WASH HOUSE LAUNDRY

711 SE 291 HWY
LEE'S SUMMIT, MO 64063

OWNER:	WASH HOUSE LAUNDRY 410 SOUTH WEST STATE BLUE SPRING, MISSOURI 64014 (816) 988-7775	STRUCTURAL ENGINEER:	VAN DEURZEN AND ASSOCIATES, P.A. 11011 KING STREET SUITE 130 OVERLAND PARK, KANSAS 66210 CONTACT: CHAD STREETER
ARCHITECT:	WGN ASSOCIATES INC. 4051 BROADWAY KANSAS CITY, MISSOURI 64111 PH: (816) 931-2820 FAX: (816) 931-2821 CONTACT: CRIS WOODS	MEP ENGINEER:	LANKFORD FENDLER + ASSOCIATES CONSULTING ENGINEERS, INC. 1730 WALNUT ST KANSAS CITY, MO 64108 PH: (816) 221-1411

SHEET INDEX

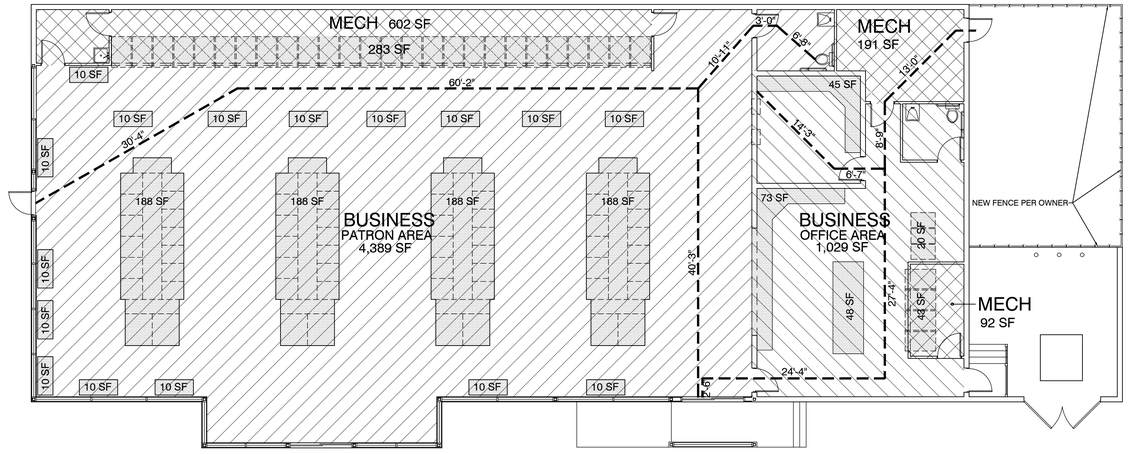
ISSUE DATE:	
PERMIT	3/12/2021
REVISIONS:	
CITY COMMENTS	3/12/2021
JOB NO:	3532-2001
DRAWN BY:	JJH
DESIGNED BY:	CMB

VAN DEURZEN ASSOCIATES P.A.
11011 KING STREET SUITE 130
OVERLAND PARK, KS 66210
913.451.6305 FAX 913.451.6311
E-MAIL: CS@VANDEURZENASSOCIATES.COM
Van Deurzen and Associates, P.A.

wgn ARCHITECTS
4051 BROADWAY
KANSAS CITY, MISSOURI 64111
(816) 931-2820

G:\Projects\3532-20xx_Wash House - Lee's Summit\Sheets\CS1.dwg Plotted: 3/12/2021

CODE ANALYSIS
1/8" = 1'-0"



PROJECT & BLDG. DESCRIPTION: THIS IS AN ADAPTIVE REUSE / REMODELING PROJECT OF AN EXISTING BUILDING, PREVIOUSLY USED AS A RESTAU-RANT. THE BUILDING IS CONVENTIONAL WOOD FRAMING W/ WOOD ROOF TRUSSES & EXTERIOR BEARING WALLS

ADDRESS: 711 ROUTE 291, LEE'S SUMMIT, MISSOURI

LEGAL DESCRIPTION: ALL OF LOT 5A, POLK ADDITION, LOTS 5A & 5B, A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, EXCEPT THAT PART DESCRIBED AS FOLLOWS;

ALL THAT PART 5A, POLK ADDITION, LOTS 5A & 5B, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SE CORNER OF SAID LOT 5A, THENCE SOUTH 90° , 0 MINUTES, 0 SECONDS WEST ALONG THE SOUTH LINE OF SAID LOT 5A A DISTANCE OF 26.05 FEET; THENCE NORTH 0°, 0 MINUTES, 0 SECONDS EAST, CONTINUING ALONG THE LOT LINE OF SAID LOT 5A A DISTANCE OF 110 FEET; THENCE NORTH 0°, 0 MINUTES, 0 SECONDS EAST, A DISTANCE OF 26.05 FEET TO A POINT ON THE LOT LOT LINE BETWEEN LOT 5A & LOT 5B OF SAID SUBDIVISION; THENCE SOUTH 0°, 0 MINUTES, 0 SECONDS WEST ALONG THE LOT LINE OF SAID LOT 5A & 5B A DISTANCE OF 110 FEET TO THE POINT OF THE BEGINNING

APPLICABLE CODES: 2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2018 INTERNATIONAL MECHANICAL CODE
2017 NATIONAL ELECTRICAL CODE
2018 UNIFORM PLUMBING CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL FIRE CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE

AUTOMATIC FIRE SPRINKLER SYSTEM: NOT REQUIRED

MANUAL FIRE ALARM SYSTEM: NOT REQUIRED

REQUIRED FIRE RATINGS: NONE REQUIRED

OCCUPANCY CLASSIFICATION: B

TYPE OF CONSTRUCTION: V-B

BLDG AREA AS DEFINED BY 2018 IBC, SECTION 202: 6,303 SF

OCCUPANT LOAD: 31 OCCUPANTS

OCCUPANCY SPACE / AREA	SF	DEDUCT UNUSABLE FIXED EQUIP SF		# OF USABLE SF		O.L.F.		# OF OCCP	REQ'D TLTS	REQ'D LAVS
BUSINESS PATRON AREA	4,389 SF	- 912 SF	=	3,477 SF	/	150	=	23.2	1*	1
BUSINESS OFFICE AREA	1,029 SF	- 186 SF	=	843 SF	/	150	=	5.6	1*	1
MECHANICAL	885 SF	- 326 SF	=	559 SF	/	300	=	1.9		
BLDG TOTAL SF	6,303 SF			TOTAL # OF OCCUPANTS				30.7		

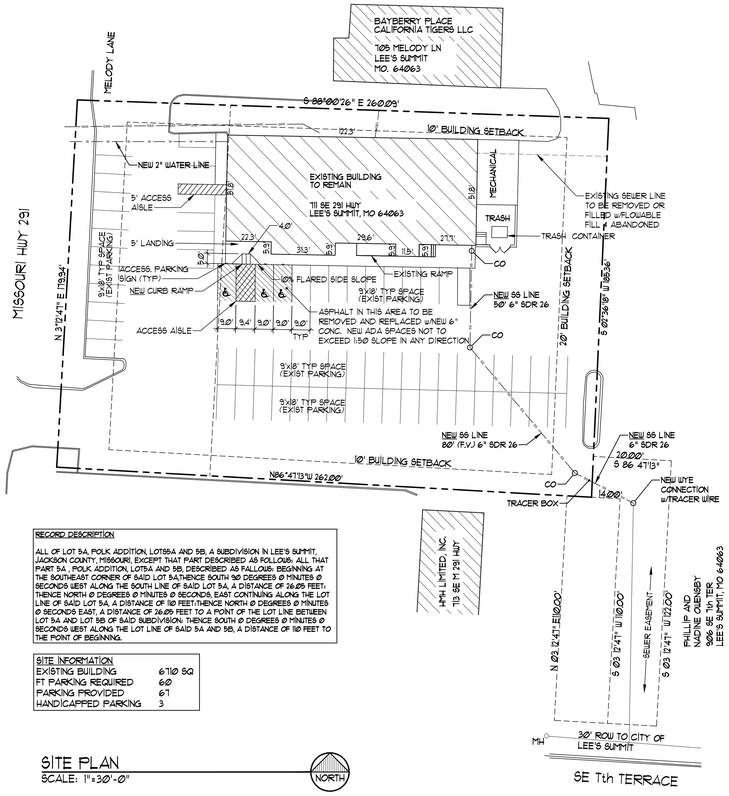
* THE OCCUPANT LOAD OF THE FACILITY HAS BEEN DETERMINED USING THE USABLE SF, NOT THE GROSS SF BECAUSE, WE ASSERT THAT, NO OCCUPANTS CAN OCCUPY THE SAME SF AS THE FIXED LAUNDRY EQUIPMENT. SECONDLY, THE REQUIRED # OF PLUMBING FIXTURES HAS BEEN DETERMINED BY SEPARATING THE 2 BUSINESS AREAS, PATRONS & OFFICE, FROM ONE ANOTHER. PER THE 2018 IBC, SECTION 2902.2, EXCEPTION 4, SEPARATE RESTROOM FACILITIES SHALL NOT BE REQUIRED IN BUSINESS OCCUPANCIES IN WHICH THE MAXIMUM OCCUPANT LOAD IS 25 OR FEWER. THE AUTHORITY TO DO THIS IS ALLOWED BY IBC, SECTION 1004.5 WHERE IT STATES IN THE EXCEPTION THEREIN THAT "WHERE APPROVED BY THE BUILDING OFFICIAL, THE ACTUAL NUMBER OF OCCUPANTS FOR WHOM EACH OCCUPIED SPACE, FLOOR OR BUILDING IS DESIGNED, ALTHOUGH LESS THAN THOSE DETERMINED BY CALCULATION, SHALL BE PERMITTED TO BE USED IN THE DETERMINATION OF THE DESIGN OCCUPANT LOAD. WE HEREBY REQUEST THE BUILDING OFFICIAL OF LEE'S SUMMIT, MO. CONCUR WITH OUR ASSESSMENT.

REQUIRED EGRESS WIDTH: THE BUSINESS PATRON AREA IS SERVED BY 3 DIFFERENT EXITS, 2 AUTOMATIC DOORS, EACH W/ A 3'-10" WIDE OPENING, AND 1 SWINGING DOOR W/ A 3'-0" WIDE OPENING. THE NUMBER OF OCCUPANTS IN THE PATRON AREA IS 23.2 OCCUPANTS. EACH OF THE AUTOMATIC DOORS IS CAPABLE OF EXITING 230 OCCUPANTS (46/.2) & THE SWINGING DOOR IS CAPABLE OF EXITING 180 OCCUPANTS (36/.2). THE BUSINESS OFFICE AREA IS SERVED BY 2 DIFFERENT EXITS THAT ARE EACH 36" WIDE. THE NUMBER OF NUMBER OF OCCUPANTS IN THE OFFICE AREA IS 5.6 OCCUPANTS. EACH OF THE 2 DOORS ARE CAPABLE OF EXITING 180 OCCUPANTS (36/.2).

TRAVEL DISTANCE: TABLE 1017.2 IN THE 2018 IBC STATES THE MAXIMUM TRAVEL DISTANCE IN A "B" OCCUPANCY WITHOUT A SPRINK- LER SYSTEM IS 200 FEET. WE HAVE CALCULATED THE MAXIMUM TRAVEL DISTANCE WITHIN THE BUSINESS PATRON AREA FROM THE MOST REMOTE LOCATION IN THE RESTROOM TO THE NEAREST EXIT TO BE 60'-10". THE TRAVEL DISTANCE TO THE FURTHEST EXIT IS 111'-1". THE MAXIMUM TRAVEL DISTANCE WITHIN THE BUSINESS OFFICE AREA HAS BEEN CALCULATED TO BE 31'-2". THE TRAVEL DISTANCE TO THE FURTHEST EXIT IS 75'-0".

COVER SHEET FOR:
WASH HOUSE LAUNDRY - LEE'S SUMMIT
711 SE 291 HWY
LEE'S SUMMIT, MO 64063

SHEET NO:
CS1



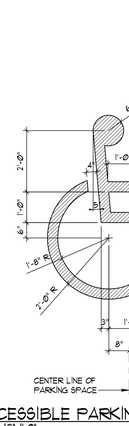
RECORD DESCRIPTION

ALL OF LOT 9A, POLK ADDITION, LOTS9A AND 9B, A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, EXCEPT THAT PART DESCRIBED AS FOLLOWS: ALL THAT PART 9A , POLK ADDITION, LOT9A AND 9B, DESCRIBED AS FALLOWS: BEGINNING AT THE SOUTHEAST CORNER OF SAID LOT 9A;THENCE SOUTH 90 DEGREES 0 MINUTES 0 SECONDS WEST ALONG THE SOUTH LINE OF SAID LOT 9A, A DISTANCE OF 26.09 FEET; THENCE NORTH 0 DEGREES 0 MINUTES 0 SECONDS, EAST CONTINUING ALONG THE LOT LINE OF SAID LOT 9A, A DISTANCE OF 110 FEETTHENCE NORTH 0 DEGREES 0 MINUTES 0 SECONDS EAST, A DISTANCE OF 26.09 FEET TO A POINT OF THE LOT LINE BETWEEN LOT 9A AND LOT 9B OF SAID SUBDIVISION; THENCE SOUTH 0 DEGREES 0 MINUTES 0 SECONDS WEST ALONG THE LOT LINE OF SAID 9A AND 9B, A DISTANCE OF 110 FEET TO THE POINT OF BEGINNING.

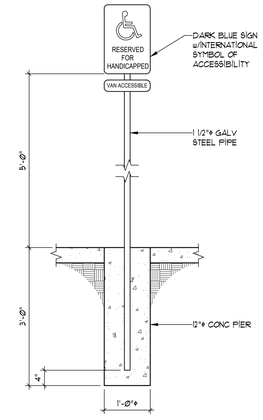
SITE INFORMATION

EXISTING BUILDING	6710 SQ
FT PARKING REQUIRED	60
PARKING PROVIDED	61
HANDICAPPED PARKING	3

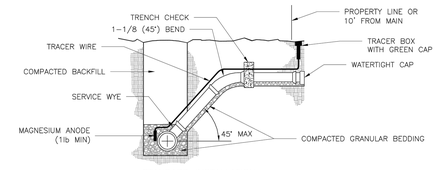
SITE PLAN
SCALE: 1"=30'-0"



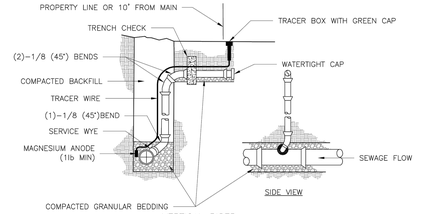
ACCESSIBLE PARKING SPACE SYMBOL
SCALE: 1/2"=1'-0"



ACCESSIBLE PARKING SIGNAGE
SCALE: 3/4"=1'-0"



STANDARD INSTALLATION
NOT TO SCALE



VERTICAL RISER
NOT TO SCALE

NOTES:
1. ALL SEWER STUBS SHALL BE CONSTRUCTED TO PROPERTY LINE OR 10' MINIMUM FROM THE MAIN. WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. ALL NEW CONSTRUCTION OFF SEWER STUBS SHALL BE TEMPORARILY MARKED WITH A MARKING STAKE, 36" ABOVE GROUND AND PAINTED GREEN.
3. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
4. TRENCH CHECKS ON THE BUILDING SEWER STUBS SHALL EXTEND 6" BELOW THE BOTTOM OF THE PIPE. LENGTH SHALL BE A MINIMUM OF 12". THE HEIGHT OF THE TRENCH CHECK SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE. THE WIDTH OF THE TRENCH CHECK SHALL BE THE WIDTH OF THE TRENCH.
5. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
6. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER.
7. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP. WIRE SHALL BE TAPED OR TIED TO THE PIPE AT 5' INTERVALS.
8. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
9. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
BY APPROPRIATE SERVICES
STATE OF MISSOURI
3/12/2021

STATE OF MISSOURI
CHAD M. STREETER
NUMBER PE-2009018817
PROFESSIONAL ENGINEER
3/12/2021

ISSUE DATE:	
PERMIT	3/12/2021
REVISIONS:	
CITY COMMENTS	3/12/2021
JOB NO:	3532-2001
DRAWN BY:	JLH
DESIGNED BY:	CMS

VAN DEURZEN & ASSOCIATES, P.A.
1201 KING STREET SUITE 1310
OVERLAND PARK, KS 66210
(913) 451-6305 FAX (913) 451-9571
E-MAIL: GO@VANDEURZEN-ASSOCIATES.COM

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wgn ARCHITECTS
4051 BROADWAY
KANSAS CITY, MISSOURI 64111
(816) 931-2820

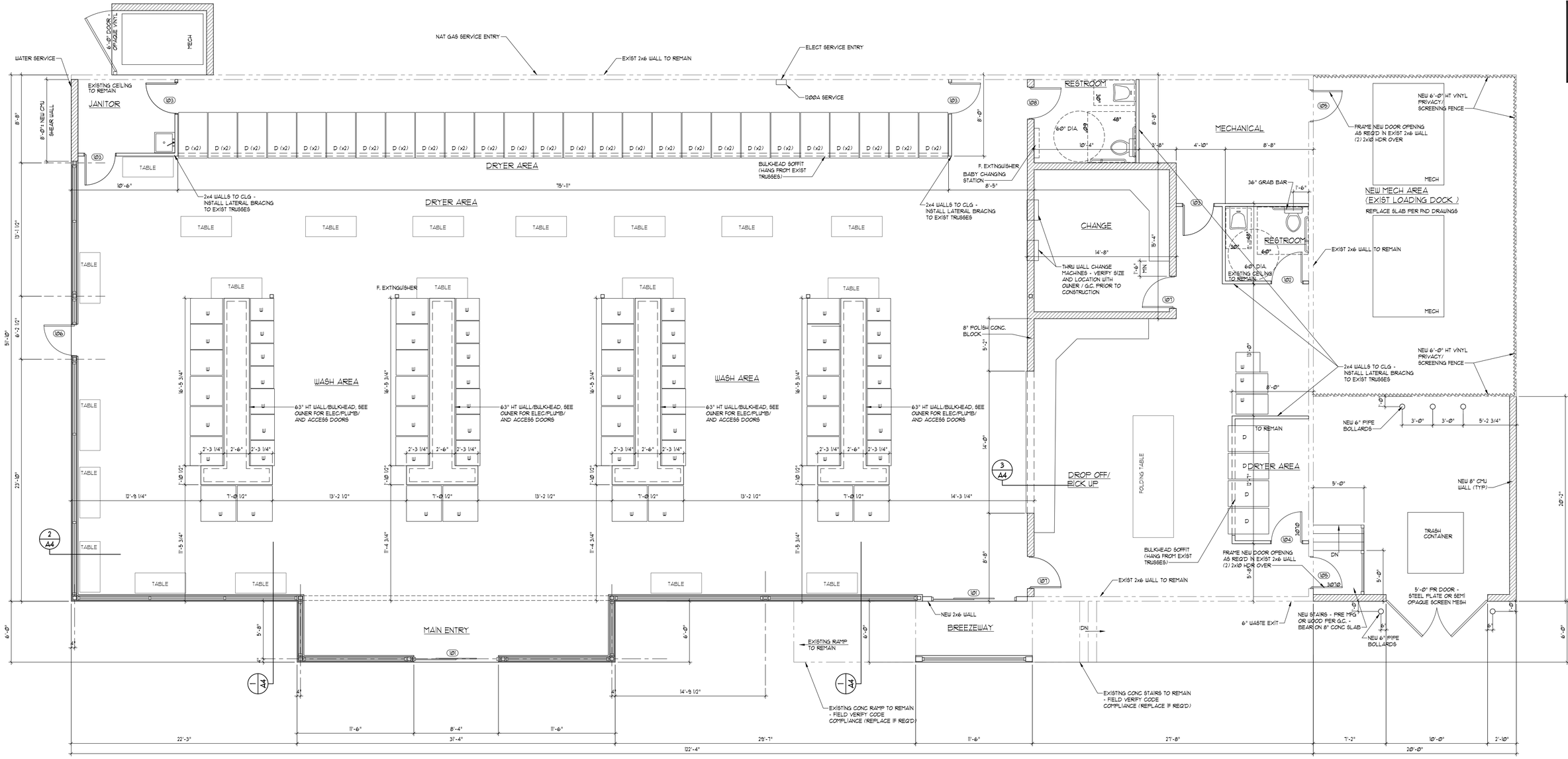
SITE PLAN AND DETAILS

WASH HOUSE LAUNDRY - LEE'S SUMMIT

711 SE 291 HWY.
LEE'S SUMMIT MO 64063

SHEET NO:

C1



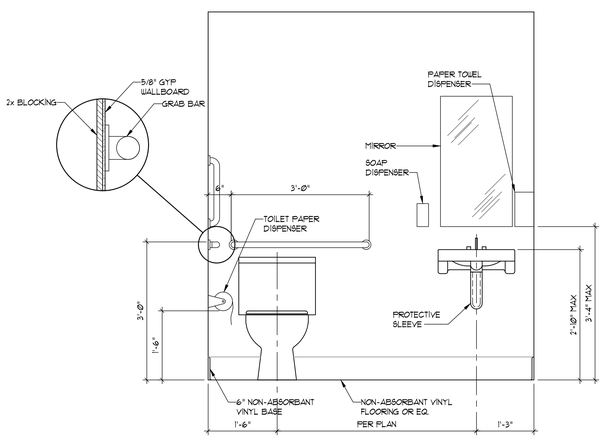
DOOR SCHEULE (###)

	SIZE	TYPE	DOOR MATERIAL	FRAME MATERIAL	LATCHSET/LOCKSET	PANIC DEVICES	REMARKS
Ø1	8'-4"x8'-3 1/4"	STOREFRONT	M1	F1	LOCKSET	---	STOREFRONT SLIDING DOOR w/EMERGENCY OUTSWING
Ø2	3'-Ø" x 7'-Ø"	HOLLOW METAL	M3	F2	LEVER LOCKSET	---	AUTO DOOR CLOSURE w/ MAX 8 1/2 LB FORCE, 11Ø° OPEN, ADA & TITLE 24 COMPLIANT
Ø3	3'-Ø" x 7'-Ø"	HOLLOW METAL	M3	F2	LEVER LOCKSET	STD PANIC BAR	
Ø4	3'-Ø" x 7'-Ø"	HOLLOW METAL	M3	F2	LEVER LOCKSET	---	
Ø5	3'-Ø" x 7'-Ø"	EXT. INSULATED	M2	F2	LEVER LOCKSET	STD PANIC BAR	
Ø6	3'-Ø" x 7'-Ø"	STOREFRONT	M1	F1	LEVER LOCKSET	STD PANIC BAR	
Ø7	3'-Ø" x 7'-2"	HOLLOW METAL	M3	F2	LEVER LOCKSET	---	
Ø8	3'-Ø" x 7'-Ø"	HOLLOW METAL	M3	F2	LEVER LOCKSET	---	AUTO DOOR CLOSURE w/ MAX 8 1/2 LB FORCE, 11Ø° OPEN, ADA & TITLE 24 COMPLIANT

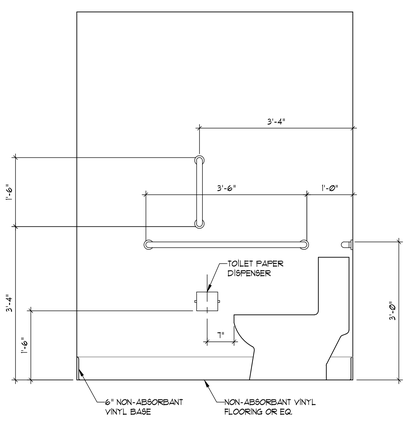
DOOR MATERIAL:
M1 - ALUMINUM STOREFRONT w/ TEMPERED GLASS
M2 - STEEL INSULATED, 18ga, FULL FLUSH, NON-RATED, 1 3/4" THICK
M3 - HOLLOW METAL, 18ga, FULL FLUSH, NON-RATED, 1 3/4" THICK

FRAME MATERIAL:
F1 - ALUMINUM STOREFRONT
F2 - 16ga STEEL WELDED DRYWALL FRAME

MAIN FLOOR PLAN
SCALE: 1/4" = 1'-Ø"



ADA ELEVATION
SCALE: 3/4" = 1'-Ø"



ADA ELEVATION
SCALE: 3/4" = 1'-Ø"

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

ISSUE DATE:
PERMIT 3/12/2021
REVISIONS:
CITY COMMENTS 3/12/2021

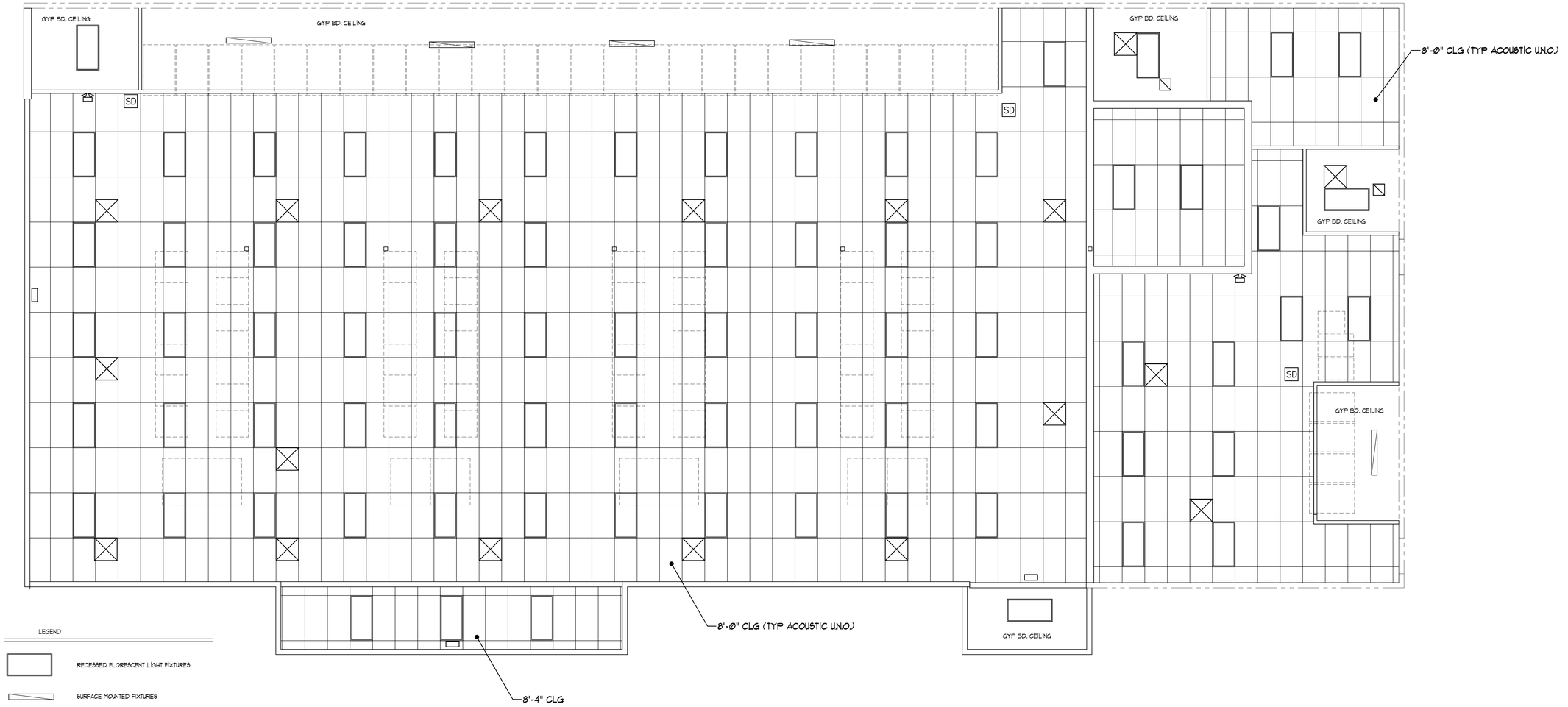
JOB NO: 3532-2001
DRAWN BY: JWH
DESIGNED BY: CMS

VAN DEUREN & ASSOCIATES, P.A.
CIVIL STRUCTURAL
OVERLAND PARK, KS 66210
(913) 451-6305 FAX (913) 451-1021
E-MAIL: VDA@VANDEURENASSOC.COM

WGN ARCHITECTS
4051 BROADWAY
KANSAS CITY, MISSOURI 64111
(816) 931-2620

MAIN FLOOR PLAN FOR:
WASH HOUSE LAUNDRY - LEE'S SUMMIT
111 SE 291 HWY.
LEE'S SUMMIT MO64063

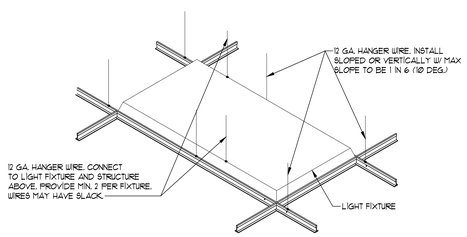
SHEET NO: A1



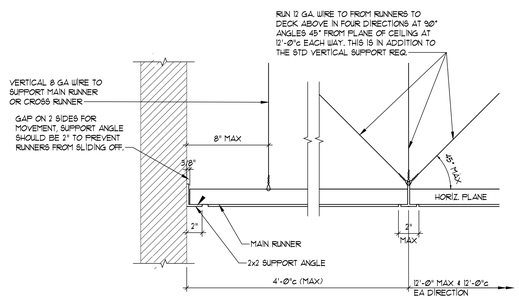
LEGEND

- RECESSED FLORESCENT LIGHT FIXTURES
- SURFACE MOUNTED FIXTURES
- EMERGENCY LIGHTING
- EMERGENCY EXIT LIGHT
- SPOT LIGHT FIXTURE
- SD — SMOKE DETECTOR
- MECHANICAL SUPPLY
- MECHANICAL RETURN
- BATHROOM EXHAUST FAN

REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-Ø"



LIGHT FIXTURE SUPPORT
SCALE: 3/4" = 1'-Ø"



SUSPENDED CEILING SUPPORT
SCALE: 1 1/2" = 1'-Ø"

NOTES:
1. LIGHT FIXTURES ARE TO BE INDEPENDENTLY SUPPORTED AT 6 LOCATIONS.
2. FASTEN CROSS RUNNERS TO MAIN RUNNERS TO PREVENT CROSS TEES FROM PULLING OR TWISTING OUT OF MAIN RUNNERS.
3. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM E-580

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
Richard E. Brown
REGISTERED ARCHITECT
MISSOURI NUMBER A-3568
2/11/2021

ISSUE DATE:
PERMIT 2/11/2021
REVISIONS:
JOB NO: 3532-2001
DRAWN BY: JLH
DESIGNED BY: CMS

VAN DEURZEN ASSOCIATES, P.A.
1101 KING STREET SUITE 130
OVERLAND PARK, KS 66210
913-451-8305 FAX (913) 451-1011
E-MAIL: VDA-MAIL@VANDEURZEN.COM
Van Deurzen and Associates, P.A.

WGN ARCHITECTS
4051 BROADWAY
KANSAS CITY, MISSOURI 64111
(816) 931-2820

REFLECTED CEILING PLAN FOR:
WASH HOUSE LAUNDRY - LEE'S SUMMIT
711 SE 291 HWY
LEE'S SUMMIT, MO 64063

SHEET NO:
A2

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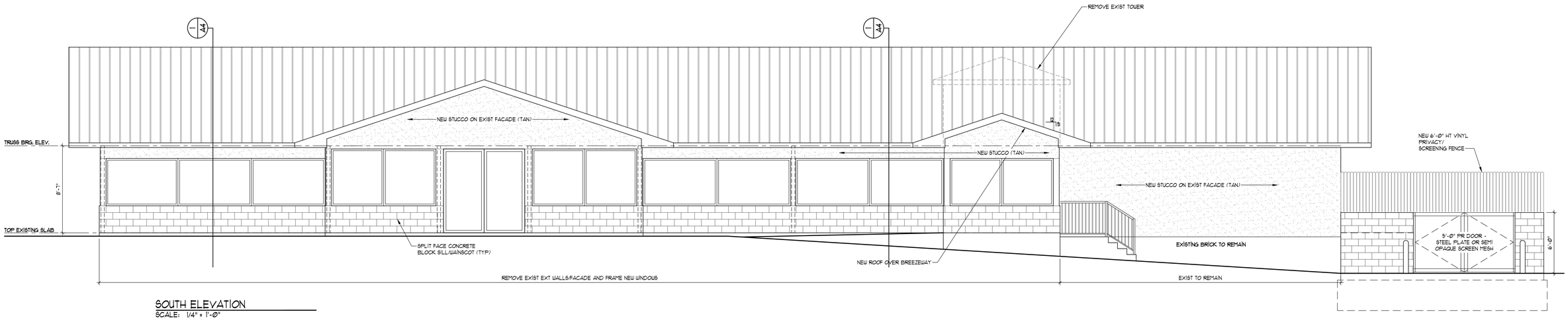
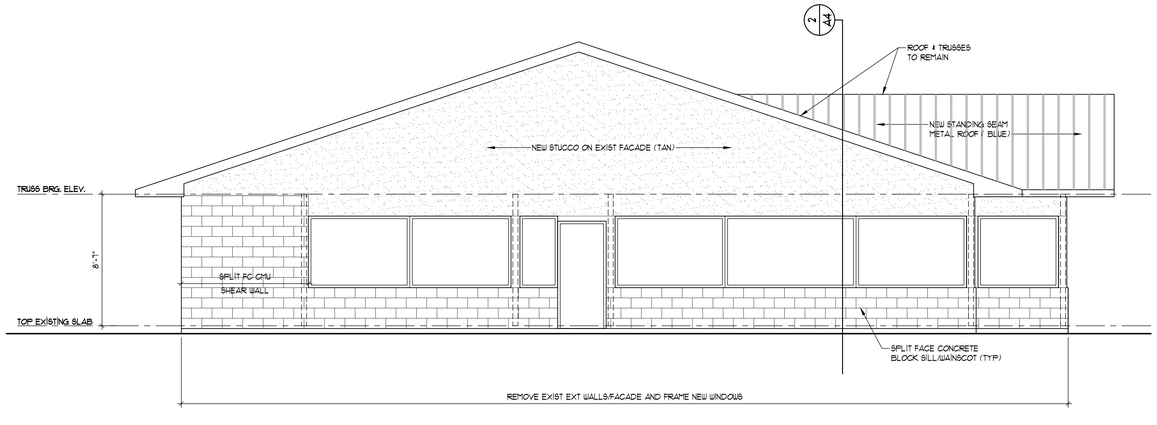


SOUTH ELEVATION
SCALE: 1/4" = 1'-Ø"



WEST ELEVATION
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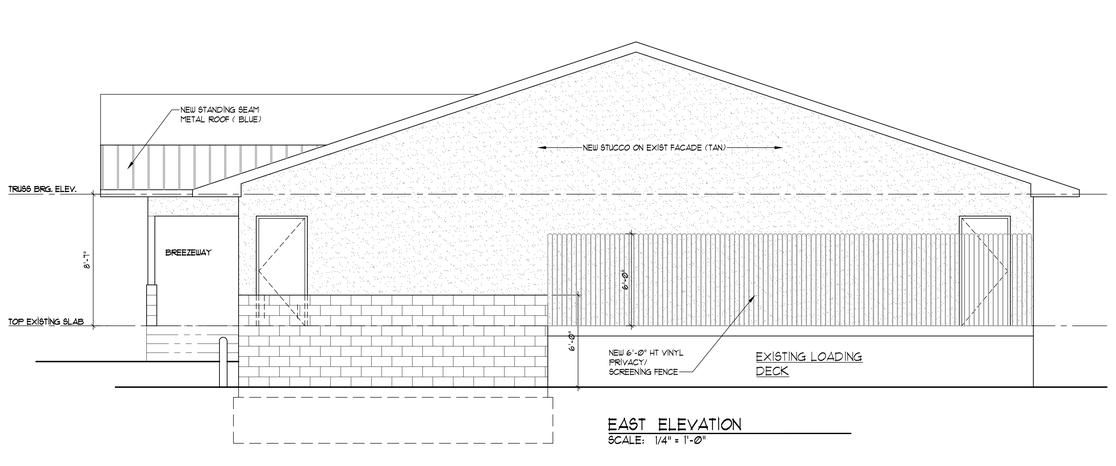

EAST ELEVATION
SCALE: 1/4" = 1'-Ø"

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

Richard E. Weber
REGISTERED ARCHITECT
MISSOURI NUMBER A-3568
2/19/21

ISSUE DATE:	
PERMIT	3/12/2021
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CITY COMMENTS	3/12/2021

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DESIGNED BY: CMS

VAN DEURZEN & ASSOCIATES, P.A.
1201 KING STREET SUITE 130
OVERLAND PARK, KS 66210
913-451-8305 FAX 913-451-8011
E-MAIL: VDA@VANDEURZENASSOC.COM
Van Deurzen and Associates, P.A.

WGN ARCHITECTS
4051 BROADWAY
KANSAS CITY, MISSOURI 64111
(816) 931-2820

ELEVATIONS FOR:
WASH HOUSE LAUNDRY - LEE'S SUMMIT
711 SE 291 HWY
LEE'S SUMMIT, MO 64082

SHEET NO: A3

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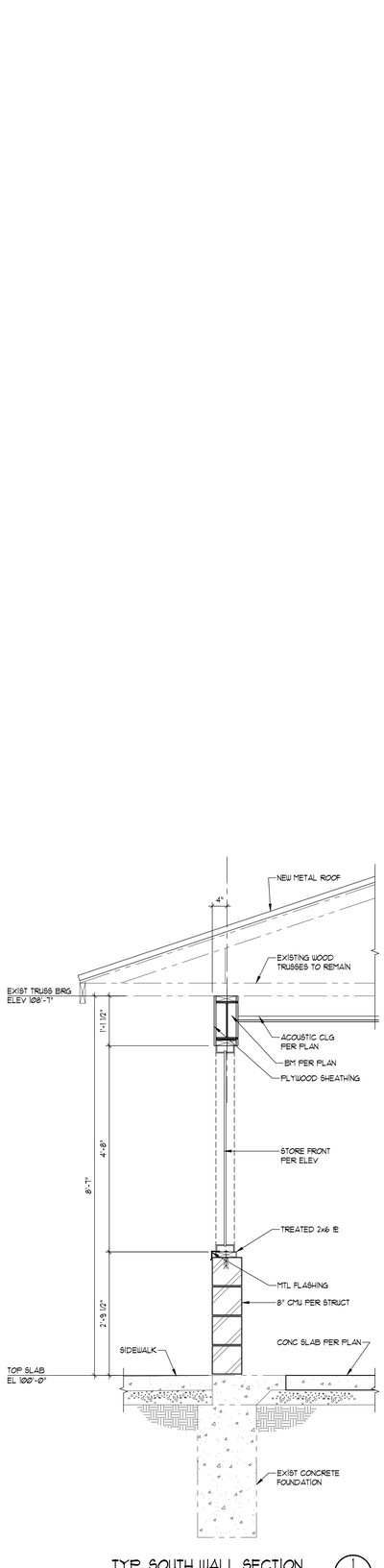

TYP. SOUTH WALL SECTION (1/A4)
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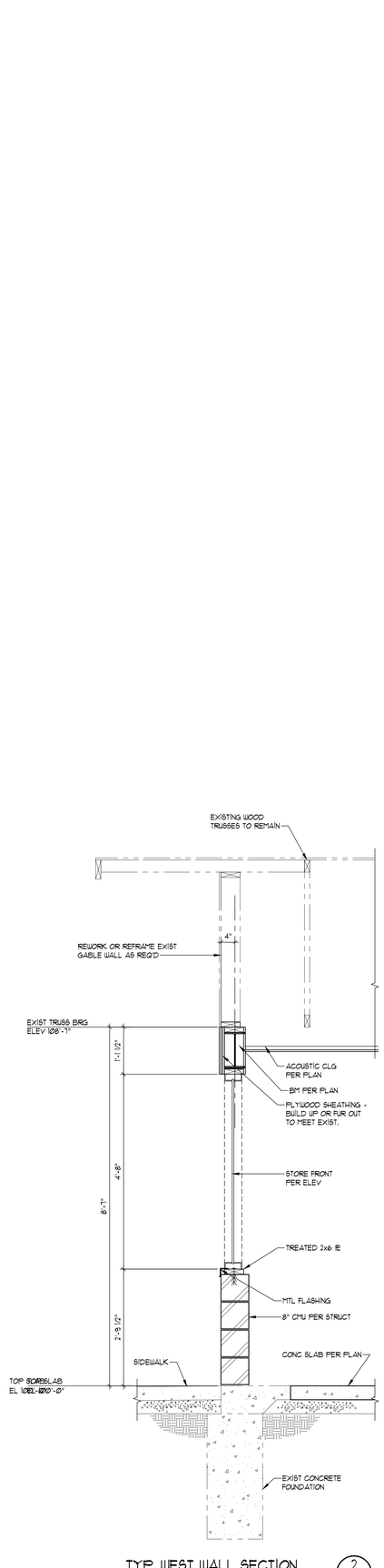

TYP. WEST WALL SECTION (2/A4)
SCALE: 1/4 = 1'-0"

SECTION THRU OFFICE (3/A4)
SCALE: 1/4 = 1'-0"

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

Richard E. Brown
STATE OF MISSOURI
ROGER NUMBER A-3568
2/11/2021

ISSUE DATE:
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VAN DEURZEN ASSOCIATES, P.A.
1101 KING STREET SUITE 130
OVERLAND PARK, KS 66210
913-451-8305 FAX 913-451-8011
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WGN ARCHITECTS
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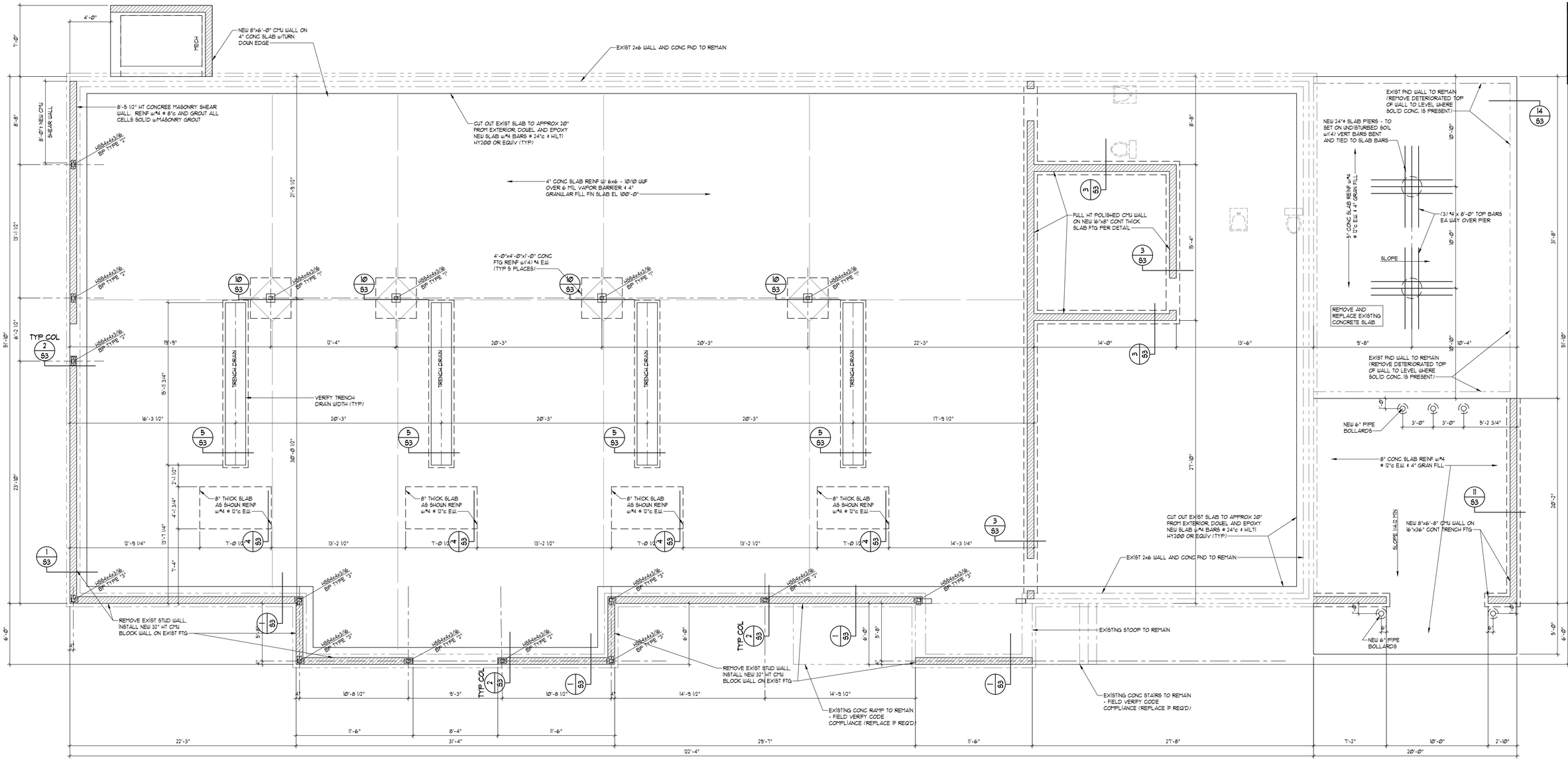
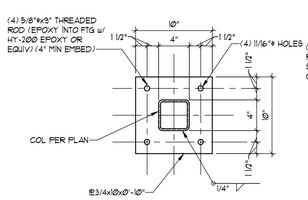
WASH HOUSE LAUNDRY - LEE'S SUMMIT
711 SE 291 HWY
LEE'S SUMMIT, MISSOURI 64063

SHEET NO:
A4

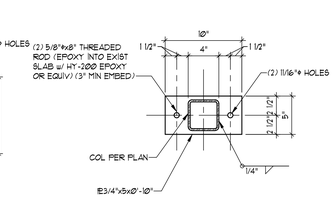
STATE OF MISSOURI
CHAD M. STREETER
NUMBER PE-2009010817
3/12/2021



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



BASE PLATE TYPE "1"
SCALE: 1 1/2" = 1'-0"



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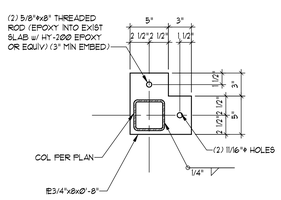

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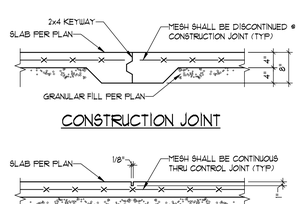
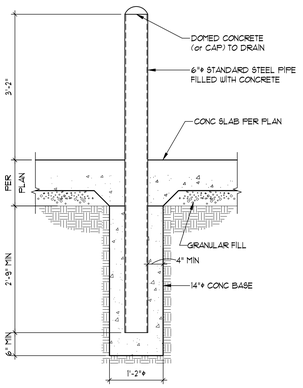


CONSTRUCTION JOINT

CONTROL JOINT



TYPICAL 6" PIPE BOLLARD
SCALE: 3/4" = 1'-0"

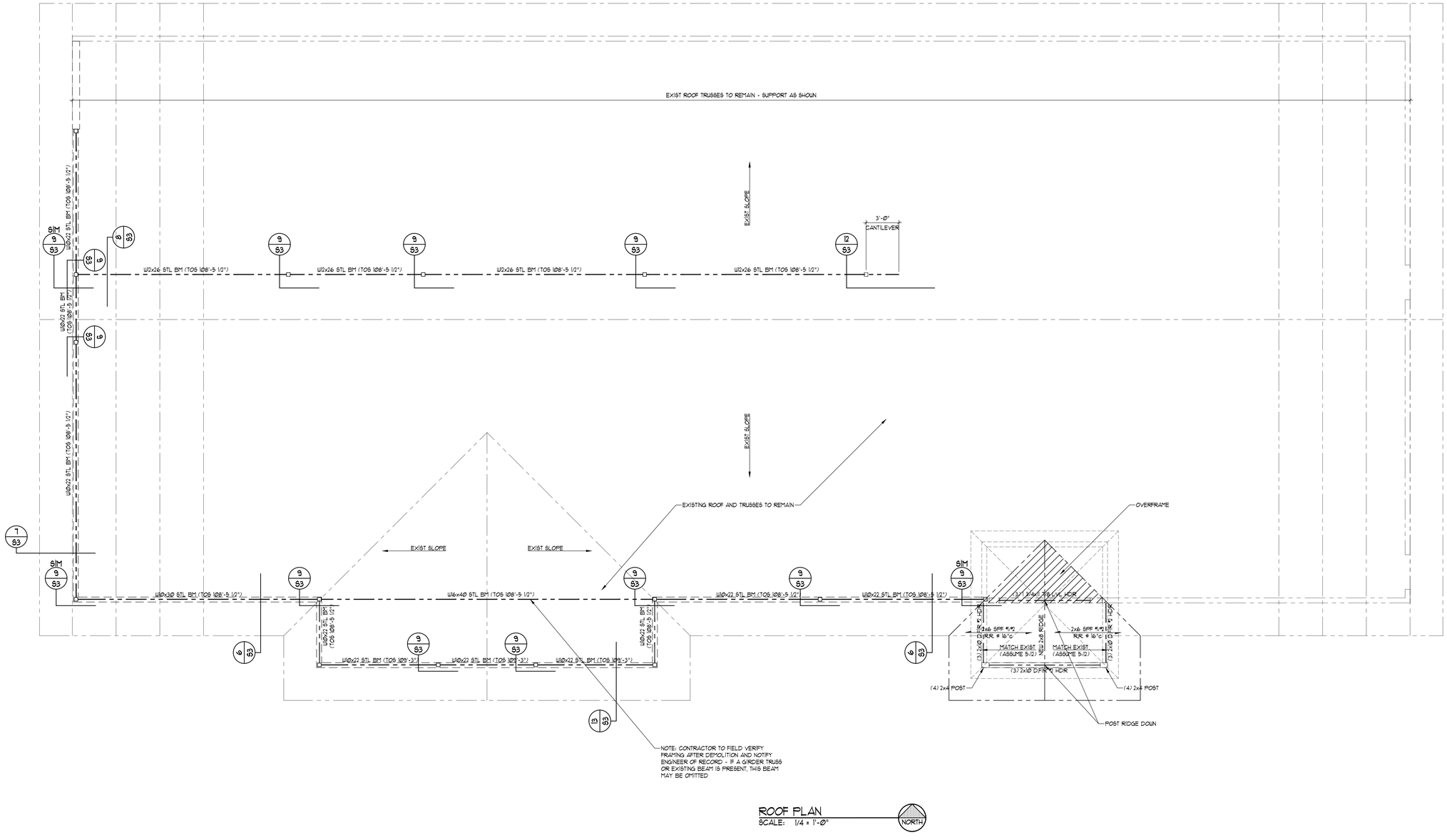
VAN DEURZEN & ASSOCIATES, P.A.
1201 KING STREET SUITE 1340
OVERLAND PARK, KS 66210
(913) 451-6305 FAX (913) 451-1921
E-MAIL: CONTACT@VANDEURZEN-ASSOC.COM
Van Deurzen and Associates, P.A.

ISSUE DATE:	
PERMIT	3/12/2021
REVISIONS:	
CITY COMMENTS	3/12/2021
JOB NO:	3532-2001
DRAWN BY:	JUH
DESIGNED BY:	CMS

G:\Projects\3532-20xx_Wash House - Lee's Summit\Sheets\S1.dwg Plotted: 3/12/2021

FOUNDATION PLAN FOR:
WASH HOUSE LAUNDRY - LEE'S SUMMIT
111 SE 291 HWY.
LEE'S SUMMIT MO64063

SHEET NO:
S1



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

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
FOR CODE COMPLIANCE SERVICES
(816) 969-1200

STATE OF MISSOURI
CHAD M. STREETER
NUMBER PE-2009071317
PROFESSIONAL ENGINEER
2/11/2021

ISSUE DATE:
PERMIT 2/11/2021
REVISIONS:

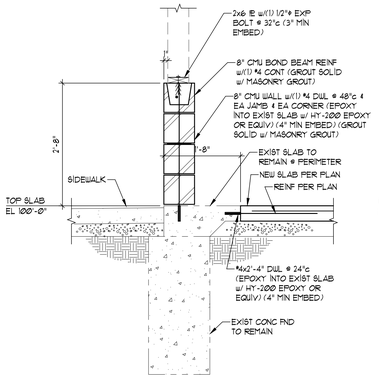
JOB NO: 3532-2001
DRAWN BY: JWH
DESIGNED BY: CMS

VAN DEURZEN & ASSOCIATES, P.A.
1201 KING STREET SUITE 120
OVERLAND PARK, KS 66210
(913) 451-6305 FAX (913) 451-6311
WEB: WWW.VANDEURZENASSOC.COM
E-MAIL: CLAYVANDEURZEN@VANDEURZENASSOC.COM

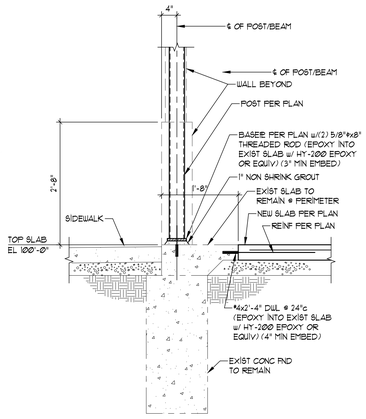
G:\Projects\3532-20xx_Wash House - Lee's Summit\Sheets\S2.dwg Plotted: 2/11/2021

ROOF PLAN FOR:
WASH HOUSE LAUNDRY - LEE'S SUMMIT
111 SE 291 HWY
LEE'S SUMMIT MO64063

SHEET NO:
S2



SECTION SCALE: 1/4 = 1'-0" 1 S3



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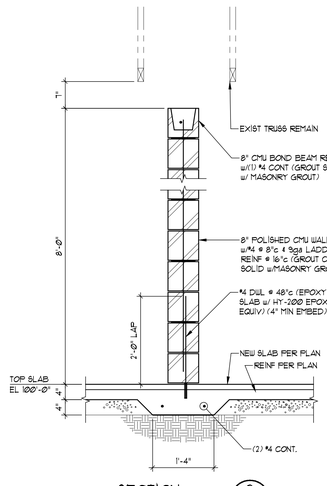

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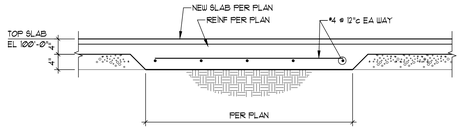

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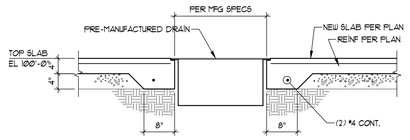
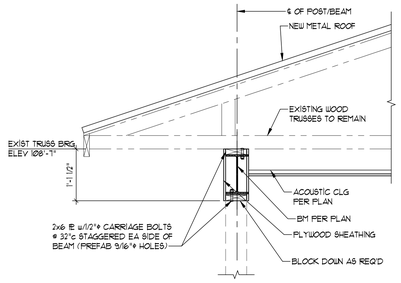


SECTION SCALE: 1/4 = 1'-0" 5 S3



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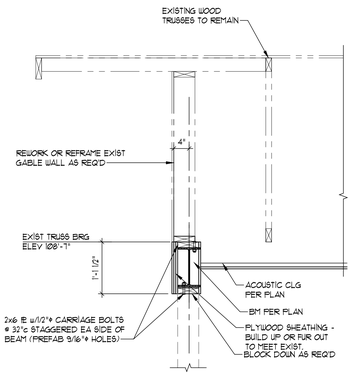

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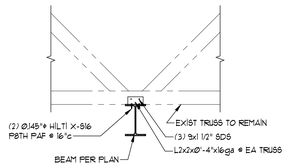

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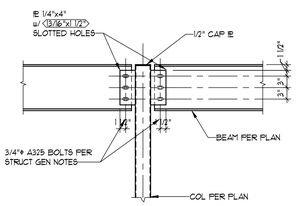

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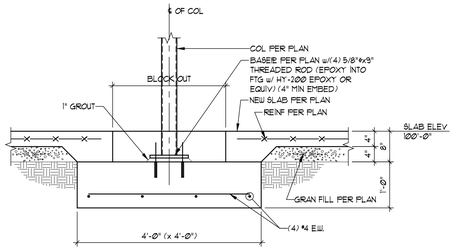

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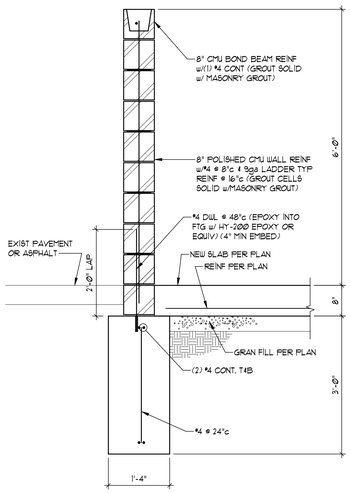
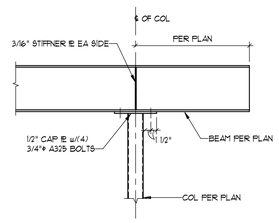
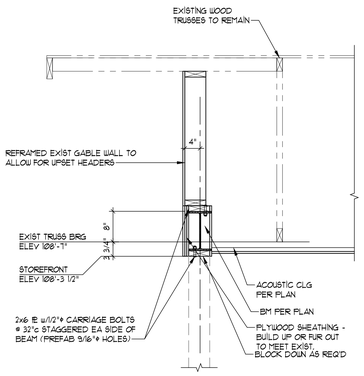


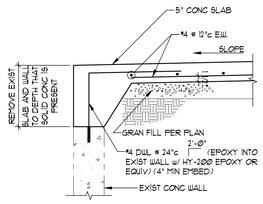
SECTION SCALE: 1/4 = 1'-0" 11 S3



SECTION SCALE: 1/4 = 1'-0" 12 S3



SECTION SCALE: 1/4 = 1'-0" 13 S3



SECTION SCALE: 1/4 = 1'-0" 14 S3

STRUCTURAL GENERAL NOTES

DIVISION 1 - GENERAL REQUIREMENTS

1. Design and construction work for this project shall conform to the requirements of the 2018 International Building Code as amended by the City of Lee's Summit, MO
2. Furnish all labor, materials and equipment necessary to complete the work as shown or inferred by the drawings.
3. Design Loads:
   - A. Floor Live Load:
     - General Office (Live Loads) 50 PSF
     - Light Storage (Live Loads) 125 PSF
   - B. Roof Live Load 20 PSF
   - C. Roof Snow Load:
     - Ground Snow Load, pg 15 PSF
     - Flat Roof Snow Load, pf 20 PSF
     - Snow Exposure Factor, Ce 1.0
     - Snow Load Importance Factor, Is 1.0
     - Thermal Factor, Ct 1.0
   - D. Wind Load:
     - Basic Wind Speed(V ult) 115 MPH
     - Risk Category II
     - Exposure C
     - Internal Pressure Coefficient ±0.18
   - E. Earthquake Design Data:
     - Seismic Use Group I
     - Seismic Importance Factor, IE 1.0
     - Mapped Spectral Response Acc, S_s 0.14
     - S_1 0.056
     - Site Class E
     - Spectral Response Coefficients, S_{DS} 0.23
     - S_{D1} 0.13
     - Seismic Design Category C
     - Basic Seismic Force Resisting System Ordinary Reinforced Concrete Shear Walls
     - Seismic Response Coefficient, C_S 0.051
     - Response Modification Factor, R 4.5
4. The contractor shall examine actual job conditions and be responsible for verifying all dimensions and elevations shown on structural plans with those shown on architectural and mechanical drawings. If errors, omissions or discrepancies are found they shall be reported to the architect before proceeding with the work.
5. Plans indicate size, location and general arrangement of construction. Dimensions lacking or not drawn to scale shall not be scaled but referred to the architect for interpretation.
6. Reference architectural and mechanical drawings for items not shown herein and to verify size and location of all openings.

DIVISION 2 - EARTHWORK

1. The contractor shall employ the services of a geotechnical engineer to observe, test and approve all excavation, fill and backfill work and to determine that subgrade conditions are compatible with those used in the design.
2. The minimum soil bearing capacity is 1500 PSF in accordance with Table 1804.2 of the International Building Code.
3. All footings are designed to bear on natural undisturbed soil or controlled fill capable of adequately sustaining a maximum bearing pressure of 1500 PSF. If suitable bearing capacity is not encountered at the elevation indicated on the drawings, contractor shall notify the architect immediately.
4. All topsoil, organic material and existing structures shall be removed from building area and from areas to be paved. Stockpile all topsoil for reuse.
5. Controlled Fill Materials:
   - A. Granular Fill - Granular fill shall consist of washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1 1/2 inch sieve and not more than 5 percent passing a no. 4 sieve.
   - B. Shrinkage-Swell control fill - Shrinkage-swell controlled fill shall consist of material having a relatively low plasticity with a liquid limit of less than 45 percent and a plasticity index of less than 21 percent.
   - C. Controlled Fill - Controlled fill shall be either granular or shrinkage-swell controlled fill as specified above and as approved by the geotechnical engineer.
7. Controlled fill shall consist of material having a relatively low plasticity with a liquid limit of less than 45 percent and a plasticity index of less than 21 percent.
8. Foundation Preparation:
   - A. Overexcavate building area a minimum of 18 inches below slab subgrade elevation and replace with shrinkage-swell controlled fill.
   - B. Scarify upper 8 inches of subgrade, moisture condition and compact as specified for controlled fill.
   - C. Proofroll site to identify soft or disturbed areas. Any areas found to be unsuitable for support of footings and/or slab-on-grade shall be undercut and replaced with controlled fill. Undercut excavation to suitable bearing material widening excavation in all directions a minimum of 9 inches for each additional foot of overexcavation.
   - D. Backfill directly under slabs-on-grade with minimum of 4 inches of granular fill.
9. Proofroll site to identify soft or disturbed areas. Any areas found to be unsuitable for support of footings and/or slab-on-grade shall be undercut and replaced with controlled fill. Undercut excavation to suitable bearing material widening excavation in all directions a minimum of 9 inches for each additional foot of overexcavation.
10. Backfill directly under slabs-on-grade with minimum of 4 inches of granular fill consisting of washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1 1/2 inch sieve and not more than 5 percent passing a no. 4 sieve.
11. Controlled Fill and Backfill Compaction:
   - A. All controlled fill and backfill shall be placed in lifts having maximum loose lift thickness of 9 inches.
   - B. Granular Fill - Compact granular fill below footing bearing elevation to a minimum of 98 percent of material's maximum dry density as determined by ASTM D 698 and to a minimum of 95 percent for material founded above footing bearing elevation.
   - C. Shrinkage-swell controlled fill - Compact shrinkage-swell controlled fill below footing bearing elevation to minimum of 98/95 percent of the material's maximum dry density as determined by ASTM D 698 and to a minimum of 95 percent for material founded above footing bearing elevation.
   - D. Controlled Fill - Compact controlled fill at a moisture content within a range of 0 to 4 percent above optimum moisture content.
12. All controlled fill and backfill shall be placed in lifts having maximum loose lift thickness of 9 inches, compact controlled fill to a minimum of 95/98 percent of the material's maximum dry density as determined by ASTM D 698 at a moisture content within a range of 0 to 4 percent above optimum moisture content.
13. The geotechnical engineer shall observe, test and approve all excavation, fill and backfill work to determine that subgrade conditions are compatible with those used in the design.

DIVISION 3 - CONCRETE

1. All concrete work shall conform to the requirements of ACI 318 "Building Code Requirements for Reinforced Concrete" and ACI 301 "Specification for Structural Concrete Buildings."
2. Concrete materials shall comply with:
   - A. Cement - ASTM C 150 Type I
   - B. Aggregate - ASTM C 33, maximum aggregate size 3/4 inch
   - C. Water - Potable
   - D. Air-entraining admixture - ASTM C 260
   - E. Water-reducing admixture - ASTM C 494, including superplasticizers.
   - F. Fly ash - ASTM C 618, Class C
3. Concrete shall develop the following minimum 28 day design compressive strength (f'c):

Type of Construction	Compressive Strength(f'c)
A. Footings, walls and slabs	3000 PSI
B. Exterior slabs and curbs (air-entrained concrete)	4000 PSI
C. Grout for masonry walls and bond beams	2000 PSI

Concrete proportions shall be established on the basis of field experience and/or trial mixtures in accordance with ACI 318-89 Sections 5.2 and 5.3. When fly ash is utilized in the mix, mix shall contain a water-reducer. Fly ash shall be added at the rate of not more than 100 pounds per cubic yard and cement shall be reduced by not more than 15 percent by weight.

4. Proportion and design mixes to result in concrete slump at point of placement of not more than 4 inches, except grout for masonry of not more than 6 inches.
5. Use air-entraining admixture in exterior exposed concrete to result in concrete at point of placement having air content of 5 to 7 percent entrained air.
6. Submit concrete mix proportions prior to start of work. Do not begin concrete production until mixes have been reviewed and are acceptable to the engineer.
7. Sampling and testing for quality control during placement of concrete shall include the following, with all sampling and testing does not relieve contractor of responsibility of providing concrete in compliance with specifications.
   - A. Sampling - ASTM C 172
   - B. Slump - ASTM C 143, one test for each set of compressive strength test specimens.
   - C. Air content - ASTM C 173 or ASTM C 231, one test for each set of compressive strength test specimens.
   - D. Compressive test specimens - ASTM C 31, one set of 4 cylinders for each 25 cubic yards or fraction thereof with a minimum of one set for each day's placement.
   - E. Compressive strength test - ASTM C 39, test one specimen at 7 days and two specimens at 28 days and one specimen retained in reserve for later testing if required. Test results shall be reported in writing to architect, engineer, contractor and concrete producer on the same day test are made.
8. Reinforcing Steel:
   - A. Reinforcing bars - ASTM A 615, grade 60, except ties and stirrups may be grade 40, deformed.
   - B. Welded wire fabric - ASTM A 185, lap at least one full mesh and lace splices with wire.
   - C. Supports for reinforcement - comply with CRSI recommendations.
   - D. Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures".
9. Concrete Work Execution:
   - A. Minimum concrete cover for reinforcement shall be, unless noted otherwise on the drawings:
     - Cast against and exposed to earth 3 inches
     - Exposed to earth or weather 2 inches
     - Not exposed to earth or weather 1 1/2 inches
   - B. All concrete is reinforced, reinforce concrete not otherwise indicated with same reinforcement as similar sections.
   - C. Protect concrete work from physical damage or reduced strength due to weather extremes:
     - In cold weather comply with ACI 306
     - In hot weather comply with ACI 305
   - D. In corners of grade beams and walls provide corner reinforcement. Lap two feet each direction in outside face, matching size and spacing of horizontal reinforcement.
   - E. At openings in walls, add one #5 bar (opening dimension plus 60 bar diameters) each face, each corner of opening.
   - F. Provide one #5 bar diagonally at each face of all steps in grade beams and foundation walls.
   - G. Provide construction joints in footings, grade beams and walls at not greater than 80 feet in any direction, key and dowel construction joints.
   - H. Provide control joints in slabs-on-grade at not greater than 20 feet on center in each direction. Saw cut control joints minimum 1/4 of slab depth, as soon after slab finishing as possible without dislodging aggregate.
10. Coordinate concrete work with architectural and mechanical drawings for concrete finishes, recessed areas, embedded items and other conditions.

DIVISION 4 - MASONRY

1. All masonry work shall conform to the requirements of NCMA "Design and Construction of Load Bearing Concrete Masonry" and Chapter 21 of the International Building Code.
2. Masonry material shall comply with:
   - A. Concrete Block - ASTM C 90, Grade N, minimum compressive strength (f'm) of 1350 PSI.
   - B. Cement - ASTM C 150, type I, no masonry cement allowed.
   - C. Lime - ASTM C 207, type S, hydrated lime.
   - D. Masonry Mortar Aggregate - ASTM C 144.
   - E. Masonry Grout Aggregate - ASTM C 404, maximum aggregate size 3/8 inch.
   - F. Water - potable.
   - G. Mortar - ASTM C 270; proportions by volume:
     - Type M: one part cement, 1/8 part lime, 3 parts sand and water to produce a workable consistency.
     - Type S: one part cement, 1/3 part lime, 3 1/2 parts sand water to produce a workable consistency.
   - H. Grout - ASTM C 476, proportions by volume; one part cement 1/10 part lime, 3 parts fine aggregate, 2 parts coarse aggregate and water to produce workable consistency, or concrete in compliance with Division 3.
3. Keep masonry walls shored during construction until floor slabs and/or roof decks are in place to provide lateral stability.
4. Grout solid all masonry units located below grade.
5. Grout reinforced masonry in compliance with Chapter of the International Building Code and as follows:
   - A. Vertical cells to be filled shall have vertical alignment sufficient to maintain a clear, unobstructed continuous cell measuring not less than 2 inches by 3 inches.
   - B. All cells containing reinforcement shall be filled solidly with grout. Grout shall be consolidated by puddling or mechanical vibration during placement and reconsolidated after excess moisture has been absorbed but before workability is lost.
   - C. Where grout exceeds 4 feet in height, cleanouts shall be provided by suitable openings in the face shells in the bottom course of each cell to be grouted. The cleanout shall be sealed after cleanout, inspection, and before grouting.
   - D. When grouting is stopped for one hour or longer, horizontal construction joints shall be formed by stopping the pour of grout approximately 1/2 inch above or below a bed joint.
   - E. All reinforcement shall be placed prior to grouting. Vertical reinforcement shall be held in position at the top, bottom and at intervals not exceeding 192 bar diameters.

DIVISION 5 - STRUCTURAL STEEL

1. All Structural steel work shall conform to the requirements of AISC "Specifications for Design, Fabrication, and Erection of Structural Steel for Buildings"; AISC "Code of Standard Practice for Steel Buildings and Bridges"; AISC "Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts"; AWS D1.1 "Structural Welding Code"; SJI "Standard Specification for Open Web Steel Joist, K-Series"; SDI "Specification for Steel Roof Deck", and SDI "Specification for Non-Composite Form Deck".
2. Structural steel material shall comply with:
   - A. Structural Steel - ASTM A992
   - B. Cold-formed Steel Tubing - ASTM A 500 Grade B.
   - C. Anchor Rods - ASTM F-1554, non-headed type unless otherwise noted.
   - D. High-strength Threaded Fasteners - ASTM A 325, heavy hexagon nuts, hardened washers.
   - E. Steel Primer Paint - Fabricator's standard rust-inhibiting primer.
3. Submit shop drawing, including complete details and schedules for fabrication and assembly. Indicate welds by standard AWS symbols, and show size, length, and type of each weld. Provide setting drawings, templates, and directions for installation.
4. Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate in accordance with AISC specifications.
5. Provide minimum 3/4 inch round, ASTM A 325, friction type bolted connections, unless otherwise noted. Minimum number of bolts shall be as follows:

Beam Size	No. of Bolts
W10	2
W8	2

6. Shop paint structural steel, except those surfaces which are to be welded or high-strength bolted with friction type connections. Apply a 1-coat, nonasphaltic primer complying with SSPC-PS Guide 7.00, "Painting System Guide 7.00. Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than 1.5 mils (0.038 mm).
7. Immediately after erection, clean field welds, bolted connections, and abraded areas and apply paint to exposed areas with same material as used for shop painting.

DIVISION 6 - ROUGH CARPENTRY

1. All rough carpentry work shall conform to the requirements of NFoPA "National Design Specification of Wood Construction"; TPI "Design Specifications for Light Metal Plate Connected Wood Trusses"; APA "Plywood Design Specifications"; DOC PS 1 "Product Standard for Construction and Industrial Plywood"; DOC PS 56 "Structural Glued Laminated Timber" and Chapter 23 of the International Building Code.
2. Rough carpentry materials shall comply with:
   - A. Lumber - S4S, surface dry, grade marked, complying with PS 20; graded under WWPA or SPIB rules:
     - Studs: Stud Grade - Douglas Fir
     - Joist: No. 2 Douglas Fir
     - Header: No. 2 Douglas Fir
     - Rafter: No. 3 Douglas Fir
     - Plates: No. 3 Spruce-Pine-Fir
     - Blocking: No. 3 Spruce-Pine-Fir
   - B. Metal framing fasteners - ASTM A 153, hot-dip galvanized fasteners; equal to Simpson strong-tie connectors complying with ICBO No. 1258.
   - C. Plywood - APA rated sheathing, complying to PS 1.
   - D. LVL - Laminated veneer lumber shall be grade 2800 F-2.0E and shall meet the requirements of NER-442, NER-472 or ER-4321.
   - E. Gypsum Sheathing Board - ASTM C 79 and UBC Standard No. 47-10.
   - F. Gypsum Wallboard - ASTM C 36 and UBC Standard No. 47-11.
3. Exterior wall sheathing shall be 1/2 inch APA Rated sheathing 24/0 exterior glued. Nail sheathing to support members with 8d common nails at 6 inches on center along edge supports and 12 inches on center along field supports. Provide solid blocking at all unsupported panel edges.
4. Attach metal framing fasteners to framing members with minimum number and size of nails listed in ICBO Report No. 1258.

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
FOR CONFORMANCE WITH DESIGN CONCEPT
2/11/2021

STATE OF MISSOURI
CHAD M. STREETER
NUMBER PE-2009018817
2/11/2021

ISSUE DATE:	
PERMIT	2/11/2021
REVISIONS:	
JOB NO:	3532-2001
DRAWN BY:	JLH
DESIGNED BY:	CMS

Plotted: 2/11/2021
G:\Projects\3532-20xx_Wash House - Lee's Summit\Sheets\S3.dwg

VAN DEURZEN ASSOCIATES P.A.
1201 KING STREET SUITE 130
OVERLAND PARK, KS 66210
(913) 451-6305 FAX (913) 451-6311
E-MAIL: VANDEURZEN@VANDEURZEN.COM
Van Deurzen and Associates, P.A.

STRUCTURAL DETAILS FOR:
WASH HOUSE LAUNDRY - LEE'S SUMMIT
711 SE 291 HWY.
LEE'S SUMMIT MO 64063

SHEET NO:
S3

DIVISION 21, 22, 23 AND 26

GENERAL PROVISIONS

1.0 DESCRIPTION:

A. Divisions 21, 22, 23 and 26 shall be governed by all applicable provisions of the Contract Document.

B. The Contractor shall furnish, install and connect all materials, equipment, apparatuses, and incidentals required for a complete and working installation. For all systems shown and required, the Contractor shall supply all necessary labor, equipment, tools, insurance, and tax services, and shall assume full responsibility for all obligations associated with completion of work as provided by the Contract Documents.

2.0 STANDARDS, REGULATIONS AND CODES:

A. Work shall comply with the edition of the applicable standards, regulations and codes currently in force of all Federal, State and local authorities having jurisdiction. Where quantities, sizes, or other requirements indicated on the drawings or herein specified are in excess of the standard or code requirements, the specifications and/or drawings shall govern. In the absence of other applicable local codes, acceptable to the Architect/Engineer, the International Set of Codes and the National Electrical Code shall apply to this work.

B. The Contractor shall comply with rules and regulations of public utilities and municipal departments affected by connections of services. The Contractor shall pay all fees associated there with.

C. The Contractor shall be licensed to perform associated work in the municipality in which the project is located.

D. All products and types of construction shall meet or exceed the latest edition of applicable standards of manufacturer, testing, performance and installation.

E. Where indicated or required, comply with all provisions of the ADA and/or the ABA Accessibility Guidelines.

F. Where indicated or required, comply with all applicable provisions of energy and ventilation codes in force at the local jurisdiction.

3.0 GRAPHIC REPRESENTATION AND JOB CONDITIONS:

A. The Contract Documents shall serve as working drawings for the general layout of the various items of equipment; are diagrammatic unless specifically dimensioned, and do not necessarily indicate every required item. The contractor shall include all necessary components and accessories as required for a complete working system whether so specifically indicated or not.

B. Architectural and Structural drawings take precedence over all other drawings in the representation of the general construction work; any conflicts shall be resolved prior to commencing work. Failure to do so shall not be considered a basis for the granting of additional compensation.

C. Arrange work in a neat, well organized manner. Coordinate work with other trades involved, prior to commencing work. Sub-contractors shall work together to resolve any conflicts of space or routing.

4.0 GUARANTEES/WARRANTY:

A. The Contractor shall guarantee/warranty all work performed, including labor, materials and equipment furnished under this contract, against defects in materials and workmanship for a minimum period of one year from the date of the Owner's Representative Final Acceptance of the work. Provide extended warranties as noted in each section or specified for specific products.

5.0 WORKMANSHIP:

A. All work performed under this Contract shall provide a neat and "workmanlike" appearance when completed, to the satisfaction of the Owner's Representative. The complete installation shall function as designed and intended with respect to efficiency, capacity, and noise level, etc.

6.0 LOCAL CONDITIONS:

A. The Contractor shall carefully examine and become thoroughly familiar with local conditions, existing installations and all other conditions which may affect associated work. The Contractor shall locate all existing utilities and protect them during the execution of the work

B. The Contractor shall carefully examine all contract documents including project drawings and specifications to become familiar with the type of construction, materials, and equipment to be used for all work and how it will affect the installation of this contract.

C. By the act of submitting a bid, the Contractor will be deemed to have made such examination, to have accepted such conditions, to have made allowance therefore, and included all costs in his proposal. Failure to determine existing conditions will not be considered a basis for the granting of additional compensation.

7.0 OPERATION DURING CONSTRUCTION:

A. The Contractor is responsible for the installation and operation, service and maintenance of all new equipment during construction and prior to acceptance by the Owner of the completed project. Warranty periods shall not commence until final acceptance by the Owner or Owner Representative.

B. The Contractor shall provide, at his own expense, all temporary utilities required to provide for and protect the work and as necessary to maintain an adequate work force.

C. SAFETY REGULATIONS:

A. All work shall be performed in compliance with all applicable governing safety regulations, including OSHA regulations. Provide safety lights, guards and signs required.

8.0 HOUSEKEEPING:

A. The Contractor shall be responsible for keeping stocks of material and equipment stored on the premises in a neat and orderly manner.

B. The Contactor shall clean and maintain their specific portions of the work on a daily basis or as specified in the General Conditions.

C. The Contractor shall remove from the premises all waste material present as a result of his work.

9.0 SUBSTITUTIONS:

A. Materials, products and equipment described in the Bidding Documents established a standard of quality to be met by any proposed substitution.

B. Contractor's bids shall be based on the material identified or specified in the contract documents. Any proposals for substitution shall be made in writing to the Architect/Engineer with all supporting documentation, allowing adequate time for appropriate action. The products of other manufacturers may be accepted, if in the opinion of the Architect/Engineer, the substitute material is of quality as good or better than the material specified, and will serve with equal efficiency and dependability the purpose for which the items specified were intended. The burden of proof of equality is entirely upon the proposer.

C. Wherever substitutions alter the design or space requirements, the Contractor shall be responsible for and include all associated cost items of the revised design and or construction work required by his or other trades affected by the proposed substitution.

10.0 SHOP DRAWINGS AND PRODUCT DATA:

A. The checking of shop drawings is a gratuitous assistance and in no way relieves the Contractor of responsibility for deviations from the Contract Documents.

B. Shop drawings and catalog data on all major items of equipment and apparatus, and such other illustrative materials as may be considered necessary by the Owner's Representative shall be submitted by the Contractor in adequate time to prevent delay and changes during construction.

11.0 OPERATING AND MAINTENANCE BROCHURE:

A. On completion of the project, the Contractor shall provide manuals electronically (PDF format unless otherwise instructed) containing operating, service and lubrication instructions, and parts lists for all major equipment and manufacturer's guaranties or warranties.

12.0 RECORD DRAWINGS:

A. On completion of the project, the Contractor shall provide record drawings electronically in PDF format (unless otherwise instructed) with all field changes neatly noted. The original routing and layout shall be clearly marked out.

13.0 SITE WORK AND CONDITIONS:

A. The Contractor shall do all necessary excavating and backfilling for the installation of associated work. After the piping or conduit has been installed, tested and approved, the trenches shall be backfilled to grade with compacted sand, gravel or AB-3 material or other material as required by local authorities. Compact to 85% density for unpaved areas, 95% density for paved area or under slabs.

B. All water bearing piping shall be 48" minimum below grade, all gas piping shall be 24" minimum below grade, unless instructed otherwise.

C. Roads, alleys, street, sidewalks and utilities damaged during this work shall be restored to the satisfaction of Owner's Representative and authorities having jurisdiction.

D. Where subsidence is measurable or observable at excavation during general project warranty period, remove surface, add backfill material, compact, and replace surface treatment. Restore appearance of surface to match adjacent work.

14.0 FOUNDATIONS AND SUPPORTS:

A. The Contractor shall provide concrete bases, hangers and foundations for all machinery and equipment specified or shown in this contract, including fans, air conditioning units, water heaters, pumps, motors, electrical gear, etc., unless specifically noted otherwise.

B. All hangers, brackets, clamps, etc., shall be of standard weight steel. Perforated strap hangers shall not be used in any work. When two (2) or more pipes or conduits are run parallel, or where ducts interfere with the proper location of hangers, they may be supported on trapeze hangers. Other hangers shall be hinged ring malleable iron, by Grinnell or Fee and Mason or approved equal with rods and hanger adjusters for adequate size to carry the loads imposed. All piping, ductwork and conduit systems shall each be independently supported from other systems and from equipment so that no weight is born by equipment.

C. The Contractor shall take all precautions against excessive noise or vibration by isolating the various items of equipment from the building structure. Provide flexible connectors where indicated and at all rotating equipment and for equipment mounted on vibration isolators.

15.0 CUTTING AND PATCHING:

A. All necessary cutting, drilling and patching shall be provided by this Contractor. Structural members shall not be disturbed without prior approval of the Structural Engineer and/or the Owner's Representative. All areas and surfaces disturbed by work performed under this Contract shall be neatly repaired and refinished to the condition of adjoining surfaces in a manner suitable to the Owner's Representative.

16.0 SLEEVES AND ESCUTCHEONS:

A. Penetrations thru walls and floors shall be as detailed.

B. Where not otherwise shown, penetrations shall conform to the following:

1. Where pipes or conduits pass through interior partitions, galvanized steel pipe sleeves or galvanized steel sheet sleeves shall be used.

2. Where pipes or conduits pass thru concrete floors and walls, walls below grade or exterior walls and slabs on grade, cast iron or steel pipe sleeves shall be used.

C. Sleeves through interior non-rated walls, including walls indicated as sound partitions, shall be packed with fiberglass or mineral wool and caulked.

D. Sleeves below grade, in exterior walls or thru slabs on grade shall have lead and oakum or mechanical link seals, Thunder line or acceptable equivalent.

E. Provide steel (dry locations) or brass (damp locations) escutcheons to completely cover pipe penetration holes in floors, walls, or ceilings. Provide pipe escutcheons with nickel or chrome finish for occupied areas, prime paint finish for unoccupied areas, brass for exterior.

17.0 MOTORS, CONTROLS AND FIRE ALARM INTERFACE:

A. All motors furnished under this specification shall be recognized manufacturer and of adequate capacity for the loads involved. All motors shall conform to the standards of manufacturer and performance of the National Electrical Manufacturers Association as shown in their latest publications.

B. All motors 3/4 hp and above shall be high efficiency. Provide ECM motors where indicated. Any motor indicated for use with Variable Frequency Drives (VFD) shall be specifically designed for compatibility.

C. Disconnects and motor starters for equipment shall be by the Electrical Contractor unless furnished integral with the equipment or as otherwise indicated. Installation shall be by the Electrical Contractor except for devices factory installed and shipped with equipment. Provide manual or magnetic starters with necessary auxiliary contacts to accomplish the specified or required sequence of operation.

D. All temperature controls unless noted otherwise shall be the responsibility of the Mechanical Contractor.

E. If no sequence of operation is included, submit a proposed sequence to the Engineer for approval.

F. All fire alarm devices including duct smoke detector and shut down/interlock wiring shall be the responsibility of the Electrical or Fire Alarm Contractor otherwise noted.

18.0 PIPING IN ELECTRICAL ROOMS:

A. No piping except specifically noted otherwise will be permitted in Electrical Rooms or Data Rooms including Server Rooms and IT Closets. In rooms where piping is indicated over or near electrical equipment, a suitable galvanized sheet metal pan or gutter piped to the drainage system shall be provided.

END OF SECTION

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HEATING, VENTILATION AND AIR CONDITIONING

1.0 SCOPE:

A. The work included under this contract consists of providing all labor, materials, tools, transportation, services, etc., necessary to complete the installation of the heating, ventilating, and air conditioning systems and other items herein listed and as described in these specifications, as illustrated in the accompanying drawings or as directed by the Architect/Engineer.

2.0 SHEET METAL:

A. Ductwork shall be new prime grade galvanized steel sheets constructed per ASHRAE and SMACNA Standards. Duct system(s) installation shall be in accordance with SMACNA Duct Construction Standards Manual and industry standards. Provide round or rectangular duct as indicated.

1. Provide Duct System(s), including all necessary components such as dampers, turning vanes, offsets and takeoffs, etc. required by the project (whether shown or not), which shall be fabricated and installed for maximum efficiency and to minimize pressure drops and objectionable sound and to provide for complete system balancing.

2. All duct sizes shown are free area size and do not include liner.

B. Fabricate for the pressure and SMACNA seal class required by the application.

Leakage class minimum requirements are:

1. Up thru 2" WG pressure - rectangular - Class 24, round - Class 12.

Seal class minimum requirements are:

1. Up thru 2" WG pressure - class A for all duct joints.

C. Duct Sealants

1. Duct sealant shall have 25/50 flame and smoke rating with a static pressure class of 10" WG, mold and mildew resistant. Sealant shall be installed per manufacturer instructions.

2. Sealant for concealed ductwork shall be an externally applied solvent or water based joint and seam sealant with or without tape.

3. Spiral lock seams and gasketed duct joints are exempted from other sealant requirements.

D. Duct Finishes

1. Concealed ductwork shall be manufacturer's standard mill finished.

E. Round or oval duct shall be factory built of galvanized steel, suitable for pressure class required or indicated. Snap lock duct and fittings shall be used for low pressure/velocity applications only. Fittings shall have 1.5 times diameter centerline radius. Spiral duct may be used for any pressure/velocity class. Spiral duct shall be Semco or acceptable equal by McGill Airflow or Lindab.

1. Single wall, 2.0" WG minimum.

F. Flexible air duct and accessories shall be UL-181 class 1 compliant, 25/50 smoke and flame plenum rated. Maximum length shall be 5' - 0". Flexible duct shall have ends banded and insulation ends sealed. Attach with nylon duct zip ties. Provide Thermaflex or equivalent flex be supports. Supply air and return air flexible ducts and boots shall be insulated. Exhaust flexible duct shall not be insulated.

1. Insulated - Thermaflex G-KM, CPE core on helix wire with R4.2 insulation and polyethylene vapor barrier jacket, with maximum velocity of 5,000 FPM, pressure of 6" WG positive and 1" negative.

2. Flexible ducts shall be Thermaflex or acceptable equal by ATCO or Flexmaster.

H. Clothes dryer vent duct joints shall be taped with foil tape, no screws permitted. Code required duct equivalent lengths shall not be exceeded unless dryers specified are rated for extended lengths.

1. Clothes dryer flexible connecting duct shall be listed and labeled in accordance with UL 2158A and shall not be concealed within construction.

3.0 EXTERIOR DUCTWORK

A. Exterior ductwork shall be installed to be weatherproof, low leakage and thermally efficient.

1. Exterior supply and return air duct shall be constructed as follows:

a. Standard ductwork construction with insulation and weatherproof lagging with top of duct pitched to drain water. Refer to insulation section for insulation wrap requirements.

4.0 DUCTWORK ACCESSORIES:

A. Provide single thickness turning vanes in all supply duct turns.

B. Provide duct access doors for all internal mounted equipment. Access doors shall be insulated double wall, constructed airtight in accordance with SMACNA standards for the appropriate pressure class where they are installed. They shall have butt or piano hinged with cam latches. Minimum size shall be 12"x12" or 12"x duct depth unless noted otherwise.

C. Branch take-offs to air terminal units shall be high efficiency type.

D. All take-offs to diffusers and grilles shall be made with high efficiency take-offs, 45º take-offs or conical fittings unless specifically indicated otherwise on drawings. Provide locking quadrant volume damper at take-offs in accessible ceilings, unless shown otherwise. Extractors and scoops are not permitted

E. Duct splits, elbows and reducing fittings shall be fabricated per SMACNA standards. "Ductmate" or acceptable equal flanged and gasketed joint systems are approved.

F. Provide dampers where shown and required. Dampers shall be by Greenheck or acceptable equal by Ruskin, American Warming & Ventilating, Air Balance, Inc., Carnes, Krueger, Nailor, United Enertech.

1. Balance and control dampers shall be rated in accordance with AMCA 500D. They shall be opposed blade except air mixing dampers shall be parallel blade.

a. Manual dampers shall have standoff and locking quadrant.

2. Backdraft dampers shall be tested and rated in accordance with AMCA 500D. They shall have extruded aluminum frames and blades with adjustable counter balance weights. Provide with vinyl blade seals.

3. Damper Schedule:

a. Manual Damper Rectangular:
Greenheck MBD-15, Galv. Steel formed blade, manual locking quadrant actuator, 4" WG, 2000 fpm.

b. Manual Damper Round:
Greenheck MBDR-50, Galv. Steel formed blade, manual locking quadrant actuator, 1" WG, 2000 fpm.

c. Backdraft Damper:
Greenheck EM-SERIES, aluminum formed blade, 10" WG, 3500 fpm, counter balance as required.

5.0 DUCT SUPPORTS AND ROUTING

A. Hangers and Supports.

1. Ductwork shall be supported in accordance with all SMACNA standards including support methods, sizes and spacing.

2. All hanger and support parts shall be galvanized steel for non-corrosive environments or stainless steel for corrosive or damp environments.

3. Provide sheetmetal straps, adjustable hangers, clamps, channels, rods, flexible connectors, supplementary steel, etc as required for proper support of all ductwork. Trapeze may be used for support of single or multiple ducts. Provide accompanying attachments including bolts and nuts, sheetmetal screws or rivets compatible with duct materials.

4. Upper attachments shall be manufactured items specific to the applicable structure. Include concrete inserts, wedge type drilled in inserts, steel beam and joist clamps, plates, rods, clips, straps and brackets as required by the application. For wood structures, provide attachments with thru bolted or lag screw attachments specifically designed and load rated for the application.

5. Cable systems may be used at contractor option. They shall be a complete assembly including cables, adjustable locking fasteners or clips and all upper and lower attachments by Gripple or acceptable equal.

B. Routing.

1. Ductwork shall be routed as shown on drawings, parallel to building lines unless otherwise shown, coordinated with building structure and other trades. Adjust ductwork routing and elevations with necessary offsets to accommodate beams and other obstructions.

6.0 GRILLES, REGISTERS, INLETS AND OUTLETS:

A. All supply, return and exhaust grilles, registers and diffusers shall be as scheduled on the drawings. Commercial quality - E.H. Price or acceptable equal by Titus, Carnes, Krueger or Nailor.

1. All air distribution devices shall be selected for throw and low noise (25 NC or less) performance characteristics unless otherwise indicated.

2. Unless otherwise indicated, louvered supply grilles shall be double deflection devices with front blades parallel to the long dimension.

3. A balancing damper shall be provided for each and every diffuser, register and grille where airflow control is required. Unless otherwise indicated, provide integral volume damper where a duct mounted damper would not be accessible.

4. Ceiling supply diffuser connection shall be made with hard elbow or flex duct with Thermaflex flex flow elbow support.

7.0 HEATING AND AIR CONDITIONING UNITS:

B. Air conditioning units shall be as scheduled or by acceptable equal. Units shall be standard catalogued products with the appropriate approval or certification by AGA, ARI and UL. Efficiencies shall conform to ASHRAE 90 standards.

C. Packaged Units:

1. Packaged outdoor units shall be ground mounted, horizontal discharge, with cooling and heating components of characteristics and capacities scheduled. Unit shall have direct drive, airfoil supply fan, cooling coil with copper tubes and aluminum fins, insulated coil drain pan. Compressors shall be manufacturer's standard with crankcase heaters and vibration isolators and five (5) year warranty, gas fired burner and heat exchanger with 10 year warranty as indicated. Accessories shall include suction line accumulators, service valves, sight glass and strainer-dyer, as required for a complete operating system. Provide with filters, enthalpy economizers, relief or power exhaust, controls, hinged access doors, condenser coil hail guards, condenser coil cottonwood filters, mounting curb and duct flex connectors and other accessories as indicated or required. Furnish 10 year heat exchanger for gas fired units.

2. Packaged units shall be Trane or acceptable equal by Carrier, York, Lennox, Daikin.

D. Provide units with manufacturer's standard control package. Controls to include factory wired terminals with overload devices and transformers as required. Unit safety control to include high-low pressure switches, fan relays, short cycle safety and internal pressure relief, gas controls with hi limit and anti- cycle protection.

E. Provide unit accessories as noted on drawings and as required for a complete operating system.

F. Mount units to provide the required service, access and airflow space.

8.0 FANS:

A. Fans shall be as scheduled with all required accessories including vibration isolators, hangers, rate of rise thermostats, etc. Commercial quality fans shall be AMCA rated by Greenheck or acceptable equal by Cook, Acme, Carnes, Penn Barry.

9.0 MISCELLANEOUS MECHANICAL EQUIPMENT:

A. Vents shall be matched to equipment type specified. Provide UL Listed assemblies where required by code. Furnish with all accessory items including, flashing, roof cap, concentric vent/combustion air terminal, storm collar, couplings and fittings, all mounting hardware and condensate drains piped indirectly to floor or equipment drains.

1. Low temperature condensing units: Polypropylene, UL 1738 and ULC-S636 compliant, with viton gasketed joints with locking bands, rated for 230F, Duravent, Selkirk or equal.

10.0 FILTERS:

A. Provide filters in air intake to each units A/C system with size and number of filters standard with air unit manufacturer. Provide 1" thick to suit equipment requirements, hi-velocity, throw-a-way MERV 8 filters, Farr 30/30 or acceptable equal by American Air Filter, Airguard, Air Filters, Inc, Purolator. Filters shall be new and clean at time of Owner's acceptance. Supply extra set of filters for each unit.

11.0 CONTROLS AND LOW VOLTAGE SYSTEMS:

B. All temperature controls unless otherwise noted shall be the responsibility of the Mechanical Contractor.

C. Controls system shall be electric/electronic with stand alone programmable digital thermostats.

D. Provide control installation to accomplish the indicated or required sequence of operation including thermostats/ sensors, controllers, actuators, wiring, piping and tubing, software, graphics and other components as required for a complete operating system. Where no sequence is indicated, contractor shall submit a proposed sequence for approval.

E. Devices exposed to view and mounted in finished spaces shall be white in color unless otherwise noted or directed.

F. All occupant adjustable devices shall be mounted in accordance with ADA and ADAAG requirements.

12.0 INSULATION:

B. Ductwork

1. Duct Liner

a. Line low velocity rectangular sheetmetal supply ductwork with mat faced 3 lb. density fiberglass or textile liner with anti-microbial coating. Apply with mastic and pins with erosion protection on all exposed edges.

1) Supply ducts in unconditioned space or plenums not utilized for return air - 1" thick liner.
2) Exhaust ducts conveying environmental air within 5' of roof terminal - 1/2" liner.
3) Return air boots - 1" thick liner.

2. Interior Duct Wrap

a. Flexible Wrap - Provide sheetmetal duct wrap with 0.75 lb. density glass fiber insulation with FSK glass fiber reinforced laminated/bonded aluminum foil and kraft paper vapor barrier. Apply with all fasteners, mastics and sealants and joint tape.
1) Concealed low velocity round run-out duct to terminal devices - 1-1/2" thick wrap.
2) Concealed low velocity round and rectangular outside air duct - 1-1/2" wrap. Liner is not permitted.

3. Exterior Duct

a. Exterior supply, and return duct shall be wrapped with 2" - 3 lb. rigid fiberglass R-6 insulation adhered to duct with adhesive and pinned, then wrapped with a 16 mil aluminum sheet enclosure with all joints lapped a minimum of 2", screwed and sealed weathertight. Top of lagging shall be pitched to drain. Keep joints to a minimum, on the bottom, where possible. Provide stiffener angles as required to prevent oil canning.

13.0 FOUNDATIONS AND VIBRATION ISOLATION:

A. Foundations: Provide fabricated supports for all equipment. Mount on 4" concrete housekeeping pads where indicated.

B. Provide flexible connections at all motor driven equipment, where shown and where required to hold transmitted noise and vibration to an acceptable minimum at piping and duct connections.

C. Duct flexible connection shall be Durodyne non-combustible, 22 ounce (minimum) polymer coated woven fabric or acceptable equal.

D. Equipment Vibration Isolation: All motor driven equipment shall be furnished with isolating mountings. Motors shall be mounted on resilient bases, spring or rubber supports as recommended by the manufacturer. Isolators shall be Amber Booth or acceptable equal by Kinetics, Mason Industries, Vibration Eliminator Co.

14.0 SLEEVES AND SEALS AND FLASHINGS:

A. Flash all pipes and vents extending through roof. Flashing details shall be in accordance with roof manufacturer's requirements.

B. Provide sleeves where piping penetrations are required thru partitions, concrete floors, concrete slabs on or below grade or foundation walls. Where penetrations are through fire rated assemblies, sleeves shall be in accordance with UL listing requirements. Sleeves shall be galvanized steel pipe, sheet steel or cast iron. Sleeves are not required for core drilled penetrations of existing concrete slabs above grade. Penetrations of below grade structures and slabs on grade shall be water proofed with mechanical link seal system, Thunder Line or acceptable equivalent.

C. Provide escutcheons at all penetrations of exposed walls and ceilings. Escutcheons shall be chrome plated brass in occupied areas, prime paint finish for unoccupied areas unless otherwise noted. Escutcheons for exterior or moist areas shall be brass.

15.0 MISCELLANEOUS

A. Provide escutcheons at all piping penetrations of finished wall, floor or ceiling construction. Escutcheons shall be chrome plated brass in occupied areas, prime paint finish for unoccupied areas unless otherwise noted. Escutcheons for exterior or moist areas shall be brass.

16.0 CLEANING:

A. New Work

1. Clean air system by operating at least three hours prior to final acceptance with temporary filters. Remove all filters and replace with clean.

B. All cleaning shall be completed prior to test and balance work.

17.0 PIPE, FITTINGS AND VALVES:

A. Condensate drain piping:

1. PVC Pipe - Schedule 40 with solvent cement joints. PVC not permitted in plenums used for supply or return air.

2. Provide with plugged tee cleanouts unless otherwise accessible for cleaning. Trap all air unit condensate drains with deep traps.

3. Where indicated or where required for positive drainage, provide mechanical units with condensate pump.

4. Condensate drain piping:

a. Outdoor units shall discharge indirectly to grade and shall be in accordance with local codes. Condensate shall not drain to overflow roof drains.

6. Condensate pipe sizing:

a. Piping for individual units shall be as specified by manufacturer or a minimum of the unit connection size.

b. Install manufacturer supplied condensate lift pumps and pipe discharge adaptors where indicated or required.

c. Common or manifold condensate system shall be minimum size as follows:

Equipment Capacity, Tons	Min. Pipe Size, In.
3-1/2 to 20	1"

17.0 TESTING AND ADJUSTING:

A. Contractor shall obtain the services of an independent test and balance agency and shall operate and test the air conditioning and ventilation systems and instruct the Owner in its operation. Perform a series of general capacity and operating tests. The tests shall demonstrate the specified capacities of various pieces of equipment.

B. The entire temperature controls systems shall be adjusted and balanced and put in operating condition to cause the equipment to maintain the temperatures in accordance with the intent of these specifications. Operate and test equipment during summer and winter seasonal startup under this contract.

C. The test and balance contractor shall perform an initial test and balance noting any mechanical system deficiencies. The mechanical contractor shall review the preliminary report prior to final issue of the test and balance report and work with the test and balance contractor and the engineer as needed to make all system repairs and modifications necessary to achieve the design performance established by the contract document prior to the final reporting. The final test and balance report shall incorporate results of all mechanical system modifications.

D. Test condensate drain piping by filling with water to the drain pan connection(s) for a period of 2 hours with no observable leaks.

E. Submit the complete test and balance report for review to the Architect/Engineer in triplicate. Test procedure and report shall conform to NEBB or AABC standards. The report shall be signed by the responsible individual.

END OF SECTION

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/22/2021

1730 Walnut Street
Kansas City, Missouri
64108
816.221.1411
Fax: 816.221.1429

Lankford Fender + associates

Seal

STATE OF MISSOURI
GREGORY J. FENDLER
NUMBER PE-2006037330
PROFESSIONAL ENGINEER
03/04/2021

COA# 2006001168

WASH HOUSE LAUNDRY – LEE'S SUMMIT

711 SE 291 HWY.
LEE'S SUMMIT, MO. 64063

Project Number:	20.6606.00
Date	12/15/2020
Phase	Construction
Issued For	Permit
Drawn By	JSV
P.I.C.	BLH/GIF

Revision

MEP1

220 100

PLUMBING

1.0 SCOPE:

A. The work included under this contract consists of providing all labor, materials, tools, transportation, services, etc., necessary to complete the installation and to provide complete working systems of the Plumbing Systems, including hot and cold water, waste and vent, storm drainage, fixtures, equipment and other items described in these specifications, as illustrated in the accompanying drawings or as directed by the Architect/Engineer.

B. Extend piping systems as indicated on contract documents or to point of connection as follows:

1. 5'-0" from exterior building wall lines

2.0 PIPING, FITTINGS AND VALVES:

A. Provide service valves for each item of equipment, at branch piping and elsewhere as indicated or required. Provide balance valves, strainers, check valves and other valves as indicated or required by the application.

B. Provide a union or flanged connection between each item of equipment and its service valve. Copper to ferrous pipe connections shall have isolation coupling, flange or union.

C. Domestic cold water underground --

1. Pipes, copper -- type "K", soft temper, wrought copper fittings, silver solder joints, 1/2" through 3".

a. Under slab water piping shall be installed in sand fill and shall be jointless where possible or joints minimized. Required joints shall be made with lead free silver solder.

D. Domestic water, interior, above ground -

1. Pipe, copper tube -

a. 2-1/2" and Smaller -Type "L" hard temper, wrought or cast copper fittings, Lead free 95/5 or Eagle Hard Silvabrite or "CB" solder joints, or pressure seal joint fittings with EPDM O-ring seals.

2. Valves -

a. 1/4 turn Service -

1) 1/2" thru 2" - Nibco 585-66-LF bronze lead free, 600 PSIG, full port, stainless steel ball and stem.

b. Check, Strainers and Miscellaneous -

1) Check - 1/2" thru 2" - Nibco 413-Y-LF bronze lead free, 200 PSIG, PTFE seats, Y-pattern check valve.

2) Check - 1/2" thru 2" - Nibco 480-Y-LF lead free, 200 PSIG, PTFE seats, spring loaded, resilient disc, spring loaded inline non-slam check valve, in pump discharge.

c. Water service back flow preventers shall be lead free reduced pressure type unless otherwise indicated.

1) Up thru 2" - Watts LF-009, lead free bronze body with ball valves.

3. Provide valves where indicated on the drawings, where required by code or required for service.

4. Securely anchor and support piping, valves and fittings, with adequate provisions for expansion and contraction. Grade lines, free of traps, to low point at cut-off and drain valve.

5. Hot and cold supply lines to have manufactured pre-charged piston type water hammer arrestors at each and every fixture or group or battery of fixtures to prevent water hammer, sized as shown or per manufacturers recommendation. An arrestor shall also be required at each solenoid actuated quick closing valve. Sioux Chief, JR Smith or equal. Provide access panel where required.

E. Natural Gas --

1. Pipe above ground:

a. 2" and smaller - Schedule 40 black steel piping with threaded fittings.

b. 2-1/2" and larger - Schedule 40 black steel piping with welded fittings.

c. 2-1/2" thru 4" - Schedule 40 black steel pipe with Viega Megapress XL fittings.

2. Valves & Connectors:

a. Shutoff Service -

1) 1/2" thru 1" - Nibco GB-1A, brass body, chrome plated brass ball, PTFE seats, screwed ends, 5 PSIG per CGA, lever handle.

2) 1/2" thru 2" - Nordstrom 142, iron lubricated tapered plug valve, 200 PSIG, threaded ends.

b. Connections to each piece of equipment or appliances shall be made with gas cock, dirt leg and union. Appliance connections may be made with UL listed appliance connectors with union ends.

c. Appliance shutoff valves shall be within 6' of the appliance and accessible, located in adjacent cabinet sections where required.

d. Flex Connectors, Metraflex GASCT 300 series stainless steel braided hose with carbon steel threaded ends. Connectors shall be UL listed.

3. Paint exterior natural gas piping with corrosion inhibiting paint, color to be selected.

F. Sanitary sewer, vent, interior --

1. Pipe - Standard weight cast iron hubless with no-hub shielded mechanical joints; solid wall schedule 40 PVC, ABS with solvent cement joints; vents may be galvanized malleable iron.

2. All gravity drainage shall be graded per code but not less than 1/8" per foot unless noted otherwise. 3" and 4" piping shall be sloped at 1/4" per foot where possible and where required by local codes.

3. Indirect waste piping from fixtures or appliances shall be schedule 40 solid wall PVC with solvent cement joints. Support piping from fixture supports and/or floor stanchions. Maintain minimum air gap discharge per code requirements.

G. Sanitary sewer, vent, below grade --

1. Pipe - Standard weight cast iron hubless with no-hub shielded mechanical joint fittings; solid wall schedule 40 PVC, ABS with solvent cement joints.

2. All gravity drainage shall be graded per code but not less than 1/8" per foot unless noted otherwise. 3" and 4" piping shall be sloped at 1/4" per foot where possible and where required by local codes.

H. CLEANOUTS, TEST TEES, TRAPS AND TRAP SEALS:

A. Provide cleanout at the base of each stack or riser, at ends of runs greater than 10', each 135 degree aggregate change of direction in horizontal piping, where indicated on the drawings or as required by code. Plugs, extra heavy cast brass, screwed. Scoriated tops in unfinished areas, carpet markets in carpet floors, tile top in tile floors, stainless steel cover in finished walls. Cleanouts same size as pipe up to 4" diameter, 4" cleanouts for larger pipe unless otherwise noted. Cleanouts outside the building extend to grade and terminate with extra heavy soil pipe cleanout set in 12" square 6" thick concrete pad.

B. Provide test tees at base of risers and elsewhere as required by code.

C. All traps shall be deep seal type with liquid seal not less than specified by code.

D. Where trap primers are not specified provide all floor and hub drains with trap seal with EPDM diaphragm, , Provent Proset Series SG22 or TG22, Rectorseal SS series or acceptable equal.

3.0 SLEEVES AND SEALS, FLASHINGS, AND UV PROTECTION:

A. Flash all pipes and vents extending through roof. Flashing details shall be in accordance with roof manufacturer's requirements.

B. Provide sleeves where piping penetrations are required thru partitions, concrete floors, concrete slabs on or below grade or foundation walls. Where penetrations are through fire rated assemblies, sleeves shall be in accordance with UL listing requirements. Sleeves shall be galvanized steel pipe, sheet steel or cast iron. Sleeves are not required for core drilled penetrations of existing concrete slabs above grade. Penetrations of below grade structures and slabs on grade shall be water proofed with mechanical link seal system, Thunder Line or acceptable equivalent.

C. Plastic piping without UV inhibiters which is exposed to UV radiation from sunlight shall be protected by coating with a UV resistant paint.

4.0 CROSS- CONNECTIONS AND INTERCONNECTIONS:

A. No plumbing device or piping shall be installed which will provide cross-connection or interconnection between a distributing supply or waste so as to make possible the backflow or back-siphonage of polluted water into the potable water supply system. Where the possibility of back-siphonage exists, water supply to the fixture shall be introduced through a suitable backflow preventer device suitable for the hazard protected. Installed backflow preventers must be approved through the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.

1. They may be an air gap, anti-syphon valve, atmospheric vacuum breaker, pressure vacuum breaker, double check, reduced pressure backflow preventer or as otherwise required by the authority having jurisdiction.

2. Where not otherwise indicated, miscellaneous equipment items with direct water connections, shall have backflow devices in accordance with authority having jurisdiction. Where not otherwise indicated, equipment such as coffee and tea makers, shall be equipped with dual check valves, ASSE 1024. Drink or carbonated water systems shall be equipped with stainless steel backpressure or backsiphonage devices, ASSE 1022.

5.0 PLUMBING EQUIPMENT:

A. Water heaters, pumps, expansion tanks and other equipment shall be as scheduled or by acceptable equal by one of the following:

Water Heaters and Accessories:

Water Heaters: Hamilton Engineering.

Expansion Tanks: Watts, Amtrol, Armstrong, Taco, Wessels.

Pumps and Accessories:

Domestic Circulating Pumps: Bell and Gossett, Armstrong, Grundfos, Taco.

B. Water Heater Installation

1. Pipe water heater drains and/or pan drains to indirect waste per code and as noted or detailed. Water heater P&T relief valves shall be piped independently, indirectly wasted 6" above receptor per code and as noted or detailed.

2. Install vacuum relief valve on each bottom fed storage water heater, installed above the top of the water heater on cold water inlet piping.

3. Mount water heaters on concrete floor pads.

4. High efficiency gas fired water heaters shall have a condensate neutralization kit.

5. Water piping connections to water heaters shall be metallic, no plastic piping is permitted within 18" of a water heater connection. Provide 18" minimum flexible corrugated copper or braided stainless steel connector hoses with compression ends for water heaters with 3/4" water connections.

C. Water heater vents shall be matched to equipment type specified. Provide UL Listed assemblies where required by code. Furnish with all accessory items including, flashing, roof cap, concentric vent/combustion air terminal, storm collar, couplings and fittings, condensate drains and mounting hardware.

1. Refer to mechanical specification for water heater vents.

D. Pumps used for potable water system applications shall be of lead free all bronze or stainless steel construction.

E. Provide equipment accessories including but not limited to operating controls, limit switches, oil sensors, high level controls, timers, aquastats, energy management system interface, etc. as indicated on drawings and as required for a complete operating system.

6.0 INSULATION:

A. Pipe insulation shall conform to the International Energy Conservation Code.

B. Insulate all cold water, hot water and hot water recirculating piping, Owens Corning or acceptable equal.

1. Cold water piping insulation: 1" fiber glass sectional pipe covering with universal vapor barrier jacket.

2. Hot Water and hot water recirculating piping insulation: 1" fiber glass sectional pipe covering with universal all service jacket.

3. Hot water recirculating pump body shall be insulated with 3/4" flexible elastomeric sheet or 1" fiberglass semi-rigid board with FSK jacket. All seams and joints shall be taped or mastic sealed.

C. At Contractor's option, Armacell AP Armaflex unicellular insulation or acceptable equal with 25/50 flame and smoke rating with equal thermal performance may be substituted for fiberglass products.

D. Seal all joints on cold water insulation to maintain vapor barrier.

E. Insulation shall run continuously thru hangers and supports without interruption.

F. Refer to plumbing fixture schedule for insulation of fixture drains and water piping for compliance with ADA requirements for People with Disabilities.

7.0 PIPE SUPPORTS AND ROUTING:

A. Hangers and Supports.

1. Piping shall be supported in accordance with industry standards including support methods, sizes and spacing. All supports and installation shall conform to MSS SP58 and 69 and Fed Spec WW-H-171E and A-A-1192A.

2. Pipe Slopes: Install hangers and supports to provide indicated or required pipe slopes to provide for drainage and venting

3. Deflection: Maximum pipe deflections and stresses as allowed by ANSI B31 are not exceeded.

4. Each piping system shall be independently supported with no piping bearing on another and installed such that no weight of piping is borne by the equipment.

5. Space hangers and supports within maximum piping span length indicated in MSS SP-58. Install building attachments at required locations for proper piping support.

6. Provide adjustable hangers, inserts, brackets, rolls, clamps, channels, rods, guides, anchors, flexible connectors, supplementary steel, etc., as required for proper support of all pipe lines. Trapeze may be used for support of multiple pipes. Provide accompanying attachments including bolts and nuts, sheetmetal screws or rivets suitable for application.

7. Provide copper plated, plastic coated or felt lined hangers where required to prevent electrolysis or abrasion on copper or plastic piping systems.

8. Upper attachments shall be manufactured items specific to the applicable structure. Include concrete inserts, wedge type drilled in inserts, steel beam and joist clamps, plates, rods, clips, straps and brackets as required by the application. For wood structures, provide attachments with thru bolted or lag screw attachments specifically designed and load rated for the application.

9. Hangers shall be designed to allow for expansion and contraction of pipe lines and shall be of adequate size to permit covering when required. Provide protective saddles and blocking where supporting insulated piping to prevent crushing insulation.

10. All hanger and support parts shall be galvanized steel for non-corrosive environments or stainless steel for corrosive or damp environments.

11. Cable systems may be used at contractor option. They shall be a complete assembly including cables, adjustable locking fasteners or clips and all upper and lower attachments by Gripple or acceptable equal.

B. Routing.

1. Piping shall be routed as shown on drawings, parallel to building lines unless otherwise shown, coordinated with building structure and other trades. Adjust pipe routing and drop locations with necessary pipe offsets or changes in elevation to accommodate beams and other obstructions.

8.0 MISCELLANEOUS

A. Indirect wastes shall discharge full size thru an air gap to a floor, equipment drain or sanitary floor sink. The floor or equipment drain grate shall be fitted with a funnel, the sanitary floor sink shall have a partial grate or the grate shall be omitted. Drains shall be located so they are accessible and not a tripping hazard.

B. Provide escutcheons at all penetrations of exposed walls and ceilings. Escutcheons shall be chrome plated brass in occupied areas, prime paint finish for unoccupied areas unless otherwise noted. Escutcheons for exterior or moist areas shall be brass.

C. All cable ties for controls and other cable systems located in plenums utilized for air movement that are not installed in conduit shall be 25/50 flame and smoke rated, Hellermann Tyton T50R2C2UL or equal.

9.0 PROTECTION OF WORK

A. Protection

1. Protect and cover piping and fixture waste and water openings to prevent entry of dirt and debris.

2. Cover and protect fixtures and plumbing equipment to prevent damage.

10.0 TEST, ADJUSTMENTS AND CLEANING:

A. Soil, waste and vent piping testing:

1. Fill with water to the top of the highest point of the system extending through roof, but not less than 10 feet water column, and allow to remain for a period of two hours.

2. Sanitary sewer and vent piping components and installation shall be tested with no measurable drop during a 15 minute period or at a pressure not less than 10% above that the piping will be subjected to during normal operation as follows:

2.1. Sanitary, Gravity Drain Piping: 10-foot head of water.

B. Water and gas line testing:

1. Water piping shall be purged and tested with compressed air or water at 50 PSIG above the operating pressure but not to exceed the pressure rating of piping system materials for a period of 2 hours with no measurable pressure drop.

2. Natural gas lines shall be inspected and blown out with dry compressed air or nitrogen to purge of debris and tested at 1-1/2 times the operating pressure or a minimum of 25 PSIG pressure with no measurable pressure drop. All test procedures including duration of test shall be in accordance with NFPA 54 and the International Fuel Gas Code.

C. After successful testing, sterilize water system with an approved solution in accordance with local health officials.

D. Contractor to submit all test data and other documentation for record.

11.0 FIXTURE BRANCH PIPING:

A. Fixture branch and connection sizes shall be as shown in the plumbing fixture schedule on the drawings and not less than required by code.

B. Minimum waste or vent size below slab on grade shall be 2".

12.0 PLUMBING FIXTURES:

A. Refer to plumbing fixture schedule for plumbing fixtures and accessories. Include all fittings and accessories as required for a complete working system.

B. At contractor option, flexible stainless steel braided hose, 125 PSIG rated, with non-toxic liner and compression fittings may be used in lieu of chrome plated brass riser tube.

13.0 FIXTURE AND ACCESSORY MANUFACTURERS:

A. Fixtures, equipment and accessories are specified by manufacturer's numbers as to the type and quality required.

END OF SECTION

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ELECTRICAL

1.0 SCOPE:

A. The work included under this contract consists of the furnishing of all labor, materials, tools, transportation, services, etc., necessary to complete the installation of the electrical systems and other items herein listed, all as directed by the Architect or Engineer, which work is comprised of, but not limited to the following principal items:

1. Electrical system for light and power:

a. Electrical service and distribution system revisions.
b. Switches and panel boards.
c. Systems of conduit, conductors, and boxes.
d. Receptacles and wiring devices.
e. Lighting fixtures and lamps.
f. Power service to the various motors.
g. Complete lighting and power systems.
h. All systems, wiring and conduit as required.

2. Control wiring and electrical installation and connections for items in other contracts as may be listed in the drawings.
3. Empty conduit and boxes for future installation of telephone wiring and miscellaneous systems.
4. Rough-in and final connection to equipment furnished by others.

B. Raceway wiring systems shall be concealed in all finished parts of the building, where possible. Where the raceways are exposed, they shall be run parallel with the building walls in a neat and workmanlike manner. Should it appear necessary to expose any conduit or wiring in finished spaces, it shall be brought to the Architect's attention immediately and this Contractor shall rearrange associated work as directed to facilitate an approved installation. Contractor to coordinate with mechanical trades to avoid ductwork and piping.

C. Contractor is responsible to provide liaison with electrical and communication companies. The Contractor shall provide and install all required equipment and connect as required to complete an operating service to the building.

2.0 RACEWAYS:

A. All electrical conductors are to be installed in metal raceways, unless specifically specified or noted otherwise. Galvanized steel or intermediate steel conduit as permitted by code. No conduit smaller than 3/4" to be used. Use compression type fittings. Provide flexible conduit connection for final connection to each motor not to exceed 3' in length and recessed lighting fixtures not to exceed 6' in length. Provide pull wires in all empty conduit systems. Identify terminus of each pull wire. All exposed raceways shall be installed with runs parallel and/or perpendicular with building walls. Fasten all rigid/non-flexible conduit every 8' and 2' from each box. Conduit shall be EMT where not subject to mechanical damage as permitted by National Electric Code (N.E.C.). EMT connectors and couplings 4" and smaller shall be compression type. Type MC Cable is not permitted.

B. Conduit bushings shall be provided and installed inside all disconnects, pull boxes, panelboards, switchboard or similar type equipment and where permitted by National Electric Code (N.E.C.).

C. Schedule 40 PVC conduit may be used for underground installation and where permitted by National Electric Code (N.E.C.). Transition to RGS for sweep from below grade to above grade.

3.0 WIRES AND CABLES:

A. Electrical conductors, soft annealed copper with conductivity 98% of that of pure, stranded copper, 90 degree - 600V insulation and equal to General Cable Company. Wire and cable for all feeders, subfeeders, motor circuits and high ambient location type shall be THHN. All other branch circuit wiring shall be type XHHN or THHN. Minimum wire size shall be #12 gauge AWG. Control wiring may be #14 gauge.

B. For conductors #4 or small use the following color-code:

- 208Y/120V, 3-phase: black, red, blue, white.
- 480Y/277V, 3-phase: brown, orange, yellow, gray.
- Green shall be used for ground wire conductor.

C. For conductors larger than #4, Field-Applied, Color-Coding Conductor Tape can be applied in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

D. Conductor Material Applications:
a. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
b. Branch Circuits: Copper. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.

E. Conductor insulation and multi-conductor cable application and wiring methods:
a. Feeders: Type THHN, single conductors in raceway.
b. Branch Circuits: Type THHN, single conductors in raceway.

4.0 GROUNDING:

A. Ground all electrical apparatus in accordance with N.E.C. and as specified herein. Provide a separate grounding conductor for all lighting, receptacle and equipment circuits. All cabinets, switchboards, equipment cases, motor frames, interior metal cold water piping systems, and system neutral conductors shall be effectively grounded. Use solderless pressure type connectors, no perforated strap connectors will be allowed. Ensure continuous bond where flexible conduit is used. Provide bonding jumper inside all flexible conduit. Grounding per N.E.C. 250, and any local requirements.

5.0 SPLICE AND TAPS:

A. Make splices at junction boxes, pull boxes, or outlet boxes only.

6.0 CABINETS, JUNCTION AND PULL BOXES:

A. Flush or surface mounted as indicated on drawings. Provide where shown on drawings and where required by code. Construct of cold gauge steel for flush surface mounting.

7.0 OUTLET BOXES:

A. General Electric, Appleton, Steel City or Raco hot dipped galvanized steel boxes, or equal. Install at terminal of each conduit run, each outlet, or device. Provide size, type and design to suit structural conditions. Adequate to accommodate size and number of raceways, conductors, device or fixture served. Provide plaster rings or covers on boxes where required on exposed work, use approved cast ferrous alloy outlet, junction boxes and fittings. Fixture or device cover shall completely conceal the size outlet box used. Install 3/8" fixture stud for lighting fixtures where required. Locate ceiling outlets to work with architectural features as directed. Switches installed 48" above floor on strike side of door as finally hung. Receptacles and telephone outlets, 18" above finished floor unless otherwise noted. Verify all outlet locations on job with Architect.

8.0 PANELBOARDS:

A. Panel boards are as indicated on the drawings. Main lugs only unless noted or specified otherwise. Provide typewritten schedule of circuits in index cardholder. Provide with hinged door and hinged cover. All circuit breakers shall be bolt-on molded case and have positive "trip" indication. Breakers used on existing panels shall match existing units and shall be labeled to have positive "trip" indication. Breakers shall be labeled to indicate suite number and use. Panelboards shall be ABB(General Electric), Square D, Siemens or Eaton/Cutler Hammer. All single pole circuit breakers shall be 'switch duty rated'. Panelboards shall be fully rated. Series rated panels are not permitted.

9.0 DISCONNECT SWITCHES:

A. Heavy duty NEMA type 'HD' - same manufacturer as panelboards. Plastic nameplate properly engraved with name of equipment served, secured to switch cover. Fuses shall be Bussmann of sizes and types scheduled.

10.0 MOTOR AND CONTROL WIRING AND CONNECTIONS:

A. This Contractor to provide all necessary conduit, boxes and supports to equipment furnished by Owner and as indicated on drawings. Provide a disconnect switch and starter if required.

11.0 LABELING:

A. Contractor shall label each and every j-box above ceiling with a permanent marker with panel and circuit number.

B. Outlets, adhesive film label, machine printed clear background with black letters, by thermal transfer or equivalent process. Minimum letter height shall be 1/4 inch. Face plate shall be labeled with panel and circuit number.

C. Interior equipment self-adhesive, engraved, laminated acrylic or melamine label: adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

D. Exterior equipment: Stenciled or engraved, laminated acrylic or melamine label: punched or drilled for screw mounting. White letters on a black background. Minimum letter height shall be 1 inch (25 mm).

12.0 WIRING DEVICES:

A. Duplex receptacles shall be Hubbell #5352-X grounding type, 20A., 125V.; G.F.C.I. shall be Hubbell GF-5352-X, 20A., 125V.; duplex, G.F.C.I. TYPE. USB outlets shall be Hubbell USB4AW, (2) USB-A and (2) USB-C ports. Wall toggle switches shall be Hubbell Number 1221-X and Number 1223-X for single pole and three way types respectively. Other switch, receptacle, and outlet device variations shall be by Hubbell of "Spec. Grade" quality. Equivalent devices of P & S or Leviton will be acceptable in lieu of the above listed devices. Contractor to verify color of devices and cover plates with Architect before purchase.

13.0 LIGHTING FIXTURES:

A. This Contractor shall furnish and install complete, unless otherwise specified, a lighting fixture on each and every lighting outlet shown on the drawings of each type scheduled by letter and description. All fixtures shall be equipped with lamps as scheduled or specified herein. All fixtures installed in suspended ceilings must be securely fastened to framing members per NEC 410-36b and local seismic code requirements.

END OF SECTION

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/22/2023

1730 Walnut Street
Kansas City, Missouri
64108

816.221.1411
Fax: 816.221.1429

Lankford + associates Fendler

Seal

STATE OF MISSOURI
GREGORY J. FENDLER
NUMBER PE-2006037350
PROFESSIONAL ENGINEER
COA# 2006001168 03/04/2021

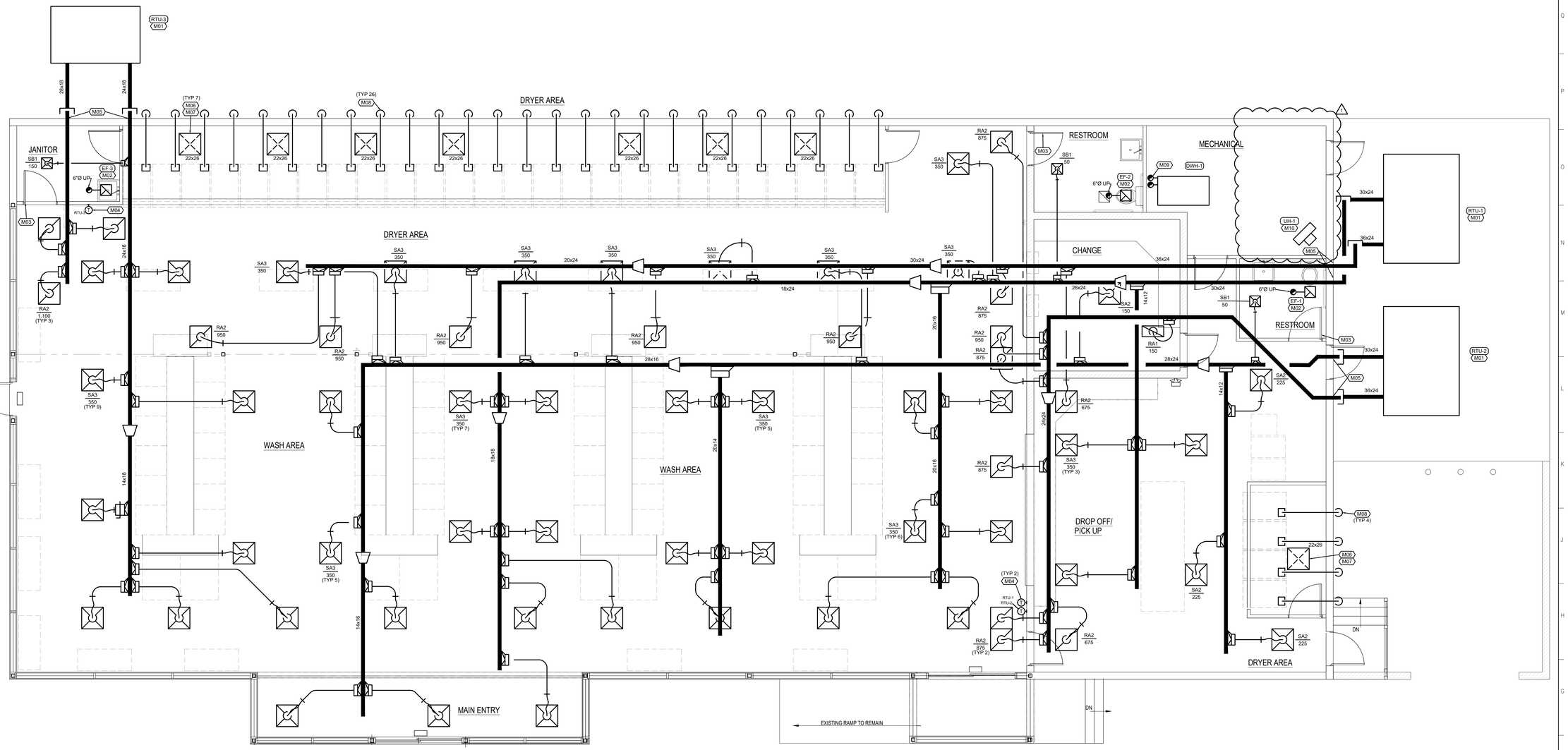
WASH HOUSE LAUNDRY – LEE'S SUMMIT

711 SE 291 HWY.
LEE'S SUMMIT, MO. 64063

Project Number:	20.6606.00
Date	12/15/2020
Phase	Construction
Issued For	Permit
Drawn By	JSV
P.I.C.	BLH/GIF

Revision

MEP2



MAIN FLOOR PLAN-MECHANICAL

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

M## FLOOR PLAN NOTES

1. PROVIDE GROUND MOUNTED ROOFTOP UNIT WITH SIDE DISCHARGE INSTALLED PER MANUFACTURER'S REQUIREMENTS ON RAILS FURNISHED WITH UNIT. PROVIDE NEOPRENE VIBRATION ISOLATORS. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCTWORK CONNECTIONS. PROVIDE CONDENSATE TRAP PER DETAIL.
2. PROVIDE CABINET EXHAUST FAN INSTALLED PER MANUFACTURER'S REQUIREMENTS FROM STRUCTURE UTILIZING ALL THREAD RODS ON HANGING HARDWARE FURNISHED WITH FAN. FAN TO BE CONTROLLED VIA ASSOCIATED ROOM LIGHTS. ROUTE EXHAUST DUCTWORK UP THROUGH ROOF AND TERMINATE WITH VENT CAP.
3. UNDERCUT DOOR BY 1".
4. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT AND PROVIDE CONTROL WIRING BACK TO ASSOCIATED RTU.
5. ROUTE DUCTWORK INTO SIDE OF BUILDING, PENETRATE WALL PER DETAIL.
6. ROUTE DRYER MAKE UP DUCT DOWN AND TERMINATE IN BACK OF HOUSE DRYER SPACE WITH BOTTOM OF DUCT OPEN.
7. ROUTE DRYER MAKE UP AIR DUCT UP AND THROUGH ROOF AND TERMINATE WITH A GOOSENECK WITH AIR INTAKE OPENING FACING SOUTH. PROVIDE 1" BIRDSCREEN AT INLET ON ROOF. CONTRACT OWNER APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL ROOF PENETRATION.
8. PROVIDE 8" DRYER VENT AND ROUTE OUTSIDE AND TURN 90 DEGREES DOWN AND TERMINATE PER MANUFACTURER'S REQUIREMENTS INSTALLED AS HIGH AS POSSIBLE. CONNECT TO DRYER UTILIZING UL LISTED FLEXIBLE CONNECTOR.
9. PROVIDE 6" POLYPROPYLENE VENT AND INTAKE PIPING ROUTED UP TO ROOF AND TERMINATE PER MANUFACTURER REQUIREMENTS. CONTRACT OWNER APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL ROOF PENETRATION.
10. PROVIDE ELECTRIC UNIT HEATER MOUNTED TO THE WALL WITH WALL HANGING KIT FURNISHED WITH HEATER INSTALLED PER MANUFACTURER'S REQUIREMENTS.

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/22/2021

1730 Walnut Street
Kansas City, Missouri
64108
816.221.1411
Fax: 816.221.1429
Lankford Fendler + associates

Seal
STATE OF MISSOURI
GREGORY J. FENDLER
NUMBER PE-2006037336
PROFESSIONAL ENGINEER
COA# 2006001168 03/04/2021

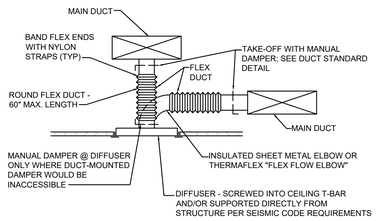
WASH HOUSE LAUNDRY – LEE'S SUMMIT

711 SE 291 HWY.
LEE'S SUMMIT, MO. 64063

Project Number:	20.6606.00
Date	12/15/2020
Phase	Construction
Issued For	Permit
Drawn By	JSV
P.I.C.	BLH/GJF

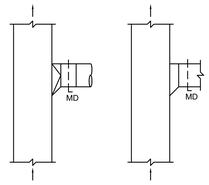
Revision
1 ADDENDUM 1 FEBRUARY 04, 2021

M1



NOTE: BRANCH DUCT RUNOUT TO DIFFUSER SHALL BE THE SAME SIZE AS THE DIFFUSER NECK UNLESS OTHERWISE INDICATED ON PLAN.

DIFFUSER DETAIL
NO SCALE



ROUND SUPPLY BRANCH "TAKE-OFFS" (20% OR LESS AIRFLOW TO BRANCH LOW & HIGH VELOCITY)

RECTANGULAR SUPPLY BRANCH "TAKE-OFFS" (20% OR LESS AIRFLOW TO BRANCH LOW & HIGH VELOCITY)

DUCT STANDARDS
NO SCALE

GENERAL NOTES (TYPICAL ALL SHEETS)

A. MECHANICAL CONTRACTOR IS RESPONSIBLE TO SEE THAT WORK MEETS AND IS IN ACCORDANCE WITH ALL REQUIREMENTS OF FEDERAL, STATE, AND LOCAL LAWS AND CODES AND/OR REQUIREMENTS, INCLUDING HEALTH CODES AND BUILDING OWNER.

B. CUTTING AND PATCHING OF FLOORS, WALLS, CEILING, ETC., REQUIRED IN STRICT ACCORDANCE WITH THE RULES AND REGULATIONS OF THE ARCHITECT'S AND/OR BUILDING OWNER REQUIREMENTS.

C. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID ROUTING CONFLICTS.

D. MECHANICAL CONTRACTOR SHALL AIR BALANCE ALL GRILLES TO CFM'S SHOWN ON PLANS.

E. ALL DUCTWORK, DIFFUSERS, TERMINAL UNITS, ETC. ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE.

F. INSTALL ELASTOMERIC JOINT SEALER AROUND ALL DUCTS, PIPES, ETC. PASSING THRU INTERIOR NON-RATED CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS. FOR FIRE RATED INTERIOR CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS SEAL ALL DUCTS, PIPES, ETC. INSTALL FIRESTOP MATERIALS IN ALL GAPS PRIOR TO SEALANT APPLICATION. INSTALL SEALER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

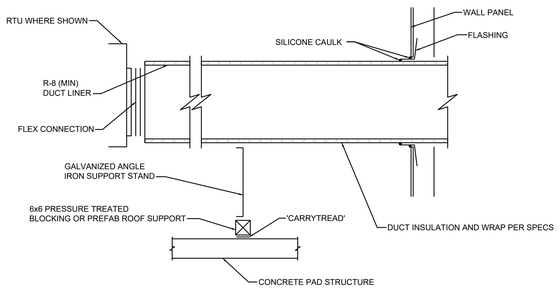
G. MECHANICAL CONTRACTOR SHALL COORDINATE ALL TEMPERATURE CONTROL WORK WITH BUILDING OWNER. BUILDING SYSTEM SHALL REMAIN OPERATIONAL AT ALL TIMES.

H. UPON REQUEST FOR ELECTRONIC FILES, CONTRACTOR SHALL FILL OUT, SIGN AND RETURN ELECTRONIC MEDIA RELEASE FORM FROM ENGINEER AND PROVIDE PAYMENT FOR FEES STIPULATED ON ELECTRONIC MEDIA RELEASE FORM. UPON RECEIPT OF COMPLETED RELEASE FORM AND PAYMENT, ELECTRONIC FILES WILL BE RELEASED.

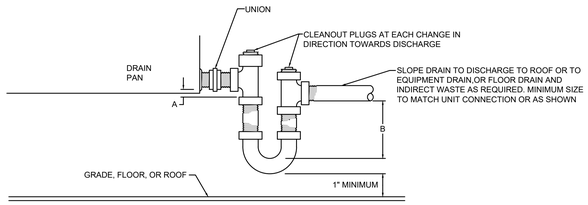
I. REPLACE EXISTING THERMOSTATS/SENSORS WITH NEW. THERMOSTAT COVERS SHALL BE WHITE IN COLOR UNLESS OTHERWISE NOTED. THERMOSTATS/SENSORS SHALL BE INSTALLED AND CALIBRATED PRIOR TO TEST AND BALANCE. INTEGRATE NEW DIGITAL THERMOSTATS/SENSORS INTO THE EXISTING BUILDING ENERGY MANAGEMENT SYSTEM AS REQUIRED.

MECHANICAL SYMBOLS

- NEW DUCTWORK
- SUPPLY DUCT
- RETURN DUCT
- EXHAUST DUCT
- SUPPLY DIFFUSER
- RETURN GRILLE
- EXHAUST GRILLE
- R/D — RISE OR DROP IN DUCT
- T — THERMOSTAT, MOUNT TOP AT 48" AFF.
- MANUAL VOLUME DAMPER
- SUPPLY DUCT DOWN
- SUPPLY DUCT UP
- RETURN DUCT DOWN
- RETURN DUCT UP
- EXHAUST DUCT DOWN
- EXHAUST DUCT UP
- FLEXIBLE DUCT CONNECTION
- AHU-1 — EQUIPMENT TYPE AND DESIGNATION
- SA / 200 — MARK NO. SUPPLY (S_) RETURN (R_), EXHAUST (E_) / CFM



DUCT WALL PENETRATION DETAIL
NO SCALE



DIM. 'A'	DIM. 'A'	DIM. 'B'
BLOW THRU COIL	1"	FAN DISCHARGE STATIC PRESSURE + 1"
DRAW THRU COIL	FAN SUCTION STATIC PRESSURE + 1"	2-1/2"

NOTE: MINIMUM 'A' OR 'B' DIMENSION SHALL BE NOT LESS THAN 1".

HVAC CONDENSATE TRAP DETAIL
NO SCALE

ROOFTOP UNIT SCHEDULE

MARK NO.	MANUFACTURER	MODEL	AIRFLOW CFM	MIN O.A. CFM	EER	SUPPLY FAN EXT. S.P. (IN W.G.)	FAN HP	DRIVE TYPE	FAN TYPE	RPM	COOLING AMB. (°F)	E.D.B. (°F)	E.W.B. (°F)	NOMINAL TONS	TOTAL MBH	SENS. MBH	STAGES	HEATING-GAS E.D.B (°F)	L.D.B (°F)	INPUT MBH	OUTPUT MBH	STAGES	ELECTRICAL VOLT	ø	HZ	NOTES
RTU-1	TRANE	YHH240	6475	750	11	1.5	5	BELT	FC	739	95	80	67	20	248.45	195.1	2	70	93	250	200	2	208	3	60	1,2,3,4
RTU-2	TRANE	YHH240	6400	750	11	1.5	5	BELT	FC	739	95	80	67	20	248.45	195.1	2	70	93	250	200	2	208	3	60	1,2,3,4
RTU-3	TRANE	YHC120	3200	400	12.4	1.5	2.75	BELT	FC	1461	95	80	67	10	113.9	94.1	2	70	98	150	120	2	208	3	60	1,2,3,4

NOTES:
1. PROVIDE WITH DISCONNECT SWITCH, 14" CURB FOR GROUND MOUNTING, COTTONWOOD FILTERS AND HAIL GUARDS
2. PROVIDE WITH DRY BULB ECONOMIZER, POWERED RELIEF AND HOT GAS REHEAT.
3. PROVIDE WITH 2" MERV 8 FILTERS.
4. UNIT TO BE CONFIGURED FOR SIDE DISCHARGE.

FAN SCHEDULE

MARK NO.	MANUFACTURER	MODEL	SERVES	TYPE	AIRFLOW (CFM)	S.P. (IN W.G.)	FAN TYPE	SONES	RPM	DRIVE	ELECTRICAL VOLT	ø	HZ	HP WATTS	NOTES
EF-1	GREENHECK	SP-A50-90-VG	RESTROOM	CABINET	75	0.3	CENT	2	887	DIRECT	120	1	60	1/20	1,2
EF-2	GREENHECK	SP-A50-90-VG	RESTROOM	CABINET	75	0.3	CENT	2	887	DIRECT	120	1	60	1/20	1,2
EF-3	GREENHECK	SP-A50-90-VG	JANITOR	CABINET	75	0.3	CENT	2	887	DIRECT	120	1	60	1/20	1,2

NOTES:
1. PROVIDE WITH DISCONNECT SWITCH, SPEED CONTROLLER, INTEGRAL GRILLE, HANGING HARDWARE AND BACKDRAFT DAMPER.
2. FAN TO BE CONTROLLED WITH LIGHTS.

UNIT HEATER SCHEDULE

MARK NO.	MANUFACTURER	MODEL	TYPE	AIRFLOW (CFM)	EAT (°F)	LENGTH (IN)	HEATING (ELEC.) INPUT (KW*)	ELECTRICAL VOLT	ø	HZ	NOTES
UH-1	BERKO	MUH	UNIT HEATER	350	50	N/A	5	208	1	60	1

NOTES:
1. PROVIDE WITH DISCONNECT SWITCH, WALL MOUNTING HARDWARE AND INTEGRAL THERMOSTAT.

*HEATING KW IS NET CAPACITY AT VOLTAGE AND PHASE INDICATED.

DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL	FACE SIZE (IN.)	NECK SIZE (IN.)	SLOT WIDTH (IN.)	NO. OF SLOTS	FRAME TYPE*	FINISH	NOTES
SA1	PRICE	SPD	24x24	8	-	-	LAY-IN	WHITE	-
SA2	PRICE	SPD	24x24	10	-	-	LAY-IN	WHITE	-
SA3	PRICE	SPD	24x24	12	-	-	LAY-IN	WHITE	-
SB1	PRICE	SPD	12x12	6	-	-	SURFACE	WHITE	-
RA1	PRICE	PDDR	24x12	22x12	-	-	LAY-IN	WHITE	-
RA2	PRICE	PDDR	24x24	14x14	-	-	LAY-IN	WHITE	-

NOTES: 1. -

*CONTRACTOR SHALL VERIFY CEILING TYPE PRIOR TO ORDERING DIFFUSERS.

1730 Walnut Street
Kansas City, Missouri
64108
816.221.1411
Fax: 816.221.1429
Lankford + associates Fender

Seal

STATE OF MISSOURI
GREGORY J. FENDLER
NUMBER PE-2006037330
PROFESSIONAL ENGINEER
03/04/2021

COA# 2006001168

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/22/2021

WASH HOUSE LAUNDRY – LEE'S SUMMIT

711 SE 291 HWY.
LEE'S SUMMIT, MO. 64063

Project Number:	20.6606.00
Date	12/15/2020
Phase	Construction
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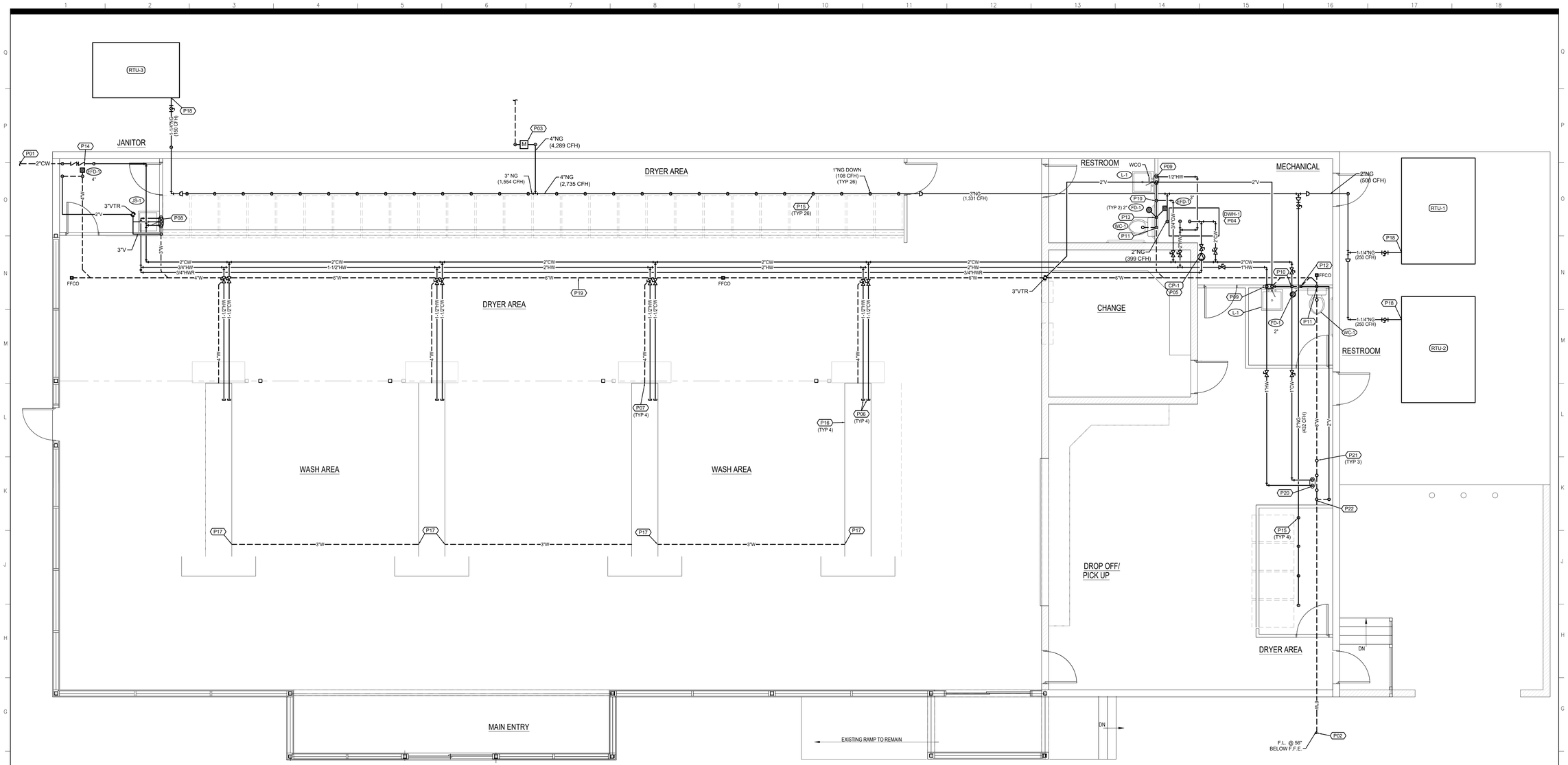
Drawn By	SV
P.I.C.	BLH/GJF

Revision

M2



MAIN FLOOR PLAN-PLUMBING

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

P## FLOOR PLAN NOTES

1. PROVIDE COLD WATER SERVICE 5'-0" OUTSIDE BUILDING FOOTPRINT, COORDINATE WITH CIVIL. UPGRADE EXISTING 1-1/2" SERVICE TO 2" SERVICE.
2. PROVIDE WASTE SERVICE 5'-0" OUTSIDE BUILDING FOOTPRINT, COORDINATE WITH CIVIL.
3. COORDINATE WITH GAS COMPANY TO PROVIDE GAS METER AND REGULATOR. CONNECT TO EXISTING GAS PIPING IN THIS LOCATION, CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
4. PROVIDE GAS FIRED HOT WATER HEATER INSTALLED PER MANUFACTURER'S REQUIREMENTS. ROUTE FULL SIZED T&P DRAIN LINE AND HEATER DRAIN LINE TO EQUIPMENT FLOOR DRAIN.
5. PROVIDE HOT WATER CIRCULATION PUMP SUSPENDED FROM STRUCTURE UTILIZING ALL THREAD RODS INSTALLED PER DETAIL AND MANUFACTURER'S REQUIREMENTS.
6. PROVIDE 1-1/2" COLD AND HOT WATER CONNECTIONS TO WASHER BULKHEADS. COORDINATE FINAL CONNECTION LOCATION WITH MANUFACTURER.
7. CONNECT 4" WASTE TO DRAIN BASIN PROVIDED BY OTHERS.
8. 1/2" COLD AND HOT WATER DOWN, 3" WASTE DOWN & 2" VENT DOWN TO JANITORS SINK.
9. 1/2" HOT WATER DOWN, 2" WASTE DOWN AND 1-1/2" VENT UP FROM LAVATORY. 2" VENT UP FROM RESTROOM GROUP.
10. 3/4" COLD WATER DOWN, 1/2" COLD WATER TO LAVATORY AND WATER CLOSET.
11. 2" VENT UP AND 4" WASTE DOWN FROM WATER CLOSET.
12. 2" VENT UP AND 2" WASTE DOWN FROM FLOOR DRAIN.
13. 2" VENT UP AND 2" WASTE DOWN FROM FLOOR DRAINS.
14. PROVIDE REDUCED PRESSURE BACKFLOW PREVENTER (WATTS 009, OR EQUIVALENT) INSTALLED PER MANUFACTURER'S REQUIREMENTS. ROUTE FULL SIZED DRAIN LINE TO FLOOR SINK.
15. 1" NATURAL GAS DOWN TO DRYER. PROVIDE GAS COCK, DIRT LEG AND UL LISTED FLEXIBLE CONNECTOR AND MAKE FINAL CONNECTION TO DRYER.
16. INSTALL TRENCH DRAIN PROVIDED BY OTHERS. INSTALL LINT FILTER SCREEN IN TRENCH DRAIN.
17. CONNECT 3" OVERFLOW DRAIN TO TRENCH DRAIN PROVIDED BY OTHERS.
18. PROVIDE GAS COCK, DIRT LEG AND UNION AND MAKE FINAL CONNECTION TO MECHANICAL EQUIPMENT.
19. DRAIN PIPING PART OF COMBINATION DRAIN WASTE & VENT SYSTEM, INSTALL PER PLUMBING CODE REQUIREMENTS.
20. 1" COLD & HOT WATER DOWN, MAKE FINAL CONNECTIONS TO WASHERS.
21. WASHER WASTE DOWN TO FLOOR, MAKE FINAL CONNECTION TO WASHER.
22. 2" VENT UP FROM WASHER WASTE PIPING.

1730 Walnut Street
Kansas City, Missouri
64108
816.221.1411
Fax: 816.221.1429
Lankford + Fendler + associates

Seal

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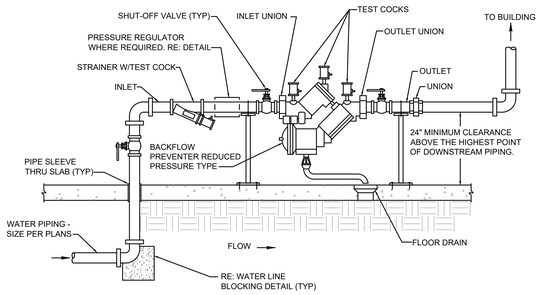
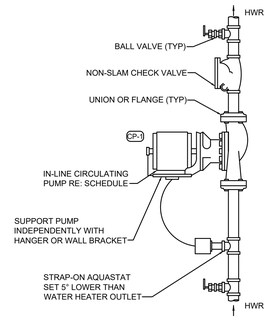
P1

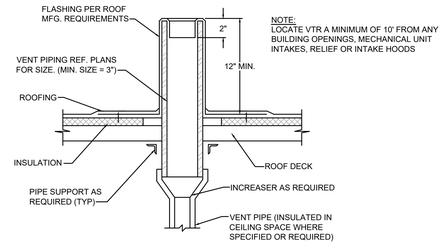
NOTES:
1. PROVIDE PRESSURE REGULATOR. SET TO 75 PSI WHERE SOURCE PRESSURE EXCEEDS 80 PSI. INSTALL DOWNSTREAM OF BACKFLOW PREVENTER OUTLET. RE: DETAIL
2. ARRANGEMENT SHOWN IS SCHEMATIC. MODIFY TO SUIT CONDITIONS. INSTALL SO BFP CAN BE SERVICED AND TESTED IN ACCORDANCE W/ ALL RULES & REGULATIONS OF LOCAL AUTHORITIES.
3. ROUTE DRAIN AS INDICATED ON PLANS.
4. SUPPORT AS REQUIRED FROM SLAB.



INTERIOR BACKFLOW PREVENTER DETAIL
NO SCALE

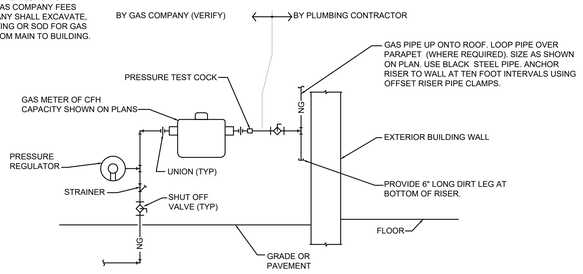


CIRCULATING PUMP DETAIL
NO SCALE

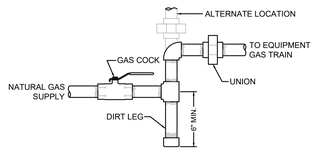


VENT THRU ROOF DETAIL
NO SCALE

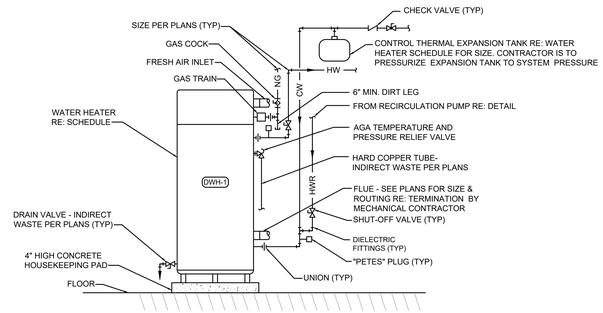
NOTE:
VERIFY REQUIREMENTS FOR METERING AND PIPING WITH GAS COMPANY. INSTALL OTHER UTILITIES MINIMUM TEN FEET FROM GAS LINE. PLUMBING CONTRACTOR SHALL PAY ALL GAS COMPANY FEES FOR INSTALLATION. GAS COMPANY SHALL EXCAVATE, BACKFILL, AND REPAIR ANY PAVING OR SOD FOR GAS SERVICE LINE INSTALLATION FROM MAIN TO BUILDING.



GAS SERVICE DETAIL
NO SCALE



GAS EQUIPMENT CONNECTION DETAIL
NO SCALE



SEALED COMBUSTION GAS WATER HEATER DETAIL
NO SCALE — WITH RECIRCULATION PUMP

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1730 Walnut Street
Kansas City, Missouri
64108
816.221.1411
Fax: 816.221.1429
Lankford + associates Fendler

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P2

PLUMBING FIXTURE SCHEDULE

MARK NO.	FIXTURE TYPE	MANUFACTURER	MODEL NO.	DESCRIPTION	CONNECTION SIZE			
					CW	HW	WASTE	VENT
WC-1	WATER CLOSET (ADA)	AMERICAN STANDARD	215AA.004 (LEFT HANDLE) 4188A.005 (RIGHT HANDLE) "CADET PRO"	FLOOR MOUNTED FLUSH TANK, WHITE VITREOUS CHINA, HIGH EFFICIENCY (1.6 GPF), ELONGATED POWER WASH BOWL, FULLY GLAZED 2" TRAP WAY, CLOSE-COUPLED TANK, 16-1/2" RIM HEIGHT. ACCESSORIES: CHURCH 9500SSCT WHITE OPEN FRONT SEAT LESS COVER WITH SELF SUSTAINING CHECK HINGES, BOLTS AND CAPS, LOOSE KEY ANGLE STOP AND CHROME-PLATED RISER. NOTE: HANDLE TO BE ON WIDE SIDE OF FIXTURE.	1/2"	-	4"	2"
L-3	LAVATORY (ADA)	AMERICAN STANDARD	0355.012 (4" CENTERS) "LUCERNE"	VITREOUS CHINA, 20" X 18", FRONT OVERFLOW, INTEGRAL BACK. CHICAGO FAUCETS MODEL 802-XKABCP FAUCET WITH CERAMIC OPERATING CARTRIDGE, 4" CENTERS, 4" INTEGRAL SPOUT, LEVER HANDLES. ACCESSORIES: PROVIDE LEONARD 170-LF LEAD FREE BRONZE THERMOSTATIC MIXING VALVE WITH 0.25 GPM MINIMUM FLOW RATE, INTEGRAL CHECK VALVES. DISCHARGE SET AT 105 F. MOUNTED DOWNSTREAM OF FIXTURE STOPS, WITH HOT AND COLD WATER PIPED TO VALVE. TEMPERED AND COLD WATER TO LAVATORY. CHICAGO FAUCETS MODEL 327-XCP GRID DRAIN, 1-1/4" X 1-1/2" 17 GA. SEMI-CAST BRASS P-TRAP WITH CLEANOUT, CHROME-PLATED RISERS WITH LOOSE KEY ANGLE STOPS AND J.R. SMITH CONCEALED ARM LAVATORY SUPPORT. PROVIDE WITH FULLY MOLDED FLEXIBLE VINYL INSULATION KIT COVER TRAP, SUPPLIES AND STOPS, TRUEBRO E-Z LAV GUARD. NOTE: MOUNT FIXTURE RIM 34" ABOVE FINISHED FLOOR.	1/2"	1/2"	1-1/2"	1-1/2"
JS-1	JANITOR SINK	STERN-WILLIAMS	MTB-2424	SIZE 24" X 24" X 10", TERRAZZO SERVICE SINK WITH CAST BRASS DRAIN, STAINLESS STEEL STRAINER, 3" DRAIN CONNECTION. CHICAGO FAUCETS MODEL 897-CCP WITH QUATURN OPERATING CARTRIDGE, VACUUM BREAKER SPOUT WITH PAIL HOOK AND WALL BRACE, 3/4" MALE HOSE THREAD OUTLET, 369 LEVER HANDLES, FLANGED ADJUSTABLE SUPPLY ARM AND INTEGRAL SUPPLY STOPS AND CHECK VALVES. ACCESSORIES: V-70 EXTRUDED VINYL BUMPER GUARDS ON EXPOSED SIDES, T-35 36" RUBBER HOSE WITH STAINLESS STEEL WALL BRACKET.	1/2"	1/2"	3"	2"
FD-1	FLOOR DRAIN	J.R. SMITH	2005YA-NB	GENERAL PURPOSE, DUCO CAST IRON BODY WITH FLASHING COLLAR, ADJUSTABLE STRAINER HEAD, ROUND NICKEL BRONZE STRAINER, AND SEEPAGE OPENINGS. OUTLET SIZE PER PLANS. PROVIDE WITH SQUARE GRATE WHERE DRAIN IS INSTALLED IN TILE FLOORS. NOTE: PROVIDE WITH TRAP PRIMER CONNECTION WHERE REQUIRED BY LOCAL CODE OR AS INDICATED ON DRAWINGS.	-	-	2"	1-1/2"
EFD-1	EQUIPMENT FLOOR DRAIN	J.R. SMITH	2210Y	MEDIUM CAPACITY, MEDIUM DUTY DUCO CAST IRON BODY, SEDIMENT BUCKET AND GRATE, NO HUB OUTLET. PROVIDE WITH 3591 OVAL FUNNEL, WHERE DRAIN RECEIVES INDIRECT WASTE.	-	-	2"	1-1/2"

PLUMBING PUMP SCHEDULE

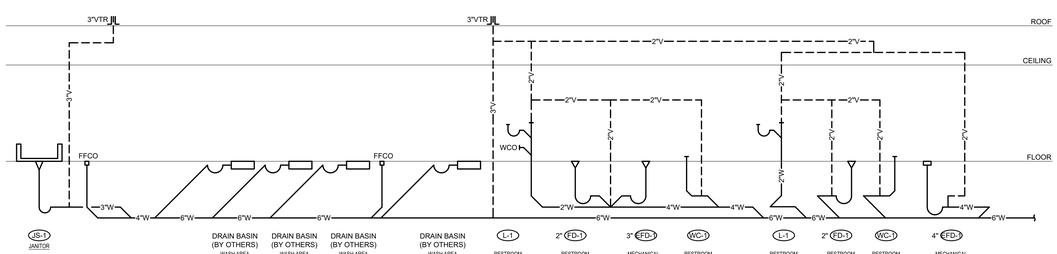
MARK NO.	MANUFACTURER	MODEL	USE	TYPE	FLOW (GPM)	HEAD (FT.)	RPM	ELECTRICAL				NOTES
								VOLT	ø	HZ	HP	
CP-1	BELL & GOSSETT	PL30B	RECIRC	INLINE	3	25	2450	120	1	60	1/12	1

NOTES: 1. -

WATER HEATER SCHEDULE (GAS TANKLESS)

MARK NO.	MANUFACTURER	MODEL NO.	MINIMUM ACTIVATION FLOW, GPM	RECOVERY (GPM @ 80 F)	INPUT MBH	ELECTRICAL			NOTES
						VOLT	ø	HZ	
DWH-1	HAMILTON	HWDG 399-160	0.4	594	399	120	1	60	1,2

NOTES:
1. FLOOR MOUNTED, HIGH EFFICIENCY DIRECT VENTED CONDENSING, FORCED COMBUSTION, MODULATING FIRE, 5-1 TURNDOWN, ELECTRONIC IGNITION, MAXIMUM FLOW RATE PER MODULE 9.8 GPM.
2. PROVIDE WITH ISOLATION AND RELIEF VALVES, GAS TRAIN, CONTROLLER WITH WATER FLOW SENSOR, ELECTRONIC WATER AND BY-PASS CONTROL, CORD AND PLUG.
3. PROVIDE WITH AMTROL ST-12-C EXPANSION TANK.



WASTE AND VENT RISER DIAGRAM
NO SCALE

GENERAL NOTES (TYPICAL ALL SHEETS)

A. PLUMBING CONTRACTOR IS RESPONSIBLE TO SEE THAT WORK MEETS AND IS IN ACCORDANCE WITH ALL REQUIREMENTS OF FEDERAL, STATE, AND LOCAL LAWS AND CODES AND/OR REQUIREMENTS, INCLUDING HEALTH CODES AND BUILDING OWNER.

B. CUTTING AND PATCHING OF FLOORS, WALLS, CEILING, ETC., REQUIRED IN STRICT ACCORDANCE WITH THE RULES AND REGULATIONS OF THE ARCHITECT'S AND/OR BUILDING OWNER REQUIREMENTS.

C. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID ROUTING CONFLICTS.

D. INSTALL ELASTOMERIC JOINT SEALER AROUND ALL PIPES PASSING THRU INTERIOR NON-RATED CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS. FOR FIRE RATED INTERIOR CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS SEAL ALL PIPES. INSTALL FIRESTOP MATERIALS IN ALL GAPS PRIOR TO SEALANT APPLICATION. INSTALL SEALER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

E. PLUMBING CONTRACTOR SHALL MAKE FINAL CONNECTION TO ALL EQUIPMENT BY OTHERS. VERIFY CONNECTIONS SIZES AND REQUIREMENTS.

F. PIPING ROUTED BELOW COUNTER IN CABINETS SHALL BE ROUTED AS NOTED. NOT TO INTERFERE WITH DRAWERS, SHELVES, EQUIPMENT, ETC., AND SUPPORT FROM BACK WALL OF CABINET.

G. PLUMBING CONTRACTOR SHALL PROVIDE PRO-SET SYSTEMS 'TRAP GUARD' IN ALL FLOOR DRAIN TRAPS WITHIN PROJECT SCOPE OF WORK.

H. UPON REQUEST FOR ELECTRONIC FILES, CONTRACTOR SHALL FILL OUT, SIGN AND RETURN ELECTRONIC MEDIA RELEASE FORM FROM ENGINEER AND PROVIDE PAYMENT FOR FEES STIPULATED ON ELECTRONIC MEDIA RELEASE FORM. UPON RECEIPT OF COMPLETED RELEASE FORM AND PAYMENT, ELECTRONIC FILES WILL BE RELEASED.

PLUMBING SYMBOLS

- EXISTING TO REMAIN
- NEW PIPING
- FLOW ARROW
- CW — COLD WATER
- HW — HOT WATER
- HWR — HOT WATER RETURN
- NG — NATURAL GAS
- V — SANITARY VENT ABOVE GROUND/FLOOR
- V — SANITARY VENT BELOW GROUND/FLOOR
- W — SANITARY WASTE BELOW GROUND/FLOOR
- GAS SHUT-OFF COCK
- CHECK VALVE
- PT — PRESSURE & TEMPERATURE RELIEF VALVE
- STRAINER WITH BLOW DOWN VALVE
- SHUT OFF VALVE
- IN-LINE PUMP
- UNION
- FLANGE CONNECTION
- OR — FLOOR DRAIN OR EQMT FLOOR DRAIN
- PIPE DROP/PIPE RISE
- BOTTOM OUTLET TEE
- TOP OUTLET TEE
- FFCO — FINISHED FLOOR CLEANOUT
- VTR — SANITARY VENT THROUGH ROOF
- CONCENTRIC REDUCER
- DWH-1 — EQUIPMENT TYPE AND DESIGNATION
- PLUMBING FIXTURE DESIGNATION
- ETR — EXISTING TO REMAIN
- CONNECT TO EXISTING

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1730 Walnut Street
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64108
816.221.1411
Fax: 816.221.1429
Lankford + associates Fender

Seal
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GREGORY J. FENDLER
NUMBER PE-2006037230
PROFESSIONAL ENGINEER
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711 SE 291 HWY.
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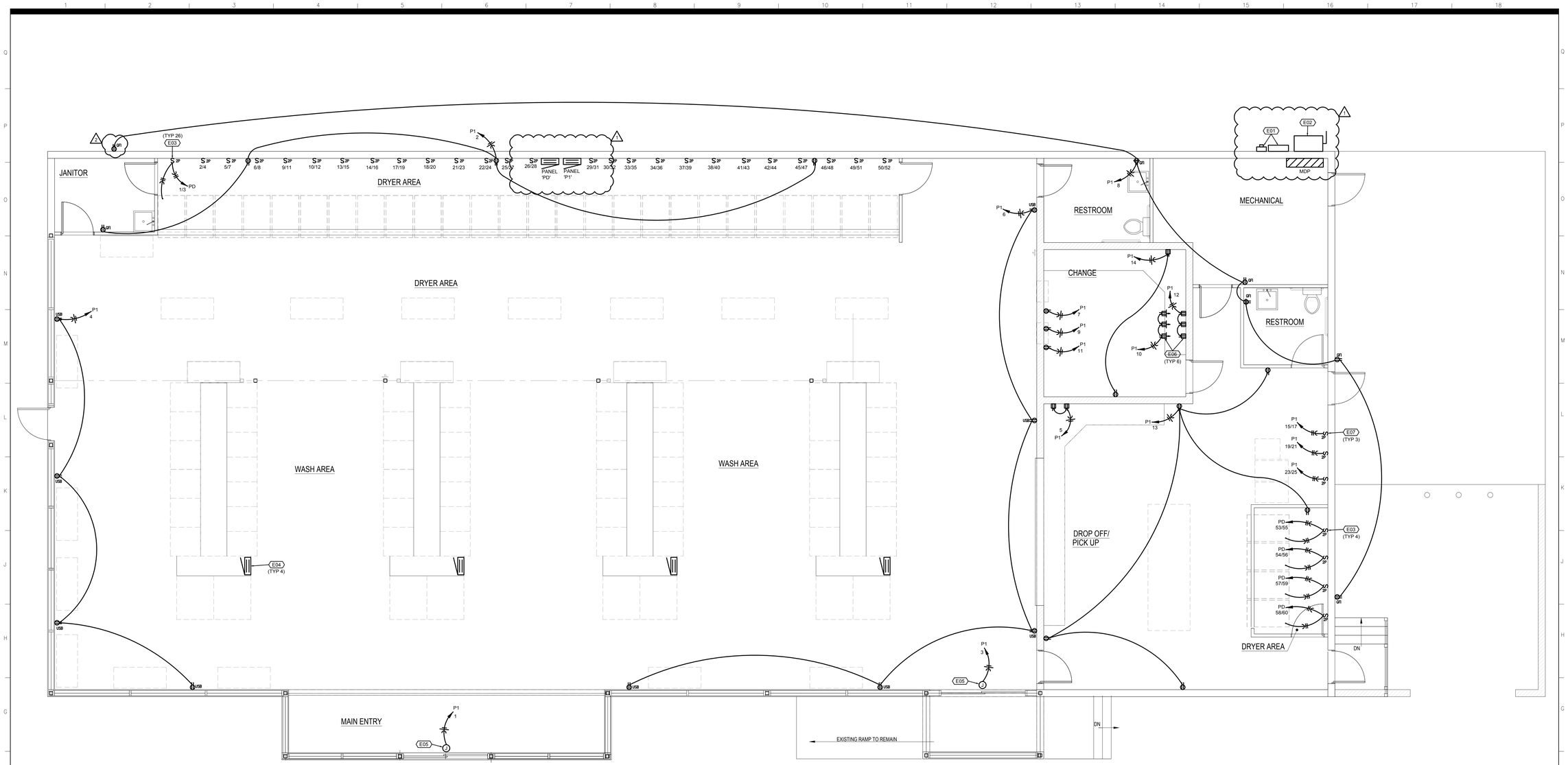
Revision

P3



MAIN FLOOR PLAN-POWER

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

E## FLOOR PLAN NOTES

1. UTILITY CT CABINET AND METER SOCKET PER EVERGY STANDARDS. REFERENCE RISER DIAGRAM FOR ADDITIONAL INFORMATION.
2. MAIN SERVICE DISCONNECT. REFERENCE RISER DIAGRAM FOR ADDITIONAL INFORMATION.
3. PROVIDE A 20A/2P SWITCH FOR DISCONNECTING MEANS AND MAKE CONNECTION TO DRYER.
4. WASHER BULKHEAD POWER PANEL PROVIDED BY OTHERS, 208 VOLT, 3 PHASE, 4 WIRE, 225 AMP. REFERENCE RISER FOR ADDITIONAL INFORMATION.
5. MAKE POWER CONNECTION TO MOTORIZED AUTOMATIC DOOR OPENER.
6. COORDINATE EXACT LOCATION OF QUAD RECEPTACLE WITH OWNER.
7. PROVIDE A 20A/2P SWITCH FOR DISCONNECTING MEANS AND MAKE CONNECTION TO WASHER.

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1730 Walnut Street
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64108
816.221.1411
Fax: 816.221.1429
Lankford + associates Fendler

Seal

STATE OF MISSOURI
JEFFREY S. VAN
NUMBER PE-2009024124
PROFESSIONAL ENGINEER
02/26/2021
COA# 2006001158

WASH HOUSE LAUNDRY – LEE'S SUMMIT

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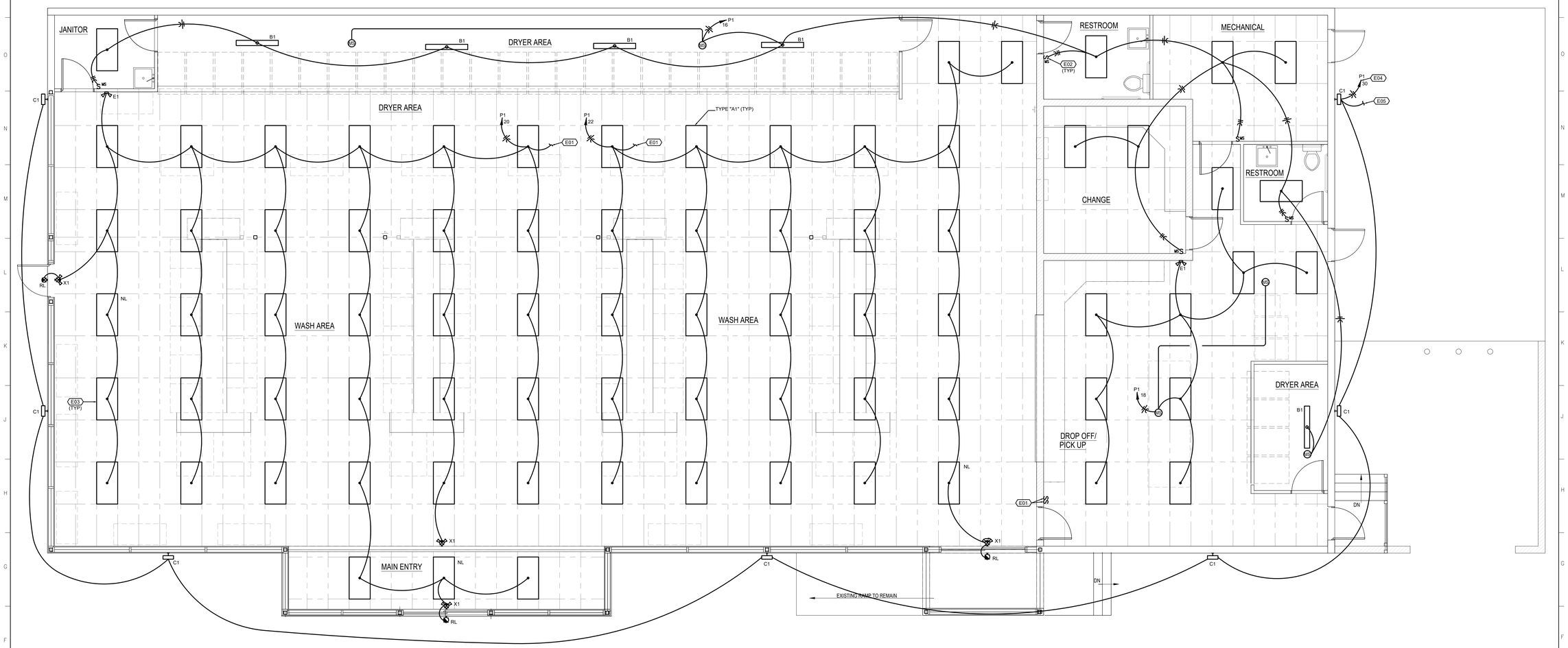
Revision
1 ADDENDUM 1 FEBRUARY 04, 2021
1 CITY COMMENTS FEBRUARY 26, 2021

E1



MAIN FLOOR PLAN-LIGHTING

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

(E##) FLOOR PLAN NOTES

1. INSTALL CONTROL SWITCH FOR WASH AREA LIGHTING IN PICK UP / DROP OFF OFFICE.
2. WALL SWITCH LINE VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSOR. WATTSTOPPER DSW-100 OR EQUAL BY HUBBELL.
3. WIRE FIXTURE AS A NIGHT LIGHT WITH 24/7 OPERATION.
4. ROUTE CIRCUIT THROUGH PHOTOCELL FOR AUTOMATIC CONTROL.
5. INTERCEPT EXISTING CIRCUIT FEEDING PARKING LOT LIGHT POLE AND CONNECT TO THIS CIRCUIT AN ASSOCIATED CONTROL.

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/22/2021

1730 Walnut Street
Kansas City, Missouri
64108
816.221.1411
Fax: 816.221.1429
Lankford + associates Fendler

Seal

STATE OF MISSOURI
GREGORY J. FENDLER
NUMBER PE-2006037330
PROFESSIONAL ENGINEER
03/04/2021

COA# 2006001168

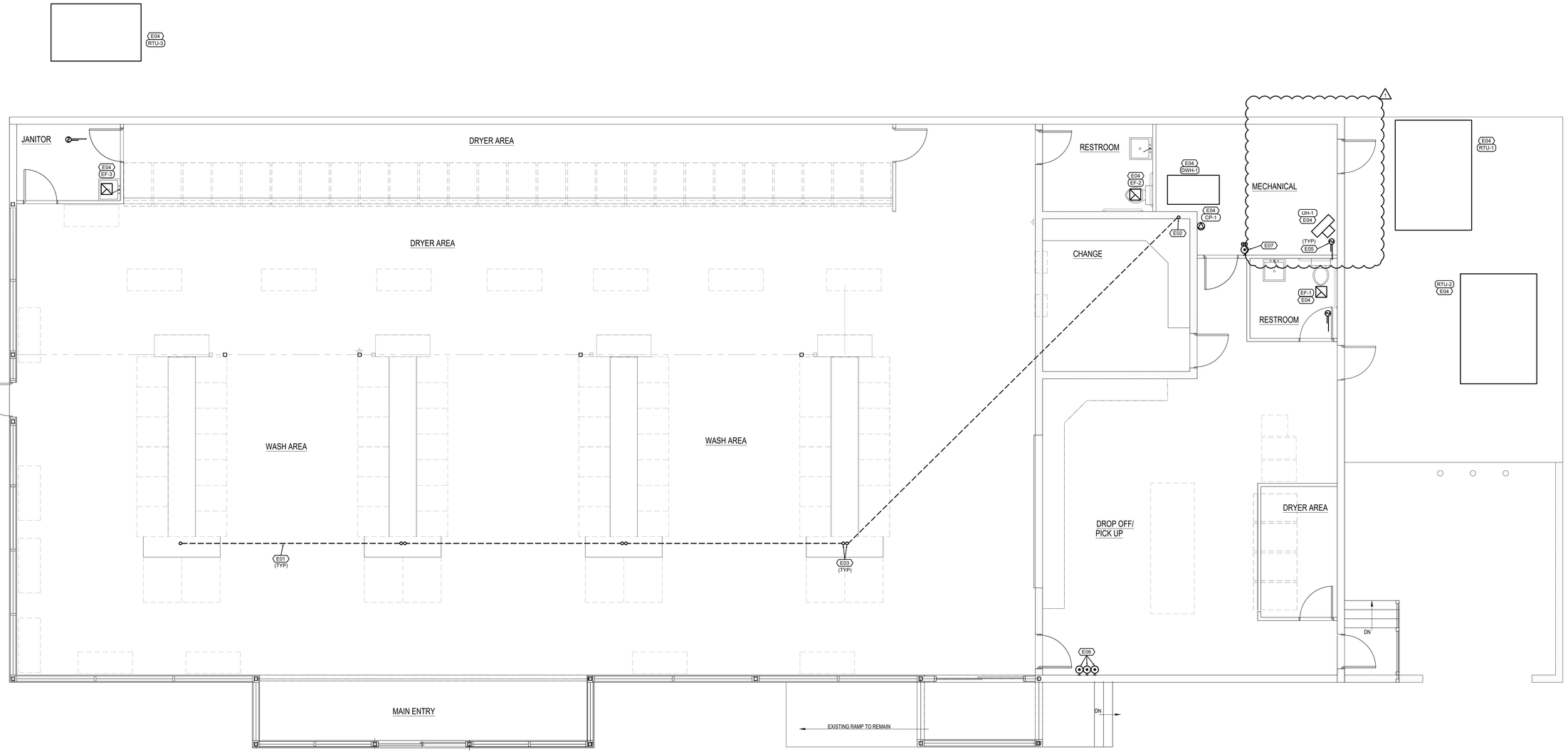
WASH HOUSE LAUNDRY – LEE'S SUMMIT

711 SE 291 HWY.
LEE'S SUMMIT, MO. 64063

Project Number:	20.6606.00
Date	12/15/2020
Phase	Construction
Issued For	Permit
Drawn By	JSV
P.I.C.	BLH/GIF

Revision

E2



MAIN FLOOR PLAN-SYSTEMS

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

E## FLOOR PLAN NOTES

1. 1" EMPTY CONDUIT UNDER SLAB FOR COMMUNICATIONS CABLING.
2. STUB 1" EMPTY CONDUIT UP WITHIN WALL AND TERMINATE IN DOUBLE GANG BOX ADJACENT TO QUAD RECEPTACLE. ROUTE 1" EMPTY CONDUIT FROM BOX TO ABOVE ACCESSIBLE CEILING.
3. STUB CONDUIT UP WITHIN WASHER BULKHEAD. COORDINATE EXACT LOCATION WITH EQUIPMENT SUPPLIER.
4. REFERENCE EQUIPMENT CONNECTION SCHEDULE FOR ALL POWER REQUIREMENTS.
5. PROVIDE DUCT DETECTOR IN RETURN AIR DUCT. INTERLOCK WITH UNIT FOR SHUT DOWN UPON DETECTION OF SMOKE AND AUDIBLE ALARM DEVICE.
6. PROVIDE AUDIBLE ALARM FOR ACTIVATION OF SMOKE DETECTOR WITH INTEGRAL RESET SWITCH.
7. PROVIDE EPO SWITCH FOR WATER HEATER POWER. INTERLOCK WITH SHUNT TRIP BREAKER FOR SHUT OFF OF WATER HEATER.

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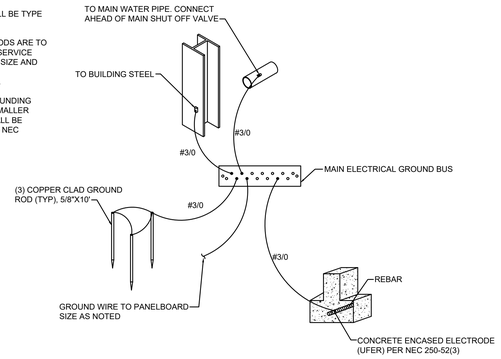
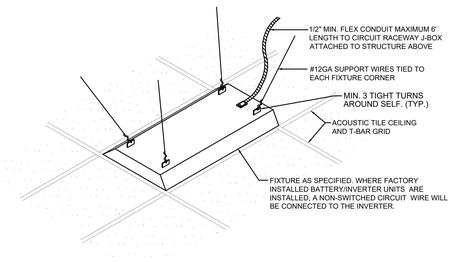
Revision
1 ADDENDUM 1 FEBRUARY 04, 2021

E3

NOTES:
1. ALL WIRING SHALL BE TYPE THHN/THWN
2. MAIN GROUND RODS ARE TO BE LOCATED AT SERVICE ENTRANCE WITH SIZE AND QUANTITY PER SPECIFICATIONS.
3. EQUIPMENT GROUNDING CONDUCTORS SMALLER THAN 6 AWG SHALL BE PROTECTED PER NEC 250.120(C)



MAIN SERVICE ENTRANCE GROUNDING DETAIL
NO SCALE



LIGHT FIXTURE MOUNTING AND BRACING DETAIL
NO SCALE

BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZING CHART*

OVERCURRENT PROTECTION DEVICE RATING (AMPS)	REQUIRED CONDUCTOR SIZE	EQUIPMENT GROUNDING CONDUCTOR SIZE	SINGLE PHASE 2 WIRE + GND. CONDUIT SIZE	SINGLE PHASE 3 WIRE + GND. CONDUIT SIZE	THREE PHASE 3 WIRE + GND. CONDUIT SIZE	THREE PHASE 4 WIRE + GND. CONDUIT SIZE
15	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
20	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
25	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
30	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
35	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
40	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
45	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
50	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
60	4 AWG	10 AWG	1"	1"	1"	1-1/4"
70	4 AWG	8 AWG	1"	1"	1"	1-1/4"
80	3 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
90	2 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
100	1 AWG	8 AWG	1-1/4"	1-1/2"	1-1/2"	1-1/2"

* = UNLESS OTHERWISE NOTED ON THE DRAWINGS.

* = UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL BRANCH CIRCUITS AND FEEDERS TO BE PROVIDED WITH A NEUTRAL WIRE.

* = ALL CONDUCTORS SIZED ON THE POWER RISER DIAGRAM OR IN BRANCH CIRCUIT CONDUCTOR TABLE ARE BASED ON 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE. CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE NEC IF 4 OR MORE CONDUCTORS ARE PLACED IN A RACEWAY OR CABLE.

NEW PANELBOARD MDP SCHEDULE

SERVICE: 208/120 VOLT , 3 - PHASE , 4 - WIRE
AMP FRAME: 1200 AMP
MAINS: MLO
MOUNTING: SURFACE
RATING: 65000 A.I.C.
LOCATION: DRYER ROOM

REV NO.	NOTE NO.	LOAD CRT#	LOAD DESCRIPTION	BRKR P	BRKR AMP	LOAD KVA A	LOAD KVA B	LOAD KVA C	LOAD KVA 3PH	LOAD CRT#	LOAD DESCRIPTION	BRKR P	BRKR AMP	LOAD KVA A	LOAD KVA B	LOAD KVA C	LOAD KVA 3PH	NOTE NO.	REV NO.
		1								2									
		3	PANEL P1	3	100				24.27	4	PANEL PD	3	400				98.48		
		5								6									
		7								8									
		9	WASHER BULKHEAD	3	225				30.72	10	WASHER BULKHEAD	3	225				30.72		
		11								12									
		13								14									
		15	WASHER BULKHEAD	3	225				30.72	16	WASHER BULKHEAD	3	225				30.72		
		17								18									
		19								20									
		21	RTU-1	3	125				35.3	22	RTU-2	3	125				35.3		
		23								24									
		25								26									
		27	RTU-3	3	60				17.3	28	PROVISION	3							
		29								30									
		31								32									
		33	PROVISION	3						34	PROVISION	3							
		35								36									
		37								38									
		39	PROVISION	3						40	PROVISION	3							
		41								42									
			TOTAL:			0	0	0	138.3125		TOTAL:			0	0	0	195.2		
														0	0	0	138.3		
											KVA / PHASE TOTAL:			0	0	0	333.5		
											AMP / PHASE TOTAL:			925.8	925.8	925.8			

NOTES:

REV:

GENERAL NOTE:
CONDUCTOR & CONDUIT SIZING CHART FOR SIZING OF BRANCH CIRCUITS AND OR FEEDERS AT OR BELOW 100 AMPS

TOTAL CONNECTED LOAD:	333.53	KVA
TOTAL CONNECTED CURRENT:	925.79	AMPS
LIGHTS @ 125%:	0.00	KVA
RECEPTACLES @ 100%:	0.00	KVA
RECEPTACLES @ 50%	0.00	KVA
LARGEST MOTOR LOAD @ 125%:	0.00	KVA
CONTINUOUS LOAD @ 125%:	0.00	KVA
OTHER AND NON-CONTINUOUS LOADS @ 100%:	333.53	KVA
TOTAL DEMAND LOAD:	333.53	KVA
POWER FACTOR:	0.95	% PF
TOTAL DEMAND CURRENT:	974.55	AMPS

NEW PANELBOARD P1 SCHEDULE

SERVICE: 208/120 VOLT , 3 - PHASE , 4 - WIRE
AMP FRAME: 225 AMP
MAINS: MLO
MOUNTING: SURFACE
RATING: 65000 A.I.C.
LOCATION: DRYER ROOM

REV NO.	NOTE NO.	LOAD CRT#	LOAD DESCRIPTION	BRKR P	BRKR AMP	LOAD KVA A	LOAD KVA B	LOAD KVA C	LOAD KVA 3PH	LOAD CRT#	LOAD DESCRIPTION	BRKR P	BRKR AMP	LOAD KVA A	LOAD KVA B	LOAD KVA C	LOAD KVA 3PH	NOTE NO.	REV NO.
		1	AUTO DOOR	1	20	0.5				2	REC; JAN. DRYER	1	20	0.72					
		3	AUTO DOOR	1	20		0.5			4	REC; USB	1	20		0.72				
		5	REC; DO / PU DESK	1	20			0.72		6	REC; USB	1	20			0.72			
		7	REC; CHANGE ROOM	1	20	0.18				8	REC; MECHANICAL, RESTROOMS	1	20	0.9					
		9	REC; CHANGE ROOM	1	20		0.18			10	REC; CHANGE ROOM QUAD	1	20		1.08				
		11	REC; CHANGE ROOM	1	20			0.18		12	REC; CHANGE ROOM QUAD	1	20			1.08			
		13	REC; DO / PU	1	20	0.72				14	REC; CHANGE ROOM DEKS	1	20	0.54					
		15	DO / PU T-450 WASHER	2	15		0.74			16	LTG; JAN, DRYER, RR, MECH, CH	1	20		0.59				
		17						0.74		18	LTG; DO / PU	1	20			0.45			
		19	DO / PU T-650 WASHER	2	15	0.74				20	LTG; WASH AREA	1	20	1.5					
		21					0.74			22	LTG; WASH AREA	1	20		1.4				
		23	DO / PU T-650 WASHER	2	15			0.74		24	DWH-1	2	20			0.34		1	
		25				0.74				26					0.34				
		27	CP-1	1	20		0.2			28	SHUNT TRIP								
		29	UH-1	2	30			2.5		30	LTG; EXTERIOR	1	20			0.63			
		31				2.5				32	SPARE	1	20						
		33	SPARE	1	20					34	SPARE	1	20						
		35	SPARE	1	20					36	SPARE	1	20						
		37	PROVISION							38	PROVISION								
		39	PROVISION							40	PROVISION								
		41	PROVISION							42	PROVISION								
			TOTAL:			5.38	2.36	4.88	0		TOTAL:			4	3.79	3.22	0.0		
														5.38	2.36	4.88	0.0		
											KVA / PHASE TOTAL:			9.38	6.15	8.1	0.0		
											AMP / PHASE TOTAL:			78.2	51.3	67.5			

NOTES:
1 PROVIDE SHUNT TRIP BREAKER AND INTERLOCK WITH EPO

REV:

GENERAL NOTE:
CONDUCTOR & CONDUIT SIZING CHART FOR SIZING OF BRANCH CIRCUITS AND OR FEEDERS AT OR BELOW 100 AMPS

TOTAL CONNECTED LOAD:	23.63	KVA
TOTAL CONNECTED CURRENT:	65.59	AMPS
LIGHTS @ 125%:	5.71	KVA
RECEPTACLES @ 100%:	7.02	KVA
RECEPTACLES @ 50%	0.00	KVA
LARGEST MOTOR LOAD @ 125%:	0.00	KVA
CONTINUOUS LOAD @ 125%:	0.00	KVA
OTHER AND NON-CONTINUOUS LOADS @ 100%:	6.54	KVA
TOTAL DEMAND LOAD:	24.27	KVA
POWER FACTOR:	0.95	% PF
TOTAL DEMAND CURRENT:	70.92	AMPS

NEW PANELBOARD PD SCHEDULE

SERVICE: 208/120 VOLT , 3 - PHASE , 4 - WIRE
AMP FRAME: 400 AMP
MAINS: MLO
MOUNTING: SURFACE
RATING: 65000 A.I.C.
LOCATION: DRYER ROOM

REV NO.	NOTE NO.	LOAD CRT#	LOAD DESCRIPTION	BRKR P	BRKR AMP	LOAD KVA A	LOAD KVA B	LOAD KVA C	LOAD KVA 3PH	LOAD CRT#	LOAD DESCRIPTION	BRKR P	BRKR AMP	LOAD KVA A	LOAD KVA B	LOAD KVA C	LOAD KVA 3PH	NOTE NO.	REV NO.
		1	T-50X2 STACK DRYER	2	20	1.8				2	T-50X2 STACK DRYER	2	20	1.8					
		3					1.8			4					1.8				
		5	T-50X2 STACK DRYER	2	20			1.8		6	T-50X2 STACK DRYER	2	20			1.8			
		7				1.8				8				1.8					
		9	T-50X2 STACK DRYER	2	20		1.8			10	T-50X2 STACK DRYER	2	20		1.8				
		11						1.8		12						1.8			
		13	T-50X2 STACK DRYER	2	20	1.8				14	T-50X2 STACK DRYER	2	20	1.8					
		15					1.8			16					1.8				
		17	T-50X2 STACK DRYER	2	20			1.8		18	T-50X2 STACK DRYER	2	20			1.8			
		19				1.8				20				1.8					
		21	T-50X2 STACK DRYER	2	20		1.8			22	T-50X2 STACK DRYER	2	20		1.8				
		23						1.8		24						1.8			
		25	T-50X2 STACK DRYER	2	20	1.8				26	T-50X2 STACK DRYER	2	20	1.8					
		27					1.8			28					1.8				
		29	T-50X2 STACK DRYER	2	20			1.8		30	T-50X2 STACK DRYER	2	20			1.8			
		31				1.8				32				1.8					
		33	T-50X2 STACK DRYER	2	20		1.8			34	T-50X2 STACK DRYER	2	20		1.8				
		35						1.8		36						1.8			
		37	T-50X2 STACK DRYER	2	20	1.8				38	T-50X2 STACK DRYER	2	20	1.8					
		39					1.8			40					1.8				
		41	T-50X2 STACK DRYER	2	20			1.8		42	T-50X2 STACK DRYER	2	20			1.8			
		43				1.8				44				1.8					
		45	T-50X2 STACK DRYER	2	20		1.8			46	T-50X2 STACK DRYER	2	20		1.8				
		47						1.8		48						1.8			
		49	T-50X2 STACK DRYER	2	20	1.8				50	T-50X2 STACK DRYER	2	20	1.8					
		51					1.8			52					1.8				
		53	OPL T-50 DRYER	2	15			0.61		54	OPL T-50 DRYER	2	15			0.61			
		55				0.61				56				0.61					
		57	OPL T-50 DRYER	2	15		0.61			58	OPL T-50 DRYER	2	15		0.61				
		59						0.61		60						0.61			
		61	PROVISION							62	PROVISION								
		63	PROVISION							64	PROVISION								
		65	PROVISION							66	PROVISION								
		67	PROVISION							68	PROVISION								
		69	PROVISION							70	PROVISION								
		71	PROVISION							72	PROVISION								
			TOTAL:			16.81	16.81	15.62	0		TOTAL:			16.81	16.81	15.62	0.0		
														16.81	16.81	15.62	0.0		
											KVA / PHASE TOTAL:			33.62	33.62	31.24	0.0		
											AMP / PHASE TOTAL:			280.2	280.2	260.3			

NOTES:

REV:

GENERAL NOTE:
CONDUCTOR & CONDUIT SIZING CHART FOR SIZING OF BRANCH CIRCUITS AND OR FEEDERS AT OR BELOW 100 AMPS

TOTAL CONNECTED LOAD:	98.48	KVA
TOTAL CONNECTED CURRENT:	273.35	AMPS
LIGHTS @ 125%:	0.00	KVA
RECEPTACLES @ 100%:	0.00	KVA
RECEPTACLES @ 50%	0.00	KVA
LARGEST MOTOR LOAD @ 125%:	0.00	KVA
CONTINUOUS LOAD @ 125%:	0.00	KVA
OTHER AND NON-CONTINUOUS LOADS @ 100%:	98.48	KVA
TOTAL DEMAND LOAD:	98.48	KVA
POWER FACTOR:	0.95	% PF
TOTAL DEMAND CURRENT:	287.75	AMPS

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Revision

E4

EQUIPMENT CONNECTION SCHEDULE

UNIT ID (PLAN MARKING)		DESCRIPTION	LOCATION	EQUIPMENT SIZE HP	KW	A	VOLTS	PH	DISCONNECT SWITCH SIZE	VOLTAGE RATING	NUMBER OF POLES	NEMA TYPE	MOCP (NOTE 2)	NOTE 1	FEEDER SIZE	EQUIPMENT BEING FEED FROM PANEL	NOTES	REVISION
RTU	1	ROOFTOP UNIT	EXTERIOR	--	--	98	208	3	200	250	3	3R	125	23/23/26	1-1/4"C, 4-#1 & 1-#6G	MDP	3	
RTU	2	ROOFTOP UNIT	EXTERIOR	--	--	98	208	3	200	250	3	3R	125	23/23/26	1-1/4"C, 4-#1 & 1-#6G	MDP	3	
RTU	3	ROOFTOP UNIT	EXTERIOR	--	--	48	208	3	60	250	3	3R	60	23/23/26	1" C, 4-#6 & 1-#10G	MDP	3	
EF	1	EXHAUST FAN	RESTROOM	1/20	--	1	120	1	20	250	1	1	20	26/26/26	3/4" C, 2-#12 & 1-#12G	P1	4,5	
EF	2	EXHAUST FAN	RESTROOM	1/20	--	1	120	1	20	250	1	1	20	26/26/26	3/4" C, 2-#12 & 1-#12G	P1	4,5	
EF	3	EXHAUST FAN	JANITOR	1/20	--	1	120	1	20	250	1	1	20	26/26/26	3/4" C, 2-#12 & 1-#12G	P1	4,5	
UH	1	UNIT HEATER	MECH ROOM	1/4	5	20.8	208	1	30	250	2	1	30	26/26/26	3/4" C, 3-#10 & 1-#10G	P1		
DWH	1	DOMESTIC WATER HEATER	MECH ROOM	--	--	2	208	1	20	250	2	1	20	26/26/26	3/4" C, 3-#12 & 1-#12G	P1	4,6	
CP	1	CIRCULATION PUMP	MECH ROOM	1/12	--	1.8	120	1	20	250	1	1	20	26/26/26	3/4" C, 2-#12 & 1-#12G	P1	4	

GENERAL NOTE:

A DISCONNECTS SHALL BE 'HP' HORSE POWER RATED WHERE APPLICABLE.

NOTES:

1 X/Y/Z
X=FURNISHED BY DIVISION (22, 23 or 26)
Y=INSTALLED BY DIVISION (22, 23 or 26)
Z-CONNECTED BY DIVISION (22, 23 or 26)
2 MAXIMUM OVERCURRENT PROTECTION FUSE OR HACR CIRCUIT BREAKER PER MANUFACTURE'S LABEL
3 PROVIDE WITH RETURN AIR SMOKE DETECTION. INTERLOCK WITH UNIT FOR SHUTDOWN UPON DETECTION OF SMOKE.
4 PROVIDE 20A/1P TOGGLE SWITCH FOR DISCONNECTING MEANS.
5 INTERLOCK WITH LIGHTS SERVING ASSOCIATED ROOM. FAN SHALL OPERATE WHEN LIGHTS ARE TURNED ON.
6 PROVIDE EPO SWITCH AND INTERLOCK WITH SHUNT TRIP BREAKER.

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	LAMPS	WATTS / VOLTS	DESCRIPTION	NOTES
A1	LITHONIA CPX-2X4-4000LM-40K-M2	LED 4692 LUMENS 4000K, 80CRI	38.9 / 120	2X4 RECESSED LED FLAT PANEL.	1
B1	LITHONIA CCS-L48-4000LM-MVOLT-40K-80CRI-ZACVH	LED 4206 LUMENS 4000K, 80 CRI	35.8 / 120	NOMINAL 4' LINEAR LED STRIP FIXTURE, ACRYLIC LENS, WHITE HOUSING, AIRCRAFT CABLE MOUNTING SUSPENSION.	1
C1	LITHONIA WDGE4-LED-P4-40K-80CRI-R3-MVOLT	LED 12000 LUMENS 4000K, 80 CRI	88 / 120	NOMINAL 18" WIDE BY 8" DEEP WALL MOUNTED LED AREA LIGHT, TYPE III DISTRIBUTION, BRONZE FINISH.	1
E1	LITHONIA ELM6L	LED W/ FIXTURE	2.5 / 120	EMERGENCY LIGHTING UNIT, LED HEADS, WHITE HOUSING.	1
RL	LITHONIA ELA-B-S-Q-L0309-SD	LED W/ FIXTURE	1.5 / 120	WET LOCATION LISTED EXTERIOR REMOTE EMERGENCY LIGHTING UNIT TO BE WIRED WITH ADJACENT EXIT SIGN.	1
X1	LITHONIA LHQM-LED-R-HO-SD	LED W/ FIXTURE	4.3 / 120	COMBINATION EXIT SIGN AND EMERGENCY LIGHTING UNIT, WHITE HOUSING, RED LETTERS, NICAD BATTERY, SELF DIAGNOSTICS. PROVIDE WITH REMOTE HEAD WHERE INDICATED ON PLANS.	1

SPECIFIC NOTES:

1 OR APPROVED EQUAL BY METALUX, HE WILLIAMS

SUBSTITUTION NOTES:

THE LIGHTING DESIGN FOR THIS PROJECT IS BASED UPON THE MANUFACTURERS SPECIFIED. IF AN ADDITIONAL SUBSTITUTION IS DESIRED BY THE CONTRACTOR, A SUBSTITUTION REQUEST SUBMITTAL MUST BE PROVIDED AS FOLLOWS:

S1. SUBSTITUTION REQUEST MUST BE RECEIVED BY THE ENGINEER IN WRITING 10 DAYS PRIOR TO BID. FAILURE TO SUBMIT CONSTITUTES A GUARANTEE TO SUPPLY THE SPECIFIED FIXTURES.

S2. INFORMATION IS TO BE SUPPLIED COMPARING PHOTOMETRY, (WITH FLOOR PLANS INDICATING POINT BY POINT CALCULATIONS) DIMENSIONS, MATERIAL COMPOSITION, FINISH, VISUAL APPEARANCE AS WELL AS THE "CONTRACTOR NET" PRICING. SAMPLES ARE TO BE PROVIDED UPON REQUEST.

S3. GREAT CARE, TIME AND EXPENSE HAVE BEEN USED TO PROVIDE OUR CLIENT WITH THE LIGHTING AND CONTROLS SYSTEM. THEREFORE, FOR EACH AND EVERY TYPE OF FIXTURE OFFERED AS AN UNSOLICITED ALTERNATE, A $500.00 FEE WILL BE CHARGED TO THE CONTRACTOR FOR REVIEW OF THE ALTERNATE FIXTURE. THIS CHARGE IS IN NO WAY A GUARANTEE OF APPROVAL, BUT IS SOLELY TO COMPENSATE THE ENGINEER FOR TIME SPENT VALIDATING EQUALITY AND COMPATIBILITY WITH THE PROJECT REQUIREMENTS. THIS REIMBURSEMENT MUST BE RECEIVED BY THE ENGINEER PRIOR TO ANY REVIEW COMMENCING.

S4. PACKAGING OF LIGHT FIXTURES WILL NOT BE CONSIDERED OR APPROVED.

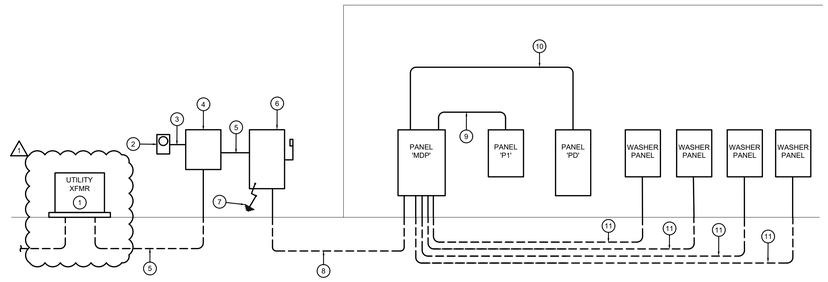
S5. MANUFACTURER'S REPRESENTATIVE AGENTS SHALL BE ALLOWED TO OFFER MINI-LOT PRICING FOR SPECIFIED LIGHTING FIXTURES.

S6. LIGHTING CONTROLS PRICING SHALL BE COMPLETELY SEPARATE OF ANY LIGHT FIXTURE PRICING. ANY LIGHTING CONTROLS PRICING THAT IS SUBMITTED WITH LIGHT FIXTURE PRICING (UNIT OR MINI-LOT) WILL BE IMMEDIATELY REJECTED IN ITS ENTIRETY.

GENERAL NOTE:

G1. ELECTRICAL CONTRACTOR SHALL VERIFY CEILING TYPE PRIOR TO ORDERING ANY LIGHT FIXTURES.

G2. ELECTRICAL CONTRACTOR SHALL COORDINATE DIMMING DRIVERS/BALLASTS WITH DIMMING SWITCHES/SYSTEMS AND SHALL INCLUDE ALL REQUIRED CONTROL WIRING.



RISER DIAGRAM

NO SCALE

ⓧ RISER NOTES

1. PAD MOUNT UTILITY TRANSFORMER PER EVERGY STANDARDS.
2. METER SOCKET PER EVERGY STANDARDS.
3. 1-1/4" EMPTY CONDUIT FOR CT WIRING.
4. CT CABINET PER EVERGY STANDARDS.
5. 1200 AMP SERVICE ENTRANCE CONDUCTORS. (4) SETS OF 2-1/2" C, 4-#350 KCMIL.
6. 1200 AMP, 208 VOLT, 3 PHASE, 4 WIRE DISCONNECT SWITCH, FUSED AT 1200 AMPS IN A NEMA 3R ENCLOSURE. SERVICE ENTRANCE RATED.
7. GROUND PER NEC ARTICLE 250 AND DETAIL.
8. 1200 AMP FEED: (4) SETS OF 2-1/2" C, 4-#350 KCMIL & 1-#3/0 GROUND WIRE.
9. 100 AMP FEED: 1-1/4" C, 4-#3 & 1-#8 GROUND WIRE.
10. 400 AMP FEED: 3" C, 4-#500 KCMIL & 1-#3 GROUND WIRE.
11. 225 AMP FEED: 2-1/2", 4-#4/0 & 1-#4 GROUND WIRE.

GENERAL NOTES (TYPICAL ALL SHEETS)

A. REFER TO ARCHITECTS REFLECTED CEILING PLANS FOR EXACT PLACEMENT OF LIGHT FIXTURES, SPEAKER AND F.A. DEVICES IN THE CEILING SYSTEM.

B. REFER TO ARCHITECTURAL DETAILS AND ELEVATIONS FOR COORDINATION OF LOCATION OF ALL WIRING DEVICES BEFORE ROUGH-IN OF J-BOXES.

C. CONTRACTOR TO REFERENCE BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZING CHART FOR SIZING OF BRANCH CIRCUITS AND OR FEEDERS AT OR BELOW 100AMPS.

D. SUPPORT ALL LIGHT FIXTURES WITH A MINIMUM OF (4) 12 GA. HANGER WIRES TO STRUCTURE ABOVE.

E. CONNECT EXIT AND EMERGENCY LIGHTS TO HOT LEG, NOT SWITCH LEG.

F. DISCONNECTS FOR MECHANICAL EQUIPMENT ARE PROVIDED BY OTHERS. UNLESS NOTED OTHERWISE.

G. PROVIDE HOUSE KEEPING PAD FOR ALL FLOOR MOUNTED EQUIPMENT.

H. UPON REQUEST FOR ELECTRONIC FILES, CONTRACTOR SHALL FILL OUT, SIGN AND RETURN ELECTRONIC MEDIA RELEASE FORM FROM ENGINEER AND PROVIDE PAYMENT FOR FEES STIPULATED ON ELECTRONIC MEDIA RELEASE FORM. UPON RECEIPT OF COMPLETED RELEASE FORM AND PAYMENT, ELECTRONIC FILES WILL BE RELEASED.

I. REFERENCE EQUIPMENT CONNECTION SCHEDULE FOR CONNECTION REQUIREMENTS TO ALL EQUIPMENT.

AZ) CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR REQUIREMENTS AND LOCATIONS. ELECTRICAL SYSTEMS SHALL BE DESIGNED TO TAKE ADVANTAGE OF UTILITY COMPANY'S REBATE PROGRAM.

ELECTRICAL SYMBOLS

- BRANCH CIRCUIT CONCEALED IN CEILING OR WALL. ARROWS INDICATE HOMERUNS TO PANEL. ALL CONDUCTORS ARE MINIMUM NO.12 UNLESS NOTED OTHERWISE.
  - PHASE CONDUCTORS
  - NEUTRAL CONDUCTOR
  - SWITCH-LEG AND OR TRAVELER
  - GROUND CONDUCTOR
- LP1-10 — PANEL - BREAKER NUMBER (IDENTIFICATION)
- 1/3, 1/3/5 — INDICATES X/X= 2-POLE C.B., X/X/X = 3-POLE C.B.
- CONDUIT CONCEALED IN CEILING OR WALL WITH THREE CONDUCTORS: 1-PHASE: 1-NEUTRAL: 1-GROUND WIRE, MINIMUM NO.12 WIRE UNLESS OTHERWISE SPECIFIED ON DRAWINGS.
- CONDUIT RUN UNDERGROUND OR CONCEALED IN FLOOR SLAB.
- GROUNDING CONDUCTOR NO.12 WIRE EXCEPT AS NOTED
- COMBINATION EXIT SIGN/EMERGENCY LIGHTING UNIT - CEILING OR WALL MOUNTED. SHADED SIDE(S) INDICATES FACE SIDE(S) OF EXIT.
- CEILING OR WALL MOUNTED EMERGENCY LIGHTING UNIT WITH INTEGRAL BATTERY AND UNIT MOUNTED HEADS.
- 2x4 / 2x2 LIGHT FIXTURE, LETTER DENOTES FIXTURE TYPE, REFER TO SCHEDULE
- WALL MOUNTED LIGHT FIXTURE, SIZE AND TYPE AS NOTED
- INDIRECT/DIRECT LIGHT FIXTURE, SIZE AND TYPE AS NOTED
- 208Y/120V OR 120/240V PANELBOARD (SURFACE) TOP MOUNTED 6'-0" AFF
- DISTRIBUTION PANEL (SURFACE OR FLOOR MOUNTED).
- SURFACE MOUNTED EQUIPMENT, TYPE AS INDICATED ON DRAWINGS
- CONDUIT UP
- CONDUIT DOWN
- GROUND
- POWER CONNECTION POINT
- DISCONNECT SWITCH, SIZE AND TYPE AS NOTED TOP MOUNTED 5'-0" AFF
- S — SINGLE POLE SWITCH. TOP OF DEVICE BOX AT +4'-0" AFF
- S^{MS} — WALL MOUNTED MOTION SENSOR, TOP OF DEVICE BOX AT +4'-0" AFF, TYPE AS INDICATED
- S^{2P} — 20A/2P SWITCH
- PUSH BUTTON +4'-0" AFF.
- DUPLEX RECEPTACLE. +1'-6" AFF OR AS NOTED
- DUPLEX RECEPTACLE INSTALLED ABOVE COUNTERTOP
- GFI — DUPLEX RECEPTACLE W/GROUND FAULT PROTECTION. +1'-6" AFF OR AS NOTED
- DOUBLE DUPLEX RECEPTACLE. +1'-6" AFF OR AS NOTED
- (MS) — CEILING MOUNTED MOTION DETECTOR TYPE AS INDICATED
- H OR J — WALL MOUNTED OR CEILING MOUNTED JUNCTION BOX.
- DUCT MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR
- INDICATES WIRING DEVICE ABOVE RE: DRAWING
- X — MECHANICAL EQUIPMENT CALL OUT BUBBLE
- XX-X — ELECTRICAL EQUIPMENT PROVIDED BY AND INSTALLED BY E.C.

1730 Walnut Street
Kansas City, Missouri
64108
816.221.1411
Fax: 816.221.1429
Lankford + associates Fender

Seal

STATE OF MISSOURI
GREGORY J. FENDLER
NUMBER PE-2006037330
PROFESSIONAL ENGINEER
COA# 2006001168
02/04/2021

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/22/2021

WASH HOUSE LAUNDRY – LEE'S SUMMIT

711 SE 291 HWY.
LEE'S SUMMIT, MO. 64063

Project Number:	20.6606.00
Date	12/15/2020
Phase	Construction
Issued For	Permit
Drawn By	SV
P.I.C.	BLH/GIF

Revision

1 ADDENDUM 1 FEBRUARY 04, 2021

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