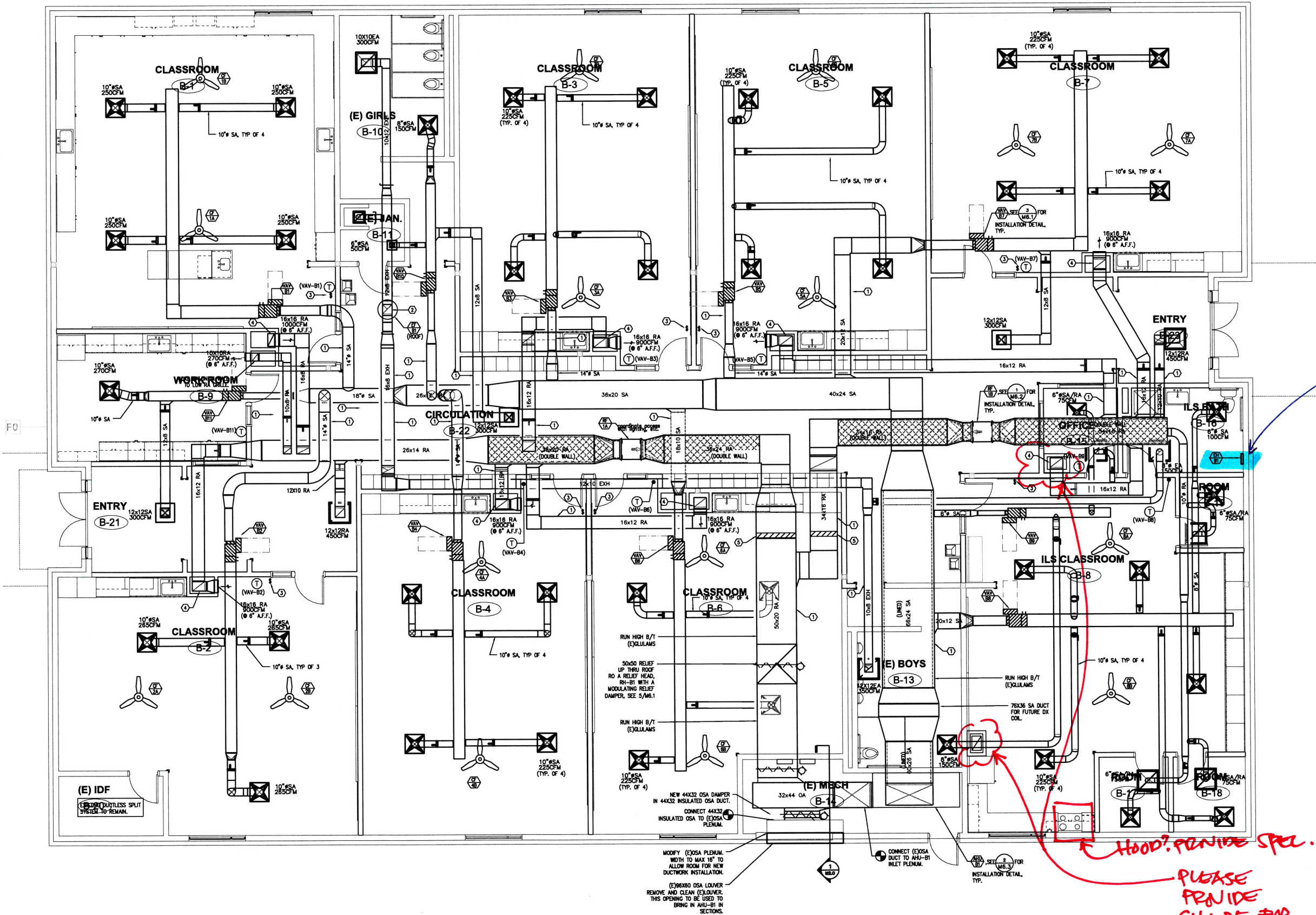


THE BUILDING AUTOMATION SYSTEM INSTALLATION IS TO BE COMPLETED BY OWNER'S CONTROL CONTRACTOR OF CHOICE. CONTROL SYSTEM IS ALERTON INSTALLED BY ENVIRONMENTAL CONTROLS CORPORATION (ECC). CONTACT MARK HANCON WITH ECC FOR CONTROL COST INFORMATION FOR BIDDING. COORDINATE SCHEDULING, SUBMITTALS, RECORD DOCUMENTS, COMMISSIONING, WARRANTY AND ALL OTHER ASPECTS OF THE CONTROL INSTALLATION WITH ECC AS REQUIRED.
 MARK HANCON E-MAIL: MARKH@ECCPORTLAND.COM

City Of Bend Approval Stamp:

- NOTED NOTES:**
1. RUN DUCTWORK WITH SLOPE OF ROOF IN TRUSS SPACE.
 2. NEW 12X12 EXH DUCT UP THRU EXISTING ROOF PENETRATION TO NEW EXHAUST FAN/B-1. SEE 3/AN.3 FOR ROOF PLAN. CEILING FAN CONTROLLER, SEE ELECT. FOR WIRING.
 3. 15X12 DOWN IN CHASE TO LOW RA GRILLE.
 4. 15X12 DOWN IN CHASE TO LOW RA GRILLE.
 5. BACKRAFT DAMPER.



SEE CURSHEET

HOOD? PROVIDE SPEC.
 PLEASE PROVIDE CHASE FOR B-8.

Date	Description
Revision Schedule	

DESIGN DEVELOPMENT

PBMS - BLDG B

1501 NE Neff Rd, Bend, OR 97701

BLRB architects

Drawing Title:
MECHANICAL FLOOR PLAN

Date:	8/8/2018	Drawn By:	INITIALS
Revised Date:		Project No.:	17.348
Stamp:		Sheet No.:	

PRELIMINARY - NOT FOR CONSTRUCTION

M2.0

MECHANICAL LEGEND

	SUPPLY AIR DIFFUSER	AFT	ABOVE FINISH FLOOR
	RETURN AIR DIFFUSER	AHU	AIR HANDLING UNIT
	EXHAUST AIR DIFFUSER	B.D.	BOTTOM OF DUCT
	MANUAL VOLUME DAMPER	BHP	BRAKE HORSEPOWER
	SUPPLY AIR DUCT UP & DOWN	BOG	BOTTOM OF GRILLE
	RETURN AIR DUCT UP & DOWN	BTU	BRITISH THERMAL UNITS
	EXHAUST AIR DUCT UP & DOWN	CFM	CUBIC FEET PER MINUTE
	VAV TERMINAL UNIT	CONN.	CONNECTION
	DUCT SMOKE SENSOR	CONT.	CONTINUATION
	DIFFERENTIAL PRESSURE SENSOR	CW	DOMESTIC COLD WATER
	CONNECT TO EXISTING	DB	DRY BULB
	THERMOSTAT	DIA.	DIAMETER
	TEMPERATURE SENSOR	DIST.	DISTRIBUTION
	NOTE	EXH	EXHAUST AIR
	EQUIPMENT DESIGNATOR	EDB	ENTERING DRY BULB TEMPERATURE
	GATE VALVE	EWB	ENTERING WET BULB TEMPERATURE
	CHECK VALVE	FF	FINISH FLOOR
	BALANCING VALVE	FIXT.	FIXTURE
	THERMOMETER	F.O.B.	FLAT ON BOTTOM
	DIRECTION OF FLOW	FPM	FEET PER MINUTE
	PUMP	FPS	FEET PER SECOND
	STRAINER	FT.	FEET / FOOT
	PRESSURE GAUGE	GA.	GALGUE
	PET'S PLUG	GEHX	GREASE EXHAUST AIR DUCT
	DOUBLE CHECK ASSEMBLY	GPM	GALLONS PER MINUTE
	PRESSURE REDUCING VALVE	HP	HORSEPOWER
	UNION	LD.	LEADING DRY BULB
	2-WAY CONTROL VALVE	L	LENGTH
	3-WAY CONTROL VALVE	LBS.	LBS.
	CAP	LDB	LEAVING DRY BULB
	MOTORIZED DAMPER	LWB	LEAVING WET BULB
	BALL SHUT OFF VALVE	LWT	LEAVING WATER TEMPERATURE
	FIRE DAMPER	MA	MAKE UP AIR
	FIRE / SMOKE DAMPER	MAX.	MAXIMUM
	SMOKE DAMPER	MBH	THOUSANDS OF BTU PER HOUR
	(HWS) HEATING WATER SUPPLY	MD	MOTORIZED DAMPER
	(HWR) HEATING WATER RETURN	MIN.	MINIMUM
	(HWR/R) HEATING WATER REVERSE RETURN	MND	MANUAL VOLUME DAMPER
	(HRS) CHILLED WATER SUPPLY	NC	NOISE CRITERIA
	(CHR) CHILLED WATER RETURN	N.C.	NORMALLY CLOSED
	PUMPED CONDENSATE	N.L.M.	NOT IN MECHANICAL
	(HPS) HIGH PRESSURE STEAM	NO.	NORMALLY OPEN
	(HT) HEAT TRACED DOMESTIC HOT WATER	N.O.	NORMALLY OPEN
	(SMR) SNOWMELT RETURN	O.A.	OUTSIDE AIR
	(SMS) SNOWMELT SUPPLY	P	PERSON
	(PSI) POUNDS PER SQUARE INCH	PSI	POUNDS PER SQUARE INCH
	(P/T) PRESSURE / TEMPERATURE	R.A.	RETURN AIR
	RECTANGULAR REQUIRED	RECT.	RECTANGULAR
	REQUIRED	REQ'D	REQUIRED
	SUPPLY AIR	S.A.	STATIC PRESSURE
	STATIC PRESSURE	SQ.	SQUARE
	SQUARE	TEMP.	TEMPERATURE
	TYPICAL	TR.	TRAP
	VARIABLE AIR VOLUME	W	WIDTH
	WIDTH	WB	WET BULB
	WET BULB	WPD	WATER PRESSURE DROP
	WATER PRESSURE DROP	#	DIAMETER

CEILING FANS

MARK NUMBER	CF 1A	CF 2A	CF 3A	CF 4A	CF 5A	CF 6A	CF 7A	CF 8A
ROOM	CLASSROOM B1	CLASSROOM B2	CLASSROOM B3	CLASSROOM B4	CLASSROOM B5	CLASSROOM B6	CLASSROOM B7	CLASSROOM B8
MOUNTING	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG
BLADE DIAMETER/FAN HEIGHT	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"
CONTROLLED BY:	HAKU L-SERIES HARD WIRED WALL CONTROL (1 PER ROOM)							
MOUNTING HEIGHT (FROM CEILING)	11 LBS							
DESIGN WEIGHT (LBS)	11 LBS	11 LBS	11 LBS	11 LBS	11 LBS	11 LBS	11 LBS	11 LBS
DESIGNED MODEL:	HAKU L-SERIES	HAKU L-SERIES	HAKU L-SERIES	HAKU L-SERIES	HAKU L-SERIES	HAKU L-SERIES	HAKU L-SERIES	HAKU L-SERIES

EXHAUST FANS

MARK NUMBER	EF B1
DESIGNED ELEVATION, FT	3500 FT
TYPE	ROOF
SYSTEM	R.R.'S
CFM	925
TOTAL SP. (IN H2O)	.75
DRIVE	DD
VFD	NO
FAN RPM	1668
MOTOR HP	1/4 HP
CONTROLLED BY	DDC, NOTE 5
INTERLOCK WITH	
WHEEL TYPE	F.C.
BACK DRIFT DAMPER/MOTORIZED DAMPER	-/YES
ISOLATION	EXTERNAL
DESIGN WEIGHT (LBS)	50
MAX. SONES	1
NOTES:	1,2,3,4
BASIS OF DESIGN:	GREENHECK G-103-A
ELECTRICAL (V/PH)	120/1

VAV BOXES WITH HOT WATER REHEAT

MARK NO.	TYPE	MAX COOLING CFM	20% OF COOLING VENTILATION 100 CFM	MIN 100 CFM	MAXIMUM DEADBAND CFM	MAXIMUM HEATING CFM 50% OF VENT	INLET IN.	OUTLET IN.	INLET TEMP. AT HEATING COIL LEAD DEG. F	SA TEMP. DEG. F	REHEAT MBH TEMP (F)	INLET WATER TEMP (F)	OUTLET WATER TEMP (F)	GPM	CONN. SIZE IN.	VALVE TYPE	MAX. STATIC PRESS. LOSS	MAX. DISCHARGE LEVEL **	MAX. RADIATED LEVEL **	CONTROL TYPE
VAV-B1	VAV	1000	200	470	0	470	10	14X12	55	100	24.4	140	110	1.6	3/4	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B2	VAV	800	160	375	0	375	10	14X12	55	100	19.4	140	110	1.3	1/2	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B3	VAV	900	180	415	0	415	10	14X12	55	100	21.9	140	110	1.5	3/4	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B4	VAV	900	180	415	0	415	10	14X12	55	100	21.9	140	110	1.5	3/4	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B5	VAV	900	180	415	0	415	10	14X12	55	100	22.5	140	110	1.5	3/4	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B6	VAV	925	185	415	0	415	10	14X12	55	100	22.2	140	110	1.5	3/4	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B7	VAV	1200	240	475	0	475	10	14X12	55	100	25.0	140	110	2.2	3/4	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B8	VAV	1200	240	475	0	475	10	14X12	55	100	25.0	140	110	2.2	3/4	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B9	VAV	225	45	40	113	113	6	12X9	55	100	5.5	140	110	0.4	1/2	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B10	VAV	500	100	45	0	100	8	12X10	55	100	12.2	140	110	0.8	1/2	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
VAV-B11	VAV	570	114	210	0	210	8	12X10	55	100	13.9	140	110	0.9	1/2	2-WAY CONTROL VALVE	0.75	4.7	5.9	DDC
TOTAL		9120		4083		4640					226.5			15.0						

- PROVIDE WITH SPEED CONTROL NEAR FAN FOR BALANCING
- PROVIDE 24V MOTORIZED DAMPER IN THE DISCHARGE DUCT, WIRED BY CONTROLS CONTRACTOR.
- PROVIDE UNIT WITH FACTORY DISCONNECT.
- WITH FULL LOAD RATED CONTACTOR.

RETURN FANS

MARK NUMBER	RF B1	RF B2
DESIGNED ELEVATION, FT	3500 FT	
TYPE	IN-LINE	IN-LINE
SYSTEM	AHU-B1	AHU-B1
CFM	3500	3500
TOTAL SP. (IN H2O)	0.75	0.75
DRIVE	DD	DD
VFD	YES	YES
FAN RPM	1095	1157
MOTOR HP	5	3
CONTROLLED BY	DDC	DDC
INTERLOCK WITH	AHU-B1	AHU-B1
BACK DRIFT DAMPER/MOTORIZED DAMPER	-/-	-/-
ISOLATION	EXTERNAL SPRING	EXTERNAL SPRING
DESIGN WEIGHT (LBS)	370	300
MAX. SONES	SEE ACOUSTICAL REQ'T ON THIS SHEET	
DISCHARGE/CONFIGURATION	IN-LINE	IN-LINE
SMOKE DETECTOR	YES	YES
BASIS OF DESIGN:	GREENHECK QEID-20-90-A50	QEID-18-80-A30
ELECTRICAL (V/PH)	480/3	480/3

AIR HANDLING UNIT

MARK NUMBER	AHU B1
DESIGNED ELEVATION, FT	3500 FT
TYPE	VERTICAL AHU
SYSTEM	BUILDING B
CFM	9500 CFM
OSA (MIN)	
OSA (MIN/MIN)	
EXT SP. (IN H2O)	2.00"
TOTAL SP. (IN H2O)	3.00"
FAN/WHEEL TYPE (QTY)	PLENUM/B.L. (2)
DRIVE	D.D.
FAN RPM	2328
MOTOR HP**	(2)5.4 KW
CONTROLLED BY	DDC
ECONOMIZER	YES*
MAX. SONES	SEE BELOW.
HEATING COIL	
HEATING CFM	4750
ENTERING AIR TEMP (°F.)	
LEAVING AIR TEMP (°F.)	
ENTERING WATER TEMP. (°F.)	
LEAVING WATER TEMP. (°F.)	
TOTAL CAPACITY (MBH)	
FLOW RATE (GPM)	
MIXING VALVE TYPE	
CONNECTION SIZE, INCH	
MIN ROWS/FPI	
MAX. FLUID PD, FT. W.C.	
UNIT WEIGHT	
UNIT DIMENSIONS (LXWXH)	
ELECTRICAL (V/PH)	
BASIS OF DESIGN:	

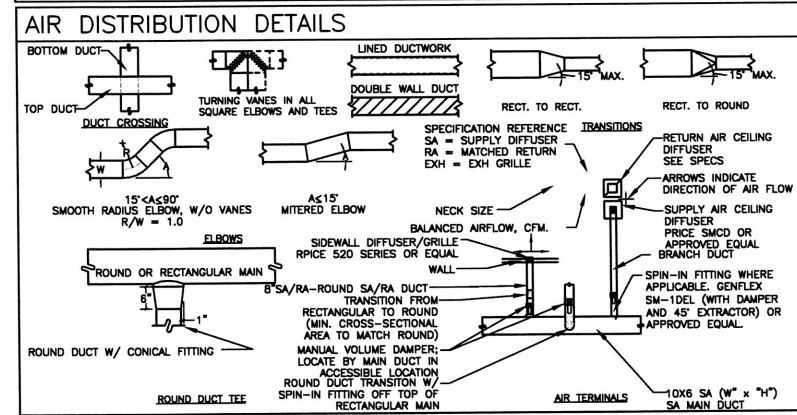
PUMPS

MARK NUMBER	P B1
SERVICE	AHU-B1
DESIGNED ALTITUDE, FT	3500 FT
ARRANGEMENT	CENTRIFUGAL IN-LINE
STARTER TYPE	COMBO STARTER/DISCONNECT
FLOW RATE (GPM)	17.5
HEAD (FT)	20
MOTOR HP	1/3
RPM	3250
CONTROLLED BY	DDC
FLUID	WATER
SUCTION PIPE SIZE	1-1/2
DISCHARGE PIPE SIZE	1-1/2
BASE DESIGN MODEL, TACO:	2445-3P
ELECTRICAL (V/PH)	120/1

RELIEF/INTAKE HOOD

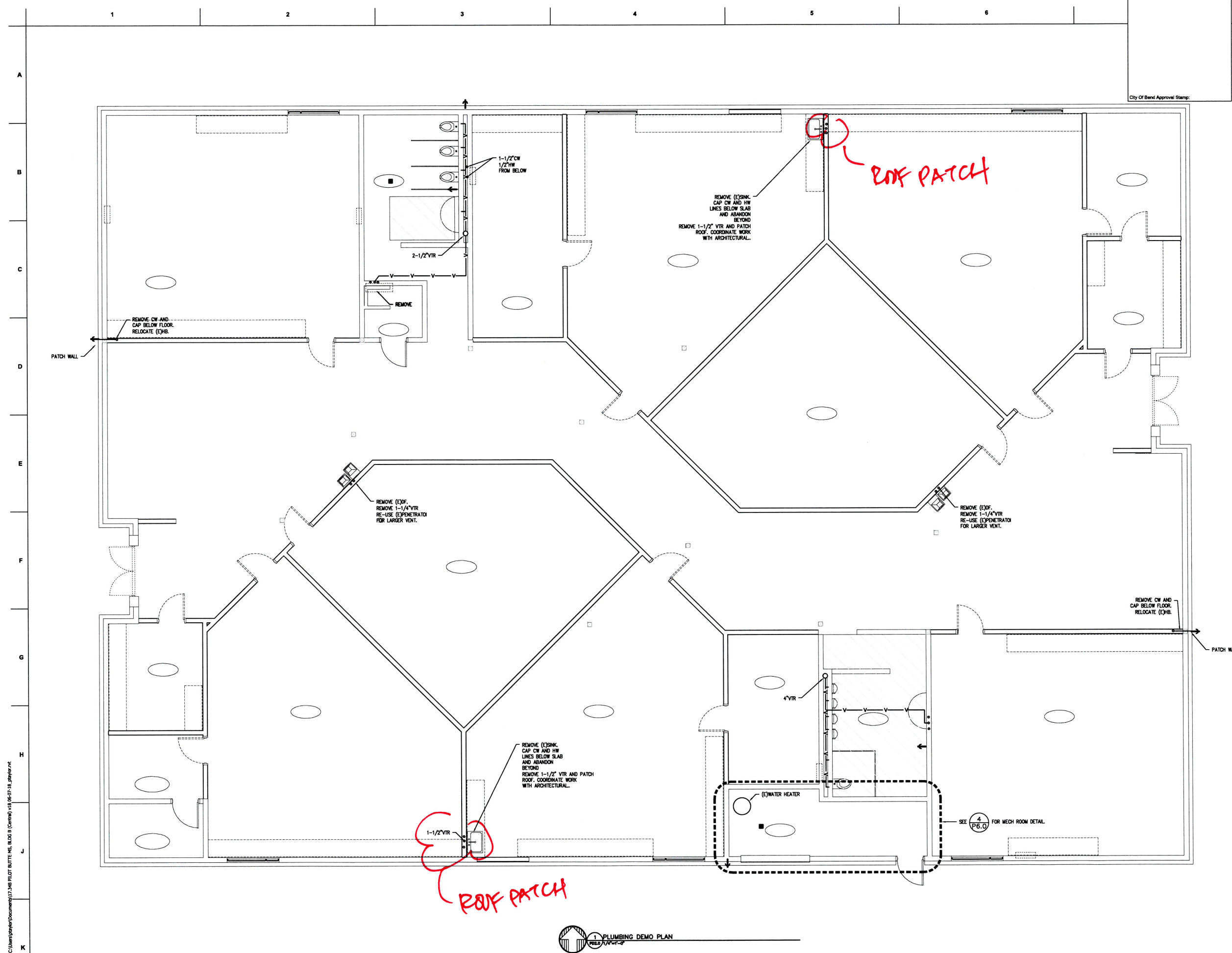
MARK NUMBER	RH B1
DESIGNED ELEVATION, FT	3500 FT
TYPE	RELIEF
SYSTEM	AHU-B1
CFM	9500
TOTAL SP. (IN H2O)	0.04"
THROAT VELOCITY (FPM)	475
THROAT SIZE (LXW)	60X48
BACK DRIFT DAMPER/MOTORIZED DAMPER	-/YES
DESIGN WEIGHT (LBS)	250
BASIS OF DESIGN:	GREENHECK FOR48X60

RA-B1 AND B2 ACOUSTICAL DATA



VENTILATION AIR SCHEDULE - AHU-B1

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/PP)	OUTSIDE AIR REQUIREMENT (CFM/FT²)	OUTSIDE AIR REQUIRED (CFM)	EXHAUST AIR REQUIRED (CFM)	ZONE SUPPLY (CFM)	PRIMARY RETURN FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Corrected OSA CFM	AIR SYSTEMS	
	Az	Pz		Rp	Ra	Vz		Et	Voz	Vpz	Zp		Evz		
CLASSROOM B-1	1000	35	35	10	0.12	470		1.0	470	1000	0	0.92	534	VAVB1	
CLASSROOM B-2	760	35	28	10	0.12	374		1.0	374	800	0	0.93	424	VAVB2	
CLASSROOM B-3	870	35	31	10	0.12	414		1.0	414	900	0	0.93	469	VAVB3	
CLASSROOM B-4	800	35	31	10	0.12	414		1.0	414	900	0	0.93	471	VAVB4	
CLASSROOM B-5	870	35	31	10	0.12	414		1.0	414	900	0	0.93	471	VAVB5	
CLASSROOM B-6	860	35	31	10	0.12	413		1.0	413	900	0	0.93	469	VAVB6	
CLASSROOM B-7	855	35	32	10	0.12	427		1.0	427	900	0	0.92	465	VAVB7	
CIRCULATION B-12	585	0	0	0	0.06	35		0.8	44	300	0.15	300	0	1.25	50
CLASSROOM B-8	860	35	32	10	0.12	429		1.0	429	1000	0.43	900	0	0.96	487
CLASSROOM B-9	115	0	0	0	0	0		1.0	0	100	0.00	0	150	0	
CLASSROOM B-10	242	0	0	0	0	0		0.8	36	75	0.47	75	0	0.92	40
ROOM B-11	70	35	2	10	0.12	28		0.8	36	75	0.47	75	0	0.92	40
ROOM B-12	70	35	2	10	0.12	28		0.8	36	75	0.47	75	0	0.92	40
ROOM B-13	70	35	2	10	0.12	28		0.8	36	75	0.47	75	0	0.92	40
BOYS B-13	209	0	0	0	0	0	400	1.0	0	150	0.00	0	400	1.39	
ROOM B-15	70	35	3	10	0.12	38		1.0	38	75	0.51	75	0	0.88	44
GIRLS RR B16	242	0	0	0	0	0	300	1.0	0	150	0.0				



City Of Bend Approval Stamp:

ROOF PATCH

ROOF PATCH

Date	Description
Revision Schedule	

DESIGN DEVELOPMENT

PBMS - BLDG B

1501 NE Neff Rd, Bend, OR 97701

BLRB architects

Drawing Title:
PLUMBING DEMO PLAN

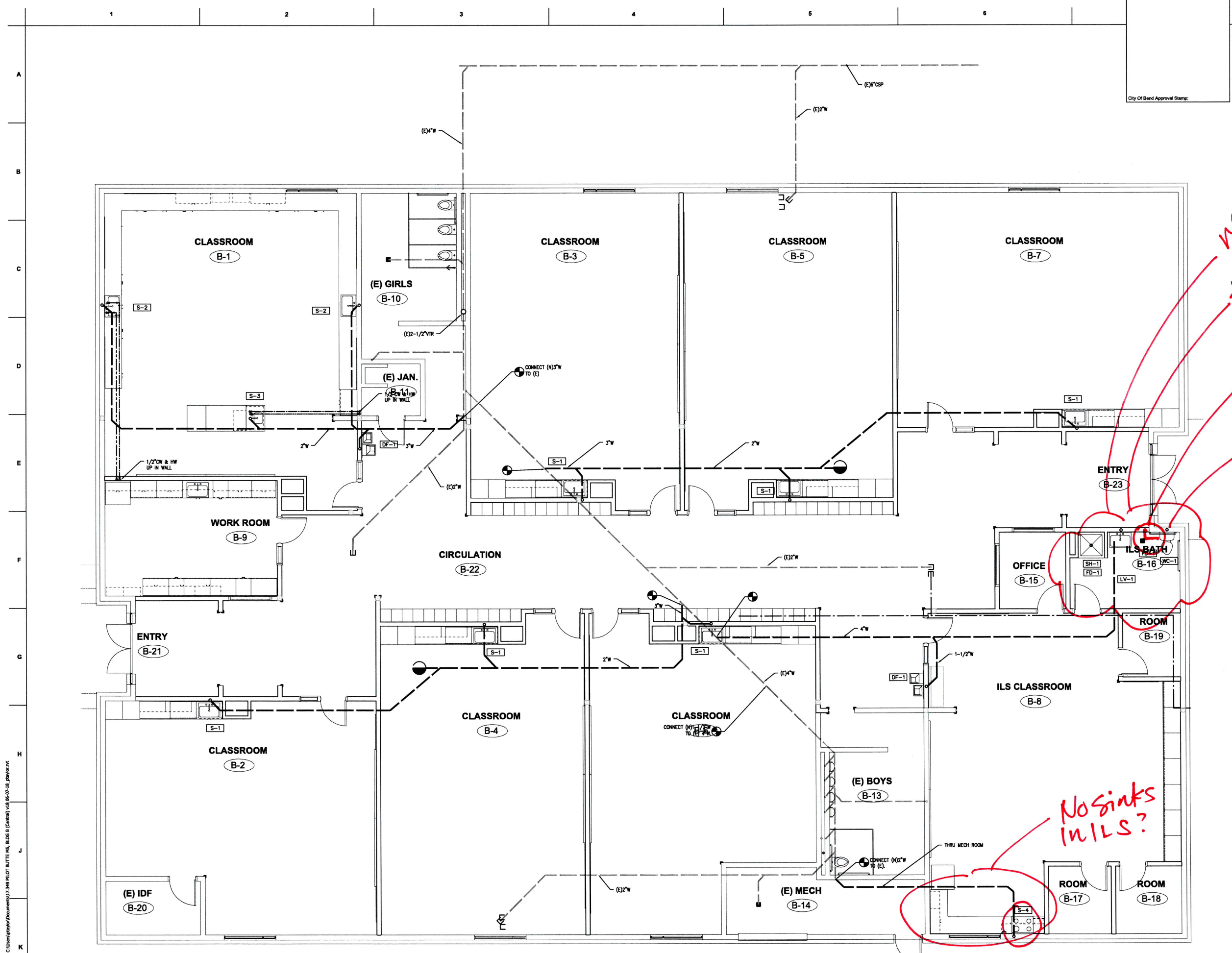
Date: 8/8/2018 Drawn By: INITIALS

Revised Date: Project No. 17.34B

Stamp Sheet No.

PRELIMINARY - NOT FOR CONSTRUCTION

PD2.0



City Of Bend Approval Stamp:

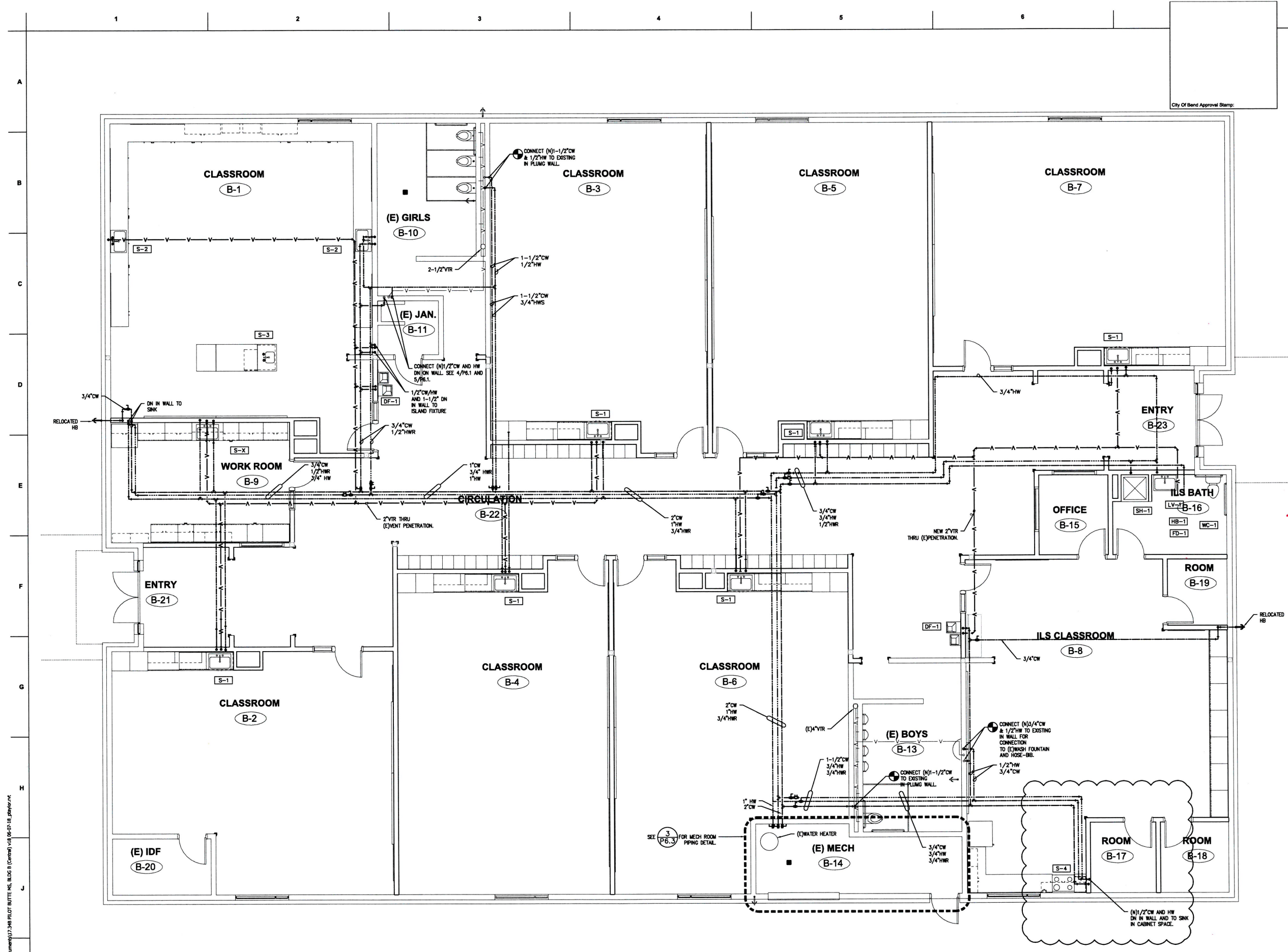
*Need a F.D. here -
tank or floor mt?
water to WC?*

*WC IS ON
EXTERIOR WALL!
WATER LINE IN
EXTERIOR WALL
IS NOT PERMITTED
(SCHOOL DISTRICT
STANDARD)
PLEASE PE ARRANGE
UNLESS YOU WANT
EXPOSE PLUMB.*

*No sinks
in ILS?*

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7/27/2018 1:59:39 AM

Date	Description
Revision Schedule	
DESIGN DEVELOPMENT	
PBMS - BLDG B	
1501 NE Neff Rd, Bend, OR 97701	
BLRB architects	
Drawing Title:	
PLUMBING PLAN - UNDERSLAB	
Date:	8/8/2018
Drawn By:	INITIALS
Revised Date:	Project No. 17.348
Stamp	Sheet No.
PRELIMINARY - NOT FOR CONSTRUCTION	P1.0



City Of Bend Approval Stamp:

1 PLUMBING FLOOR PLAN
P2.0 1/2\"/>

Date	Description
Revision Schedule	

DESIGN DEVELOPMENT

PBMS - BLDG B

1501 NE Neff Rd, Bend, OR 97701

BLRB architects

Drawing Title:
PLUMBING FLOOR PLAN

Date:	8/8/2018	Drawn By:	INITIALS
Revised Date:		Project No.:	17.34B
Stamp:		Sheet No.:	

PRELIMINARY - NOT FOR CONSTRUCTION

P2.0

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2

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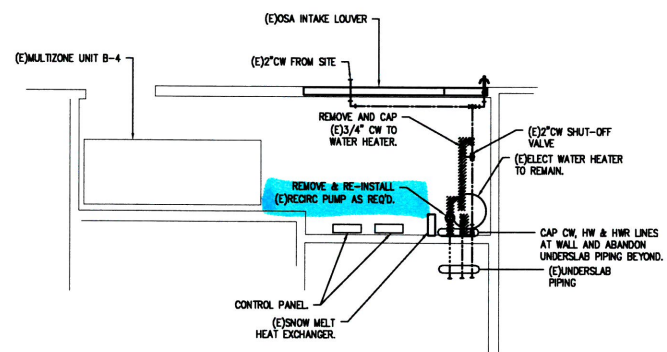
G

H

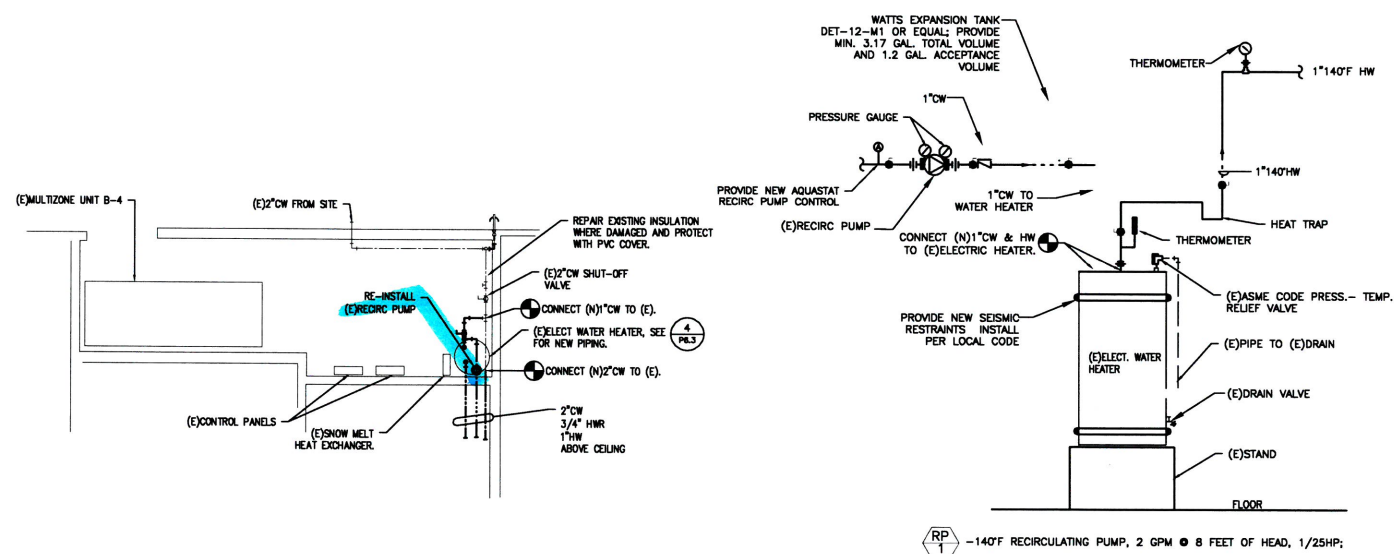
J

K

City Of Bend Approval Stamp:



1 PLUMBING DEMO PLAN
P6.3 7/4-18-18



3 PLUMBING PLAN
P6.3 7/4-18-18

4 WATER HEATER PIPING PLAN
P6.3 7/4-18-18

Date	Description
Revision Schedule	

DESIGN DEVELOPMENT

PBMS - BLDG B

1501 NE Neff Rd, Bend, OR 97701

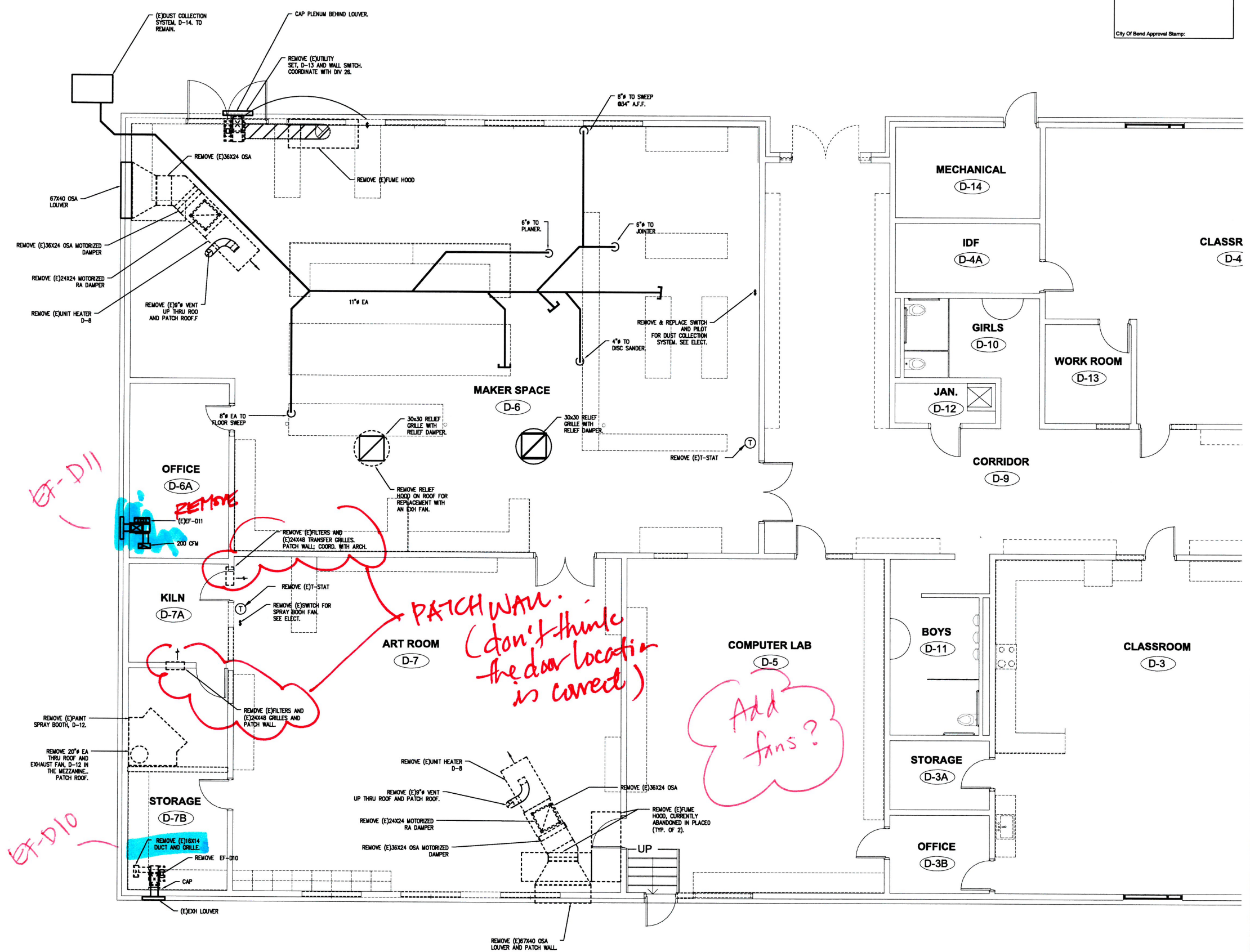
BLRB architects

Drawing Title:
PLUMBING DETAILS

Date:	8/8/2018	Drawn By:	INITIALS
Revised Date:		Project No.:	17.348
Stamp:		Sheet No.:	

PRELIMINARY - NOT FOR CONSTRUCTION

P6.3



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Date	Description
Revision Schedule	
DESIGN DEVELOPMENT	
PBMS - BLDG D	
1501 NE Neff Rd, Bend, OR 97701	
BLRB architects	
Drawing Title:	
MECHANICAL FLOOR DEMO PLAN	
Date:	8/8/2018
Drawn By:	INITIALS
Revised Date:	Project No. 17.348
Stamp	Sheet No.
PRELIMINARY - NOT FOR CONSTRUCTION	MD2.0

MECHANICAL LEGEND

	SUPPLY AIR DIFFUSER	AFF	ABOVE FINISH FLOOR
	RETURN AIR DIFFUSER	AHU	AIR HANDLING UNIT
	EXHAUST AIR DIFFUSER	B.D.	BOTTOM OF DUCT
	DIRECTIONAL AIR FLOW	BHP	BRAKE HORSEPOWER
	MANUAL VOLUME DAMPER	BOG	BOTTOM OF GRILLE
	SUPPLY AIR DUCT UP & DOWN	BTU	BRITISH THERMAL UNITS
	RETURN AIR DUCT UP & DOWN	CFM	CUBIC FEET PER MINUTE
	EXHAUST OR OUTSIDE AIR DUCT UP & DOWN	CONN.	CONNECTION
	VAV TERMINAL UNIT W/ REHEAT COIL	CONT.	CONTINUATION
	DUCT SMOKE SENSOR	CW	DOMESTIC COLD WATER
	DIFFERENTIAL PRESSURE SENSOR	DB	DRY BULB
	CONNECT TO EXISTING	DIA.	DIAMETER
	THERMOSTAT	DIST.	DISTRIBUTION
	TEMPERATURE SENSOR	EXH.	EXHAUST AIR
	EQUIPMENT DESIGNATOR	EDB	ENTERING DRY BULB TEMPERATURE
	GATE VALVE	EWB	ENTERING WET BULB TEMPERATURE
	CHECK VALVE	EWT	ENTERING WATER TEMPERATURE
	BALANCING VALVE	FF	FINISH FLOOR
	THERMOMETER	FIXT.	FIXTURE
	DIRECTION OF FLOW	F.O.B.	FLAT ON BOTTOM
	PUMP	FM	FEET PER MINUTE
	STRAINER	FPS	FEET PER SECOND
	PRESSURE GAUGE	FT.	FEET / FOOT
	PET'S PLUG	GA.	GAUGE
	DOUBLE CHECK ASSEMBLY	GEXH	GREASE EXHAUST AIR DUCT
	PRESSURE REDUCING VALVE	GPM	GALLONS PER MINUTE
	UNION	H.	HEIGHT
	2-WAY CONTROL VALVE	H.M.	HORSEPOWER
	3-WAY CONTROL VALVE	I.D.	INSIDE DIAMETER
	MOTORIZED DAMPER	IN.	INCHES
	BALL SHUT OFF VALVE	LBS.	POUNDS
	FIRE DAMPER	LDB	LEAVING DRY BULB
	FIRE / SMOKE DAMPER	LWB	LEAVING WET BULB
	SMOKE DAMPER	LWT	LEAVING WATER TEMPERATURE
		MA	MAKE UP AIR
		MAX.	MAXIMUM
		MBH	THOUSANDS OF BTU PER HOUR
		MD	MOTORIZED DAMPER
		MIN.	MINIMUM
		MV	MANUAL VOLUME DAMPER
		NC	NOISE CRITERIA
		N.C.	NORMALLY CLOSED
		N.I.M.	NOT IN MECHANICAL
		NO.	NUMBER
		N.O.	NORMALLY OPEN
		O.A.	OUTSIDE AIR
		P.	PERSON
		PSI	POUNDS PER SQUARE INCH
		P/T	PRESSURE / TEMPERATURE
		R.A.	RETURN AIR
		RECT.	RECTANGULAR
		REQ'D	REQUIRED
		S.A.	SUPPLY AIR
		S.P.	STATIC PRESSURE
		S.Q.	SQUARE
		TEMP.	TEMPERATURE
		TYP.	TYPICAL
		VAV	VARIABLE AIR VOLUME
		W	WIDTH
		WB	WET BULB
		WPD	WATER PRESSURE DROP
		#	DIAMETER
		T/A SERIES 794	PILOT TUBE
		DIFFERENTIAL PRESSURE CONTROLLER	BALANCING VALVE, T/A STAD SERIES
		HWS	(HWS) HEATING WATER SUPPLY
		HWR	(HWR) HEATING WATER RETURN
		HWRR	(HWRR) HEATING WATER REVERSE RETURN
		CHS	(CHS) CHILLED WATER SUPPLY
		CHR	(CHR) CHILLED WATER RETURN
		PC	PUMPED CONDENSATE
		S	(HPS) HIGH PRESSURE STEAM
		V4	(HT) HEAT TRACED DOMESTIC HOT WATER
		SMR	(SMR) SNOWMELT RETURN
		SMS	(SMS) SNOWMELT SUPPLY

CEILING FANS

MARK NUMBER	CF 6A	CF 6B	CF 7A	CF 7B	CF 9A	CF 9B	CF 10A	CF 10B	CF 15	CF 19
ROOM	CLASSROOM D6	CLASSROOM D7	CLASSROOM D9	CLASSROOM D10	MAKERS D15	ART D19				
MOUNTING	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG	CEILING HUNG				
BLADE DIAMETER/FAN HEIGHT	52"/16.4"	52"/16.4"	52"/16.4"	52"/16.4"	96"/24"	96"/24"				
CONTROLLED BY:	HAIKU L-SERIES HARD WIRED WALL CONTROL (1 PER ROOM)				HARD WIRED WALL CONTROL					
MOUNTING HEIGHT (FROM CEILING)										
DESIGN WEIGHT (LBS)	11	11	11	11	75	11				
DESIGNED MODEL: BIG ASS FAN	HAIKU L-SERIES	HAIKU L-SERIES	HAIKU L-SERIES	HAIKU L-SERIES	ESSENCE	L-SERIES				

EXHAUST HOODS

MARK NUMBER	H D1
MATERIAL	STAINLESS STEEL
SYSTEM	KILN HOOD
STYLE	CANDOPY
EXHAUST CFM	800
LENGTH	54"
WIDTH	54"

MAKE-UP AIR UNIT

MARK NUMBER	MAU D1	MAU D2
DESIGNED ELEVATION, FT	3500 FT	
TYPE	INDIRECT	INDIRECT
SYSTEM	MAKERS SPACE	ART
CFM	2500	1500/900
MIN. OSA CFM	0.50	900/800*
TOTAL SP. (IN H2O)	0.50	0.50
DRIVE	DD	DD
VFD	NO	YES
FAN RPM	800	900
MOTOR HP	1.5 HP	1 HP
CONTROLLED BY	DDC	DDC
INTERLOCK WITH		
FUEL TYPE	NATURAL GAS	NATURAL GAS
OUTPUT (MBH)	188.3	111.8
EFFICIENCY (%)	80%	80%
VENT SIZE	6"	5"
TEMP RISE	MIN. 70 °F	MIN. 70 °F
TURN DOWN	4:1	4:1
ISOLATION	EXTERNAL	EXTERNAL
DESIGN WEIGHT (LBS)	920	600
BASIS OF DESIGN: REZON	PDH 250	PDH 150
ELECTRICAL (V/PH)	480/3	480/3

EXHAUST FANS

MARK NUMBER	EF D13	EF D14	EF D15
DESIGNED ELEVATION, FT	3500 FT		
TYPE	ROOF	ROOF	UTILITY SET
SYSTEM	MAKERS SPACE D15	ART D19	KILN
CFM	1323	950	600
TOTAL SP. (IN H2O)	0.625	0.56	1"
DRIVE	DD	DD	BELT
VFD	NO	NO	NO
FAN RPM	1323	1472	2032
MOTOR HP	1/2 HP	1/4	1/2
CONTROLLED BY	DDC, NOTE 4	DDC, NOTE 4	DDC, NOTE 6
INTERLOCK WITH			
WHEEL TYPE	B/L	B/L	B/L
BACK DRAFT DAMPER/MOTORIZED DAMPER	-/YES	-/YES	-/YES
ISOLATION	INTERNAL, R.I.S.		
DESIGN WEIGHT (LBS)	75	75	120
MAX. SONES	10.5	1	1
NOTES:	1,2,3,4,5	1,2,3,4,5	2,3,4,5
BASIS OF DESIGN: GREENHECK	G-123-A	G-103-A	USF-106-B
ELECTRICAL (V/PH)	120/1	120/1	120/1

EF-D15 SOUND DATA:

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LWA	dBA
Inlet	85	84	79	75	69	65	64	56	77	65
Outlet	90	80	80	80	73	70	65	58	80	75

*FLA - based on tables 160 of 148 of National Electrical Code 2002. Actual motor FLA may vary. For rating thermal overload, consult motor.
LWA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.0 dB attenuation per octave band at 5.0 dBA levels are not licensed by AMCA International.

*Devon,
Please provide a switch with
a contact similar to the
me for the dust collection system.
Needs an interface w/ controls.*

CONTROLS SEQUENCE OF OPERATION GUIDELINES:

ART ROOM:

OCCUPIED PERIOD:

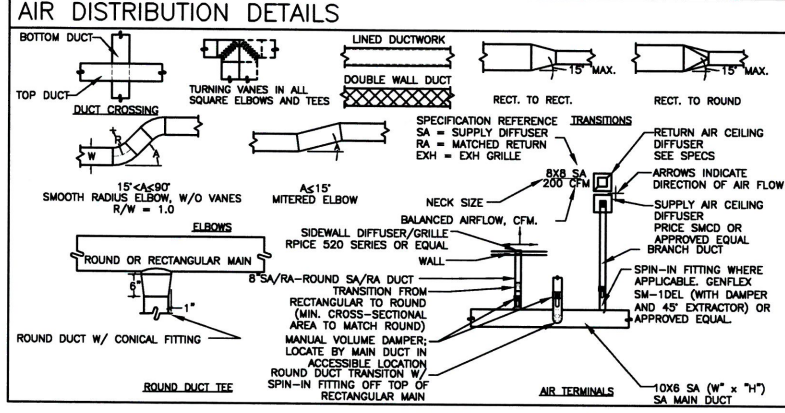
- MAU-D2 TO OPERATE AT FULL SPEED.
- MODULATE GAS VALVE TO MAINTAIN SPACE TEMP.
- OPERATE EF-D14 CONTINUOUSLY.
- RA, OSA AND RELIEF DAMPERS TO MODULATE PER ECONOMIZER FUNCTIONS.
- EF-D15 (KILN HOOD FAN) SWITCHED ON: CLOSE RA AND RELIEF DAMPER AND MODULATE OSA DAMPER TO 100% OPEN POSITION.

UNOCCUPIED PERIOD:

- WHEN EF-D15 IS SWITCHED ON DURING UNOCCUPIED PERIOD, RUN SUPPLY FAN AT 950 CFM AND SET OSA DAMPER TO 600 CFM. COORDINATE VFD FREQUENCY REQUIRED TO SET SUPPLY AIRFLOW @ 950 CFM AND OSA DAMPER POSITION REQUIRED WITH BALANCER.

MAKERS SPACE:

- EF-D13 AND MAU-D1 TO OPERATE CONTINUOUSLY DURING OCCUPIED PERIOD.
- A NEW ON/OFF WALL SWITCH FOR EXISTING DUST COLLECTION SYSTEM TO SEND ON/OFF SIGNAL TO DDC. SEE ELECT FOR SWITCH.
- UPON DUST COLLECTION SYSTEM "ON" SIGNAL FROM DDC, SHUT-DOWN EF-D13 AND CLOSE RA DAMPER AND OPEN RELIEF AND OSA DAMPERS TO 100% OPEN POSITION.
- UNDER NORMAL OPERATION, RA, OSA AND RELIEF DAMPERS TO MODULATE PER ECONOMIZER FUNCTIONS.



VENTILATION AIR SCHEDULE - BUILDING D

ROOM NUMBER AND NAME	AREA (SQ. FT.)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS	OUTSIDE AIR REQUIREMENT (CFM/PP)	OUTSIDE AIR REQUIREMENT (CFM/SQ. FT.)	OUTSIDE AIR REQUIRED (CFM)	EXHAUST AIR REQUIRED (CFM/SQFT)	ZONE OSA (CFM)	SUPPLY AIR (CFM)	PRIMARY OSA FRACTION	RETURN AIR (CFM)	EXHAUST AIR (CFM)	Zone Ventilation Efficiency	Connected OSA CFM	AIR SYSTEMS	
	Az		Pz	Rp	Ra	Vbz	Ex	Voz	Vpz	Zp	Rvz					
MAKERS SPACE D-15	2337	20	47	10	0.18	891	0.5	1.0	891	2325	0.38	2325	1200	0.98	900	MAU-D1
OFFICE D18	176	5	1	5	0.06	16		1.0	16	175	0.09	175	0	1.27	16	MAU-D1
TOTAL	2513		48			906			906	2500		2500	1200	0.98	925	
ART ROOM D-19	1316	20	27	10	0.18	507	0.7	1.0	507	1350	0.38	450	950	1.02	518	MAU-D2
KILN D17	100	20	2	10	0.18	38		1.0	38	0	0	0	0		39	MAU-D2
STORAGE D-16	216	30	7	5	0.06	48		1.0	48	150	0	0	0		40	MAU-D2
TOTAL	1635		36			593			593	1500		450	950	0.98	606	

Date	Description
	Revision Schedule

DESIGN DEVELOPMENT

PBMS - BLDG D

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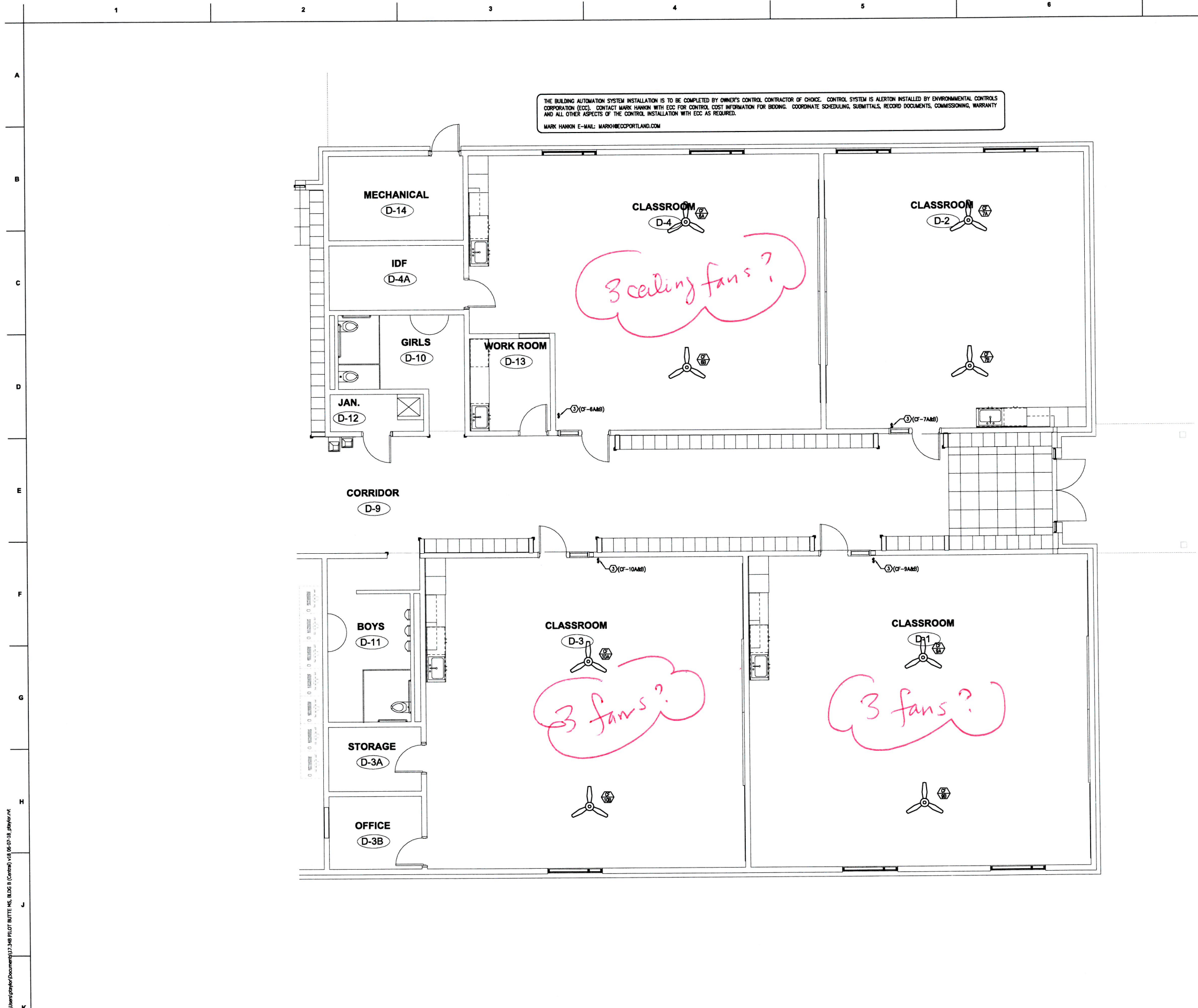
BLRB architects

Drawing Title:
MECHANICAL LEGENDS, & SCHEDULES

Date:	8/8/2018	Drawn By:	INITIALS
Revised Date:		Project No.:	17.348
Stamp:		Sheet No.:	

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M6.0



- SHEET NOTES:**
- 6" TYPE 'B' VENT UP THRU ROOF. SEE 6/M6.2 FOR DETAIL.
 - 5" TYPE 'B' VENT UP THRU ROOF. SEE 6/M6.2 FOR DETAIL.
 - CONTROLLER FOR CEILING FAN. PROVIDE A SINGLE CONTROLLER FOR CONTROL OF COFANS IN CLASSROOMS. SEE ELECTRICAL FOR WIRING.
 - INSTALL A CONTROL DAMPER, BDD, AND A WVO IN THE RETURN DUCT.
 - CSA CONTROL DAMPER AND MANUAL BALANCING DAMPER.
 - 24X16 DOOR TRANSFER GRILLES @ 6" A.F.F.

Date	Description
Revision Schedule	

DESIGN DEVELOPMENT

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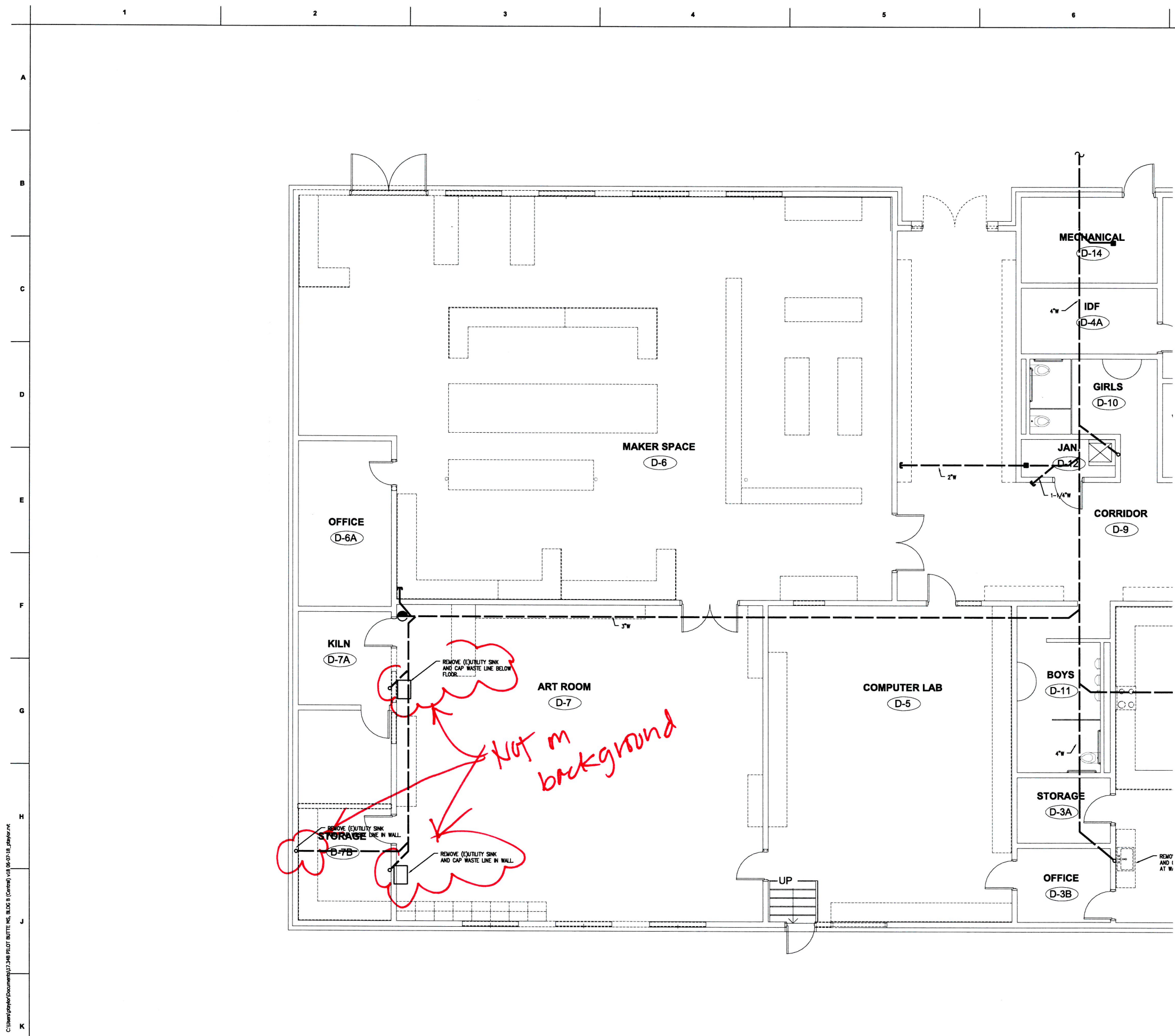
BLRB architects

Drawing Title:
MECHANICAL FLOOR PLAN - EAST

Date:	8/6/2018	Drawn By:	INITIALS
Revised Date:		Project No.:	17.34B
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MECHANICAL FLOOR PLAN - EAST



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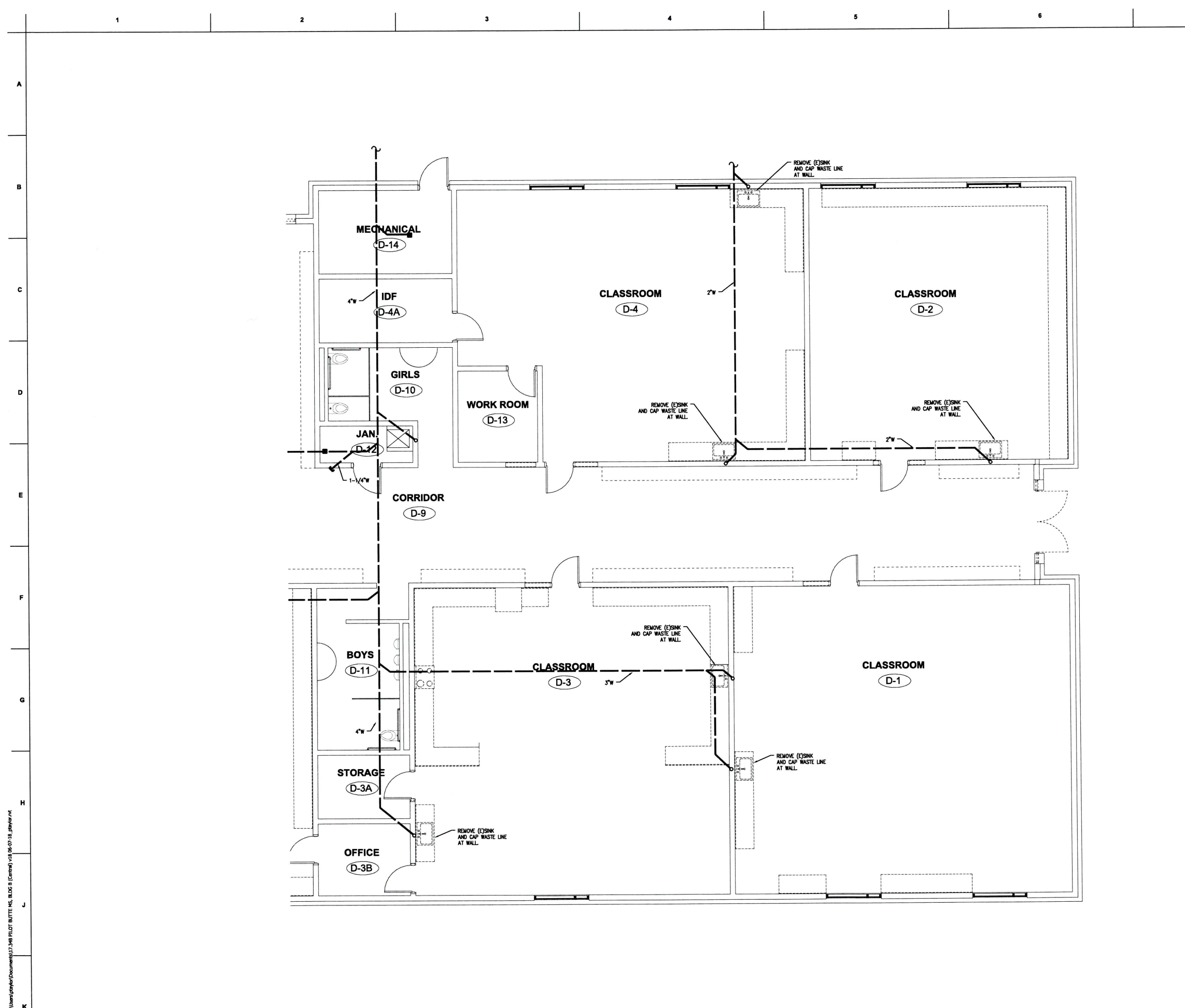
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**PLUMBING DEMO PLAN -
UNDERSLAB - WEST**

Date:	8/8/2018	Drawn By:	INITIALS
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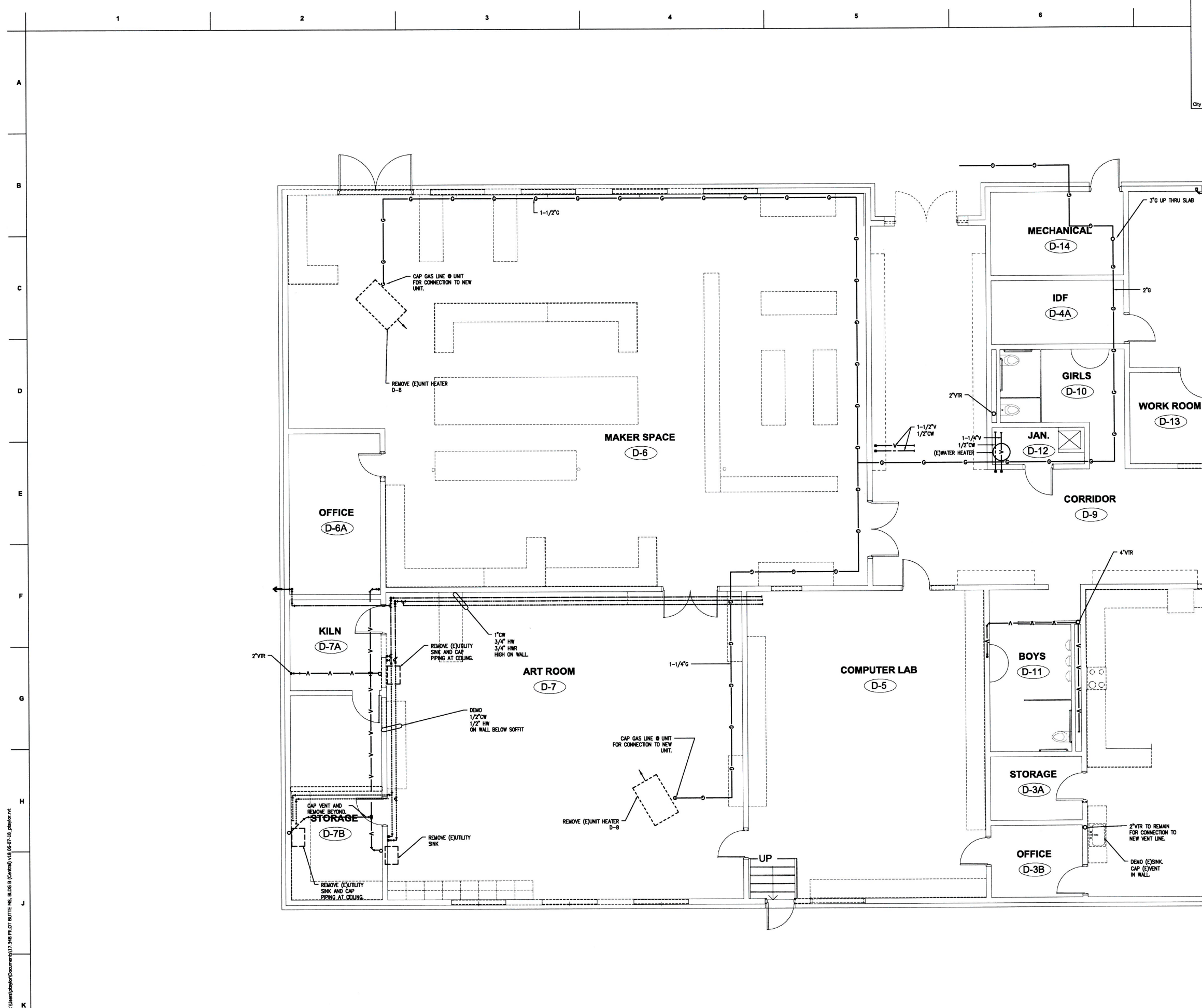
BLRB architects

Drawing Title:
**PLUMBING DEMO PLAN -
UNDERSLAB -EAST**

Date:	8/8/2018	Drawn By:	INITIALS
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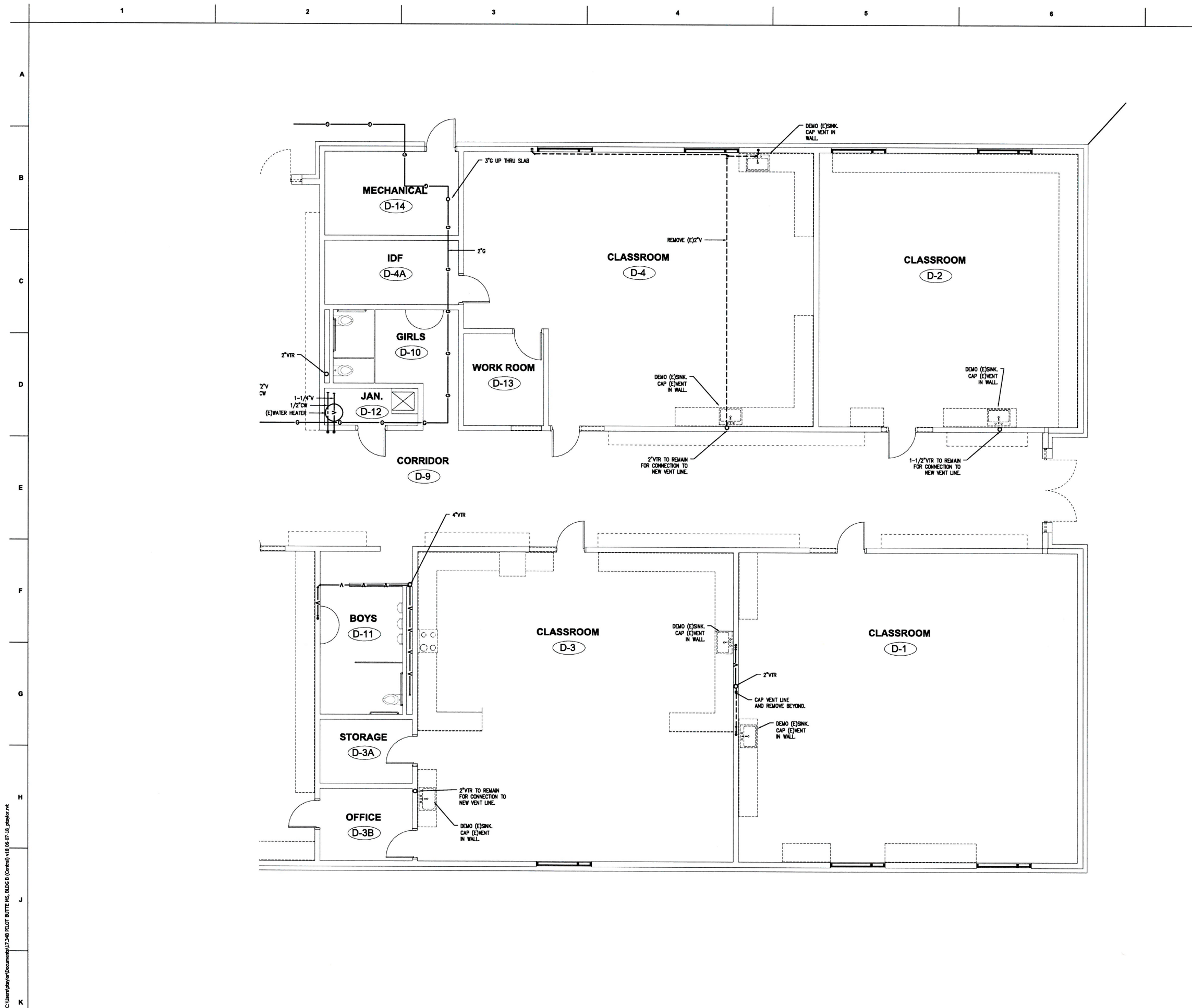
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Date:	8/8/2018	Drawn By:	INITIALS
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PLUMBING FLOOR DEMO PLAN - EAST

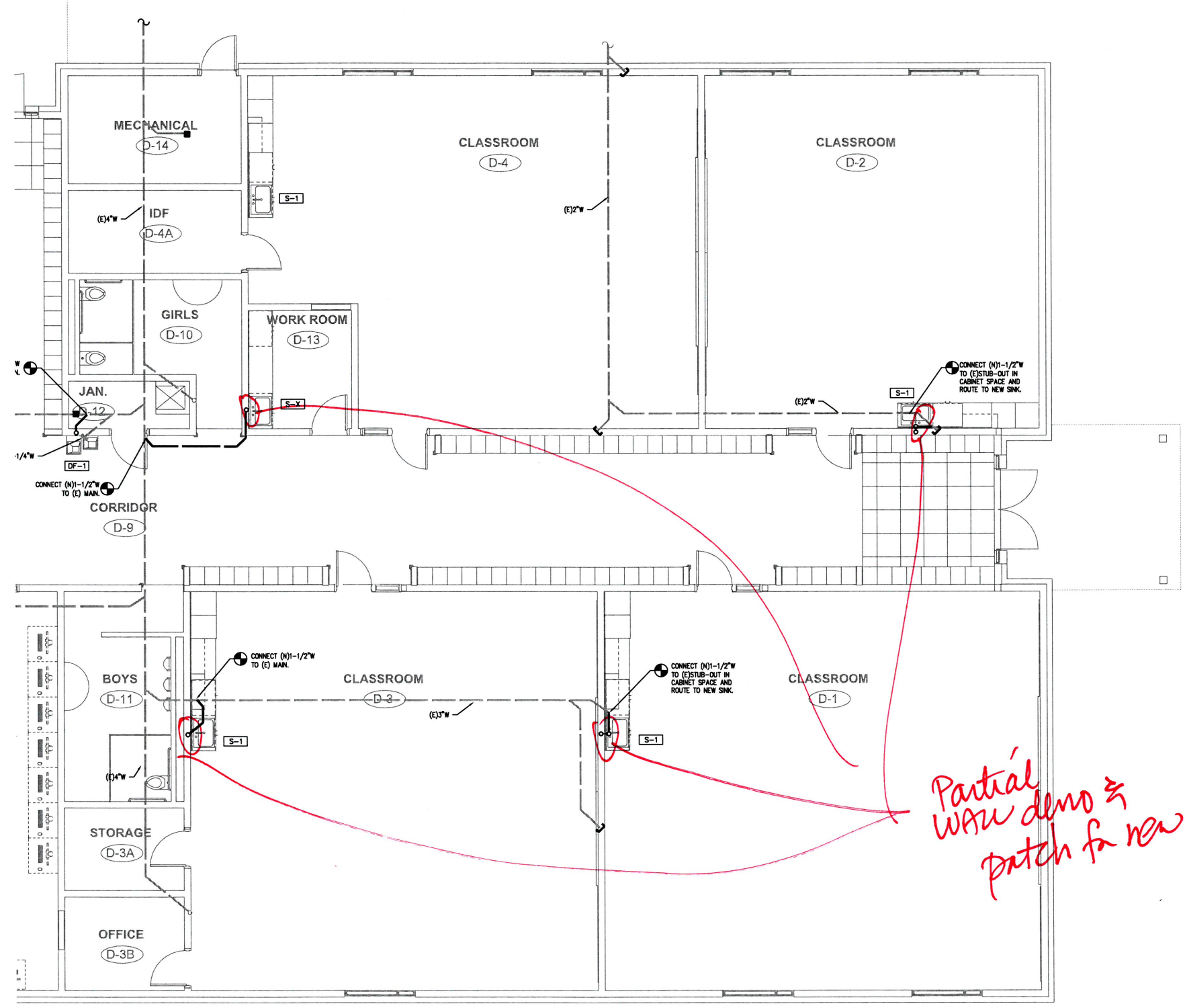
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Partial
 work demo &
 patch for new plumb.

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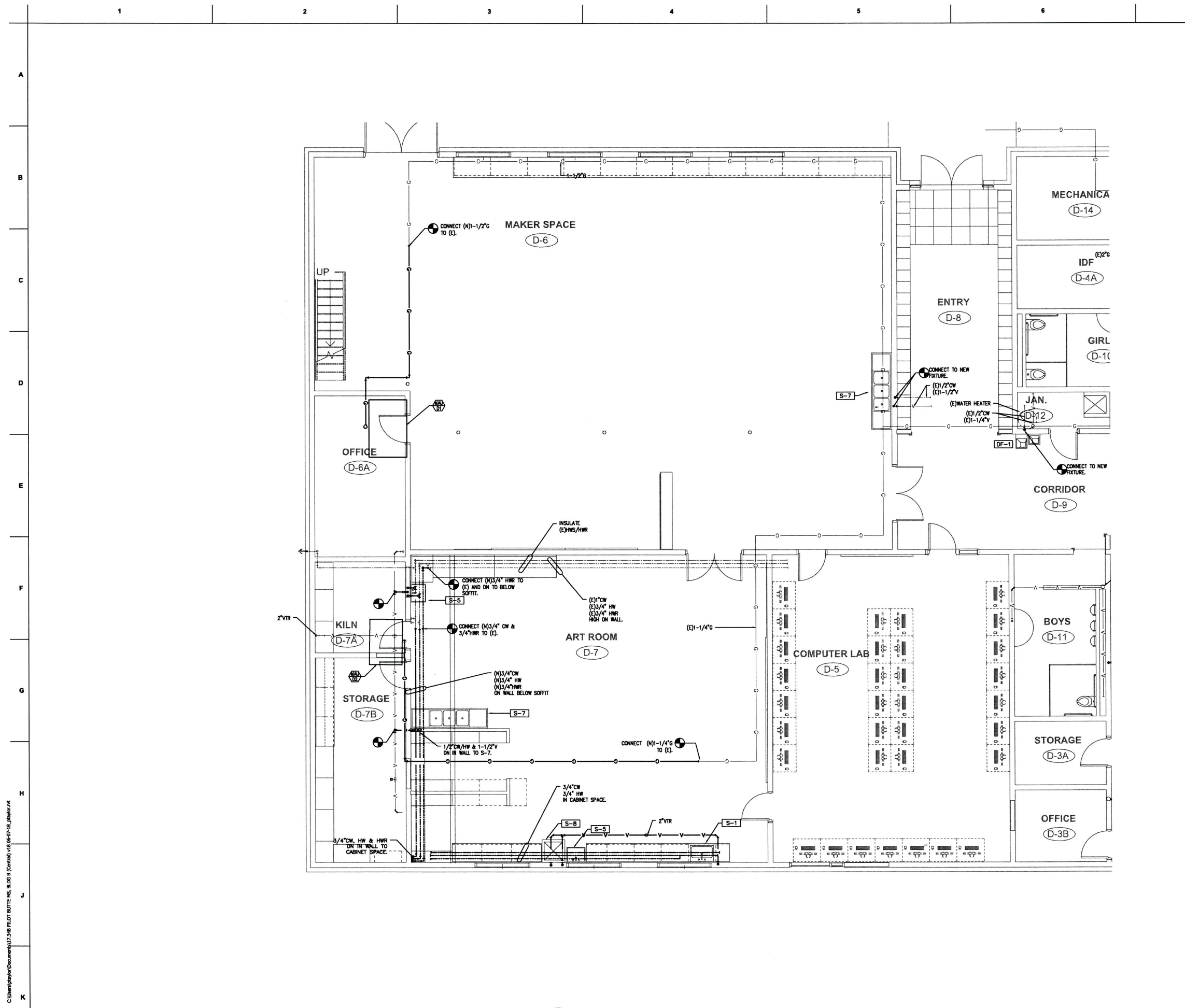
BLRB architects

Drawing Title:
**PLUMBING PLAN -
 UNDERSLAB - EAST**

Date:	8/8/2018	Drawn By:	INITIALS
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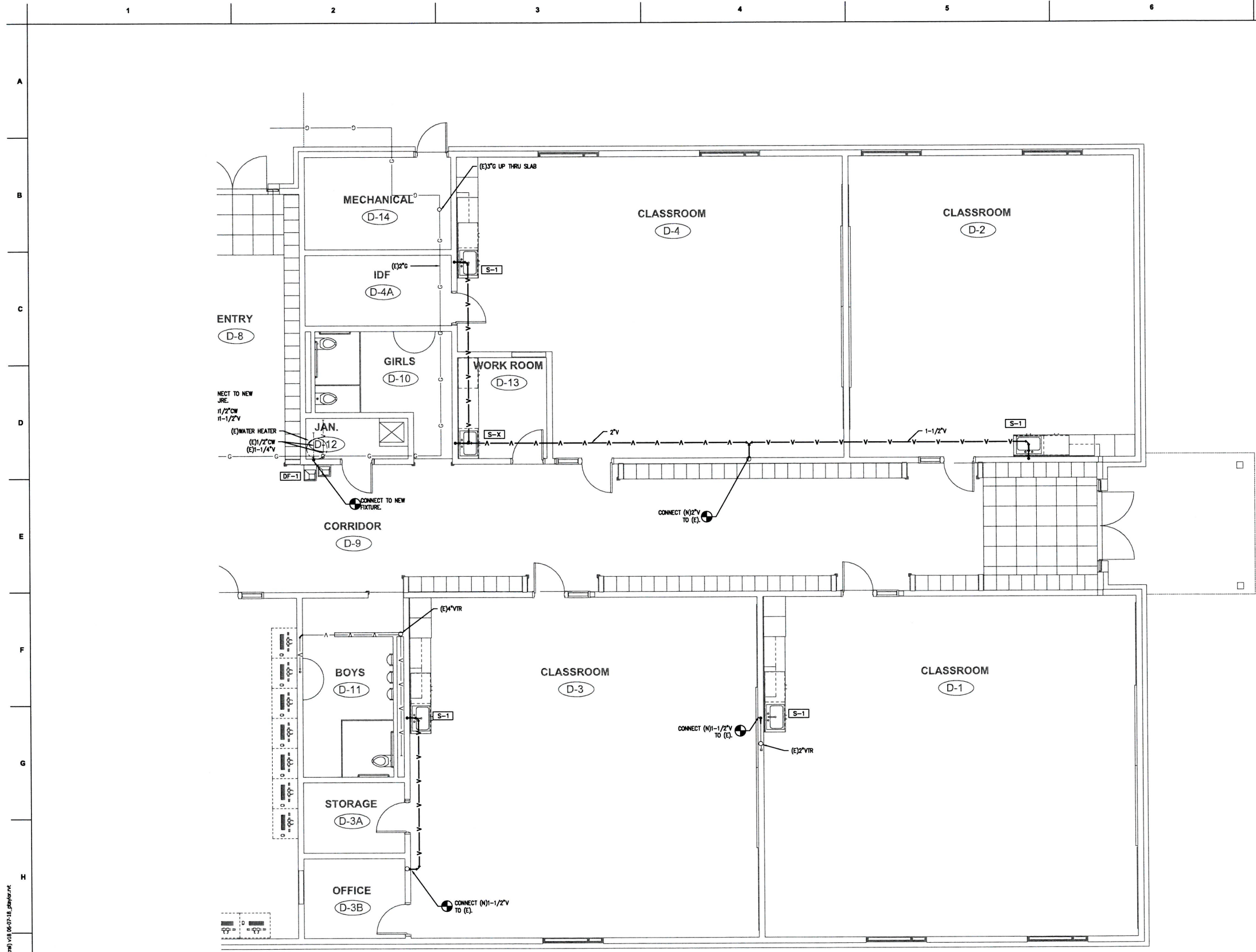


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PLUMBING FLOOR PLAN - WEST

Date	Description
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DESIGN DEVELOPMENT	
PBMS - BLDG D	
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Drawing Title:	
PLUMBING FLOOR PLAN- WEST	
Date:	8/8/2018
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