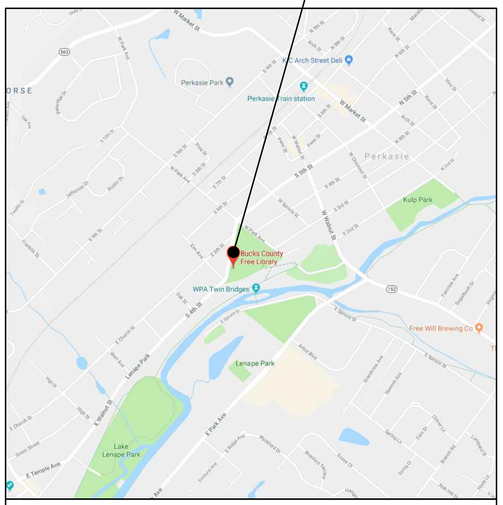
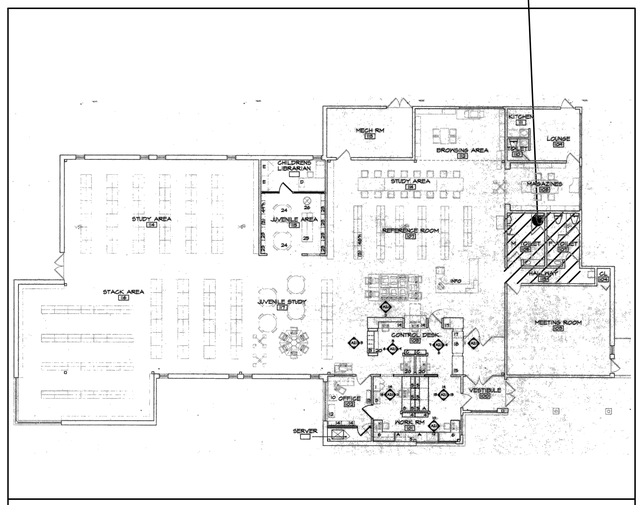


LOCATION MAP

AERIAL VIEW



KEY PLAN

PERKASIE BOROUGH BUILDING CODES
PA UCC – ADOPTED
2015 INTERNATIONAL EXISTING BUILDING CODE (IEBC) LEVEL 2 ALTERATION
2015 INTERNATIONAL BUILDING CODE (IBC) LEVEL 2 ALTERATION (LIMITED TO §406.3 & ALL ACCESSSIBILITY PROVISIONS AS ADOPTED BY THE PA UCC)
2015 INTERNATIONAL BUILDING CODE (IBC), CHAPTER 11 – ACCESSIBILITY REFERENCE STANDARD: 2009 ICC/ANSI 117.1

PROJECT DESCRIPTION:

LEVEL 2 – TENANT IMPROVEMENT

SCOPE OF WORK AREA:	±246 S.F.
OCCUPANT LOAD:	3 PERSONS (1 PER 100 GROSS S.F.)
USE:	'B' – BUSINESS
EXISTING CONSTRUCTION TYPE:	2B NONCOMBUSTIBLE UNPROTECTED
HEIGHT:	EXISTING 1–STORY BUILDING
FIRE PROTECTION:	NONE

CODE SUMMARY

DRAWING ENUMERATION

ARCHITECTURAL
RHJ ASSOCIATES, P.C.
CONTACT: MICHAEL HENRETTY 302.528.4406

CS – COVER SHEET
A.01 – EGRESS & OCCUPANCY PLAN, ADA SIGNAGE DIAGRAMS
A.1 – FLOOR PLAN, REFLECTED CEILING PLAN
A.2 – DOOR SCHEDULE, FINISH SCHEDULE, FIXTURE SCHEDULE, ELEVATIONS

MECHANICAL, PLUMBING, ELECTRICAL
MARTARANO ENGINEERING INC.
CONTACT: ANGELO MARTARANO 484.706.9779

M.1 – MECHANICAL DEMOLITION PLAN, MECHANICAL NEW WORK PLAN, NOTES, LEGEND, MECHANICAL SPECIFICATIONS, SCHEDULES
P.1 – PLUMBING DEMOLITION PLAN, LEGEND, PLUMBING PLANS, NOTES, PLUMBING FIXTURE SCHEDULE
P.2 – PLUMBING SPECIFICATIONS
E.1 – SPECIFICATION, LEGEND
E.2 – ELECTRICAL DEMOLITION PLAN, ELECTRICAL LIGHTING PLAN, POWER PLAN, LIGHTING FIXTURE SCHEDULE

ISSUE INFORMATION
2018-12-21 PRELIMINARY OWNER REVIEW
2019-02-01 ISSUE FOR BID

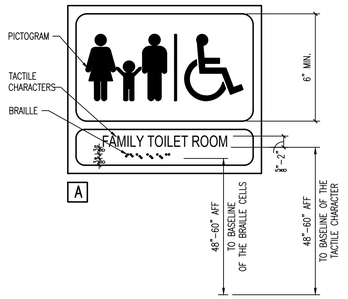
PROPOSED IMPROVEMENTS FOR:
BUCKS COUNTY LIBRARY
PERKASIE BRANCH
491 ARTHUR AVENUE
PERKASIE, BUCKS COUNTY, PENNSYLVANIA

ISSUED FOR BID

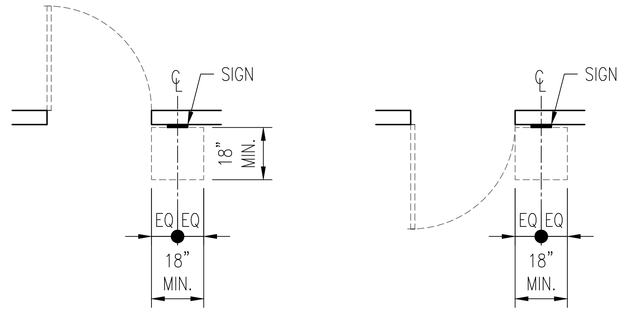
RHJ ASSOCIATES, P.C.
ARCHITECTS • PLANNERS • DESIGNERS
860 1ST AVE, SUITE 9A
KING OF PRUSSIA, PA 19406
610 337 4555
www.rhjassoc.com

DATE: FEB. 1, 2019
REVISIONS

cs
2018-0414

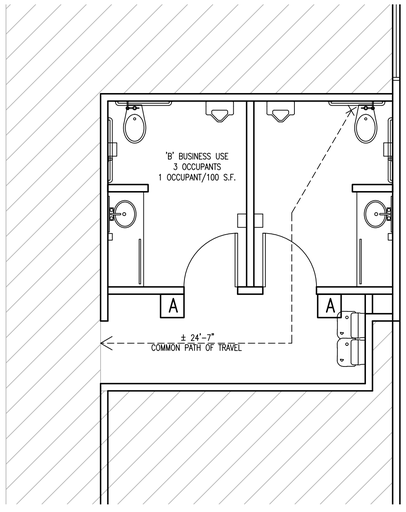


ALL SIGNAGE TO COMPLY WITH ICC/ANSI A117.1 – 2009, CHAPTER 7.	NOTE: IT IS UNLAWFUL TO REMOVE OR DEFACE THESE SIGNS.
G.C. TO SUPPLY & INSTALL ALL ADA & LIFE SAFETY SIGNAGE SHOWN.	NOTE: ALL ADA SIGNAGE TO BE BLACK BACKGROUND W/ WHITE LETTERING.



(2) ADA SIGN DETAILS AND MOUNTING DIAGRAM

SCALE: NTS



SYMBOL LEGEND:

A NEW SIGN. SEE 2/A.01

(1) EGRESS AND OCCUPANCY PLAN

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

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DEMOLITION NOTES:

1. REMOVED EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROMPTLY REMOVED FROM THE SITE U.N.O. ALL DEMOLITION DEBRIS IS TO BE REMOVED FROM THE SITE ON A DAILY BASIS. CONTRACTOR TO COORDINATE WITH BUILDING MANAGEMENT FOR DUMPSTER LOCATION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF ALL EXISTING ELEMENTS DURING ALL PHASES OF WORK. FOLLOW ALL APPLICABLE FEDERAL, OSHA, STATE AND LOCAL REGULATIONS.
3. THE GENERAL CONTRACTOR IS TO PROVIDE TEMPORARY TOILET FACILITIES AND IS TO COORDINATE LOCATION WITH BUILDING MANAGEMENT. PROVIDE TEMPORARY LIGHTING AS NEEDED.
4. REMOVE ALL EXISTING PLUMBING FIXTURES. CAP PLUMBING IN WALL.
5. REMOVE ALL FLOOR FINISHES, WALL BASE, WALL TILE, CEILING GRID, ACT, LIGHTING, & HVAC DEVICES AS INDICATED BY DEMO DRAWINGS.
6. SAW-CUT SLAB AS REQUIRED TO EXTEND SANITARY PIPING TO NEW TOILET ROOMS. PATCH TRENCH WITH NEW CONCRETE TO BE LEVEL AND ALIGN WITH ADJACENT SLAB HEIGHT.
7. PREP FLOOR SLAB & WALLS AS NEEDED FOR NEW TILE INSTALLATION.
8. REMOVE ANY ABANDONED WIRING & CONDUIT AS A RESULT OF DEMOLITION.
9. REMOVE ANY ABANDONED DUCT WORK OR FLEX DUCTS AS A RESULT OF DEMOLITION.

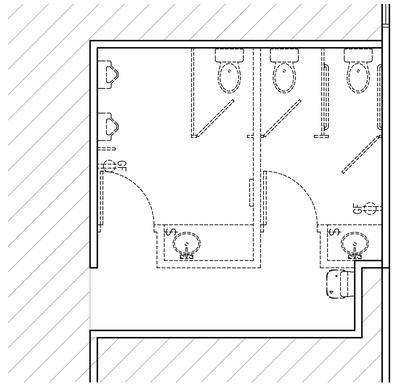
LEGEND:

EXISTING WALL TO REMAIN.

EXISTING WALL OR CONSTRUCTION TO BE REMOVED.

EXISTING DOOR, FRAME, AND HARDWARE TO REMAIN.

EXISTING DOOR, FRAME, AND HARDWARE TO BE REMOVED. SEE DEMOLITION NOTES.



3 DEMOLITION FLOOR PLAN

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

LEGEND:

EXISTING CEILING GRID TO REMAIN. REMOVE EXISTING CEILING TILES.

EXISTING CEILING GRID TO BE DEMOLISHED. REMOVE EXISTING CEILING TILES.

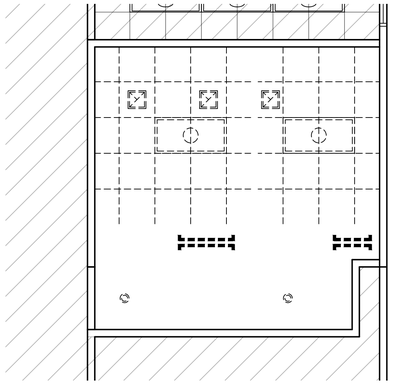
EXISTING HI-HAT LIGHT FIXTURE TO BE REMOVED. SAVE FOR RELOCATION.

EXISTING FLUORESCENT LIGHT FIXTURE TO BE REMOVED.

EXISTING HVAC 2X2 SUPPLY DIFFUSER TO BE REMOVED & SAVED FOR RELOCATION.

EXISTING HVAC RETURN GRILLE TO BE REMOVED.

EXISTING EXHAUST FAN TO BE REMOVED.



4 DEMOLITION REFLECTED CEILING PLAN

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

WALL LEGEND:

EXISTING WALL TO REMAIN. PREPARE WALLS TO RECEIVE NEW PAINT.

1 — NEW PARTITION WALL
3⅝" METAL STUDS @ 16" O.C. MAX. W/ (1) LAYER ⅝" GWB EACH SIDE TO 6" ABOVE CEILING GRID. BRACE TO DECK ABOVE AT 4'-0" MAX. PAINT.

2 — NEW DECK HEIGHT PARTITION WALL
3⅝" METAL STUDS @ 16" O.C. MAX. W/ (1) LAYER ⅝" GWB EACH SIDE TO U.S.O. DECK ABOVE. PAINT.

LEGEND:

ROOM 101 — ROOM/AREA IDENTIFICATION. REFER TO FINISH SCHEDULE.

DOOR TYPE IDENTIFICATION. REFER TO DOOR SCHEDULE.

WALL TYPE IDENTIFICATION. REFER TO WALL LEGEND.

EXISTING EXIT SIGN TO REMAIN. SEE ELECTRICAL DRAWINGS.

NEW EXIT SIGN. SEE ELECTRICAL DRAWINGS.

NEW EMERGENCY STROBE. SEE ELECTRICAL DRAWINGS.

NEW HORN/STROBE. SEE ELECTRICAL DRAWINGS.

FE — EXISTING FIRE EXTINGUISHER TO REMAIN. G.C. TO VERIFY TAGS HAVE NOT EXPIRED.

NEW EMERGENCY BATTERY PACK. SEE ELECTRICAL DRAWINGS.

NEW REMOTE HEAD. SEE ELECTRICAL DRAWINGS.

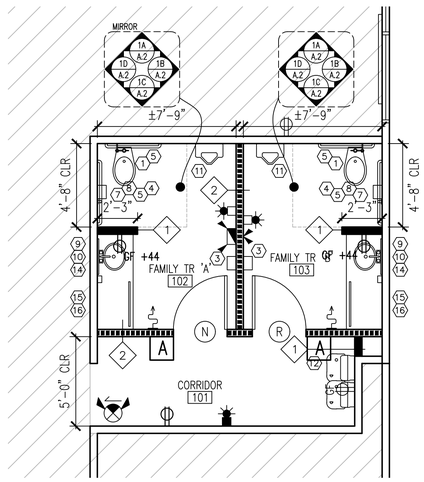
EXISTING DUPLEX POWER OUTLET. SEE ELECTRICAL DRAWINGS.

NEW DUPLEX POWER OUTLET. MOUNT AT 18" A.F.F. U.N.O. SEE ELECTRICAL DRAWINGS.

GF +44 — NEW DUPLEX GFCI POWER OUTLET.MOUNT AT 18" A.F.F. U.N.O. SEE ELECTRICAL DRAWINGS.

PLUMBING FIXTURE/ACCESSORY KEY IDENTIFIER. SEE SCHEDULE AND ELEVATIONS.

NEW WALL-MOUNTED ELECTRIC ELEMENT HEATER. SEE MECHANICAL DRAWINGS.



1 FLOOR PLAN

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

LEGEND:

NEW GWB CEILING. MATCH AND ALIGN WITH EXISTING. PROVIDE NEW FRAMING AS REQUIRED.

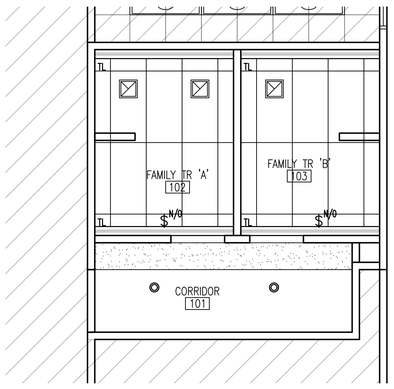
NEW CEILING GRID AND A.C.T.

NEW FLUORESCENT HI-HAT LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS.

TL — NEW FLUORESCENT LINEAR TROFFER LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS.

EXISTING EXHAUST FAN TO REMAIN. CLEAN.

$N/O — SWITCH
N: NEW
O: OCCUPANCY SENSOR
NO SUPERSCRIPT: EXISTING SINGLE POLE
SEE ELECTICAL DRAWINGS.



2 REFLECTED CEILING PLAN

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

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FINISH SCHEDULE

NO.	ROOM	FLOOR MTRL	FLOOR SPECIAL FINISHES	BASE MTRL	NORTH WALL MTRL	NORTH WALL SPECIAL FINISHES	NORTH WALL P	EAST WALL MTRL	EAST WALL SPECIAL FINISHES	EAST WALL P	SOUTH WALL MTRL	SOUTH WALL SPECIAL FINISHES	SOUTH WALL P	WEST WALL MTRL	WEST WALL SPECIAL FINISHES	WEST WALL P	CEILING MTRL	CEILING P	CEILING HGT
101	CORRIDOR	CARP		VB	EXIST		●	EXIST		●	EXIST		●	EXIST		●	EXIST / GWB	●	EXIST
102	FAMILY T.R.	SV		SVB	EXIST	WT		GWB	WT		GWB	WT		EXIST	WT		EXIST / ACT		EXIST
103	FAMILY T.R.	SV		SVB	EXIST	WT		EXIST	WT		GWB	WT		GWB	WT		EXIST / ACT		EXIST

LEGEND:

EXIST = EXISTING
GWB = GYPSUM WALLBOARD
GLAZ = GLAZING
CPT = CARPET
VCB = VINYL COVE BASE
CT = CERAMIC TILE
ACT = ACOUSTICAL CEILING TILE
WT = WALL TILE
'P' COLUMNS = WALLS TO RECEIVE NEW PAINT.

DOOR SCHEDULE

NO.	SIZE	LOC.	DOOR MTRL / CORE	DOOR FINISH	DOOR TYPE	FRAME MTRL.	FRAME FINISH	FRAME TYPE	HARD-WARE	LABEL	REMARKS
R.1	← RELOCATE DOOR, FRAME, AND HARDWARE →								R.1		PAINT DOORS/FRAMES P-2.
1	3'0"x7'0"x1¾"	T.R.	WOOD / SOLID	PAINT	1	H.M.	PAINT	A	1		MATCH BUILDING STANDARD PAINT DOORS/FRAMES P-2.

(1)

(A)

(4) DOOR TYPES — NO SCALE

(5) FRAME TYPES — NO SCALE

SET #R.1:
RELOCATED HINGES
1 NEW LEVERSET (PRIVACY FUNC)
3 NEW SILENCERS
1 NEW DOORSTOP

SET #1:
3 NEW HINGES
1 NEW LEVERSET (PRIVACY FUNC)
3 NEW SILENCERS
1 NEW DOORSTOP

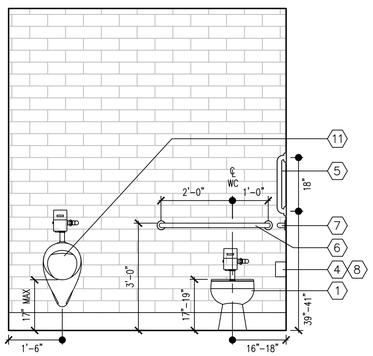
(3) DOOR HARDWARE

FINISH LEGEND

TYPE	LABEL	DESCRIPTION	MANFR	STYLE	COLOR	FIN/SIZE	NOTES
SHEET VINYL FLOOR	SV-1	SHEET VINYL	ALTRO	SYMPHONIA	TBD	–	6" INTEG'D COVE BASE
SHEET VINYL BASE	SVB-1	SHEET VINYL	ALTRO	SYMPHONIA	TBD	–	–
CARPET	CP-1	CARPET TILE	SHAW CONTRACT	TBD	TBD	24X24	–
VCB	VCB-1	MATCH EXISTING	ROPPE	MATCH EXISTING	MATCH EXISTING	–	–
PAINT	P-1	GENERAL PAINT	SHERWIN WILLIAMS	INT'R LATEX	236-15 PELICAN WHITE	EGGSHELL	–
PAINT	P-2	DOORS, FRAMES & TRIM	SHERWIN WILLIAMS	INT'R LATEX	TBD	SEMI GLOSS	–
WALL TILE	WT-1	CERAMIC TILE	CROSSVILLE	COLOR BY NUMBERS	TBD	4x12 SATIN	EPOXY GROUT COLOR TBD
SOLID SURFACE	SS-1	SOLID SURFACE	DUPONT CORIAN	–	TBD	EASED EDGE	COUNTER/BKSP
CEILING TILE	ACT-1	ACOUSTIC CEILING TILE	ARMSTRONG	2712A		24x48x3/4"	AS NEEDED

PLUMBING FIXTURES & ACCESSORIES SCHEDULE

KEY	FIXTURE	MFR.	MODEL	MODEL #	FINISH	SUPPLIED & INSTALLED BY	NOTES
(1)	FLOOR-MOUNTED, ADA-COMPLIANT TOILET W/ FLUSH VALVE SYSTEM	← REFER TO PLUMBING DRAWINGS →				GENERAL CONTRACTOR	
	TOILET SEAT	← REFER TO PLUMBING DRAWINGS →				GENERAL CONTRACTOR	
(2)	NOT USED						
(3)	ELECTRIC HAND DRYER – 1400W	DYSON	SURFACE-MOUNTED, SENSOR ACTIVATED	AIRBLADE V	AB12 – SPRAYED NICKEL	GENERAL CONTRACTOR	
(4)	TOILET PAPER DISPENSER	AMERICAN SPECIALTIES, INC.	ROVAL SURFACE MOUNTED TWIN TOILET PAPER DISPENSER	20030	STAINLESS STEEL	GENERAL CONTRACTOR	
(5)	ADA-COMPLIANT GRAB BARS W/ FIRE-RATED WALL BLOCKING	AMERICAN SPECIALTIES, INC.	18" 1-1/2" DIA. GRAB BAR	#3800 SERIES	STAINLESS STEEL	GENERAL CONTRACTOR	
(6)	ADA-COMPLIANT GRAB BARS W/ FIRE-RATED WALL BLOCKING	AMERICAN SPECIALTIES, INC.	36" 1-1/2" DIA. GRAB BAR	#3800 SERIES	STAINLESS STEEL	GENERAL CONTRACTOR	
(7)	ADA-COMPLIANT GRAB BARS W/ FIRE-RATED WALL BLOCKING	AMERICAN SPECIALTIES, INC.	42" 1-1/2" DIA. GRAB BAR	#3800 SERIES	STAINLESS STEEL	GENERAL CONTRACTOR	
(8)	SANITARY NAPKIN DISPOSAL	AMERICAN SPECIALTIES, INC.	SURFACE MOUNTED SANITARY NAPKIN DISPOSAL	0852	STAINLESS STEEL	GENERAL CONTRACTOR	
(9)	CHANNEL FRAMED WALL MIRROR	BOBRICK	24"X36" MIRROR	B-165 2436	STAINLESS STEEL	GENERAL CONTRACTOR	
(10)	INTEGRATED SOLID SURFACE LAVATORY	DUPONT CORIAN SOLID SURFACE	ACCESSIBLE	8258	CREMA	GENERAL CONTRACTOR	REFER TO PLUMBING DRAWINGS FOR FAUCET
(11)	WALL-HUNG, ADA-COMPLIANT URINAL W/ FLUSH VALVE SYSTEM	← REFER TO PLUMBING DRAWINGS →				GENERAL CONTRACTOR	
(12)	ELECTRIC WATER COOLER W/ BOTTLE FILLER AND FILTER	HALSEY TAYLOR	HAC GREEN COOLER W/ BOTTLE FILLER AND FILTER	HTHB-HACG8BLSS-WF	STAINLESS STEEL	GENERAL CONTRACTOR	
(13)	ROBE HOOK	AMERICAN SPECIALTIES, INC.	DOUBLE ROBE HOOK	7345	SATIN STAINLESS STEEL	GENERAL CONTRACTOR	TOP @ 48" A.F.F. MAX
(14)	WALL-MOUNTED SOAP DISPENSER	BOBRICK	SURFACE-MOUNTED DISPENSER	B-2111	STAINLESS STEEL	OWNER	
(15)	VANITY WITH SOLID SURFACE KNEEGUARD & C-TOP W/ 4" BACK/SIDE SPLASH	DUPONT CORIAN SOLID SURFACE	1/2" SHEET		SEE FINISH SCHED.	GENERAL CONTRACTOR	
(16)	2"Hx30"W SOLID SURFACE GUARD FOR CHANGING TABLE	DUPONT CORIAN SOLID SURFACE	1/2" SHEET		SEE FINISH SCHED.	GENERAL CONTRACTOR	BOND TO COUNTER SURFACE



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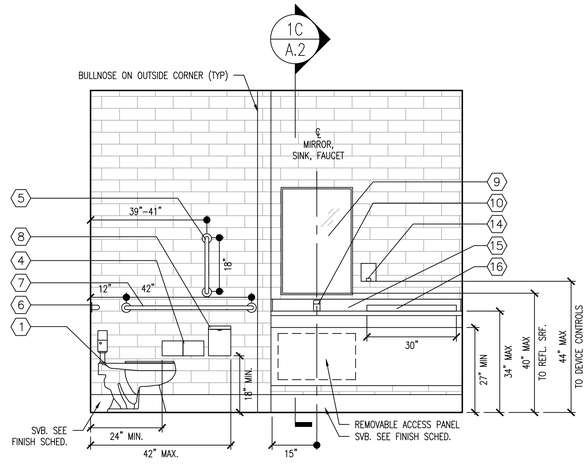

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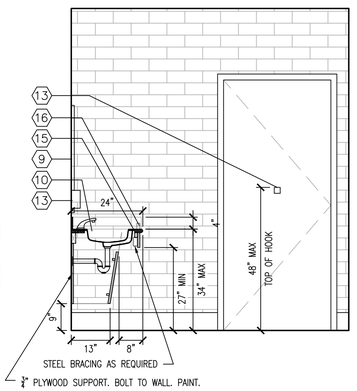

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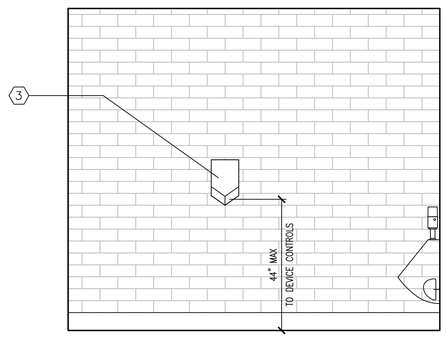
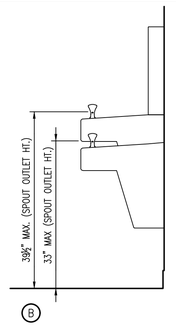


(D)

(1) TOILET ROOM ELEVATIONS

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



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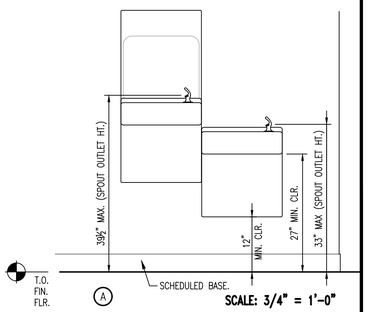

(A)

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

(2) EWC ELEVATIONS

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2018-0414

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HEATING, VENILATION, AND AIR CONDITIONING SPECIFICATIONS

1. THE ARCHITECTURAL GENERAL CONDITIONS SHALL APPLY TO AND FORM A PART OF THIS SECTION OF THESE SPECIFICATIONS.

2. PROVIDE ALL MATERIALS, LABOR, EQUIPMENT AND TOOLS NECESSARY FOR COMPLETE AND WORKABLE SYSTEMS AS INDICATED ON THE DRAWINGS. ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, LATEST EDITION OF THE NATIONAL ELECTRIC CODE, OSHA, 2015 INTERNATIONAL MECHANICAL CODE, 2015 INTERNATIONAL EXISTING BUILDING CODE (IBC), 2015 INTERNATIONAL ENERGY CONSERVATION CODE AND ALL OTHER STATE AND LOCAL AUTHORITIES HAVING JURISDICTION AND APPLICABLE MANUFACTURER'S RECOMMENDATIONS.

3. THE CONTRACTOR SHALL VISIT THE SITE, EXAMINE ALL CONDITIONS AND MAKE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES AFFECTING THE PROPER EXECUTION OF THIS CONTRACT PRIOR TO SUBMITTING A PROPOSAL.

4. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL HAVE A MINIMUM OF FIVE YEARS OF PROVEN EXPERIENCE ON PROJECTS WITH SIMILAR LEVELS OF COMPLEXITY AND MAGNITUDE. EXPERIENCE SHALL BASED ON THE EXPERIENCE AS A COMPANY AND NOT ON THE EXPERIENCE AS INDIVIDUALS.

5. THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES NECESSARY FOR PERMITS AND INSPECTIONS REQUIRED WITH HIS WORK.

6. THE CONTRACTOR SHALL VERIFY ALL UTILITY SERVICE INFORMATION SHOWN ON THE DRAWINGS WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING A BID. ANY CHANGES OR SERVICE CHARGES IMPOSED BY THE UTILITY COMPANY SHALL BE QUALIFIED AND INCLUDED IN THE BID.

7. ALL EQUIPMENT SHALL BE TESTED, LISTED AND LABELED BY AN APPROVED AUTHORITY (UL, ETL) AND SHALL BE INSTALLED IN ACCORDANCE WITH ITS LISTING.

8. ALL EQUIPMENT, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR (FIVE YEARS FOR ALL COMPRESSORS) FROM THE DATE OF ACCEPTANCE BY THE OWNER.

9. WHERE PRODUCTS ARE SPECIFIED BY BRAND NAME, CATALOG NUMBERS OR BY NAMES OF MANUFACTURERS, THE REFERENCE IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE AND IS SOLELY FOR THE PURPOSE OF INDICATING THE TYPE OF QUALITY OF ITEM THAT WILL BE ACCEPTABLE. AN APPROVED EQUAL WILL BE ACCEPTED UNLESS INDICATED OTHERWISE. AN APPROVED EQUAL WILL BE ACCEPTED UNLESS INDICATED OTHERWISE. NOTE: THE TERM 'APPROVED EQUAL' SHALL MEAN A PRODUCT/ITEM THAT HAS BEEN SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO SUBMITTING A BID AND THE CONTRACTOR HAS RECEIVED WRITTEN NOTIFICATION THAT THE SUBSTITUTED PRODUCT WILL BE CONSIDERED AN EQUIVALENT ALTERNATE TO THE SPECIFIED PRODUCT/ITEM.

10. THE CONTRACTOR RESPONSIBLE FOR WORK COVERED BY THESE SPECIFICATIONS SHALL COORDINATE AND COOPERATE WITH ALL OTHER TRADES.

11. SHOP DRAWINGS SHALL BE SUBMITTED AND REVIEWED BY THE OWNER'S REPRESENTATIVE BEFORE ORDERING EQUIPMENT.

12. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY HANGERS, INSERTS, SUPPORTS SUPPLEMENTARY STEEL, ETC., TO PROPERLY SUPPORT ALL EQUIPMENT, DUCTWORK AND PIPING IN AN APPROVED MANNER AND IN FULL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

13. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THIS CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES.

14. ELECTRIC WALL HEATER (EWH-1 & 2) SHALL BE AS MANUFACTURED BY INDEECO OR APPROVED EQUAL. HEATER SHALL BE HEAVY DUTY TYPE EQUIPPED WITH BUILD IN TAMPER RESISTANT THERMOSTAT, INTEGRAL DISCONNECT, AND SEMI RECESSED WALL SLEEVE KIT. COLOR OF GRILLE SHALL BE AS SELECTED BY THE OWNER'S REPRESENTATIVE. CONTRACTOR TO ADJUST INTEGRAL THERMOSTAT.

15. THE EQUIPMENT AND MATERIALS SHALL BE COMPLETELY CLEANED PRIOR TO TESTING, INSULATING AND PLACING THE SYSTEM IN OPERATION.

16. TEST, BALANCE & ADJUST FLOWS IN THE EXHAUST AIR DUCT SYSTEMS. SYSTEMS SHALL BE PROPERLY BALANCED TO DELIVER AIR VOLUMES WITHIN PLUS/-10% OF THE VALUES INDICATED.

16.1.1 THE TESTING AND BALANCING CONTRACTOR SHALL BE NEBB OR AABC CERTIFIED.

16.1.2 ALL TEST EQUIPMENT SHALL BE FURNISHED BY THE BALANCING CONTRACTOR AND WILL REMAIN HIS PROPERTY. ALL INSTRUMENTS WILL HAVE BEEN CALIBRATED RECENTLY AND VERIFICATION OF CALIBRATION PROVIDED WITH SUBMITTAL DATA.

16.1.3 TESTING AND BALANCING SHALL NOT BEGIN UNTIL THE SYSTEM HAS BEEN COMPLETED AND IS IN FULL WORKING ORDER. THE CONTRACTOR SHALL PUT ALL HEATING, VENTILATING AND AIR-CONDITIONING SYSTEMS AND EQUIPMENT INTO FULL OPERATION. THE CORRECT OPERATION OF EQUIPMENT AND SYSTEM COMPONENTS AND CLEANLINESS OF PIPING AND DUCTWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

16.1.4 THE CONTRACTOR SHALL MAKE ANY CHANGES REQUIRED FOR CORRECT BALANCE, AS RECOMMENDED BY THE BALANCING CONTRACTOR. AT NO ADDITIONAL COST TO THE OWNER. SUCH CHANGES MAY ENCOMPASS BUT ARE NOT LIMITED OR RESTRICTED TO PULLEYS, BELTS, DUCTWORK, DAMPERS OR THE ADDITION OF DAMPERS AND ACCESS DOORS.

16.1.5 SUBMIT 3 COPIES OF THE BALANCING REPORTS AT COMPLETION OF THE BALANCING.

17. EQUIPMENT STARTUP:

17.1 PROVIDE EQUIPMENT STARTUP REPORT, INCLUDING CHECKLIST CONFIRMING MANUFACTURERS STARTUP PROCEDURE HAS BEEN FOLLOWED IN ITS ENTIRETY.

18. COMPLETION

18.1 UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE ALL HIS EXCESS MATERIALS, MACHINERY AND EQUIPMENT FROM THE PREMISES AND REPLACE ALL FILTERS.

18.2 THE CONTRACTOR SHALL FURNISH THREE SETS OF INSTRUCTION MANUALS TO THE OWNER AT THE COMPLETION OF CONSTRUCTION.

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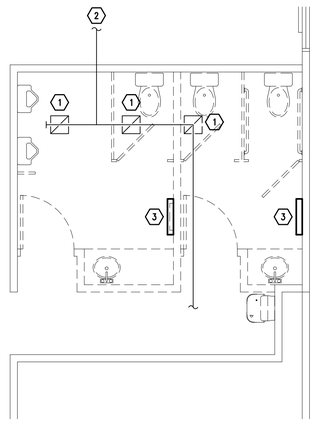
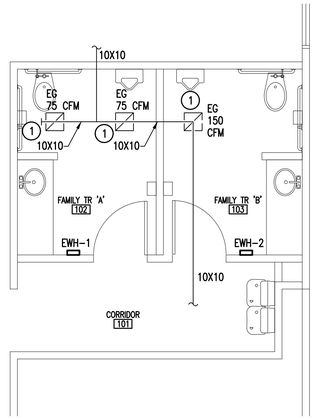


MECHANICAL – DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



MECHANICAL – NEW WORK PLAN
SCALE: 1/4" = 1'-0"

ELECTRIC WALL HEATER SCHEDULE							
REF NO	MANUFACTURER/ MODEL NO	CFM	CAPACITY (WATTS)	CFM	ELECTRICAL CHARACTERISTICS		
					VOLTS	PHASE	HERTZ
EWH-1	INDEECO / WLI	80	938	80	208	1	60
EWH-2	INDEECO / WLI	80	938	80	208	1	60
NOTES: 1. PROVIDE WITH FACTORY INSTALLED DISCONNECT AND TAMPER PROOF THERMOSTAT.							

DUCTWORK AND ACCESSORIES

- WORK BY THIS CONTRACTOR
- EXISTING WORK OR WORK DONE BY OTHERS
- EXHAUST OR RETURN DUCTWORK
- GRILLE OR REGISTER
- (#) REFER TO INDICATED DEMOLITION NOTE
- (#) NEW WORK NOTE

ABBREVIATIONS

CFM	CUBIC FEET PER MINUTE
CLG	CEILING
DN	DOWN
EC	ELECTRICAL CONTRACTOR
EG	EXISTING GRILLE
EXG	EXISTING
EWH	ELECTRIC WALL HEATER
KW	KILOWATT
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MIN	MINIMUM
TYP	TYPICAL
W/	WITH

MECHANICAL GENERAL NOTES:

1. ALL MECHANICAL WORK SHALL BE DONE IN ACCORDANCE WITH ALL STATE AND LOCAL LAWS AND ORDINANCES AND IN A MANNER SATISFACTORY TO THE OWNER AND AUTHORITY HAVING JURISDICTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL APPLICABLE FEES. COMPLY WITH LATEST EDITIONS OF THE IBC-2015, INTERNATIONAL MECHANICAL CODE, AND IECC-2015 ENERGY CODE.
2. FIELD VERIFY EXISTING CONDITIONS AND COORDINATE ALL WORK, THE SITE SURVEY WAS PERFORMED BY VISUAL EVALUATION OF EXISTING EQUIPMENT.
3. MECHANICAL CONTRACTOR SHALL VERIFY THAT ALL EXISTING HVAC EQUIPMENT, EXHAUST FAN, SERVING THIS SPACE IS OPERATIONAL AND PERFORM TO MANUFACTURER SPECIFICATIONS. IF ANY OF THE MENTIONED EQUIPMENT HAS FAILED, COORDINATE WITH OWNER.
4. ALL MATERIALS NOT REUSED OR CLAIMED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED PROMPTLY FROM THE PREMISES BY THE CONTRACTOR.

MECHANICAL DEMOLITION NOTES:

(1) CLEAN ALL EXISTING GRILLES BACK TO NEW FINISH.

(2) PROVIDE PRE-AUDIT OF EXISTING EXHAUST FAN SYSTEM PRIOR TO START OF ANY DEMOLITION. PREPARE AND SUBMIT AN AIR FLOW BALANCE LISTING AIR FLOW, MODEL NUMBERS, SERIAL NUMBER, AND FAN TAP SETTING. VERIFY SYSTEM IS FUNCTIONING PROPERLY. IN ADDITION TO BALANCING THE TOTAL SYSTEM AIR FLOW, BALANCE THE THREE EXISTING GRILLES AND TRAVERSE DUCT SYSTEM UPSTREAM AND DOWNSTREAM OF THE TOILET ROOMS.

(3) DISCONNECT AND REMOVE EXISTING ELECTRIC WALL HEATER AND ALL ASSOCIATED ACCESSORIES.

NEW WORK NOTES:

(1) BALANCE EXHAUST FOR NOTED AIR FLOW AND MAINTAIN UPSTREAM AND DOWN STREAM AIR FLOWS PER THE PRE-AUDIT.

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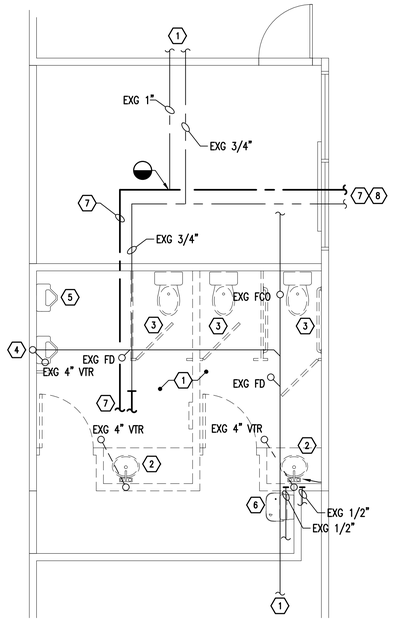
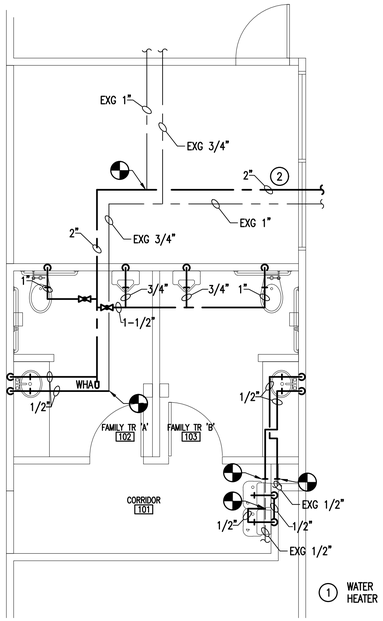
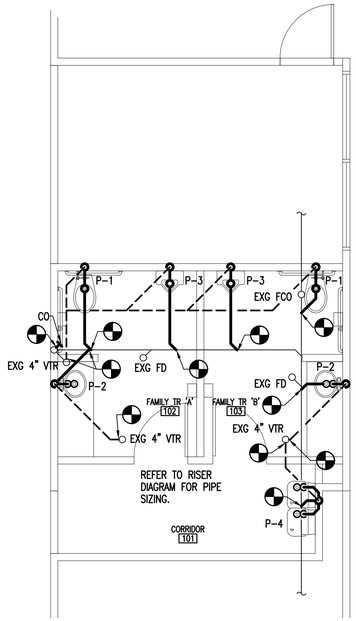


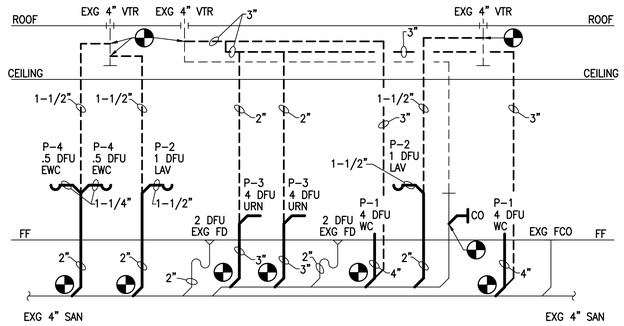
PLUMBING – DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



PLUMBING – DOMESTIC WATER PLAN
SCALE: 1/4" = 1'-0"



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



SANITARY RISER DIAGRAM
SCALE: N.T.S.

NOTES:

1. ALL SANITARY PIPING LESS THAN 3"ø SHALL BE SLOPED AT 1/4"/1'-0". ALL SANITARY PIPING 3"ø OR LARGER SHALL BE SLOPED AT 1/8"/1'-0" (IN ACCORDANCE WITH THE PLUMBING CODE AND ALL LOCAL REQUIREMENTS).
2. ALL SANITARY PIPING LOCATED BELOW THE FLOOR SLAB SHALL BE NO LESS THAN 2"ø.
3. ALL VENT THROUGH ROOF PENETRATIONS (VTR'S) SHALL BE LOCATED NO LESS THEN 10'-0" FROM ALL EXISTING OR NEW OUTSIDE AIR INTAKES. COORDINATE WITH MECHANICAL CONTRACTOR IN THE FIELD.

PLUMBING DEMOLITION NOTES:

1. FIELD VERIFY EXACT SIZE, LOCATION, CONDITION, PRESSURE, AND DIRECTION OF FLOW FOR ALL SANITARY, VTRS, WATER HEATER, AND DOMESTIC WATER SERVICES PRIOR TO ANY NEW WORK.
2. DISCONNECT AND REMOVE EXISTING LAVATORY SINK. REMOVE EXISTING SANITARY, VENT, HOT AND COLD WATER PIPING BACK TO BELOW FLOOR OR ABOVE CEILING.
3. DISCONNECT AND REMOVE EXISTING WATER CLOSET. REMOVE EXISTING SANITARY, VENT, COLD WATER PIPING BACK TO BELOW FLOOR OR ABOVE CEILING.
4. DISCONNECT AND REMOVE EXISTING URINAL. REMOVE EXISTING SANITARY, VENT, AND COLD WATER PIPING BACK TO BELOW FLOOR OR ABOVE CEILING. RETAIN EXISTING VENT STACK BEHIND EXISTING URINAL.
5. DISCONNECT AND REMOVE EXISTING URINAL. REMOVE EXISTING SANITARY, VENT, AND COLD WATER PIPING BACK TO BELOW FLOOR OR ABOVE CEILING.
6. DISCONNECT AND REMOVE EXISTING WATER COOLER. REMOVE EXISTING SANITARY, VENT, AND COLD WATER PIPING BACK TO BELOW FLOOR OR ABOVE CEILING.
7. REMOVE COLD WATER PIPING BACK TO WATER METER. RETAIN EXISTING PIPING TO EXISTING EMPLOYEES TOILET ROOM AND BREAK ROOM FOR RECONNECTION. RETAIN EXISTING HOT WATER PIPING AND WATER HEATER.
8. DISCONNECT DOMESTIC WATER SUPPLY PIPING TO EXISTING WATER HEATER AND RETAIN FOR RECONNECTION TO NEW LARGER DOMESTIC WATER SUPPLY.

NEW WORK NOTES:

1. VERIFY LOCATION OF EXISTING WATER HEATER (ESTIMATED TO BE APPROX 25' FROM AREA OF RENOVATION. CONNECT EXISTING DOMESTIC WATER SUPPLY PIPING SERVING WATER HEATER TO NEW LARGER DOMESTIC WATER MAIN.
2. ROUTE NEW COLD WATER MAIN IN THE SAME PATH AS THE DEMOLITIONED DOMESTIC WATER MAIN. NEW DOMESTIC WATER MAIN OFF THE WATER METER SHALL BE 2".

PLUMBING GENERAL NOTES:

1. ALL PLUMBING WORK SHALL CONFORM TO THE LATEST PLUMBING CODE AND BUCKS COUNTY, PA REQUIREMENTS AND SUBSEQUENT AMENDMENTS THERETO.
2. DRAWINGS ARE DIAGRAMMATIC. COORDINATE ALL EQUIPMENT LOCATIONS AND PIPE ROUTING WITH OTHER TRADES AND ARCHITECTURAL DETAILS PRIOR TO INSTALLATION. VERIFY MOUNTING HEIGHTS, TRIM LOCATIONS, ETC. FOR ALL PLUMBING FIXTURES WITH THE ARCHITECT PRIOR TO INSTALLATION. IF ANY QUESTIONS ON THE MOUNTING HEIGHTS, ETC., SHOWN ON THE DRAWINGS, CONTACT THE ARCHITECT.

PIPING AND ACCESSORIES

	WORK BY THIS CONTRACTOR
	EXISTING WORK OR WORK DONE BY OTHERS
	SANITARY PIPING (SAN)
	SANITARY VENT PIPING (SV)
	COLD WATER PIPING (CW)
	HOT WATER PIPING (HW)
	PIPE TURNING UP
	PIPE TURNING DOWN
	BALL VALVE
	WATER HAMMER ARRESTOR (WHA)
	CONNECT TO EXISTING
#	NEW WORK NOTE
#	REFER TO INDICATED DEMOLITION NOTE
	EXTENT OF DEMOLITION

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
CO	CLEANOUT
CW	COLD WATER
DN	DOWN
DWG	DRAWING
E.C.	ELECTRICAL CONTRACTOR
EWC	ELECTRIC WATER COOLER
EXG	EXISTING
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
GPM	GALLONS PER MINUTE
HW	HOT WATER
LAV	LAVATORY
P–	FIXTURE REFERENCE NUMBER
P.C.	PLUMBING CONTRACTOR
SAN	SANITARY
TYP	TYPICAL
URI	URINAL
VTR	VENT THRU ROOF
W/	WITH
WC	WATER CLOSET
WHA	WATER HAMMER ARRESTOR

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE	MANUFACTURER	MODEL NO.	GPF/GPM	CW	HW	SANITARY	TRAP	VENT	FINISH	COMMENTS
P-1	WATER CLOSET	AMERICAN STANDARD	3043.001	1.6 GPF	1	-	4	-	2	WHITE	FLOOR MOUNTED, SLOAN MODEL CROWN 111 SFSM FLUSH VALVE1.28 GPF; ELONGATED BOWL; 12" ROUGH-IN; ADA ACCESSIBLE
	COMMERCIAL TOILET SEAT	AMERICAN STANDARD	5901.110	-	-	-	-	-	-	WHITE	ELONGATED OPEN FRONT FOR ADA ACCESSIBLILITY
P-2	LAVATORY	CORIAN	8254	-	-	-	2	1.5	1.5	CREMA	PROVIDE A 17-GUAGE CHROME-PLATED TRAP ASSEMBLY; CHROME-PLATED SUPPLIES, ANGLE STOPS AND ESCUTCHEONS; PROVIDE ADA COVERS FOR ALL PIPING EXPOSED BEOW THE FIXTURE, TRUEBRO HANDI-LAV-GUARD OR EQUAL. NOTE 1
	LAV FAUCET	SLOAN	EBF-650-8-BAT	.5 GPM	-	-	-	-	-	POLISHED CHROME	OPTIMA BATTERY POWERED DECK MOUNTED FAUCET. BELOW DECK THERMOSTATIC MIXING VALVE ASSE 1070; ADA COMPLIANT; PROVIDE WITH CHROME-PLATED GRID STRAINER DRAIN. NOTE 2
P-3	URINAL	AMERICAN STANDARD WASHBROOK	6590.501	.5 GPF	0.75	-	3	-	2	WHITE	WALL HUNG, SLOAN MODEL CROWN 186 SFSM-0.5 FLUSH VALVE; 0.5 GPF SINGLE FLUSH, BATTERY, EXPOSED SENSOR FLUSHOMETER
P-4	ELECTRIC WATER COOLER	HALSEY TAYLOR	HTHB-HACG8BLSS-WF	-	0.5	-	1.25	1.25	1.5	-	WALL MOUNT, TWO-LEVEL, ADA ACCESSIBLE, FRONT PUSH BAR, 8.0GAL/HOUR AT 50 DEGREES WITH INLET OF 80 DEGREES

NOTE
1. WITH ADA COMPLIANT FIXTURE WRAPS, COVERS, INSULATION, AND ALL OTHER ITEMS REQUIRED BY CODE - TRUEBRO-HANDI-LAV-GUARD OR EQUAL.
2. INSULATION TO COVER HOT WATER, TRAP, AND DRAIN PIPING.

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PLUMBING SPECIFICATIONS

1. THE ARCHITECTURAL GENERAL CONDITIONS SHALL APPLY TO AND FORM A PART OF THIS SPECIFICATION.

2. PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND SUPERVISION AND PERFORM ALL OPERATIONS NECESSARY FOR THE PROPER AND COMPLETE EXECUTION OF ALL PLUMBING WORK IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS.

3. THE INSTALLATION OF ALL PLUMBING WORK SHALL BE UNDER THE SUPERVISION OF AND BY A LICENSED AND QUALIFIED PLUMBING CONTRACTOR. ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, OSHA, THE 2015 PA UNIFORM CONSTRUCTION CODE (PA-UCC), THE 2015 INTERNATIONAL BUILDING CODE (IBC), THE 2015 INTERNATIONAL PLUMBING CODE (IPC) AND ALL OTHER STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN THE LOCATION OF THIS PROJECT. ALL APPLICABLE EQUIPMENT MANUFACTURER INSTALLATION REQUIREMENTS AND RECOMMENDATIONS SHALL APPLY TO THIS PROJECT AND SHALL BE ENFORCED AS A PART OF THE CODE REQUIREMENTS.

4. THE CONTRACTOR SHALL VISIT THE SITE, EXAMINE ALL CONDITIONS AND MAKE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES AFFECTING THE PROPER EXECUTION OF THIS CONTRACT.

5. THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES NECESSARY FOR PERMITS AND INSPECTIONS REQUIRED WITH HIS WORK.

6. THE CONTRACTOR SHALL VERIFY ALL UTILITY SERVICE INFORMATION SHOWN ON THE DRAWINGS WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING A BID. ANY CHANGES OR SERVICE CHARGES IMPOSED BY THE UTILITY COMPANY SHALL BE QUALIFIED AND INCLUDED IN THE BID.

7. SUBMISSION OF A BID OR PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTORS HAVE FAMILIARIZED THEMSELVES WITH THE PLANS, SPECIFICATIONS AND BUILDING SITE. CLAIMS MADE SUBSEQUENT TO BIDS FOR MATERIAL AND/OR LABOR DUE TO DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED, UNLESS IT IS DETERMINED BY THE OWNER'S REPRESENTATIVE THAT SUCH DIFFICULTIES COULD NOT HAVE BEEN FORESEEN EVEN THOUGH PROPER EXAMINATION HAD BEEN MADE.

8. ALL EQUIPMENT SHALL BE TESTED, LISTED AND LABELED BY AN APPROVED AUTHORITY (UL, ETL) AND SHALL BE INSTALLED IN ACCORDANCE WITH ITS LISTING.

9. ALL EQUIPMENT, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

10. WHERE PRODUCTS ARE SPECIFIED BY BRAND NAME, CATALOG NUMBERS OR BY NAMES OF MANUFACTURERS, THE REFERENCE IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE, AND IS SOLELY FOR THE PURPOSE OF INDICATING THE TYPE OF QUALITY OF ITEM THAT WILL BE ACCEPTABLE. AN APPROVED EQUAL WILL BE ACCEPTED UNLESS INDICATED OTHERWISE. NOTE: THE TERM 'APPROVED EQUAL' SHALL MEAN A PRODUCT/ITEM THAT HAS BEEN SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO SUBMITTING A BID AND THE CONTRACTOR HAS RECEIVED WRITTEN NOTIFICATION THAT THE SUBSTITUTED PRODUCT WILL BE CONSIDERED AN EQUIVALENT ALTERNATE TO THE SPECIFIED PRODUCT/ITEM.

11. THE CONTRACTOR RESPONSIBLE FOR WORK COVERED BY THESE SPECIFICATIONS SHALL COORDINATE AND COOPERATE WITH ALL OTHER TRADES. TRADES THAT HAVE WORK CONNECTED WITH THE PLUMBING WORK SHALL BE NOTIFIED FOR INSTALLATION REQUIREMENTS AND SCHEDULING. THE CONTRACTOR SHALL SCHEDULE HIS WORK TO AVOID INTERRUPTION OF ANY UTILITY SERVICES TO THE OPERATION AREAS OF THE BUILDING DURING NORMAL WORKING HOURS. INTERRUPTION OF SERVICES SHALL BE DONE DURING OFF HOURS AT NO ADDITIONAL COST TO THE OWNER.

12. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THIS CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES. ALL WORK SHALL BE COORDINATED TO AVOID CUTTING OF WORK IN PLACE AND INTERFERING WITH OTHER OPERATIONS.

12.1 ALL EXCAVATIONS REQUIRED FOR INSTALLATION OF PIPE SHALL HAVE SOLID, UNDISTURBED BOTTOMS, AND SHALL BE SUBJECT TO APPROVAL BY THE OWNER'S REPRESENTATIVE AS WELL AS THE LOCAL PLUMBING INSPECTOR PRIOR TO PIPING PLACEMENT. SHOULD ANY PIPE TRENCH BOTTOMS BECOME SOFT OR WET BEFORE PIPING IS PLACED, ALL SUCH UNSUITABLE BOTTOMS SHALL BE REMOVED AT NO COST TO THE OWNER AND FILLED WITH CONCRETE AND PROPER PIPE BEDDING MATERIALS SAND, SCREENINGS, ETC.) SHALL BE USED.

13. BACKFILL ALL EXCAVATIONS PERFORMED UNDER THIS CONTRACT AND COMPACT AS REQUIRED TO SATISFY FINISHED GRADE REQUIREMENTS.

14. THE CONTRACTOR SHALL PERFORM ALL DEMOLITION AS INDICATED ON THE DRAWINGS AND AS REQUIRED FOR THE INSTALLATION OF ALL NEW WORK. THE CONTRACTOR SHALL CUT AND PATCH AS REQUIRED TO PERFORM THE DEMOLITION WORK. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THIS CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES. ALL WORK SHALL BE COORDINATED TO AVOID CUTTING OF WORK IN PLACE AND INTERFERING WITH OTHER OPERATIONS.

14.1 ALL UNUSED OPENINGS (NEW OR EXISTING) MUST BE REPAIRED TO MATCH ADJACENT FINISHES. THE OWNER SHALL BE GIVEN THE OPPORTUNITY TO RETAIN OWNERSHIP OF ALL REMOVED MATERIALS AND EQUIPMENT.

15. FURNISH AND INSTALL ALL NECESSARY HANGERS, INSERTS, SUPPORTS SUPPLEMENTARY STEEL, ETC., TO PROPERLY SUPPORT ALL EQUIPMENT AND PIPING IN AN APPROVED MANNER AND IN FULL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. HANGERS FOR SUPPORTING COPPER TUBING SHALL BE COPPERIZED.

16. ALL HOT AND COLD WATER PIPING WITHIN THE BUILDING SHALL BE HARD DRAWN TYPE "L" COPPER TUBING IN ACCORDANCE WITH ASTM-B88. FITTINGS SHALL BE WROUGHT COPPER OR CAST BRASS. VALVES SHALL BE CAST BRASS UNLESS NOTED OTHERWISE. HANGERS FOR SUPPORTING COPPER TUBING SHALL BE COPPERIZED. FITTINGS SHALL BE WROUGHT COPPER. ALL JOINTS SHALL BE MADE WITH SOLDER AND FLUX HAVING A LEAD CONTENT OF NOT MORE THAN 0.2 PERCENT.

17. SANITARY AND VENT PIPING – ALL SANITARY AND VENT PIPING UNLESS NOTED OTHERWISE SHALL BE NO-HUB SERVICE WEIGHT CAST IRON IN ACCORDANCE WITH ASTM A74; JOINT SYSTEM SHALL CONFORM TO THE CAST IRON SOIL PIPE INSTITUTE STANDARDS 301-78. ASTM A888-98 COUPLINGS SHALL BE 24 GAUGE, TYPE 304 STAINLESS STEEL HIGH TORQUE CLAMPS WITH DUAL CLAMPING SYSTEM AND NEOPRENE SEALING SLEEVES/GASKETS. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. SANITARY AND VENT PIPING LOCATED BELOW THE FLOOR SHALL BE SERVICE WEIGHT CAST IRON WITH HUB AND SPIGOT ENDS. JOINTS SHALL BE CONNECTED WITH NEOPRENE PUSH-ON COMPRESSION GASKETS, INSTALL IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

17.1 WHERE SANITARY AND VENT PIPING PENETRATES FIRE-RATED ASSEMBLIES PROPER UL LISTED FIRE-STOPPING MATERIALS AND METHODS SHALL BE USED.

18. SANITARY AND VENT PIPING – WHERE PERMITTED BY THE LOCAL AUTHORITY: ALL SANITARY AND VENT PIPING MAY BE SCHEDULE 40 PVC, ASTM D2665, D2949, WITH PVC FITTINGS (DWV TYPE) AND SOLVENT WELD JOINTS. PVC PIPING SHALL NOT BE USED IN RETURN AIR PLENUM TYPE CEILINGS OR IN FIRE-RATED CEILING ASSEMBLIES (CONTRACTOR TO VERIFY THESE AREAS WITH ARCHITECT). NOTE: PVC PIPING SHALL NOT BE USED WITHOUT AUTHORIZATION FROM THE LOCAL AUTHORITY HAVING JURISDICTION.

18.1 WHERE SANITARY AND VENT PIPING PENETRATES FIRE-RATED ASSEMBLIES PROPER UL LISTED FIRE-STOPPING MATERIALS AND METHODS SHALL BE USED.

19. WHERE PIPING PASSES THROUGH FIRE RESISTING PORTIONS OF THE STRUCTURE, AN APPROVED FIRE--STOPPING DEVICE SHALL BE INSTALLED TO MAINTAIN THE FIRE RATING OF THAT PORTION OF THE STRUCTURE. THIS CONTRACTOR SHALL ENGAGE THE SERVICES OF A FIRE PROTECTION CONTRACTOR TO REVIEW THE DRAWINGS AND INSTALL FIRE PROTECTION PRODUCTS TO MAINTAIN THE INTEGRITY OF ALL PIPE, WIRE, CONDUIT, ETC. PENETRATIONS THROUGH ANY AND ALL FIRE RATED WALLS, FLOORS, BARRIERS, AND ASSEMBLIES. ALL FIRE STOPPING DEVICES USED SHALL BE LISTED INTUMESCENT MATERIALS SUCH AS A CAULK, SEALANT, PUTTY, WRAP STRIPS, ETC. AS REQUIRED TO PROPERLY FIRE STOP ALL VOIDS. FIRE STOP TRAINING AND PRODUCTS SHALL BE 3M, HILTI, PRO-SET SYSTEMS OR EQUAL.

20. ALL SHUTOFF VALVES SHALL BE STANDARD FULL PORT BALL VALVES. ALL BALL, GATE, GLOBE AND CHECK VALVES SHALL BE BRONZE AND CERTIFIED FOR USE IN POTABLE WATER SYSTEMS (WHERE APPLICABLE), SWEATED PATTERN SUITABLE FOR 125 PSI WORKING PRESSURE. ALL VALVES AND PIPING EXPOSED TO VIEW SHALL BE CHROME PLATED. ALL PIPING THAT PENETRATES WALLS WHERE IT IS EXPOSED TO VIEW SHALL HAVE CHROME-PLATED ESCUTCHEONS.

20.1 WATER HAMMER ARRESTORS SHALL BE ZURN, MODEL NO. Z-1700 OR EQUAL AND SHALL BE INSTALLED WHERE INDICATED ON THE DRAWINGS. SIZE SHALL BE BASED ON PDI STANDARD WH-201; ANSI A112.26; ASSE 1010.

21. INSULATION

21.1 ALL COLD WATER, HOT WATER, VALVES AND STRAINERS SHALL BE INSULATED WITH MATERIALS HAVING A K-FACTOR OF 0.27 AT 75 DEGREES F. MEAN TEMPERATURE, A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS. INSULATION SHALL HAVE AN ALL SERVICE JACKET, SEALED JOINTS, FITTING COVERS AND SHALL BE AS MANUFACTURED BY CERTAINTEED, KNAUF, JOHNS MANSVILE, OWENS CORNING OR APPROVED EQUAL.

21.2 INSULATION THICKNESSES SHALL BE AS FOLLOWS:

COLD WATER RUNOUT PIPING UP TO 2" = 1/2" THICK.
COLD WATER MAINS UP TO AND INCLUDING 1-1/4" = 1/2" THICK.
COLD WATER MAINS 1-1/2" AND LARGER = 1" THICK.

HOT WATER PIPING:
- PIPING 1/2" TO 1-1/4" = 1" THICK

22. CLEANOUT FITTINGS SHALL BE INSTALLED WHERE INDICATED AND AS REQUIRED. CLEANOUT SHALL BE MADE BY MEANS OF LONG SWEEP ELL OR Y FITTINGS AND BEND. CLEANOUT SHALL BE THE SAME SIZE PIPING UP TO AND INCLUDING 4 INCH SIZE. CLEANOUT SHALL BE PROVIDED IN HORIZONTAL RUNS AT NOT OVER 50 FOOT INTERVALS, CLEANOUTS AND FLOORS FOR CONCEALED PIPING SHALL BE ADJUSTABLE COATED CAST-IRON BODY, TAPERED THREADED BRONZE PLUG, HEAVY-DUTY NICKEL ALLOY DECK TYPE, SCARIATED COVER WITH VANDAL PROOF SCREWS. CLEANOUTS IN WALLS FOR CONCEALED PIPING SHALL BE CAST IRON T BRANCH CLEANOUT WITH BRONZE RAISED HEAD PLUG, LEAD SEAL AND VANDAL PROOF POLISHED STAINLESS STEEL ROUND ACCESS COVER.

23. FIXTURES AND FIXTURE TRIMMINGS SHALL BE FURNISHED AND INSTALLED AS SPECIFIED HEREIN WITH MODEL NUMBERS AS NOTED ON THE PLUMBING FIXTURE SCHEDULE.

23.1 FIXTURES SHALL BE COMPLETE WITH ALL NECESSARY WALL HANGERS AND SUPPORTS, SUPPLY VALVES, DRAINAGE FITTINGS AND ESCUTCHEONS.

A. WATER CLOSET FLUSH VALVE TYPE- SHALL BE ONE-PIECE TYPE WHITE VITREOUS CHINA, ELONGATED BOWL, FLOOR-MOUNTED TYPE, TWO BOLT CAPS, FLUSH VALVE: ANSI A112.18.1; EXPOSED CHROME PLATED, DIAPHRAGM TYPE WITH OSCILLATING HANDLE, ESCUTCHEON, INTEGRAL SCREWDRIVER STOP AND VACUUM BREAKER. WITH OPEN FRONT PLASTIC SEAT. FOR ADA FIXTURES: INSTALL IN ACCORDANCE WITH ADA REQUIREMENTS. VALVE HANDLE WIDE SIDE.

B. LAVATORY UNDERMOUNT – BASIN: ANSI A112.19.1; WHITE VITREOUS CHINA UNDERMOUNT LAVATORY, OVAL BASIN WITH FRONT OVERFLOW. TRIM: ANSI A112.18.1; CHROME PLATED SUPPLY FITTING WITH 0.5 GPM AERATOR, AND CHROME-PLATED GRID STRAINER. PROVIDE A 17-GAUGE CHROME PLATED TRAP AND WASTE PIPING WITH ESCUTCHEON. PROVIDE CHROME PLATED HOT AND COLD WATER SUPPLIES, STOP VALVES AND ESCUTCHEONS. INSULATE TRAP, WASTE PIPING AND WATER SUPPLIES BELOW FIXTURE WITH TRUBRO "HANDI-LAV-GUARD" (OR APPROVED EQUAL) IN ACCORDANCE WITH ADA REQUIREMENTS.

C. URINAL – ANSI A112.19.2; VITREOUS CHINA, WALL HUNG URINAL WITH SHIELDS, INTEGRAL TRAP, REMOVABLE STAINLESS STEEL STRAINER, 3/4 INCH TOP SPUD, STEEL SUPPORTING HANGER. FLUSH VALVE: ANSI A112.18.1; EXPOSED CHROME PLATED, DIAPHRAGM TYPE WITH OSCILLATING HANDLE, ESCUTCHEON, INTEGRAL SCREWDRIVER STOP, VACUUM BREAKER. FIXTURE SUPPORT CARRIER: FIXTURE SUPPORT SHALL BE CONSTRUCTED OF CAST IRON AND/OR STEEL AND SHALL BE COMPLETELY CONCEALED BEHIND THE FINISHED WALL SURFACE. SUPPORT SHALL BE COMPLETE WITH A FACEPLATE AND FLOOR ANCHORS. FIXTURE LOADING SHALL NOT BE ON THE WALL.

D. ELECTRIC WATER COOLER: ARI 1010; SURFACE MOUNTED ELECTRIC WATER COOLER WITH STAINLESS STEEL TOP, VINYL ON STEEL BODY, ELEVATED ANTI-SQUIRT BUBBLER WITH STREAM GUARD, AUTOMATIC STREAM REGULATOR, MOUNTING BRACKET, REFRIGERATED WITH INTEGRAL AIR COOLED CONDENSER; CAPACITY OF EIGHT GALLONS/MIN. OF 50 DEGREES F WATER WITH INLET AT 80 DEGREES F AND ROOM TEMPERATURE OF 90 DEGREES F, 1/6 HP COMPRESSOR.

24. THERMOSTATIC MIXING VALVES

24.1 EACH LAVATORY SHALL BE INSTALLED WITH A MIXING VALVE TO LIMIT THE HOT WATER SUPPLY TO 105 DEGREE F SHALL BE THERMOSTATIC TYPE WITH ROUGH CHROME FINISH; HYDROGUARD® SERIES LFE480, 0.25 GPM ASSE 1070 LISTED MINIMUM FLOW AND CSA B125 CERTIFIED AS MANUFACTURED BY POWERS. INSTALL AND SET UP SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SET MIXING VALVE TO SUPPLY DOMESTIC HOT WATER A 105 DEGREES F.

25. GENERAL PIPE INSTALLATION – IN GENERAL, INSTALL PIPING SO AS TO PRESERVE ACCESS TO ALL VALVES, TRAPS, EQUIPMENT, ETC. ALL PIPING, VALVES AND FITTINGS ETC. SHALL BE KEPT A SUFFICIENT DISTANCE FROM OTHER WORK TO PERMIT A CLEARANCE OF NOT LESS THAN 1 INCH BETWEEN THE FINISHED COVERING ON SUCH PIPING AND THE ADJACENT WORK, WHETHER INSTALLED UNDER THIS OR OTHER TRADES. ALL PIPING SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS, CEILINGS COLUMNS (CONSISTENT WITH PROPER SPACE FOR COVERING, REMOVAL PIPE, ETC. SO AS TO OCCUPY THE MINIMUM OF SPACE). HORIZONTAL RUNS A PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE TO MAINTAIN THE REQUIRED PITCH AND GRADE OF THE PIPELINES. HANGER RODS SHALL BE CONNECTED TO THE BEAM CLAMPS, INSERTS OR HANGER CLIPS WELDED TO THE STRUCTURAL STEEL. THE HANGING OF ONE PIPE FROM ANOTHER SHALL NOT BE PERMITTED. PROPER CARE SHALL BE EXERCISED IN THE ERECTION OF ALL PIPING TO ENSURE PROPER DRAINAGE AND CIRCULATION, INCLUDING PROPER PROVISIONS FOR EXPANSION AND CONTRACTION OF PIPING. POCKETS OR TRAPS WHERE IN AIR CAN COLLECT SHALL NOT BE PERMITTED. ALL PIPING SHALL BE REAMED TO REMOVE CUTTING BURS AND SHARP EDGES. ALL COPPER TUBING SHALL BE CUT WITH SQUARE ENDS AND ALL BURS AND FINS REMOVED. TUBING SHALL BE CAREFULLY HANDLED AND PROTECTED TO AVOID DAMAGE. REDUCING FITTING SHALL BE USED WHEREVER POSSIBLE. THE USE OF BUSHINGS SHALL BE PROHIBITED. ECCENTRIC REDUCERS SHALL BE USED. THREADS FOR SCREW FITTINGS SHALL BE AMERICAN STANDARD TAPER PIPE THREADS. ALL OPEN ENDS OF PIPING SHALL BE TEMPORARILY COVERED DURING INSTALLATION TO KEEP THE SYSTEM CLEAN. LOCATE ALL WATER PIPING WITHIN HEATED SPACES WITH PROVISIONS FOR DRAINING ALL LINES. ALL PIPING THAT IS INSTALLED WITHIN A FIRE-RATED ASSEMBLY (WALLS, CEILINGS, ETC) SHALL BE CAST IRON (SANITARY AND VENT), COPPER (DOMESTIC WATER); PLASTIC PIPING SHALL NOT BE PERMITTED. ALL PIPING THAT PENETRATES FIRE-RATED ASSEMBLIES SHALL BE PROPERLY FIRE-STOPPED WITH A UL LISTED METHOD AN MATERIAL(S).

26. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. RECORD ON THESE PRINTS, ALL DEVIATIONS FROM THE CONTRACT DRAWINGS, INCLUDING BUT NOT LIMITED TO, PIPE ROUTING, SYSTEM CONNECTION POINTS, PIPE SIZES AND EQUIPMENT LOCATION CHANGES. AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL TRANSFER THIS INFORMATION NEATLY ONTO 3 SETS OF PRINTS AND FORWARD THESE PRINTS AND THE 'AS BUILT PRINTS' TO THE OWNER AND TENANT.

27. THE CONTRACTOR SHALL FURNISH THREE SETS OF INSTRUCTION MANUALS TO THE OWNER AT COMPLETION OF CONSTRUCTION.

28. STERILIZATION OF DOMESTIC WATER SYSTEM

28.1 BEFORE BEING PLACED IN SERVICE, ALL DOMESTIC WATER LINES SHALL BE CHLORINATED USING A METHOD THAT IS SATISFACTORY TO THE WATER AUTHORITY OR THE AUTHORITY HAVING JURISDICTION. IN THE ABSENCE OF A PRESCRIBED METHOD, THE PROCEDURE LISTED IN AWWA C651 OR AWWA C652 OR AS DESCRIBED BELOW SHALL BE USED.

28.2 PRIOR TO CHLORINATION, ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED BY A THOROUGH FLUSHING. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND LEAKAGE TEST.

28.3 A CHLORINE HYPOCHLORITE SOLUTION SHALL BE APPLIED BY MEANS OF A SOLUTION FEED DEVICE OR THE GAS SHALL BE FED DIRECTLY FROM A CHLORINE CYLINDER EQUIPPED WITH PROPER DEVICES FOR REGULATING THE RATE OF FLOW AND THE EFFECTIVE DIFFUSE OF GAS WITHIN THE PIPE.

28.4 WATER SHALL BE CONTROLLED TO FLOW SLOWLY INTO THE SYSTEM DURING THE APPLICATION OF CHLORINE IN SUCH PROPORTIONS THAT THE CHLORINE DOSE APPLIED TO THE WATER ENTERING THE PIPE SHALL BE AT LEAST 40 TO 50 PARTS PER MILLION.

28.5 TREATED WATER SHALL BE RETAINED IN THE SYSTEM LONG ENOUGH TO DESTROY ALL NON-SPORE FORMING BACTERIA. THIS PERIOD SHALL BE AT LEAST THREE HOURS. A LONGER CHLORINE CONTACT TIME MAY BE REQUESTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.

28.6 AFTER THE CHLORINE TREATED WATER HAS BEEN RETAINED FOR THE REQUIRED TIME, THE CHLORINE RESIDUAL AT THE PIPE EXTREMITIES AND AT OTHER REPRESENTATIVE POINTS SHALL BE AT LEAST FIVE PARTS PER MILLIONS.

28.7 FOLLOWING CHLORINATION, ALL TREATED WATER SHALL BE THOROUGHLY FLUSHED FROM THE SYSTEM AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER THROUGHOUT ITS LENGTH SHALL, UPON TEST, BE EQUAL TO THE WATER QUALITY SERVED FROM THE WATER SUPPLY SYSTEM.

28.8 SHOULD THE INITIAL TREATMENT IN THE OPINION OF THE OWNER'S REPRESENTATIVE PROVE INEFFECTIVE, THE CHLORINATION PROCEDURE SHALL BE REPEATED UNTIL CONFIRMED TESTS SHOW THAT WATER SAMPLED FROM THE SYSTEM CONFORMS TO THE REQUIREMENTS.

28.9 THE "START-UP" OF THE WATER HEATER SYSTEM SHALL BE CARRIED OUT BY THE CONTRACTOR.

28.10 IN ADDITION TO THE ABOVE WORK, THE CONTRACTOR SHALL CHECK THE OPERATION OF ALL WATER HEATER THERMOSTAT SETPOINTS AND OPERATIONS.

29. TEST OF DRAINAGE SYSTEM

29.1 ALL PLUMBING AND DRAINAGE PIPING SHALL BE TESTED BY PLUGGING ALL OPENINGS AND FILL SYSTEM WITH WATER TO THE TOP OF ALL VENT PIPES. THE WATER SHALL STAND FOR 30 MINUTES FOR INSPECTION. ALL TESTS MUST COMPLY WITH LOCAL AUTHORITY REQUIREMENTS.

30. TEST OF DOMESTIC WATER PIPING

30.1 ALL WATER LINES SHALL BE TESTED TO A HYDROSTATIC PRESSURE EQUAL TO 1-1/2 TIMES THE MAXIMUM OPERATING PRESSURE. THE SYSTEM SHALL BE LEAK-FREE FOR 24 HOURS AT THIS PRESSURE.

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RHJ ASSOCIATES, P.C.
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610 337 4555
www.rhjassoc.com

DATE: FEB 01, 2019

REVISIONS

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ELECTRICAL SPECIFICATIONS

1. THE ARCHITECTURAL GENERAL CONDITIONS SHALL APPLY TO AND FORM A PART OF THE ELECTRICAL SECTION OF THESE SPECIFICATIONS.

2. PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, AND TOOLS NECESSARY FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), LOCAL AND STATE CODES HAVING JURISDICTION, AND APPLICABLE MANUFACTURER'S RECOMMENDATIONS.

3. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROL DEVICES TOGETHER WITH CONTROL WIRING, CONDUIT, AND ALL APPURTENANCES AND ACCESSORIES NECESSARY TO PERFORM THE OPERATING FUNCTIONS AS SPECIFIED. CONTROL DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO, MOTOR STARTERS, THERMOSTATS, SWITCHING RELAYS, CONTROL RELAYS, AND TRANSFORMERS. WIRING MATERIALS AND INSTALLATION SHALL CONFORM TO THE NATIONAL ELECTRIC CODE. ALL CONTROL SYSTEM WIRING SHALL BE 14 AWG MINIMUM INSTALLED IN 1/2-INCH DIAMETER MINIMUM CONDUIT. FLEXIBLE METAL CONDUIT SHALL BE PERMITTED TO MAKE RUNS OF THREE FEET OR LESS FOR FINAL EQUIPMENT CONNECTIONS.

4. THE CONTRACTOR SHALL VISIT THE SITE, EXAMINE ALL CONDITIONS, AND MAKE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES AFFECTING THE PROPER EXECUTION OF THIS CONTRACT.

5. THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES NECESSARY FOR PERMITS AND INSPECTIONS REQUIRED WITH HIS WORK. ALL ELECTRICAL WORK SHALL BE INSPECTED AND CERTIFIED BY AN INDEPENDENT INSPECTION AGENCY SUCH AS THE MIDDLE DEPARTMENT INSPECTION AGENCY (MDIA).

6. VERIFY ALL ELECTRICAL SERVICE INFORMATION SHOWN ON THE DRAWINGS WITH THE LOCAL POWER COMPANY PRIOR TO SUBMITTING A BID. ANY CHANGES OR SERVICE CHARGES IMPOSED BY THE POWER COMPANY SHALL BE QUALIFIED AND INCLUDED IN THE BID.

7. ALL MATERIALS SHALL BE MANUFACTURED WITHIN THE SCOPE OF THE UNDERWRITER'S LABORATORIES, SHALL CONFORM TO UL STANDARDS, CARRY UL APPROVAL, AND SHALL BE USED FOR THE PURPOSE FOR WHICH THEY ARE APPROVED.

8. ALL EQUIPMENT, MATERIALS, AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

9. WHERE PRODUCTS ARE SPECIFIED BY BRAND NAME, CATALOG NUMBERS, OR BY NAMES OF MANUFACTURERS, THE REFERENCE IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE AND IS SOLELY FOR THE PURPOSE OF INDICATING THE TYPE OF QUALITY OF ITEM THAT WILL BE ACCEPTABLE. AN APPROVED EQUAL WILL BE ACCEPTED UNLESS INDICATED OTHERWISE.

10. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH ALL OTHER TRADES.

11. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THE CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES.

12. WHERE CONDUITS PASS THROUGH FIRE RESISTING PORTIONS OF THE STRUCTURE, AN APPROVED FIRE-STOPPING DEVICE SHALL BE INSTALLED TO MAINTAIN THE FIRE RATING OF THAT PORTION OF THE STRUCTURE. ALL FIRE STOPPING DEVICES USED SHALL BE LISTED INTUMESCENT MATERIALS SUCH AS A CAULK, SEALANT, PUTTY, WRAP STRIPS, ETC. AS REQUIRED TO PROPERLY FIRE STOP ALL VOIDS. FIRE STOPPING MATERIAL SHALL BE AS MANUFACTURED BY 3M, HILTI, PRO-SET SYSTEMS OR EQUAL.

13. CONDUIT SHALL BE 3/4-INCH MINIMUM, UNLESS NOTED OTHERWISE, AND SHALL BE IN ACCORDANCE WITH THE FOLLOWING TYPES OF USAGE:

13.1. EMT - USE FOR INTERIOR EXPOSED AND CONCEALED WORK NOT SUBJECT TO DAMPNESS OR SEVERE PHYSICAL DAMAGE. USE FOR EXTERIOR WORK NOT SUBJECT TO PHYSICAL DAMAGE. DO NOT USE WHEN IN CONTACT WITH CINDER FILL UNLESS PROTECTED BY AT LEAST TWO INCHES OF CONCRETE OR UNLESS TUBING IS AT LEAST 18 INCHES UNDER THE FILL. DO NOT USE EMT IN HAZARDOUS LOCATIONS. USE WITH COMPRESSION FITTINGS FOR EXTERIOR WORK. USE WITH SET SCREW FITTINGS FOR INTERIOR WORK.

13.2. ALL CONCEALED BRANCH CIRCUIT WIRING ABOVE GRADE IN NON-HAZARDOUS LOCATIONS MAY BE METAL CLAD CABLE, TYPE MC, MINIMUM SIZE #12 AWG, MAXIMUM SIZE #8 AWG, UNLESS NOTED OTHERWISE. UNIVERSAL TYPE FASTENING DEVICES SHALL BE USED TO PROPERLY SECURE THE MC CABLES PARALLEL TO THE WOOD OR METAL FRAMING MEMBER. DEVICE SHALL BE INSTALLED IN CENTER OF MEMBER ON INTERVALS NO GREATER THAN FOUR FEET SIX INCHES.

14. UNLESS OTHERWISE NOTED, ALL WIRE SHALL BE OF SOFT DRAWN COPPER, SOLID OR STRANDED OF 98 PERCENT CONDUCTIVITY WITH INSULATION RATED 600 VOLTS. ALL SIZES SHOWN ON THE DRAWINGS ARE BASED ON COPPER. ALUMINUM CONDUCTORS SHALL NOT BE PERMITTED. CONDUCTORS SHALL BE AS FOLLOWS:

14.1. #8 AND LARGER SHALL BE STRANDED WITH TYPE THHN/THWN INSULATION.

14.2. #10 AND SMALLER SHALL BE SOLID WITH TYPE THHN/THWN INSULATION.

14.3. #12 SHALL BE MINIMUM SIZE CONDUCTOR EXCEPT #14 MAY BE USED FOR CONTROL CIRCUIT WIRING AND #10 SHALL BE THE MINIMUM SIZE FOR CIRCUITS OVER 100 FEET LONG.

15. ANY EMPTY CONDUIT INSTALLED FOR FUTURE USE SHALL HAVE A 200 POUND TEST NYLON PULL LINE.

16. WIRE CONNECTIONS FOR SPLICING #8 AWG AND SMALLER SHALL BE MADE WITH PRESSURE CONNECTORS CONSISTING OF CONE-SHAPED COIL SPRINGS WITH INSULATED COVERS. SPLICING OF CONDUCTORS LARGER THAN #8 SHALL BE MADE USING MECHANICAL SPLICING OR COMPRESSION TYPE DEVICES.

17. OUTLET BOXES OF PROPER TYPE AND NOT LESS THAN FOUR INCHES SQUARE SHALL BE USED AT ALL LIGHTING, RECEPTACLE AND SWITCH LOCATIONS. PLASTER RINGS SHALL BE USED AT EACH BOX LOCATION WHERE NECESSARY. SURFACE MOUNTED WIRING DEVICES SHALL BE INSTALLED IN "HANDY BOX" TYPE OUTLET BOXES WITH CORRESPONDING COVER PLATES. OUTLET BOXES SHALL BE AS MANUFACTURED BY AMERICAN ELECTRIC, RACO, CARLON, OR APPROVED EQUAL.

18. JUNCTION BOXES OF AMPLE SIZE SHALL BE PROVIDED AS REQUIRED BY CONSTRUCTION IN ACCORDANCE WITH THE NEC. BOXES SHALL BE CONSTRUCTED OF CAST RUST-RESISTING METAL OR OF 14 GAUGE GALVANIZED STEEL WITH RIVETED OR WELDED JOINTS AND PROVIDED WITH COVERS OF THE SAME MATERIAL WHICH SHALL BE SCREWED OR HINGED TO THE BOX. BOXES SHALL BE FLANGED AND TAPPED TO RECEIVE MACHINE SCREWS. HOLES IN COVERS SHALL BE IN ALIGNMENT WITH TAPPED HOLES IN BOX. WHERE NO SIZES ARE GIVEN ON THE DRAWINGS, BOXES SHALL BE NO SMALLER THAN THE MINIMUM SIZE ALLOWED BY NEC. WHERE FEEDERS OF DIFFERENT SYSTEMS OR VOLTAGES PASS THROUGH THE SAME BOX, BARRIERS SHALL BE PROVIDED FOR PROPER SEPARATION.

19. OCCUPANCY SENSING SYSTEM

19.1. DECORATOR AUTOMATIC WALL SWITCH OCCUPANCY SENSORS SHALL MOUNT IN A STANDARD WALL BOX AND FIT BEHIND A STANDARD DECORATOR WALL PLATE. WALL SWITCHES SHALL DUAL TECHNOLOGY ULTRASONIC AND PASSIVE INFRARED TO DETECT OCCUPANCY. WALL SWITCHES SHALL PROVIDE 180 DEGREES DETECTION COVERAGE AND UP TO 900 SQUARE FEET OF WALKING MOTION AND 300 SQUARE FEET FOR DESKTOP ACTIVITY. WALL SWITCHES SHALL BE MANUALLY TURNED ON AND SHALL AUTOMATICALLY TURN OFF AFTER A PREDETERMINED PERIOD OF TIME AFTER OCCUPANCY IS NO LONGER DETECTED. WALL SWITCHES SHALL HAVE A BUILT-IN DIP SWITCHES TO ADJUST SENSITIVITY, TIME, ETC. WALL SWITCHES SHALL HAVE DIGITAL TIME DELAY SETTINGS OF 5 MINUTES UP TO 30 MINUTES SET AT 15 MINUTES. WALL SWITCHES SHALL BE COMPATIBLE WITH ELECTRONIC AND LED BALLASTS, HAVE NO MINIMUM LOAD REQUIREMENT, AND INCLUDE VOLTAGE DROP PROTECTION, ZERO VOLTS CROSS OVER CIRCUIT (SWITCHES AT OR NEAR ZERO VOLTS) AND NO LEAKAGE TO LOAD FIXTURE. WALL SWITCHES SHALL OPERATE AT 120 OR 277 VAC AND SHALL ACCOMMODATE AN ELECTRICAL LOAD OF 800 WATTS. WALL SWITCH OCCUPANCY SENSORS SHALL BE WATT STOPPER MODEL DW-100 OR APPROVED EQUAL.

20. DUPLEX RECEPTACLES SHALL BE SPECIFICATION GRADE, POLARIZED, GROUNDED, NEMA 5-20R, 20 AMPERE, 125 VOLTS AC. RECEPTACLES SHALL BE AS MANUFACTURED BY LEVITON, HUBBELL, EATON, OR APPROVED EQUAL. RECEPTACLES WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTING CAPACITY SHALL BE PROVIDED AS INDICATED ON THE DRAWINGS. WEATHERPROOF DUPLEX RECEPTACLES SHALL BE WEATHER AND TAMPER RESISTANT GROUND FAULT CIRCUIT INTERRUPTING TYPE MOUNTED IN A WEATHERPROOF ENCLOSURE.

21. WIRING DEVICES AND COVER PLATES ARE TO BE COLOR COORDINATED WITH THE OWNER'S REPRESENTATIVE. ONE-PIECE DEVICE COVER PLATES SHALL BE PROVIDED FOR ALL OUTLETS. PLATES SHALL BE SMOOTH THERMOPLASTIC TYPE AS MANUFACTURED BY LEVITON, HUBBELL, GENERAL ELECTRIC, OR APPROVED EQUAL.

22. ALL PANELBOARDS SHALL CONTAIN AN UPDATED TYPEWRITTEN PANEL DIRECTORY TO INDICATE AREA OR EQUIPMENT SERVED.

23. LIGHTING FIXTURES SHALL BE AS SCHEDULED ON THE DRAWINGS OR APPROVED EQUAL.

24. THE ELECTRICAL CONTRACTOR SHALL CONSULT THE ROOM FINISH SCHEDULE AS TO THE TYPE OF CEILING CONSTRUCTION. HE SHALL BE RESPONSIBLE FOR ORDERING THE PROPER FIXTURES WITH HARDWARE FOR INSTALLATION IN OR ON THE TYPE OF CEILING SPECIFIED.

25. FIRE ALARM SYSTEM

25.1. THIS SECTION OF THE SPECIFICATIONS COVERS THE FURNISHING OF ALL LABOR, MATERIALS, AND ACCESSORIES NECESSARY FOR, BUT NOT NECESSARILY LIMITED TO, THE INSTALLATION OF A FIRE ALARM SYSTEM AS AN EXTENSION OF THE EXISTING FIRE ALARM SYSTEM, AS LISTED HEREIN AND AS SHOWN ON THE DRAWINGS. ALL DEVICES SHALL HAVE A SIMILAR PHYSICAL APPEARANCE OF EXISTING SYSTEM EQUIPMENT AND HAVE ELECTRICAL CHARACTERISTICS COMPATIBLE WITH THE EXISTING SYSTEM.

25.2. THE FIRE ALARM SYSTEM SHALL BE A SUPERVISED, ADDRESSABLE AND ANNUNCIATED, NON-CODED LOCAL ALARM SYSTEM AS DESCRIBED HEREIN AND AS SHOWN ON THE PLANS. THE SYSTEM SHALL BE UL APPROVED AND MEET ALL STATE AND LOCAL FIRE ALARM CODES.

25.3. THE SYSTEM SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF NFPA 70, 72, 99, AND 101.

25.4. THE SYSTEM SHALL BE OF ONE MANUFACTURER MATCHING EXISTING BUILDING MANUFACTURER.

25.5. THE ACTUATION OF ANY MANUAL OR AUTOMATIC DEVICE SHALL CAUSE ALL ALARM BELLS/HORNS/SPEAKERS TO SOUND THROUGHOUT THE BUILDING, ELECTRO-MAGNETIC DOOR HOLDERS TO DE-ENERGIZE, LIGHT THE APPROPRIATE ZONE IN ALARM ON THE CONTROL PANEL AND CAUSE THE CONTROL PANEL TO TRANSMIT A SIGNAL TO AN OFF-SITE MONITORING SERVICE. TIE-IN TO OFF-SITE MONITORING SERVICE SHALL BE BY OTHERS.

25.6. THE SYSTEM SHALL OPERATE FROM 120 VOLTS, 60 HZ POWER AND SHALL INCLUDE ALL FIRE ALARM BELLS/HORNS, PANELS, BATTERIES, ANNUNCIATORS, CONDUIT, WIRE, OUTLET BOXES, AND ANY OTHER APPURTENANCES NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM INCLUDING PROVISSION OF 20 AMPERE, 120 VOLTS CIRCUITS FROM THE NEAREST PANELBOARDS WITH SPARE CAPACITY AS REQUIRED.

25.7. AUXILIARY POWER FOR SYSTEM SHALL BE WET CELL LEAD CALCIUM BATTERIES SIZED TO OPERATE SYSTEM UNDER SUPERVISORY CONDITIONS FOR 24 HOURS AND THEN SUBSEQUENTLY OPERATE ALL ALARM SIGNAL DEVICES UNDER ALARM CONDITIONS FOR FIVE MINUTES. FOR EXTENSION OF EXISTING SYSTEMS PROVIDE ADDITIONAL BATTERIES AND CHARGERS AS REQUIRED TO MAINTAIN THE ABOVE OPERATION FOR ADDITIONAL INITIATION AND INDICATING DEVICES.

25.8. PROVIDE ADDITIONAL CONTROL EQUIPMENT AND/OR POWER SUPPLIES HOUSED IN A SURFACE MOUNTED CABINET AS REQUIRED WITH A 20 AMPERE, 120 VOLTS CIRCUIT TO THE NEAREST PANELBOARDS WITH SPARE CAPACITY.

25.9. ALARM HORNS SHALL BE SEMI-FLUSH ELECTRO-MECHANICAL DESIGN WITH ELECTRONIC OPTICAL CONTROL FOR USE IN AN ELECTRICALLY SUPERVISED CIRCUIT AND SHALL HAVE A SOUND OUTPUT RATING OF AT LEAST 87DBA AT 10-FEET. HORNS SHALL BE PAINTED RED AND MOUNTED ON A STANDARD FOUR INCH SQUARE BY TWO INCH DEEP WALL BOX.

25.10. VISUAL ALARM INDICATORS SHALL BE SEMI-FLUSH, CONTAIN A XENON FLASHTUBE AND BE SUITABLE FOR USE IN AN ELECTRICALLY SUPERVISED CIRCUIT. VISUAL ALARM INDICATORS SHALL HAVE PHOTOMETRIC PROPERTIES AND BE LOCATED IN ACCORDANCE WITH THE VISUAL ALARM TABLES OF NFPA 72. LAMPS SHALL BE PROTECTED BY A THERMOPLASTIC LENS AND LABELED "FIRE" IN LETTERS AT LEAST 1/2-INCH HIGH.

25.11. AUDIBLE/VISUAL ALARM INDICATORS SHALL BE A FACTORY ASSEMBLED COMBINATION DEVICE COMPRISED OF A BELL OR HORN AND A XENON FLASHTUBE AS SPECIFIED ABOVE. COMBINATION DEVICES SHALL BE MOUNTED ON A STANDARD FOUR INCH SQUARE MOUNTING BOX.

25.12. ELECTROMAGNETIC DOOR HOLDERS SHALL BE TWO-PART DEVICES WITH ARMATURE PORTION MOUNTED ON DOOR AND RELEASE PORTION MOUNTED ON WALL. DOOR HOLDERS SHALL BE 24 VOLT DC WITH MINIMUM HOLDING FORCE OF 35 POUNDS. DOOR HOLDERS SHALL NOT BE PICKED UP BY AUXILIARY POWER SOURCE. COORDINATE EXACT LOCATION WITH OWNER'S REPRESENTATIVE.

25.13. THE CONTRACTOR AND EQUIPMENT MANUFACTURER SHALL JOINTLY GUARANTEE ALL WIRING AND EQUIPMENT FOR THIS SYSTEM TO BE FREE OF DEFECT IN WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.

25.14. THE CONTRACTOR AND EQUIPMENT MANUFACTURER SHALL PROVIDE ALL SHOP DRAWING INFORMATION INCLUDING BUT NOT LIMITED TO VOLTAGE DROP CALCULATIONS, BATTERY CALCULATIONS, COMPLETE RISE DIAGRAM, ETC. AS REQUIRED BY APPLICABLE CODES. CAD DRAWINGS SHOWING DEVICE LOCATIONS WILL BE AVAILABLE AT THE REQUEST OF THE CONTRACTOR.

25.15. THE ENTIRE FIRE ALARM SYSTEM INCLUDING ANY PREVIOUSLY EXISTING PORTIONS SHALL BE TESTED IN THE PRESENCE OF THE OWNER AND LOCAL AUTHORITIES. THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, AND MATERIAL NEEDED FOR THE TEST WITHOUT ADDITIONAL CHARGE.

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LEGEND

	1 CIRCUIT HOME RUN TO PANEL 2 #12 & 1 #12G, 3/4" CND, UNLESS OTHERWISE NOTED
DC	DIRECT CURRENT CIRCUIT RUN CONCEALED 2#10, 3/4" CND, UNLESS OTHERWISE NOTED
	BRANCH CIRCUIT RUN CONCEALED - 2 #12 & 1 #12G, 3/4" CND, UNLESS OTHERWISE NOTED PROVIDE ADDITIONAL SWITCHED CONDUCTORS AS REQUIRED
J	JUNCTION BOX
	DUPLEX RECEPTACLE - 2 POLE, 3 WIRE GROUNDING, 20 AMP, 125 VOLT, NEMA 5-20R MOUNT @ 1'-8" AFF UNLESS OTHERWISE NOTED
GF	GROUND FAULT CIRCUIT INTERRUPTING DUPLEX RECEPTACLE 2 POLE, 3 WIRE GROUNDING, 20 AMP, 125 VOLT, NEMA 5-20R MOUNT @ 1'-8" AFF UNLESS OTHERWISE NOTED
B A	LIGHTING FIXTURE, LETTER SUBSCRIPT INDICATES SCHEDULED FIXTURE TYPE. LOWERCASE LETTER INDICATES SWITCH CIRCUIT.
	NORMAL EXIT SIGN. ARROWS INDICATE DIRECTION OF EXIT. SOLID FILL INDICATES NUMBER OF FACES, LETTER SUBSCRIPT INDICATES SCHEDULED FIXTURE TYPE.
	EMERGENCY LIGHTING BATTERY UNIT TO PROVIDE 1 1/2 HOURS OF EMERGENCY LIGHT. LETTER SUBSCRIPT INDICATES SCHEDULED FIXTURE TYPE.
	LOW VOLTAGE REMOTE EMERGENCY LIGHTS. LETTER SUBSCRIPT INDICATES SCHEDULED FIXTURE TYPE.
	COMBINATION EXIT SIGN/EMERGENCY LIGHT. SOLID FILL INDICATES NUMBER OF FACES, LETTER SUBSCRIPT INDICATES SCHEDULED FIXTURE TYPE.
$	SINGLE POLE TOGGLE TYPE A/C SWITCH 20 AMP, 120/277 VOLT MOUNT @ 3'-10" AFF, UNLESS OTHERWISE NOTED
MS $	OCCUPANCY SENSOR WALL SWITCH. WATT STOPPER DW-100 OR APPROVED EQUAL MOUNT @ 3'-10" AFF, UNLESS OTHERWISE NOTED
#	FIRE ALARM HORN WITH VISUAL INDICATING LIGHT MOUNT @ 7-6" AFF # = CANDELA RATING WHEN HIGHER THAN 15
#	FIRE ALARM VISUAL INDICATING LIGHT ONLY (ADA APPROVED) MOUNT @ 7'-6" AFF # = CANDELA RATING WHEN HIGHER THAN 15
(D)	REFER TO INDICATED DEMOLITION NOTE
(N)	REFER TO INDICATED NEW WORK NOTE

PROPOSED IMPROVEMENTS FOR:

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PERKASIE BRANCH
491 ARTHUR AVENUE
PERKASIE, BUCKS COUNTY, PENNSYLVANIA

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MECHANICAL/ELECTRICAL/PLUMBING
Two Meridian Blvd., 2nd Floor
Wyomissing, PA 19610
(610) 670-5779
www.martaranoengineering.com
Project: 18-179

ISSUED FOR BID

RHJ ASSOCIATES, P.C.
ARCHITECTS • PLANNERS • DESIGNERS
880 1ST AVE. SUITE 8A
KING OF PRUSSIA, PA 19406
610 337 4555
www.rhjassoc.com

DATE: FEB 01, 2019

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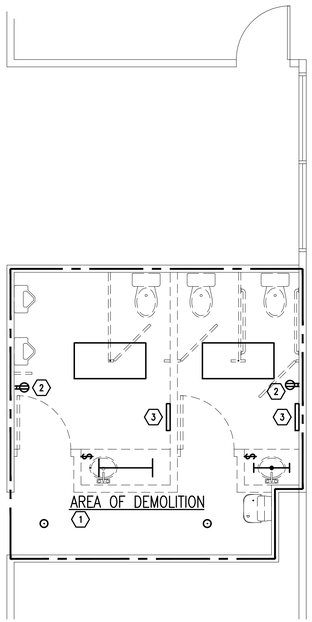
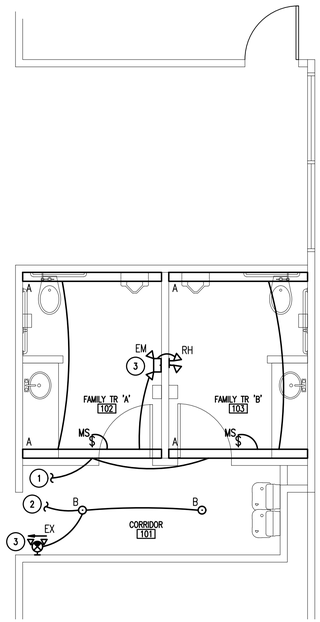
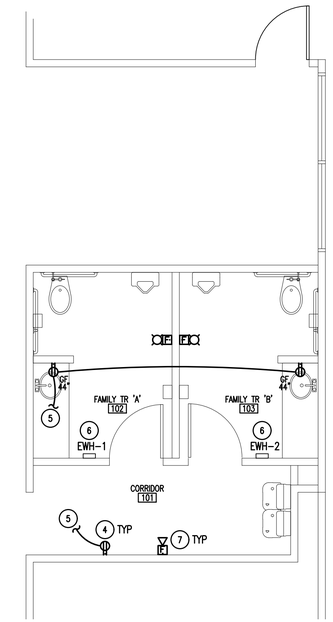
M:\Current\2018\18-179 BCLF Perkasie Restroom - Perkasie PA\Drawings\18-179 Electrical.dwg



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



ELECTRICAL – LIGHTING PLAN
SCALE: 1/4" = 1'-0"



ELECTRICAL – POWER & SIGNAL PLAN
SCALE: 1/4" = 1'-0"

DRAWING DEMOLITION NOTES:

1. REMOVE LIGHT FIXTURES, LIGHT SWITCHES, LIGHT CONTROLS AND WIRING TO LAST DEVICE. RETAIN CIRCUIT FOR CONNECTION OF NEW LIGHT FIXTURES.
2. REMOVE RECEPTACLE, DEVICE BOX AND RECEPTACLE CIRCUIT TO LAST DEVICE. RETAIN CIRCUIT FOR CONNECTION OF NEW RECEPTACLES.
3. DISCONNECT WALL HEATER. RETAIN CIRCUIT FOR CONNECTION OF NEW WALL HEATER.

NEW WORK NOTES:

1. CONNECT TO LIGHTING CIRCUIT RETAINED FROM DEMOLITION.
2. CONNECT TO EXISTING CORRIDOR LIGHTING CIRCUIT AND CONTROLS.
3. CONNECT EXIT SIGN AND EMERGENCY BATTERY UNIT TO AN UNSWITCHED HOT LEG OF THE LIGHTING CIRCUIT.
4. VERIFY EXACT LOCATION AND/OR MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
5. CONNECT TO RECEPTACLE CIRCUIT RETAINED FROM DEMOLITION.
6. CONNECT TO HEATING CIRCUIT RETAINED FROM DEMOLITION.
7. PROVIDE FIRE ALARM DEVICES TO MATCH BASE BUILDING MANUFACTURER. CONNECT TO EXISTING SYSTEM MATCHING BASE BUILDING WIRING METHODS. PROVIDE ADDITIONAL BATTERIES, TERMINAL CABINETS, ETC FOR A FULLY FUNCTIONAL FIRE ALARM SYSTEM. CONTRACTOR SHALL PROVIDE UPDATED BUILDING RISER DIAGRAM, PLANS, BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, ETC. AS REQUIRED BY LOCAL AND STATE CODES.

LIGHT FIXTURE SCHEDULE

MOUNTING LOCATION: CEILING – CLG; FLOOR – FLR; GROUND – GND; POLE – PL; SUSPENDED – SUS; WALL – WL
MOUNTING TYPE: FLUSH – FLS; PENDANT – PEN; PEDESTAL – PED; SURFACE – SUR; TRACK – TRK; CH-CHAIN HUNG; CEILING HEIGHT – CLG-HT

TYPE	MANUFACTURER	CAT NO	DESCRIPTION	VOLTS	LOAD WATTS	LAMPS NO	LAMPS TYPE	MOUNTING LOCATION	MOUNTING TYPE	MOUNTING HEIGHT	REMARKS
A	PRUDENTIAL LTG.	P83 FLSH LED35 R7'9" TMW WA WTW SC UNV X1 NO	7'9" LINEAR	120	38.75	–	LED	CLG	FLS	CLG HT	NOTE 1
B	PRESCOLITE	LF4SL-4LFSL 11L 35K 8 MFC WT	4" DOWNLIGHT	120	12.7	–	LED	CLG	FLS	CLG HT	
EM	EMERGI-LITE	JSM18-2150LA-AD	BATTERY UNIT	120	36	2	LA	WL	SUR	7'-6"	
EX	EMERGI-LITE	WPR612M-4R2LA-AD	EXIT SIGN WITH EM LIGHTS	120	2	2	LA	CLG	SUR	CLG HT	
RH	REMOTE HEAD	EF10D-LA	REMOTE HEAD	6	8	2	LA	WL	SUR	7'-6"	

*See REMARKS section.

NOTES: 1. VERIFY LENGTH OF FIXTURE WITH THE ARCHITECT PRIOR TO PURCHASE.

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