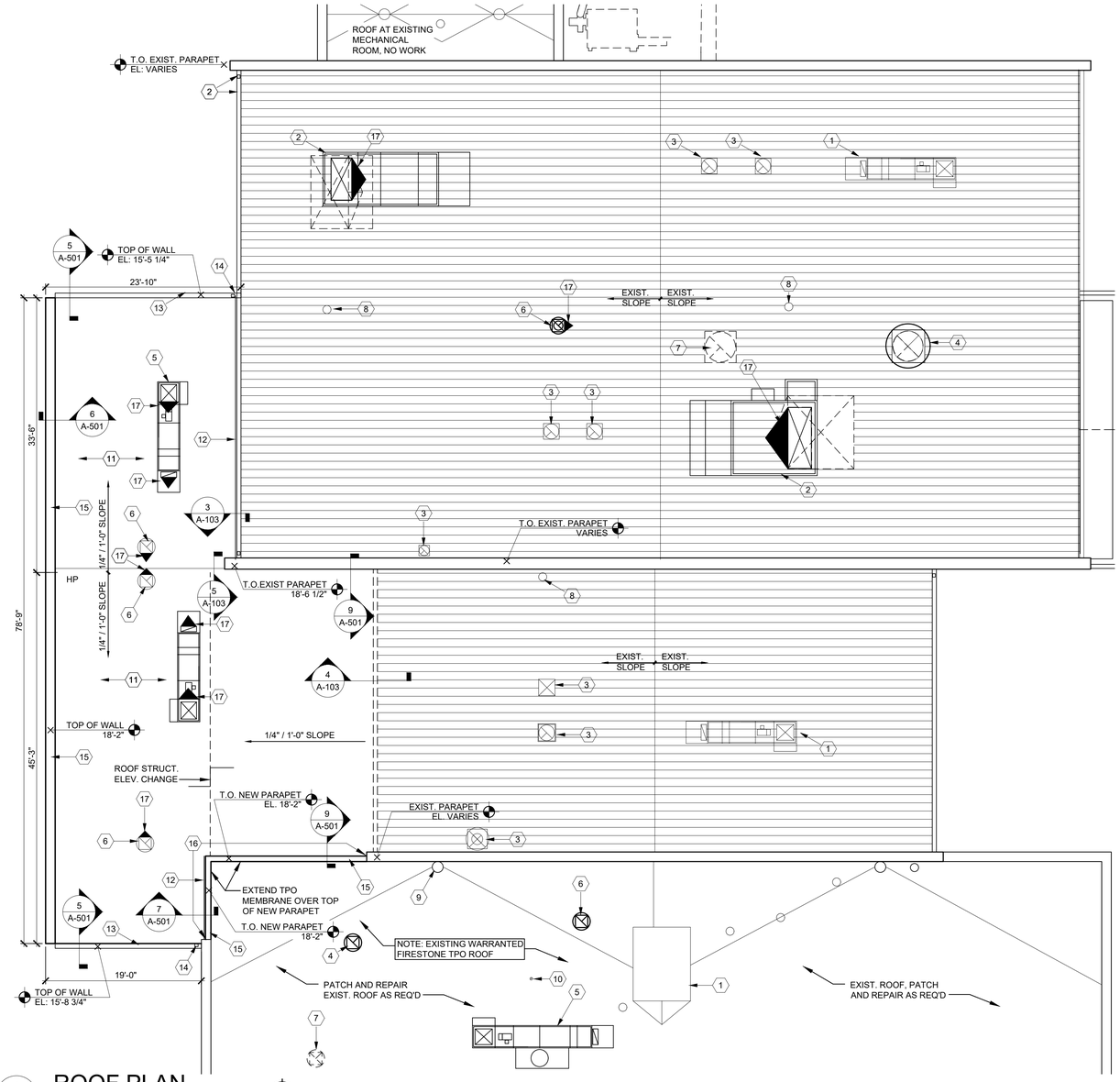


1 A-103 ROOF PLAN

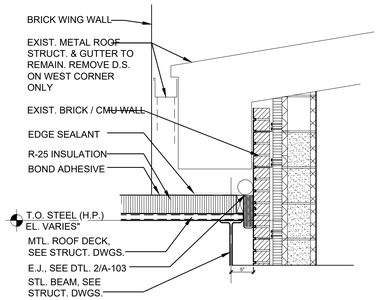
SCALE: 1/8" = 1'-0"

GENERAL ROOF NOTES:

1. INSTALL NEW FULLY ADHERED 60 MIL TPO ROOFING MEMBRANE AT ROOF TO WALL CONNECTIONS OVER NEW TAPERED INSULATION AND COVERBOARD. MEMBRANE TO BE CONTINUOUS (TO AVOID SPLICES) WHERE POSSIBLE. COLOR TO BE GRAY.
2. INSTALL ALL NEW TERMINATION BARS AS REQUIRED.
3. FLASH ALL ROOF PENETRATIONS AS REQUIRED.
4. METAL COUNTERFLASHING SHALL BE 24 GAUGE PRE-FINISHED STEEL OR .032" MIN. ALUMINUM FORMED WITH HEMMED LOWER EDGE.
5. INSTALL TERMINATION BAR WITH 1/4" GAP BETWEEN ADJOINING SECTIONS.
6. TERMINATION BAR MUST BE CUT AT INSIDE CORNERS. **DO NOT BEND AROUND CORNERS**.
7. TERMINATION BAR MUST BE FASTENED WITHIN 1" MAX. OF ALL SECTION ENDS.
8. INSTALL METAL WORK IN ACCORDANCE WITH CURRENT SMACNA RECOMMENDATIONS.
9. ALL ROOF WORK AND CURB CONNECTIONS SHALL BE COORDINATED WITH AN EXPERIENCED ROOFING CONTRACTOR. SEE SPECIFICATIONS.
10. ALL NEW MATERIALS SHOULD MATCH EXISTING COLOR AND FINISH AS CLOSELY AS POSSIBLE.

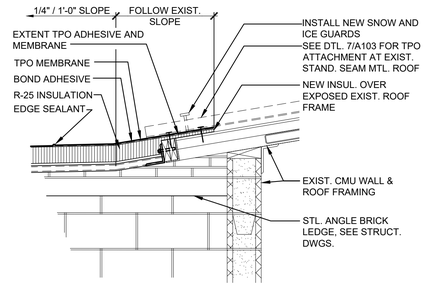
KEYED NOTES:

1. EXISTING MAKE UP UNIT (MAU) TO REMAIN. SEE MECH. DWGS FOR MORE INFORMATION.
2. REMOVE EXISTING MAU, CURB AND COMPONENTS AND REPLACE WITH NEW MAU, CURB AND COMPONENTS. SEE MECH. AND STRUCT. DWGS FOR MORE INFORMATION. SEE 9/A-103 FOR CURB DETAIL.
3. EXISTING EXHAUST FAN (EF) TO REMAIN. SEE MECH DWGS FOR MORE INFORMATION.
4. REMOVE EXISTING EF, CURB AND COMPONENTS AND REPLACE WITH NEW EF, CURB AND COMPONENTS. SEE MECH. AND STRUCT. DWGS FOR MORE INFORMATION. SEE 8 & 9/A-103 FOR CURB DETAIL.
5. NEW MAU, SEE MECH. AND STRUCTURAL DWGS FOR MORE INFORMATION. SEE 8/A-103 FOR CURB DETAILS.
6. NEW EF, SEE MECH. AND STRUCTURAL DWGS FOR MORE INFORMATION. SEE 8 & 9/A-103 FOR CURB DETAIL.
7. REMOVE EXISTING EF AND CAP OPENING.
8. EXISTING VENT PIPE TO REMAIN.
9. EXISTING ROOF DRAIN TO REMAIN
10. NEW DRYER VENT, SEE MECHANICAL DWGS AND DETAILS 6/A-103.
11. NEW TPO ROOF SYSTEM OVER RIGID INSULATION AND COVER BOARD. SEE DETAILS, THIS SHEET.
12. EXPANSION JOINT, SEE DETAIL 2/A-103.
13. PREFINISHED METAL GUTTER, MATCH EXISTING. SEE DETAIL 1/A-501 FOR DIMENSIONS AND PROFILE.
14. PREFINISHED METAL DOWNSPOUT, MATCH EXISTING.
15. PREFINISHED METAL COPING, MATCH EXISTING. SEE DETAILS ON SHEET A-501.
16. PARAPET EXTENSION. SEE STRUCTURAL DRAWINGS AND DETAILS 7 & 8/A-501.
17. CRICKET



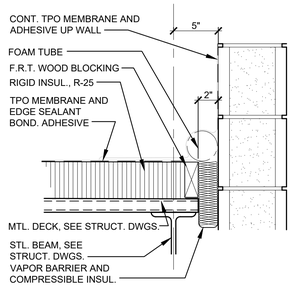
3 A-103 ROOF DTL. AT NEW PREP BAY

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



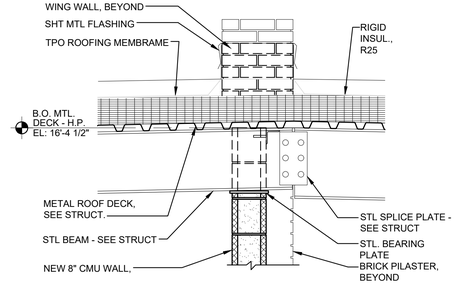
4 A-103 ROOF DTL. AT MACH. SHOP

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



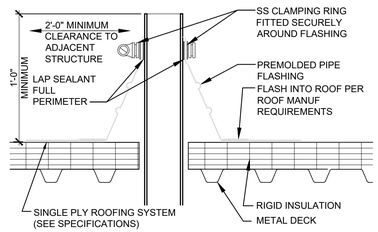
2 A-103 EXP. JOINT DETAIL

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



5 A-103 DETAIL AT INT CMU WALL

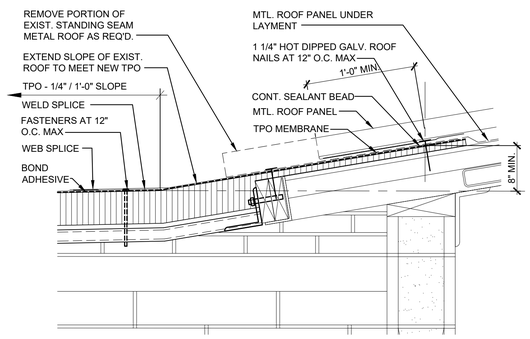
SCALE: 3/4" = 1'-0"



NOTE:
COORDINATE LOCATIONS WITH PLUMBING DRAWINGS

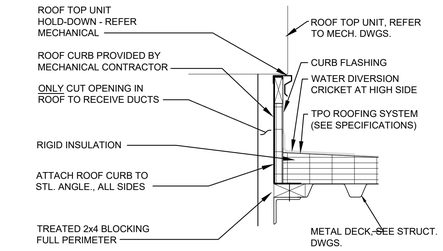
6 A-103 ROOF VENT AT TPO ROOF

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



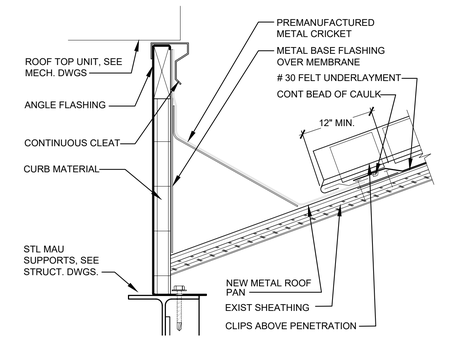
7 A-103 ENLARGED FLASHING DTL.

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



8 A-103 CURB DETAIL AT TPO ROOF

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



9 A-103 CURB AT EXIST. METAL ROOF

SCALE: 3" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
MICHAEL S. SUNDERMEYER
NUMBER A-2014026855
ARCHITECT
4/22/20

MICHAEL S. SUNDERMEYER
LICENSE NUMBER: 2014026855
EXPIRATION DATE: 12/31/2020

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MO Certificate of Authority #000613 Eng.

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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

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RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY-
CHECKED BY:
DESIGNED BY:

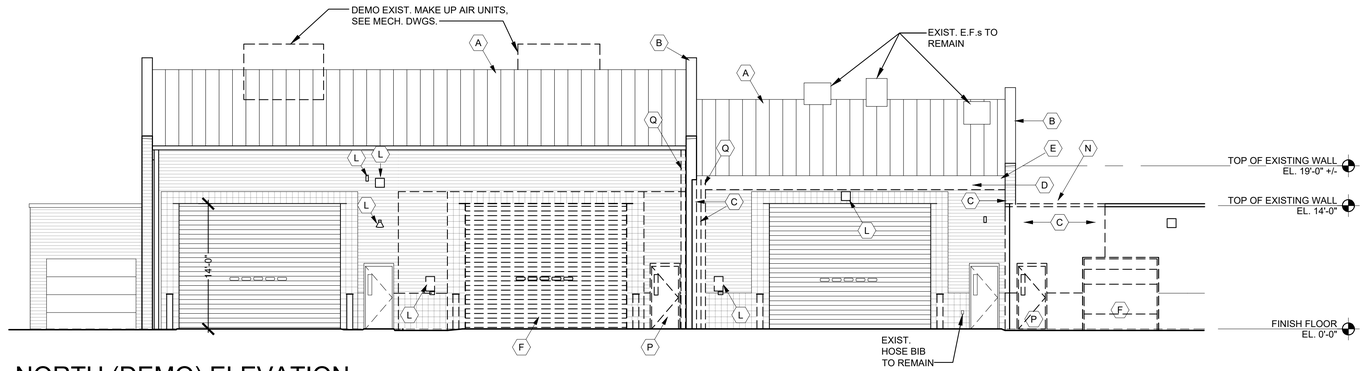
SHEET TITLE:

ROOF PLAN AND DETAILS

SHEET NUMBER:

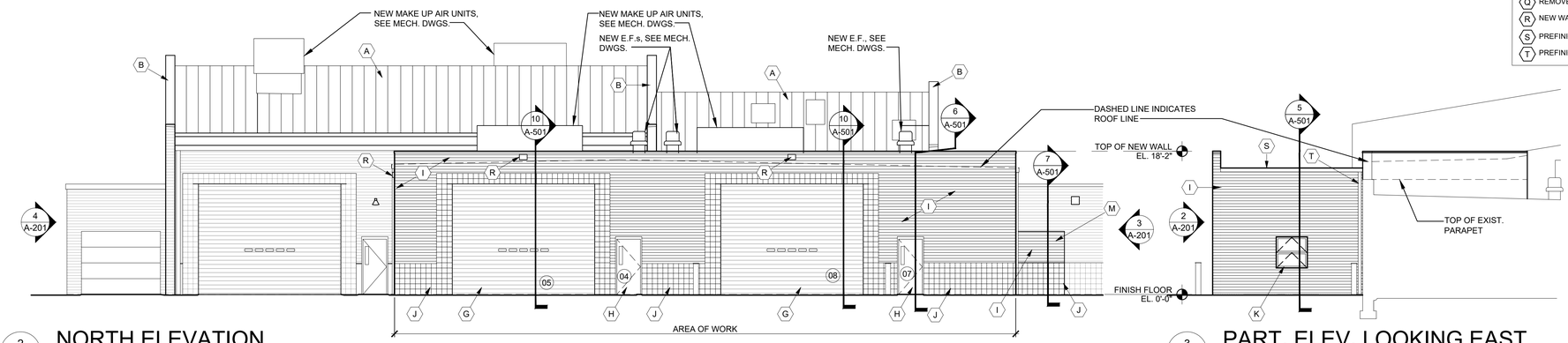
A-103

14 OF 46 SHEETS
04/22/2020



1 A-201 **NORTH (DEMO) ELEVATION**

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

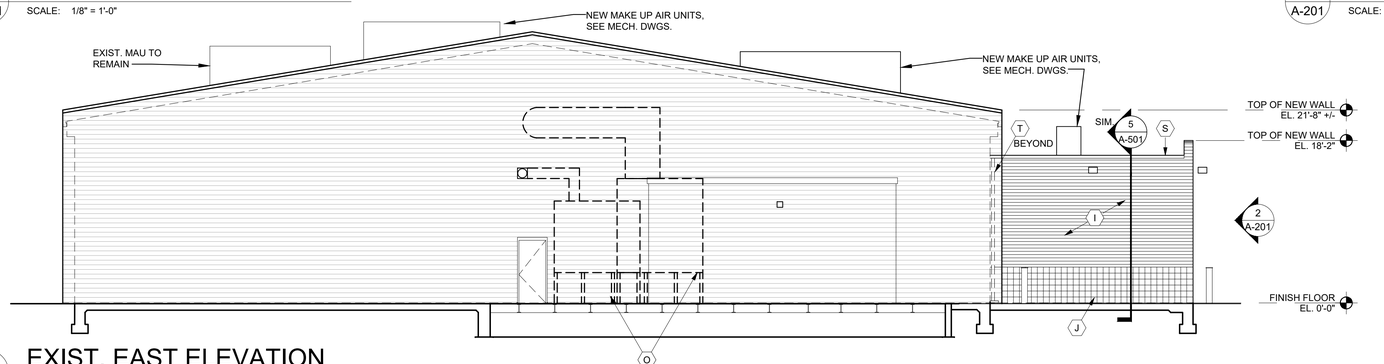


2 A-201 **NORTH ELEVATION**

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

3 A-201 **PART. ELEV. LOOKING EAST**

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



4 A-201 **EXIST. EAST ELEVATION**

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

GENERAL NOTES:

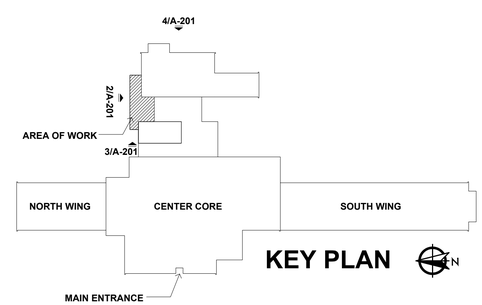
1. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. ALL NEW BUILDING MATERIALS TO BE OF NON-COMBUSTIBLE OR WOOD FIRE RETARDANT TREATED MATERIAL.
3. REFER TO DEMOLITION PLANS FOR LOCATIONS OF ALL ITEMS TO BE REMOVED UNLESS NOTED OTHERWISE.
4. REFER TO INTERIOR FINISH SCHEDULE FOR NEW WALL FINISHES, FLOOR FINISH AND CEILING HEIGHTS. (A-601)
5. ALL INTERIOR WALL DIMENSIONS ARE FROM FACE OF EXISTING OR NEW CMU UNLESS NOTED OTHERWISE.
6. ALL EXISTING CONSTRUCTION TO REMAIN SHALL BE CLEANED, PATCHED AND REPAIRED TO LIKE NEW CONDITION.

LEGEND:

- EXISTING BLOCK
- NEW BLOCK
- EXISTING BRICK
- NEW BRICK

KEYED NOTES:

- A EXISTING STANDING SEAM METAL ROOF.
- B EXISTING BRICK PARAPET TO REMAIN.
- C REMOVE EXISTING FACE BLOCK AND BRICK, INSULATION AND ALL ACCESSORY ITEMS FROM FLOOR TO TOP OF WALL.
- D REMOVE EXISTING FACE BRICK COURSES FROM O.H. DOOR LINTEL TO TOP OF WALL.
- E REMOVE SHEET METAL SOFFIT AND FASCIA TO EXTENT REQ'D FOR ADDITION.
- F REMOVE EXISTING OVERHEAD DOOR AND DOOR ASSEMBLY.
- G NEW OVERHEAD DOOR TO MATCH EXISTING, SEE DOOR SCHEDULE ON A-601
- H NEW HOLLOW METAL DOOR & FRAME, SEE DOOR SCHEDULE ON A-601
- I FACE BRICK TO MATCH EXISTING
- J CMU TO MATCH EXISTING
- K NEW OPERABLE WINDOW, SEE SPECIFICIATIONS
- L DEMO EXISTING ELECTRICAL DEVICES, SEE ELECT. DWGS.
- M INFILL EXISTING OPENING. SEE DETAILS ON SHEET A-502
- N REMOVE COPING AND BLOCKING.
- O NEW PARTICULATE HOPPER BY OTHERS, PART OF BLAST BOOTH PACKAGE, SEE STRUCTURAL AND MECHANICAL DRAWINGS.
- P REMOVE HOLLOW METAL DOOR AND FRAME.
- Q REMOVE DOWNSPOUT.
- R NEW WALL PACK LIGHTS, SEE ELECTRICAL DWGS.
- S PREFINISHED GUTTER
- T PREFINISHED DOWNSPOUT



KEY PLAN

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
MICHAEL S. SUNDERMEYER
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ARCHITECT

4/22/20

MICHAEL S. SUNDERMEYER
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CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

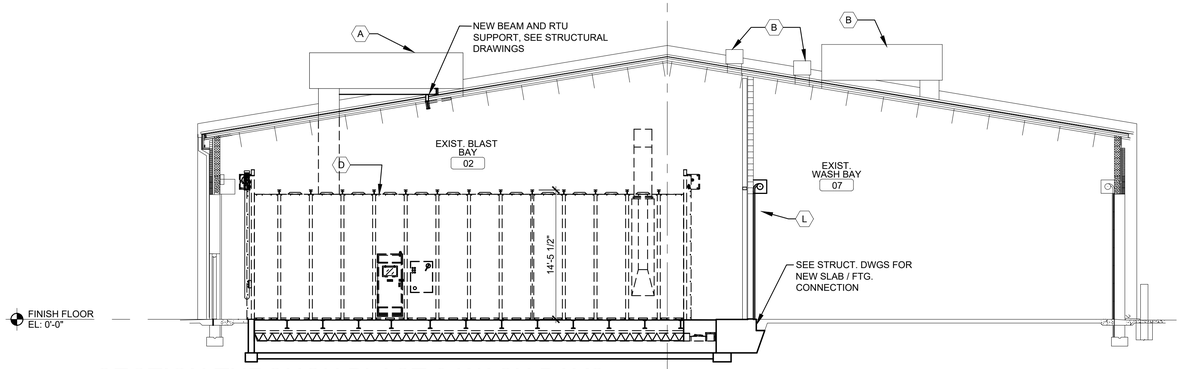
SHEET TITLE:

BUILDING ELEVATIONS

SHEET NUMBER:

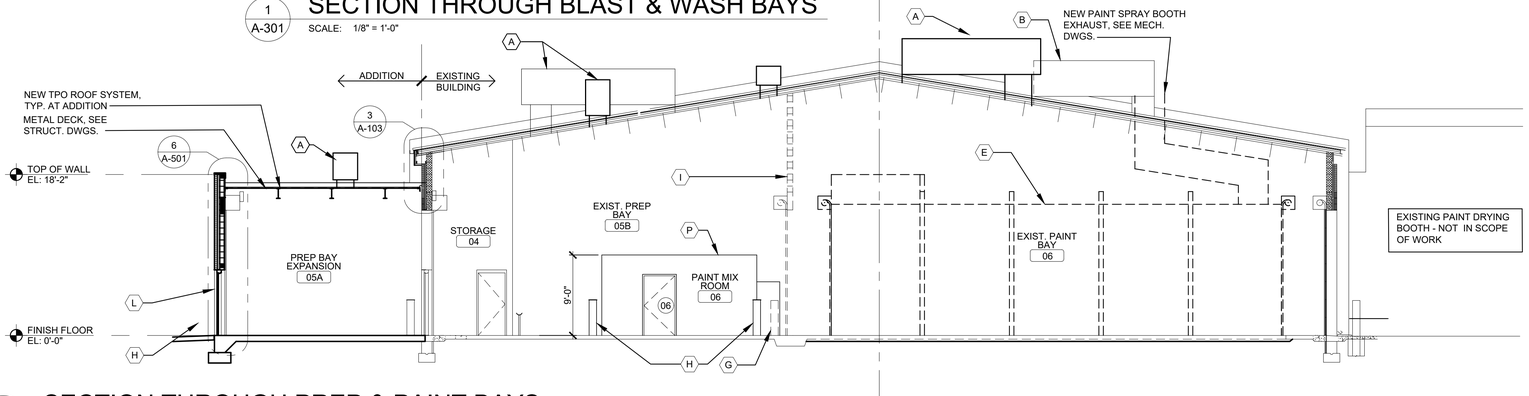
A-201

15 OF 46 SHEETS
04/22/2020



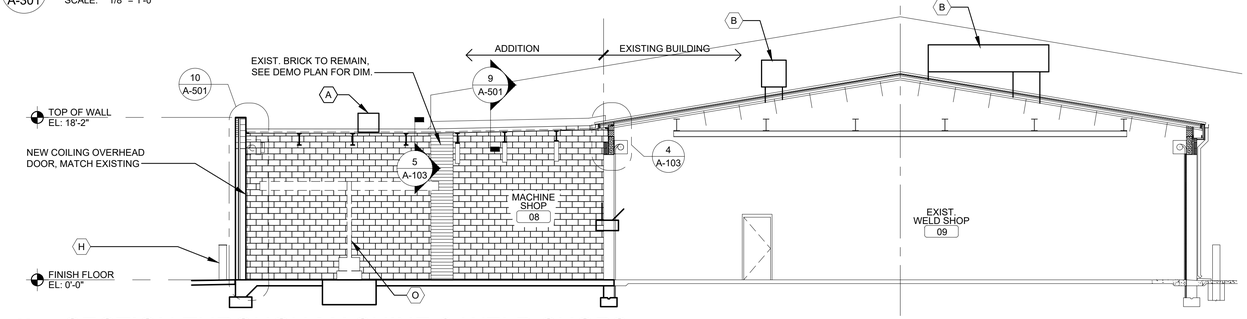
1 A-301 SCALE: 1/8" = 1'-0"

SECTION THROUGH BLAST & WASH BAYS



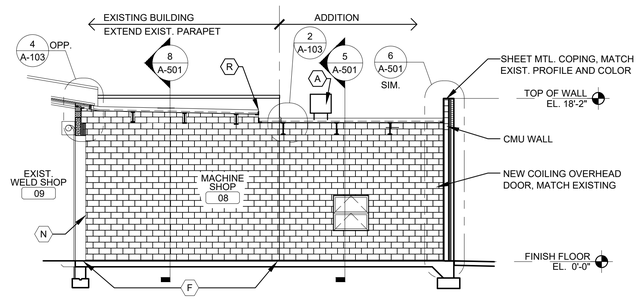
2 A-301 SCALE: 1/8" = 1'-0"

SECTION THROUGH PREP & PAINT BAYS



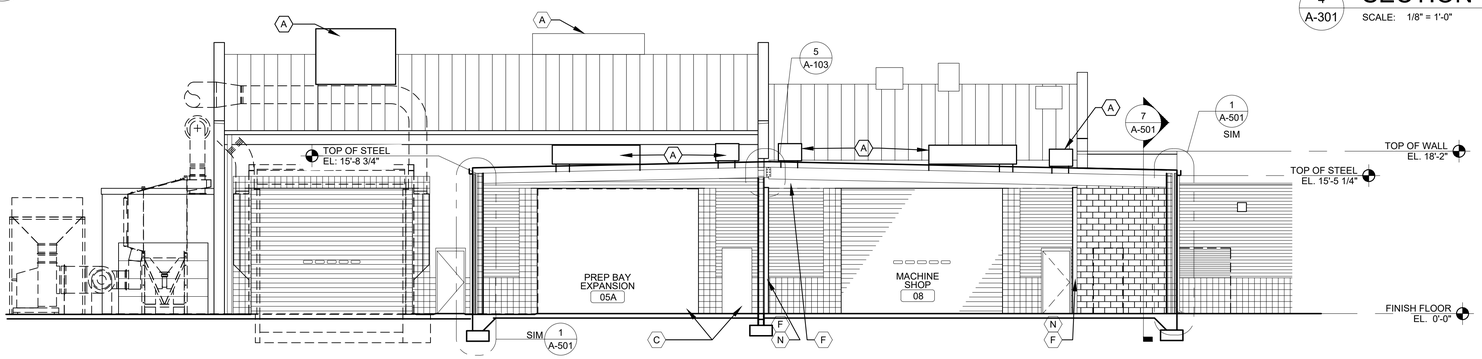
3 A-301 SCALE: 1/8" = 1'-0"

SECTION THROUGH MACHINE & WELD SHOPS



4 A-301 SCALE: 1/8" = 1'-0"

SECTION THROUGH MACHINE SHOP



5 A-301 SCALE: 1/8" = 1'-0"

SECTION THROUGH PREP BAY EXP. & MACH. SHOP

LEGEND:

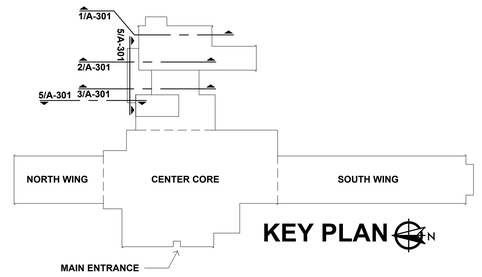
- EXISTING BLOCK
- NEW BLOCK
- EXISTING BRICK
- NEW BRICK

GENERAL NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. REFER TO DEMO AND FLOOR PLANS FOR EXTENTS OF NEW CONSTRUCTION.
3. ALL EXISTING MECHANICAL DIFFUSERS & DUCTWORK, ELECTRICAL DEVICES, LIGHTS, OUTLETS, SWITCHES & EQUIPMENT WHICH IS TO BE REMOVED SHALL BE IN ENTIRETY (WITHIN DEMO'ED WALLS) OR UNLESS NOTED OTHERWISE. SEE MECHANICAL AND ELECTRICAL DWGS. FOR FURTHER INFORMATION.
4. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL DEMOLITION AND NEW CONSTRUCTION SCOPE AND REQUIREMENTS.
5. REMOVE ALL EXISTING SITE CONSTRUCTION AND DELETERIOUS MATERIALS UNLESS NOTED OTHERWISE.
6. ALL NEW BUILDING MATERIALS TO BE OF NON-COMBUSTIBLE OR WOOD FIRE RETARDANT TREATED MATERIAL.
7. REFER TO DEMOLITION PLANS FOR LOCATIONS OF ALL ITEMS TO BE REMOVED UNLESS NOTED OTHERWISE.
8. REFER TO INTERIOR FINISH SCHEDULE FOR NEW WALL FINISHES, FLOOR FINISH AND CEILING HEIGHTS. (A-601)
9. ALL INTERIOR WALL DIMENSIONS ARE FROM FACE OF EXISTING OR NEW WALLS UNLESS NOTED OTHERWISE.
10. ALL EXISTING CONSTRUCTION TO REMAIN SHALL BE CLEANED. PATCH AND REPAIR TO LIKE NEW CONDITION. COORDINATE WITH PROJECT ADMINISTRATOR FOR REPAINTING IF REQUIRED.

KEYED NOTES:

- A NEW MAKE UP AIR UNITS AND EXHAUST FANS, SEE ARCHITECTURAL ROOF PLAN AND STRUCT. DRAWINGS FOR LOCATIONS AND SUPPORTS. SEE MECHANICAL DWGS. FOR UNIT INFORMATION.
- B EXISTING ROOF TOP EQUIPMENT / UNITS / EXHAUST FANS TO REMAIN.
- C REMOVE EXISTING WINDOWS, DOORS AND FRAMES. INFILL OPENINGS TO MATCH EXISTING.
- D NEW PREMANUFACTURED BLAST BOOTH BY CONTRACTOR. SEE STRUCTURAL AND MEP DWGS FOR COORDINATION.
- E NEW PREMANUFACTURED PAINT BOOTH BY CONTRACTOR. SEE STRUCTURAL AND MEP DWGS FOR COORDINATION.
- F AREA OF EXPOSED CMU FROM REMOVAL OF FACE BRICK AND BLOCK. CLEAN, PATCH AND FINISH CMU TO MATCH EXISTING EXPOSED CMU INTERIOR WALLS.
- G REMOVE EXISTING PIPE BOLLARDS.
- H INSTALL NEW PIPE BOLLARDS, SEE DETAIL 3/A-001.
- I ALTERNATE #3 - REMOVE EXISTING WALL AND DISCONNECT OR RELOCATE ALL ASSOCIATED ITEMS, PATCH AND REPAIR WALLS. SEE STRUCTURAL AND MEP DWGS FOR MORE INFORMATION.
- J REMOVE AND DISPOSE OF EXISTING DOORS AND FRAMES.
- L ALTERNATE #2 - NEW DOOR / FRAME, SEE DOOR SCHEDULE ON SHEET A-601.
- M REMOVE EXISTING FLOOR DRAIN AND COVER.
- N STEEL ANGLE AT CORNERS, SEE SHEET A102 FOR LOCATIONS. SEE DETAIL 3/A-502
- O RELOCATED JIB HOIST, SEE STRUCTURAL DWGS FOR FOOTING.
- P PREMANUFACTURED PAINT MIX ROOM BY CONTRACTOR, SEE MEP DWGS. AND SPECIFICATIONS.
- R TRANSITION / STEP AT ROOF



STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI ★ MICHAEL S. SUNDERMEYER ★ NUMBER A-2014026855 ★ ARCHITECT

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CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

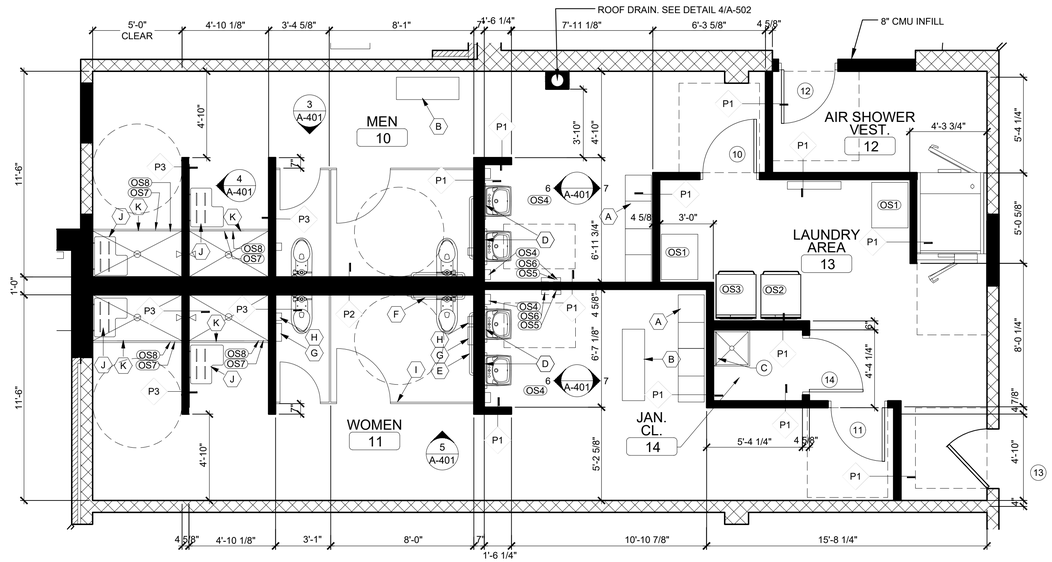
SHEET TITLE:

BUILDING SECTIONS & DETAILS

SHEET NUMBER:

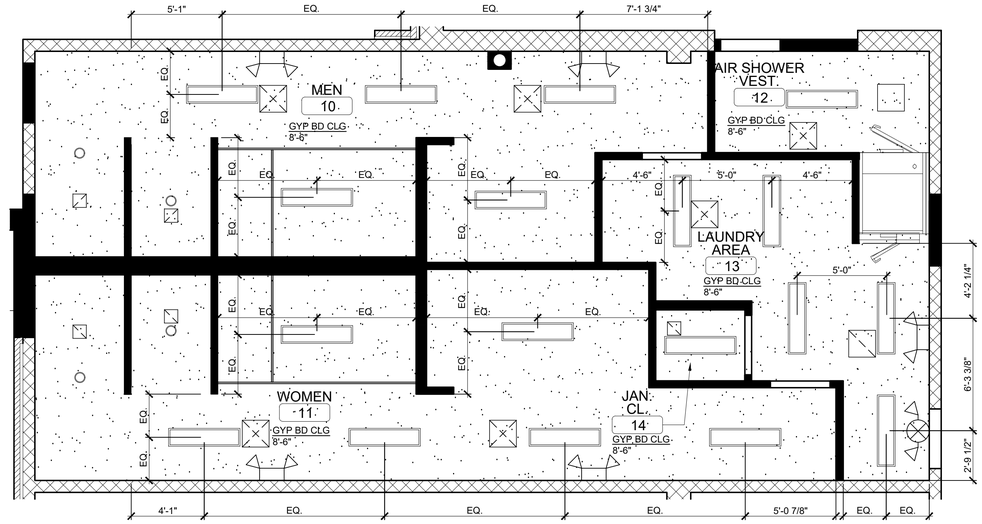
A-301

16 OF 46 SHEETS
04/22/2020



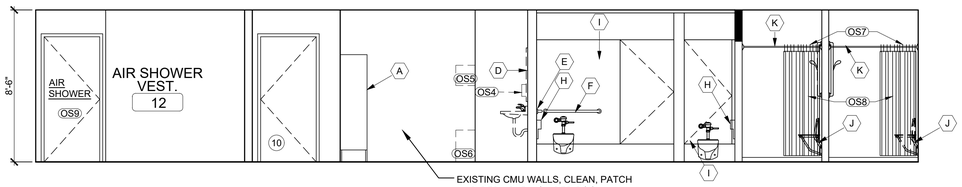
1 A-401 ENLARGED FLOOR PLAN

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



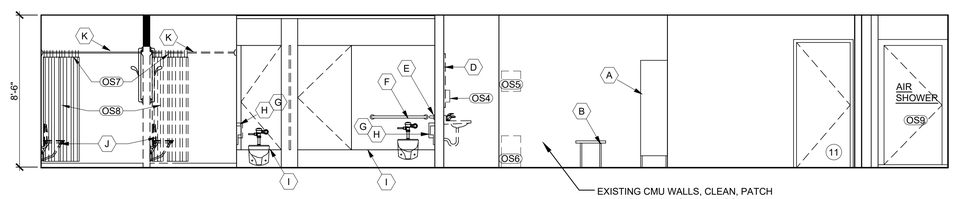
2 A-401 REFLECTED CEILING PLAN

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



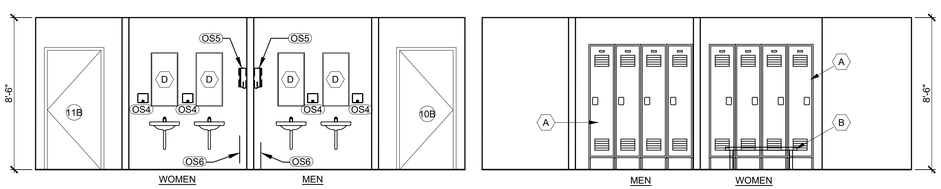
3 A-401 MEN'S ROOM ELEVATION

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



5 A-401 WOMEN'S ROOM ELEVATION

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

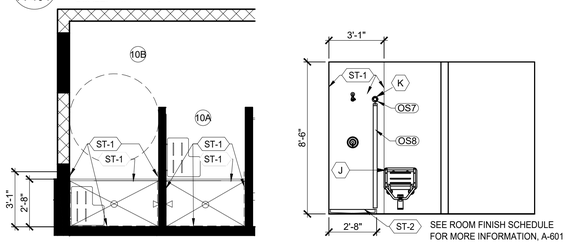


6 A-401 LAV ELEVATIONS

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

7 A-401 LOCKER ELEVATIONS

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



4 A-401 TYP. SHOWER STALL PLAN / ELEV

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

TOILET ACCESSORIES LEGEND			
	MFGR. - USED FOR BASIS OF DESIGN	ITEM DISCRIPTION	QTY
ST-1	S.S. CEASAR STONE, CLASSICO	WALL PANELS (1.3cm THICK)	
ST-2	S.S. CEASAR STONE, CLASSICO	SHOWER PAN	4

TOILET ACCESSORIES LEGEND			
	MFGR. - USED FOR BASIS OF DESIGN	ITEM DISCRIPTION	QUANTITY
A	LOCKERS.COM	18"x18"x72" METAL LOCKERS	8
B	LOCKERS.COM	15"x48" WOOD BENCH	2
C	BOBRICK	24" MOP HANGER B-223	1
D	BOBRICK	18"x36" MIRROR WITH FRAME - B290 1836	4
E	BOBRICK	42" GRAB BAR 6806x42	2
F	BOBRICK	36" GRAB BAR 6806x36	2
G	BOBRICK	NAPKIN DISPOSAL	2
H	BOBRICK	TOILET PAPER DISPENSER	4
I	HINY HIDERS	TOILET PARTITIONS, COLOR: GREY	4
J	AP	FOLDING SHOWER BENCH	4
K	BOBRICK	HEAVY DUTY SHOWER CURTAIN ROD	4
		OWNER SUPPLIED*	
OS1		LAUNDRY CART	2
OS2		WASHING MACHINE	1
OS3		CLOTHES DRYER	1
OS4		SOAP	4
OS5		PAPER TOWELS	2
OS6		TRASH RECEPTICAL	2
OS7		S.S. SHOWER CURTAIN HOOK	4
OS8		VINYL SHOWER CURTAIN	4
OS9		AIR SHOWER	1

1. OWNER SUPPLIED ITEMS SHOWN FOR COORDINATION ONLY.
2. MANUFACTURERS SHOWN ARE FOR BASIS OF DESIGN ONLY. SEE THE SPECIFICATIONS FOR ACCEPTABLE EQUIVALENT MANUFACTURERS.
3. PROVIDE FIRE-TREATED WOOD BLOCKING FOR ALL GRAB BARS.

CEILING DEVICE LEGEND

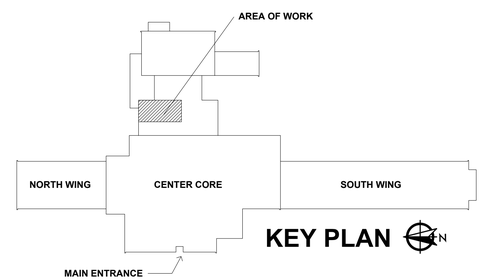
- MOISTURE RESISTANT GYP BD CEILING
- RECESSED LED LIGHT FIXTURES, SEE ELECTRICAL DWGS.
- RECESSED LED LIGHT FIXTURES, SEE ELECTRICAL DWGS.
- EXIT LIGHT, SEE ELECTRICAL DWGS.
- DIFFUSER, SEE MECH. DWGS.
- EXHAUST FAN, SEE MECH. DWGS.
- BUG EYE LIGHT, SEE ELECTRICAL DWGS.

EQUIPMENT SUPPORT NOTES:

1. DO NOT PUNCH OR USE DECK ABOVE TO SUPPORT ANY ITEMS SUCH AS; MECHANICAL EQUIPMENT, ELECTRICAL EQUIPMENT, LIGHT FIXTURES, ETC. SHALL BE SUPPORTED FROM STRUCTURAL SUPPORT MEMBERS. GENERAL CONTRACTOR IS RESPONSIBLE TO NOTIFY ALL SUB-CONTRACTORS PRIOR TO WORK TO BE PERFORMED.
2. ALL LIGHTS MUST BE PROPERLY INSTALLED AND SUPPORTED TO STRUCTURAL SUPPORT MEMBERS ABOVE CEILING SYSTEM AND ATTACHED DIAGONALLY ON LIGHT FIXTURE OR WHERE SURFACE MOUNT LIGHT FIXTURES OCCURS AT SUSPENDED CEILING SYSTEM, DO NOT SUPPORT FROM FINISH CEILING MATERIAL.

GENERAL NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. MECHANICAL EQUIPMENT SHOWN ON THE REFLECTED CEILING PLAN ARE FOR ARCHITECTURAL LOCATIONS ONLY. REFER TO MECHANICAL DRAWINGS FOR TYPES, SIZES, DISTRIBUTION, CONNECTIONS, AND ALL OTHER REQUIREMENTS.
3. LIGHTING FIXTURES SHOWN ON THE REFLECTED CEILING PLAN ARE FOR ARCHITECTURAL LOCATIONS, QUANTITIES, AND GENERAL FIXTURE TYPE ONLY. REFER TO ELECTRICAL DRAWINGS FOR EXACT FIXTURE TYPE AND CIRCUITING.
4. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE VARIOUS TRADE ITEMS WITHIN THE SPACE ABOVE ALL CEILINGS (INCLUDING, BUT NOT LIMITED TO: STRUCTURAL MEMBERS, MECHANICAL DUCTS AND INSULATION, CONDUITS, RACEWAYS, SPRINKLER SYSTEM, LIGHT FIXTURES, CEILING SYSTEMS, AND ANY SPECIAL STRUCTURAL SUPPORTS REQUIRED) AND SHALL BE RESPONSIBLE FOR MAINTAINING THE FINISH CEILING HEIGHT ABOVE THE FINISH FLOOR INDICATED ON THE DRAWING.



STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
MICHAEL S. SUNDERMEYER
NUMBER A-2014026855
ARCHITECT
4/22/20

MICHAEL S. SUNDERMEYER
LICENSE NUMBER: 2014026855
EXPIRATION DATE: 12/31/2020

CASCO Diversified Corporation
MO Certificate of Authority #000329 Arch.
MO Certificate of Authority #000613 Eng.

CASCO
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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

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RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

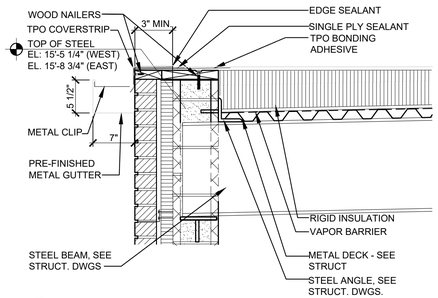
SHEET TITLE:

ENLARGED LOCKER ROOMS PLANS AND ELEVATIONS

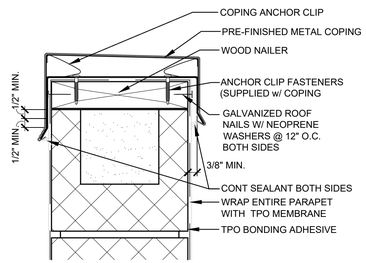
SHEET NUMBER:

A-401

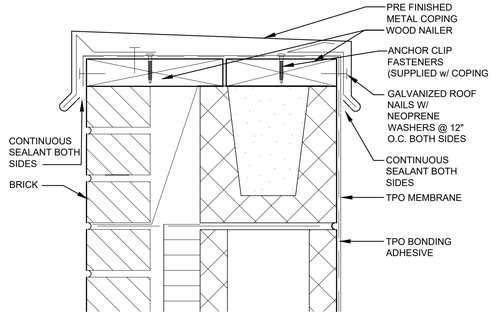
17 OF 46 SHEETS
04/22/2020



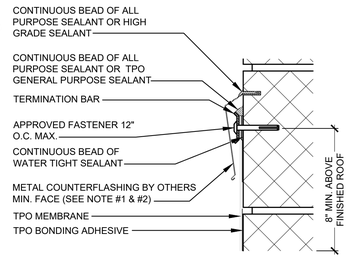
1 A-501 GUTTER DETAIL
SCALE: 1" = 1'-0"



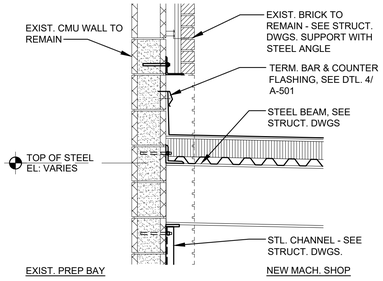
2 A-501 COPING DETAIL
SCALE: 3" = 1'-0"



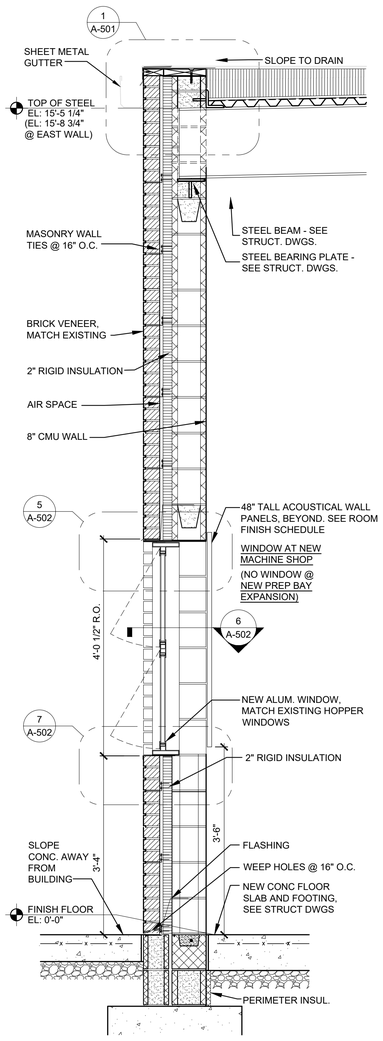
3 A-501 COPING DETAIL
SCALE: 3" = 1'-0"



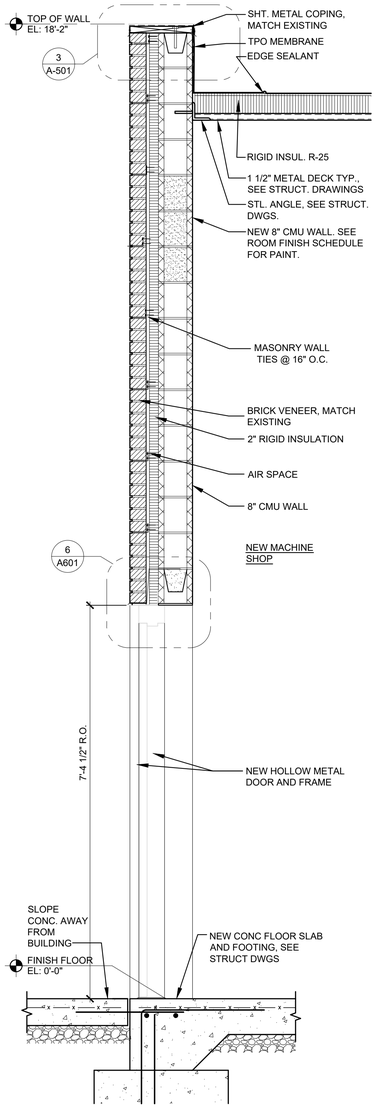
4 A-501 TERM BAR DETAIL
SCALE: 3" = 1'-0"



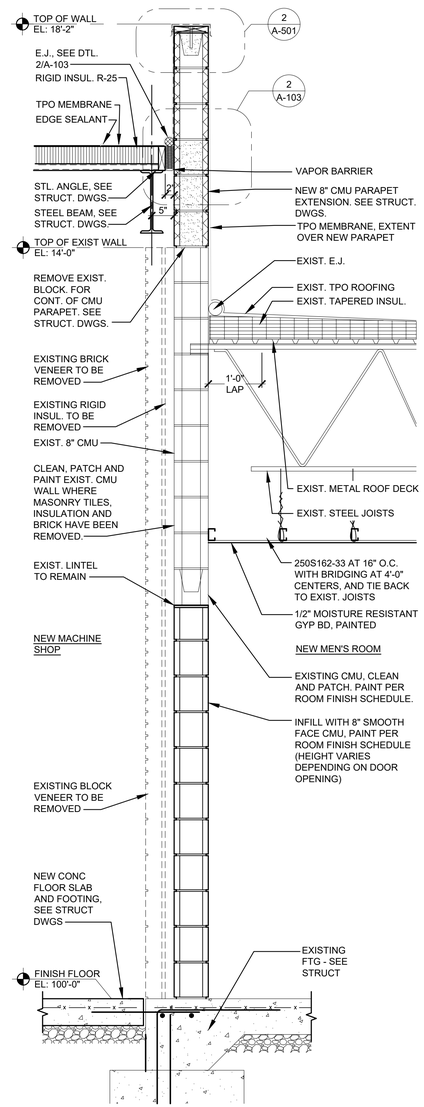
9 A-501 SECTION THROUGH MACHINE SHOP & EXIST. PREP BAY
SCALE: 3/4" = 1'-0"



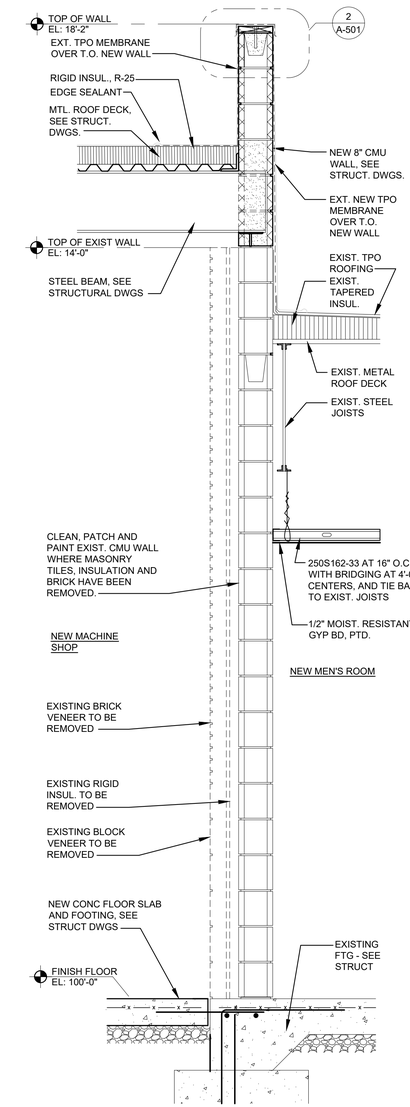
5 A-501 WALL SECTION AT MACH SHOP
SCALE: 3/4" = 1'-0"



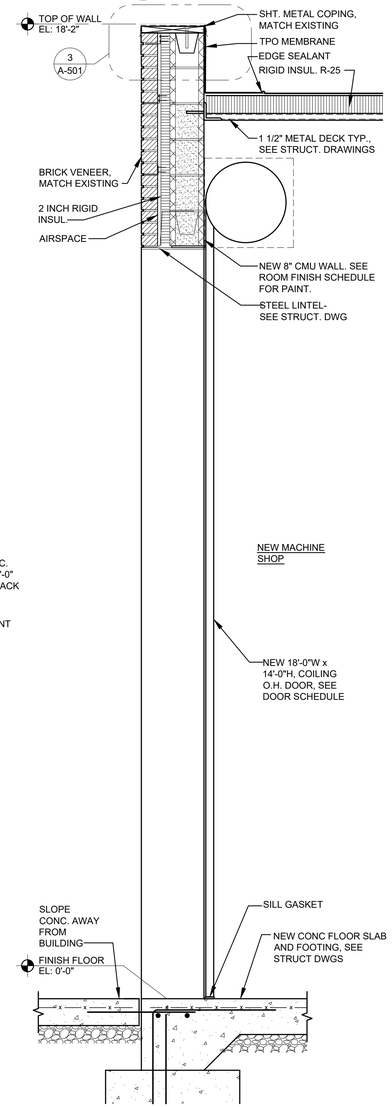
6 A-501 WALL SECTION AT MACH SHOP
SCALE: 3/4" = 1'-0"



7 A-501 SECTION THROUGH MACH SHOP & MENS RM
SCALE: 3/4" = 1'-0"



8 A-501 SECTION THROUGH MACH SHOP & MENS RM
SCALE: 3/4" = 1'-0"



10 A-501 WALL SECTION AT MACH SHOP
SCALE: 3/4" = 1'-0"

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CAD DWG FILE:
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DESIGNED BY:

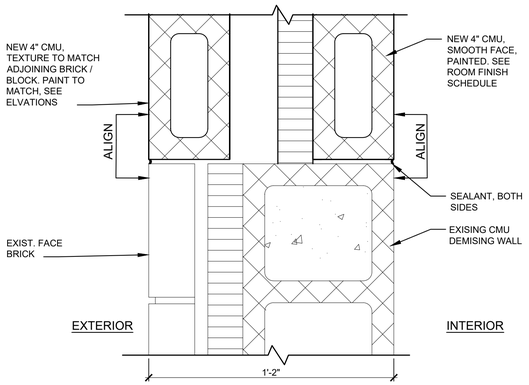
SHEET TITLE:

WALL SECTIONS AND DETAILS

SHEET NUMBER:

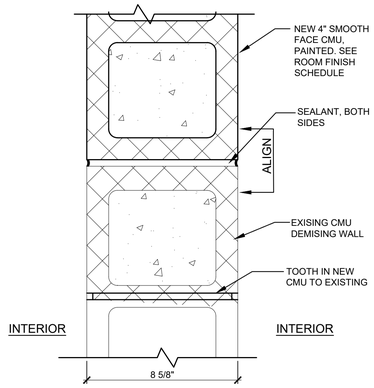
A-501

18 OF 46 SHEETS
04/22/2020



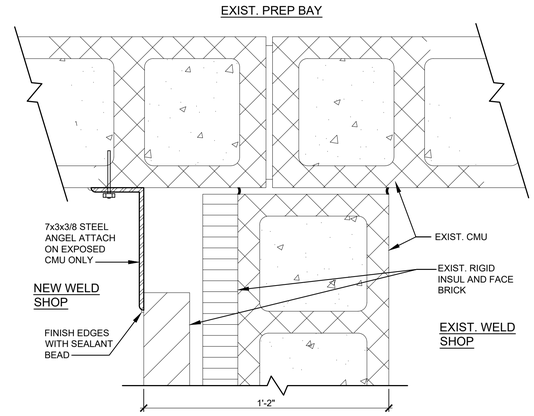
1 A-502 INFILL AT EXIST CMU OPNG

SCALE: 3" = 1'-0"



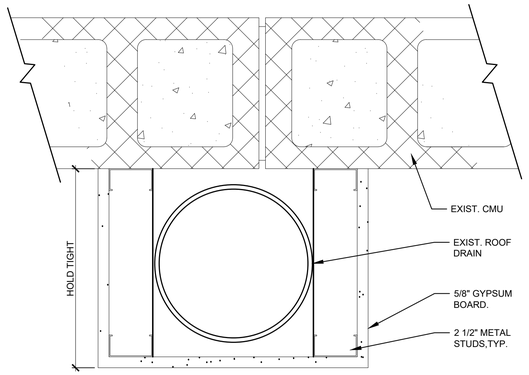
2 A-502 INFILL AT EXIST CMU OPNG

SCALE: 3" = 1'-0"



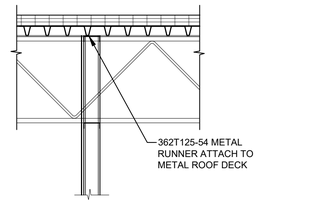
3 A-502 INSIDE CORNER DTAIL

SCALE: 3" = 1'-0"



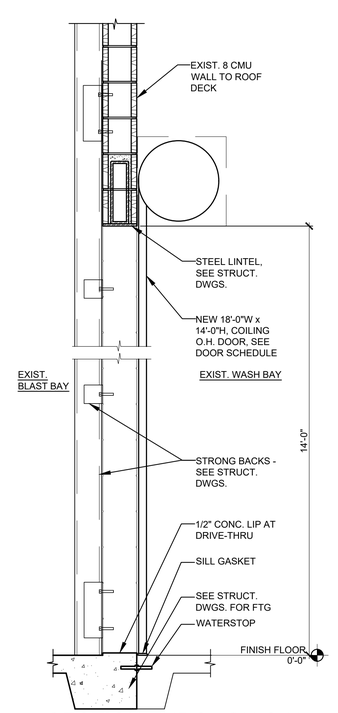
4 A-502 ROOF DRAIN DETAIL

SCALE: 3" = 1'-0"



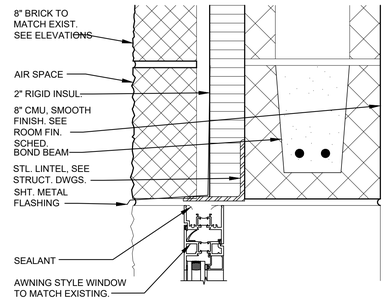
9 A-502 PARTITION TYPES

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



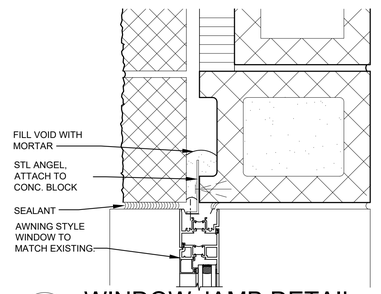
8 A-502 SECTION THROUGH O.H. DOOR (ALTERNATE 2)

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



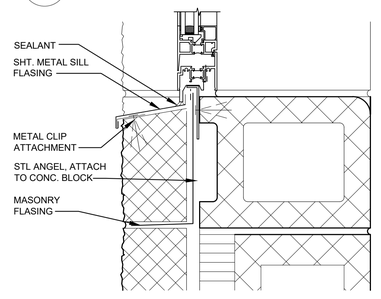
5 A-502 WINDOW HEAD DETAIL

SCALE: 3" = 1'-0"



6 A-502 WINDOW JAMB DETAIL

SCALE: 3" = 1'-0"



7 A-502 WINDOW SILL DETAIL

SCALE: 3" = 1'-0"

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CHECKED BY:
DESIGNED BY:

SHEET TITLE:

PARTITION TYPES AND DETAILS

SHEET NUMBER:

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19 OF 46 SHEETS
04/22/2020

ROOM FINISH SCHEDULE

SYM.	ROOM	WALLS				FLOOR		CEILING		COMMENTS
		NORTH	WEST	SOUTH	EAST	FLOOR BASE	FLOOR	MATERIAL	FINISH	
01	EXIST. MECH. ROOM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
02	EXIST. BLAST BOOTH BAY	PT-1	PT-1	PT-1	PT-1	N/A	CONC1/ STL. PLATE	N/A	N/A	SEE STRUCT. DWGS FOR STEEL PLATE THICKNESS & DETAL.
03	EXIST. WASH BAY	PT-1	PT-1	PT-1	PT-1	N/A	CONC1	N/A	N/A	CONC PATCH AT NEW O.H. DOOR OPN'G (PART OF ADD ALT#2)
04	STORAGE ROOM	PT-1	PT-1	PT-1	PT-1	N/A	CONC1	N/A	N/A	PATCH AND REPAIR FLOOR FROM PLUMBING FIXTURE REMOVAL.
05A	PREP BAY EXPANSION	PT-1	PT-1	PT-1	PT-1	N/A	CONC1	EXP	PT-3	-
05B	EXIST PREP BAY	PT-1	PT-1	PT-1	PT-1	N/A	CONC1	EXP	PT-3	-
06	PAINT MIX ROOM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ALL FINISHES BY MANUFACTURER
07	PAINT BOOTH BAY	PT-1	PT-1	PT-1	PT-1	N/A	CONC1	N/A	N/A	BOOTH FINISHES BY MANUFACTURER
08	MACHINE SHOP	PT-1/AP-1	PT-1/AP-1	PT-1/AP-1	PT-1/AP-1	N/A	CONC1	EXP	PT-3	AP-1 ON ALL WALLS
09	EXIST WELD SHOP	PT-1	PT-1	PT-1	PT-1	N/A	N/A	N/A	N/A	-
10	MEN	GBC / PT-2	GBC / PT-2	GBC / PT-2	GBC / PT-2	RF-1 / ST-2	RF-1	GBC	PT-4	ST-1 AT ALL GYP. BD. SHOWER STALL WALLS, SEE 4/A-401
11	WOMEN	GBC / PT-2	GBC / PT-2	GBC / PT-2	GBC / PT-2	RF-1 / ST-2	RF-1	GBC	PT-4	ST-1 AT ALL GYP. BD. SHOWER STALL WALLS, SEE 4/A-401
12	AIR SHOWER VEST	PT-2	PT-2	PT-2	PT-2	RB-1	CONC1	GBC	N/A	PREFABRICATED UNIT
13	LAUNDRY AREA	PT-2	PT-2	PT-2	PT-2	RB-1	CONC1	GBC	PT-4	-
14	JANITOR CLOSET	GBC / PT-2	GBC / PT-2	GBC / PT-2	GBC / PT-2	RB-1	CONC1	GBC	PT-4	

NOTES:

DOOR SCHEDULE

SYM.	NUMBER	SIZE		DOOR		FRAME		HEAD DETAIL	JAMB DETAIL	HWR. GROUP	COMMENTS
		WIDTH	HEIGHT	MATERIAL	TYPE	MATERIAL	TYPE				
01	NOT USED										
02	NOT USED										
03	WASH BAY	18'-0"	14'-0"	METAL	E	-	-	-	-	-	—
04	PREP BAY EXPANSION	3'-0"	7'-0"	H.M.	A	H.M.	C	6/A-601	7/A-601	A	VISION LITE
05	PREP BAY EXPANSION	18'-0"	14'-0"	METAL	D	-	-	-	-	-	CHANGE HARDWARE ONLY
06	NEW PAINT MIX ROOM	-	–	-	-	-	-	-	-	-	INCLUDED IN PAINT MIX ROOM PACKAGE
07	NEW MACHINE SHOP DOOR	3'-0"	7'-0"	H.M.	A	H.M.	C	6/A-601	7/A-601	A	VISION LITE
08	NEW MACHINE SHOP DOOR	18'-0"	14'-0"	METAL	D	-	-	-	-	-	-
09	NOT USED										
10	MENS LOCKER ROOM DOOR	3'-0"	7'-0"	H.M.	A	H.M.	B	2/A-601	3/A-601	B	-
11	WOMENS LOCKER ROOM DOOR	3'-0"	7'-0"	H.M.	A	H.M.	B	2/A-601	3/A-601	B	-
12	AIR SHOWER VEST. DOOR	3'-0"	7'-0"	H.M.	A	H.M.	B	4/A-601	7/A-601	B	-
13	NOT USED									-	–
14	JANITOR CLOSET DOOR	3'-0"	7'-0"	H.M.	A	H.M.	B	2/A-601	3/A-601	A	-

HARDWARE GROUPS:

A
- 1-1/2 PAIR "HAGER" HINGE #BB1191 (STAINLESS STEEL) 4-1/2" X 4-1/2" 626 SATIN CHROME FINISH (US26D) (STANLEY, BALDWIN)
- PASSAGE LOCKSET "BEST" 9K47N14CS3626 (REMOVEABLE 7 PIN CORE)
- DOOR SILENCERS (3) "BALDWIN" #4036 (IVES, ROCKWOOD)
- KICKPLATE 10" HIGH X FULL WIDTH OF DOOR, BRUSHED ALUMINUM, MOUNTED 1" FROM BOTTOM OF DOOR ON BOTH SIDES
- IVES DOME TYPE WALL BUMPER, MODEL #WS404CVX (CONVEX), 626 SATIN CHROME FINISH (US26D) (DON-JO, ROCKWOOD)
- CLOSER LCN 4020T WITH METAL COVER (NORTON, DORMAKABA)

B
- 1-1/2 PAIR "HAGER" HINGE #BB1191 (STAINLESS STEEL) 4-1/2" X 4-1/2" 626 SATIN CHROME FINISH (US26D) (STANLEY, BALDWIN)
- 1 "IVES" PUSH/PULL SET 8200, 8X16 AND 8302, 6X16 (BALDWIN, HAGER) DOOR SILENCERS (3) "BALDWIN" #4036 (IVES, ROCKWOOD)
- KICKPLATE 10" HIGH X FULL WIDTH OF DOOR, BRUSHED ALUMINUM, MOUNTED 1" FROM BOTTOM OF DOOR ON BOTH SIDES
- IVES DOME TYPE WALL BUMPER, MODEL #WS404CVX (CONVEX), 626 SATIN CHROME FINISH (US26D) (DON-JO, ROCKWOOD)
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- CLOSER LCN 4020T WITH METAL COVER (NORTON, DORMAKABA)

FINISH LEGEND:

ALL PRODUCTS LISTED ARE USED AS BASIS OF DESIGN

FLOORING / COVE BASE MATERIALS:

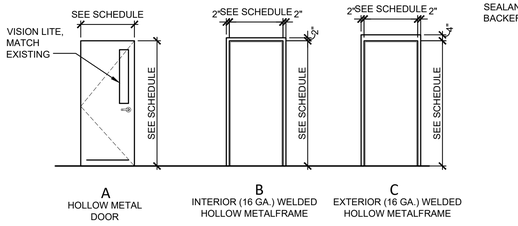
- CONC1 — GEMITE GEM-COTE EP 100 (CLEAR) CONCRETE EPOXY COATING. GEMITE IS BASIS OF DESIGN.
- RF-1 — RESINOUS FLOOR FINISH WITH INTEGRAL WALL BASE TO 4" A.F.F. SLIP RESISTANT, STONHARD STONSHIELD SLT COLOR: DRIFTWOOD. NOTE: COVE BASE AT ALL GYP. BD. PARTITIONS. DO NOT INSTALL RESINOUS BASE ON AIR SHOWER CABINET, INTERIOR OF SHOWER ROOMS.
- RB-1 — RUBBER WALL BASE - JOHNSONITE, COLOR: AS SELECTED BY ARCH. AND APPROVED BY OWNER FROM MANUFACTURER'S STANDARD COLORS.
- ST-2 — SOLID SURFACE SHOWER PAN, CAESAR STONE, CLASSICO, SMOOTH FINISH AND EASED EDGES, COLOR TO BE SELECTED BY ARCHITECT WITH OWNER APPROVAL

WALL MATERIALS / FINISHES:

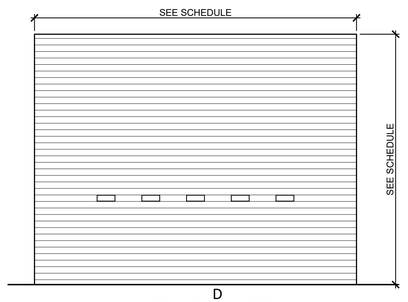
- AP-1 — ACCOUSTICAL WALL PANELS - 4'-0"W x 4'-0"H, MOUNT 3'-6" A.F.F.
- PT-1 — WATER BORNE EPOXY PAINT - SEMI-GLOSS, MATCH EXISTING COLOR
- PT-2 — SW PRO INDUSTRIAL PRE-CATALYZED, WATER BASED EPOXY, MATCH SW 7008 ALABASTER, SEMI-GLOSS SHEEN
- PT-3 — SW PRO INDUSTRIAL WATERBORNE ACRYLIC DRYFALL, MATCH SW 7007 CEILING BRIGHT WHITE, SEMI-GLOSS SHEEN
- PT-4 — SW PRO INDUSTRIAL PRE-CATALYZED, WATER BASED EPOXY, MATCH SW 7007 CEILING BRIGHT WHITE, SEMI-GLOSS SHEEN
- ST-1 — SOLID SURFACE WALL PANELS, CAESAR STONE, CLASSICO, SMOOTH FINISH AND EASED EDGES, COLOR TO BE SELECTED BY ARCHITECT WITH OWNER APPROVAL

CEILINGS:

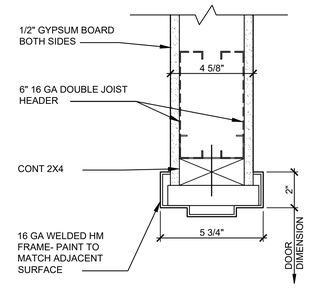
- GBC — 1/2" MOISTURE RESISTANT GYPSUM BOARD
- EXP — EXPOSED STRUCTURE



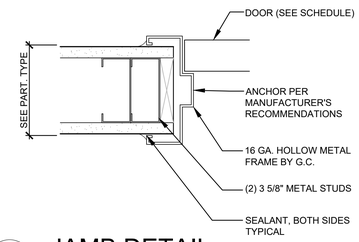
HOLLOW METAL DOORS AND FRAMES TO BE FACTORY PRIMED AND RECEIVE 2 COATS OF PT-X



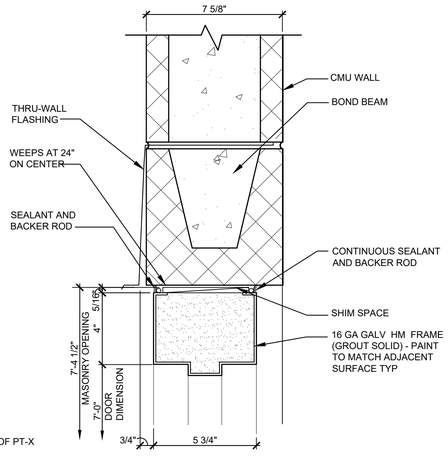
1 A-601 — DOOR AND FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"



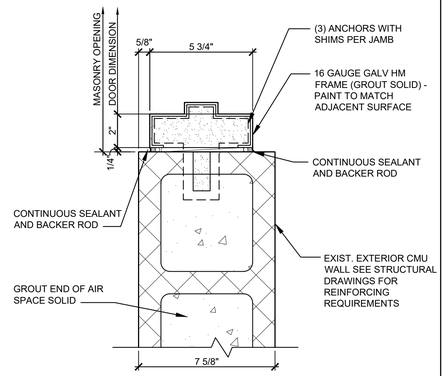
2 A-601 — HEAD DETAIL
SCALE: 3" = 1'-0"



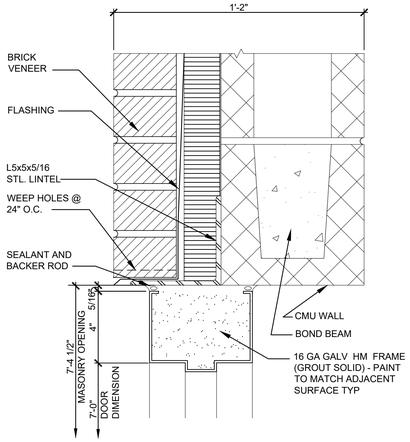
3 A-601 — JAMB DETAIL
SCALE: 3" = 1'-0"



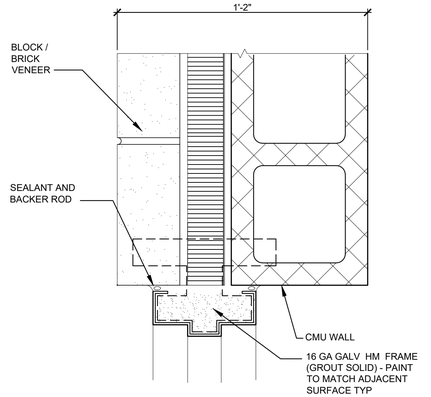
4 A-601 — HEAD DETAIL @ CMU
SCALE: 3" = 1'-0"



5 A-601 — JAMB DETAIL @ CMU
SCALE: 3" = 1'-0"



6 A-601 — HEAD DETAIL @ CMU
SCALE: 3" = 1'-0"



7 A-601 — JAMB DETAIL @ CMU
SCALE: 3" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI — MICHAEL S. SUNDERMEYER — NUMBER A-2014026855 — ARCHITECT
4/22/20

MICHAEL S. SUNDERMEYER
LICENSE NUMBER: 2014026855
EXPIRATION DATE: 12/31/2020

CASCO Diversified Corporation
MO Certificate of Authority #000329 Arch.
MO Certificate of Authority #000613 Eng.

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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

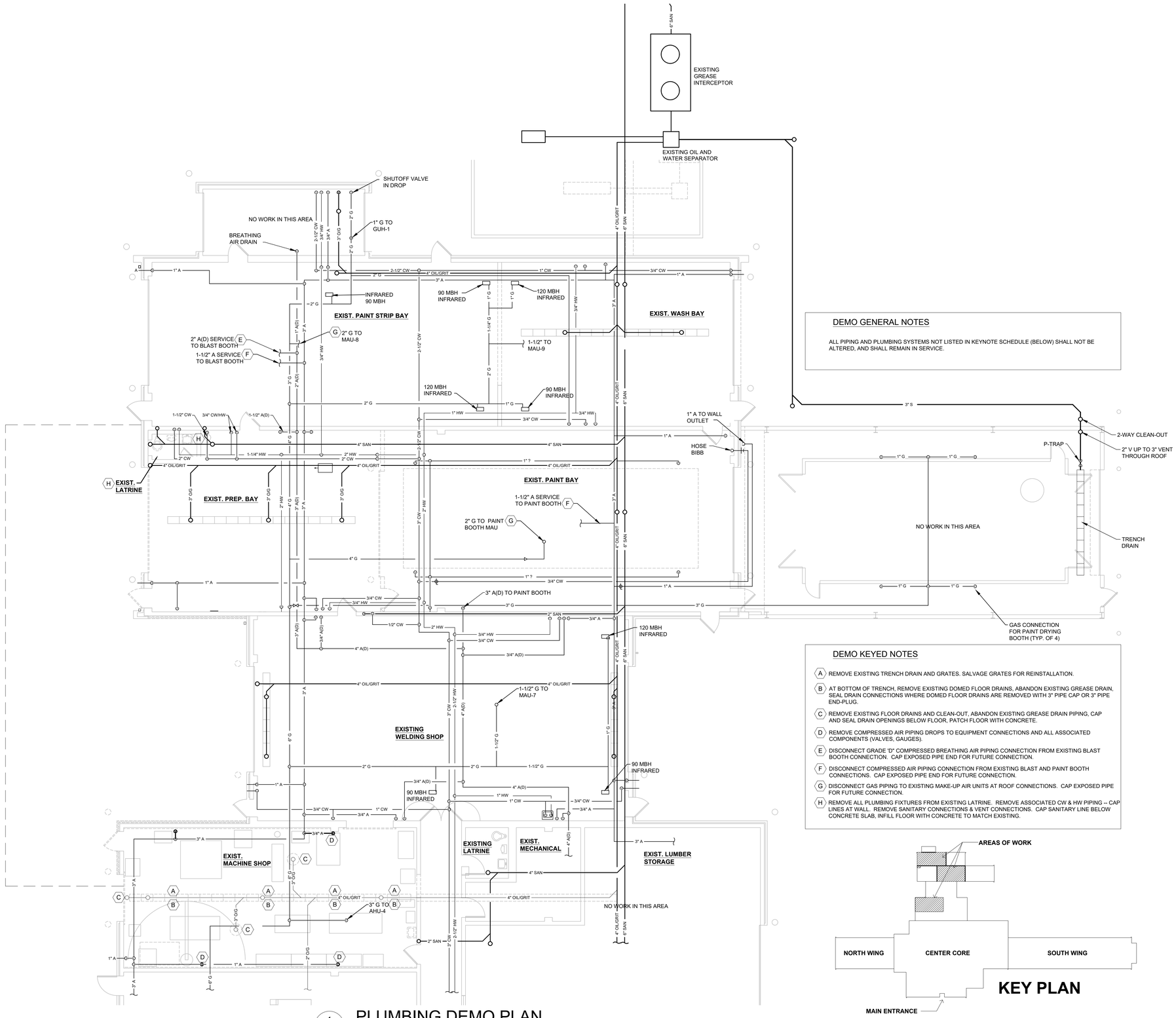
REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE: A-601
DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
ROOM FINISH & DOOR SCHEDULES, NOTES & DETAILS

SHEET NUMBER:
A-601

20 OF 46 SHEETS
04/22/2020



DEMO GENERAL NOTES

ALL PIPING AND PLUMBING SYSTEMS NOT LISTED IN KEYNOTE SCHEDULE (BELOW) SHALL NOT BE ALTERED, AND SHALL REMAIN IN SERVICE.

DEMO KEYED NOTES

(A) REMOVE EXISTING TRENCH DRAIN AND GRATES. SALVAGE GRATES FOR REINSTALLATION.

(B) AT BOTTOM OF TRENCH, REMOVE EXISTING DOMED FLOOR DRAINS, ABANDON EXISTING GREASE DRAIN, SEAL DRAIN CONNECTIONS WHERE DOMED FLOOR DRAINS ARE REMOVED WITH 3" PIPE CAP OR 3" PIPE END-PLUG.

(C) REMOVE EXISTING FLOOR DRAINS AND CLEAN-OUT, ABANDON EXISTING GREASE DRAIN PIPING, CAP AND SEAL DRAIN OPENINGS BELOW FLOOR, PATCH FLOOR WITH CONCRETE.

(D) REMOVE COMPRESSED AIR PIPING DROPS TO EQUIPMENT CONNECTIONS AND ALL ASSOCIATED COMPONENTS (VALVES, GAUGES).

(E) DISCONNECT GRADE "D" COMPRESSED BREATHING AIR PIPING CONNECTION FROM EXISTING BLAST BOOTH CONNECTION. CAP EXPOSED PIPE END FOR FUTURE CONNECTION.

(F) DISCONNECT COMPRESSED AIR PIPING CONNECTION FROM EXISTING BLAST AND PAINT BOOTH CONNECTIONS. CAP EXPOSED PIPE END FOR FUTURE CONNECTION.

(G) DISCONNECT GAS PIPING TO EXISTING MAKE-UP AIR UNITS AT ROOF CONNECTIONS. CAP EXPOSED PIPE FOR FUTURE CONNECTION.

(H) REMOVE ALL PLUMBING FIXTURES FROM EXISTING LATRINE. REMOVE ASSOCIATED CW & HW PIPING -- CAP LINES AT WALL. REMOVE SANITARY CONNECTIONS & VENT CONNECTIONS. CAP SANITARY LINE BELOW CONCRETE SLAB, INFILL FLOOR WITH CONCRETE TO MATCH EXISTING.

KEY PLAN

1 P-101 PLUMBING DEMO PLAN

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

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER

4/23/20

JEFFREY S. TRIEB
License Number: M 2005014634
Expiration Date: 12/31/21

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JEFFERSON CITY, MISSOURI 65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
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DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: JST
CHECKED BY: MCG
DESIGNED BY: JST

SHEET TITLE:

PLUMBING DEMO FLOOR PLAN

SHEET NUMBER:

P-101

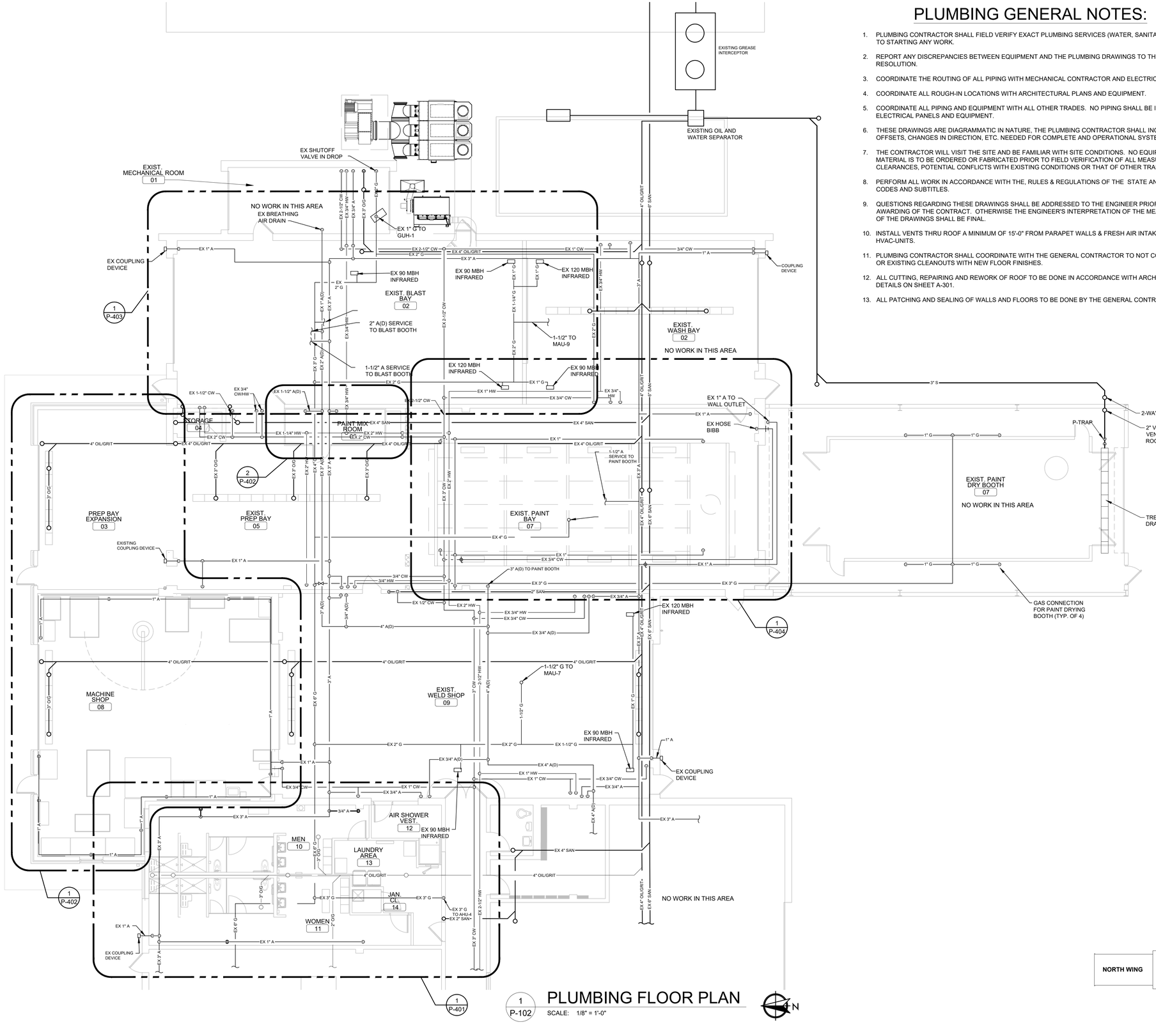
21 OF 46 SHEETS
04/22/2020

PLUMBING GENERAL NOTES:

1. PLUMBING CONTRACTOR SHALL FIELD VERIFY EXACT PLUMBING SERVICES (WATER, SANITARY, ETC.) PRIOR TO STARTING ANY WORK.
2. REPORT ANY DISCREPANCIES BETWEEN EQUIPMENT AND THE PLUMBING DRAWINGS TO THE ARCHITECT FOR RESOLUTION.
3. COORDINATE THE ROUTING OF ALL PIPING WITH MECHANICAL CONTRACTOR AND ELECTRICAL CONTRACTOR.
4. COORDINATE ALL ROUGH-IN LOCATIONS WITH ARCHITECTURAL PLANS AND EQUIPMENT.
5. COORDINATE ALL PIPING AND EQUIPMENT WITH ALL OTHER TRADES. NO PIPING SHALL BE INSTALLED ABOVE ELECTRICAL PANELS AND EQUIPMENT.
6. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE, THE PLUMBING CONTRACTOR SHALL INCLUDE ALL NEEDED OFFSETS, CHANGES IN DIRECTION, ETC. NEEDED FOR COMPLETE AND OPERATIONAL SYSTEMS.
7. THE CONTRACTOR WILL VISIT THE SITE AND BE FAMILIAR WITH SITE CONDITIONS. NO EQUIPMENT OR MATERIAL IS TO BE ORDERED OR FABRICATED PRIOR TO FIELD VERIFICATION OF ALL MEASUREMENTS, CLEARANCES, POTENTIAL CONFLICTS WITH EXISTING CONDITIONS OR THAT OF OTHER TRADES ON THE JOB.
8. PERFORM ALL WORK IN ACCORDANCE WITH THE, RULES & REGULATIONS OF THE STATE AND BUILDING CODES AND SUBTITLES.
9. QUESTIONS REGARDING THESE DRAWINGS SHALL BE ADDRESSED TO THE ENGINEER PRIOR TO THE AWARDING OF THE CONTRACT. OTHERWISE THE ENGINEER'S INTERPRETATION OF THE MEANING AND INTENT OF THE DRAWINGS SHALL BE FINAL.
10. INSTALL VENTS THRU ROOF A MINIMUM OF 15'-0" FROM PARAPET WALLS & FRESH AIR INTAKES ON HVAC-UNITS.
11. PLUMBING CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO NOT COVER UP ANY NEW OR EXISTING CLEANOUTS WITH NEW FLOOR FINISHES.
12. ALL CUTTING, REPAIRING AND REWORK OF ROOF TO BE DONE IN ACCORDANCE WITH ARCHITECTURAL DETAILS ON SHEET A-301.
13. ALL PATCHING AND SEALING OF WALLS AND FLOORS TO BE DONE BY THE GENERAL CONTRACTOR.

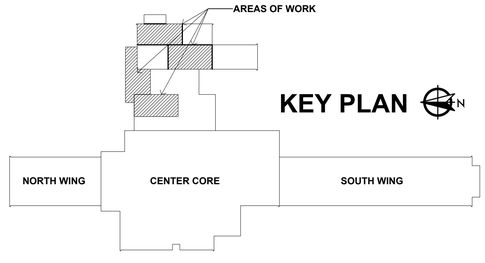
PLUMBING SYMBOLS LEGEND

SAN	NEW SANITARY SEWER (BELOW SLAB)
BA	NEW BREATHABLE AIR
V	NEW SANITARY VENT
EX SAN	EXISTING SANITARY PIPING
HW	NEW HOT WATER PIPING
HW	NEW HOT WATER PIPING
CW	NEW DOMESTIC COLD WATER
CW	NEW WATER (WITH SHUT OFF VALVE)
EX CW	EXISTING DOMESTIC COLD WATER
EX HW	EXISTING DOMESTIC COLD WATER
EX TW	EXISTING DOMESTIC COLD WATER
EX BA	EXISTING BREATHABLE AIR
XXX	EQUIPMENT/FIXTURE DESIGNATION
⬡	KEYED NOTE
△	REVISION NUMBER
◔	POINT OF CONNECTION (NEW TO EXISTING)
TYP.	TYPICAL
V.I.F.	VERIFY IN FIELD



1 P-102 PLUMBING FLOOR PLAN

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



STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER
4/23/20

JEFFREY S. TRIEB
License Number: M 2005014634
Expiration Date: 12/31/21

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SITE # 6300
ASSET# 8136300017

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ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: JST
CHECKED BY: MCG
DESIGNED BY: JST

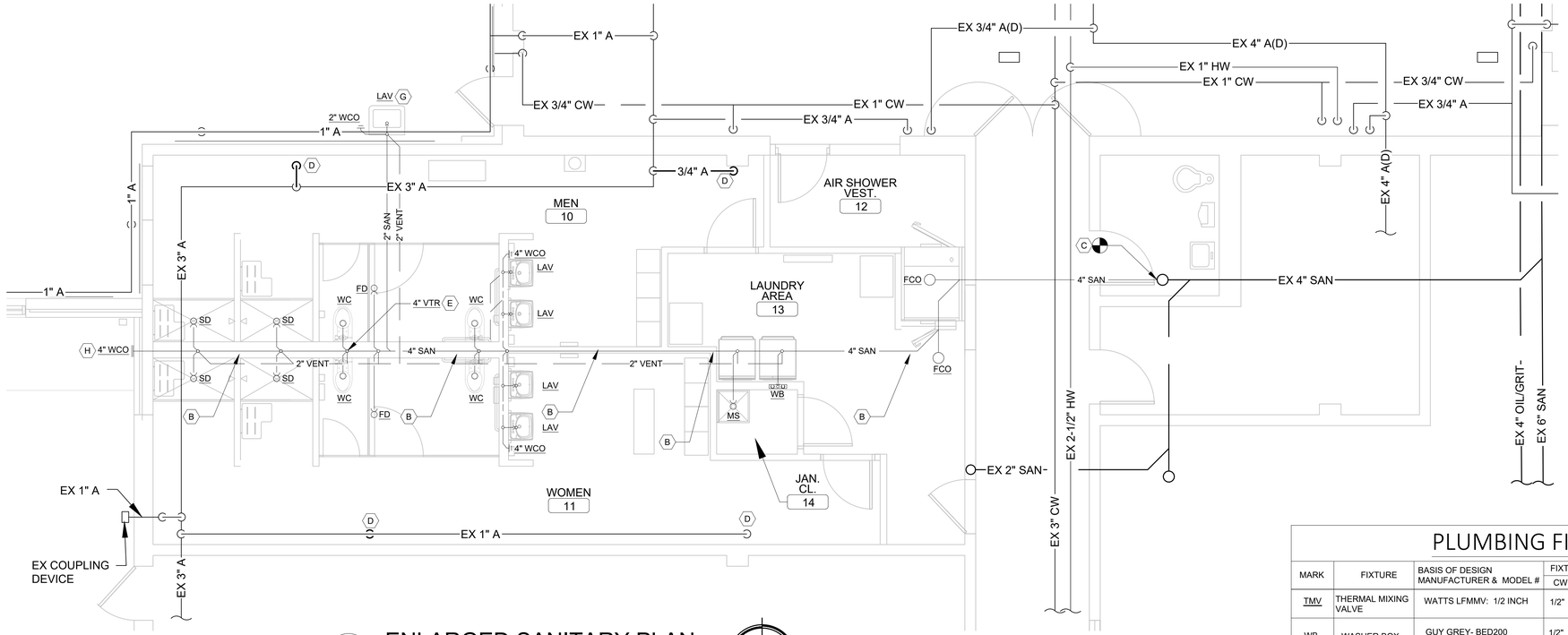
SHEET TITLE:

PLUMBING FLOOR PLAN

SHEET NUMBER:

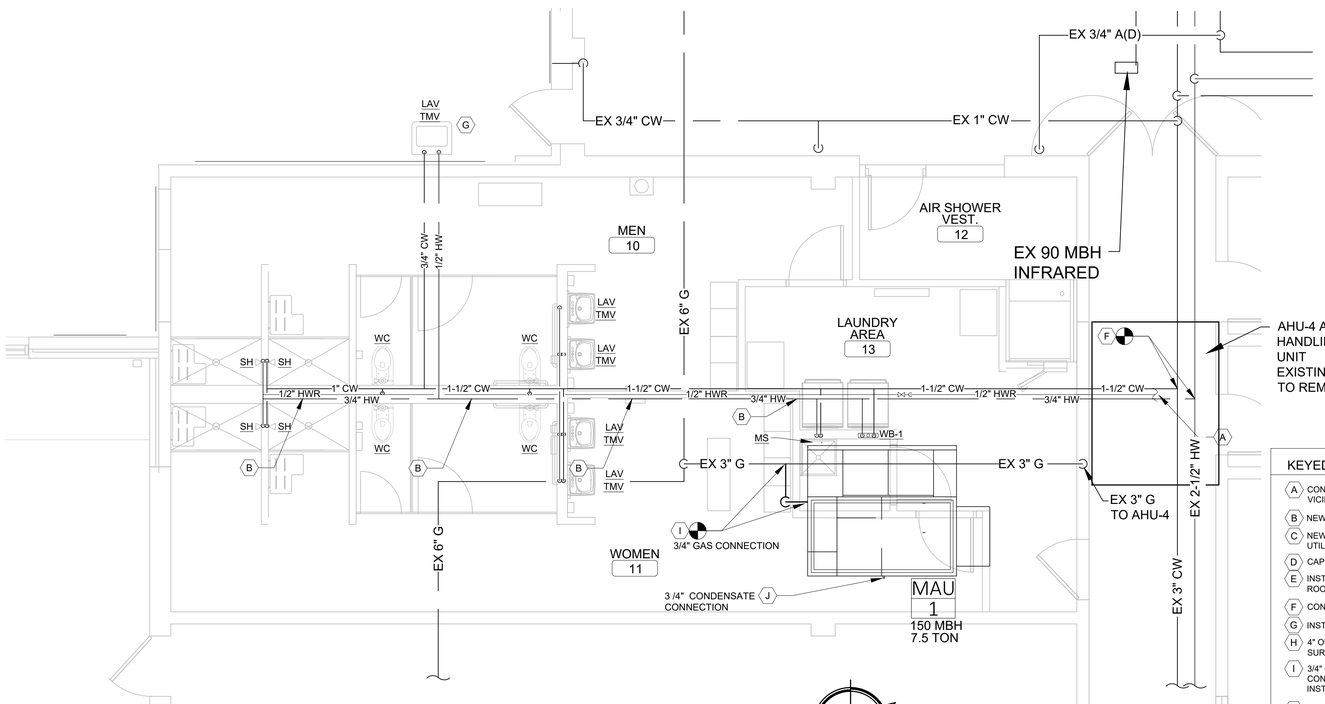
P-102

22 OF 46 SHEETS
04/22/2020



1 P-401 ENLARGED SANITARY PLAN

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



2 P-401 ENLARGED PLUMBING PLAN

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

KEYED NOTES:

- (A) CONNECT NEW HOT WATER RETURN TO EXISTING HWR LINE (3/4" OR LARGER IN THIS VICINITY).
- (B) NEW PLUMBING CHASE AT EXISTING TRENCH DRAIN LOCATION.
- (C) NEW 4" SAN CONNECTION TO EXISTING 4" SANITARY LINE. TRENCH WHERE NECESSARY. UTILIZE EXISTING GREASE DRAIN TRENCH.
- (D) CAP EXISTING COMPRESSED AIR LINES WHERE DROPS WERE REMOVED.
- (E) INSTALL NEW 4" SANITARY VENT THROUGH ROOF. APPLY WEATHER-TIGHT FLASHING TO ROOF PENETRATION.
- (F) CONNECT NEW HOT WATER AND COLD WATER PIPING TO EXISTING HW AND CW LINES.
- (G) INSTALL EXISTING SINK SALVAGED FROM DEMO
- (H) 4" OUTSIDE WALL CLEAN OUT WITH SECURE ACCESS DOOR. ACCESSIBLE FROM OUTSIDE SURFACE OF EXISTING WALL.
- (I) 3/4" GAS CONNECTION TO MAU-1. LESS THAN 2 PSI GAS PRESSURE (IFGC 2015, 402.4(4). CONNECTION TO EXISTING 3" GAS PIPE BELOW ROOF. ROOF PENETRATION AS SHOWN. INSTALL GAS TRAIN COMPONENTS AS SHOWN ON DETAIL 1/P-601.
- (J) 3/ 4" CONDENSATE P-TRAP CONNECTION. INSTALL AS SHOWN ON DETAIL 5/M-602.

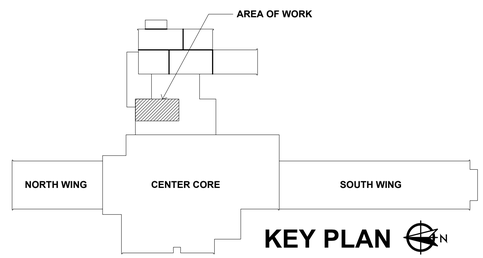
PLUMBING SYMBOLS LEGEND

SAN	NEW SANITARY SEWER (BELOW SLAB)
BA	NEW BREATHABLE AIR
V	NEW SANITARY VENT
EX SAN	EXISTING SANITARY PIPING
HW	NEW HOT WATER PIPING
HW	NEW HOT WATER PIPING
CW	NEW DOMESTIC COLD WATER
CW	NEW WATER (WITH SHUT OFF VALVE)
EX CW	EXISTING DOMESTIC COLD WATER
EX HW	EXISTING DOMESTIC COLD WATER
EX TW	EXISTING DOMESTIC COLD WATER
EX BA	EXISTING BREATHABLE AIR
XXX	EQUIPMENT/FIXTURE DESIGNATION
(X)	KEYED NOTE
△	REVISION NUMBER
	POINT OF CONNECTION (NEW TO EXISTING)
TYP.	TYPICAL
V.I.F.	VERIFY IN FIELD
▷	FLOW DIRECTION

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	BASIS OF DESIGN MANUFACTURER & MODEL #	FIXTURE CONNECTIONS CW	HW	W	V	REMARKS
TMV	THERMAL MIXING VALVE	WATTS LFMMV: 1/2 INCH	1/2"	1/2"	--	--	SHALL CONFORM TO STDS: ASSE 1017, ASSE 1069, ASSE 1070. SET AT 110° F MAX.
WB	WASHER BOX	GUY GREY- BED200	1/2"	1/2"	2"	--	SEE ARCH FOR WASHER INFORMATION, 1/2" MIP/SWEAT CONX. VALVE, 2" THREADED DRAIN FITTING
WC	WATER CLOSET	AMERICAN STANDARD (ADA), #2257.103	3/4"	--	4"	2"	WALL HUNG 18" HIGH, VITREOUS CHINA, ELONGATED SIPHON JET, FLUSH VALVE: SLOAN # 111 (LOW CONSUMPTION 1.6 GALLON PER FLUSH) SEAT: CHURCH #255SSC WITH OPEN FRONT. CARRIER: J.R. SMITH #0542F (FLOOR MOUNTED) CARRIER MUST BE COMPACT TYPE.
LAV	LAVATORY	AMERICAN STANDARD "LUCERNE" #0355.012	1/2"	1/2"	1-1/2"	1-1/2"	WALL HUNG LAVATORY #0355.012 WHITE; FAUCET: AMERICAN STANDARD #2275.500 POLISHED CHROME, COLONY SOFT 2-HANDLE, 4 INCH.
WHA	WATER HAMMER ARRESTOR	ZURN Z1700 SERIES 300	1"	--	--	--	REFER TO DETAIL 5/P-601 FOR WATER HAMMER SCHEDULE.
FD	FLOOR DRAIN	ZURN Z415B	--	--	3"	2"	1/2" TRAP PRIMER CONNECTION, COMBINATION WASTE VENT
TP	TRAP PRIMER	MIFAB M2-500-NPB	1/2"	--	--	--	WATER SAVER TRAP PRIMER W/ CLEANOUT
SF	SHOWER FAUCET	TEMPTROL SHOWER M# C-96-1-X TMV M# 46-2X-BODY	1/2"	1/2"	--	--	FLOW RATE 2.5 GPM, ADJUSTABLE SPRAY, THERMAL MIXING VALVE SET FOR 110°F MAX. SEE DETAIL 11/P-601
SD	SHOWER DRAIN	ZURN Z415B FLOOR AND SHOWER DRAIN	-	-	3"	2"	CONTRACTOR IS TO INSTALL WITH P-TRAP AND VENT PER CODE. 5" STRAINER DIAMETER. SEE DETAIL 11/P-601
WCO	WALL CLEANOUT	JOSAM SERIES 58910 (OR APPROVED EQUIVALENT) TEE CLEANOUT FOR USE IN WALLS. PROVIDE WITH JOSAM SERIES 58600 WALL ACCESS COVER. SEE PLUMBING PLAN AND ISOMETRICS FOR SIZE.					
FCO	FLOOR CLEANOUT	JOSAM SERIES 55000 CLEANOUT FOR USE IN FLOOR. PROVIDE WITH JOSAM STAINLESS STEEL COVER. SEE PLUMBING PLAN AND ISOMETRICS FOR SIZE.					

NOTES:
1. FIXTURES MAY BE SUBSTITUTED BY AN EQUIVALENT FIXTURE. SEE PLUMBING SPECIFICATIONS FOR EQUIVALENT FIXTURE LIST.
2. ALL FIXTURES SHALL HAVE AN INDIVIDUAL SHUTOFF VALVE.
3. NEW WATER CLOSET TO HAVE TRIP LEVER ON SIDE OF FIXTURE AWAY FROM WALL PER ADA REQUIREMENTS.



STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER
4/23/20

JEFFREY S. TRIEB
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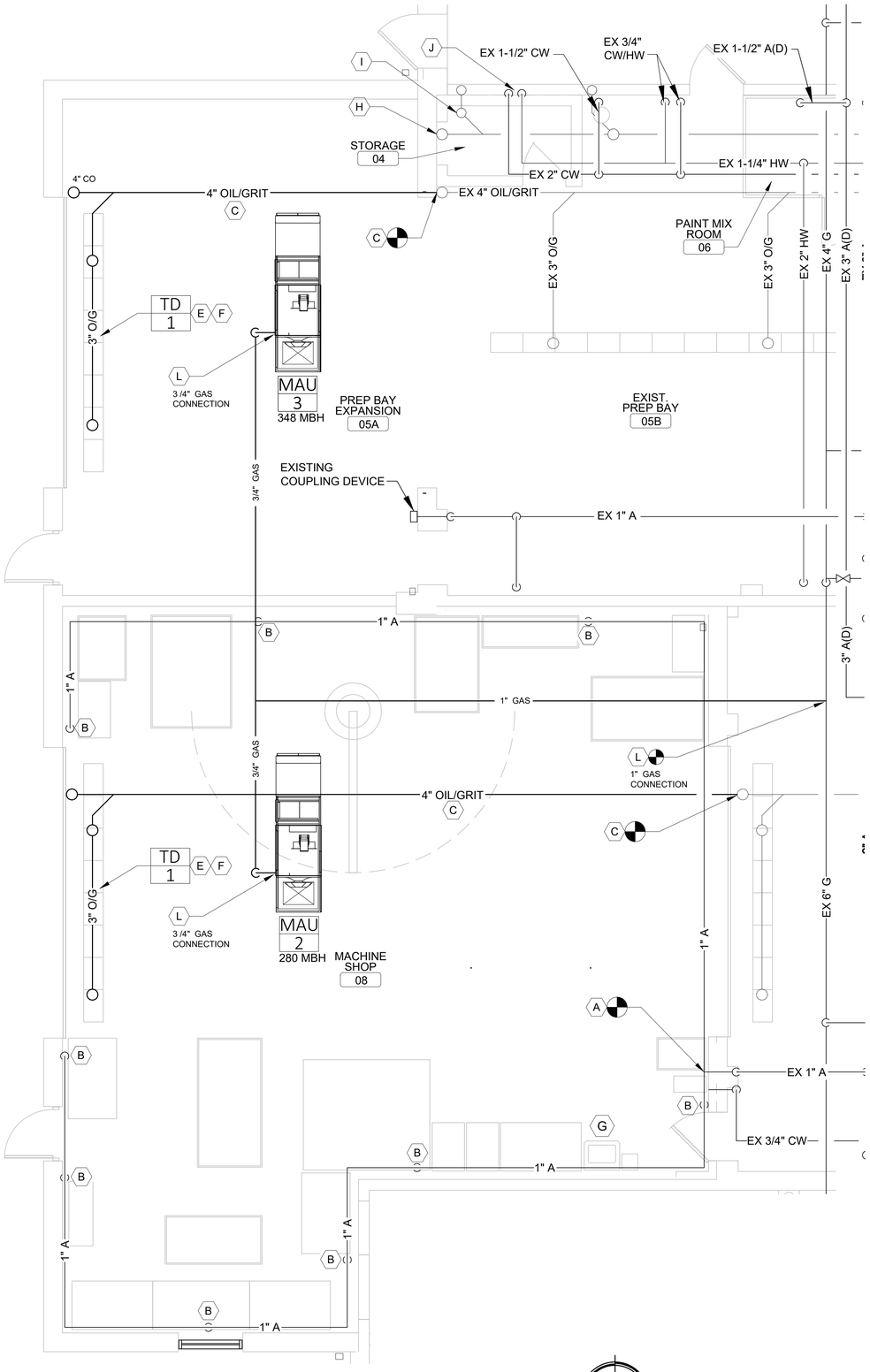
CAD DWG FILE:
DRAWN BY: JST
CHECKED BY: MCG
DESIGNED BY: JST

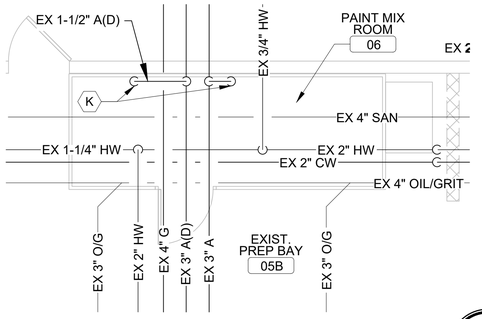
SHEET TITLE:
ENLARGED PLUMBING PLANS

SHEET NUMBER:
P-401
23 OF 46 SHEETS
04/22/2020



1 P-402 ENLARGED PLUMBING PLAN

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



2 P-402 ENLARGED PLUMBING PLAN

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

PLUMBING SYMBOLS LEGEND

SAN	NEW SANITARY SEWER (BELOW SLAB)
BA	NEW BREATHABLE AIR
V	NEW SANITARY VENT
EX SAN	EXISTING SANITARY PIPING
HW	NEW HOT WATER PIPING
HW	NEW HOT WATER PIPING
CW	NEW DOMESTIC COLD WATER
CW	NEW WATER (WITH SHUT OFF VALVE)
EX CW	EXISTING DOMESTIC COLD WATER
EX HW	EXISTING DOMESTIC COLD WATER
EX TW	EXISTING DOMESTIC COLD WATER
EX BA	EXISTING BREATHABLE AIR
XXX	EQUIPMENT/FIXTURE DESIGNATION
(W)	KEYED NOTE
(1)	REVISION NUMBER
	POINT OF CONNECTION (NEW TO EXISTING)
TYP.	TYPICAL
V.I.F.	VERIFY IN FIELD
	FLOW DIRECTION

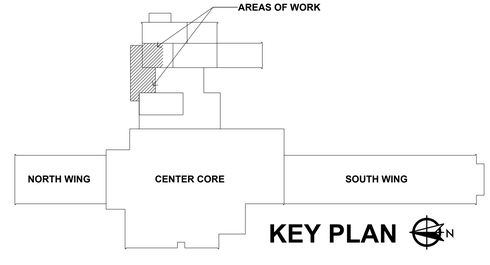
KEYED NOTES:

- (A) CONNECT NEW 1" COMPRESSED AIR LINE WITH TEE AS SHOWN TO EXISTING 1" COMPRESSED AIR LINE.
- (B) NEW COMPRESSED AIR QUICK CONNECT AIR DROP ASSEMBLY (BALL VALVE, QUICK CONNECT).
- (C) NEW 4" OIL/GRIT CONNECTION TO EXISTING 4" OIL GRIT LINE AT EXISTING CLEAN-OUT. TRENCH WHERE NECESSARY.
- (D) NOT USED.
- (E) INSTALL TRENCH DRAIN ASSEMBLIES. REFER TO EQUIPMENT SCHEDULE ON THIS SHEET.
- (F) INSTALL TRENCH DRAIN GRATES RECOVERED FROM THE LOCKER ROOM CONSTRUCTION OVER NEW TRENCH DRAIN. PROVIDE EXTRA DRAIN GRATES FOR COMPLETE INSTALLATION OF DRAIN GRATES COVERING ENTIRE TRENCH DRAIN BODIES.
- (G) INSTALL EXISTING SINK SALVAGED FROM DEMO. SEE DRAWING P401 FOR DETAILS.
- (H) EXISTING 4" SAN FLOOR CLEAN OUT TO REMAIN.
- (I) CAP SAN CONNECTION BELOW CONCRETE FLOOR. INFILL WITH CONCRETE.
- (J) CAP ENDS OF CW & HW LINES.
- (K) INSTALL NEW GRADE "D" BREATHING AIR DROP AND COMPRESSED AIR DROP AS NECESSARY FOR CONSTRUCTION OF NEW PAINT MIXING ROOM. OWNER TO DETERMINE NEW LOCATION.
- (L) 1" GAS CONNECTION TO EXISTING 6" GAS PIPE. 3/4" CONNECTIONS TO MAU-2 AND MAU-3. LESS THAN 2 PSI GAS PRESSURE (IFGC 2015, 402.4(4)). ROOF PENETRATION AT MAU-2 & MAU-3 AS SHOWN. INSTALL GAS TRAIN COMPONENTS AS SHOWN ON DETAIL 1/P-601.

TRENCH DRAIN SCHEDULE (BASIS OF DESIGN)

MARK	MANUFACTURER	MODEL	MATERIAL	ACCESSORIES
TD 1	POLYCAST	700 SERIES	MOLDED POLYESTER WITH CAST IRON FRAME	20' TRENCH DRAIN PROVIDE WITH CLASS "E" SLOTTED GRATING

CONTRACTOR SHALL REUSE EXISTING TRENCH DRAIN GRATES (COVERS) SALVAGED FROM REMOVED TRENCH DRAINS, AND SHALL CONFIRM THAT THE SALVAGED DRAIN GRATES DO FIT THE TRENCH DRAIN BODIES OF THE SCHEDULED TRENCH DRAINS SHOWN. PROVIDE ADDITIONAL NEW DRAIN GRATES AS NECESSARY TO COVER ALL TRENCH DRAIN BODIES.



KEY PLAN

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER 4/23/20

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ENLARGED PLUMBING PLANS

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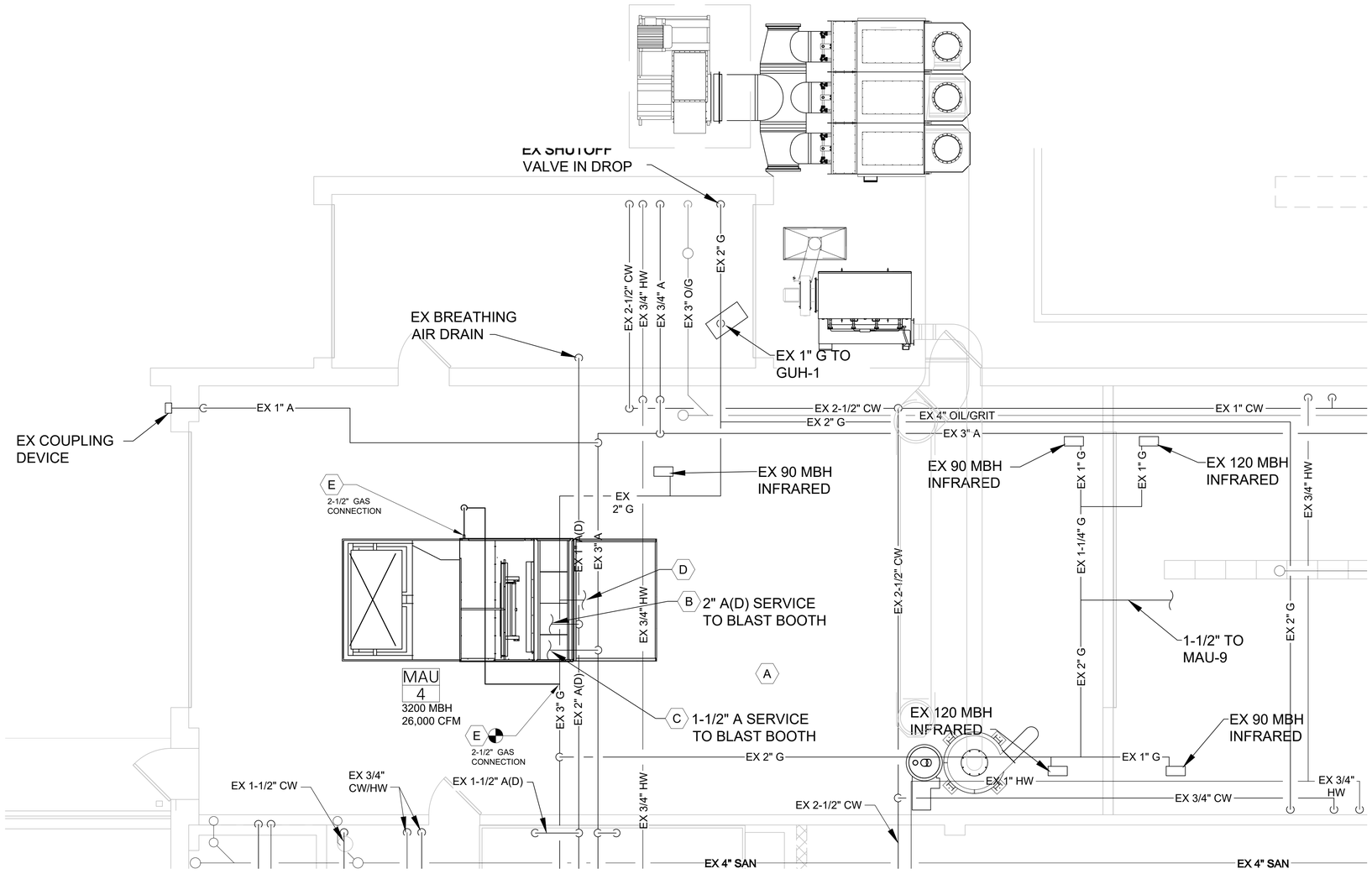
24 OF 46 SHEETS
04/22/2020



1 P-403 ENLARGED PLUMBING PLAN

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

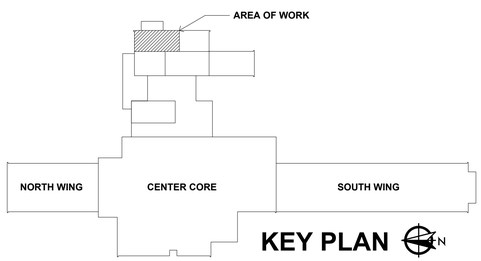
N

KEYED NOTES:

- (A) NEW BLAST BOOTH INSTALLATION.
- (B) MAKE CONNECTION OF EXISTING GRADE "D" COMPRESSED BREATHING AIR TO NEW CONNECTION POINTS FOR NEW BLAST BOOTH. RELOCATE LINES AS NECESSARY
- (C) MAKE CONNECTION OF EXISTING COMPRESSED AIR TO NEW CONNECTION POINTS FOR NEW BLAST BOOTH. RELOCATE LINES AS NECESSARY
- (D) PREVIOUS CAPPED CONNECTION OF 2" NATURAL GAS SERVICE TO REMOVED MAKE-UP AIR UNIT SERVING THE REMOVED BLAST BOOTH.
- (E) 2-1/2" GAS CONNECTION TO EXISTING 3" GAS PIPE. 2-1/2" CONNECTIONS TO MAU-4. LESS THAN 2 PSI GAS PRESSURE (IFGC 2015, 402.4(4)). ROOF PENETRATION AS SHOWN. INSTALL GAS TRAIN COMPONENTS AS SHOWN ON DETAIL 1/P-601.

PLUMBING SYMBOLS LEGEND

SAN	NEW SANITARY SEWER (BELOW SLAB)
BA	NEW BREATHABLE AIR
V	NEW SANITARY VENT
EX SAN	EXISTING SANITARY PIPING
HW	NEW HOT WATER PIPING
HW	NEW HOT WATER PIPING
CW	NEW DOMESTIC COLD WATER
CW	NEW WATER (WITH SHUT OFF VALVE)
EX CW	EXISTING DOMESTIC COLD WATER
EX HW	EXISTING DOMESTIC COLD WATER
EX TW	EXISTING DOMESTIC COLD WATER
EX BA	EXISTING BREATHABLE AIR
XXX	EQUIPMENT/FIXTURE DESIGNATION
??	KEYED NOTE
1	REVISION NUMBER
	POINT OF CONNECTION (NEW TO EXISTING)
TYP.	TYPICAL
V.I.F.	VERIFY IN FIELD
	FLOW DIRECTION



STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER 4/23/20

JEFFREY S. TRIEB
License Number: M 2005014634
Expiration Date: 12/31/21

CASCO Diversified Corporation
MO Certificate of Authority #000329 Arch.
MO Certificate of Authority #000613 Eng.

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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI 65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: JST
CHECKED BY: MCG
DESIGNED BY: JST

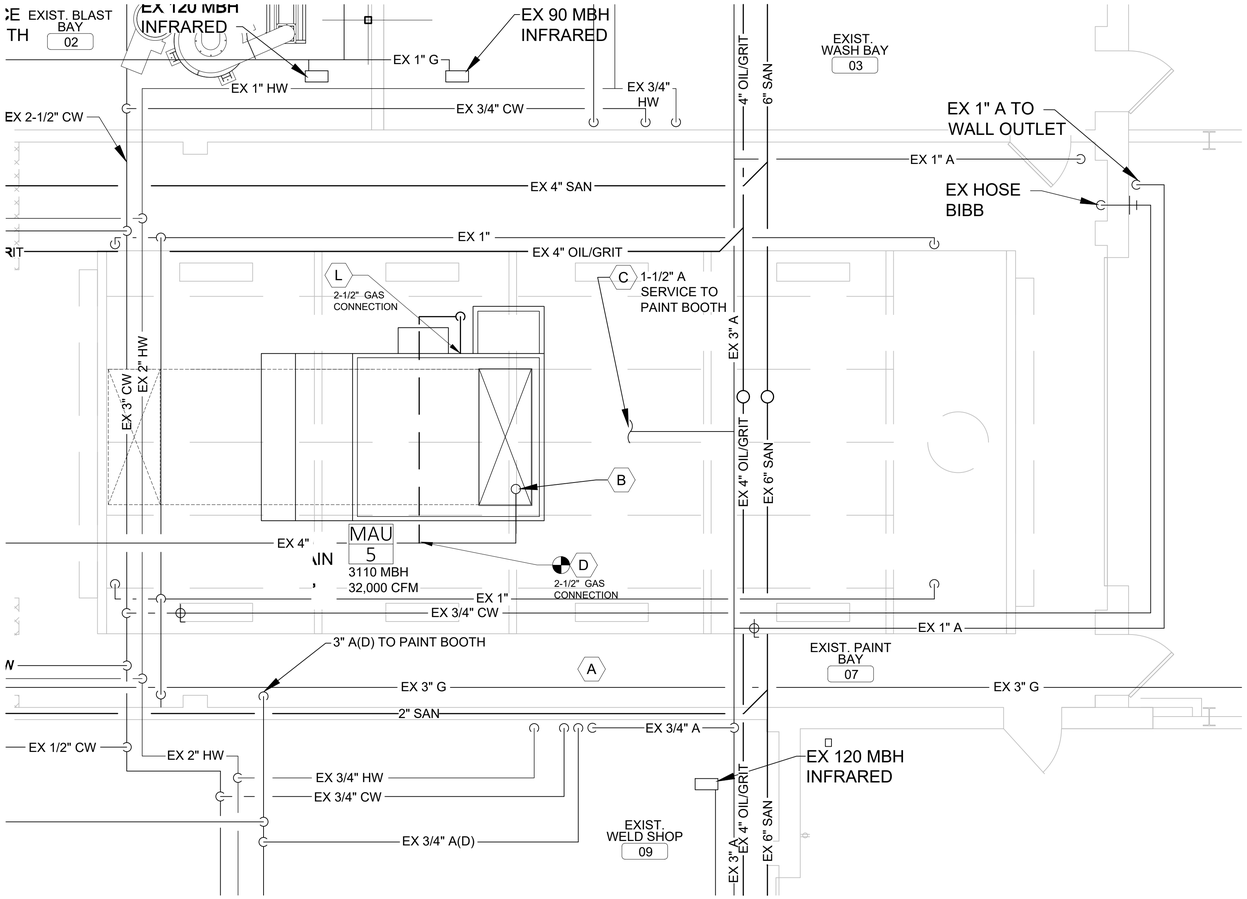
SHEET TITLE:

ENLARGED PLUMBING PLANS

SHEET NUMBER:

P-403

25 OF 46 SHEETS
04/22/2020



1 P-404 ENLARGED PLUMBING PLAN

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

KEYED NOTES:

A. NEW PAINT BOOTH INSTALLATION.

B. CAPPED CONNECTION OF 2" NATURAL GAS SERVICE TO REMOVED MAKE-UP AIR UNIT SERVING THE REMOVED PAINT BOOTH.

C. MAKE CONNECTION OF COMPRESSED AIR TO NEW CONNECTION POINTS FOR NEW BLAST BOOTH. RELOCATE LINES AS NECESSARY

D. 2-1/2" GAS CONNECTION TO EXISTING 4" GAS PIPE. 2-1/2" CONNECTION TO MAU-4. LESS THAN 2 PSI GAS PRESSURE (IFGC 2015 402.4(4)). ROOF PENETRATION AS SHOWN. INSTALL GAS TRAIN COMPONENTS AS SHOWN ON DETAIL 1/P-601.

PLUMBING SYMBOLS LEGEND

SAN	NEW SANITARY SEWER (BELOW SLAB)
BA	NEW BREATHABLE AIR
V	NEW SANITARY VENT
EX SAN	EXISTING SANITARY PIPING
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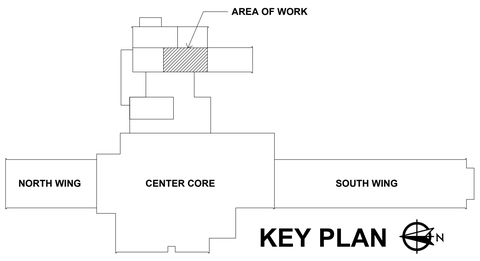
HW	NEW HOT WATER PIPING
CW	NEW DOMESTIC COLD WATER
CW	NEW WATER (WITH SHUT OFF VALVE)
EX CW	EXISTING DOMESTIC COLD WATER
EX HW	EXISTING DOMESTIC COLD WATER
EX TW	EXISTING DOMESTIC COLD WATER
EX BA	EXISTING BREATHABLE AIR
XXX	EQUIPMENT/FIXTURE DESIGNATION
77	KEYED NOTE
1	REVISION NUMBER
	POINT OF CONNECTION (NEW TO EXISTING)
TYP.	TYPICAL
V.I.F.	VERIFY IN FIELD
	FLOW DIRECTION



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CHECKED BY: MCG
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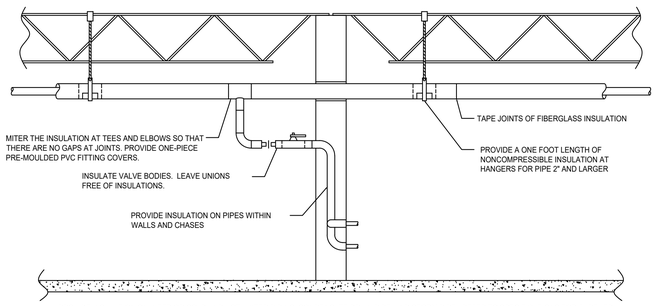
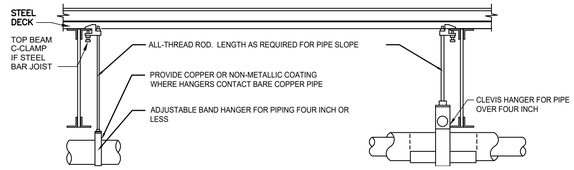
P-404
26 OF 46 SHEETS
04/22/2020



PROVIDE INSULATION ON INTERIOR COLD AND HOT WATER PIPING, CONDENSATE DRAIN PIPE, AND STORM PIPE. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION REGARDING INSULATION. INSTALL ITEMS PER SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS. MAINTAIN VAPOR BARRIER ON COLD WATER AND CONDENSATE PIPING BY MEANS OF SEALANT AND TAPE. FLAME SPREAD AND SMOKE-DEVELOPED INDEXES SHALL NOT EXCEED 25/50. SEAL EXPOSED ENDS OF FIBERGLASS INSULATION WITH ADHESIVE MASTIC.

10 P-601 PIPE INSULATION DETAIL

SCALE: N.T.S



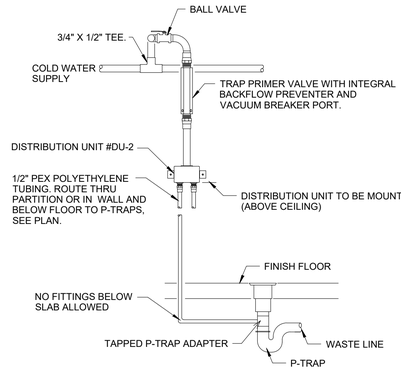
NOTE:
PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES.

HANGER SPACING FOR PIPE SIZE:
COPPER: 4"=12'; 3"=11'; 2½"=10'; 2"=9'; 1½"=8'; 1¼"=7'; 1"=6'; ¾"=6'; ½"=5'.
STEEL: 4"=14'; 3"=12'; 2½"=11'; 2"=10'; 1½"=9'; 1"=7'; ¾"=6'; ½"=5'.

VERIFY HANGER SPACING WITH LOCAL AUTHORITY HAVING JURISDICTION AND LOCAL CODE AMENDMENTS. LOCATE HANGERS AS CLOSE AS POSSIBLE TO TURNS AND TEES OF PIPE. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED. LOCATE HANGERS TO TAKE LOAD OFF OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. PROVIDE SEISMIC BRACING AS REQUIRED BY LOCAL AUTHORITIES. CHAINS OR PERFORATED STRAP IRON OR STEEL IS NOT ACCEPTABLE. REFER TO CODES FOR FURTHER INFORMATION.

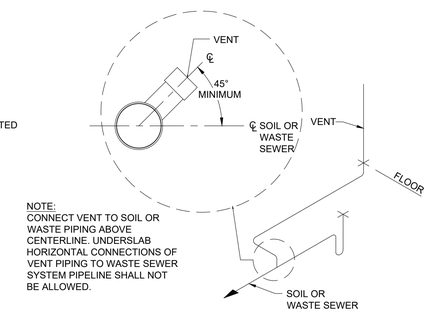
9 P-601 PIPE HANGER DETAIL

SCALE: N.T.S



8 P-601 TRAP PRIMER (TP)

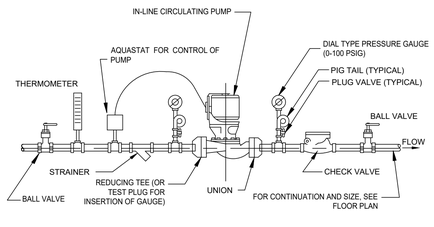
SCALE: N.T.S



NOTE:
CONNECT VENT TO SOIL OR WASTE PIPING ABOVE CENTERLINE. UNDERSLAB HORIZONTAL CONNECTIONS OF VENT PIPING TO WASTE SEWER SYSTEM PIPELINE SHALL NOT BE ALLOWED.

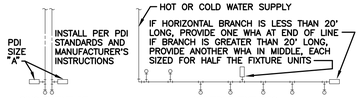
7 P-601 VENT PIPING INSTALLATION

SCALE: N.T.S



6 P-601 RECIRC PUMP DETAIL

SCALE: N.T.S



SINGLE FIXTURE

PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	½"	1–11
B	¾"	12–32
C	1"	33–60
D	1¼"	61–113
E	1½"	114–154
F	2"	154–330

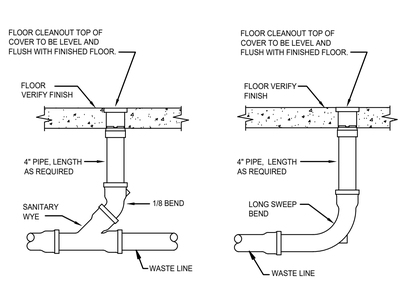
MULTIPLE FIXTURES

FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	5	--
TANK WATER CLOSET	2.5	--
URINAL	4	--
LAVATORY	.75	.75
SINK	1.5	1.5
JANITOR'S SINK	2.5	2.5
SHOWER/BATHTUB	1.5	1.5

PC TO PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE #1010 AND ANSI #A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE.

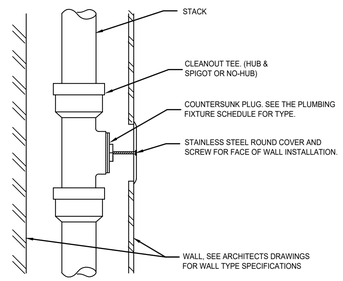
5 P-601 WATER HAMER ARRESTERS

SCALE: N.T.S



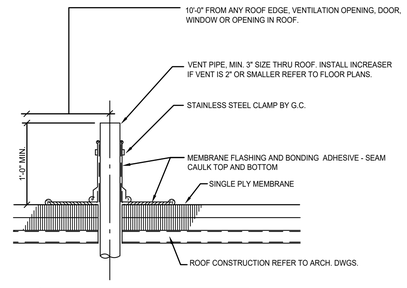
4 P-601 FLOOR CLEANOUT DETAIL

SCALE: N.T.S



3 P-601 WALL CLEANOUT DETAIL

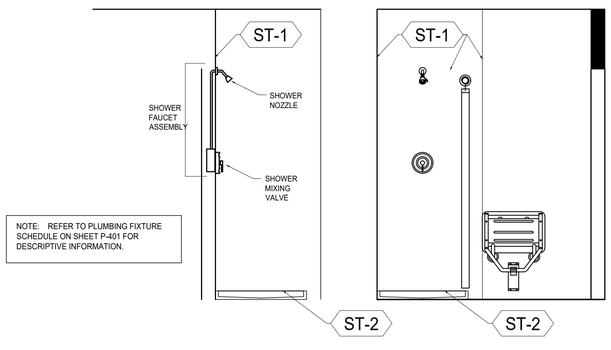
SCALE: N.T.S



NOTE:
- ALL VENT RISERS SHALL BE OFFSET AS REQ'D TO CLEAR ROOF STRUCTURE, DUCTWORK OR MECHANICAL ROOF TOP UNITS.
  PLUMBING CONTRACTOR MUST COORDINATE WITH OTHER TRADES.
- ALL VENT THRU ROOF BY GENERAL CONTRACTOR'S ROOFER

2 P-601 VENT-THROUGH-ROOF DETAIL

SCALE: N.T.S

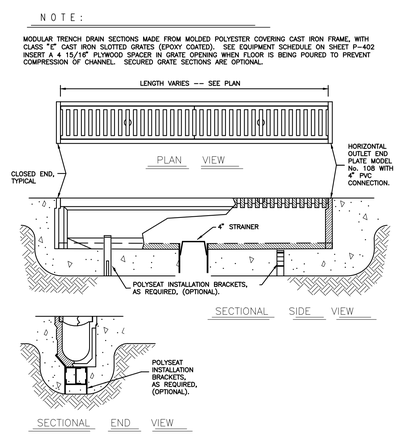


NOTE: REFER TO PLUMBING FIXTURE SCHEDULE ON SHEET P-401 FOR DESCRIPTIVE INFORMATION.

12 P-601 SHOWER FAUCET ASSEMBLY DETAIL

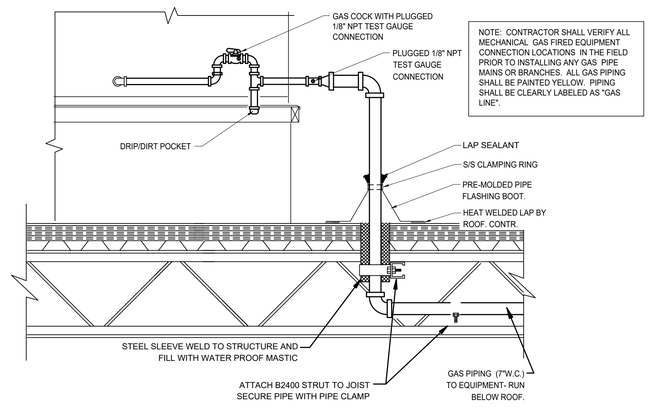
SCALE: N.T.S

NOTE:
MODULAR TRENCH DRAIN SECTIONS MADE FROM MOLDED POLYESTER COVERING CAST IRON FRAME, WITH CLASS "E" CAST IRON SLOTTED GRATES (EPOXY COATED). SEE EQUIPMENT SCHEDULE ON SHEET P-402 INSERT A 4 15/16" PLYWOOD SPACER IN GRATE OPENING WHEN FLOOR IS BEING POURED TO PREVENT COMPRESSION OF CHANNEL. SECURED GRATE SECTIONS ARE OPTIONAL.



11 P-601 MODULAR TRENCH DRAIN DETAIL

SCALE: N.T.S



NOTE: CONTRACTOR SHALL VERIFY ALL MECHANICAL GAS FIRED EQUIPMENT CONNECTION LOCATIONS IN THE FIELD PRIOR TO INSTALLING ANY GAS PIPE MAINS OR BRANCHES. ALL GAS PIPING SHALL BE PAINTED YELLOW. PIPING SHALL BE CLEARLY LABELED AS "GAS LINE".

1 P-601 ROOFTOP UNIT GAS PIPING DETAIL

SCALE: N.T.S

STATE OF MISSOURI
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JEFFREY S. TRIEB
BOMBER
PE-2005014634
PROFESSIONAL ENGINEER
4/23/20

JEFFREY S. TRIEB
License Number: M- 2005014634
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PLUMBING DETAILS

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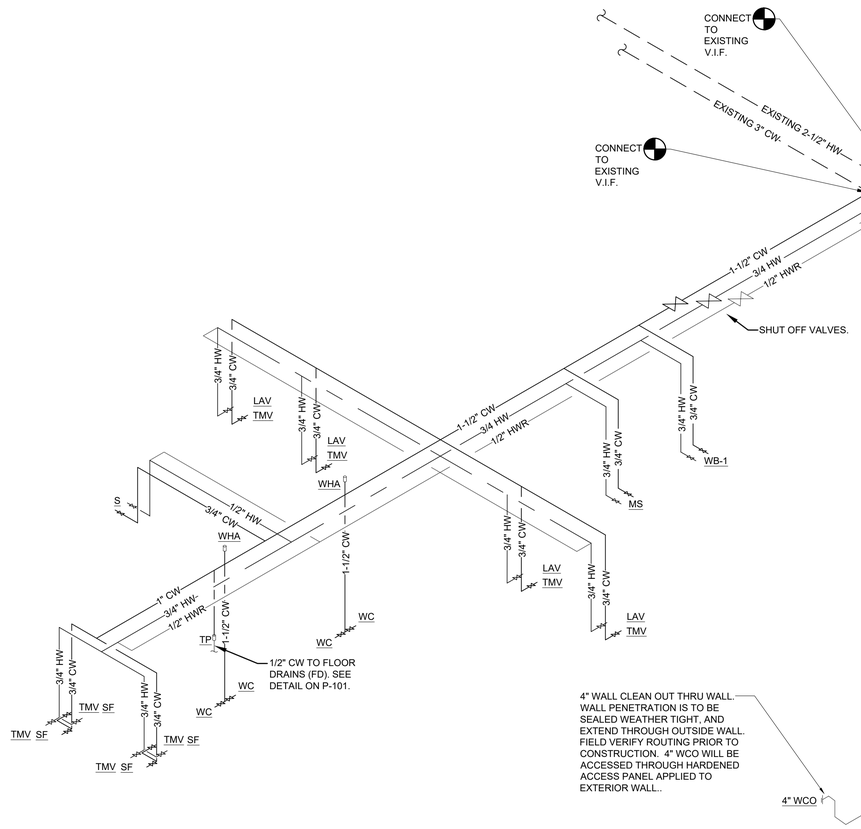
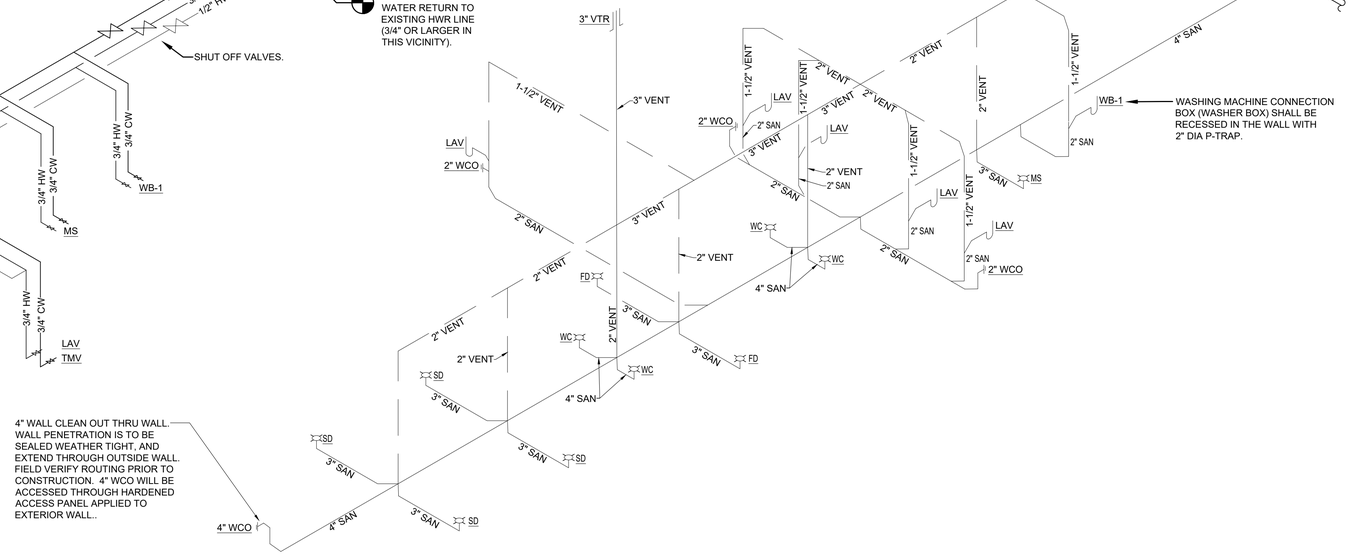
P-601

27 OF 46 SHEETS
04/22/2020



1 P-602 WATER ISOMETRIC

SCALE: N.T.S.



2 P-602 SANITARY AND VENT ISOMETRIC

SCALE: N.T.S.

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28 OF 46 SHEETS
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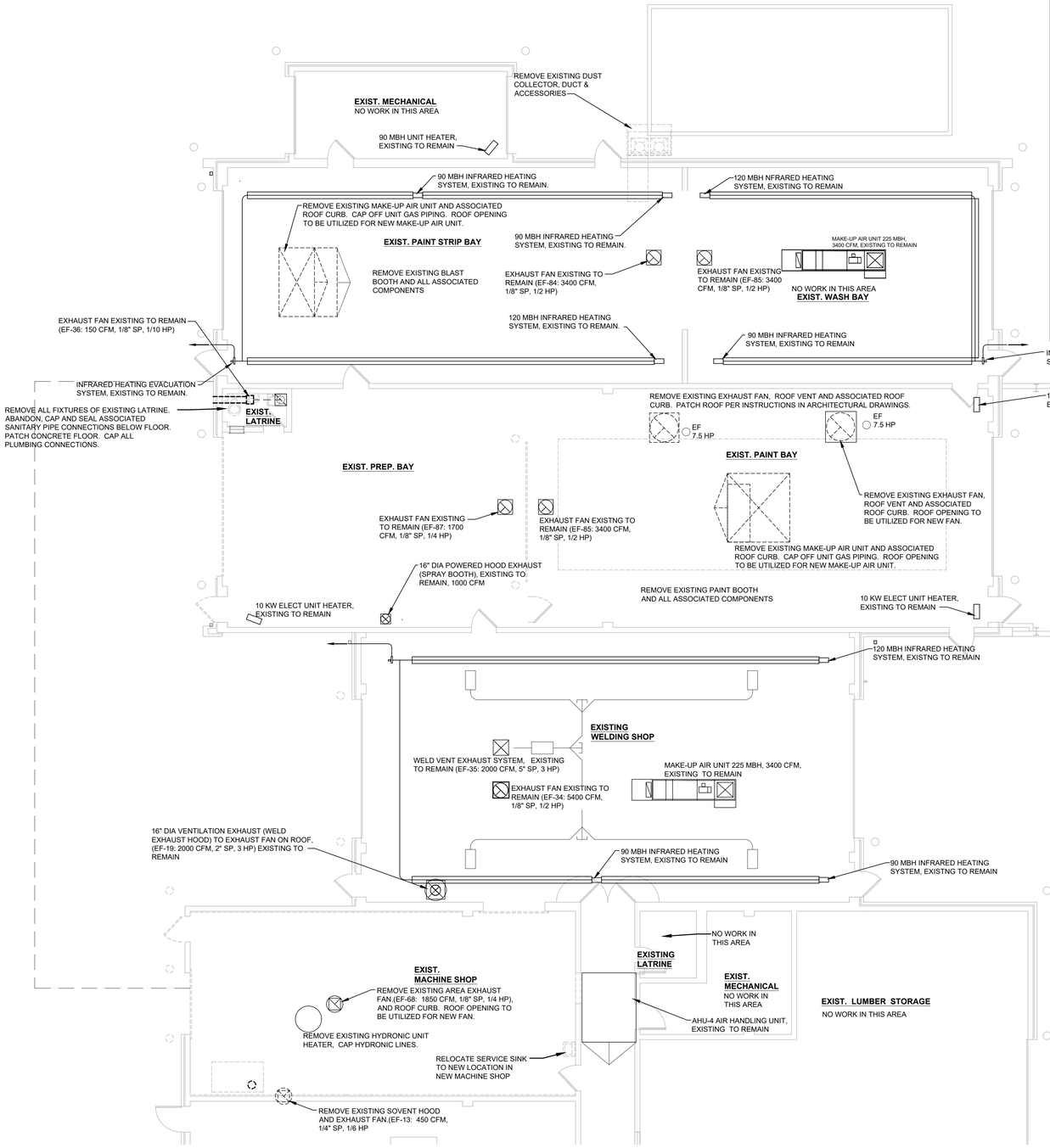
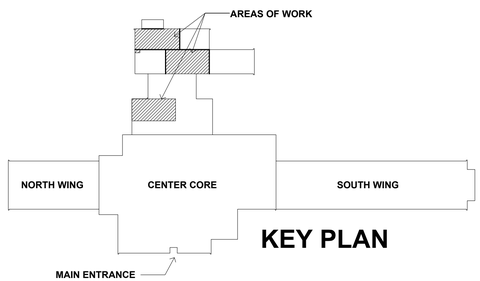


1 M-101 MECHANICAL DEMO PLAN

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

GENERAL NOTES

1. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF THE CONTRACT DOCUMENTS. THE ENGINEER AND OWNER SHALL BE NOTIFIED OF ANY UNFORESEEN CONDITIONS WHICH MAY AFFECT PROGRESS OR COST OF WORK PERFORMED.
4. THE CONTRACT WORK SHALL INCLUDE FURNISHING ALL MATERIAL, EQUIPMENT, TOOLS, LABOR, AND SERVICES NECESSARY FOR COMPLETION OF THE PROJECT.
6. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE QUALITY OF WORKMANSHIP AND FOR COMPLIANCE WITH THE DESIGN. THE GENERAL CONTRACTOR SHALL CORRECT ALL ERRORS AND DEVIATIONS AS REQUESTED BY THE OWNER.
8. THE GENERAL CONTRACTOR SHALL CONTACT THE OWNER/ENGINEER IMMEDIATELY IF ANY WORKER ENCOUNTERS HAZARDOUS MATERIALS.
9. THE GENERAL CONTRACTOR SHALL COORDINATE MECHANICAL DRAWINGS WITH THE ELECTRICAL DRAWINGS AND SPECIFICATIONS BEFORE PROCEEDING WITH THE WORK AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS IMMEDIATELY. ALL DISCREPANCIES SHALL BE RESOLVED PRIOR TO THE CONTRACTOR PROCEEDING WITH WORK.
10. CONTRACTOR SHALL USE CAUTION AT ALL EXISTING UNDERGROUND SERVICES AND UTILITIES IN THE AREA OF EXCAVATION FOR NEW FOOTINGS AND FOUNDATION. ALL PRECAUTIONS SHALL BE TAKEN NOT TO DISTURB EXISTING SERVICES AND UTILITIES.
11. A MINIMUM OF 2 FT. CLEARANCE MUST BE KEPT IN FRONT OF THE THE RETURN GRILLES AT ALL TIMES.
12. THERMOSTAT, REMOTE TEMPERATURE SENSOR, AND HVAC CONTROLLER SHALL BE MOUNTED AT 60" A.F.F.
13. ALL COMPONENTS OF THE BLAST BOOTH, PAINT BOOTH, AND PAINT MIXING ROOM HVAC SYSTEMS INCLUDING MAKEUP AIR UNITS, EXHAUST FANS, FILTER BANKS, DUST COLLECTORS, PARTICULATE COLLECTORS, DUCTWORK, AND ACCESSORIES SHALL BE INSTALLED BY THE MANUFACTURER.
14. ALL COMPONENTS OF CONTROLS SYSTEMS ASSOCIATED WITH THE BLAST BOOTH, PAINT BOOTH, AND PAINT MIXING ROOM SHALL BE INSTALLED BY MANUFACTURER. MANUFACTURER SHALL ALL DEMONSTRATE TO OWNER THE OPERATIONAL PROCEDURE AND FUNCTION OF ALL OPERATIONAL SYSTEMS ASSOCIATED WITH THE BLAST BOOTH, PAINT BOOTH, AND PAINT MIXING ROOM.
14. ALL CONTROLS ASSOCIATED WITH THE BUILDING HVAC UNITS INSTALLED UNDER THIS CONTRACT SHALL BE INSTALLED BY CONTRACTOR. OPERATIONS AND FUNCTION OF ALL HVAC CONTROL SYSTEMS SHALL BE DEMONSTRATED TO OWNER.
15. INTERNAL DUCT LINER SHALL NOT BE ALLOWED. EXTERIOR WRAP FOR SUPPLY & RETURN DUCT SHALL BE R-8 TWO (2) INCH +/- THICK, 3/4 LB. DENSITY. ALL DUCTWORK SHALL BE INSULATED IN ACCORDANCE WITH THE LATEST ISSUE OF SMACNA'S AND NESCA'S MINIMUM INSTALLATION STANDARDS.



KEY PLAN

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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MECHANICAL DEMO FLOOR PLAN

SHEET NUMBER:

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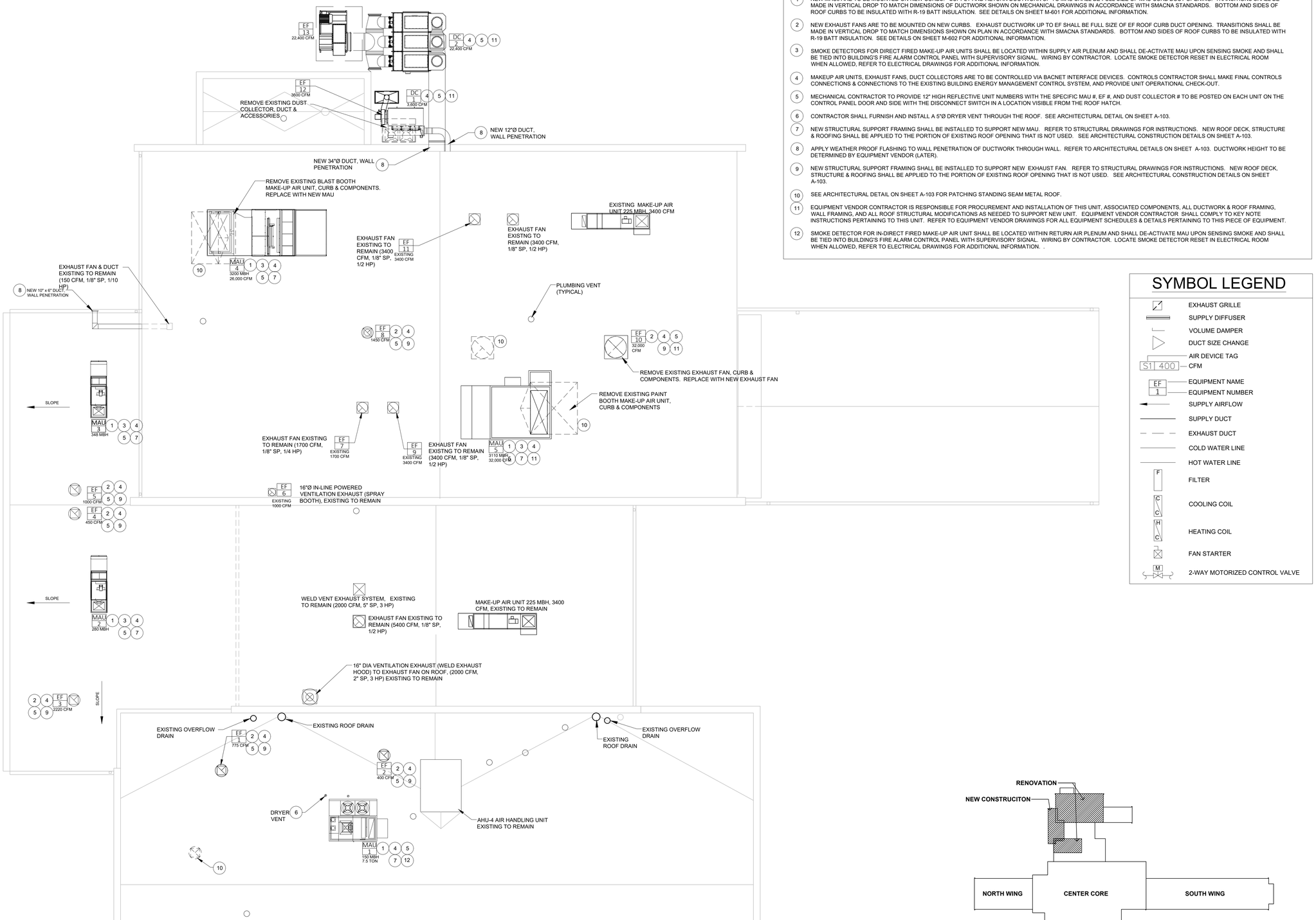
29 OF 46 SHEETS
04/22/2020



2 M-102 MECHANICAL ROOF PLAN

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

HVAC KEYED NOTES

1. NEW MAUs ARE TO BE MOUNTED ON NEW CURBS. SUPPLY AND RETURN DUCTWORK UP TO MAU SHALL BE FULL SIZE OF MAU CURB DUCT OPENING. TRANSITIONS SHALL BE MADE IN VERTICAL DROP TO MATCH DIMENSIONS OF DUCTWORK SHOWN ON MECHANICAL DRAWINGS IN ACCORDANCE WITH SMACNA STANDARDS. BOTTOM AND SIDES OF ROOF CURBS TO BE INSULATED WITH R-19 BATT INSULATION. SEE DETAILS ON SHEET M-601 FOR ADDITIONAL INFORMATION.
2. NEW EXHAUST FANS ARE TO BE MOUNTED ON NEW CURBS. EXHAUST DUCTWORK UP TO EF SHALL BE FULL SIZE OF EF ROOF CURB DUCT OPENING. TRANSITIONS SHALL BE MADE IN VERTICAL DROP TO MATCH DIMENSIONS SHOWN ON PLAN IN ACCORDANCE WITH SMACNA STANDARDS. BOTTOM AND SIDES OF ROOF CURBS TO BE INSULATED WITH R-19 BATT INSULATION. SEE DETAILS ON SHEET M-602 FOR ADDITIONAL INFORMATION.
3. SMOKE DETECTORS FOR DIRECT FIRED MAKE-UP AIR UNITS SHALL BE LOCATED WITHIN SUPPLY AIR PLENUM AND SHALL DE-ACTIVATE MAU UPON SENSING SMOKE AND SHALL BE TIED INTO BUILDING'S FIRE ALARM CONTROL PANEL WITH SUPERVISORY SIGNAL. WIRING BY CONTRACTOR. LOCATE SMOKE DETECTOR RESET IN ELECTRICAL ROOM WHEN ALLOWED, REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
4. MAKEUP AIR UNITS, EXHAUST FANS, DUCT COLLECTORS ARE TO BE CONTROLLED VIA BACNET INTERFACE DEVICES. CONTROLS CONTRACTOR SHALL MAKE FINAL CONTROLS CONNECTIONS & CONNECTIONS TO THE EXISTING BUILDING ENERGY MANAGEMENT CONTROL SYSTEM, AND PROVIDE UNIT OPERATIONAL CHECK-OUT.
5. MECHANICAL CONTRACTOR TO PROVIDE 12" HIGH REFLECTIVE UNIT NUMBERS WITH THE SPECIFIC MAU #, EF #, AND DUST COLLECTOR # TO BE POSTED ON EACH UNIT ON THE CONTROL PANEL DOOR AND SIDE WITH THE DISCONNECT SWITCH IN A LOCATION VISIBLE FROM THE ROOF HATCH.
6. CONTRACTOR SHALL FURNISH AND INSTALL A 5"Ø DRYER VENT THROUGH THE ROOF. SEE ARCHITECTURAL DETAIL ON SHEET A-103.
7. NEW STRUCTURAL SUPPORT FRAMING SHALL BE INSTALLED TO SUPPORT NEW MAU. REFER TO STRUCTURAL DRAWINGS FOR INSTRUCTIONS. NEW ROOF DECK, STRUCTURE & ROOFING SHALL BE APPLIED TO THE PORTION OF EXISTING ROOF OPENING THAT IS NOT USED. SEE ARCHITECTURAL CONSTRUCTION DETAILS ON SHEET A-103.
8. APPLY WEATHER PROOF FLASHING TO WALL PENETRATION OF DUCTWORK THROUGH WALL. REFER TO ARCHITECTURAL DETAILS ON SHEET A-103. DUCTWORK HEIGHT TO BE DETERMINED BY EQUIPMENT VENDOR (LATER).
9. NEW STRUCTURAL SUPPORT FRAMING SHALL BE INSTALLED TO SUPPORT NEW EXHAUST FAN. REFER TO STRUCTURAL DRAWINGS FOR INSTRUCTIONS. NEW ROOF DECK, STRUCTURE & ROOFING SHALL BE APPLIED TO THE PORTION OF EXISTING ROOF OPENING THAT IS NOT USED. SEE ARCHITECTURAL CONSTRUCTION DETAILS ON SHEET A-103.
10. SEE ARCHITECTURAL DETAIL ON SHEET A-103 FOR PATCHING STANDING SEAM METAL ROOF.
11. EQUIPMENT VENDOR CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND INSTALLATION OF THIS UNIT, ASSOCIATED COMPONENTS, ALL DUCTWORK & ROOF FRAMING, WALL FRAMING, AND ALL ROOF STRUCTURAL MODIFICATIONS AS NEEDED TO SUPPORT NEW UNIT. EQUIPMENT VENDOR CONTRACTOR SHALL COMPLY TO KEY NOTE INSTRUCTIONS PERTAINING TO THIS UNIT. REFER TO EQUIPMENT VENDOR DRAWINGS FOR ALL EQUIPMENT SCHEDULES & DETAILS PERTAINING TO THIS PIECE OF EQUIPMENT.
12. SMOKE DETECTOR FOR IN-DIRECT FIRED MAKE-UP AIR UNIT SHALL BE LOCATED WITHIN RETURN AIR PLENUM AND SHALL DE-ACTIVATE MAU UPON SENSING SMOKE AND SHALL BE TIED INTO BUILDING'S FIRE ALARM CONTROL PANEL WITH SUPERVISORY SIGNAL. WIRING BY CONTRACTOR. LOCATE SMOKE DETECTOR RESET IN ELECTRICAL ROOM WHEN ALLOWED, REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

SYMBOL LEGEND

- EXHAUST GRILLE
- SUPPLY DIFFUSER
- VOLUME DAMPER
- DUCT SIZE CHANGE
- AIR DEVICE TAG
- S1 400 — CFM
- EF 1 — EQUIPMENT NAME / EQUIPMENT NUMBER
- SUPPLY AIRFLOW
- SUPPLY DUCT
- EXHAUST DUCT
- COLD WATER LINE
- HOT WATER LINE
- F — FILTER
- C C — COOLING COIL
- H C — HEATING COIL
- FAN STARTER
- M — 2-WAY MOTORIZED CONTROL VALVE

KEY PLAN

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER 4/23/20

JEFFREY S. TRIEB
License Number: M 2005014634
Expiration Date: 12/31/21

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MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI 65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

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ISSUE DATE: 04/22/2020

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DRAWN BY: JST
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DESIGNED BY: JST

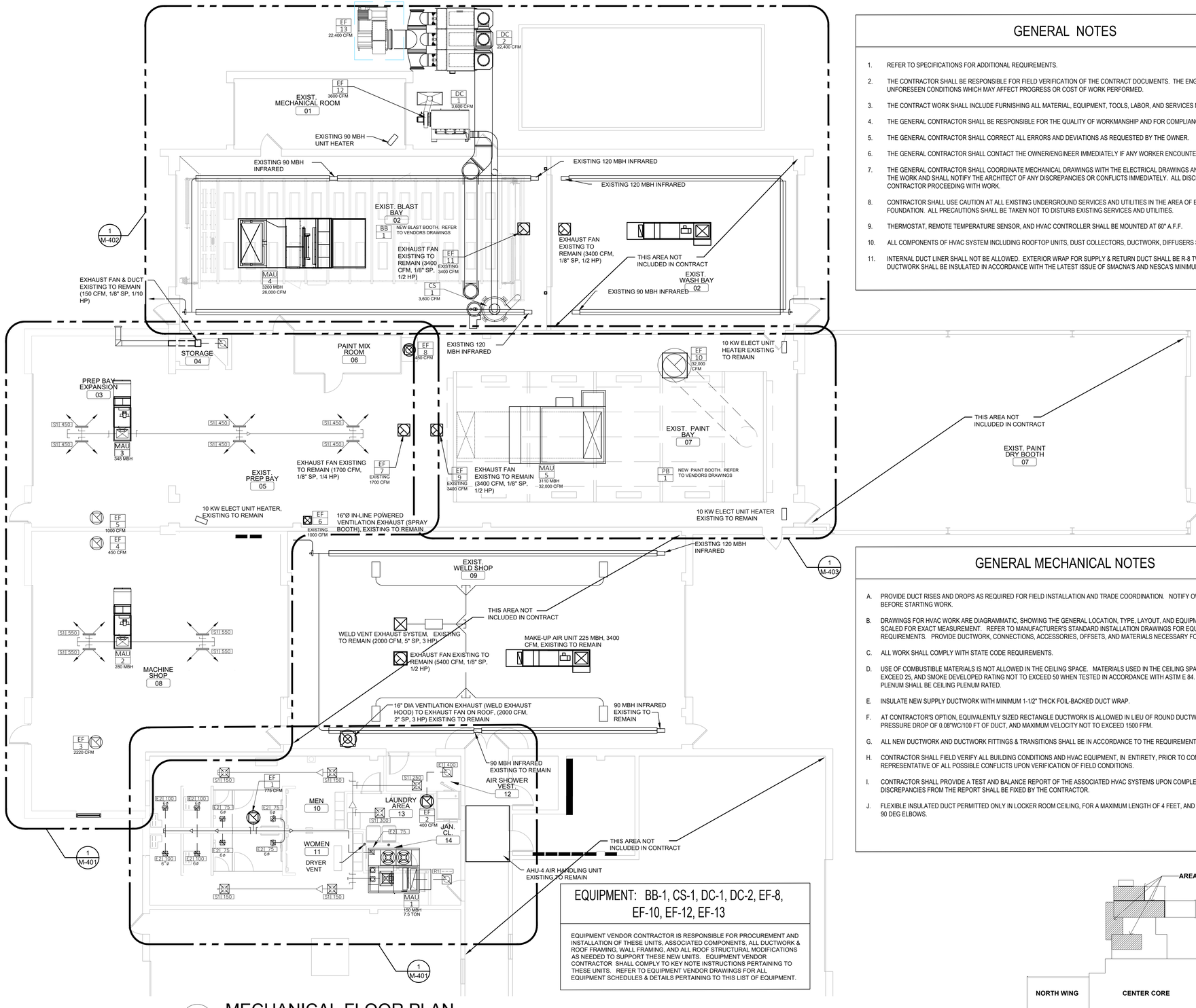
SHEET TITLE:

MECHANICAL ROOF PLAN

SHEET NUMBER:

M-102

30 OF 46 SHEETS
04/22/2020



MECHANICAL FLOOR PLAN

1 M-103 SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF THE CONTRACT DOCUMENTS. THE ENGINEER AND OWNER SHALL BE NOTIFIED OF ANY UNFORESEEN CONDITIONS WHICH MAY AFFECT PROGRESS OR COST OF WORK PERFORMED.
3. THE CONTRACT WORK SHALL INCLUDE FURNISHING ALL MATERIAL, EQUIPMENT, TOOLS, LABOR, AND SERVICES NECESSARY FOR COMPLETION OF THE PROJECT.
4. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE QUALITY OF WORKMANSHIP AND FOR COMPLIANCE WITH THE DESIGN.
5. THE GENERAL CONTRACTOR SHALL CORRECT ALL ERRORS AND DEVIATIONS AS REQUESTED BY THE OWNER.
6. THE GENERAL CONTRACTOR SHALL CONTACT THE OWNER/ENGINEER IMMEDIATELY IF ANY WORKER ENCOUNTERS HAZARDOUS MATERIALS.
7. THE GENERAL CONTRACTOR SHALL COORDINATE MECHANICAL DRAWINGS WITH THE ELECTRICAL DRAWINGS AND SPECIFICATIONS BEFORE PROCEEDING WITH THE WORK AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS IMMEDIATELY. ALL DISCREPANCIES SHALL BE RESOLVED PRIOR TO THE CONTRACTOR PROCEEDING WITH WORK.
8. CONTRACTOR SHALL USE CAUTION AT ALL EXISTING UNDERGROUND SERVICES AND UTILITIES IN THE AREA OF EXCAVATION FOR NEW FOOTINGS AND FOUNDATION. ALL PRECAUTIONS SHALL BE TAKEN NOT TO DISTURB EXISTING SERVICES AND UTILITIES.
9. THERMOSTAT, REMOTE TEMPERATURE SENSOR, AND HVAC CONTROLLER SHALL BE MOUNTED AT 60" A.F.F.
10. ALL COMPONENTS OF HVAC SYSTEM INCLUDING ROOFTOP UNITS, DUST COLLECTORS, DUCTWORK, DIFFUSERS SHALL BE FACTORY INSTALLED.
11. INTERNAL DUCT LINER SHALL NOT BE ALLOWED. EXTERIOR WRAP FOR SUPPLY & RETURN DUCT SHALL BE R-8 TWO (2) INCH +/- THICK, 3/4 LB. DENSITY. ALL DUCTWORK SHALL BE INSULATED IN ACCORDANCE WITH THE LATEST ISSUE OF SMACNA'S AND NESCA'S MINIMUM INSTALLATION STANDARDS.

GENERAL MECHANICAL NOTES

A. PROVIDE DUCT RISES AND DROPS AS REQUIRED FOR FIELD INSTALLATION AND TRADE COORDINATION. NOTIFY OWNER'S REPRESENTATIVE OF DISCREPANCIES BEFORE STARTING WORK.

B. DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

C. ALL WORK SHALL COMPLY WITH STATE CODE REQUIREMENTS.

D. USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE CEILING SPACE. MATERIALS USED IN THE CEILING SPACE SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25, AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL EXPOSED WIRING IN THE CEILING SPACE PLENUM SHALL BE CEILING PLENUM RATED.

E. INSULATE NEW SUPPLY DUCTWORK WITH MINIMUM 1-1/2" THICK FOIL-BACKED DUCT WRAP.

F. AT CONTRACTOR'S OPTION, EQUIVALENTLY SIZED RECTANGLE DUCTWORK IS ALLOWED IN LIEU OF ROUND DUCTWORK. DUCTWORK SHALL BE SIZED FOR MAXIMUM PRESSURE DROP OF 0.08"WC/100 FT OF DUCT, AND MAXIMUM VELOCITY NOT TO EXCEED 1500 FPM.

G. ALL NEW DUCTWORK AND DUCTWORK FITTINGS & TRANSITIONS SHALL BE IN ACCORDANCE TO THE REQUIREMENTS OF SMACNA DUCT CONSTRUCTION STANDARDS.

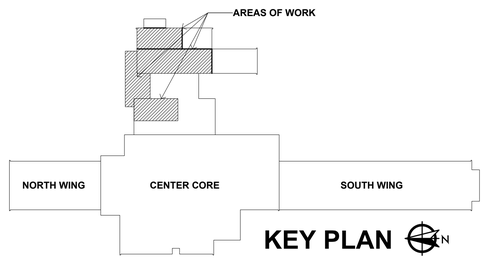
H. CONTRACTOR SHALL FIELD VERIFY ALL BUILDING CONDITIONS AND HVAC EQUIPMENT, IN ENTIRETY, PRIOR TO COMMENCING WITH WORK. NOTIFY OWNER'S REPRESENTATIVE OF ALL POSSIBLE CONFLICTS UPON VERIFICATION OF FIELD CONDITIONS.

I. CONTRACTOR SHALL PROVIDE A TEST AND BALANCE REPORT OF THE ASSOCIATED HVAC SYSTEMS UPON COMPLETION OF THE PROJECT. ANY DIFFUSER AIR FLOW DISCREPANCIES FROM THE REPORT SHALL BE FIXED BY THE CONTRACTOR.

J. FLEXIBLE INSULATED DUCT PERMITTED ONLY IN LOCKER ROOM CEILING, FOR A MAXIMUM LENGTH OF 4 FEET, AND SHALL NOT BE A SUBSTITUTE FOR HARD-DUCT 90 DEG ELBOWS.

EQUIPMENT: BB-1, CS-1, DC-1, DC-2, EF-8, EF-10, EF-12, EF-13

EQUIPMENT VENDOR CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND INSTALLATION OF THESE UNITS, ASSOCIATED COMPONENTS, ALL DUCTWORK & ROOF FRAMING, WALL FRAMING, AND ALL ROOF STRUCTURAL MODIFICATIONS AS NEEDED TO SUPPORT THESE NEW UNITS. EQUIPMENT VENDOR CONTRACTOR SHALL COMPLY TO KEY NOTE INSTRUCTIONS PERTAINING TO THESE UNITS. REFER TO EQUIPMENT VENDOR DRAWINGS FOR ALL EQUIPMENT SCHEDULES & DETAILS PERTAINING TO THIS LIST OF EQUIPMENT.



STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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4/23/20

JEFFREY S. TRIEB
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SITE # 6300
ASSET# 8136300017

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DRAWN BY: JST
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DESIGNED BY: JST

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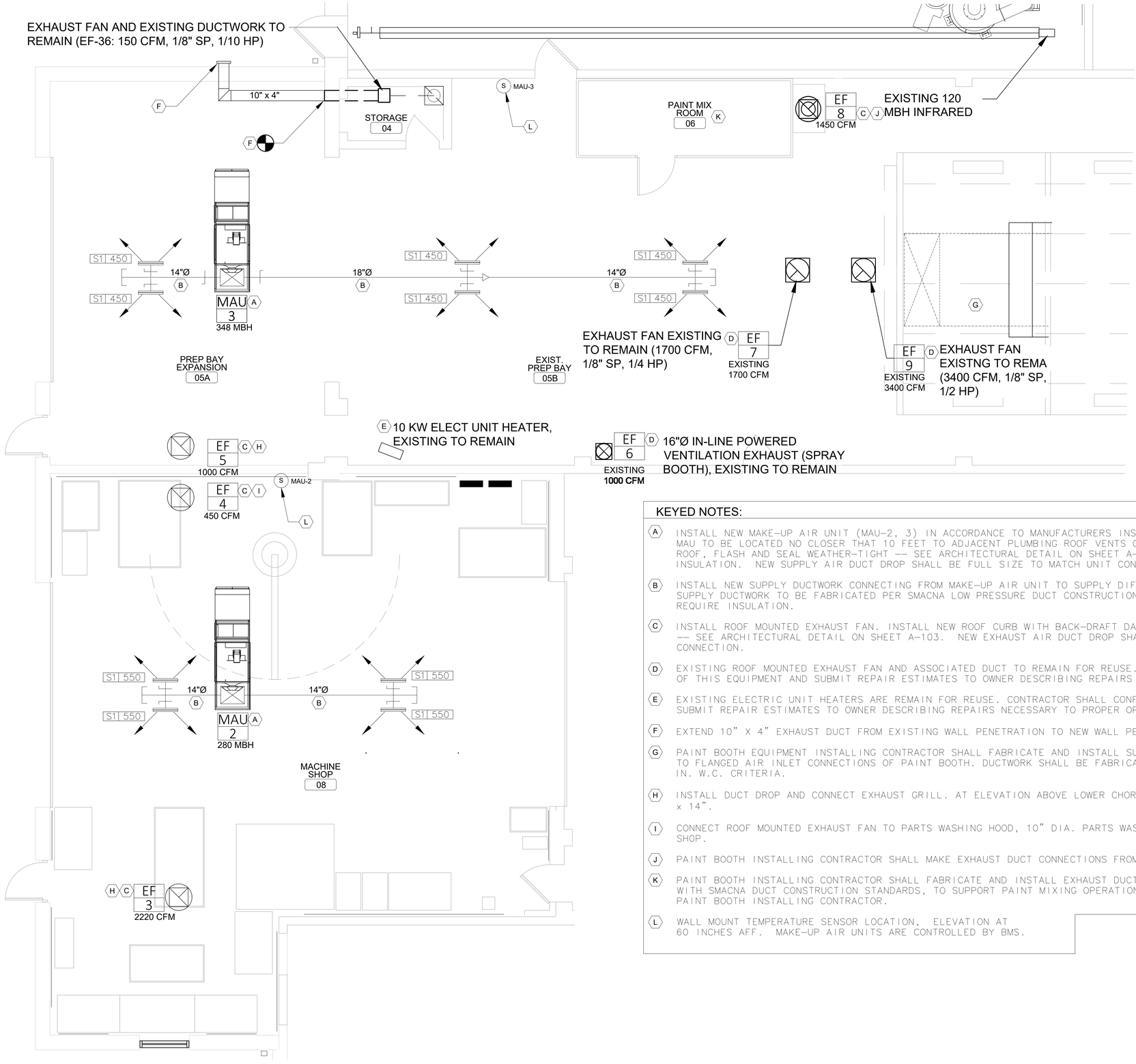
MECHANICAL FLOOR PLAN

SHEET NUMBER:

M-103

31 OF 46 SHEETS
04/22/2020



1 M-401 ENLARGED MACHINE SHOP MECHANICAL PLAN

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

SYMBOL LEGEND

- EXHAUST GRILLE
- SUPPLY DIFFUSER
- VOLUME DAMPER
- DUCT SIZE CHANGE
- AIR DEVICE TAG
- S1 400 — CFM
- EF 1 — EQUIPMENT NAME / EQUIPMENT NUMBER
- SUPPLY AIRFLOW
- SUPPLY DUCT
- EXHAUST DUCT
- COLD WATER LINE
- HOT WATER LINE
- F — FILTER
- C — COOLING COIL
- H — HEATING COIL
- FAN STARTER
- M — 2-WAY MOTORIZED CONTROL VALVE

KEYED NOTES:

A. INSTALL NEW MAKE-UP AIR UNIT (MAU-2, 3) IN ACCORDANCE TO MANUFACTURERS INSTALLATION REQUIREMENTS. OUTDOOR AIR HOOD OF MAU TO BE LOCATED NO CLOSER THAT 10 FEET TO ADJACENT PLUMBING ROOF VENTS OR FAN DISCHARGE. INSTALL NEW ROOF CURB ON TPO ROOF, FLASH AND SEAL WEATHER-TIGHT -- SEE ARCHITECTURAL DETAIL ON SHEET A-103. INSULATE ROOF CURB INTERIOR WITH R19 BATT INSULATION. NEW SUPPLY AIR DUCT DROP SHALL BE FULL SIZE TO MATCH UNIT CONNECTION.

B. INSTALL NEW SUPPLY DUCTWORK CONNECTING FROM MAKE-UP AIR UNIT TO SUPPLY DIFFUSERS LEVEL AND TIGHT TO STRUCTURE. NEW SUPPLY DUCTWORK TO BE FABRICATED PER SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS. THIS EXPOSED DUCTWORK DOES NOT REQUIRE INSULATION.

C. INSTALL ROOF MOUNTED EXHAUST FAN. INSTALL NEW ROOF CURB WITH BACK-DRAFT DAMPER ON TPO ROOF, FLASH AND SEAL WEATHER-TIGHT -- SEE ARCHITECTURAL DETAIL ON SHEET A-103. NEW EXHAUST AIR DUCT DROP SHALL BE FULL SIZE TO MATCH EXHAUST FAN CONNECTION.

D. EXISTING ROOF MOUNTED EXHAUST FAN AND ASSOCIATED DUCT TO REMAIN FOR REUSE. CONTRACTOR SHALL CONFIRM THE PROPER OPERATION OF THIS EQUIPMENT AND SUBMIT REPAIR ESTIMATES TO OWNER DESCRIBING REPAIRS NECESSARY TO PROPER OPERATION.

E. EXISTING ELECTRIC UNIT HEATERS ARE REMAIN FOR REUSE. CONTRACTOR SHALL CONFIRM THE PROPER OPERATION OF THIS EQUIPMENT AND SUBMIT REPAIR ESTIMATES TO OWNER DESCRIBING REPAIRS NECESSARY TO PROPER OPERATION.

F. EXTEND 10" X 4" EXHAUST DUCT FROM EXISTING WALL PENETRATION TO NEW WALL PENETRATION. TERMINATE WITH BRICK VENT.

G. PAINT BOOTH EQUIPMENT INSTALLING CONTRACTOR SHALL FABRICATE AND INSTALL SUPPLY AIR DUCTWORK CONNECTING MAKE-UP AIR UNIT TO FLANGED AIR INLET CONNECTIONS OF PAINT BOOTH. DUCTWORK SHALL BE FABRICATED PER SMACNA DUCT CONSTRUCTION STANDARDS, 2 IN. W.C. CRITERIA.

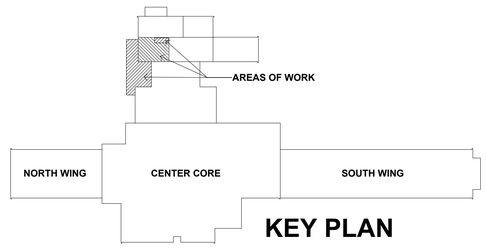
H. INSTALL DUCT DROP AND CONNECT EXHAUST GRILL. AT ELEVATION ABOVE LOWER CHORD OF ROOF STRUCTURE. EF-3: 18" x 18", EF-5: 14" x 14".

I. CONNECT ROOF MOUNTED EXHAUST FAN TO PARTS WASHING HOOD, 10" DIA. PARTS WASHING HOOD RELOCATED FROM DEMOLISHED MACHINE SHOP.

J. PAINT BOOTH INSTALLING CONTRACTOR SHALL MAKE EXHAUST DUCT CONNECTIONS FROM EF-8 TO INTERIOR OF PAINT MIX ROOM.

K. PAINT BOOTH INSTALLING CONTRACTOR SHALL FABRICATE AND INSTALL EXHAUST DUCTWORK AND TRANSFER AIR DUCTWORK IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, TO SUPPORT PAINT MIXING OPERATIONS. REFER TO MECHANICAL PLANS SUBMITTED BY PAINT BOOTH INSTALLING CONTRACTOR.

L. WALL MOUNT TEMPERATURE SENSOR LOCATION, ELEVATION AT 60 INCHES AFF. MAKE-UP AIR UNITS ARE CONTROLLED BY BMS.



KEY PLAN

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MICHAEL L. PARSON, GOVERNOR

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DRAWN BY: JST
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SHEET TITLE:

ENLARGED MECHANICAL PLANS

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32 OF 46 SHEETS
04/22/2020

KEYED NOTES: ALL EXHAUST AIR & FILTRATION COMPONENTS OF BLAST BOOTH TO BE INSTALLED BY BLAST BOOTH CONTRACTOR. MAU-4 AND ASSOCIATED COMPONENTS TO BE INSTALLED BY MECHANICAL CONTRACTOR.

(A) INSTALL NEW BLAST BOOTH AT PRECISE LOCATION SHOWN IN ARCHITECTURAL DRAWINGS, ON PREPARED FLOOR.

(B) INSTALL NEW MAKE-UP AIR UNIT (MAU-4) IN ACCORDANCE TO MANUFACTURERS INSTALLATION REQUIREMENTS, UTILIZING THE EXISTING ROOF OPENING AND STRUCTURE. REWORK OF ROOF STRUCTURE IS REQUIRED. OUTDOOR AIR HOOD OF MAU TO BE LOCATED NO CLOSER THAN 10'-0" TO ADJACENT PLUMBING ROOF VENTS OR FAN DISCHARGE. INSTALL NEW ROOF CURB ON STANDING SEAM METAL ROOF, FLASH AND SEAL WEATHERTIGHT. INSULATE ROOF CURB INTERIOR WITH R19 BATT INSULATION. NEW SUPPLY AIR DUCT DROP SHALL BE FULL SIZE TO MATCH UNIT CONNECTION.

(C) ROUTE 34"σ ROUND DUCT CONNECTING TO DISCHARGE OF BLAST BOOTH TO INLET HEADER OF DUST COLLECTOR (DC-2). ROUTE 12" DUCT CONNECTING TO DISCHARGE OF CYCLONE SEPARATOR TO INLET HEADER OF DUCT COLLECTOR (DC-1). ALL DUCT EXPOSED TO WEATHER SHALL BE SEALED WEATHERTIGHT. ENTIRE LENGTH OF DUCT TO BE SUPPORTED WITH CIRCUMFERENTIAL DUCT SUPPORTS ANCHORED/SUSPENDED FROM ROOF STRUCTURE.

(D) INSTALL NEW CENTRIFUGAL MEDIA SEPARATOR WHERE SHOWN IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.

(E) INSTALL NEW FLOOR GRIT DUST COLLECTOR (DC-1) PER MANUFACTURERS INSTALLATION INSTRUCTIONS.

(F) INSTALL NEW FILTERED AIR DUCT COLLECTOR (DC-2) PER MANUFACTURERS INSTALLATION INSTRUCTIONS, AT LOCATION SHOWN ON PREPARED CONCRETE PAD.

(G) EXISTING RADIANT INFRARED GAS HEATING SYSTEMS ARE TO REMAIN FOR REUSE. CONTRACTOR SHALL ADJUST SUSPENDED HEIGHT OR LATERAL LOCATION OF RADIANT HEATERS AS NECESSARY TO PROVIDE CLEARANCE FOR NEW BLAST BOOTH. CONTRACTOR SHALL CONFIRM THE PROPER OPERATION OF THIS EQUIPMENT AND SUBMIT REPAIR ESTIMATES TO OWNER DESCRIBING REPAIRS NECESSARY TO PROPER OPERATION.

(H) NO WORK IN THIS AREA.

(I) ROUTE 78" X 40" SUPPLY AIR DUCTWORK DROP FROM MAKE-UP AIR UNIT CONNECTION AND TERMINATING ABOVE LOWER CHORD OF ROOF STRUCTURE. NEW SUPPLY AIR DUCTWORK TO BE FABRICATED PER SMACNA DUCT CONSTRUCTION STANDARDS.

(J) LOCATION OF EXISTING MAKE-UP AIR UNIT ROOF CURB. REMOVE EXISTING ROOF CURB ENTIRELY. GC TO PATCH STANDING METAL SEAM ROOF WHERE NECESSARY IN ACCORDANCE WITH ARCHITECTURAL ROOF PATCHING DETAILS FOR STANDING SEAM METAL ROOFS. REFER TO ARCHITECTURAL DETAILS ON SHEET A-103.

(K) CONTRACTOR SHALL SEAL 34 INCH AND 12 INCH DIAMETER DUCT PENETRATIONS THROUGH WALL WITH CIRCUMFERENTIAL FLANGES AND WEATHER CAULKING. REFER TO ARCHITECTURAL DETAILS ON SHEET A-301.

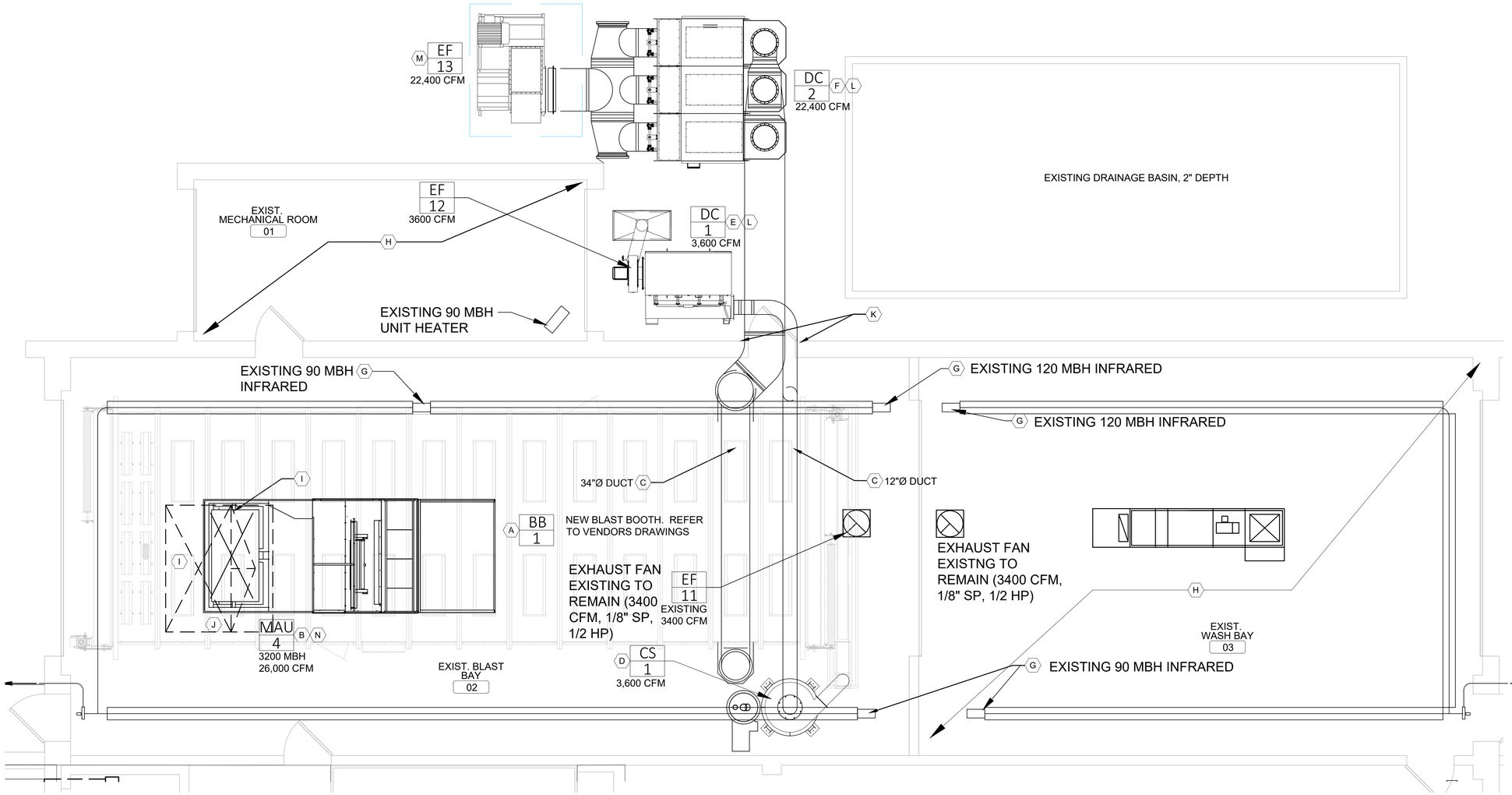
(L) DUST COLLECTORS SHALL BE PROCURED AND INSTALLED BY BLAST BOOTH CONTRACTOR. DUST COLLECTORS SHALL BE ANCHORED & MOUNTED TO CONCRETE PADS AT LOCATIONS SHOWN ON ARCHITECTURAL PLANS, AND IN ACCORDANCE WITH METHODS DESCRIBED THEREIN.

(M) EF13 SHALL BE ANCHORED TO EQUIPMENT CURBS (WHICH SHALL BE ANCHORED TO EXISTING CONCRETE PAD/PAVEMENT).

(N) PERIPHERAL CONTROL ELEMENTS AND SENSORS FOR MAU-4 ARE INSTALLED UNDER THE PURVIEW OF THE BLAST BOOTH CONTRACTOR. REFER TO BLAST BOOTH CONTRACTORS DRAWINGS FOR MORE INFORMATION.

EQUIPMENT: BB-1, CS-1, DC-1, DC-2, EF-8, EF-10, EF-12, EF-13, [MAU-4 UNDER G.C. CONTRACT]

EQUIPMENT VENDOR CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND INSTALLATION OF THESE UNITS, ASSOCIATED COMPONENTS, ALL DUCTWORK & ROOF FRAMING, WALL FRAMING, AND ALL ROOF STRUCTURAL MODIFICATIONS AS NEEDED TO SUPPORT THESE NEW UNITS. EQUIPMENT VENDOR CONTRACTOR SHALL COMPLY TO KEY NOTE INSTRUCTIONS PERTAINING TO THESE UNITS. REFER TO EQUIPMENT VENDOR DRAWINGS FOR ALL EQUIPMENT SCHEDULES & DETAILS PERTAINING TO THIS LIST OF EQUIPMENT.

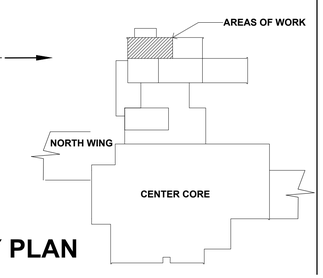


1 M-402 ENLARGED BLAST BOOTH MECHANICAL PLAN

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

SYMBOL LEGEND

- EXHAUST GRILLE
- SUPPLY DIFFUSER
- VOLUME DAMPER
- DUCT SIZE CHANGE
- AIR DEVICE TAG (S1 400 — CFM)
- EQUIPMENT NAME (EF) / EQUIPMENT NUMBER (1)
- SUPPLY AIRFLOW
- SUPPLY DUCT
- EXHAUST DUCT
- COLD WATER LINE
- HOT WATER LINE
- F — FILTER
- C — COOLING COIL
- H / C — HEATING COIL
- FAN STARTER
- M — 2-WAY MOTORIZED CONTROL VALVE



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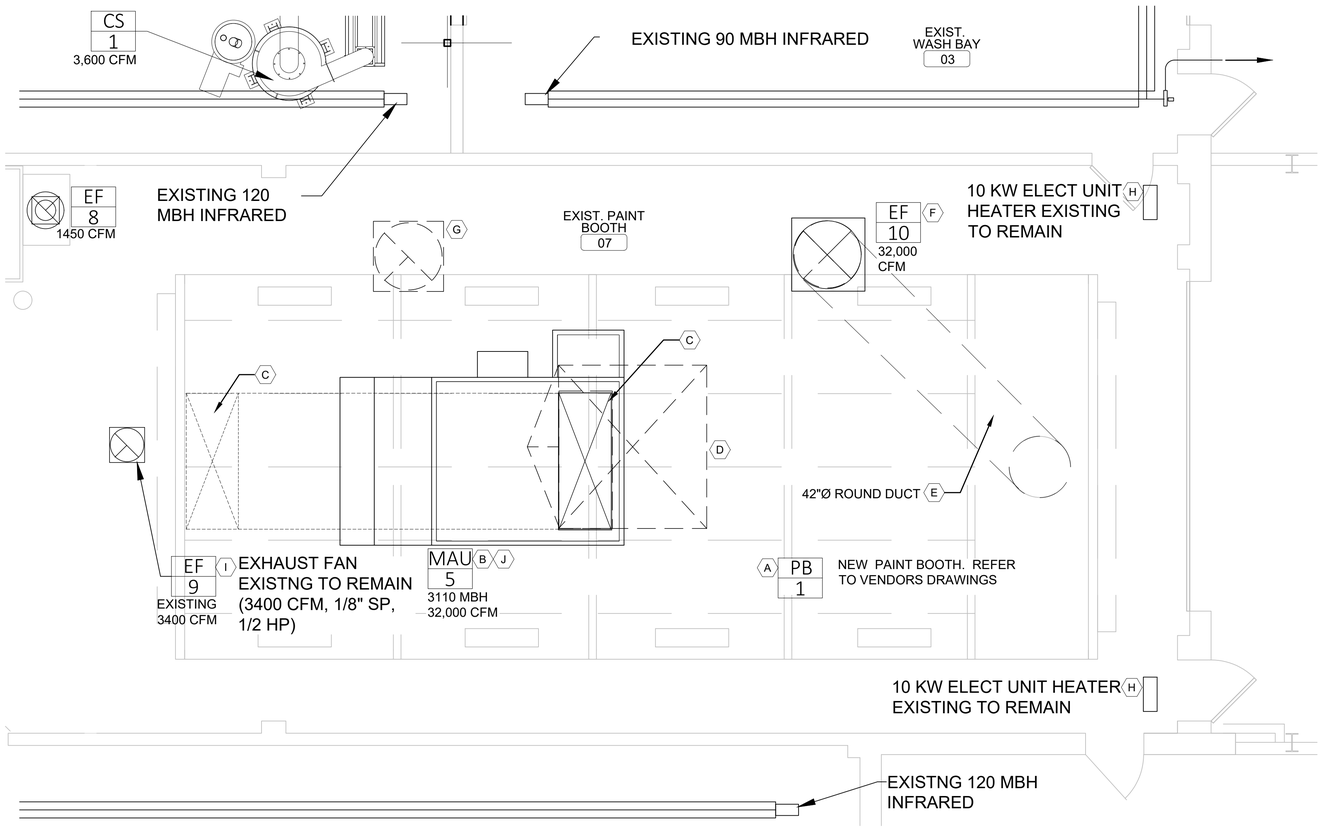
33 OF 46 SHEETS
04/22/2020



1 M-403 ENLARGED PAINT BOOTH MECHANICAL PLAN

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

KEYED NOTES: ALL WORK SHOWN ON THIS DRAWING IS TO BE ACCOMPLISHED BY THE PAINT BOOTH INSTALLING CONTRACTOR.

(A) INSTALL NEW PAINT BOOTH AT PRECISE LOCATION SHOWN IN ARCHITECTURAL DRAWINGS, ON PREPARED FLOOR.

(B) INSTALL NEW MAKE–UP AIR UNIT N ACCORDANCE TO MANUFACTURERS INSTALLATION REQUIREMENTS, UTILIZING THE EXISTING ROOF OPENING AND STRUCTURE. REWORK OF ROOF STRUCTURE IS REQUIRED. OUTDOOR AIR HOOD OF MAU TO BE LOCATED NO CLOSER THAN 10'–0" TO ADJACENT PLUMBING ROOF VENTS OR FAN DISCHARGE. INSTALL NEW ROOF CURB ON STANDING SEAM METAL ROOF, FLASH AND SEAL WEATHERTIGHT. INSULATE ROOF CURB INTERIOR WITH R19 BATT INSULATION. NEW SUPPLY AIR DUCT DROP SHALL BE FULL SIZE TO MATCH UNIT CONNECTION.

(C) ROUTE 90" X 36" SUPPLY AIR DUCTWORK CONNECTING MAKE–UP AIR UNIT TO SUPPLY AIR FLANGES OF PAINT BOOTH. NEW SUPPLY AIR DUCTWORK TO BE FABRICATED PER SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS AND SHALL USE MITERED ELBOW FITTINGS WITH TURNING VANES PER SMACNA STANDARDS.

(D) LOCATION OF EXISTING MAKE–UP AIR UNIT ROOF CURB. REMOVE ROOF CURB ENTIRELY. GENERAL CONTRACTOR SHALL PATCH STANDING METAL SEAM ROOF WHERE NECESSARY IN ACCORDANCE WITH DETAILED INSTRUCTIONS IN ARCHITECTURAL PLANS.

(E) ROUTE 42"DIA. ROUND DUCT CONNECTING TO DISCHARGE OF PAINT BOOTH TO INLET OF ROOF MOUNTED EXHAUST FAN. ALL DUCT BELOW ROOF SHALL BE SEALED WITH DUCT SEALANT PER SMACNA DUCT CONSTRUCTION STANDARDS. ENTIRE LENGTH OF DUCT TO BE SUPPORTED WITH CIRCUMFERENTIAL DUCT SUPPORTS SUSPENDED FROM ROOF STRUCTURE.

(F) INSTALL NEW ROOF MOUNTED VANE–AXIAL EXHAUST FAN, UTILIZING THE EXISTING ROOF OPENING AND ROOF STRUCTURE. REWORK OF ROOF STRUCTURE MAY BE REQUIRED. INSTALL NEW ROOF CURB ON STANDING SEAM METAL ROOF, FLASH AND SEAL WEATHER–TIGHT. INSULATE ROOF CURB INTERIOR WITH R19 BATT INSULATION. NEW EXHAUST AIR DUCT DROP SHALL BE FULL SIZE TO MATCH EXHAUST FAN CONNECTION.

(G) REFERENCE: EXISTING EXHAUST FAN REMOVED. PATCH ROOF PER ARCHITECTURAL DETAIL ON SHEET A–103.

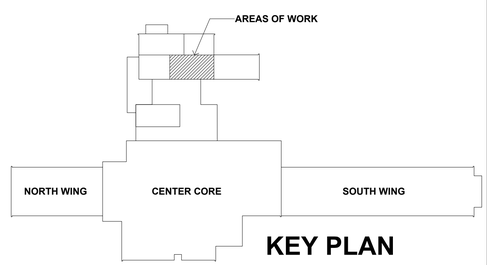
(H) EXISTING ELECTRIC UNIT HEATERS ARE REMAIN FOR REUSE. CONTRACTOR SHALL CONFIRM THE PROPER OPERATION OF THIS EQUIPMENT AND SUBMIT REPAIR ESTIMATES TO OWNER DESCRIBING REPAIRS NECESSARY FOR PROPER OPERATION.

(I) EXISTING ROOF MOUNTED EXHAUST FAN TO REMAIN FOR REUSE. CONTRACTOR SHALL CONFIRM THE PROPER OPERATION OF THIS EQUIPMENT AND SUBMIT REPAIR ESTIMATES TO OWNER DESCRIBING REPAIRS NECESSARY FOR PROPER OPERATION.

(J) TEMPERATURE SENSORS AND ALL CONTROL ELEMENTS TO BE INSTALLED UNDER PURVIEW OF PAINT BOOTH INSTALLING CONTRACTOR.

SYMBOL LEGEND

- EXHAUST GRILLE
- SUPPLY DIFFUSER
- VOLUME DAMPER
- DUCT SIZE CHANGE
- AIR DEVICE TAG (S1 400 — CFM)
- EQUIPMENT NAME (EF) / EQUIPMENT NUMBER (1)
- SUPPLY AIRFLOW
- SUPPLY DUCT
- EXHAUST DUCT
- COLD WATER LINE
- HOT WATER LINE
- FILTER (F)
- COOLING COIL (C)
- HEATING COIL (H C)
- FAN STARTER
- 2-WAY MOTORIZED CONTROL VALVE (M)



KEY PLAN

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER
4/23/20

JEFFREY S. TRIEB
License Number: M 2005014634
Expiration Date: 12/31/21

CASCO Diversified Corporation
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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: JST
CHECKED BY: MCG
DESIGNED BY: JST

SHEET TITLE:

ENLARGED MECHANICAL PLANS

SHEET NUMBER:

M-403

34 OF 46 SHEETS
04/22/2020

KEYED NOTES:

A. INSTALL NEW MAKE-UP AIR UNIT (MAU-1) IN ACCORDANCE TO MANUFACTURERS INSTALLATION REQUIREMENTS. OUTDOOR AIR HOOD OF MAU TO BE LOCATED NO CLOSER THAT 10 FEET TO ADJACENT PLUMBING ROOF VENTS OR FAN DISCHARGE. INSTALL NEW ROOF CURB ON EXISTING TPO ROOF, FLASH AND SEAL WEATHER-TIGHT -- REFER TO ARCHITECTURAL DETAILS ON SHEET A-103. INSULATE ROOF CURB INTERIOR WITH R19 BATT INSULATION. NEW SUPPLY AIR AND RETURN AIR DUCT DROPS SHALL BE FULL SIZE TO MATCH UNIT CONNECTION.

B. NEW SUPPLY, RETURN & EXHAUST AIR DUCTWORK TO BE FABRICATED PER SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS AND SHALL USE SINGLE PIECE ROUND ELBOWS PER SMACNA STANDARDS. SUPPLY, RETURN, & EXHAUST CONCEALED DUCTWORK SHALL BE INSULATED WITH DUCT WRAP.

C. INSTALL ROOF MOUNTED EXHAUST FAN. INSTALL NEW ROOF CURB WITH BACK-DRAFT DAMPER ON EXISTING TPO ROOF, FLASH AND SEAL WEATHER-TIGHT. REFER TO ARCHITECTURAL DETAILS ON SHEET A-103. INSULATE ROOF CURB INTERIOR WITH R19 BATT INSULATION. NEW EXHAUST AIR DUCT DROP SHALL BE FULL SIZE TO MATCH EXHAUST FAN CONNECTION.

D. INSTALL INSULATED RETURN AIR PLENUM TO MAU-1 MAKE-UP AIR UNIT FOR CONNECTION TO RETURN AIR DUCTWORK.

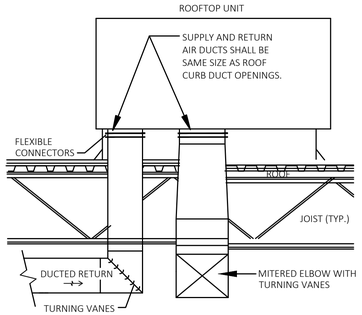
E. INSTALL 4"DIA. LAUNDRY DRYER VENT STACK UP THROUGH ROOF. SEAL ROOF PENETRATION WATER-TIGHT. REFERENCE ARCHITECTURAL DETAIL ON SHEET A-103.

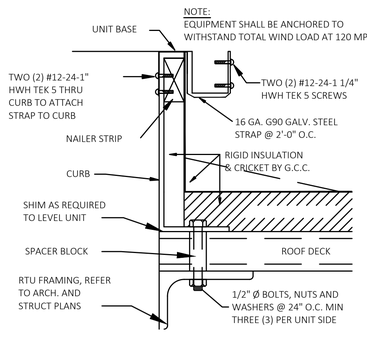
F. LOUVERED DOOR TO LOCKER ROOM. SEE ARCHITECTURAL DOOR SCHEDULE FOR DESCRIPTION.

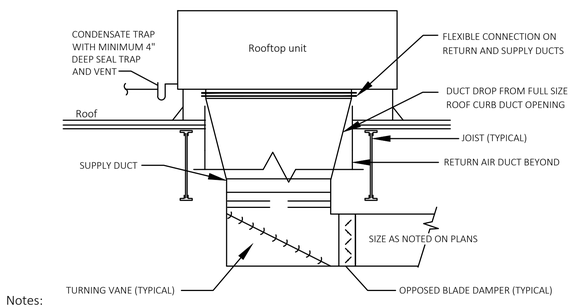
G. WALL MOUNT TEMPERATURE SENSOR. LOCATE 60" AFF. AVERAGING, LINKED WITH SENSOR IN OPPOSITE LOCKER ROOM TO MAU-1 UNIT CONTROLLER.

SYMBOL LEGEND

- EXHAUST GRILLE
- SUPPLY DIFFUSER
- VOLUME DAMPER
- DUCT SIZE CHANGE
- AIR DEVICE TAG
- S1 | 400 — CFM
- EF / 1 — EQUIPMENT NAME / EQUIPMENT NUMBER
- SUPPLY AIRFLOW
- SUPPLY DUCT
- EXHAUST DUCT
- COLD WATER LINE
- HOT WATER LINE
- F — FILTER
- C — COOLING COIL
- H — HEATING COIL
- FAN STARTER
- M — 2-WAY MOTORIZED CONTROL VALVE

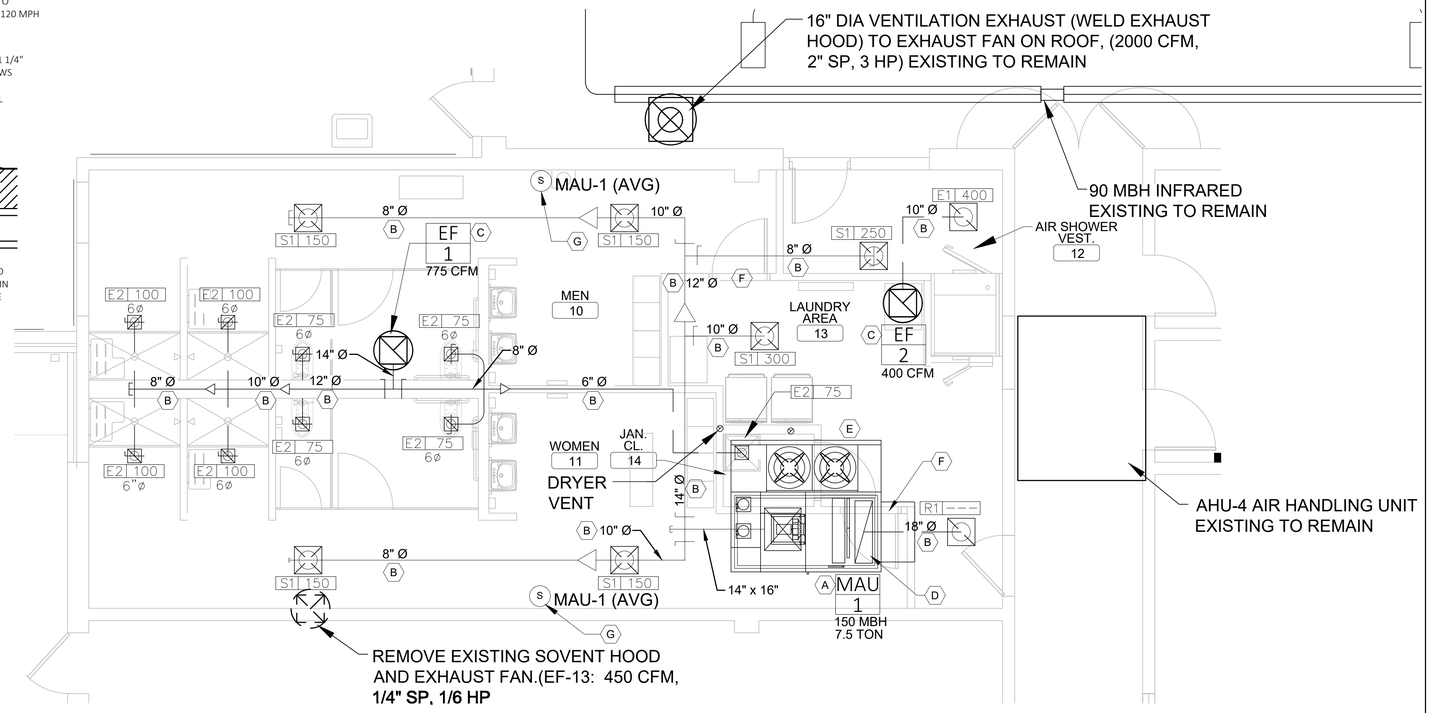




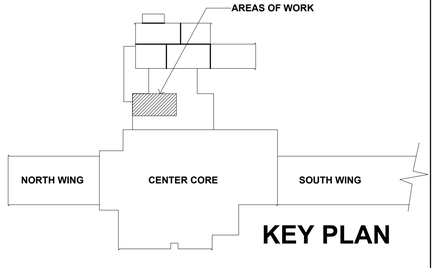


Notes:
1. LINE THE RETURN AIR DUCT PLENUM PER PLAN VIEW, THIS SHEET. SUPPLY AIR DUCTWORK PLENUM SHALL BE LINED WITH ACOUSTIC DUCT LINER.
2. SMOKE DETECTOR TO BE PROVIDED BY CONTRACTOR OR UNIT MANUFACTURER, AND INSTALLED IN RETURN PLENUM OF MAU-1. IF REQUIRED BY LOCAL CODE, PROVIDE SMOKE DETECTOR IN SUPPLY DUCT.

1 / M-404 — MAU-1 UNIT INSTALLATION DETAILS
SCALE: 1/4" = 1'-0"



1 / M-404 — ENLARGED RESTROOM MECHANICAL PLAN
SCALE: 1/4" = 1'-0"



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35 OF 46 SHEETS
04/22/2020

MAU # ROOFTOP UNIT SCHEDULE (MAU): GAS FIRED HEATING

ID	MANUFACTURER (BASIS OF DESIGN)	MODEL NO.	GAS HEATING	AREA SERVED	VENTILATION		SUPPLY FAN			GAS HEAT				COOLING COIL					HOT GAS REHEAT		COMPRESSORS		ELECTRICAL					EER/IEER /SEER	WEIGHT / LBS	ACCESSORIES	NOTES
					MIN OA	MAX OA	TOTAL	ESP	MOTOR	INPUT	OUTPUT	EAT	LAV	NOMINAL	TOTAL	SENS	EAT	LAT	SENS	MAX LAT	NO	RLA (EA)	VOLTS	PHASE	HERTZ	MOCP	MCA	@ ARI 340			
					CFM	CFM	CFM	IN W.G.	HP	MBH	MBH	F	F	TONS	MBH	MBH	DB°/WB°	DB°/WB°	MBH	DB°/WB°											
MAU-1	GREENHECK	RV-25-7.5D-E	INDIRECT	LOCKER ROOMS	300	850	1150	1.0	1.0	150/12.5	120/10	4.1	100.7	7.5	99.0	51.7	90.2/75.6	49.5/49.4	48.9	88.8/49.4	1	NA	460	3	60	30	24.4	12.3/12.9	2491	2 THRU 22	1 THRU 8, 10,11,12
MAU-2	GREENHECK	DGX-P112-H12-MF	DIRECT	MACHINE SHOP	858	2200	2200	1.0	1.5	279.7/63	257.3/50	4.1	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	460	3	60	15	4.1	NA	782	1, 3 THRU 8,10,11, 12,14,15,19,21	1 THRU 9
MAU-3	GREENHECK	DGX-P115-H12-MF	DIRECT	EXPANDED PREP BAY	1295	2700	2700	1.0	2.0	348.1/63	320.2/50	4.1	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	460	3	60	15	4.6	NA	847	1, 3 THRU 8,10,11, 12,14,15,19,21	1 THRU 9
MAU-4	GREENHECK	DGX-P227-H38-II	DIRECT	BLAST BAY	300	26,000	26,000	1.0	2 x 10	3200	2944	4.1	100.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	460	3	60	45	35.9	NA	3825	1, 3 THRU 8,10,11, 12,14,15,19,21	1 THRU 9
MAU-5	COL-MET / TITAN	CT-I33-32000-HRD	DIRECT	PAINT BOOTH	32,000	32,000	32,000	1.0	2 x 15	3110	2861	4.1	82.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	460	3	60	30	24.6	NA	4757	1, 3 THRU 8,10,11, 12,14,15,19,21	1 THRU 9

NOTES:

1. STATIC PRESSURE IS THE EXTERNAL STATIC PRESSURE WHICH EXCLUDES ANY PRESSURE DROPS WITHIN THE UNIT.
2. PERFORM TESTING AND BALANCING AND SUBMIT CERTIFIED REPORTS TO THE ENGINEER.
3. SINGLE WALL CONSTRUCTION, COMPLETE WITH SIDE OUTLET DRAIN AND ACCESS DOORS.
4. CONTRACTOR TO ENSURE THAT OUTDOOR AIR INTAKES ARE A MINIMUM OF 10'-0" AWAY FROM ANY EXHAUST FAN DISCHARGE, PLUMBING VENT OR OTHER CONTAMINANT SOURCE.
5. PROVIDE 4 SIDED FACTORY ROOF CURB SUITABLE FOR SEISMIC CONDITIONS OF PROJECT LOCATION. (MECHANICAL CONTRACTOR TO DETERMINE IF SEISMIC CURBS ARE REQUIRED.)
6. ELECTRICAL CONNECTION TO BE SINGLE POINT AND TO BE THROUGH THE BOTTOM OF THE UNIT.
7. PROVIDE GAS REGULATOR: 2 PSI TO 7-14" WC GAS PRESSURE.
8. REFER TO ROOF FRAMING PLAN FOR EXACT LOCATION OF ROOFTOP UNITS.
9. ADDRESSABLE SMOKE DETECTOR SHALL BE PROVIDED & WIRED BY FIRE ALARM CONTRACTOR AND INSTALLED IN THE UNIT CABINET WITH PROBE EXTENDING INTO THE SUPPLY AIR DISCHARGE PLENUM BY THE MECHANICAL CONTRACTOR.
10. UNITS SHALL BE HIGH EFFICIENCY UNITS FURNISHED WITH CHLORINE FREE R410A REFRIGERANT.
11. MAXIMUM AIR VELOCITY THROUGH COOLING COIL SHALL NOT EXCEED 500 FEET PER MIN.
12. ADDRESSABLE SMOKE DETECTOR SHALL BE PROVIDED & WIRED BY FIRE ALARM CONTRACTOR AND INSTALLED IN THE UNIT CABINET WITH PROBE EXTENDING INTO THE RETURN AIR DISCHARGE PLENUM BY THE MECHANICAL CONTRACTOR.

ACCESSORIES:

1. DIRECT FIRED HEAT EXCHANGER
2. INDIRECT FIRED HEAT EXCHANGER
3. 2 INCH PANEL FILTERS, MERV 8
4. ROOF CURB - 14" HIGH
5. BOTTOM POWER ENTRY KIT
6. DISCONNECT SWITCH (NON FUSED), FACTORY INSTALLED
7. SERVICE OUTLETS (GFCI TYPE, NEMA 3R, FACTORY MOUNTED, FIELD WIRED BY ELC)
8. WEATHER HOOD
9. MIXING BOX: TEMP/ENTHALPY 100% ECONOMIZER, MOTORIZED OUTDOOR AIR & MOTORIZED RE-CIRCULATION DAMPERS
10. PAINTED EXTERIOR – PERMATECTOR GRAY
11. DDC UNIT MOUNTED MICROPROCESSOR CONTROLLER. SINGLE ZONE VAV FUNCTION WITH DIGITAL INPUT TO SET FAN SPEED. BAC-NET INTERFACE, 7-DAY PROGRAMMABLE FUNCTION, LEAVING AIR TEMP SENSORS, OUTDOOR AIR SENSOR.
12. DIRTY FILTER SENSOR
13. CONDENSER HAIL GUARDS
14. EQUIPMENT OPERATIONAL CHECK (EOC)
15. DIRECT DRIVE, MIXED FLOW PLENUM FAN WITH VFD & VFD BYPASS
16. 5-ROW EVAPORATOR COIL WITH TXV (W/ EXT EQUALIZER)
17. REFRIGERANT: R410-A
18. STAINLESS STEEL HEAT EXCHANGERS
19. 24:1 MODULATING GAS INPUT, DIRECT SPARK IGNITION
20. VARIABLE CAPACITY COMPRESSOR
21. VFD FUNCTION WITH DIGITAL INPUT TO SET FAN SPEED FOR WINTER HEATING & SUMMER VENTILATION, OR LOW & HIGH SPEED.
22. MODULATING HOT GAS REHEAT, 2 ROW COIL WITH TXV

	EQUIVALENT MANUFACTURERS MODEL #	EQUIVALENT MANUFACTURERS MODEL #
MAU-1	CAPTIVEAIRE CASRTU2-1.150-13-8T-DOAS	REZNOR YDMA-090
MAU-2	CAPTIVEAIRE A2-D.250-20D	REZNOR ADF-300
MAU-3	CAPTIVEAIRE A2-D.500-20D	REZNOR ADF-300
MAU-4	CAPTIVEAIRE CAH 27	REZNOR DFC-4000
MAU-5	CAPTIVEAIRE CAV 30	REZNOR DFC-4000

CFM DIFFUSER, REGISTER AND GRILLE SCHEDULE

ID	TYPE	NECK SIZE	FACE SIZE	FILTER SIZE	MOUNTING	CFM RANGE	MANUFACTURERS MODEL # (BASIS OF DESIGN)	REMARKS/OPTIONS	EQUIVALENT MANUF / MODEL #	EQUIVALENT MANUF / MODEL #
S-1	SUPPLY DIFFUSER	PLAN	24" x 8	N/A	SURFACE	250-600	TITUS 112RS	1 THRU 4	PRICE 540/640	KRUEGER 5885
R-1	RETURN GRILLE	26" X 26"	29.75" x29.75"	N\A	SURFACE	200-350	TITUS 50F	1, 3	NAILOR 51EC-OA	KRUEGER EGC15
E-1	EXHAUST GRILLE	26" X 26"	29.75" x29.75"	25"x25"	SURFACE	400-450	TITUS 50FF	1, 3, 5	NAILOR 51EC-OA	KRUEGER EGC15
E-2	EXHAUST GRILLE	12" x 12"	12.75" x 12.75"	N\A	SURFACE	200-250	TITUS 50F	1, 3	NAILOR 51EC-OA	KRUEGER EGC15

NOTES:

1. MOUNT DIFFUSER TO SHEETROCK WALL OR CEILING USING MAUFACTURERS MOUNTING ACCESSORIES.
2. INSTALLED OPPOSED BLADE DAMPER.
3. BAKED ENAMEL FINISH, COLOR TO BE WHITE.
4. INSTALL 1" FURNACE FILTER IN FILTER FRAME

EF # EXHAUST FAN SCHEDULE

ID	NEW / EXISTING	MANUFACTURER (BASIS OF DESIGN)	MODEL #	TYPE	DRIVE	CFM	FAN RPM	S.P. (IN. W.G.)	MOTOR HP	MOTOR VOLTS	MOTOR PHASE	MOTOR HZ	SERVICE	WEIGHT (LBS)	ACCESSORIES	INSTALLATION NOTES	EQUIVALENT MANUF MODEL #	EQUIVALENT MANUF MODEL #
EF-1	NEW	COOK	ACE-D-VF-101C28D	ROOF	DIRECT	775	1888	0.75	1/3	115	1	60	RESTROOM & JANITORS CLOSET	71	1 - 5, 7-9		GREENHECK G - 099 HP - VG/4/A	SOLER & PALAU SDBDe-12-3/4-1750
EF-2	NEW	COOK	ACE-D-VF-135C17D	ROOF	DIRECT	400	1162	0.75	1/6	115	1	60	AIR SHOWER VESTIBULE	74	1 - 5, 7-9		GREENHECK G-098 HP- VG/4/A	SOLER & PALAU SDBDe-10-1/3-1450
EF-3	NEW	COOK	ACE-D-VF / 150C17D	ROOF	DIRECT	2220	1725	0.50	1/3	115	1	60	MACHINE SHOP SUMMER VENTILATION	92	1 - 5, 7, 9, 11		GREENHECK G-143 HP- VG/10/A	SOLER & PALAU SDBDe-14-1-1450
EF-4	NEW	COOK	ACE-D-VF / 135C17D	ROOF	DIRECT	450	854	0.75	1/6	115	1	60	MACHINE SHOP PARTS WASHER	74	1 - 5, 7,9,12		GREENHECK G-098 HP- VG/4/A	SOLER & PALAU SDBDe-10-1/3-1450
EF-5	NEW	COOK	ACE-D-VF-135C17D	ROOF	DIRECT	1000	1000	0.50	1/3	115	1	60	PREP BAY EXPANSION SUMMER VENTILATION	74	1 - 5, 7, 9		GREENHECK G-103 HP- VG/4/A	SOLER & PALAU SDBDe-12-3/4-1500
EF-6	EXISTING	N/A	N/A	INLINE	BELT	1000	N/A	N/A	N/A	115	1	60	PREP BAY EXISTING SPRAY BOOTH EXHAUST	74		1	NA	NA
EF-7	EXISTING	N/A	N/A	ROOF	BELT	1700	1200	0.125	1/4	115	1	60	PREP BAY SUMMER VENTILATION	N/A		1	NA	NA
EF-8	NEW	COOK	ACE-D-VF / 150C17D	ROOF	DIRECT	1450	1725	0.75	1/3	115	1	60	PAINT MIXING ROOM	92	1 - 5, 7,9,12		GREENHECK G-123 HP- VG/5/A	SOLER & PALAU SDBDe-14-1-1200
EF-9	EXISTING	N/A	N/A	ROOF	BELT	3400	990	0.125	1/2	115	1	60	PAINT BAY SUMMER VENTILATION	N/A		1	NA	NA
EF-10	NEW	COL-MET	BTABD-42	ROOF	BELT	32,000	854	0.50	10	460	3	60	PAINT BOOTH	2139	2 -6, 9, 10, 13		TBD	TBD
EF-11	EXISTING	N/A	N/A	ROOF	BELT	3400	990	0.125	1/2	115	1	60	BLAST BAY SUMMER VENTILATION	N/A		1	NA	NA
EF-12	NEW	CLEMCO	N/A	SWSI	DIRECT	3600	1725	7.0	10	460	3	60	CLEMCO RPH-8L-3600 DUST COLLECTOR	125	1,2,4,6,9,13		TBD	TBD
EF-13	NEW	CLEMCO	N/A	SWSI	BELT	22,400	854	12.0	15	460	3	60	CLEMCO CDF-24 DUST COLLECTOR	2200	2 -6,9,10,13		TBD	TBD

ACCESSORIES:

1. BACKWARD INCLINED ALUMINUM WHEEL, DIRECT DRIVE, ELECTRONICALLY COMMUTATED MOTOR
2. NEMA 3 PREWIRED DISCONNECT
3. STAINLESS STEEL BIRD SCREEN
4. STAINLESS STEEL HARDWARE
5. BACKDRAFT DAMPER, SLOPING 18 INCH ROOF CURB
6. VPD WITH BYPASS
7. FAN MOTOR MOUNTED SPEED CONTROLLER, 10A, PREWIRED
8. FAN SHALL BE INTERLOCKED WITH MOTION SENSOR/LIGHT SWITCH. REFER TO ELECTRICAL SHEETS FOR ADDITIONAL INFORMATION.
9. PHENOLIC EPOXY UV RESISTANT, LIGHT GRAY
10. ADJUSTABLE PITCH VANE-AXIAL, ALUMINUM AXIAL BLADE IMPELLER
11. TWO SPEED FAN CONTROLLER, EXTERNAL TOGGLE SELECTOR SWITCH
12. FAN ACTIVATED BY LOCAL TOGGLE SWITCH.
13. FAN INTERLOCKED TO PAINT BOOTH OR BLAST BOOTH CONTROL PANEL

INSTALLATION NOTES:

1. CONTRACTOR SHALL RESTORE THE FAN STRUCTURE, ROTATIONAL COMPONENTS, AND FUNCTIONS TO "AS NEW" CONDITION AND PERFORMANCE

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER 4/23/20

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REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: JST
CHECKED BY: MCG
DESIGNED BY: JST

SHEET TITLE:

MECHANICAL SCHEDULES

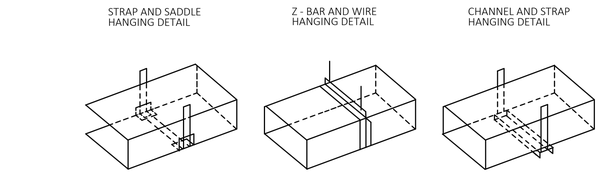
SHEET NUMBER:

M-601

36 OF 46 SHEETS
04/22/2020

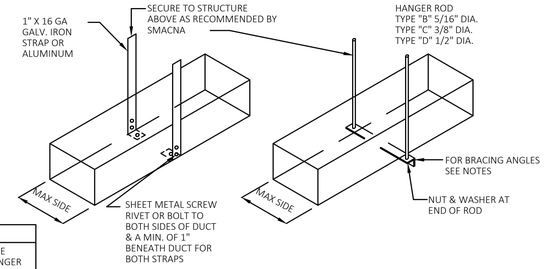
NOTES FOR THIS DRAWING

1. FLEXIBLE DUCTS SHALL BE INSTALLED TO PROVIDE SWEEPING CONFIGURATION WITH NOT LESS THAN MANUFACTURER'S RECOMMENDED BEND RADIUS WITHOUT UNDUE RESTRICTIONS, BUT NOT CREATING UNNECESSARY SAGS OR CURVES. FLAT BANDING MATERIAL NOT LESS THAN 1-1/2" WIDE SHALL BE USED TO SUSPEND FLEXIBLE DUCTS. DUCTING FURNISHED WITH FACTORY INSTALLED GROMMETS SHALL BE SUSPENDED BY WIRES ATTACHED TO GROMMETS. REFER TO PROJECT MANUAL.
2. CONTRACTOR SHALL SUBMIT A CERTIFIED TESTING AND AIR BALANCE REPORT BASED ON THE EQUIPMENT DESIGNATIONS. SEE PROJECT MANUAL SECTION 15500.
3. CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO ORDERING ANY MATERIALS OR FABRICATING ANY DUCTWORK. CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO BEGINNING WORK IF FIELD CONDITIONS PROHIBIT INSTALLATION OF EQUIPMENT AND DUCTWORK PER THE DRAWINGS AND SPECIFICATIONS.
4. FAILURE TO INSTALL THE EQUIPMENT AND DUCTWORK PER THE DRAWINGS AND SPECIFICATIONS MAY RESULT IN EXCESSIVE DUCT PRESSURE LOSS AND INSUFFICIENT AIR FLOW.
5. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR DEVIATIONS FROM THE DRAWINGS AND SPECIFICATIONS NOT APPROVED BY THE ENGINEER. THIS SHALL INCLUDE ALL COSTS ASSOCIATED WITH BRINGING THE EQUIPMENT AND DUCTWORK INTO COMPLIANCE WITH THE DESIGN STANDARDS.



DUCTWORK SUPPORTED ABOVE LOWER CHORD OF BAR JOISTS AND GIRDERS

DUCT SCHEDULE	
DUCT DIMENSIONS (INCHES)	TYPE HANGER
UP THRU 12	A
13 " 18	A
19 " 30	A/B
31 " 42	B
43 " 54	B
55 " 60	B
61 " 84	C
85 " 96	C
OVER 96	D



TYPE "A"

(8 FT. MAX HANGER SPACING. ALSO PROVIDE 3 HANGERS AT EACH TAKE-OFF OR BRANCH.)

TYPE "B", "C", "D"

(8 FT. MAX HANGER SPACING)

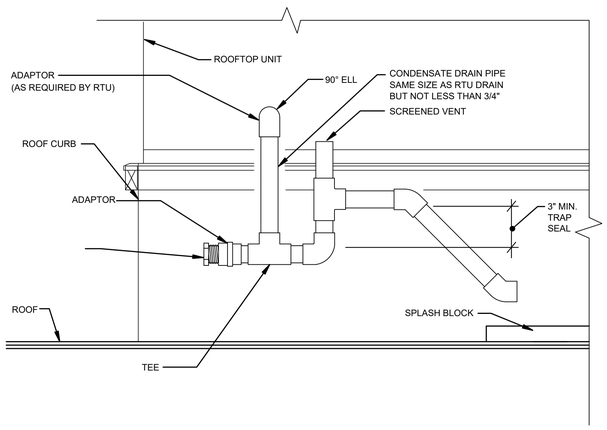
NOTES:

1.) FOR SEVERAL DUCTS ON ONE HANGER, TYPE "B", "C", OR "D" MAY BE USED. SIZE OF HANGER WILL BE SELECTED ON SUM OF DUCT WIDTHS EQUAL TO MAXIMUM WIDTH OF DUCT SCHEDULE.

2.) SCHEDULE FOR ANGLES FOR BRACING: TYPE "B" -1-1/2 X 1-1/2 X 1/8 ANGLE, MAX. SPACING 8'-0" CENTERS;
TYPE "C" - 1-1/2 X 1-1/2 X 3/16 ANGLE, MAX. SPACING 8'-0" CENTERS;
TYPE "D" - 2 X 2 X 1/4 ANGLE, MAX SPACING 4'-0" CENTERS.

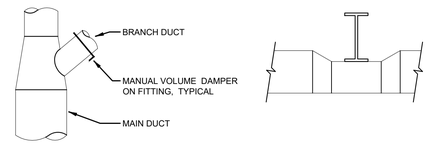
5 M-602 DUCTWORK SUPPORT DETAILS

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



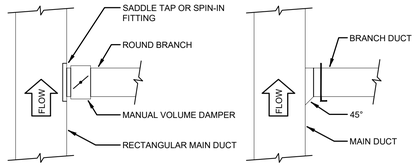
4 M-602 ROOFTOP CONDENSATE PIPING DETAIL

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



ROUND BRANCH DUCT

DUCT UNDER BEAM OR CROSSOVER SECTION

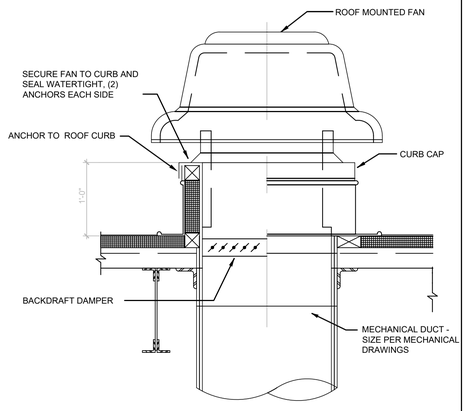


RECTANGULAR MAIN / ROUND BRANCH DUCT

RECTANGULAR BRANCH DUCT

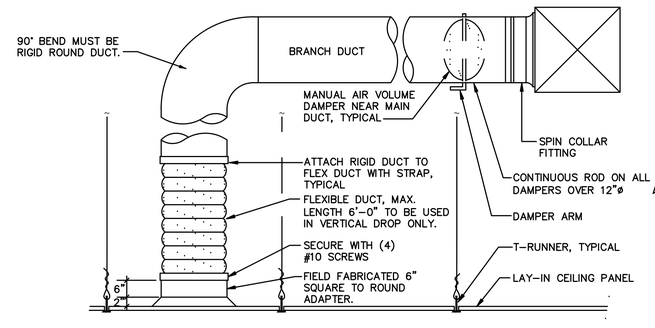
3 M-602 DUCT CONSTRUCTION DETAILS

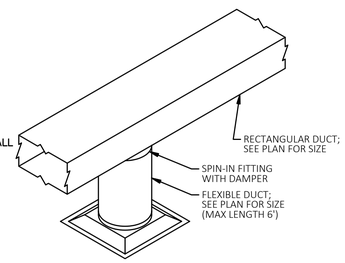
SCALE: 1/4" = 1'-0"



2 M-602 EXHAUST FAN DETAIL

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





1 M-602 DIFFUSER CONNECTION DETAIL

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

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI JEFFREY S. TRIEB NUMBER PE-2005014634 PROFESSIONAL ENGINEER

4/23/20

JEFFREY S. TRIEB
License Number: M 2005014634
Expiration Date: 12/31/21

CASCO Diversified Corporation
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MO Certificate of Authority #000613 Eng.

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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
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MECHANICAL DETAILS

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M-602

37 OF 46 SHEETS
04/22/2020

SEQUENCE OF OPERATION: (MAU-1)

A. GENERAL: THE FOLLOWING DESCRIBES THE SEQUENCE OF OPERATION FOR INDIRECT-FIRED SINGLE ZONE VAV WITH MODULATED HOT GAS REHEAT MAKE-UP AIR UNIT SERVING LOCKER ROOMS.

THIS MAKE-UP AIR UNIT SHALL BE CONNECTED TO THE EXISTING BUILDING MANAGEMENT SYSTEM. BMS COMMAND TO INITIATE OPERATIONS.

B. OCCUPIED HOURS:

1. UNIT OUTDOOR AIR DAMPER SHALL OPEN TO THE MINIMUM POSITION AND UNIT SUPPLY FAN SHALL CYCLE CONTINUOUSLY BY UNIT CONTROLLER .
2. RESTROOM EXHAUST FAN SHALL OPERATE IN RESPONSE TO THE OCCUPANCY SENSOR.
3. CONTROL RELAY FROM THE ENERGIZED RESTROOM EXHAUST FAN (EF-1) SHALL CAUSE THE UNIT OUTDOOR AIR DAMPER TO FULLY OPEN AND HIGH SPEED OPERATION OF THE UNIT SUPPLY FAN TO PROVIDE CONDITIONED AIR FOR THE LOCKER ROOMS AND TO SATISFY THE EXHAUST RATE.
4. UNIT REFRIGERATION SYSTEM SHALL CYCLE PROVIDING COOLING & CONTROLLED DE-HUMIDIFICATION USING LOW EVAP LAT WITH MODULATING HOT GAS REHEAT CONTROLLED BY WALL TEMP SENSOR AND WALL HUMIDITY SENSOR.
5. GAS HEATING SHALL MODULATE IN RESPONSE TO THE ROOM TEMPERATURE SENSOR TO PROVIDE HEATING OF INTERIOR SPACES.

C. UNOCCUPIED HOURS:

1. RESTROOM EXHAUST FAN (EF-1) SHALL NOT OPERATE, IN RESPONSE TO THE OCCUPANCY SENSOR.
2. UNIT OUTDOOR AIR DAMPER SHALL REMAIN CLOSED AND UNIT SUPPLY FAN SHALL CYCLE TO LOW SPEED BY UNIT CONTROLLER.
3. ROOM TEMPERATURE SENSOR SHALL INITIATE COOLING OR HEATING AT THE SELECTED UNOCCUPIED ROOM TEMPERATURES.
4. UNIT REFRIGERATION SYSTEM SHALL CYCLE WITH MODULATED HOT GAS REHEAT FOR SPACE TEMP AND HUMIDITY CONTROL, OR THE STAGES OF GAS HEATING SHALL CYCLE IN RESPONSE TO THE ROOM TEMPERATURE SENSOR TO PROVIDE COOLING OR HEATING OF THE UNOCCUPIED INTERIOR SPACES
4. UNIT ECONOMIZER CYCLE SHALL BE INITIATED UPON A SIGNAL FROM OUTDOOR AND RETURN AIR TEMPERATURE AND ENTHALPY SENSORS. OUTDOOR AIR DAMPER, RETURN AIR DAMPER, UNIT COMPRESSOR(S) AND UNIT BLOWER SPEED SHALL CYCLE TO MAINTAIN SPACE COOLING SETPOINT.
5. RETURN AIR FROM THE LOCKER ROOM WILL BE TRANSFERRED INTO THE ADJACENT LAUNDRY ROOM FOR RETURN TO MAU-1, AT LOW UNIT BLOWER SPEED.
6. WHEN THE LOCKER ROOM BECOMES OCCUPIED, THE OCCUPANCY SENSOR SHALL START THE RESTROOM EXHAUST FAN (EF-1), THE THE SYSTEM WILL OPERATE IN ACCORDANCE WITH THE OCCUPIED HOURS PROCEDURE (ABOVE).

D. SMOKE ALARM FUNCTION.

1. UNIT OUTDOOR AIR DAMPER SHALL CLOSE AND UNIT SUPPLY FAN SHALL STOP ON A SIGNAL FROM DUCT SMOKE DETECTOR. DUCT SMOKE DETECTOR SHALL SEND A SIGNAL TO REMOTE FIRE PROTECTION ALARM DEVICE.

END OF SECTION

SEQUENCE OF OPERATION: (MAU-2)

A. GENERAL: THE FOLLOWING DESCRIBES THE SEQUENCE OF OPERATION FOR THE DIRECT-FIRED SINGLE ZONE VAV AIR SPACE HEATING UNIT.

MACHINE SHOP: MAU-2

THIS HEATING AND VENTILATING UNIT SHALL BE CONNECTED TO THE EXISTING BUILDING MANAGEMENT SYSTEM.

B. SPACE HEATING UNIT (MAU-2): HEATING MODE

1. OCCUPIED HEATING MODE: REMOTE TEMPERATURE SENSOR FOR SPACE HEATING UNIT (MAU-2) SHALL INITIATE THE START SEQUENCE OF THE DIRECT FIRED SPACE HEATER.
2. GAS-FIRED HEATER SHALL INDEPENDENTLY MODULATE, AND THE HIGH OR LOW UNIT BLOWER SPEED SHALL CYCLE TO SATISFY THE SPACE HEATING REQUIREMENT.
3. THREE-POSITION OUTDOOR AIR DAMPER SHALL OPEN TO THE MINIMUM POSITION AND INTERLOCKED EXHAUST FAN (EF-3) SHALL OPERATE AT LOW SPEED CONTINUOUSLY DURING OCCUPIED HOURS OF HEATING MODE.
4. UPON SHUTDOWN, THE UNIT BLOWER SHALL REMAIN ON DURING COOL-DOWN SEQUENCE. THE THREE- POSITION DAMPER SHALL THEN CLOSE.
5. THE INTERLOCKED EXHAUST FAN (EF-3) SHALL SHUT DOWN.
6. UNOCCUPIED MODE (NIGHT SETBACK): THE SPACE TEMPERATURE SETPOINT SHALL BE RESET TO A LOWER TEMPERATURE.
7. THE HEATER SHALL MODULATE, AND THE HIGH / LOW UNIT BLOWER SPEED SHALL CYCLE TO SATISFY THE RESET TEMPERATURE SETPOINT.
8. INTERLOCKED EXHAUST FAN (EF-3) SHALL REMAIN OFF.
9. MORNING WARM-UP MODE: THE SPACE HEATING UNIT SHALL FUNCTION AS INDICATED ABOVE PER OCCUPIED MODE, FOR A DETERMINED PERIOD OF TIME PRIOR TO OCCUPANCY.
10. UNIT SHALL STOP ON A SIGNAL FROM DUCT SMOKE DETECTOR, UNIT DISCHARGE DAMPER SHALL CLOSE, INTERLOCKED EXHAUST FAN (EF-3) SHALL SHUT DOWN. DUCT SMOKE DETECTOR SHALL SEND A SIGNAL TO REMOTE FIRE PROTECTION ALARM DEVICE.

C. SPACE HEATING UNIT (MAU-2): SUMMER VENTILATION MODE (PROVIDING 6 ACH PER EXISTING CONDITION)

1. OCCUPIED VENTILATION MODE: THE BLOWER SHALL CYCLE HIGH SPEED / LOW SPEED IN RESPONSE TO SATISFY SPACE TEMPERATURE SETPOINT. GAS FIRED HEATING REMAINS OFF.
2. THREE-POSITION DAMPER SHALL OPEN TO MAXIMUM OPEN POSITION.
3. INTERLOCKED EXHAUST FAN (EF-3) SHALL OPERATE AT FULL SPEED.
4. SHUT DOWN: BLOWER SHALL SHUT DOWN AND THREE-POSITION DAMPER SHALL CLOSE.
5. INTERLOCKED EXHAUST FAN (EF-3) SHALL SHUT DOWN.
6. UNIT SHALL STOP ON A SIGNAL FROM DUCT SMOKE DETECTOR, UNIT DISCHARGE DAMPER SHALL CLOSE, AND INTERLOCKED EXHAUST FAN (EF-3) SHALL SHUT DOWN. DUCT SMOKE DETECTOR SHALL SEND A SIGNAL TO REMOTE FIRE PROTECTION ALARM DEVICE.

END OF SECTION

SEQUENCE OF OPERATION: (MAU-3)

A. GENERAL: THE FOLLOWING DESCRIBES THE SEQUENCE OF OPERATION FOR THE DIRECT-FIRED SINGLE ZONE VAV AIR SPACE HEATING UNIT.

EXPANDED PREP BAY: MAU-3

THIS HEATING AND VENTILATING UNIT SHALL BE CONNECTED TO THE EXISTING BUILDING MANAGEMENT SYSTEM.

B. SPACE HEATING UNIT (MAU-3): HEATING MODE

1. OCCUPIED HEATING MODE: REMOTE TEMPERATURE SENSOR FOR SPACE HEATING UNIT (MAU-3) SHALL INITIATE THE START SEQUENCE OF THE DIRECT FIRED SPACE HEATER.
2. GAS-FIRED HEATER SHALL INDEPENDENTLY MODULATE, AND THE HIGH OR LOW UNIT BLOWER SPEED SHALL CYCLE TO SATISFY THE SPACE HEATING REQUIREMENT.
3. THREE-POSITION OUTDOOR AIR DAMPER SHALL OPEN TO THE MINIMUM POSITION AND INTERLOCKED EXHAUST FAN (EF-5) SHALL OPERATE CONTINUOUSLY DURING OCCUPIED HOURS OF HEATING MODE. INTERLOCKED EXHAUST FAN (EF-7) SHALL REMAIN OFF.
4. UPON SHUTDOWN, THE UNIT BLOWER SHALL REMAIN ON DURING COOL-DOWN SEQUENCE. THE THREE- POSITION DAMPER SHALL THEN CLOSE.
5. THE INTERLOCKED EXHAUST FAN (EF-5) SHALL SHUT DOWN.
6. UNOCCUPIED MODE (NIGHT SETBACK): THE SPACE TEMPERATURE SETPOINT SHALL BE RESET TO A LOWER TEMPERATURE.
7. THE HEATER SHALL MODULATE, AND THE HIGH / LOW UNIT BLOWER SPEED SHALL CYCLE TO SATISFY THE RESET TEMPERATURE SETPOINT.
8. INTERLOCKED EXHAUST FANS (EF-5, EF-7) SHALL REMAIN OFF.
9. MORNING WARM-UP MODE: THE SPACE HEATING UNIT SHALL FUNCTION AS INDICATED ABOVE PER OCCUPIED MODE, FOR A DETERMINED PERIOD OF TIME PRIOR TO OCCUPANCY.
10. UNIT SHALL STOP ON A SIGNAL FROM DUCT SMOKE DETECTOR, UNIT DISCHARGE DAMPER SHALL CLOSE, INTERLOCKED EXHAUST FANS SHALL SHUT DOWN. DUCT SMOKE DETECTOR SHALL SEND A SIGNAL TO REMOTE FIRE PROTECTION ALARM DEVICE.

C. SPACE HEATING UNIT (MAU-3): SUMMER VENTILATION MODE (PROVIDING 4.3 ACH PER EXISTING CONDITIONS)

1. OCCUPIED VENTILATION MODE: THE BLOWER SHALL CYCLE HIGH SPEED / LOW SPEED IN RESPONSE TO SATISFY SPACE TEMPERATURE SETPOINT. GAS FIRED HEATING REMAINS OFF.
2. THREE-POSITION DAMPER SHALL OPEN TO MAXIMUM OPEN POSITION.
3. INTERLOCKED EXHAUST FANS (EF-5, EF-7) SHALL OPERATE.
4. SHUT DOWN: BLOWER SHALL SHUT DOWN AND THREE-POSITION DAMPER SHALL CLOSE.
5. INTERLOCKED EXHAUST FANS (EF-5, EF-7) SHALL SHUT DOWN.
6. UNIT SHALL STOP ON A SIGNAL FROM DUCT SMOKE DETECTOR, UNIT DISCHARGE DAMPER SHALL CLOSE, AND INTERLOCKED EXHAUST FAN(S) SHALL SHUT DOWN. DUCT SMOKE DETECTOR SHALL SEND A SIGNAL TO REMOTE FIRE PROTECTION ALARM DEVICE.

END OF SECTION

SEQUENCE OF OPERATION: (MAU-4, MAU-5)

A. GENERAL: THE FOLLOWING DESCRIBES THE SEQUENCE OF OPERATION FOR DIRECT-FIRED AIR SPACE HEATING UNITS.

BLAST BOOTH: MAU-4, INTERLOCKED EXHAUST FANS: EF-12, EF-13

PAINT BOOTH: MAU-5, INTERLOCKED EXHAUST FAN: EF-10

THESE HEATING AND VENTILATING UNITS SHALL BE CONNECTED TO THE CONTROL SYSTEMS OF THE BLAST BOOTH AND PAINT BOOTH, AND THE EXISTING BUILDING MANAGEMENT SYSTEM.

B. MAKE-UP AIR UNITS, BOOTH OPERATIONS: HEATING MODE

1. BOOTH OPERATIONS HEATING MODE: HUMAN INTERFACE DEVICE CONTROL PANEL WITH REMOTE TEMPERATURE SENSORS FOR HEATERS SHALL INITIATE THE START SEQUENCE OF THE DIRECT FIRED SPACE HEATERS.
2. GAS-FIRED HEATERS SHALL INDEPENDENTLY MODULATE TO SATISFY THE BOOTH SPACE HEATING REQUIREMENT AND MAU SUPPLY BLOWER SHALL OPERATE CONTINUOUSLY.
3. TWO-POSITION OUTDOOR AIR DAMPER SHALL OPEN TO THE MAXIMUM POSITION AND INTERLOCKED EXHAUST FAN(S) SHALL OPERATE CONTINUOUSLY DURING OPERATIONS AS DETERMINED BY THE HID CONTROL PANEL SETTINGS.
4. UPON SHUTDOWN, THE UNIT BLOWER AND THE INTERLOCKED EXHAUST FAN(S) SHALL REMAIN ON DURING COOL-DOWN SEQUENCE. THE UNIT BLOWER AND INTERLOCKED EXHAUST FAN(S) SHALL THEN SHUT DOWN AND THE UNIT TWO- POSITION OUTDOOR DAMPER SHALL THEN CLOSE.
9. UNIT SHALL STOP ON A SIGNAL FROM DUCT SMOKE DETECTOR, UNIT DISCHARGE DAMPER SHALL CLOSE, INTERLOCKED EXHAUST FANS SHALL SHUT DOWN. DUCT SMOKE DETECTOR SHALL SEND A SIGNAL TO REMOTE FIRE PROTECTION ALARM DEVICE.
10. MORNING WARM-UP MODE: THE SPACE HEATING UNITS SHALL FUNCTION AS INDICATED ABOVE PER BOOTH OPERATIONS HEATING MODE, FOR A DETERMINED PERIOD OF TIME PRIOR TO OPERATIONS, AND AT A SET POINT BOOTH TEMPERATURE AS DETERMINED FROM THE HID CONTROL PANEL .

C. MAKE-UP AIR UNITS, BOOTH SUMMER & TRANSITION SEASONS OPERATIONS: VENTILATION MODE

1. BOOTH OPERATIONS VENTILATION MODE: HUMAN INTERFACE DEVICE CONTROL PANEL WITH AMBIENT TEMPERATURE SENSOR FOR HEATER STANDBY OPERATION SHALL INITIATE THE START SEQUENCE OF THE MAKE-UP AIR UNIT AND INTERLOCKED EXHAUST FAN(S).
2. GAS-FIRED HEATERS SHALL BE LOCKED OUT BY THE AMBIENT SENSOR AND HID. WHEN BOTH INPUTS DEMAND HEAT, THE HEATERS SHALL INDEPENDENTLY CYCLE AND PROVIDE MODULATED HEATING OUTPUT TO SATISFY THE BOOTH SPACE HEATING REQUIREMENT.
3. MAU SUPPLY BLOWER SHALL OPERATE CONTINUOUSLY.
4. TWO-POSITION OUTDOOR AIR DAMPER SHALL OPEN TO THE MAXIMUM POSITION AND INTERLOCKED EXHAUST FAN(S) SHALL OPERATE CONTINUOUSLY.
5. UPON SHUTDOWN, THE UNIT BLOWER AND THE INTERLOCKED EXHAUST FAN(S) SHALL REMAIN ON DURING COOL-DOWN SEQUENCE IF HEATING HAD BEEN ACTIVATED. THE UNIT BLOWER AND INTERLOCKED EXHAUST FAN(S) SHALL THEN SHUT DOWN AND THE UNIT TWO-POSITION OUTDOOR DAMPER SHALL THEN CLOSE.
9. UNIT SHALL STOP ON A SIGNAL FROM DUCT SMOKE DETECTOR, UNIT DISCHARGE DAMPER SHALL CLOSE, INTERLOCKED EXHAUST FANS SHALL SHUT DOWN. DUCT SMOKE DETECTOR SHALL SEND A SIGNAL TO REMOTE FIRE PROTECTION ALARM DEVICE.

END OF SECTION

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
JEFFREY S. TRIEB
NUMBER PE-2005014634
PROFESSIONAL ENGINEER
4/23/20

JEFFREY S. TRIEB
License Number: M 2005014634
Expiration Date: 12/31/21

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI 65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION: _____
DATE: _____
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MECHANICAL SEQUENCE OF OPERATIONS

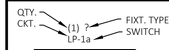
SHEET NUMBER:

M-603

38 OF 46 SHEETS
04/22/2020

ELECTRICAL SYMBOLS (NOT ALL SYMBOLS ARE USED)

LIGHTING



4' STRIP LIGHT FIXTURE

DOWN LIGHT

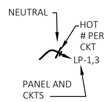
WALL PACK

90 MIN BATTERY BACK-UP EXIT SIGN

CONDUIT

CONDUIT CONCEALED IN WALLS OR CEILING

CONDUIT UNDER GROUND



HOME RUN

GROUND

MISCELLANEOUS

JUNCTION BOX MOUNT ON WALL AT 18" AFF UNO

MOTOR

GENERAL

EQUIPMENT CALL OUT

ELECT KEYED NOTE DESIGNATION

REVISION SYMBOL

POWER AND CONTROLS

PANELBOARD

TRANSFORMER

DISCONNECT SWITCH

RECEPTACLES

DUPLEX RECEPTACLE 18" AFF TO CENTER, UNO.

SPECIAL RECEPTACLE

PHONE/DATA WALL BOX 18" AFF UNO STUB 3/4" CONDUIT UP TO CEILING AREA WITH INSULATED BUSHING, PROVIDE PULL WIRE

SWITCHES

a — SINGLE POLE SWITCH, 48" AFF TO CENTER UNO, LOWER CASE LETTERING INDICATES SWITCH LEG

3 a — THREE POLE SWITCH, 48" AFF TO CENTER UNO, LOWER CASE LETTERING INDICATES SWITCH LEG

OS a — OCCUPANCY SENSOR WALL MOUNTED HUBBELL # AD2000W2, LOWER CASE LETTERING INDICATES SWITCH LEG, 44" TO CENTER UNO. EQUIVALENTS: LEVITON #ODS10-ID OR LUTRON #MS-B102.

OS2 a — ABBREVIATION "OS2" INDICATES TWO POLE OCCUPANCY SENSOR HUBBELL # AD2000W2, LOWER CASE LETTERING INDICATES SWITCH LEG, 44" TO CENTER UNO. EQUIVALENTS: LEVITON #ODSOD-ID OR LUTRON #MS-B202.

3 OS a — OCCUPANCY SENSOR 3 WAY WALL MOUNTED HUBBELL # WS2000W, LOWER CASE LETTERING INDICATES SWITCH LEG, 44" TO CENTER UNO. EQUIVALENTS: LEVITON #IPS15-1LZ OR LUTRON #MS-B102.

FIRE ALARM NOTIFICATION

NEW AUDIBLE AND VISUAL ALARM SIGNAL. MOUNT AT 88" AFF.

NEW VISUAL ONLY ALARM SIGNAL. MOUNT AT 88" AFF.

ABBREVIATIONS

(NOTE: NOT ALL ABBREVIATIONS ARE USED)

AC	ALTERNATING CURRENT	EWC	ELECTRIC WATER COOLER
AFF	ABOVE FINISHED FLOOR	EXSTG	EXISTING
AL	ALUMINUM	GFCI	GROUND FAULT CURRENT INTERUPTER
AMP	AMPERE	FL	FLOOR
ATS	AUTO-TRANSFER-SWITCH	FLUOR	FLUORESCENT
AWG	AMERICAN WIRE GUAGE	GND OR (G)	GROUND
BFG	BELOW FINISHED GRADE	IG	ISOLATED GROUND
BLDG	BUILDING	JB	JUNCTION BOX
CB	CIRCUIT BREAKER	KVA	KILO-VOLT-AMPERE
CKT	CIRCUIT	HP	HORSE-POWER
CLG	CEILING	MCA	MINIMUM CURRENT AMPACITY
COND OR "C"	CONDUIT	MCB	MAIN CIRCUIT BREAKER
CONN	CONNECT	MDP	MAIN DISTRIBUTION PANEL
CONT	CONTRACTOR	MLO	MAIN LUG ONLY
CU	COPPER	MOCPD	MAXIMUM OVERCURRENT PROTECTION DEVICE
C/T	CURRENT TRANSFORMER	MTD HT	MOUNTING HEIGHT
DC	DIRECT CURRENT	NF	NON FUSED
DIM	DIMMER	NEC	NATIONAL ELECTRICAL CODE
DISC SW	DISCONNECT SWITCH	NIC	NOT IN CONTRACT
DP	DOUBLE POLE	RTU	ROOF TOP UNIT
DPP	DISTRIBUTION POWER PANEL	SW	SWITCH
DT	DOUBLE THROW	UG	UNDER GROUND
EC	EMPTY CONDUIT	UNO	UNLESS NOTED OTHERWISE
EF	EXHAUST FAN	WP	WEATHER-PROOF
EM	EMERGENCY	XFMR	TRANSFORMER

ELECTRICAL SPECIFICATIONS

1. GENERAL
   - A. THE WORK SHALL INCLUDE FURNISHING ALL LABOR, MATERIAL, EQUIPMENT AND SERVICES TO CONSTRUCT AND INSTALL THE EQUIPMENT AND SYSTEMS NECESSARY TO COMPLETE THE WORK INDICATED ON DRAWINGS.
   - B. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS TO PROVIDE A WORKING INSTALLATION IN EVERY DETAIL AND ALL ITEMS REQUIRED FOR SUCH AN INSTALLATION SHALL BE FURNISHED WHETHER OR NOT SPECIFICALLY SHOWN OR MENTIONED.
   - C. THE INSTALLATION SHALL COMPLY WITH ALL STATE REQUIREMENTS, THE REGULATIONS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS AND THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
   - D. BEFORE SUBMITTING THE BID, THE CONTRACTOR SHALL VISIT THE SITE AND BE SATISFIED AS TO THE NATURE AND LOCATION OF THE WORK AND THE GENERAL CONDITIONS. CONTRACTOR SHALL HAVE FULL KNOWLEDGE AS TO TRANSPORTATION, DISPOSAL, HANDLING AND STORAGE OF MATERIALS, AVAILABILITY OF WATER, ELECTRIC POWER AND ALL OTHER FACILITIES IN THE AREA WHICH WILL HAVE A BEARING ON THE PERFORMANCE OF THE WORK AND THE CONTRACT FOR WHICH THE PROPOSAL IS SUBMITTED. FAILURE BY THE CONTRACTOR TO BE ACQUAINTED WITH ALL AVAILABLE INFORMATION SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR PERFORMING THE WORK PROPERLY. ADDITIONAL COMPENSATION SHALL NOT BE ALLOWED FOR CONDITIONS INCREASING THE CONTRACTOR'S COST. WHERE THE CONDITION WAS OBVIOUS AND COULD HAVE BEEN DISCOVERED DURING THE SITE VISIT.
   - E. "NIC" MEANS NOT IN CONTRACT. NO NEW WORK.
2. WIRING
   - A. ALL BUILDING WIRE SHALL BE 600 VOLTS COPPER, TYPE THWN OR THW, UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS. THE MINIMUM SIZE CONDUCTOR FOR LIGHTING, POWER AND CONTROL SHALL BE NUMBER 12 AWG.
3. CONDUIT
   - A. CONDUITS MUST BE RIGID OR INTERMEDIATE METAL CONDUIT (IMC) FROM FINISH FLOOR TO A POINT 5'-0" ABOVE FINISH FLOOR IF EXPOSED, OTHERWISE CONDUIT MAY BE GALVANIZED THIN WALL CONDUIT OR ELECTRO-METALLIC TUBING (EMT). CONDUIT BELOW FLOOR MAY BE PVC. PVC CONDUIT MUST BE COUPLED TO RIGID STEEL BEFORE RISING THRU SLAB. PVC NOT PERMITTED ABOVE SLAB.
   - B. CONDUIT IS TO BE RUN EITHER PARALLEL OR PERPENDICULAR TO ONE SIDE OF BUILDING, AND AS HIGH AS POSSIBLE , CONCEALED ABOVE THE CEILING. WHERE CONDUIT CANNOT BE CONCEALED ABOVE THE CEILING , CONTRACTOR SHALL NOTIFY OWNER FOR DIRECTION. CONDUIT SHALL NOT BE ROUTED EXPOSED ABOVE THE ROOF DECK.
   - C. COMMERCIAL METAL DEVICES THAT WILL HOLD PERMANENTLY SHALL BE USED IN ANCHORING CONDUIT TO MASONRY OR CONCRETE. WOODEN PLUGS WILL NOT BE PERMITTED, AND THE ROOF DECK SHALL NOT BE PENETRATED.
   - D. ALL CONDUIT SHALL BE MINIMUM 1/2", UNLESS OTHERWISE NOTED, AND AS REQUIRED BY THE NEC CONDUIT FILL TABLES.
   - E. THE USE OF ROMEX SHALL NOT BE PERMITTED.
   - F. IF ROOF PENETRATIONS ARE REQUIRED TO SERVICE THE RTU'S, THE CONTRACTOR SHALL EMPLOY A ROOFING CONTRACTOR TO MAINTAIN WARRANTY. CONDUITS PENETRATING WALL AND DECKS SHALL BE SEALED.
4. POWER EQUIPMENT
   - A. ALL NEW POWER EQUIPMENT SHALL BE COMPATIBLE WITH EXISTING EQUIPMENT.
   - B. NEW PANEL BOARD SHALL BE SQUARE 'D' I-LINE SERIES, EATON, GE, OR SIEMENS. NEW DEVICES IN EXISTING EQUIPMENT SHALL BE BY THE SAME MANUFACTURER AND HAVE THE SAME STYLE TO MAINTAIN SYSTEM INTEGRITY.
   - C. SAFETY SWITCHES SHALL BE NEMA 3R, HEAVY DUTY, AS MANUFACTURED BY SQUARE 'D' , EATON, GE, OR SIEMENS.
5. POWER
   - A. THE CONTRACTOR SHALL PROVIDE ALL POWER DEVICES AS SHOWN ON THE DRAWINGS, IN COMPLIANCE WITH ALL OTHER NOTES SHOWN ON THE DRAWINGS, AND CONNECT AS SHOWN ON THE DRAWINGS.

GENERAL NOTES

A. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES AND VERIFY REQUIREMENTS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND SHALL PROVIDE ALL ITEMS REQUIRED BY THESE TRADES FOR A COMPLETE INSTALLATION. IF CONFLICT OCCURS DUE TO THIS CONTRACTORS LACK OF COORDINATION WITH OTHER TRADES, ALL WORK INVOLVED IN RESOLVING THE CONFLICT WILL BE AT THE EXPENSE OF THIS CONTRACTOR.

B. OVER-CURRENT PROTECTION AND DISCONNECT MEANS SHALL BE INSTALLED ON ALL MOTORS TO COMPLY WITH CODE AND AS REQUIRED FOR SAFETY.

C. ALL DISCONNECT SWITCHES SHALL BE HORSEPOWER RATED FOR THE MOTOR CONNECTED.

D. LED DRIVERS SHALL COMPLY WITH ALL APPLICABLE STANDARDS AND CODES.

E. ELECTRICAL WORK AND MATERIALS SHALL COMPLY WITH LATEST NEC AND ALL LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT AMONG REQUIREMENTS, THE MORE RESTRICTIVE SHALL APPLY.

F. LIGHTING FIXTURES AND ELECTRICAL DEVICES FOR USE OUTSIDE THE BUILDING SHALL BE WEATHERPROOF.

G. GROUND ELECTRICAL EQUIPMENT PER NEC AND LOCAL CODE REQUIREMENTS. ALL BRANCH CIRCUITS SHALL CONTAIN INSULATED GREE EQUIPMENT GROUND CONDUCTOR.

H. ALL CONDUCTORS SHALL BE # 12 AWG MINIMUM. EXCEPT AS OTHERWISE NOTED OR AS REQUIRED FOR VOLTAGE DROP. ALL CONDUIT TO BE ONE-HALF INCH (1/2") MINIMUM EXCEPT AS OTHERWISE NOTED.

I. CONTRACTOR TO PROVIDE WARNING CABLE ON ALL ELECTRICAL EQUIPMENT (SWITCH BOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS) TO NOTIFY QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS PER NEC 110.16.

J. ALL CIRCUITRY IN EXPOSED OPEN CEILING SHALL BE IN METAL CONDUIT PAINTED TO MATCH CEILING, ABSOLUTELY NO ROMEX, MC/AC CABLE, OR FLEX CONDUIT ALLOWED.

K. CONTRACTOR SHALL COORDINATE WITH FIRE ALARM SYSTEM MANUFACTURER AND INCLUDE ALL WIRING, BACK BOXES, AND DEVICES NECESSARY FOR NOTIFICATION DEVICES SHOWN ON PLAN. CONTRACTOR SHALL TEST AND DEMONSTRATE NEW WORK.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
HARRY J. AUMAN
NUMBER E-16827
PROFESSIONAL ENGINEER
4/22/20

Auman, Harry J.
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
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ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: SAT
CHECKED BY:
DESIGNED BY: SAT

SHEET TITLE:
ELECTRICAL SYMBOLS AND LEGEND

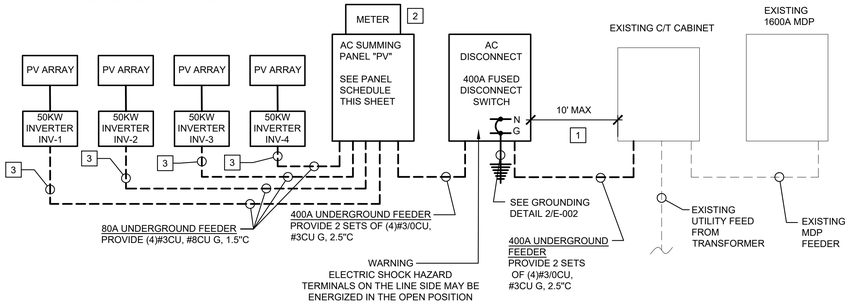
SHEET NUMBER:
E-001
39 OF 46 SHEETS
04/22/2020

ONE-LINE DIAGRAM GENERAL NOTES:

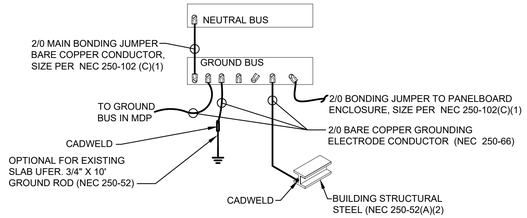
A. POINT OF CONNECTION IS THE SUPPLY SIDE OF THE SERVICE DISCONNECTING MEANS ALLOWED PER 2017 NEC 705.12(A).

[#] ONE-LINE DIAGRAM KEYED NOTES:

1. DISCONNECT MUST BE WITHIN 10' OF UTILITY METER PER 2017 NEC 690.15(A) AND AMEREN MISSOURI.
2. METER SHALL PROVIDE CUMULATIVE KWH, PEAK DEMAND WITH DATE AND TIME, "REAL-TIME" KW LOAD, AND TOTAL CARBON (CO2) EMMISSIONS SAVED IN LBS. BASIS OF DESIGN - E-MON #E20-208200-J-G-KIT (400 AMP) OR EQUAL.
3. SOLAR INVERTER FEEDERS UPSIZED DUE TO VOLTAGE DROP. SEE VOLTAGE DROP CALCULATION.



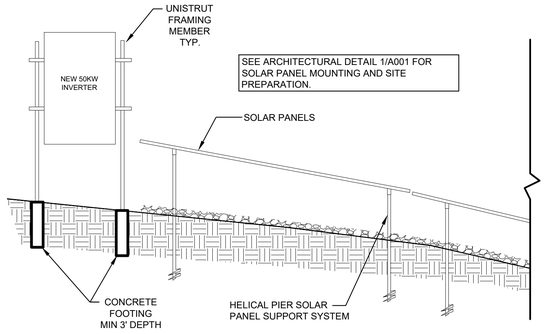
3 E002 SOLAR ONE-LINE DIAGRAM
SCALE: NTS



NOTE: ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE. SIZE OF CONDUCTORS PER ONE-LINE.

2 E002 GROUNDING DETAIL
SCALE: NTS

WARNING LABEL
PROVIDE WARNING LABEL ON EXISTING MDP:
WARNING
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM.
TURN OFF SOLAR PV AC DISCONNECT PRIOR TO WORKING INSIDE PANEL



4 E002 INVERTER GROUND-MOUNTING DETAIL
SCALE: NTS

MOUNT: SURFACE			277/480		3-PHASE, 4W		PANEL	PV			CAPACITY: 400A			INT CAP: 10KA		
LOCATION: WEST SIDE OF BLDG							LUGS:		MLO		DEMAND LOAD: 241A			AV. FAULT: 5.7KA		
CKT	LTG	REC	HVAC	MISC	NP	DESCRIPTION	AMP	POLE	Φ	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CKT
1				16.7		INV-1			A			INV-2				16.7		2
3				16.7		50KW	80	3	B	80	3	50KW				16.7		4
5				16.7					C							16.7		6
7				16.7		INV-3			A			INV-4				16.7		8
9				16.7		50KW	80	3	B	80	3	50KW				16.7		10
11				16.7					C							16.7		12
13						PROVISIONS			A			PROVISIONS						14
15								3	B		3							16
17									C									18
19						PROVISIONS			A			PROVISIONS						20
21								3	B		3							22
23									C									24

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	0.0 KVA	0.0 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND
Φ	LOAD	%	RECEPTACLE	0.0 KVA	0.0 KVA	10KVA + 50% REMAINDER NEC 220.44	200.0 KVA	200.0KVA
A	66.7 KVA	33%	HVAC	0.0 KVA	0.0 KVA	LOAD X 80% (USED MCA IN CALCULATION)	240.6A	240.6A
B	66.7 KVA	33%	MISC	200.0 KVA	200.0 KVA	LOAD X 100% NEC 210.19 NON-CONT.	FILENAME:	
C	66.7 KVA	33%	NP	0.0 KVA	0.0 KVA	0 NONCOINCIDENTAL LOADS NEC 220.60	919457 LOAD_south_facing	

NOTES:
A. ENCLOSURE SHALL BE RATED FOR OUTDOOR INSTALLATIONS AT NEMA 3R OR GREATER.
B. FUSED WITH BUSSMANN LPN-RK-SP FUSES - BASIS OF DESIGN.

MOUNT: SURFACE			277/480		3-PHASE, 4W		PANEL	MDP			CAPACITY: 1,600A			INT CAP: TBD			
LOCATION: BACK OF BLDG.							LUGS:		MFS		DEMAND LOAD: A			AV. FAULT: TBD			
CKT	LTG	REC	HVAC	MISC	NP	DESCRIPTION	SW	FUSE	Φ	SW	FUSE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CKT
1						MCCN	400	400	A	400	400	MCCS						2
									B									
									C									
3						PANEL L1	400	225	A	400	400	PANEL L3						4
									B									
									C									
5						CU-1	100	80	A	100	70	CU-2						6
									B									
									C									
7						HCCE	600	600	A	200	200	PANEL L2						8
									B									
									C									
9						AHU-1	60	30	A	60	30	AHU-2						10
									B									
									C									
11						AHU-3	30	12	A	30	3.2	F-8						12
									B									
									C									
13						EXH FAN E1C	30	7.5	A	30	7.5	EXH FAN E1D						14
									B									
									C									
15						SPARE	30	10	A	30	20	H.W. HEATER						16
									B									
									C									
17						SPARE			A			PANEL EL						18
									B									
									C									
19						SPARE			A			PROVISIONS						20
									B									
									C									

NOTES:
A. ADD WARNING LABELS TO PANEL MDP PER ONE-LINE

VOLTAGE DROP CALCULATIONS

PANEL/ LOAD	FEEDER AWG	SETS	CU/AL	PH	OHMS/K-FT NEC TABLES	LENGTH	Z	LOAD	V-DROP	V	%V-DROP
SOLAR INVERTERS	#3	1	CU	3	0.240 OHM/K-FT	850 FT	0.2040 OHM	60 A	12.24 V	480 V	2.55%

NOTES:
1-PHASE V-DROP CALC IS BASED ON NEC TABLE 8, DC RESISTANCE, UNCOATED WIRES. IF #1/0 OR LARGER, USE TABLE 9 DUE TO SKIN AFFECT.
3-PHASE V-DROP CALC IS BASED ON NEC TABLE 9, EFFECTIVE Z AT 0.85 PF, UNCOATED WIRES, STEEL CONDUIT (WORST CASE).

EQUATIONS:
Z (1-PH) = (TABLE 8 OHMS/K-FT) * (K-FT/1000') * (LENGTH) ('2) / (SETS) - NOTE: IF #1/0 OR LARGER, USE TABLE 9 DUE TO SKIN AFFECT
Z (3-PH) = (TABLE 9 OHMS/K-FT) * (K-FT/1000') * (LENGTH) / (SETS)
V-DROP = Z * LOAD

VOLTAGE DROPS:
2% MAXIMUM FOR FEEDERS AND BRANCH CIRCUIT CONDUCTORS
3% MAXIMUM FOR BRANCH CIRCUITS
MINIMUM WIRE SIZE SHALL BE #12. FOR ALL 20A BRANCH CIRCUITS, WIRE SIZES SHALL BE NOT LESS THAN THOSE SPECIFIED BELOW:
A. UP TO 60' : #12
B. 61' TO 95' : #10
C. 96' TO 150' : #8
D. 151' TO 230' : #6

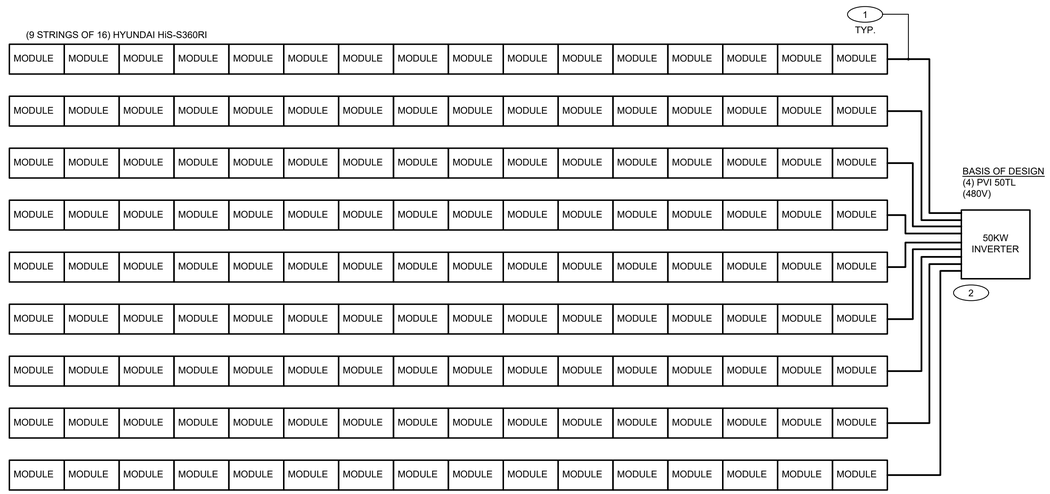
919457 LOAD LFS.xlsm

STRING/INVERTER BASIS OF DESIGN NOTES

A. CAPACITY OF PV SYSTEM PROVIDE 200KW CAPACITY
A.A. 576 * 360W = 207.36KW
B. MODULES Nominal Output Power: 360W
Open Circuit Voltage: 47.4Voc
Short Circuit Current: 9.85Isc
D. INVERTERS Max Output Power: 75KW
Max Usable Input Current: 108A
Operating Voltage Range: 200V - 950V
Number of DC string fuse holders: 15
Output AC Breaker Size: 90A
E. MODULE STRINGS NINE (9) STRINGS PER INVERTER
SIXTEEN (16) MODULES PER STRING
E.E. 47.4Voc * 16 Modules = 758.4V < 1000V
E.E.1 9.85Isc * 9 Strings = 88.65A < 108A
E.E.2 9 Strings per Inverter < 15
F. QUALIFIED PERSONNEL THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTIONS SHALL BE PERFORMED ONLY BY A CONTRACTOR WITH A MINIMUM OF 5 YEARS EXPERIENCE INSTALLING PV SYSTEMS.
G. PV SYSTEM DC DESIGN SYSTEM SHALL BE DESIGNED PER THE NATIONAL ELECTRICAL CODE (NEC SECTION 690). PV SYSTEM CONTRACTOR IS RESPONSIBLE TO PROVIDE DC CONDUCTORS, OVER-CURRENT PROTECTIVE DEVICES, CONNECTIONS, ETC PER THE APPLICABLE CODES.

[#] STRING/INVERTER BASIS OF DESIGN KEYED NOTES:

1. MODULE STRING CONDUCTOR SIZING SHALL BE PERFORMED BY ADDING THE PARALLEL CONNECTED PV MODULE RATED SHORT-CIRCUIT CURRENT (ISC) AND MULTIPLYING BY 1.25 PER BUSSMAN SPD 8.3.4.1.
2. FUSES INTENDED FOR PROTECTING CONDUCTORS CARRYING DIRECT CURRENT PRODUCED BY SOLAR PANELS SHALL CONFORM TO UL 2579 PER BUSSMANN SPD 8.3.2.2.



1 E002 STRING/INVERTER BASIS OF DESIGN
SCALE: NTS

Performance Warranty
200kW Solar Array

MONTH	*ESTIMATED PV ENERGY SUPPLIED	INVERTER EFFICIENCY 96.5%	YEAR 1 97%	YEAR 25 80.2%
January	5,290 kWh	5,105 kWh	4,952 kWh	4,094 kWh
February	6,121 kWh	5,907 kWh	5,730 kWh	4,737 kWh
March	8,606 kWh	8,305 kWh	8,056 kWh	6,660 kWh
April	9,681 kWh	9,342 kWh	9,062 kWh	7,492 kWh
May	10,553 kWh	10,184 kWh	9,878 kWh	8,167 kWh
June	11,356 kWh	10,959 kWh	10,630 kWh	8,789 kWh
July	11,637 kWh	11,230 kWh	10,893 kWh	9,006 kWh
August	10,924 kWh	10,542 kWh	10,225 kWh	8,454 kWh
September	9,189 kWh	8,867 kWh	8,601 kWh	7,112 kWh
October	7,406 kWh	7,147 kWh	6,932 kWh	5,732 kWh
November	5,591 kWh	5,395 kWh	5,233 kWh	4,327 kWh
December	4,621 kWh	4,459 kWh	4,325 kWh	3,576 kWh
TOTAL	**100,975 kWh**	**97,441 kWh**	**94,518 kWh**	**78,148 kWh**

*Estimated PV Energy Supplied received from Jeremy Nolen of EnegyLink by PVWatts Calculator.
Contractor shall perform an onsite test of the system should output fall below 10% of estimated output.

ENTIRE SHEET: ALTERNATE #1

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
HARRY J. AUMAN
NUMBER E-16827
PROFESSIONAL ENGINEER
4/22/20

Auman, Harry J.
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: SAT
CHECKED BY:
DESIGNED BY: SAT

SHEET TITLE:
ELECTRICAL SOLAR DETAILS AND SCHEDULES

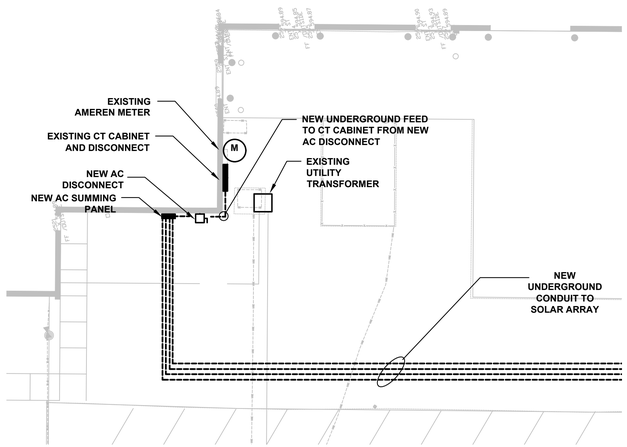
SHEET NUMBER:
E-002
40 OF 46 SHEETS
04/22/2020

◇# SOLAR ARRAY KEYED NOTES

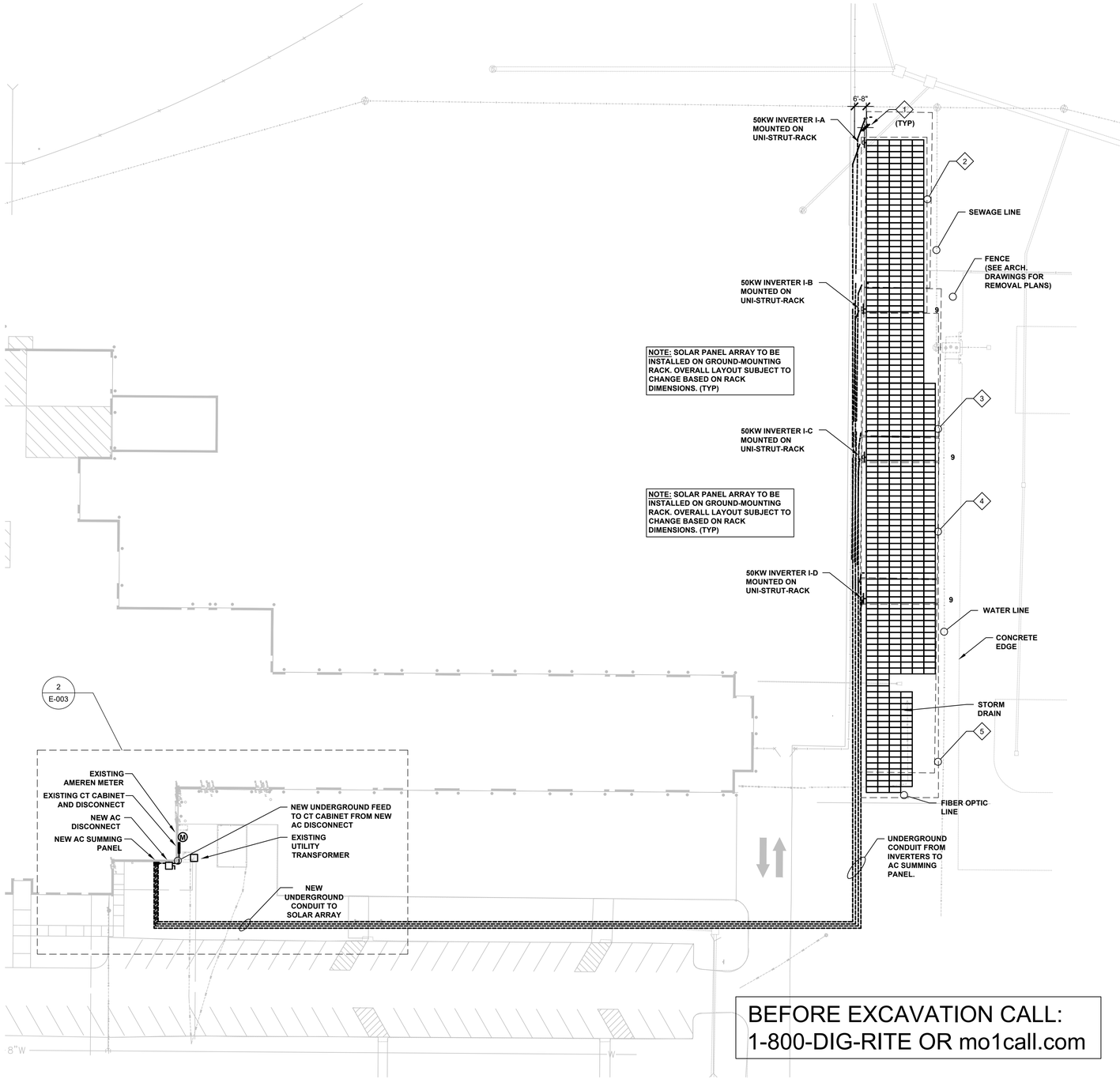
1. INVERTERS SHALL BE LOCATED WITHIN (1) FOOT OF SOLAR ARRAY PER 2017 NEC 690.12 RAPID SHUTDOWN REQUIREMENTS.
2. NINE (9) STRINGS OF 16 SOLAR MODULES CONNECTED IN SERIES CONNECTED TO INPUT OF I-A INVERTER.
3. NINE (9) STRINGS OF 16 SOLAR MODULES CONNECTED IN SERIES CONNECTED TO INPUT OF I-B INVERTER.
4. NINE (9) STRINGS OF 16 SOLAR MODULES CONNECTED IN SERIES CONNECTED TO INPUT OF I-C INVERTER.
5. NINE (9) STRINGS OF 16 SOLAR MODULES CONNECTED IN SERIES CONNECTED TO INPUT OF I-D INVERTER.

SOLAR ARRAY GENERAL NOTES

A. DESIGN IS DIAGRAMMATIC BASED ON CALCULATIONS ON SHEET E002. ACTUAL QUANTITY OF MODULES AND INVERTERS TO PROVIDE A 200KW PV SYSTEM SHALL BE AT THE DISCRETION OF THE PV CONTRACTOR.
B. POINT OF CONNECTION FOR INTERCONNECTED POWER SOURCE IS A SUPPLY SIDE CONNECTION ALLOWED PER NEC 705.12 (A).
C. DIMENSIONS OF SOLAR ARRAY ARE BASED OFF OF BASIS OF DESIGN SOLAR MODULES AND RACKING SYSTEM.



2 E003 UTILITY CONNECTION PLAN
SCALE: 1/16" = 1'-0"



BEFORE EXCAVATION CALL:
1-800-DIG-RITE OR mo1call.com

1 E003 SITE PLAN
SCALE: 1/32" = 1'-0"

ENTIRE SHEET:
ALTERNATE #1

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
HARRY J. AUMAN
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ISSUE DATE: 04/22/2020

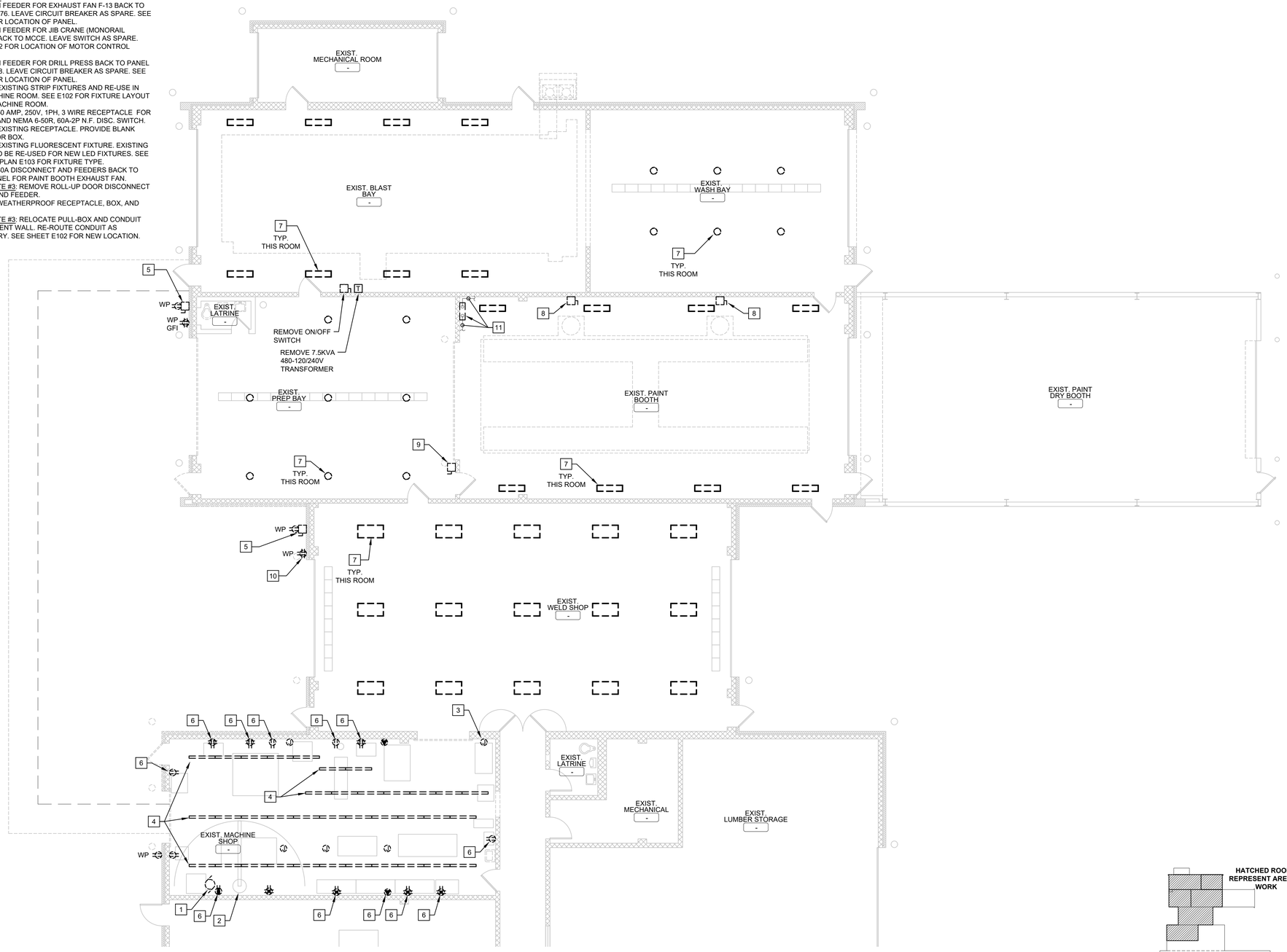
CAD DWG FILE: _____
DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
ELECTRICAL SOLAR SITE PLAN

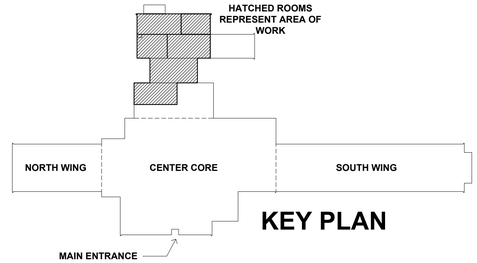
SHEET NUMBER:
E-003
41 OF 46 SHEETS
04/22/2020

KEYED NOTES:

1. DEMOLISH FEEDER FOR EXHAUST FAN F-13 BACK TO PANEL P3-76. LEAVE CIRCUIT BREAKER AS SPARE. SEE 1/E102 FOR LOCATION OF PANEL.
2. DEMOLISH FEEDER FOR JIB CRANE (MONORAIL CRANE) BACK TO MCCE. LEAVE SWITCH AS SPARE. SEE 1/E102 FOR LOCATION OF MOTOR CONTROL CENTER.
3. DEMOLISH FEEDER FOR DRILL PRESS BACK TO PANEL P5-14,16,18. LEAVE CIRCUIT BREAKER AS SPARE. SEE 1/E102 FOR LOCATION OF PANEL.
4. REMOVE EXISTING STRIP FIXTURES AND RE-USE IN NEW MACHINE ROOM. SEE E102 FOR FIXTURE LAYOUT IN NEW MACHINE ROOM.
5. REMOVE 50 AMP, 250V, 1PH, 3 WIRE RECEPTACLE FOR WELDER AND NEMA 6-50R, 60A-2P N.F. DISC. SWITCH.
6. REMOVE EXISTING RECEPTACLE. PROVIDE BLANK COVER FOR BOX.
7. REMOVE EXISTING FLUORESCENT FIXTURE. EXISTING WIRING TO BE RE-USED FOR NEW LED FIXTURES. SEE LIGHTING PLAN E103 FOR FIXTURE TYPE.
8. REMOVE 30A DISCONNECT AND FEEDERS BACK TO THEIR PANEL FOR PAINT BOOTH EXHAUST FAN.
9. ALTERNATE #3: REMOVE ROLL-UP DOOR DISCONNECT SWITCH AND FEEDER.
10. REMOVE WEATHERPROOF RECEPTACLE, BOX, AND FEEDER.
11. ALTERNATE #3: RELOCATE PULL-BOX AND CONDUIT TO ADJACENT WALL. RE-ROUTE CONDUIT AS NECESSARY. SEE SHEET E102 FOR NEW LOCATION.



1 E101 ELECTRICAL DEMO FLOOR PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
HARRY J. AUMAN
NUMBER E-16827
PROFESSIONAL ENGINEER
4/22/20

Auman, Harry J.
License NO. E16827
Expiration Date 12/31/20

CASCO Diversified Corporation
MO Certificate of Authority #000329 Arch.
MO Certificate of Authority #000613 Eng.

CASCO
12 Sunnen Drive, Suite 100, St. Louis, MO 63143 T: 314.821.1100

OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

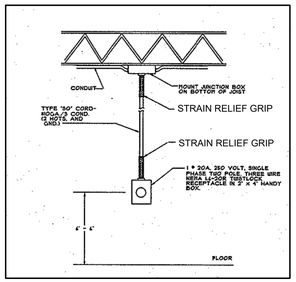
CAD DWG FILE:
DRAWN BY: SAT
CHECKED BY:
DESIGNED BY: SAT

SHEET TITLE:
ELECTRICAL DEMO PLAN

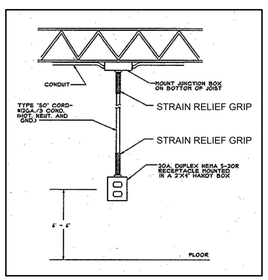
SHEET NUMBER:
E-101
42 OF 46 SHEETS
04/22/2020

KEYED NOTES:

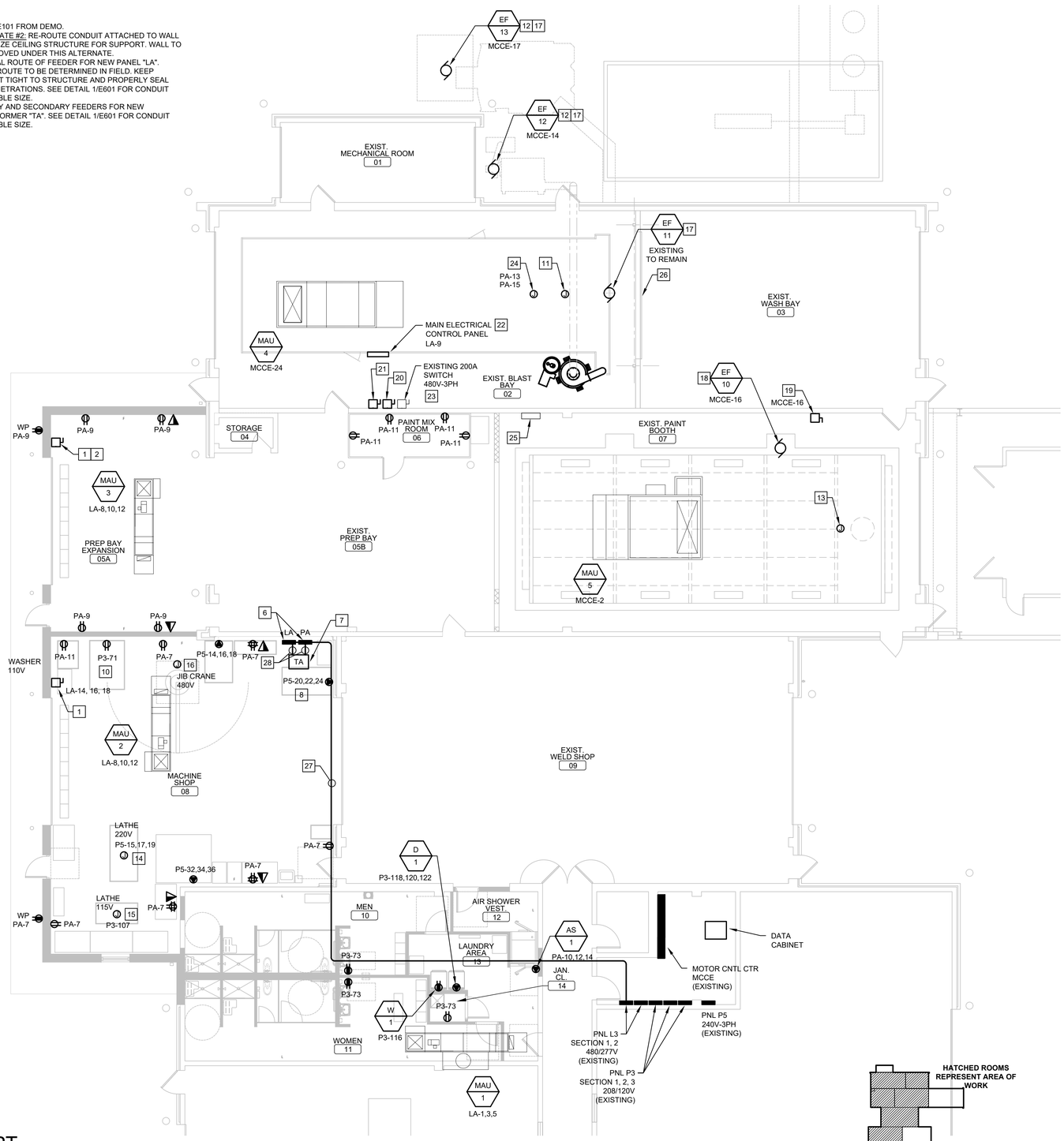
1. ROLL-UP DOOR: NEW 20A, 3-POLE NON-FUSED DISCONNECT TO BE INSTALLED AT 16-4"' AFF TO SERVE NEW ROLL-UP DOOR.
2. EXTEND CIRCUITING FROM ROLL-UP DOOR TO BE REMOVED WITH REMOVAL OF WALL BETWEEN EXIST. PREP BAY AND EXIST. PAINT BOOTH.
3. PROVIDE POWER FROM EXISTING PANEL P5 LOCATED IN MECHANICAL ROOM 112.
4. NOT USED
5. SEE MECH. DRAWINGS FOR BLAST BOOTH DUST COLLECTOR LAYOUT.
6. INSTALL NEW PANELBOARD. VERIFY PANELBOARD WILL HAVE 3 FEET WORKING CLEARANCE PRIOR TO INSTALLATION. SEE ONE-LINE DIAGRAM 1/E601 FOR MORE INFORMATION.
7. MOUNT TRANSFORMER "TA" AT 96" TO BOTTOM ON WALL ABOVE PANELBOARDS "LA" AND "PA".
8. BAND SAW: PROVIDE POWER FOR NEW LOCATION FROM EXISTING CIRCUIT SHOWN. PROVIDE AN ENTIRELY NEW FEEDER FROM PANEL. SEE E101 FOR DEMO OF CIRCUIT AT OLD LOCATION.
9. JIB CRANE: PROVIDE POWER FOR NEW LOCATION FROM EXISTING CIRCUIT SHOWN FROM CEILING. PROVIDE AN ENTIRELY NEW FEEDER FROM PANEL. SEE E101 FOR DEMO OF CIRCUIT AT OLD LOCATION.
10. 100 TON PRESS: PROVIDE POWER FOR NEW LOCATION FROM EXISTING CIRCUIT SHOWN. PROVIDE AN ENTIRELY NEW FEEDER FROM PANEL. SEE E101 FOR DEMO OF CIRCUIT AT OLD LOCATION.
11. BLAST BOOTH LIGHTS: UTILIZE EXISTING BLAST BOOTH LTG CIRCUIT. COORDINATE HOOK-UP LOCATION WITH BLAST BOOTH VENDOR.
12. DUST COLLECTOR: PROVIDE POWER FOR DUST COLLECTOR EXHAUST FANS. EXTEND EXISTING CIRCUITS SHOWN.
13. PAINT BOOTH LIGHTS: UTILIZE EXISTING PAINT BOOTH LTG CIRCUIT L3-31. COORDINATE HOOK-UP LOCATION WITH PAINT BOOTH VENDOR.
14. SEE DETAIL 2/E102 FOR POWER DROP DETAIL.
15. SEE DETAIL 3/E102 FOR POWER DROP DETAIL.
16. JIB CRANE: EXTEND POWER FOR EXISTING JIB CRANE IN OLD MACHINE SHOP TO NEW SHOP.
17. EF-11, EF-12, AND EF-13 SHALL BE CONTROLLED BY BLAST BOOTH VENDOR SUPPLIED CONTROL PANEL.
18. EF-10 SHALL BE CONTROLLED BY PAINT BOOTH VENDOR SUPPLIED CONTROL PANEL.
19. INSTALL NEW 40A NON-FUSED DISCONNECT TO SERVE EF-10. PROVIDE POWER FROM CIRCUIT INDICATED.
20. INSTALL 40A NON-FUSED DISCONNECT TO SERVE DUST COLLECTOR EXHAUST FAN EF-12. LABEL DISCONNECT "DUST COLLECTOR EF-12 DISCONNECT".
21. INSTALL 60A NON-FUSED DISCONNECT TO SERVE DUST COLLECTOR EXHAUST FAN EF-13. LABEL DISCONNECT "DUST COLLECTOR EF-13 DISCONNECT".
22. PROVIDE POWER TO BLAST BOOTH MAIN ELECTRICAL CONTROL PANEL FROM CIRCUIT INDICATED ON PLAN.
23. PROVIDE POWER TO MAU-4 FROM EXISTING SWITCH.
24. PROVIDE POWER TO BLAST BOOTH TIMER CONTROL PANEL AND BLAST BOOTH REVERSE PULSE CONTROL PANEL FROM CIRCUITS INDICATED ON PLAN. COORDINATE LOCATION OF PANELS WITH BLAST BOOTH SUPPLIER.
25. ALTERNATE #3: RELOCATE PULL BOX AND RE-ROUTE CONDUIT FROM ADJACENT WALL TO THIS LOCATION. SEE SHEET E101 FROM DEMO.
26. ALTERNATE #2: RE-ROUTE CONDUIT ATTACHED TO WALL TO UTILIZE CEILING STRUCTURE FOR SUPPORT. WALL TO BE REMOVED UNDER THIS ALTERNATE.
27. GENERAL ROUTE OF FEEDER FOR NEW PANEL "LA". EXACT ROUTE TO BE DETERMINED IN FIELD. KEEP CONDUIT TIGHT TO STRUCTURE AND PROPERLY SEAL ALL PENETRATIONS. SEE DETAIL 1/E601 FOR CONDUIT AND CABLE SIZE.
28. PRIMARY AND SECONDARY FEEDERS FOR NEW TRANSFORMER "TA". SEE DETAIL 1/E601 FOR CONDUIT AND CABLE SIZE.



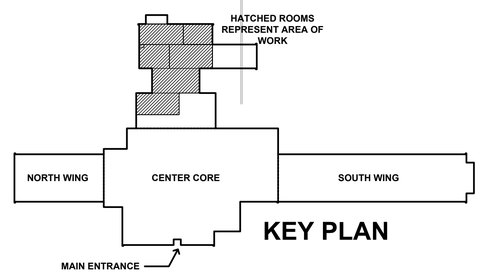
2 E102 POWER DROP DETAIL - 250V RECEPT.
SCALE: NOT TO SCALE



3 E102 POWER DROP DETAIL - DUPLEX RECEPT.
SCALE: NOT TO SCALE



1 E102 ELECTRICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



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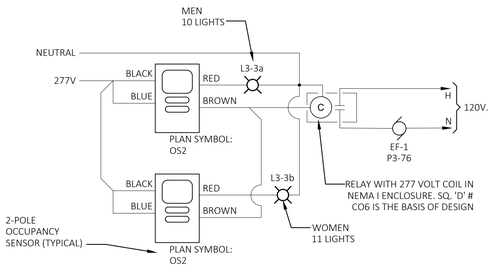
ELECTRICAL POWER FLOOR PLAN

SHEET NUMBER:
E-102
43 OF 46 SHEETS
04/22/2020

BASIS OF DESIGN - LIGHTING FIXTURE SCHEDULE

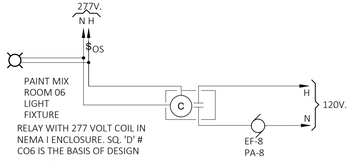
PLAN MARK	MANUFACTURER	CATALOG NO.	LAMP DATA **	LAMP DATA NO.	LAMP DATA WATTAGE & LAMPS	REMARKS AND MOUNTING HEIGHT TO BOTTOM OF LIGHT FIXTURE	TOTAL WATTS PER FIXTURE
A	EXISTING	N/A		N/A		STRIP LED FIXTURE RE-LOCATED	N/A
B	**EATON**	4WNLED-LD4-32SL-F-UNV-L840-CD1-U		LED FURNISHED WITH FIXTURE		4'L X 8"W X 2.5"D WRAPAROUND LENS, 2800 LUMENS, 4000K	29
	LITHONIA						
	HUBBELL						
C	**EATON**	LHB-12-UNV-L850-CD-U		LED FURNISHED WITH FIXTURE		24"L X 12"W X 4"D LINEAR LED HIGH BAY, 12,000 LUMENS, 5000K	87
	LITHONIA						
	LSI						
D	**EATON**	UHB-12-UNV-L850-CD-U		LED FURNISHED WITH FIXTURE		12" ROUND LED HIGH BAY, 12,000 LUMENS, 5000K	98
	LITHONIA						
	LSI						
E	**LITHONIA**	ELM9L-UVOLT-LTP		LED FURNISHED WITH FIXTURE		LED EMERGENCY FIXTURE, DAMP LOCATION LISTED, 1100 LUMENS	11
	EATON						
	HUBBELL						
F	**LITHONIA**	WF6-LED-40K-MW		LED FURNISHED WITH FIXTURE		6" ROUND LED WAFER, 1200 LUMENS, 4000K, WET LOCATION LISTED	13
	EATON						
	LSI						
G	**LITHONIA**	MSL-4000LM-SBL-MVOLT-GZ10-50K-80CRI-WH		LED FURNISHED WITH FIXTURE		48"L X 10"W X 4"D LINEAR LED LOW BAY, 4,000 LUMENS, 5000K	13
	EATON						
	HUBBELL						
H	**EATON**	4WNLED-LD4-40SL-F-UNV-L840-CD1-U		LED FURNISHED WITH FIXTURE		4'L X 8"W X 2.5"D WRAPAROUND LENS, 4000 LUMENS, 4000K	32
	LITHONIA						
	HUBBELL						
J	**EATON**	4WNLED-LD4-50SL-F-UNV-L840-CD1-U		LED FURNISHED WITH FIXTURE		4'L X 8"W X 2.5"D WRAPAROUND LENS, 5000 LUMENS, 4000K	42
	LITHONIA						
	HUBBELL						
K	**LITHONIA**	JEBL-12L-40K-80CRI-WH		LED FURNISHED WITH FIXTURE		13" DIAMETERL X 5"H D HIGHBAY, 12000 LUMENS, 4000K, WET LOCATION LISTED	93
	EATON						
	HUBBELL						



LOGIC SUMMARY:
SHOULD EITHER OF THE 2 POLE OCCUPANCY SENSOR SWITCHES IN THE RESTROOMS BE TURNED ON, THEN EF-1 WILL BE ACTIVATED

2 E-103 **EF-1 WIRING DIAGRAM**

SCALE: NOT TO SCALE



RELAY WITH 277 VOLT COIL IN
NEMA I ENCLOSURE. SQ. 'D' #
CO6 IS THE BASIS OF DESIGN

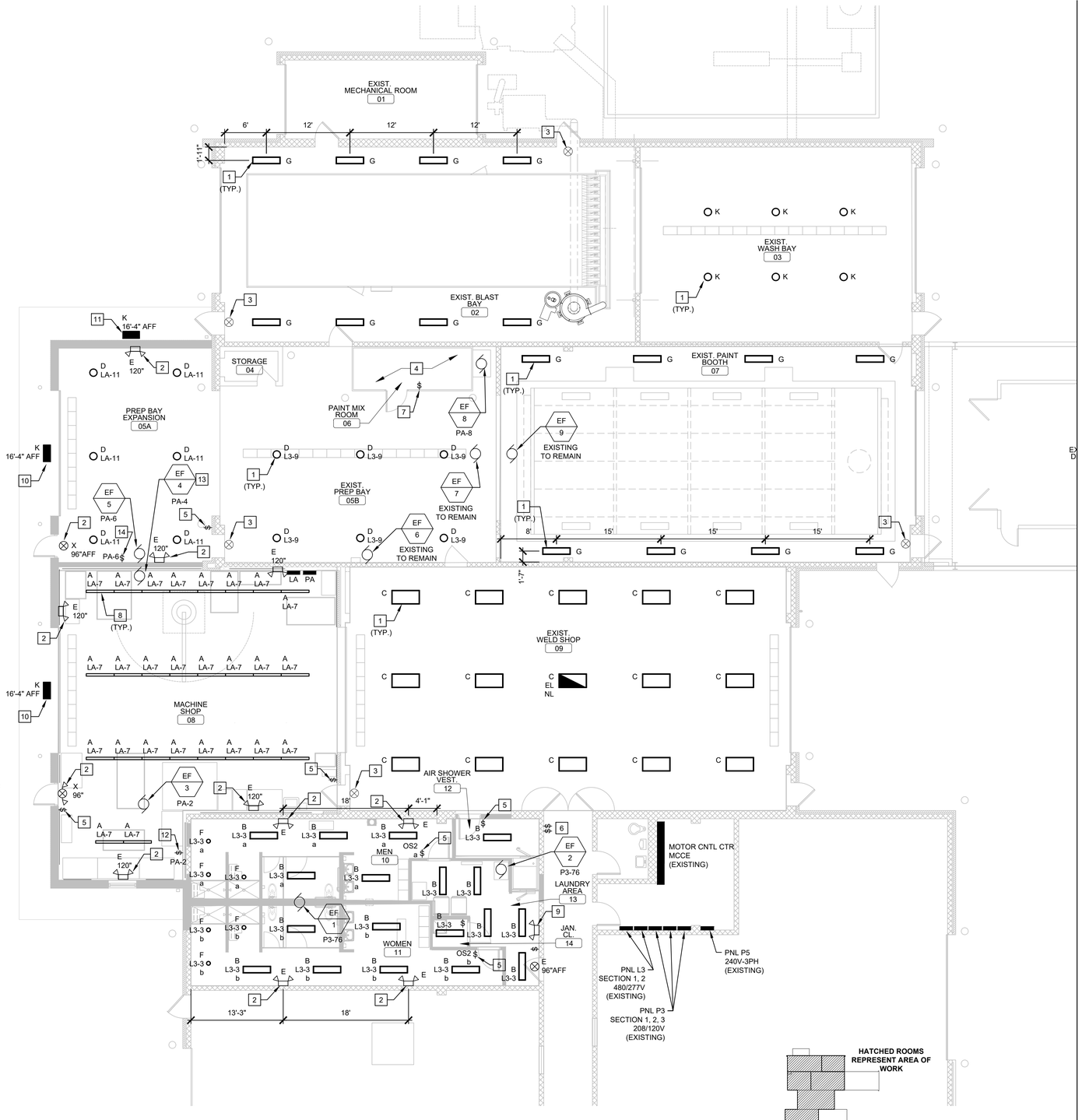
LOGIC SUMMARY:
SHOULD THE LIGHTS IN PAINT MIX ROOM 06 BY TURNED ON, THEN EF-8 WILL BE ACTIVATED

3 E-103 **EF-8 WIRING DIAGRAM**

SCALE: NOT TO SCALE

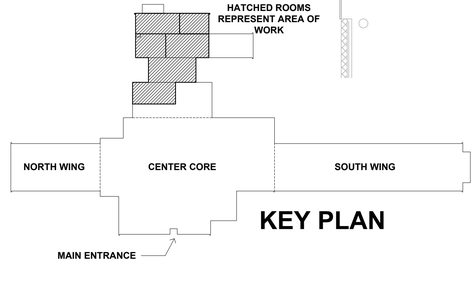
[#] KEYED NOTES:

1. NEW LIGHT FIXTURE SHALL BE INSTALLED IN SAME LOCATION AS EXISTING FIXTURE AND CONNECTED TO EXISTING LIGHTING CIRCUIT.
2. EMERGENCY LIGHTING FIXTURE SHALL BE CIRCUITED TO LOCAL EXISTING CIRCUIT FROM PANEL EL.
3. EXISTING FIXTURE TO REMAIN.
4. CLASS 1, DIV 2 LIGHT FIXTURES SHALL BE SUPPLIED BY PAINT MIXING ROOM SUPPLIER. SUPPLY POWER FROM CIRCUIT LA-11.
5. INSTALL NEW LIGHT SWITCH IN LOCATION INDICATED.
6. EXISTING LIGHT SWITCH TO REMAIN.
7. INSTALL NEW HAZARDOUS LOCATION LISTED LIGHT SWITCH.
8. RE-LOCATE LIGHT FIXTURES FROM OLD MACHINE SHOP TO NEW MACHINE SHOP - 08.
9. LOWER EXISTING BUG-EYE FIXTURE TO 96" AFF. MODIFY EXISTING CIRCUITRY AS REQUIRED.
10. NEW EXTERIOR WALL PACK MOUNTED ABOVE ROLL UP DOOR. EXTEND CIRCUITING FROM OLD WALL PACK LOCATION ON SOUTH WALL.
11. EXTEND CIRCUITING FROM NEW WALL PACK ABOVE PREP BAY EXPANSION ROLL UP DOOR.
12. SWITCH TO OPERATE EF-3 IN CLOSED POSITION. LABEL SWITCH AS "MACHINE SHOP VENTILIATION".
13. EF-4 SHALL OPERATE WHILE PARTS WASHER IS IN USE.
14. SWITCH TO OPERATE EF-5 IN CLOSED POSITION. LABEL SWITCH AS "PREP BAY EXPANSION VENTILIATION".



1 E103 **ELECTRICAL LIGHTING PLAN**

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



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ELECTRICAL LIGHTING PLAN

SHEET NUMBER:
E-103

44 OF 46 SHEETS
04/22/2020

MOUNT:	MNT: SURFACE			277/480		3-PHASE, 4W	PANEL:	MCCE		CAPACITY: 600A			INT CAP: EXISTING			
LOCATION:	LOC: MECH 112						LUGS:	MLO		DEMAND LOAD: 138A			AV. FAULT: EXISTING			
	LTG	REC	HVAC	MISC	NP	DESCRIPTION	POLE	P	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	
1						MAKE-UP AIR UNIT MUA-7	3	A		**PAINT BOOTH**			6.8			
								B	3	**PAINT BOOTH: MAU-5**			6.8			2
								C					6.8			
3						EXAUST FAN F-19	3	A								
								B	3	**PAINT BOOTH UNIT HTR.**						4
								C								
5						F-34	3	A								
								B	3	PUMP P-5						6
								C								
7						PUMP P6	3	A								
								B	3	F-72						8
								C								
9						PUMP P7	3	A								
								B	3	MONORAIL CRANE						10
								C								
11						F-69	3	A								
								B	3	AHU-4						12
								C								
13						F-70	3	A		**DRY MEDIA BLAST EQUP**			8.9			
								B	3	**(DUST COLLECTOR: EF-**			8.9			14
								C		**12)**			8.9			
15						F-16	3	A		**SPRAY BOOTH EXHAUST**			8.9			
								B	3	**FAN**			8.9			16
								C		**(EF-10)**			8.9			
17			**13.4**			**DUST COLLECTOR**	3	A								
			13.4			**BLOWER**		B	3	MUA-8						18
			13.4			**(DUST COLLECTOR: EF-**		C								
19						AIR COMPRESSOR	3	A								
								B	3	F-84						20
								C								
21						AIR COMPRESSOR ASSY. #1	3	A								
								B	3	F-85						22
								C								
23						AIR COMPRESSOR ASSY. #2	3	A					9.6			
								B	3	**SPARE**			9.6			24
								C		**(BLAST BOOTH: MAU-4)**			9.6			

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	0.0 KVA	0.0 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND
F	LOAD	%	RECEPTACLE	0.0 KVA	0.0 KVA	10KVA + 50% REMAINDER NEC 220.44	143.0 KVA	114.4KVA
A	38.1 KVA	33%	HVAC	143.0 KVA	114.4 KVA	LOAD X 80% (USED MCA IN CALCULATION)	172.0A	137.6A
B	38.1 KVA	33%	MISC	0.0 KVA	0.0 KVA	LOAD X 100% NEC 210.19 NON-CONT.	FILENAME:	
C	38.1 KVA	33%	NP	0.0 KVA	0.0 KVA	0 NONCOINCIDENTAL LOADS NEC 220.60	919457 LOAD LFS.xlsm	

NOTES:
A. THIS IS AN EXISTING PANEL.
B. CIRCUITS IN **BOLD** TO BE RE-ROUTED TO NEW LOCATION WITH NEW FEED FROM PANEL.
C. CIRCUITS WITH A **~~STRIKETHROUGH~~** TO BE MADE SPARE OR RE-PURPOSED WITH **(CIRCUIT IN PARENTHESIS).**

MOUNT:	MOUNT: SURFACE			120/208		3-PHASE, 4W	PANEL	P3		CAPACITY: 100A			INT CAP: EXISTING			
LOCATION:	LOCATION: MECH 112						LUGS:	MCB		DEMAND LOAD: 23A			AV. FAULT: EXISTING			
CKT	LTG	REC	HVAC	MISC	NP	DESCRIPTION	AMP	POLE	F	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CKT
1						RECEPTACLES ROOM 708	20	1	A	20	1	RECEPTACLES RM 711						2
3						RECEPTACLES ROOM 708	20	1	B	20	1	RECEPT RM 712						4
5						RECEPT. RM 707	20	1	C	20	1	RECEPT & EXH FAN F-36						6
7						RECEPT. RM 707	20	1	A	20	1	RECEPT RM 710						8
9						BENCH GRINDER RM 707	20	1	B	20	1	RECEPT RM 113						10
11						RECEPT/HYD PRESS 708	20	1	C	20	1	GAS FIRED HTR CONTROLS						12
13						H.D. RECEPT RM 712	20	2	A	20	2	H.D RECEPT RM 709						14
15									B									16
17						RECEPT RM 712	20	1	C	20	1	RECEPT RM 709						18
19						H.D. RECEPT RM 709	20	2	A	20	2	HD RECEPT RM 709						20
21									B									22
23						RECEPT RM 709	20	1	C	20	1	RECEPTACLES RM 709						24
25						H.D. RECEPT 709	20	2	A	50	2	**OUTSIDE WELD RECEPT**						26
27									B			**707**						28
29						RECEPT. 709	20	1	C	50	2	**WELDING RECEPT 707**						30
31						WELDING RECEPT. 708	50	2	A									32
33									B	50	2	RECEPT 707						34
35						OUTDOOR WELDING RECP	50	2	C									36
37									A									38
39						PORT. CAR WAHER REC	30	2	B	20	3	RECEPTACLES 708						40
41									C									42
43						PUMP P-8	20	1	A	50	2	WELDING RECEPT OUTDOOR						44
45						G U H - 1	20	1	B									46
47						PADDLE FANS 707,708	20	1	C	20	1	GLASS BEAD						48
49									A									50
51						BAND SAW RM 703	20	3	B	20	3	WOOD LATHE						52
53									C									54
55						BAND SAW	20	1	A									56
57						DRILL PRESS	20	1	B	20	3	RADIAL ARM SAW						58
59						DISC SANDER	20	1	C									60
61						RADIAL ARM SAW	20	1	A	20	1	TEST TANK						62
63						U H - 9	20	1	B	20	1	FLOW METER						64
65						RECEPT/CARPENTRY SHP	20	1	C	20	1	FLUSH BOOTH/BOIL TANK						66
67						RCPS & PADDLE FAN 703	20	1	A	20	1	GLASS BELT SANDER						68
69						SAFETY ALARM	20	1	B	20	1	RECEPT/UH 10 RM 705						70
71						**RM 702 D PRESS/GRD**	20	1	C	20	1	RECEPTACLES RM 701						72
73		**0.4**				**RECEPT 702**	20	1	A	20	1	SWING ARM HOIST						74
75						**RECEPT/UH 8 RM 702**	20	1	B	20	1	**EXH FAN F-13 (EF-1 AND EF-2)**				**0.4**		76
77		**0.4**				**RECEPTACLES 702**	20	1	C	20	1	**EXH FAN F-68 (SPARE)**						78
79						**BRAKE/RM 702**	20	1	A	20	1	EXH FAN F-67						80
81						**HD RECEPT RM 702**	20	2	B	20	1	RECEPTACLES RM 704						82
83									C	20	1	CANVAS SHOP						84
85						CANVAS SHOP RM 704	20	1	A	50	2	RECEPT RM 704						86
87						SEWING MACHINE 704	20	1	B									88
89						DARNER 704	20	1	C	20	2	RECEPT 705						90
91						SEWING MACHINE 704	20	1	A									92
93						AIR PURIFIER CONTROL	20	1	B	20	1	EXH FAN EF-14						94
95						RCP-112/TOILET 117	20	1	C	20	1	EXH FAN EF-15						96
97						EXH FAN F-78	20	1	A	20	1	DUST COLLECTOR						98
99						EDF/DRINKING FOUNT WELD SHOP	20	1	B	20	1	EYEWASH ALARM						100
101						FAN F-81	20	1	C	20	1	F-86						102
103						4200 TAINTER	20	1	A	20	1	F-80						104
105						**WORKSHOP DRILL PRESS**	20	1	B	20	1	RECEPT. STRIP BOOTH						106
107						**LATHE**	20	1	C	20	1	SPACE						108
109						INFARED HEATER EAST WING	20	1	A	20	1	HEATER REEL HOSE CABINET						110
111						**WASH BAY HEATER**	20	1	B	20	2	RADIATOR TANK						112
113						**BLAST BAY HEATER**	20	1	C									114
115						SPARE	20	1	A	20	1	**W-1**				**1.8**		116
117						SPACE	20	1	B	**30**	**2**	**D-1**				**2.8**		118
119									C							**2.8**		120
121						**WASHER MACHINE SHOP**	50	3	A	50	2	PLANER						122
123									B									124
125						SPACE	20	1	C	20	1	SPACE						126

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	0.0 KVA	0.0 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND
F	LOAD	%	RECEPTACLE	0.7 KVA	0.7 KVA	10KVA + 50% REMAINDER NEC 220.44	8.5 KVA	8.4KVA
A	2.2 KVA	26%	HVAC	0.4 KVA	0.3 KVA	LOAD X 60% (USED MCA IN CALCULATION)	23.5A	23.3A
B	3.1 KVA	37%	MISC	7.4 KVA	7.4 KVA	LOAD X 100% NEC 210.19 NON-CONT.	FILENAME:	
C	3.2 KVA	38%	NP	0.0 KVA	0.0 KVA	0 NONCOINCIDENTAL LOADS NEC 220.60	919457 LOAD LFS.xlsm	

NOTES:
A. THIS IS AN EXISTING PANEL.
B. CIRCUITS IN **BOLD** TO BE RE-ROUTED TO NEW LOCATION WITH NEW FEED FROM PANEL.
C. CIRCUITS WITH A **~~STRIKETHROUGH~~** ARE TO BE MADE SPARE OR RE-PURPOSED WITH **(CIRCUIT IN PARENTHESIS).**

MOUNT:	MOUNT: SURFACE			277/480		3-PHASE, 4W	PANEL	L3		CAPACITY: 400A			INT CAP: EXISTING			
LOCATION:	LOCATION: MECH 112						LUGS:	MCB		DEMAND LOAD: 54A			AV. FAULT: EXISTING			
CKT	LTG	REC	HVAC	MISC	NP	DESCRIPTION	AMP	POLE	F	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CKT
1						LIGHTS RM 703	20	1	A	20	1	LIGHTS RM 701, 705, 706						2
3						**LIGHTS RM 702**	20	1	B	20	1	**LIGHTS RM 708**						4
5						LIGHTS RM 704	20	1	C	20	1	**LIGHTS RM 707**						6
7						LIGHTS RM 712	20	1	A			**PANEL LA**	**0.7**	**1.6**	**12.9**	**3.5**	**0.0**	8
9						LIGHTS RM 704	20	1	B	**70**	**3**		**0.0**	**0.9**	**11.7**	**4.0**	**0.0**	10
11						LIGHTS RM 704	20	1	C				**0.6**	**0.7**	**12.0**	**3.0**	**0.0**	12
13									A									14
15						STRIPPED POWER WASHER	40	3	B	15	3	PLANER						16
17									C									18
19									A									20
21						**ELECTRIC UNIT HEATERS**	50	3	B	50	3	ELEC UNIT HEATERS						22
23									C									24
25									A									26
27						**PAINT BAY ELEC UNIT HEATER**	50	3	B	70	3	ARC WELDER						28
29									C									30
31						**LIGHTS IN PT. BOOTH**	20	1	A	40	1	HEATER DRYING						32
33						**SPARE**	20	1	B	40	1	HEATER DRYING						34
35						PAINT DRYING ICE MELT	20	1	C	20	1	SPARE						36
37						PAINT DRYING LTS	20	1	A									38
39						SPARE	20	1	B	20	3	OVERHEAD DOORS						40
41						SPARE	20	1	C									42
43									A									44
45						OVERHEAD DOORS	20	3	B	20	3	OVERHEAD DOORS						46
47									C									48
49									A									50
51						OVERHEAD DOORS	20	3	B	20	3	OVERHEAD DOORS						52
53									C									54
55									A									56
57						TRANSFORMER P3		3	B	**125**	3	TRANSFORMER P5						58
59									C									60

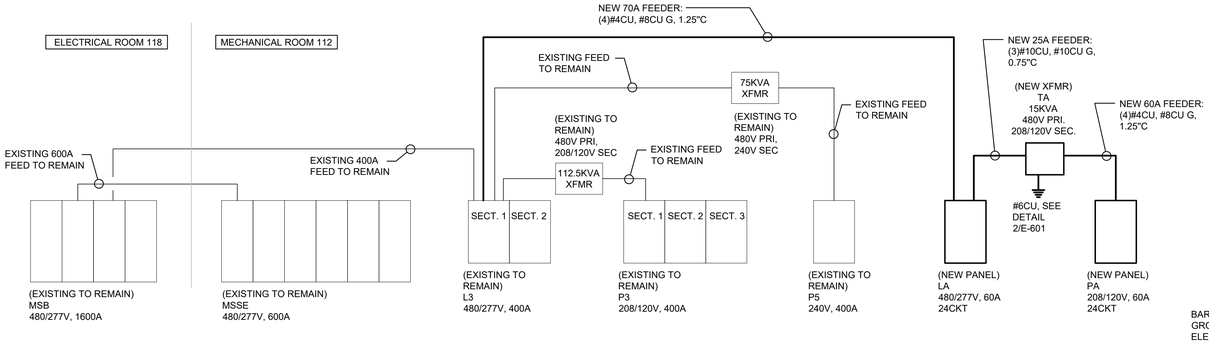
PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	1.3 KVA	1.6 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND
F	LOAD	%	RECEPTACLE	3.2 KVA	3.2 KVA	10KVA + 50% REMAINDER NEC 220.44	51.5 KVA	44.5KVA
A	16.3 KVA	37%	HVAC	36.5 KVA	29.2 KVA	LOAD X 80% (USED MCA IN CALCULATION)	62.0A	53.6A
B	14.2 KVA	32%	MISC	10.5 KVA	10.5 KVA	LOAD X 100% NEC 210.19 NON-CONT.	FILENAME:	
C	14.0 KVA	31%	NP	0.0 KVA	0.0 KVA	0 NONCOINCIDENTAL LOADS NEC 220.60	919457 LOAD LFS.xlsm	

NOTES:
A. THIS IS AN EXISTING PANEL.
B. NEW WORK IS REPRESENTED IN "**BOLD**".

MOUNT:	MOUNT: SURFACE			120/240		3-PHASE, 4W	PANEL	P5		CAPACITY: 225A			INT CAP: EXISTING			
LOCATION:	LOCATION: MECH 112					HI-LEG DELTA	LUGS:	MCB		DEMAND LOAD: A			AV. FAULT: EXISTING			
CKT	LTG	REC	HVAC	MISC	NP	DESCRIPTION	AMP	POLE	F	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CKT
1						PLASMA CUTTER BODY SHOP 708	50	2	A									2
3									B	20	3	SOLVENT CLEANER						4
5						PLANOR	30	2	C									6
7									A									8
9						17" LATHE MACHINE SHOP 705	20	3	B	20	3	TABLE SAW						10
11									C									12
13									A									14
15						**13" LATHE MACHINE SHOP 702**	20	3	B	20	3	**DRILL PRESS/MACH SHOP 702**						16
17									C									18
19						**GRIND MACHINE/MACHINE SHOP 702**	30	3	A									20
21									B	20	3	**HACKSAW MACHINE SHOP 702**						22
23									C									24
25									A									26
27						SURFACE GRINDER	15	3	B	20	3	**BAND SAW/MACHINE SHOP 702**						28
29									C									30
31									A			**MILLING**						32
33						SPACE	20	1	B	20	3	**MACHINE/MACHINE SHOP 702**						34
35						SPACE	20	1	C									36
37						SPACE	20	1	A	20	1	SPACE						38
39						SPACE	20	1	B	20	1	SPACE						40
41						SPACE	20	1	C	20	1	SPACE						42

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	0.0 KVA	0.0 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND
F	LOAD	%	RECEPTACLE	0.0 KVA	0.0 KVA	10KVA + 50% REMAINDER NEC 220.44	0.0 KVA	0.0KVA
A	0.0 KVA	####	HVAC	0.0 KVA	0.0 KVA	LOAD X 80% (USED MCA IN CALCULATION)	0.0A	0.0A
B	0.0 KVA	####	MISC	0.0 KVA	0.0 KVA	LOAD X 100% NEC 210.19 NON-CONT.	FILENAME:	
C	0.0 KVA	####	NP	0.0 KVA	0.0 KVA	0 NONCOINCIDENTAL LOADS NEC 220.60	919457 LOAD LFS.xlsm	

NOTES:
A. THIS IS AN EXISTING PANEL.
B. CIRCUITS IN **BOLD** TO BE RE-ROUTED TO NEW LOCATION WITH NEW FEED FROM PANEL.

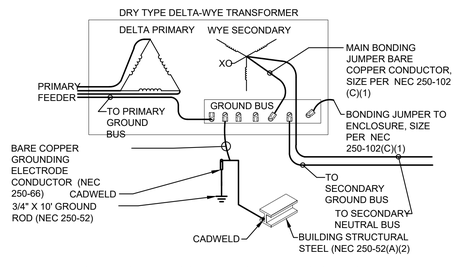


1 E601 ELECTRICAL ONE-LINE DIAGRAM
SCALE: NONE

CONTRACTOR TO VERIFY THE CIRCUITS MARKED AS SPARE THAT THIS PROJECT IS UTILIZING ARE CURRENTLY NOT USED. CONTACT THE ENGINEER IF A CIRCUIT THAT IS BEING UTILIZED UNDER THIS SCOPE OF WORK IS NOT CURRENTLY AVAILABLE.

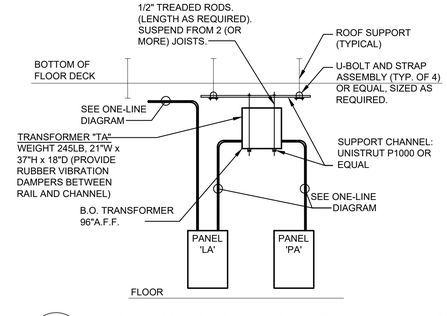
TRANSFORMER SCHEDULE:

PLAN MARK	kVA	PHASE	PRI VOLT.	SEC. VOLT	SERVING	COMMENTS
TA	15.0	3 Ø	480	120/208	PA	MOUNTED ABOVE LA AND PA BY EC
FILENAME:	919457 LOAD LFS.xlsm					



NOTE: ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE. SIZE OF CONDUCTORS PER ONE-LINE.

2 E601 TRANSFORMER GROUNDING DETAIL
SCALE: NONE



3 E601 TRANSFORMER INSTALLATION
SCALE: NONE

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

HARRY J. AUMAN NUMBER E-16827 PROFESSIONAL ENGINEER
4/22/20
Auman, Harry J.
License NO. E16827
Expiration Date 12/31/20

CASCO Diversified Corporation
MO Certificate of Authority #000329 Arch.
MO Certificate of Authority #000613 Eng.

CASCO
12 Sunmen Drive, Suite 100, St. Louis, MO 63143 T: 314.821.1100

OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI
65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:
ELECTRICAL SCHEDULES AND ONE-LINE DIAGRAM

SHEET NUMBER:
E-601
45 OF 46 SHEETS
04/22/2020

EQUIPMENT SCHEDULE

FILE: 919457 LOAD LFS.xlsm

PLAN MARK	EQUIPMENT SERVED	LOAD	VOLT/ PHASE	FED BY	DISC BY	MCA	MOCPD	FEEDER	REMARKS
MAU 1	MAU-1	MAKE-UP AIR	20.29KVA	480/3	LA	EC	24.4A	30A	(3)#10,#10G 1/2"C	1 HP LOCKER ROOMS
MAU 2	MAU-2	MAKE-UP AIR	3.41KVA	480/3	LA	EC	4.1A	15A	(3)#12,#12G 1/2"C	1.5 HP MACHINE SHOP
MAU 3	MAU-3	MAKE-UP AIR	3.82KVA	480/3	LA	EC	4.6A	15A	(3)#12,#12G 1/2"C	2 HP EXPANDED PREP BAY
MAU 4	MAU-4	MAKE-UP AIR	29.85KVA	480/3	MCCE	EC	35.9A	45A	(3)#6,#8G 3/4"C	2 - 10 HP BLAST BAY
MAU 5	MAU-5	MAKE-UP AIR	20.45KVA	480/3	MCCE	EC	24.6A	30A	(3)#10,#10G 1/2"C	2 - 15 HP PAINT BOOTH
EF 1	EF-1	EXHAUST FAN	0.86KVA	120/1	P3	EC	7.2A	15A	(2)#12,#12G 1/2"C	1/3 HP
EF 2	EF-2	EXHAUST FAN	0.53KVA	120/1	P3	EC	4.4A	15A	(2)#12,#12G 1/2"C	1/6 HP
EF 3	EF-3	EXHAUST FAN	0.86KVA	120/1	PA	EC	7.2A	15A	(2)#12,#12G 1/2"C	1/3 HP
EF 4	EF-4	EXHAUST FAN	0.53KVA	120/1	PA	EC	4.4A	15A	(2)#12,#12G 1/2"C	1/6 HP
EF 5	EF-5	EXHAUST FAN	0.86KVA	120/1	PA	EC	7.2A	15A	(2)#12,#12G 1/2"C	1/3 HP
EF 6	EF-6	EXHAUST FAN	0.86KVA	120/1	PA	EC	7.2A	15A	(2)#12,#12G 1/2"C	EXISTING
EF 7	EF-7	EXHAUST FAN	26.77KVA	480/3	MCCE	EC	32.2A	40A	(3)#8,#10G 3/4"C	EXISTING
EF 8	EF-8	EXHAUST FAN	0.86KVA	120/1	PA	EC	7.2A	15A	(2)#12,#12G 1/2"C	1/3 HP PAINT MIXING ROOM
EF 9	EF-9	EXHAUST FAN	1.18KVA	120/1	MCCE	EC	9.8A	15A	(2)#12,#12G 1/2"C	EXISTING
EF 10	EF-10	EXHAUST FAN	26.77KVA	480/3	MCCE	EC	32.2A	40A	()#8,#10G 3/4"C	10 HP PAINT BOOTH REPLACEMENT
EF 11	EF-11	EXHAUST FAN	1.18KVA	120/1	MCCE	EC	9.8A	40A	()#8,#10G 3/4"C	EXISTING
EF 12	EF-12	EXHAUST FAN	26.77KVA	480/3	MCCE	EC	32.2A	40A	()#8,#10G 3/4"C	10 HP DUST COLLECTOR
EF 13	EF-13	EXHAUST FAN	40.16KVA	480/3	MCCE	EC	48.3A	60A	()#4,#8G 1"C	15 HP DUST COLLECTOR
AS 1	AS-1	AIR SHOWER	5.91KVA	208/3	PA	EC	16.4A	20A	(3)#12,#12G 1/2"C	
D 1	D-1	DRYER	5.60KVA	208/1	PA	EC	26.9A	30A	(2)#10,#10G 1/2"C	
W 1	W-1	WASHER	1.80KVA	120/1	PA	EC	15.0A	20A	(2)#12,#12G 1/2"C	

MOUNT: SURFACE | 277/480 | 3-PHASE, 4W | PANEL LA | CAPACITY: 100A | INT CAP: 14KA

LOCATION: MECH 112 | LUGS: MLO | DEMAND LOAD: 54A | AV. FAULT: 5A

CKT	LTG	REC	HVAC	MISC	NP	DESCRIPTION	AMP	POLE	F	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CKT
1			6.8			MAU-1	30	3	A	25	3	XFMR: TA SERV PNL PA	0.0	1.6	3.7	0.5	0.0	2
3			6.8						B			RATED 15.0 KVA	0.0	0.9	2.5	0.5	0.0	4
5			6.8						C			LOAD 13 KVA	0.0	0.7	2.8	0.0	0.0	6
7	0.7					MACHINE SHOP 08 LTS	20	1	A	15	3	MAU-2, MAU-3			2.4			8
9				0.5		BLAST BTH CNTRL PNL	20	1	B						2.4			10
11	0.6					PREP BAY EXPANSION LTS	20	1	C						2.4			12
13						SPARE	20	1	A	30	3	OVERHEAD DOOR MACHINE SHOP				3.0		14
15						SPARE	20	1	B							3.0		16
17						SPARE	20	1	C							3.0		18
19						SPARE	20	1	A	20	1	SPARE						20
21						SPARE	20	1	B	20	1	SPARE						22
23						SPARE	20	1	C	20	1	SPARE						24

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	1.3 KVA	1.6 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND
F	LOAD	%	RECEPTACLE	3.2 KVA	3.2 KVA	10KVA + 50% REMAINDER NEC 220.44	51.5 KVA	44.5KVA
A	16.3 KVA	37%	HVAC	36.5 KVA	29.2 KVA	LOAD X 80% (USED MCA IN CALCULATION)	62.0A	53.6A
B	14.2 KVA	32%	MISC	10.5 KVA	10.5 KVA	LOAD X 100% NEC 210.19 NON-CONT.	FILENAME:	
C	14.0 KVA	31%	NP	0.0 KVA	0.0 KVA	0 NONCOINCIDENTAL LOADS NEC 220.60	919457 LOAD LFS.xlsm	

NOTES:
A. THIS IS A NEW PANEL.
B. SCCR RATING BASED ON UPSTREAM PANEL RATING.

MOUNT: SURFACE | 120/208 | 3-PHASE, 4W | PANEL PA | CAPACITY: 60A | INT CAP: 10KA

LOCATION: MECH 112 | LUGS: MCB | DEMAND LOAD: 32A | AV. FAULT: 4A

CKT	LTG	REC	HVAC	MISC	NP	DESCRIPTION	AMP	POLE	F	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	NP	CKT
1						SPARE	20	1	A	15	1	EF-3			0.9			2
3						SPARE	20	1	B	15	1	EF-4			0.5			4
5						SPARE	20	1	C	15	1	EF-5			0.9			6
7		1.6				08 RECEPTACLES	20	1	A	15	1	EF-8			0.9			8
9		0.9				05A RECEPTACLES	20	1	B	20	3	AS-1			2.0			10
11		0.7				06 RECEPTACLES	20	1	C						2.0			12
13				0.5		BLAST BTH TIMER CNTRL	20	1	A						2.0			14
15				0.5		BLAST BTH REVERSE PULSE CNTRL	20	1	B	20	1	SPARE						16
17						SPARE	20	1	C	20	1	SPARE						18
19						SPARE	20	1	A	20	1	SPARE						20
21						SPARE	20	1	B	20	1	SPARE						22
23						SPARE	20	1	C	20	1	SPARE						24

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	0.0 KVA	0.0 KVA	LOAD X 125% NEC 210.19 CONTINUOUS	CONNECTED	DEMAND
F	LOAD	%	RECEPTACLE	3.2 KVA	3.2 KVA	10KVA + 50% REMAINDER NEC 220.44	13.3 KVA	11.5KVA
A	5.1 KVA	44%	HVAC	9.0 KVA	7.2 KVA	LOAD X 80% (USED MCA IN CALCULATION)	36.8A	31.8A
B	3.4 KVA	30%	MISC	1.0 KVA	1.0 KVA	LOAD X 100% NEC 210.19 NON-CONT.	FILENAME:	
C	3.0 KVA	26%	NP	0.0 KVA	0.0 KVA	0 NONCOINCIDENTAL LOADS NEC 220.60	919457 LOAD LFS.xlsm	

NOTES:
A. THIS IS A NEW PANEL.
B. SCCR RATING BASED ON UPSTREAM PANEL RATING.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
HARRY J. AUMAN
NUMBER E-16827
PROFESSIONAL ENGINEER
4/22/20

Auman, Harry J.
License NO. E16827
Expiration Date 12/31/20

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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

MISSOURI NATIONAL GUARD

RENOVATE PAINT AND BLAST BOOTHS AND INSTALL SOLAR ARRAY
COMBINED SUPPORT MAINTENANCE SHOP (CSMS)
2302 MILITIA DRIVE
JEFFERSON CITY, MISSOURI 65101

PROJECT # T1921-01
SITE # 6300
ASSET# 8136300017

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/22/2020

CAD DWG FILE:
DRAWN BY: SAT
CHECKED BY:
DESIGNED BY: SAT

SHEET TITLE:
ADDITIONAL ELECTRICAL SCHEDULES

SHEET NUMBER:
E-602
46 OF 46 SHEETS
04/22/2020