WESTWOOD RECREATION DEPT.

POOL AHU PROJECT

240 NAHATAN ST WESTWOOD, MA 02090

#REC-20-B-003

LOCUS PLAN

DRAWING LIST

Sheet Number	Sheet Title
TITLE SHEET	
T0.0	TITLE SHEET
HVAC	
H100	HVAC LEGENDS, NOTES AND ABBREVIATIONS
HD200	HVAC FIRST FLOOR DEMOLITION WORK PLAN
HD201	HVAC ROOF DEMOLITION WORK PLAN
H200	HVAC FIRST FLOOR NEW WORK PLAN
H201	HVAC ROOF NEW WORK PLAN
H700	HVAC CONTROLS
H800	HVAC SCHEDULES AND DETAILS

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At the request of [IDENTIFY PARTY], this [NAME OF DELIVERABLE (REPORT, DRAWINGS, ETC.)] has been expedited to [Client] Hence, [client] is hereby notified that NV5 did not have an opportunity to conduct its industry standard quality control procedures. Accordingly, Client agrees that the [NAME OF DELIVERABLE] is subject to revision, including but not limited to contractor change orders or owner claims, in connection with [NAME OF DELIVERABLE].

REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0190207

DATE
10/30/2019

WESTWOOD RECREATION DEPT. POOL RTU #REC-20-B-003

DRAWING

DRAWN BY
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SCALE

TITLE SHEET

T0.0

ABBREVIATIONS

GENERAL

ADD'L	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AMP	AMPERE
ATC	AUTOMATIC TEMPERATURE CONTROL
ATM	ATMOSPHERE
AVE	AVERAGE
BHP	BRAKE HORSEPOWER
BI	BACKWARDS INCLINED
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CENT	CENTRIFUGAL
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
D	DRAIN OR DEPTH
DB	DRY BULB TEMPERATURE
DEG	DEGREE
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
EA	EACH OR EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ELEC	ELECTRICAL
ELEV	ELEVATION
EMER	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
ENT	ENTER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXIST	EXISTING
EXT	EXTERNAL
EXP	EXPANSION
F	FAHRENHEIT
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLRDR	FLOOR DRAIN
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FLOW SWITCH
FT	FEET
G	GAS
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFU	GLYCOL FEED UNIT
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRD	GRADE
GWB	GYPSUM WALL BOARD
HB	HOSE BIBB CONN.
HD	HEAD
HGT	HEIGHT
HP	HORSEPOWER OR HIGH POINT
HR	HOUR
HTG	HEATING
HZ	HERTZ (FREQUENCY, CYCLES PER SECOND)
ID	INSIDE DIAMETER
IN	INCHES
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LF	LINEAR FEET
LP	LOW POINT
LRA	LOCKED ROTOR AMPS
LUVR	LOUVER
LVDR	LOUVERED DOOR
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MEZZ	MEZZANINE
MF'R	MANUFACTURER
MIN	MINIMUM
MU	MAKE-UP WATER
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED OR NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
No	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODP	OPEN DRIP PROOF
OV	OUTLET VELOCITY
PCF	POUNDS PER CUBIC FOOT
PD	PRESSURE DROP
PH	PHASE
PBG	PLUMBING
POS	PROVIDED BY OTHER SECTION
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
R	RADIUS
RA	RETURN AIR
RET	RETURN
REQ'D	REQUIRED
RH	RELATIVE HUMIDITY
RLA	RUNNING LOAD AMPS
RLF	RELIEF
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SCH	SCHEDULE
SCR	SCREEN
SCT	SATURATED CONDENSING TEMPERATURE
SDET	SMOKE DETECTOR
SEN	SENSIBLE
SHC	SENSIBLE HEAT CAPACITY
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SQ	SQUARE
SF	SQUARE FEET
SS	STAINLESS STEEL
STL	STEEL
SUP	SUPPLY
T	TEMPERATURE
TA	THROWAWAY
TEL	TELEPHONE
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TON	12,000 BTUH COOLING CAPACITY
TOT	TOTAL
TYP	TYPICAL
UC	UNDERCUT DOOR
V	VOLTS (ELECTRICAL)
VEL	VELOCITY
W	WIDTH OR WATT
W/	WITH
WB	WET BULB TEMPERATURE
WC	WATER COLUMN
WG	WATER GAUGE
W/O	WITHOUT
WPD	WATER PRESSURE DROP
WTD	WATER TEMPERATURE DIFFERENCE
X	EXISTING EQUIPMENT TO BE REMOVED
XM	EXISTING EQUIPMENT TO REMAIN
XN	NEW LOCATION OF RELOCATED EQUIPMENT
XR	EXISTING EQUIPMENT TO BE RELOCATED

BOILER

B	BOILER
BBD	BOILER BLOWDOWN
BDT	BLOWDOWN TANK
BFU	BOILER FEED UNIT
BFP	BOILER FEED PUMP

DUCT

ACD	AUTOMATIC CONTROL DAMPER
AFMS	AIR FLOW MEASURING STATION
BDD	BACKDRAFT DAMPER
BOD	BOTTOM OF DUCT
CD	CEILING DIFFUSER
DIFF	DIFFUSER
EA	EXHAUST AIR
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
FBD	FLAT BOTTOM DUCT
FD	FIRE DAMPER (W/ ACCESS DOOR)
LD	LINEAR DIFFUSER
MD	MOTOR OPERATED DAMPER
MUA	MAKE-UP AIR
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OED	OPEN END DUCT
PAD	PRIMARY AIR DAMPER
RA	RETURN AIR
RG	RETURN GRILLE
RR	RETURN REGISTER
SA	SUPPLY AIR
SD	SMOKE DAMPER
SE	SMOKE EXHAUST
SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER WITH ACCESS DOOR
SG	SUPPLY GRILLE
SGD	SLIDE GATE DAMPER
SR	SUPPLY REGISTER
TA	THROW AWAY OR TRANSFER AIR
TG	TRANSFER GRILLE
TOD	TOP OF DUCT
TR	TRANSFER
TSP	TOTAL STATIC PRESSURE (IN. WG)
TV	TURNING VANES
VD	VOLUME DAMPER
VAV	VARIABLE AIR VOLUME SUPPLY AIR TERMINAL
VVE	VARIABLE AIR VOLUME EXHAUST AIR TERMINAL
WMS	WIRE MESH SCREEN

EQUIPMENT

AC	AIR CONDITIONING OR AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AF	AIR FILTER OR AIR FOIL
AHU	AIR HANDLING UNIT
CC	COOLING COIL
CP	CONDENSATE DRAIN PUMP
DC	DRY COOLER
DDC	DIRECT DIGITAL CONTROL
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL
DX	DIRECT EXPANSION
EF	EXHAUST FAN
EHC	ELECTRICAL HEATING COIL
F	FAN
FB	FAN POWERED BOX
FCU	FAN COIL UNIT
GRV	GRAVITY RELIEF VENT
H	HUMIDIFIER
HC	HEATING COIL
HP	HEAT PUMP
HRU	HEAT RECOVERY UNIT
HWC	HOT WATER HEATING COIL
HV	HEATING & VENTILATING UNIT
HX	HEAT EXCHANGER
IU	INDUCTION UNIT
MCC	MOTOR CONTROL CENTER
MUA	MAKE-UP AIR UNIT
PAC	PACKAGE AIR CONDITIONING UNIT
P	PUMP
PHC	PREHEAT COIL
PHX	PLATE HEAT EXCHANGER
PRV	PRESSURE REDUCING VALVE
REG	REGISTER
RF	RETURN FAN
RHC	REHEAT COIL
RTU	ROOF TOP UNIT
SA	SOUND ATTENUATOR
SF	SUPPLY FAN
SWSI	SINGLE WIDTH SINGLE INLET
TF	TRANSFER FAN
TD	TRANSFER DUCT
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME TERMINAL UNIT
VFD	VARIABLE FREQUENCY DRIVE
VFM	VENTURI FLOW METER
WAC	WINDOW AIR CONDITIONER

HOT WATER

HCR	HOT/CHILLED WATER RETURN
HCS	HOT/CHILLED WATER SUPPLY
HHWR	HIGH TEMPERATURE HOT WATER RETURN
HHWS	HIGH TEMPERATURE HOT WATER SUPPLY
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
UH	HOT WATER UNIT HEATER

PIPING

AAV	AUTOMATIC AIR VENT
ACV	AUTOMATIC CONTROL VALVE
AS	AIR SEPARATOR
ATV	ATMOSPHERIC VENT
BOP	BOTTOM OF PIPE
CO	CLEAN-OUT
DOV	DRAIN-OFF VALVE
FOB	FLAT ON BOTTOM REDUCER
FOT	FLAT ON TOP REDUCER
FCV	FLOW CONTROL VALVE
MAV	MANUAL AIR VENT
MU	MAKE-UP WATER
TOP	TOP OF PIPE
V	VENT

REFRIGERATION

DX	DIRECT EXPANSION
HGB	REFRIGERANT HOT GAS BYPASS
RD	REFRIGERANT DISCHARGE (HOT GAS)
RG	REFRIGERANT GAS
RHGB	REFRIGERANT HOT GAS BYPASS
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION

DUCTWORK

SINGLE LINE / DOUBLE LINE

- RECTANGULAR DUCT W=WIDTH, D=DEPTH (INCHES UNLESS NOTED OTHERWISE) AS VIEWED (WxD; W D; 10x6)
- ROUND DUCT (DIA=INSIDE DIAMETER) (DIA"Ø; DIA; 10"Ø)
- FLAT OVAL DUCT W=WIDTH, D=DEPTH (W/D; W D; 10/6)
- ROUND SUPPLY DUCT UP
- ROUND SUPPLY DUCT DOWN
- SUPPLY DUCT UP
- SUPPLY DUCT DOWN
- FLAT OVAL SUPPLY DUCT UP
- FLAT OVAL SUPPLY DUCT DOWN
- ROUND RETURN DUCT UP
- ROUND RETURN DUCT DOWN
- RETURN DUCT UP
- RETURN DUCT DOWN
- FLAT OVAL RETURN DUCT UP
- FLAT OVAL RETURN DUCT DOWN
- ROUND EXHAUST DUCT UP
- EXHAUST DUCT UP
- EXHAUST DUCT DOWN
- ROUND EXHAUST DUCT DOWN
- FLAT OVAL EXHAUST DUCT UP
- FLAT OVAL EXHAUST DUCT DOWN
- RECTANGULAR DUCT TO ROUND SUPPLY/RETURN/EXHAUST (10x6; 6"Ø; 10x6; 6"Ø)
- CEILING DUCT MOUNTED DIFFUSER/GRILLE (VD)
- TAKE-OFF TO DIFFUSER/GRILLE (VD; HARD ELBOW)
- CEILING DUCT MOUNTED DIFFUSER/GRILLE (VD)
- ACOUSTICALLY LINED DUCT
- FLEXIBLE DUCT
- STANDARD RADIUS ELBOW (R = W) SUPPLY/RETURN/EXHAUST (W; R)
- FULL LENGTH SPLITTER VANES (R < W) SUPPLY/RETURN/EXHAUST (W; R)
- SPLIT TAKE-OFF
- RECTANGULAR WYE SUPPLY
- HORIZONTAL OFFSET SUPPLY/RETURN/EXHAUST
- CHANGE OF ELEVATION (R)RISE OR (D)DROP SUPPLY/RETURN/EXHAUST (R/D)
- 45° TAP TAKE-OFF
- 90° TAP TAKE-OFF 45° TAKEOFF
- 90° TAP TAKE-OFF SQUARE TO ROUND CONNECTION
- 90° TAP TAKE-OFF 45° TAKE-OFF TRANSITION TO ROUND
- 90° TAP TAKE-OFF BELLMOUTH CONNECTION
- CONVERGE RETURN/EXHAUST W/45° TAKE-OFFS
- SIDEWALL DUCT MOUNTED REGISTER/GRILLE
- SUPPLY SIDEWALL LINEAR DIFFUSER (W/ SHEETMETAL PLENUM, LINING & BRANCH CONN. FOR EVERY 4' OF LINEAR.) (VD)
- SUPPLY CEILING LINEAR DIFFUSER (W/SHEETMETAL PLENUM, LINING & BRANCH CONN. FOR EVERY 4' OF LINEAR.) (VD; PLENUM BY LD MF'R)
- OPEN END DUCT W/ 1/2"x1/2" WMS

AFMS	AIR FLOW MONOTORING SYSTEM
ACD	AUTOMATIC CONTROL DAMPER W/ ACCESS DOOR
VD	MANUAL VOLUME DAMPER
SD	AUTOMATIC SMOKE DAMPER W/ ACCESS DOOR
	STANDARD 4-WAY BLOW SUPPLY DIFFUSER
	RETURN/EXHAUST GRILLE OR REGISTER
	ROOF EXHAUST FAN SHOWN ON ROOF
	ROOF EXHAUST FAN SHOWN ON FLOORPLAN
	RETURN OR EXHAUST AIR FLOW
	SUPPLY AIR FLOW

GENERAL PHASING NOTES

1. THE FOLLOWING PHASING SCHEDULE IS A SUGGEST TIMELINE BASED ON THE REQUIRED COMPLETION DATE.

2. COORDINATE WITH ALL TRADES AND MATERIALS SUPPLIERS.

NOV 2019
- WALK-THROUGH

LATE NOV 2019
- PROJECT AWARD

NOV-DEC 2019
- SHOP DRAWINGS
- RTU ORDER (16 WEEK LEAD TIME)

JAN-MARCH 2020
- SITE PREP WORK
- REMOVAL AND INSTALLATION OF RTU PUMP IN CRAWLSPACE.
- ORDERING AND REPLACEMENT OF POOL PUMP.

APRIL-MAY 2020
- DELIVERY AND INSTALLATION OF RTU

JUNE/JULY 2020
- PROJECT CLOSEOUT
- TRAINING
- PUNCH LIST

3. RIGGING SHALL BE ON THE WEEKEND AND COORDINATED WITH OWNER, STRUCTURAL ENGINEER AND EXISTING ROOF CONTRACTOR (COORDINATE WITH OWNER).

DIAGRAM EQUIPMENT SYMBOLS

- FILTER BANK
- HEATING COIL (H, C)
- HEAT RECOVERY COIL (HR, C)
- PREHEAT COIL (PH, C)
- REHEAT COIL
- COOLING COIL (C, C)
- VARIABLE FREQUENCY DRIVE (S/S, ALM, VFD, VFDS, VFDSO)
- STARTER (STARTER, S/S, CT)
- BOILER
- PUMP
- CENTRIFUGAL FAN
- OPPOSED BLADE DAMPER W/ TWO POSITION ACTUATOR
- OPPOSED BLADE DAMPER W/ MODULATING ACTUATOR
- PARALLEL BLADE DAMPER W/ TWO POSITION ACTUATOR
- PARALLEL BLADE DAMPER W/ MODULATING ACTUATOR
- BACKDRAFT DAMPER
- 2-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 2-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- 3-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 3-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)

PIPING SYMBOLS

- GATE VALVE (OUTSIDE SCREW & YOKE UNLESS SPECIFIED OTHERWISE)
- GLOBE VALVE (OUTSIDE SCREW & YOKE UNLESS SPECIFIED OTHERWISE)
- BALL VALVE
- BUTTERFLY VALVE
- HOSE END BALL VALVE WITH CAP AND CHAIN
- CHECK VALVE (SILENT CHECK TYPE ON PUMP DISCHARGE)
- STRAINER WITH HOSE END BLOWOFF VALVE, CAP AND CHAIN
- SUCTION DIFFUSER/STRAINER (NON-REDUCING) WITH BLOWOFF (SD)
- 2-WAY MODULATING PRESSURE INDEPENDENT ACV
- 2-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 2-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- 3-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 3-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- AUTOMATIC FLOW LIMITING VALVE (PRESSURE INDEPENDENT)
- TRIPLE DUTY PUMP VALVE, CHECK, BALANCING (FLOW METER), SHUT-OFF
- UNION
- PIPE - CAPPED
- PRESSURE GAUGE (W/ BALL VALVE(S), SNUBBER, AND FOR STEAM, SIPHON)
- PRESSURE SWITCH (PS)
- THERMOMETER
- PRESSURE/THERMOMETER WELL (PT)
- AIR VENT - AUTOMATIC (AV)
- AIR VENT - MANUAL (MV)
- DIRECTION OF FLOW
- PIPE CONNECTION - TOP
- PIPE CONNECTION - BOTTOM
- PIPE - DOWN
- PIPE - UP
- PITCH OF PIPE - (R) RISE OR (D) DROP (R)
- REDUCER - CONCENTRIC
- REDUCER - ECCENTRIC
- CLEANOUT FOR CONDENSATE DRAIN (CO)
- DIRT LEG
- RISE (DOUBLE LINE - PLAN VIEW)
- DROP (DOUBLE LINE - PLAN VIEW)
- PIPE BREAK (DOUBLE LINE)
- PIPE BREAK (SINGLE LINE)

PIPING ABBREVIATIONS

D	DRAIN
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
RG	REFRIGERANT GAS
RHGB	REFRIGERANT HOT GAS BYPASS
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
(NAME)	REMOVE EXISTING PIPING

CALLOUT SYMBOLS

- CONNECT NEW TO EXISTING
- LIMIT OF DEMOLITION
- REVISION NUMBER
- TEMPERATURE SENSOR OR THERMOSTAT (T)
- HUMIDITY SENSOR OR HUMIDISTAT (H)
- REMOVE EXISTING ITEM

SA(100) — S = SUPPLY A = SCHEDULED DIFFUSER (100) = CFM TO BALANCE TO
RA(100) — R = RETURN A = SCHEDULED GRILLE (100) = CFM TO BALANCED TO
EA(100) — E = EXHAUST A = SCHEDULED REGISTER/GRILLE (100) = CFM TO BALANCED TO
TA(100) — T = TRANSFER A = SCHEDULED REGISTER/GRILLE (100) = CFM TO BALANCED TO

EQUIPMENT REQUIRING ELECTRICAL SERVICE.
SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS:

TAG 3.1 XX — SCHEDULED EQUIPMENT UNIT NUMBER

FIRST DIGIT(S) = LEVEL WHERE UNIT IS LOCATED:
SB = SUB-BASEMENT
B = BASEMENT
LL = LOWER LEVEL
G = GROUND FLOOR
1 = FIRST FLOOR
2 = SECOND FLOOR
3 = THIRD FLOOR, ETC
M = MEZZANINE
A = ATTIC
PH = PENTHOUSE
R = ROOF
SECOND DIGIT(S):
1 = FIRST UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL.
2 = SECOND UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL.
3 = THIRD UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL, ETC. (DUE TO EDITING NOT ALL NUMBERS MAY BE USED)

EQUIPMENT REUSE

N|V|5

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SCALE
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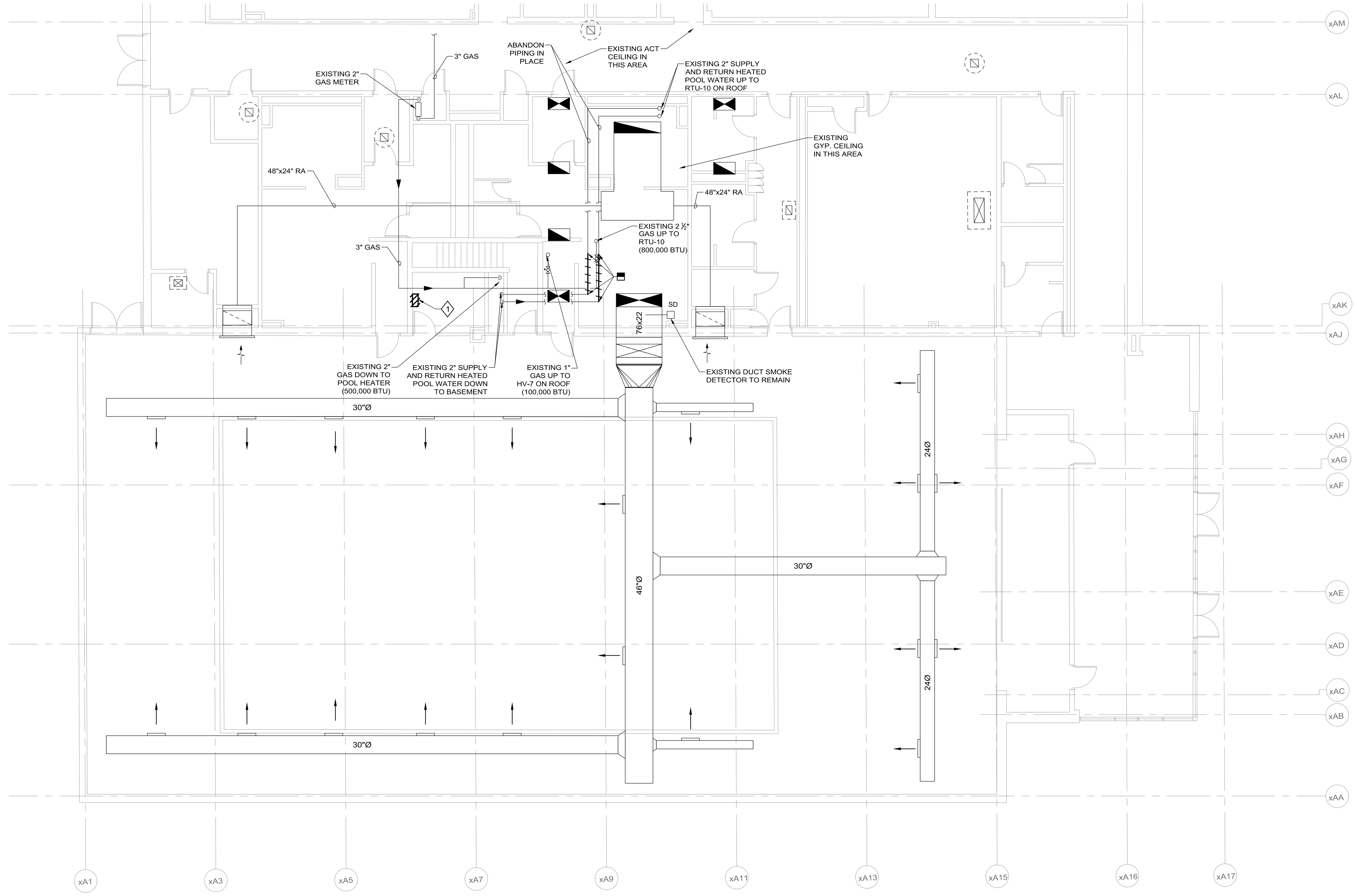
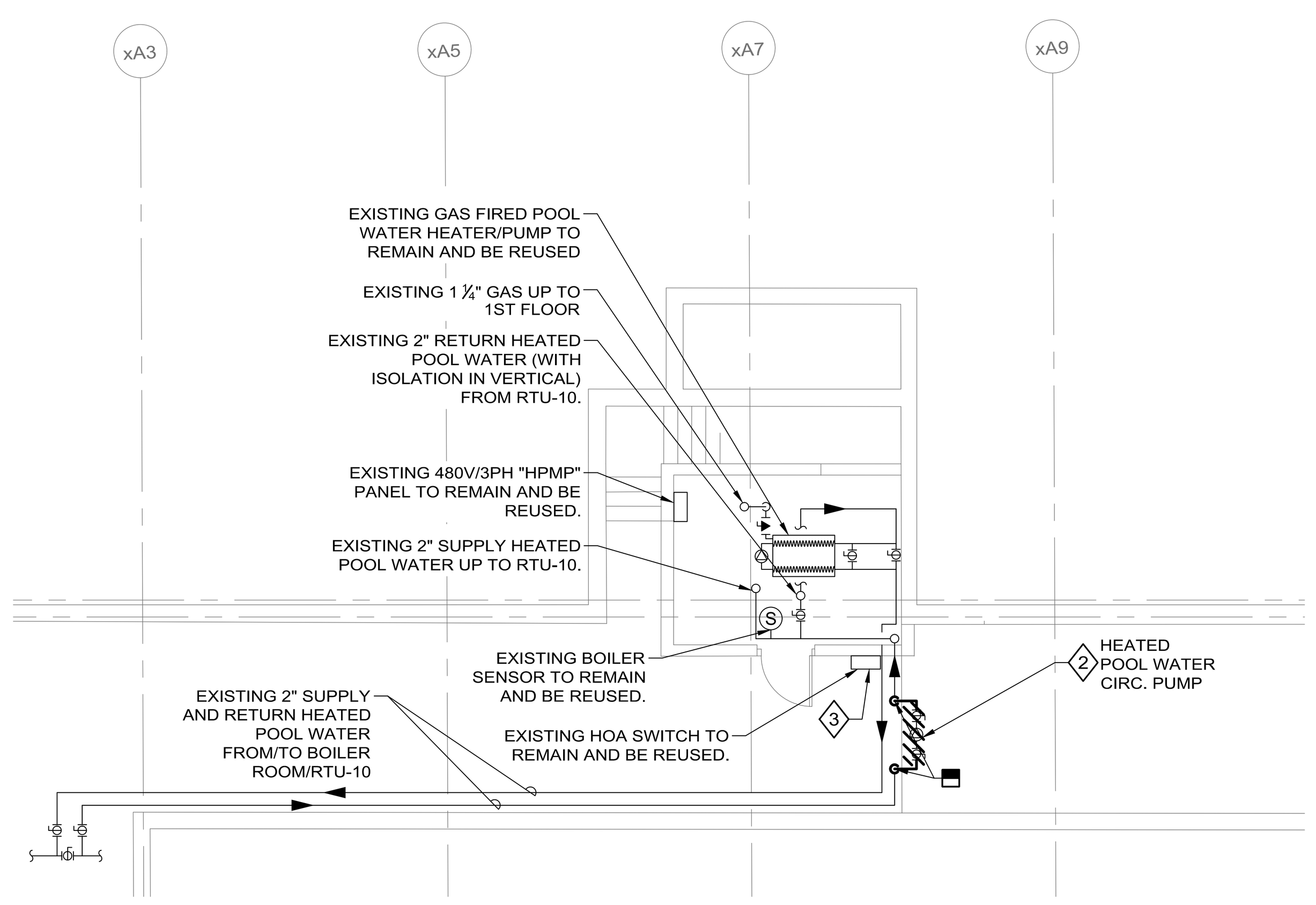
HVAC
LEGENDS, NOTES
AND ABBREVIATIONS

N|V|5



FLOOR PLAN - POOL MAIN LEVEL

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



FLOOR PART PLAN - POOL BASEMENT

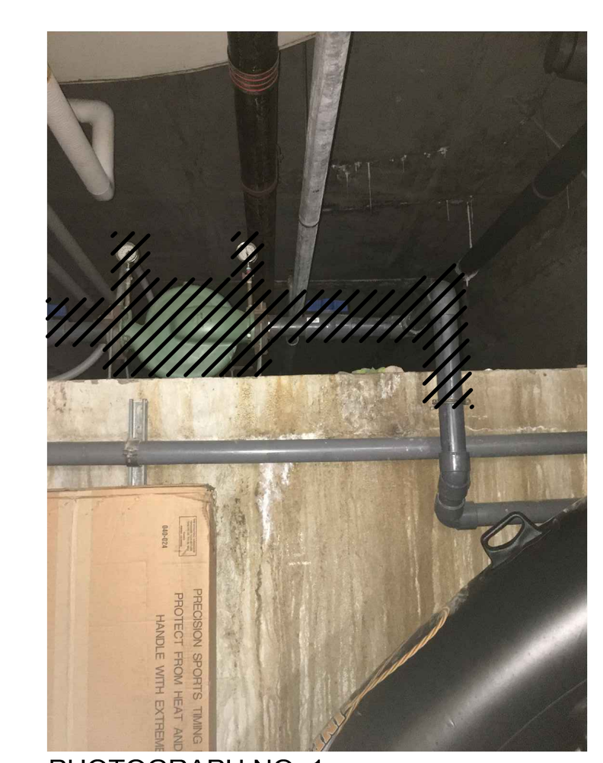
SCALE: 1/8"=1'-0"

HVAC DEMOLITION NOTES

1. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
2. THE LOCATIONS OF EXISTING EQUIPMENT INCLUDING PIPING, DUCTWORK, EQUIPMENT, CONDUITS, ETC ARE SHOWN IN AN APPROXIMATE WAY ONLY. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS AND COMMENCEMENT OF WORK TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
3. TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH ALL PARTIES AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
4. COORDINATE EQUIPMENT REMOVAL WITH ALL PARTIES TO PROVIDE DISCONNECTION. REMOVE EQUIPMENT BY UNFASTENING AT THE SUPPORTS OR ATTACHMENTS. ALSO REMOVE THE ATTACHMENTS FROM THE BUILDING, LEAVING NO COMPONENT OF THE ORIGINAL INSTALLATION.
5. EXERCISE CARE WITH EQUIPMENT THAT IS TO BE RELOCATED OR TURNED OVER TO THE OWNER. EXAMINE THE EQUIPMENT BEFORE REMOVAL IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE TO DETERMINE ITS CONDITION. DELIVER OWNER-RETAINED EQUIPMENT TO AN ON-SITE LOCATION DESIGNATED BY THE OWNER AND OBTAIN ACKNOWLEDGMENT OF RECEIPT IN ORIGINAL CONDITION.
6. INSTALL RELOCATED EQUIPMENT IN ORIGINAL CONDITION ENSURING NO DAMAGE.
7. PROMPTLY REPAIR ANY DAMAGE CAUSED DURING/BY THE EXECUTION OF WORK. DAMAGE INCLUDES BUT IS NOT LIMITED TO DESTRUCTION OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.
8. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
9. ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
10. ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
11. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS PIPE INTERIORS OR SHAFTS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
12. DRAIN, PURGE, OR OTHERWISE REMOVE, COLLECT, AND PROPERLY DISPOSE OF CHEMICALS, LIQUIDS, GASES, EXPLOSIVES, ACIDS, FLAMMABLES, OR OTHER DANGEROUS MATERIALS BEFORE PROCEEDING WITH DEMOLITION OPERATIONS.
13. PROPERLY LABEL ALL UNLABLED PIPES THAT REMAIN WITH COLOR PIPE MARKERS AND VALVE TAGS. MOUNT A VALVE AND SERVICE CHART IN THE AREA OF DEMOLITION THAT IDENTIFIES ALL LABELED SERVICES. TURN ONE COPY OF SAME OVER TO THE OWNER.
14. ALL DEMOLITION SCOPE ASSOCIATED WITH LOW VOLTAGE WIRING FOR CONTROLS AND ASSOCIATED INTERLOCKS SHALL BE INCLUDED IN THIS CONTRACT.

KEYNOTES

1	REMOVE THE EXISTING POOLPAK CONTROLLER AND CONTROL WIRING IN THEIR ENTIRETY BACK TO THE ROOFTOP UNIT SERVED.
2	REMOVE THE EXISTING 480V HEATED POOL WATER CIRCULATOR PUMP, PRESSURE GAUGES AND ASSOCIATED ISOLATION VALVES BACK TO POINT SHOWN. REMOVE THE WIRING BACK TO THE HAND-OFF-AUTO SWITCH.
3	DISCONNECT THE EXISTING 480V/3PH HAND-OFF-AUTO SWITCH SERVING THE POOL HEATING CIRCULATOR PUMP. EXISTING 480V/3PH HAND-OFF-AUTO SWITCH TO REMAIN AND BE REUSED. PROVIDE NEW LOCKABLE DISCONNECT ON THE LINE SIDE



PHOTOGRAPH NO. 1
REMOVE THE EXISTING POOL CIRCULATING PUMP.

PHOTOGRAPH NO. 2
EXISTING HAND-OFF-AUTO SWITCH FOR THE EXISTING POOL CIRCULATING PUMP TO REMAIN AND BE REUSED. PROVIDE NEW LOCKABLE DISCONNECT ON THE LINE SIDE

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SEAL

PROJECT

NUMBER
0190207

DATE
10/30/2019

WESTWOOD RECREATION DEPT. POOL RTU
#REC-20-B-003

DRAWING

DRAWN BY
NG

CHECKED BY
CH

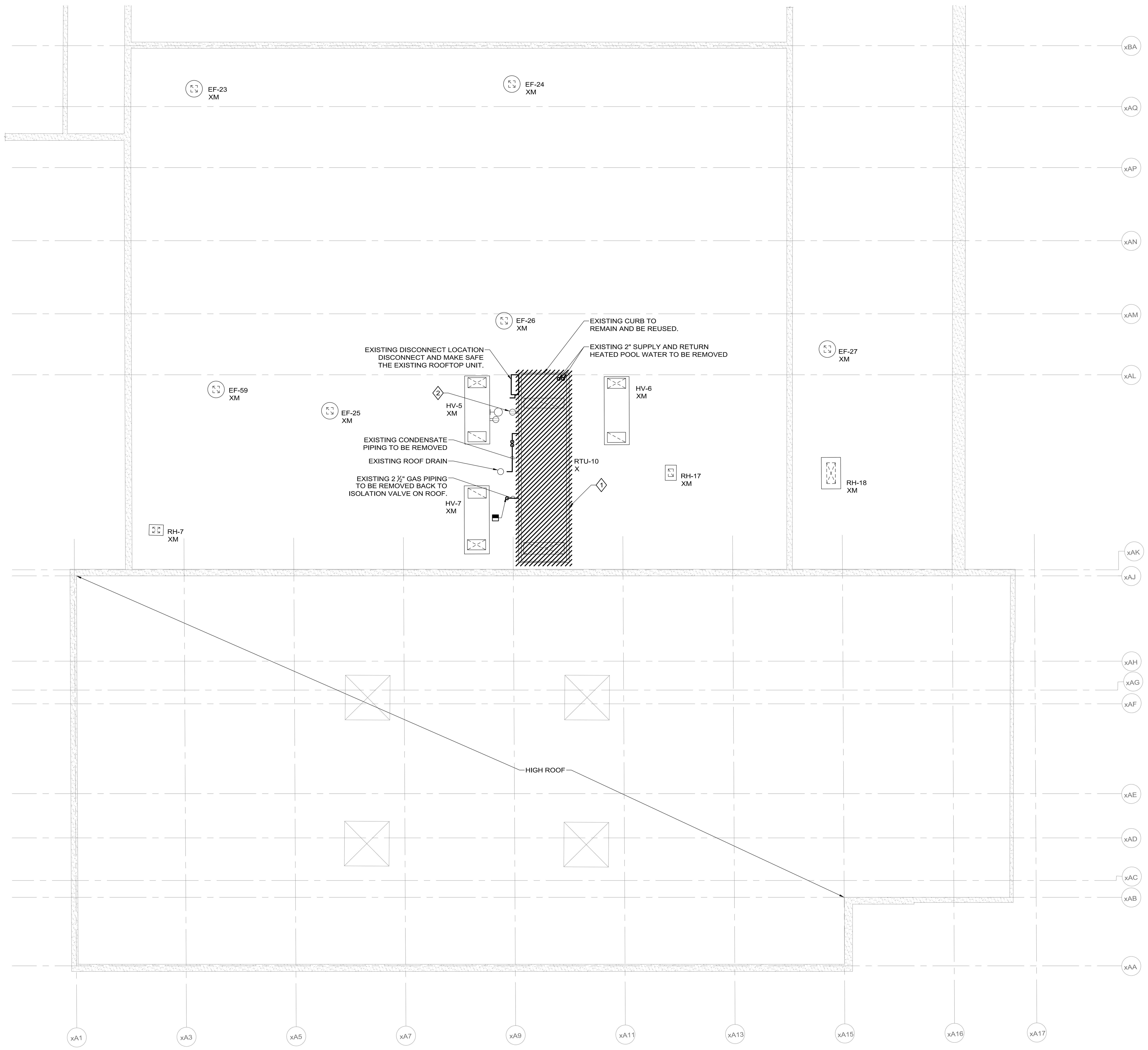
SCALE
1/8" = 1'-0"

HVAC
FIRST FLOOR
DEMOLITION WORK PLAN

1/8" = 1' - 0"   0   8'   16'

HD200

KEYNOTES	
1	REMOVE THE EXISTING ROOFTOP UNIT IN ITS ENTIRETY. REMOVE ASSOCIATED CONDENSATE PIPING AND SLEEPERS. REMOVE GAS PIPING BACK TO ISOLATION VALVE ON THE ROOF. REMOVE THE CONTROL WIRING BACK TO THE REMOTE CONTROLLER. THE EXISTING CURB IS TO REMAIN AND BE REUSED. REMOVE THE EXISTING SUPPLY AND RETURN POOL HEATING WATER PIPING BACK TO POINT SHOWN ON HD200.
2	TEMPORARILY DISCONNECT AND REMOVE THE EXISTING ELECTRICAL SERVICE RECEPTACLE AND CONDUIT SERVING THE SERVICE OUTLETS AND LIGHT MOUNTED TO HV-5.



HVAC ROOF DEMOLITION WORK PLAN

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

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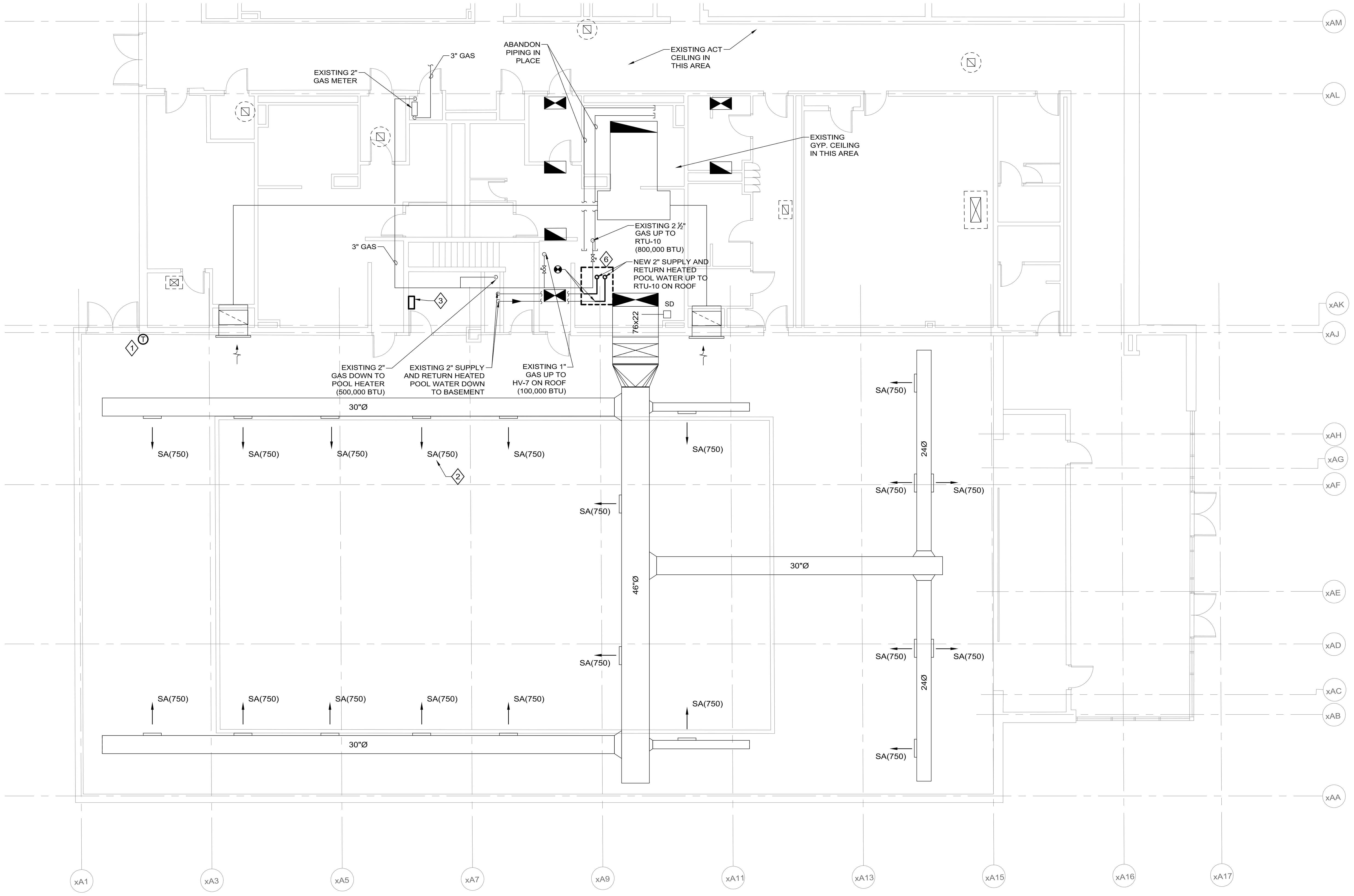
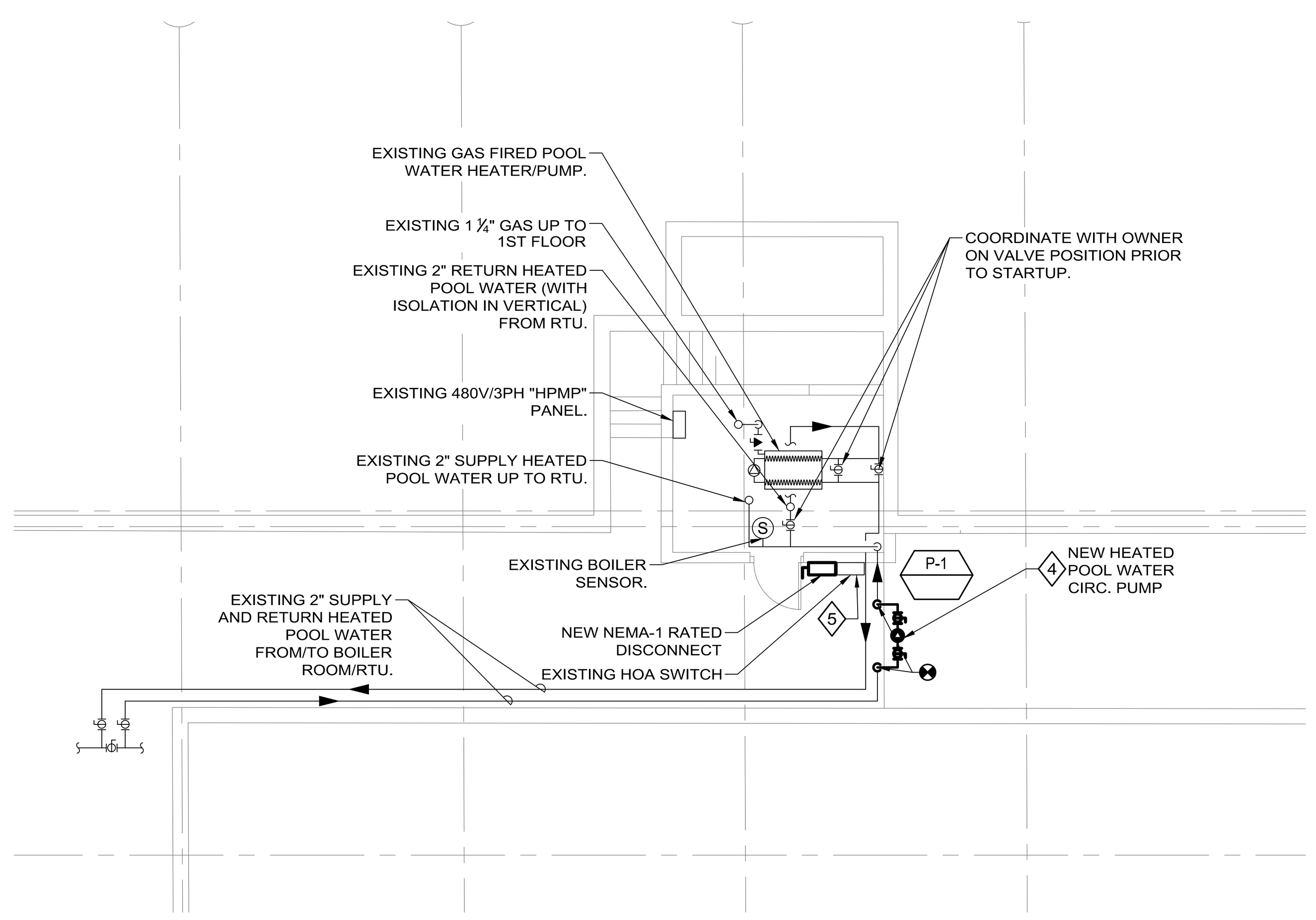
HD201



FLOOR PLAN - POOL
MAIN LEVEL
SCALE: 1/8"=1'-0"



FLOOR PART PLAN - POOL
BASEMENT
SCALE: 1/8"=1'-0"

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL DRAWINGS.
2. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
3. THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS-BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS-BUILT" DRAWINGS.
5. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
6. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST ONE WEEK IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
7. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
8. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
9. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
10. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
11. THE FIRE PROOFING OF THE BUILDING STRUCTURE IS NOT TO BE REMOVED FOR THE INSTALLATION OF HANGERS, SUPPORTS, DUCTWORK, ETC. IF FIRE PROOFING IS DAMAGED, IT SHALL BE REPAIRED AT THE EXPENSE OF THE TRADE.
12. CONTRACTOR SHALL TEST AND CALIBRATE ALL CONTROLS AND VERIFY ALL ARE FULLY FUNCTIONAL AND SUBMIT DOCUMENTATION. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
13. CONTRACTOR SHALL PROVIDE AND SUBMIT DOCUMENTATION FOR TESTING AND BALANCING OF ALL AIR AND WATER SYSTEMS, DUCT AND PIPING PRESSURE AND LEAKAGE TESTS, OPERATING AND MAINTENANCE MANUALS, AND AS BUILT DRAWINGS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
14. REFER TO THE PROJECT SPECIFICATIONS FOR FURTHER REQUIREMENTS.
15. MANY EQUIPMENT SCHEDULES DO NOT LIST QUANTITIES. CONTRACTOR SHALL REFER TO ALL DRAWINGS AND PROVIDE THE REQUIRED QUANTITIES FOR ALL COMPONENTS.
16. EXISTING ROOF SHALL BE THOROUGHLY PROTECTED TO PREVENT DAMAGE FROM CONSTRUCTION AND/OR RIGGING. ANY ROOF DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE BUILDING OWNER WITHOUT ANY ADDITIONAL COST TO THE CONTRACT.
17. FIELD VERIFY RIGGING REQUIREMENTS PRIOR TO SUBMITTING A PROPOSAL. COORDINATE ALL RIGGING WITH EXISTING CONDITIONS (INCLUDING ON STREET CONDITIONS AND PARKING). COORDINATE ALL RIGGING WITH THE BUILDING OWNER. PAY FOR ALL POLICE DETAILS (IF CRANE IS LOCATED ON TOWN PROPERTY OR STREETS). PROVIDE 72 HOUR WRITTEN NOTICE TO BUILDING OWNER PRIOR TO START OF RIGGING.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE BUILDING DURING RIGGING OF THE UNIT TO ENSURE SAFETY OF THE BUILDING OCCUPANTS. PROVIDE ALL REQUIRED RIGGING EQUIPMENT.
19. PROVIDE ADEQUATE WEATHER PROTECTION (AGAINST WIND, RAIN, SNOW, ETC.) FOR ALL ROOF OPENINGS DURING CONSTRUCTION.
20. THE EXISTING ROOF IS UNDER WARRANTY. THE MISCELLANEOUS ROOF WORK SHALL BE COORDINATED THROUGH THE MANUFACTURER OF THE EXISTING ROOF AND THE BUILDING OWNER TO INSURE THE ROOF WARRANTY REMAINS INTACT. THIS CONTRACTOR SHALL CARRY ALL COSTS ASSOCIATED WITH THE ROOF WORK IN THEIR CONTRACT PROPOSAL.
21. RIGGING SHOULD BE DONE OVER A WEEKEND (I.E. SATURDAY AND SUNDAY) / LONG WEEKEND. PREPARATION WORK IS ALLOWABLE PRIOR TO RIGGING.
22. THE PAVEMENT IN THE PARKING LOT NEAR THE BUILDING IS NEW. THE CONTRACTOR HAS TO REVIEW THE AREA PRIOR TO RIGGING. ANY PAVEMENT DAMAGE FROM CONSTRUCTION AND/OR RIGGING SHALL BE REPAIRED TO THE SATISFACTION OF THE BUILDING OWNER WITHOUT ANY ADDITIONAL COST TO THE CONTRACT.
23. THE CONTRACTOR SHALL OWN ALL PERMITS FOR THE WORK CONSTRUCTION (RIGGING, ELECTRICAL, GAS, PLUMBING, SHEET METAL, ETC ...).

KEYNOTES

1	PROVIDE NEW COLD SURFACE TEMPERATURE SENSOR. COORDINATE FINAL LOCATION WITH OWNER AND RTU MANUFACTURER. PAINT ALL EXPOSED CONDUIT IN POOL AREA TO MATCH EXISTING WALLS/CONDUIT.
2	REBALANCE NEW RTU-10 TO CFM SHOWN. IF BALANCING DAMPERS ARE NOT PRESENT, TRAVERSE BALANCING AT RTU-10 IS ACCEPTABLE.
3	PROVIDE NEW CONTROLLER AND CONTROL WIRING BACK TO THE NEW ROOFTOP UNIT.
4	PROVIDE NEW HEATED POOL WATER CIRCULATOR PUMP AND ASSOCIATED ISOLATION VALVES. BALANCE THE NEW PUMP TO 45 GPM.
5	PROVIDE NEW NEMA-1 RATED DISCONNECT (480V/3PH) ON LINE VOLTAGE SIDE FOR NEW POOL HEATER PUMP P-1. CONNECT IT TO EXISTING HOA.
6	REMOVE AND PROVIDE NEW GYP. CEILING (AS NECESSARY) IN THE AREAS ABOVE THE SHOWERS (BELOW THE RTU-10) AS SHOWN FOR THE DEMOLITION AND NEW WORK BELOW THE RTU-10. PATCH AND PAINT THE OPENINGS TO MATCH EXISTING AFTER WORK HAS BEEN COMPLETED.

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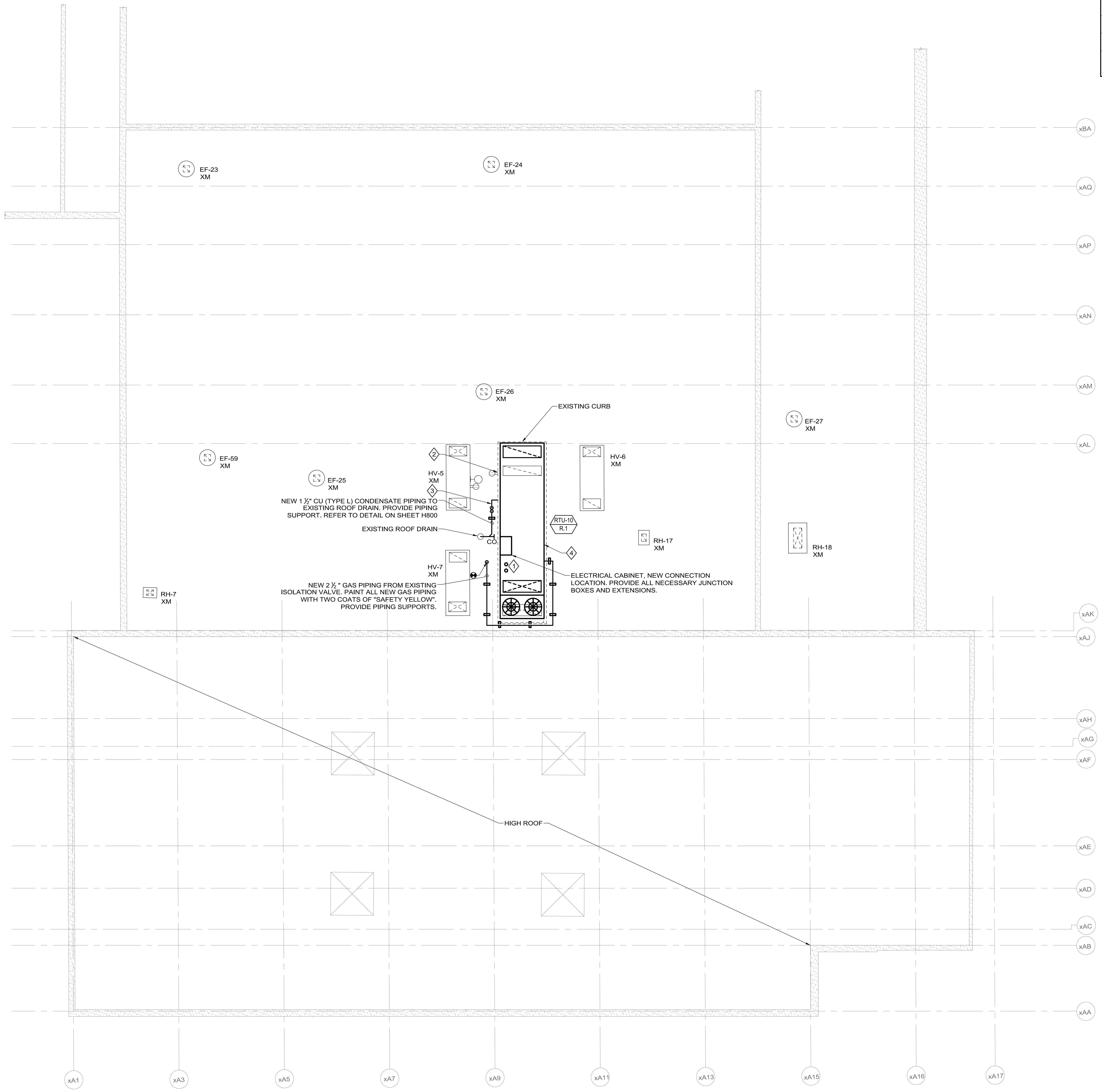
HVAC
FIRST FLOOR
NEW WORK PLAN

1/8" = 1' - 0"   0   8'   16'

H200

N|V|5

KEYNOTES	
1	CONNECT NEW POOL DEHUMIDIFIER UNIT TO SUPPLY AND RETURN HEATED POOL WATER PIPING. PROVIDE LINE SIZED ISOLATION BALL VALVES (FOR SUPPLY AND RETURN) AT UNIT. PROVIDE HIGH POINT VACUUM BREAKER ON PIPING FOR DRAINING UNIT.
2	REINSTALL THE CONVENIENCE OUTLET, CONDUIT AND SLEEPERS.
3	INSULATE CONDENSATE PIPING. PROVIDE WITH WEATHERPROOF HEAT TRACE/CONTROLLER. ACTIVATE HEAT TRACE WHEN AMBIENT TEMPERATURE DROPS BELOW 38°F. PROVIDE NEW PIPING SUPPORTS.
4	PROVIDE NEW POOL DEHUMIDIFIER UNIT AS SCHEDULED. MOUNT UNIT ON EXISTING CURB AND PROVIDE INSULATED CURB TRANSITION ADAPTER. PROVIDE NEW CONTROL WIRING BACK TO SOURCE. THE UNIT IS TO BE RIGGED ON A WEEKEND WITH THE STRUCTURAL ENGINEER (MCBRIE LLC - 978-646-0097) AND EXISTING ROOFING CONTRACTOR (COORDINATE WITH OWNER).



HVAC ROOF NEW WORK PLAN

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

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H201

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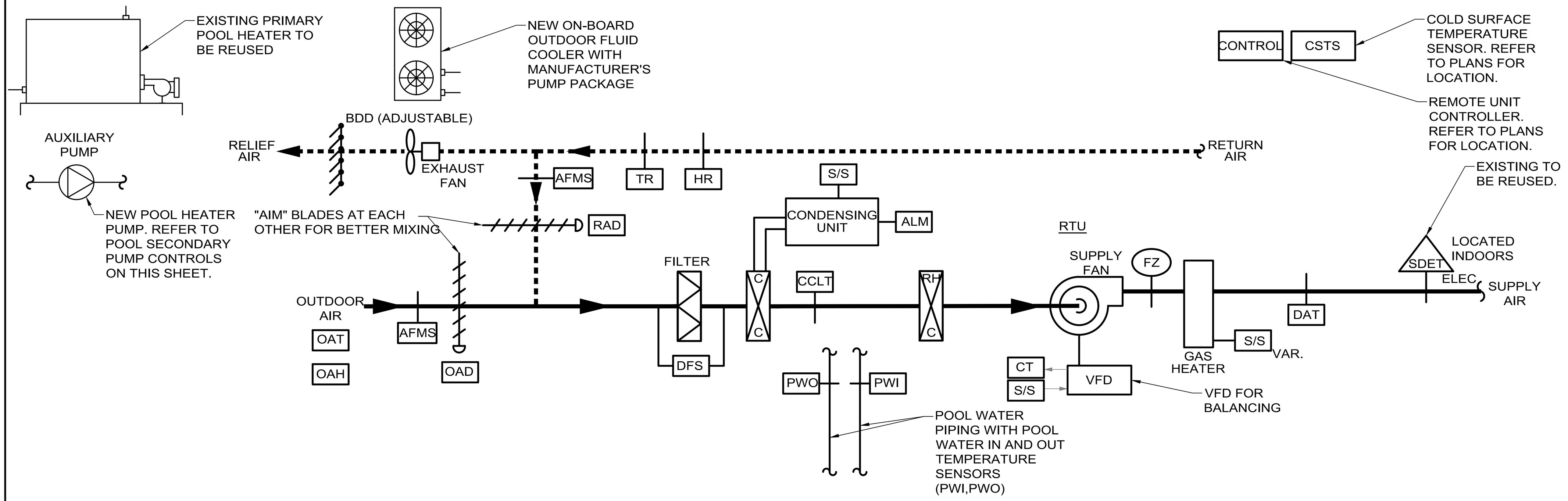
CONTROL POINT DESCRIPTOR LEGEND

Symbol	Description
TAG (oval)	ATC CONTRACTOR PROVIDED DDC POINT AND HARDWARE
TAG (triangle) ELEC PLBG	CONTROL DEVICE FURNISHED BY ELECTRICAL OR PLUMBING CONTRACTOR BUT INTERFACED TO DDC SYSTEM BY ATC CONTRACTOR
TAG (rectangle)	ATC CONTRACTOR INTERFACE TO EQUIPMENT MANUFACTURER'S HARDWARE
TAG (circle)	ATC CONTRACTOR PROVIDED LOCAL CONTROL POINT

CONTROL ABBREVIATIONS

ACD	AUTOMATIC CONTROL DAMPER
ACV	AUTOMATIC CONTROL VALVE
AFMS	AIR FLOW MEASURING STATION
ALM	ALARM
ATC	AUTOMATIC TEMPERATURE CONTROL
CT	CURRENT TRANSFORMER (STATUS FEEDBACK)
CV	COOLING COIL CONTROL VALVE
DAT	DISCHARGE AIR TEMPERATURE SENSOR
DDC	DIRECT DIGITAL CONTROL
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL
DPS	DIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
EAD	EXHAUST AIR DAMPER
ES	END SWITCH
FA	FAULT ALARM
FS	FLOW SWITCH
FZ	FREEZESTAT
H	HUMIDITY SENSOR
HGBP	HOT GAS BYPASS
HHL	HIGH HUMIDITY LIMIT SENSOR
HLH	HIGH/LOW HUMIDITY LIMIT SENSOR
HOA	HANDS-OFF AUTOMATIC SWITCH
LAT	LEAVING AIR TEMPERATURE SENSOR
MAT	MIXED AIR TEMPERATURE SENSOR
NC	NORMALLY CLOSED (ON LOSS OF POWER)
NO	NORMALLY OPEN (ON LOSS OF POWER)
OAD	OUTSIDE AIR DAMPER
OAH	OUTSIDE AIR HUMIDITY SENSOR (FOR WET BULB READING)
OAT	OUTSIDE AIR TEMPERATURE SENSOR (DRY BULB)
RAD	RETURN AIR DAMPER
RAH	RETURN AIR HUMIDITY SENSOR
RAT	RETURN AIR TEMPERATURE SENSOR
RH	RELATIVE HUMIDITY
S	SWITCH
SPD	SPEED CONTROL
S/S	START/STOP
T	TEMPERATURE SENSOR/THERMOSTAT
VFDS	VARIABLE FREQUENCY DRIVE SPEED
VFDO	VARIABLE FREQUENCY DRIVE SPEED OUTPUT (FEEDBACK)
WC	WATER COLUMN
X	REMOVE EXISTING ITEM



ROOFTOP UNIT CONTROL SEQUENCES

ROOF TOP UNIT CONTROLS

GENERAL

1. ROOFTOP UNIT SHALL BE STARTED AND STOPPED VIA LOCAL THERMOSTAT CONTROL AND ON-BOARD MANUFACTURES CONTROLS. COORDINATE OCCUPIED AND UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
3. ALL TEMPERATURE SENSORS IN THE UNIT AND DUCTWORK SHALL BE AVERAGING TYPE EXCEPT FOR FREEZESTATS WHICH SHALL BE LOW POINT READING TYPE.
4. PROVIDE APPROPRIATE ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSOR AND GAS HEATER STAGING.

FAN CONTROL

1. THE SUPPLY FAN AND RETURN FAN SHALL RUN CONTINUOUSLY AT THE SCHEDULED AIRFLOW. THE OAD AND RAD SHALL BE SET TO THE SCHEDULED OUTDOOR AIR POSITION. THE RETURN AIR FAN SHALL BE BALANCED TO MEET THE SHEDULED EXHAUST AIRFLOW.

OCCUPIED HEATING CONTROL

1. UPON A DROP IN ROOM TEMPERATURE BELOW THE ROOM HEATING SETPOINT OF 84°F, GAS HEATER SHALL BE STAGED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.

OCCUPIED COOLING CONTROL

1. UPON A RISE IN ROOM TEMPERATURE ABOVE THE ROOM COOLING SETPOINT OF 84°F, THE COOLING CYCLE SHALL BE ACTIVATED.

OCCUPIED\UNOCCUPIED RH CONTROL

1. THE UNIT SHALL USE ON-BOARD LOGIC CONTROLS TO MAINTAIN AN OCCUPIED RH SETPOINT OF 60%RH DURING OCCUPIED MODE AND 50% RH UNOCCUPIED (+- 2%).
2. THE MODULATING REHEAT COIL AND COMPRESSORS SHALL BE STAGED AS NECESSARY VIA ON-BOARD MANUFACTURE'S CONTROLS.
3. IF THE COLD SURFACE TEMPERATURE SENSOR (CSTS) DETECTS A SURFACE TEMPERATURE NEAR DEWPOINT, THE MANUFACTURER'S ON-BOARD CONTROLS SHALL RESET THE HUMIDITY SETPOINT.

POOL HEATING CONTROL

IF THE POOL RETURN WATER TEMPERATURE IS BELOW THE SETPOINT (82°F):

1. IF THE COMPRESSOR IS ALREADY OPERATING, THE RTU SHALL HEAT THE WATER USING THE ON-BOARD MANUFACTURER'S CONTROLS.
2. IF THERE IS NO PRE-EXISTING DEMAND FOR COMPRESSOR OPERATION, THE RTU DO NOTHING. THE EXITING BOILER SHALL MAINTAIN THE SETPOINT USING EXISTING CONTROLS.
3. WHEN THE POOL WATER SETPOINT IS REACHED, EXCESS HEAT SHALL BE REJECTED TO ATMOSPHERE VIA THE FLUID COOLER.

SAFETIES

1. THE FOLLOWING SAFETIES SHALL SHUT DOWN THE UNIT VIA HARDWARE.

a. ANY FREEZESTAT (FZ) SHALL SHUTDOWN THE UNIT WHENEVER THE TEMPERATURE IS LESS THAN 35°F.

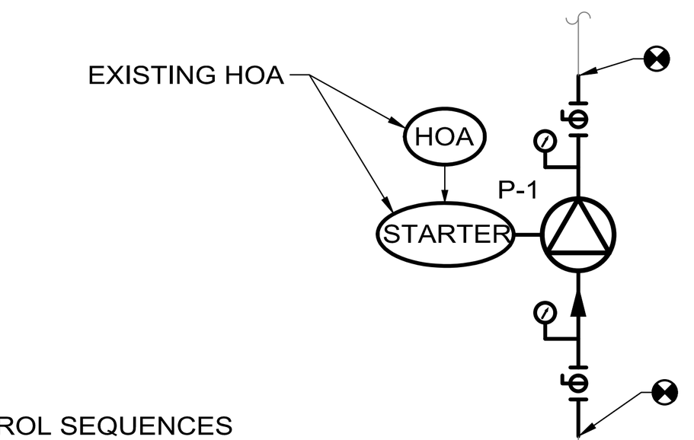
b. WHEN ANY SMOKE DETECTOR (SDET) IS ACTIVATED THE UNIT SHALL SHUT DOWN. THE ATC CONTRACTOR SHALL WIRE THE UNIT TO THE EXISTING DUCT MOUNTED SMOKE DETECTOR.

ALARMS

1. IF EITHER THE SUPPLY OR EXHAUST FAN FAILS OR IF ANY SAFETY IS TRIPPED, THE UNITS SHALL INDICATE AN ALARM.
2. IF THE FILTER CHANGE TIMER HAS LAPSED, OR THE DIRTY FILTER SWITCH (DFS) DETECTS A DIRTY FILTER THE UNIT SHALL INDICATE AN ALARM.

ROOFTOP UNIT CONTROL SEQUENCES

HC001



HEATER PUMP CONTROL SEQUENCES

GENERAL

1. THE HEATING SYSTEM PUMP SHALL BE STARTED AND STOPPED MANUALLY VIA THE HAND-OFF-AUTO SWITCH.

PUMP CONTROL

1. THE PUMP SHALL RUN CONTINUOUSLY.

NEW POOL HEATER PUMP CONTROLS

HC002

GENERAL ATC NOTES

1. ALL ATC CONTROLS SHALL BE HARDWIRED. NO WIRELESS TECHNOLOGY SHALL BE ALLOWED. ALL EXPOSED WIRING SHALL BE INSTALLED IN MINIMUM ½ INCH GALVANIZED EMT CONDUIT. ALL EXPOSED WIRING LOCATED IN THE POOL AREA SHALL BE INSTALLED IN EMT CONDUIT AND PAINTED TO MATCH EXISTING.
2. THE CONTRACTOR SHALL THE NECESSARY HOURS OF ADDITIONAL ON-SITE PROGRAMMING TO ALLOW FOR FIELD MODIFICATIONS THAT MAY BE NEEDED TO OPTIMIZE THE VARIOUS SYSTEMS TO FULLY CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS, SEQUENCE OF CONTROLS AND WORK WITH THE ACTUAL OPERATING CONDITIONS AS INSTALLED. THIS WORK SHALL BE DONE AT NO ADDITIONAL COST.
3. ON-SITE TRAINING SHALL ALSO INCLUDE A MINIMUM OF 4 HOURS OF HANDS ON INSTRUCTION GEARED TOWARD OPERATION AND MAINTENANCE OF THE SYSTEMS, PRIOR TO TRAINING, THE NECESSARY LESSON PLANS, TRAINING DOCUMENTS, HANDOUTS, ETC. SHALL BE PROVIDED WITH THE CURRICULUM OUTLINE.
4. PROVIDE WIRING FROM ELECTRICAL SOURCE TO MISCELLANEOUS ATC DEVICES.
5. PROVIDE DEMOLITION OF EXISTING CONTROL COMPONENTS WHICH ARE BEING REPLACED BY THE NEW.

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HVAC CONTROLS

H700

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PROVIDE AD-ALT PRICING FOR THIS OPTION.

POOL DEHUMIDIFIER UNIT SCHEDULE

TAG	REFRIGERANT TYPE	MIN. O.A. CONDITIONS CFM	MIN. O.A. CONDITIONS SUMMER DB (°F)	MIN. O.A. CONDITIONS SUMMER WB (°F)	MIN. O.A. CONDITIONS WINTER DB (°F)	ROOM CONDITIONS DB (°F)	ROOM CONDITIONS RH (%)	SUPPLY FAN CFM TOTAL	SUPPLY FAN CFM MIN. O.A.	SUPPLY FAN CAPACITY CONTROL TYPE	SUPPLY FAN STATIC PRESS. (IN.WG) EXT.	SUPPLY FAN MOTOR HP	SUPPLY FAN MOTOR FLA	EXHAUST FAN CFM TOTAL	EXHAUST FAN CAPACITY CONTROL RANGE	EXHAUST FAN CAPACITY CONTROL TYPE	EXHAUST FAN STATIC PRESS. (IN.WG) EXTERNAL	EXHAUST FAN MOTOR HP	EXHAUST FAN MOTOR FLA	PURGE FAN CFM TOTAL	PURGE FAN STATIC PRESS. (IN.WG) EXTERNAL	PURGE FAN MOTOR HP	PURGE FAN MOTOR FLA	COMPRESSORS TYPE	COMPRESSORS NO.	EVAPORATOR COIL CAPACITY (MBH) TOTAL	EVAPORATOR COIL CAPACITY (MBH) SENS.	EVAPORATOR COIL MOISTURE REMOVAL LBS/H	REHEAT COIL TOTAL HEAT REJECTION (MBH)	REHEAT COIL CONTROL TYPE	GLYCOL PUMP HP	POOL HEATING COIL CAPACITY (MBH)	POOL HEATING COIL HOT WATER DATA GPM	POOL HEATING COIL HOT WATER DATA EWT (°F)	POOL HEATING COIL HOT WATER DATA LWT (°F)	POOL HEATING COIL HOT WATER DATA P.D. (FT.)	GAS HEATING SECTION CAPACITY (MBH) INPUT (MBH)	GAS HEATING SECTION CAPACITY (MBH) OUTPUT (MBH)	GAS HEATING SECTION CAPACITY (MBH) MIN. EFF (%)	GAS HEATING SECTION AIR DATA EAT (°F)	GAS HEATING SECTION AIR DATA LAT (°F)	GAS HEATING SECTION CAPACITY CONTROL	AIR FLUID COOLER CAPACITY (MBH)	AIR FLUID COOLER MOTORS NO	AIR FLUID COOLER MOTORS HP	AIR FLUID COOLER MOTORS FLA (A)	ELECTRICAL DATA V	ELECTRICAL DATA PH	ELECTRICAL DATA MCA (A)	ELECTRICAL DATA MOCP (A)	ELECTRICAL DATA EXISTING BREAKER (A)	WEIGHT (LBS) EXCLUDING CURB ADAPTER	ESTIMATED EXISTING UNIT WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
RTU-10	R-410A	4075	90.8	73.3	12.4	84	60	15000	4075	VFD	1.5	20	25.9	4775	4775	ECM	0.5	3.9	3.7	10925	.5	5.3	4.7	SCROLL	2	395.1	199.4	181.1	493.9	MOD.	.75	273	45	82	94.1	13.86	800	640	80	61	100	MOD.	493.9	2	3.4	4.2	460	3	101	125	150	9600	11000	POOLPAK MODEL PPK 120	SEE NOTES

NOTES:

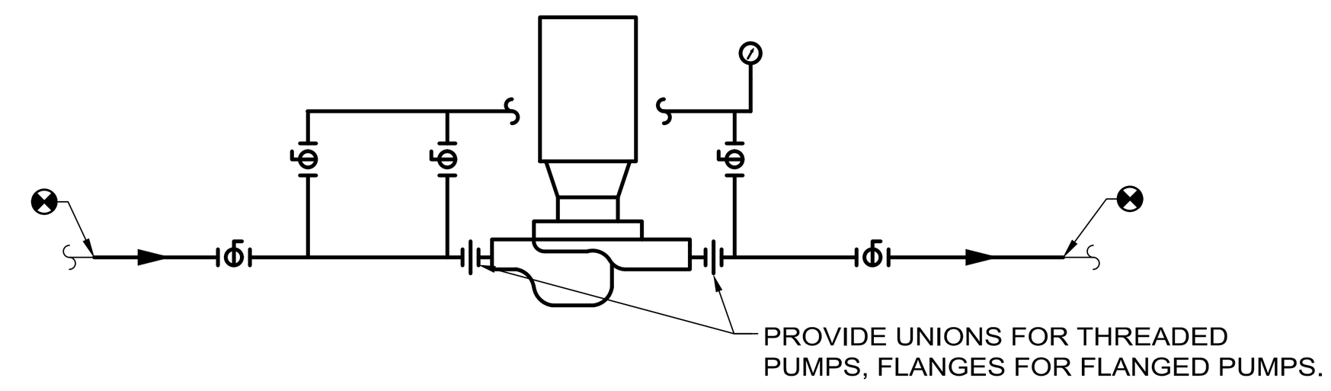
1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2. COORDINATE WITH MANUFACTURER PRIOR TO PURCHASING UNIT SO SUPPLY AND RETURN LOCATION/ARRANGEMENT MATCHES THE EXISTING ROOFTOP UNIT. PROVIDE CURB TRANSITION ADAPTER AS REQUIRED. CONFIRM COIL PULL, CONDENSATE PIPING, GAS PIPING AND SERVICE SIDE HANDING PRIOR TO ORDERING.
3. CABINET SHALL INCLUDE FULL PERIMETER BASE RAILS FOR SHIPPING AND RIGGING. FACTORY DAMPERS SHALL BE INSULATED LOW LEAKAGE TYPE.
4. PROVIDE DOUBLE WALL CONSTRUCTION GALVANIZED STEEL, FULLY INSULATED CABINET WITH 2" OF INSULATION. PROVIDE HINGED ACCESS DOORS WITH SINGLE LEVER LATCH MECHANISM AND DOOR HOLDER. INTERIOR PANELS SHOULD BE SUITABLE FOR CHLORINE AND POOL CHEMICAL RESISTANCE. EXTERIOR PANELS SHOULD BE DESIGNED FOR OUTDOOR INSTALLATION.
5. PROVIDE NON CORRODING PROTECTIVE MESH SCREENS ON ALL AIR INTAKE OPENINGS.
6. PROVIDE UNIT WITH REMOTE CONTROL PANEL AND COLD WALL SENSOR AS INDICATED ON PLANS. ADDITIONALLY, PROVIDE UNIT WITH AIR FLOW SWITCH, FREEZE-STAT, AND DIRTY FILTER SWITCH.
7. UNIT TO BE SINGLE POINT POWER CONNECTION. PROVIDE WITH FACTORY INSTALLED DISCONNECT. PROVIDE FACTORY PHASE FAILURE/UNDER VOLTAGE PROTECTION.
8. PROVIDE FACTORY INTERNAL FILTER RACK (NON-METALLIC), 2", 30% MERV 8 ON SUPPLY AIR, EXHAUST AIR AND OUTSIDE AIR.
9. PROVIDE WITH AIR FLOW MONITORING STATIONS AND ALL CONTROLS AND SENSORS AS SHOWN ON H700.
10. PROVIDE FACTORY START-UP OF ROOFTOP UNIT.
11. PROVIDE PREMIUM EFFICIENCY VFD FAN MOTORS WITH SHAFT GROUNDING.
12. PROVIDE WITH 90-DAY COMPLETE UNIT WARRANTY (PARTS AND LABOR), 2 YEAR PARTS WARRANTY, AND 5 YEAR COMPRESSOR WARRANTY.
13. THE NEW RTU IS TO HAVE LESS THAN 10 PERCENT INCREASE IN TOTAL OPERATING WEIGHT OVER EXISTING UNIT (INCLUDING ANY REQUIRED CURB ADAPTERS).
14. THE NEW RTU IS TO HAVE LESS THAN OR EQUAL TO THE EXISTING MAXIMUM OVER CURRENT PROTECTION RATINGS.
15. PROVIDE HEAT TRACE FOR CONDENSATE PIPING.
16. ALL CONTROLS ARE TO BE OPEN. ALL REPAIRABLE PARTS SHALL BE REASONABLY AVAILABLE LOCALLY, BY LOCAL WHOLESALERS IN THE U.S.

PUMP SCHEDULE

TAG	SERVICE	LOCATION	CASING TYPE	FLUID TYPE	FLUID TEMP (°F)	GPM	NPSHR (FT.)	HEAD (FT.)	SHUT-OFF HEAD (FT.)	IMPELLER SIZE (IN.)	MOTOR RPM	MOTOR BHP	MOTOR HP	MOTOR V	MOTOR PH	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
P-1	POOL	BASEMENT	CAST IRON	WATER	85	45	4.3	50	55	7	1725	1	2	460	3	BELL AND GOSSETT E-90 1.5AB	SEE NOTES

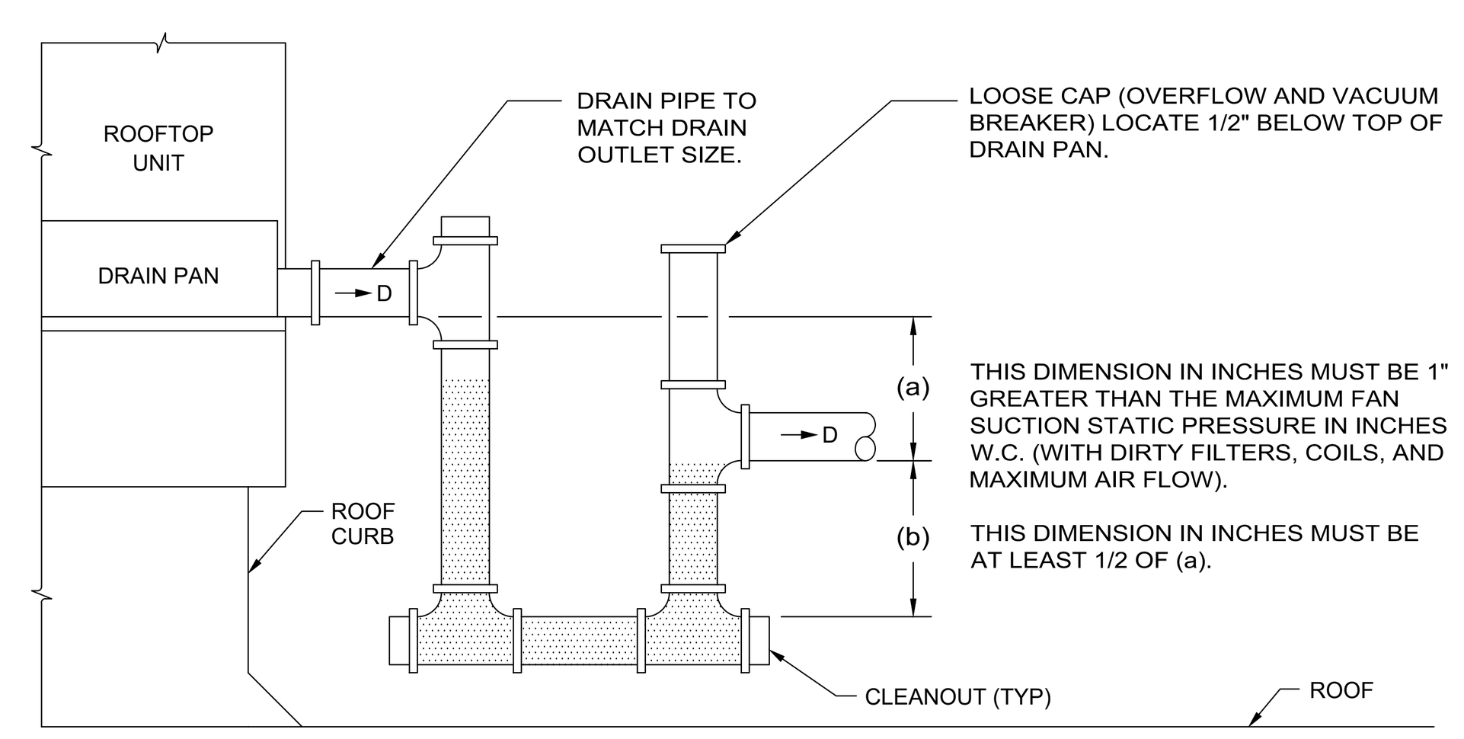
NOTES:

1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2 PROVIDE ALL NECESSARY FITTINGS, COUPLINGS AND STANDS FOR A COMPLETE INSTALLATION.
3 PROVIDE WITH DISCONNECT. INTEGRATE WITH EXISTING HAND-OFF-AUTO SWITCH/STARTER/THERMAL OVERLOAD.
4 PROVIDE WITH 2HP THREE PHASE MOTOR.
5 THE CONTRACTOR SHALL CONFRIM WITH THE MANUFACTURER THE USE OF PUMP WITH CHLORINATED WATER.

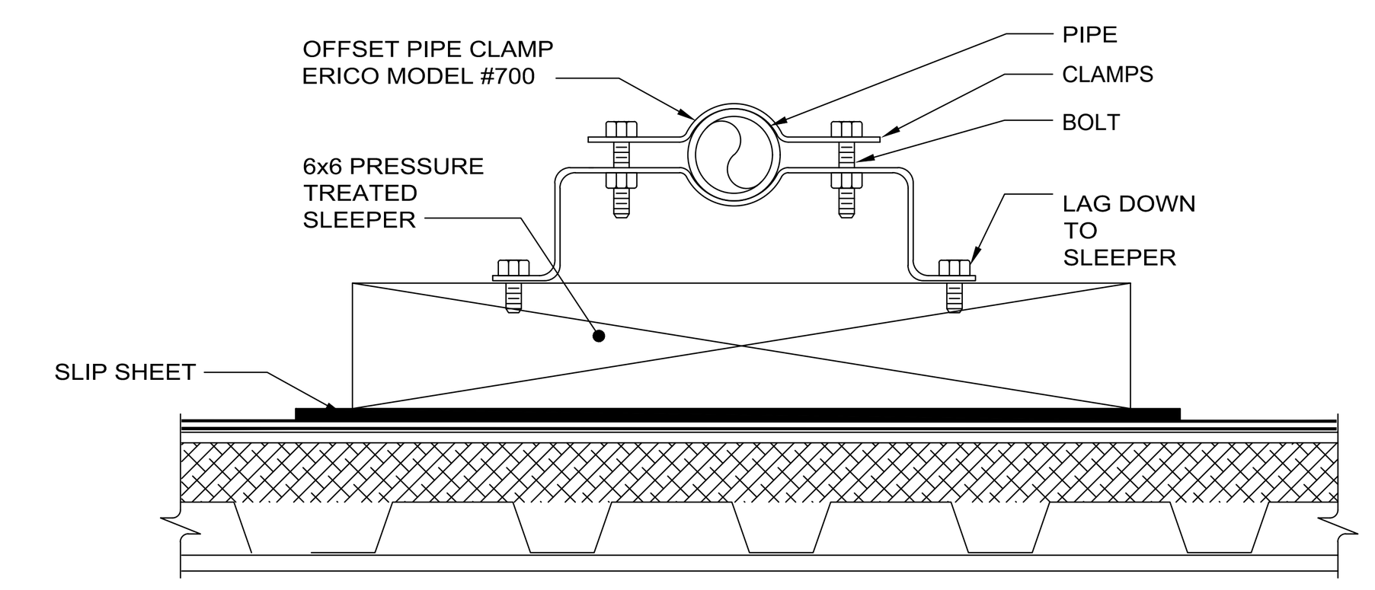


NOTES:
1. VALVES SHALL BE SAME SIZE AS PIPE, REDUCE TO PUMP CONNECTIONS AS REQUIRED.
2. FOR PUMPS OVER ¼ HP: PUMP & PIPE WITHIN 20' SHALL HAVE SPRING-ISOLATOR SUPPORTS

NV5 — INLINE PUMP PIPING — H1201



NV5 — DRAW THRU UNIT CONDENSATE TRAP — HPW010



NOTES:
1. FOR DISTANCE BETWEEN SUPPORTS REFER TO SPECIFICATIONS.
2. PROVIDE DOUBLE LAYER SLIP SHEET (ROOF MEMBRANE) BETWEEN ROOF & SLEEPER.
3. THE EXISTING ROOF IS UNDER WARRANTY. THE MISCELLANEOUS ROOF WORK SHALL BE COORDINATED THROUGH THE MANUFACTURER OF THE EXISTING ROOF AND THE BUILDING OWNER.

NV5 — ROOF PIPING SUPPORT — HAS007R

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At the request of [IDENTIFY PARTY], this [NAME OF DELIVERABLE (REPORT, DRAWINGS, ETC.)] has been expedited to [Client] Hence, [client] is hereby notified that NV5 did not have an opportunity to conduct its industry standard quality control procedures. Accordingly, Client agrees that the [NAME OF DELIVERABLE] is subject to revision, including but not limited to contractor change orders or owner claims, in connection with [NAME OF DELIVERABLE].

REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0190207

DATE
10/30/2019

WESTWOOD RECREATION DEPT. POOL RTU #REC-20-B-003

DRAWING

DRAWN BY
NG

CHECKED BY
CH

SCALE
NTS

HVAC
SCHEDULES AND DETAILS

H800

NV5