Hamtramck High School - Pool Filtration Upgrades

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List of Drawings

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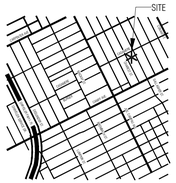
LOCATION MAP

NORTH



OWNER

Hamtramck
Public Schools

PROJECT NAME

Hamtramck High School
Pool Filtration System
Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding - Construction 03/17/2016

DRAWN BY

FGM

CHECKED BY

ACS

APPROVED BY

MAM

SHEET NAME

COVER SHEET

SHEET NO.

A0-00

Abbreviations

A

AFF	ABOVE FINISHED FLOOR
ARF	ABOVE REFERENCE FLOOR
ACCT	ACCENT
AP	ACCESS PANEL
AC	ACOUSTICAL
ACT	ACOUSTICAL TILE
ADD	ADDENDUM
ADDTL	ADDITIONAL
ADJ	ADJACENT
AGG	AGGREGATE
A/C	AIR CONDITIONING
ALT	ALTERNATE OR ALTERNATIVE
AL.ALUM	ALUMINUM
ANCH	ANCHOR, ANCHORAGE
AB	ANCHOR BOLT
ANOD	ANODIZED
ARCH	ARCHITECT(URAL)
ASPH	ASPHALT
AUTO	AUTOMATIC

B

B.F.	BARRIER FREE
BP BP_L	BASE PLATE OR BEARING P_L
BRG	BEARING
BM	BENCH MARK OR BEAM
BETW	BETWEEN
BIT	BITUMINOUS
BLKG	BLOCKING
BD	BOARD
BS	BOTH SIDES
BOTTOM	BOTTOM
BC	BOTTOM OF CURB
BRK	BRICK
BLDG	BULDING
BL	BUILDING LINE

C

CABT	CABINET
CR	CARD READER
CPT	CARPET(ED)
CES	CARPET EDGE STRIP
CI	CAST IRON
CIP	CAST-IN-PLACE
CB	CATCH BASIN
CLG	CEILING
CEM	CEMENT
C TO C	CENTER TO CENTER
CM	CENTIMETER(S)
C°	DEGREES CENTIGRADE
CER	CERAMIC
CT	CERAMIC TILE
CHAN	CHANNEL
CHDK PL	CHECKERED PLATE
CL	CLEAR(ANCE)
CLOS	CLOSET
CO	CLEAN OUT
CHK	COAT HOOK
CW	COLD WATER
COL	COLUMN
COMB	COMBINATION
COMP	COMPRESS(ED),(ION),(IBLE)
CONCE	CONCEALED
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT (CONCRETE BLOCK)
CONN	CONNECTION
CONST	CONSTRUCTION
CONST JT	CONSTRUCTION JOINT
CONT	CONTINUOUS OR CONTINUE
CONTR	CONTRACT(OR)
CJ	CONTROL JOINT
CORR	CORRUGATED OR CORRIDOR
CTR	CENTER
CTSK	COUNTERSUNK
CF	CUBIC FOOT
CY	CUBIC YARD
CYL	CYLINDER

D

DPR	DAMPER
DP	DAMPROOFING
DL	DEAD LOAD
DEFS	DIRECT EXTERIOR FINISH SYSTEM
DET	DETAIL
DIAG	DIAGONAL
Ø	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
D/W	DISHWASHER
DO	DOOR OPENING
DN	DOWN
DT	DRAIN TILE
DWG	DRAWING
DF	DRINKING FOUNTAIN

E

EA	EACH
EF	EACH FACE
EW	EACH WAY
E	EAST
ELEC	ELECTRIC(AL)
EWC	ELECTRIC WATER COOLER
EL	ELEVATION
ELEV	ELEVATOR
EMER	EMERGENCY
ENC	ENCLOS(E), (URE)
EP	EPOXY
EQ	EQUAL
EQUIP	EQUIPMENT
ESC	ESCALATOR
EPDM	ETHYLENE PROPYLENE DIENE MONOMERS
EXH	EXHAUST
EB	EXPANSION BOLT
EJ	EXPANSION JOINT
EXP CONST	EXPOSED CONSTRUCTION
EXT	EXTERIOR
ETR	EXISTING TO REMAIN

F

FWP	FABRIC WRAPPED PANEL
FB	FACE BRICK
FOC	FACE OF CONCRETE
FF	FACTORY FINISH
FS	FAR SIDE
F°	DEGREES FAHRENHEIT
FT	FEET/FOOT
FIN	FINISH(ED)
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FVC	FIRE VALVE CABINET
FLD	FIELD
FHS	FIRE HOSE STATION
FPR	FIRE PROOF(ING)
FL	FLOOR(ING)
FD	FLOOR DRAIN
FLUOR	FLUORESCENT
FTG	FOOTING
FDN	FOUNDATION
FA	FRESH AIR
FSRS	FULLY-ADHERED SHEET ROOFING SYSTEM
FURR	FURR(ED), (ING)

G

GA	GAGE, GAUGE
GAL	GALLON
GALV	GALVANIZED
GL	GLASS, GLAZING
GR	GRADE, GRADING
g	GRAM
GRD	GROUND
GYP	GYPSUM
GYP BD	GYPSUM BOARD
GYP L	GYPSUM LATH
GP	GYPSUM PLASTER

H

HDCP	HANDICAP(PED)
HDBD	HARDBOARD
HDWE	HARDWARE
HWD	HARDWOOD
HTG	HEATING
H&V	HEATING & VENTILATING
HVAC	HEATING VENTILATION/ AIR CONDITIONING
HT	HEIGHT
H	HIGH
HP	HIGH POINT
HS	HIGH STRENGTH
HC	HOLLOW CORE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HB	HOSE BIBB
HW	HOT WATER
HWH	HOT WATER HEATER
HR	HOUR

I

IN(")	INCH(ES)
INCL	INCLUDE(D), (ING)
INFO	INFORMATION
ID	INSIDE DIMENSION
INSUL	INSULATE(D), (ION)
ICA	INTEGRAL COLOR ANODIZED
INT	INTERIOR/INTERNAL
INTERM	INTERMEDIATE
INV	INVERT
IRR	IRRIGATION

J

JC	JANITOR'S CLOSET
JT	JOINT
JST	JOIST
JB	JUNCTION BOX

K

kg	KILOGRAMS
KV	KILOVOLT
KVA	KILOVOLT/AMPERE
KW	KILOWATT(S)
KWH	KILOWATT-HOUR
kg/m	KILOGRAM PER METER
kg/cm^2	KILOGRAM PER SQUARE CENTIMETER
K	KIPS
KSI	KIPS PER SQUARE INCH
KIT	KITCHEN
KO	KNOCKOUT

L

LAB	LABORATORY
LAM	LAMINATE(D)
LAV	LAVATORY
LCC	LEAD COATED COPPER
LH	LEFT HAND
LHR	LEFT HAND REVERSE
L	LENGTH
LT	LIGHT
LTG	LIGHTING
LP	LIGHTING PANEL
LIN	LINEAR, LINEAL
LSWD	LINEAR SUSPENDED WOOD CEILING
LL	LIVE LOAD
LG	LONG
LLBB	LONG LEGS BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLO	LONG LEG OUTSTANDING
LLV	LONG LEG VERTICAL
LOC	LOCATE(LOCATION
L.P.	LOW POINT
LV	LOW VOLTAGE

M

MAG	MAGNETIC
MH	MANHOLE
MFR	MANUFACTURE(R)
MAR	MARBLE
MAR T.	MARBLE THRESHOLD
MBD	MARKER BOARD
MAS	MASONRY
MO	MASONRY OPENING
MAT	MATERIAL(S)
MAX	MAXIMUM
MECH	MECHANICAL
MC	MEDICINE CABINET
MED	MEDIUM
MEM	MEMBER
MEMB	MEMBRANE
MET	METAL
MDS	METAL DIVIDER STRIP
ML	METAL LATH
MET T.	METAL THRESHOLD
MEZZ	MEZZANINE
mm	MILLIMETER(S)
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MISC	MISCELLANEOUS IRON
MON.	MONITOR(ED)
MCC	MOTOR CONTROL CENTER
MTD	MOUNT(ED), (ING)
MULL	MULLION

N

NAT	NATURAL
NCA	NATURAL COLOR ANODIZED
NEG	NEGATIVE
NRC	NOISE REDUCTION COEFFICIENT
NONCOMB	NONCOMBUSTIBLE
NOM	NOMINAL
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO (#)	NUMBER

O

OFF	OFFICE
O/C	ON CENTER(S)
OPG	OPENING
OPP	OPPOSITE
OPP HD	OPPOSITE HAND
ORIG	ORIGINAL
Oz	OUNCE
OS	OUTSIDE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OH	OVERHEAD

P

PH	PHYSICALLY HANDICAPPED
PT	PORCELAIN TILE
PR	PAIR
PNL	PANEL
PTD	PAPER TOWEL DISPENSER
PTD/R	PAPER TOWEL DISPENSER & RECEPTACLE COMBINATION
PKG	PARKING
PBD	PARTICLE BOARD
PARTN	PARTITION
PE	PASSENGER ELEVATOR
PERM	PERMANENT
PLAS	PLASTER
PLAM	PLASTIC LAMINATE
P_L	PLATE
PLBG	PLUMBING
PLWD	PLYWOOD
PNT	PAINT(ED)
POLYISO	POLYISOCYANURATE
PVC	POLYVINYL CHLORIDE
lb/#	POUND(S)
PCF	POUNDS PER CUBIC FOOT
PPF	POUNDS PER FOOT
PLF	POUNDS PER LINEAL FOOT
PSF	POUNDS PER SQUARE FOOT
PC	PRECAST CONCRETE
PRE-FAB	PREFABRICATE(D)
PROP	PROPOSED

Q

QT	QUARRY TILE
QB	QUARRY TILE BASE
QTR	QUARTER

R

RAD	RADIUS, RADIATOR, RADIATION
RC	RAINWATER CONDUCTOR
RECVG	RECEIVING
REC	RECESS(ED)
REF	REFERENCE
REFL	REFLECT(ED), (IVE), (OR)
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE(D), (ING)
REQD	REQUIRED
RESIL	RESILIENT
RT	RESILIENT TILE
RA	RETURN AIR
REV	REVISION(S), REVISED
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
ROW	RIGHT OF WAY
R	RISER
Rd	ROAD

R (CONT.)

RD	ROOF DRAIN
RS	ROOF SUMP
RFG	ROOFING
RM	ROOM
RO	ROUGH OPENING
RUB	RUBBER
RB	RUBBER BASE (OR RESILIENT BASE)

S

SAN	SANITARY
SND	SANITARY NAPKIN DISPENSER
SNWR	SANITARY NAPKIN WASTE RECEPTACLE
SCH	SCHEDULE
SJ	SCORED JOINT
S.CONC	SEALED CONCRETE
SEAL	SEALER
SECT	SECTION
SS	SERVICE SINK
SHT	SHEET
SLO	SHORT LEG OUTSTANDING
SIM	SIMILAR
SK	SINK
SB	SOIL BORING
STC	SOUND TRANSMISSION CLASS
S	SOUTH
SPC	SPACER, SPACING
SPK	SPEAKER
SPEC(S)	SPECIFICATION(S)
SPECD	SPECIFIED
SQ	SQUARE
cm^2	SQUARE CENTIMETER
SF	SQUARE FOOT (OR STOREFRONT) (OR SPORTS FLOORING)
STAG	STAGGERED
SST	STAINLESS STEEL
STD	STANDARD
STA	STATION
STL	STEEL
STN	STONE
STOR	STORAGE
SD	STORM DRAIN
ST	STREET
STRUCT	STRUCTURAL
SA	SUPPLY AIR
SUPP	SUPPORTS
SUSP	SUSPENDED
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRY(ICAL)

T

TKB	TACKBOARD
TP	TANGENT POINT
TEL	TELEPHONE
TV	TELEVISION
TEMP	TEMPERATURE, TEMPERED
TERR	TERRAZZO
TT	TERRAZZO TILE
THERM	THERMOSTAT
THK	THICK(NESS)
THRES	THRESHOLD
THRU	THROUGH/THOUGHOUT
TOIL	TOILET
TPH	TOILET PAPER HOLDER
TOL	TOLERANCE
T&G	TONGUE AND GROOVE
T&B	TOP & BOTTOM
TE	TOP ELEVATION
TOC	TOP OF CONCRETE
TC	TOP OF CURB
TOS	TOP OF STEEL
TWC	TOWEL & WASTE CABINET
TRAN	TRANSFORMER
T	TREAD
TYP	TYPICAL

U

UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UR	URINAL

V

VA	VALVE
VB	VAPOR BARRIER
VR	VAPOR RETARDER
VAR	VARNISH
VERT	VERTICAL
VEST	VESTIBULE
VIN	VINYL
VCT	VINYL COMPOSITION TILE
VT	VINYL TILE
VWC	VINYL WALL COVERING
VIT	VITREOUS
VRS	VINYL RESILIENT STRIP

W

WAIN	WAINSCOT
WHYD	WALL HYDRANT
WH	WATER HEATER
WC	WATER CLOSET
WM	WATER MAIN
WP	WATERPROOFING
WR	WATER RESISTANT
WS	WATERSTOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
W	WIDTH, WIDE, WEST
W/	WITH
W/O	WITHOUT
WD	WOOD

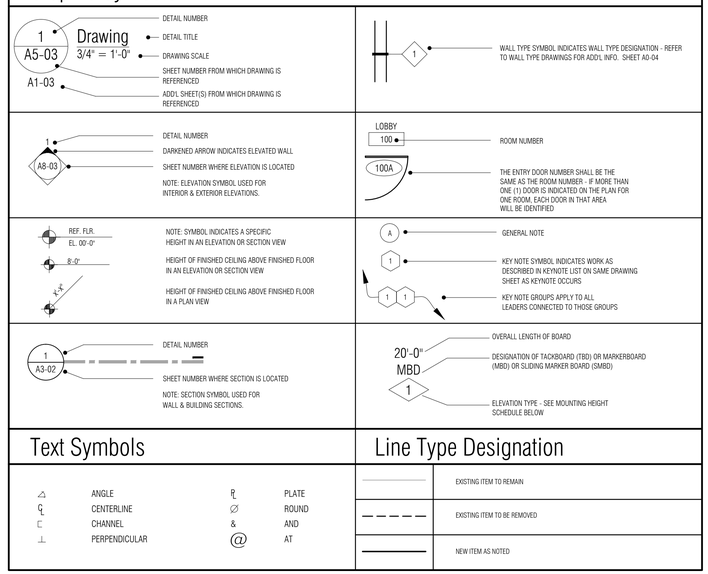
Y

YD	YARD

Ceiling Symbols Legend

	5/8" GYP BD ON 3 5/8" METAL STUD CONSTRUCTION AT 16" O.C. SECURE TO STRUCTURE ABOVE AT 48" O.C. MAX EACH WAY
	2' X 4' LAY-IN FLUORESCENT FIXTURE IN GRID
	2' X 2' LAY-IN FLUORESCENT FIXTURE IN GRID
	RECESSED ROUND LIGHT FIXTURE CEILING OR WALL MOUNTED
	EXIT LIGHTS - CEILING & WALL MOUNTED
S	SPEAKER - CEILING AND WALL MOUNTED
SD	SMOKE DETECTOR
	SUPPLY AIR DIFFUSER (MECHANICAL)
	RETURN AIR GRILLE (MECHANICAL)
	SPRINKLER HEAD - CEILING AND WALL MOUNTED REF. SPECIFICATIONS FOR DIFFERENT TYPES

Graphic Symbols



Text Symbols

∠	ANGLE	P_L	PLATE
℄	CENTERLINE	∅	ROUND
⊏	CHANNEL	&	AND
⊥	PERPENDICULAR	@	AT

Line Type Designation

	EXISTING ITEM TO REMAIN
	EXISTING ITEM TO BE REMOVED
	NEW ITEM AS NOTED

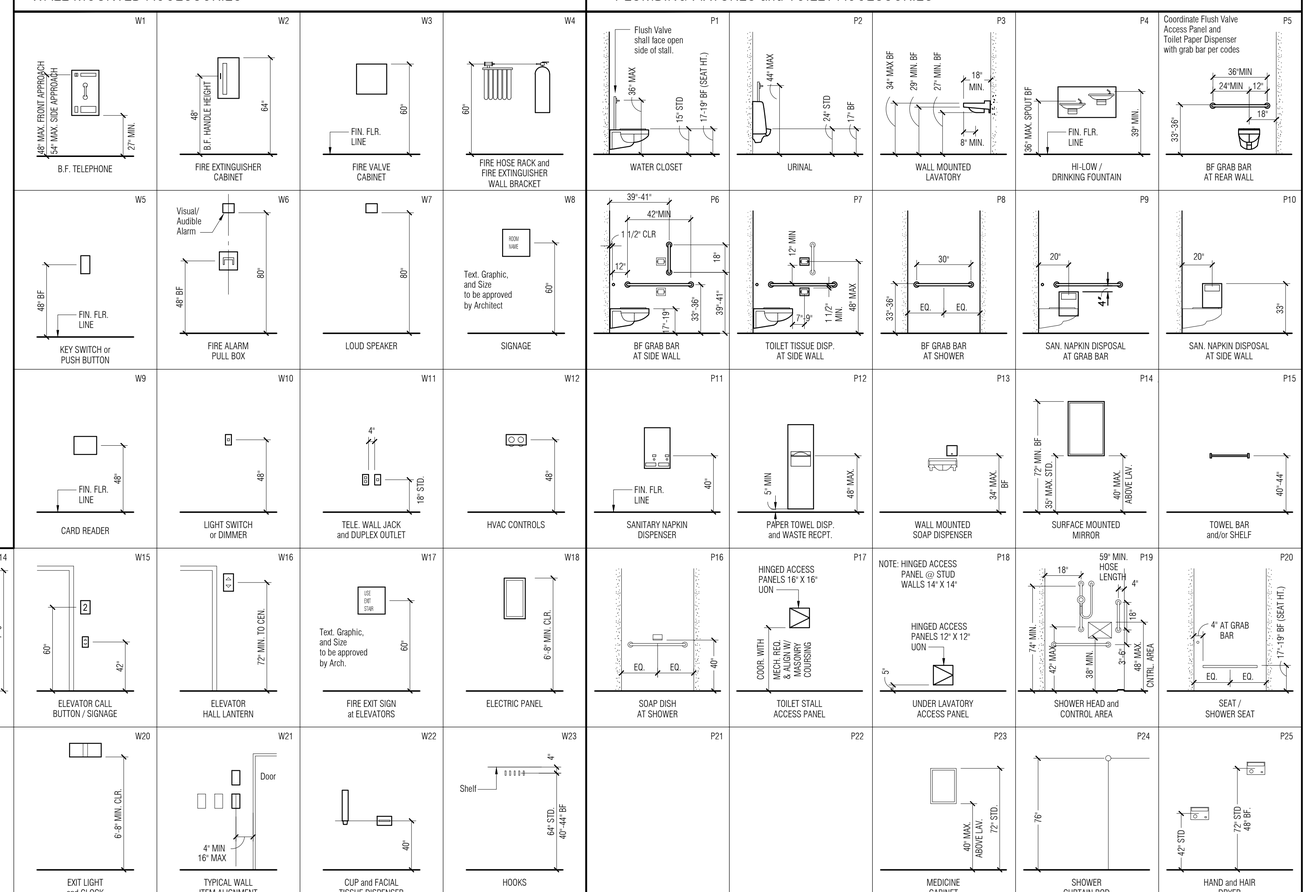
Material Poche Indications

CONCRETE (SECTION)	GYPSUM WALL BOARD	WOOD/SOLID SPECIES (FINISH MATERIAL) (NOTE MATERIAL)
CONC., STONE, PLASTER (ELEVATION) (NOTE MATERIAL)	GYPSUM WALL	WOOD (CONTINUOUS BLOCKING)
STONE (MARBLE, STONE) (GRANITE, ETC.) (SECTION/ELEVATION) (NOTE MATERIAL)	INSULATION ACOUSTIC/THERMAL (NOTE TYPE) RIGID /SEMI-RIGID	SHIM MATERIAL (WOOD, METAL, ETC.) (NOTE MATERIAL)
GRAVEL/STONE (GRANULAR MATERIAL)	JOINT FILLER	PLYWOOD/PARTICLE BOARD (VENEER FINISH) (NOTE MATERIAL)
SAND/GRAVEL (SUB-BASE MATERIAL)	C.M.U. (CONCRETE BLOCK	CARPET
	BRICK	INSULATION ACOUSTIC/THERMAL (NOTE TYPE) BATT OR BLANKET
	STEEL/COPPER, METAL, ALUMINUM, ETC. (NOTE MATERIAL)	
	METAL WALL PANEL SYSTEM	
	METAL PLATE WALL PANEL SYSTEM	

Mounting Height Schedule

NOTES:
- ALL HEIGHTS SHOWN ARE TYPICAL FOR ALL ITEMS WHERE THEY OCCUR UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS (B.F. DENOTES BARRIER FREE REQUIREMENTS)
- NOT ALL ITEMS SHOWN ON THIS DRAWING MAY OCCUR ON THIS PROJECT

WALL MOUNTED ACCESSORIES



PLUMBING FIXTURES and TOILET ACCESSORIES

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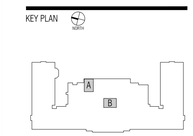
CONSULTANT

KEY PLAN



LOWER LEVEL

OWNER

Hamtramck Public Schools

PROJECT NAME

Hamtramck High School Pool Filtration System Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding - Construction 03/17/2016

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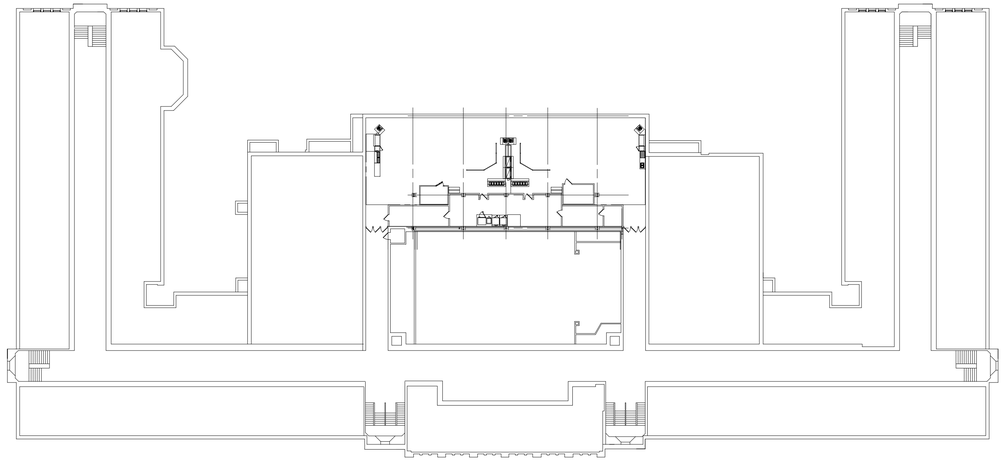
SHEET NAME

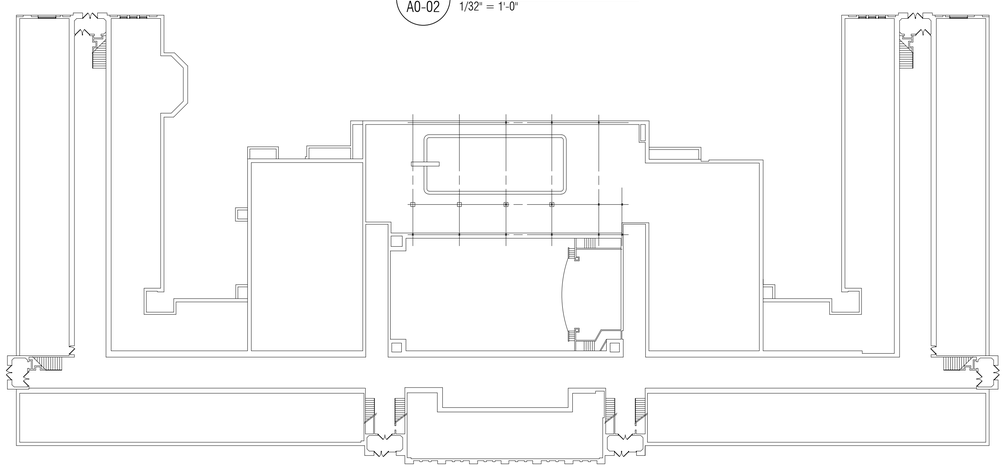
GENERAL PROJECT INFORMATION

SHEET NO.

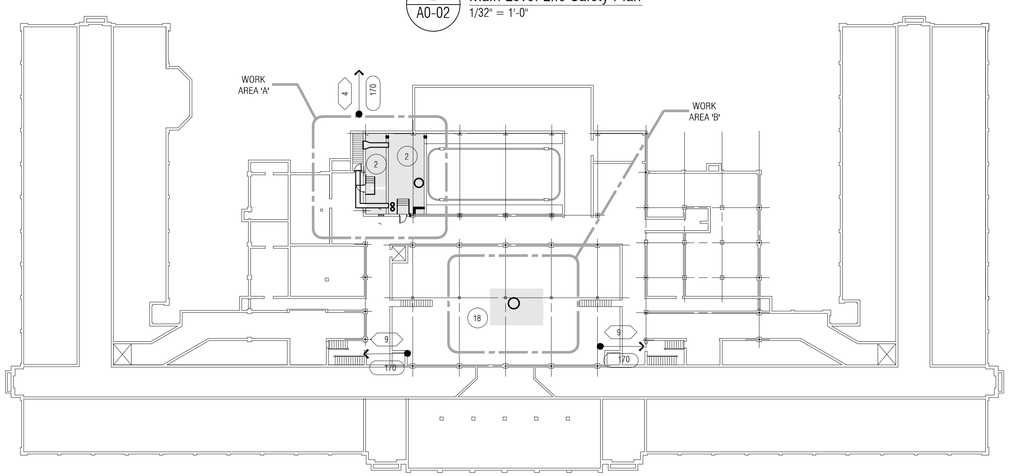
A0-01



3 / A0-02 Upper Level Life Safety Plan
1/32" = 1'-0"



2 / A0-02 Main Level Life Safety Plan
1/32" = 1'-0"



1 / A0-02 Lower Level Life Safety Plan
1/32" = 1'-0"

CODE INFORMATION - BUREAU OF FIRE SERVICES

GOVERNING CODE:

1999 SCHOOL SAFETY RULES.
NFPA 101 LIFE SAFETY CODE, 1997 EDITION W/ AMENDMENTS (LSC)

CHAPTER 3 USE and OCCUPANCY CLASSIFICATION:

NFPA 101 SECTION 4-1.3: EDUCATIONAL OCCUPANCY
WITH ASSEMBLY AREA

LSC BUILDING DATA SUMMARY:

1997 LIFE SAFETY CODE:
CONSTRUCTION TYPE: II (000)
USE GROUP: E - EDUCATIONAL W/ AN ASSEMBLY SPACE

CHAPTER 5 - MEANS OF EGRESS:

EGRESS CAPACITY
LEVEL COMPONENTS AND RAMPS
0.2" / PERSON (NOTE: MEANS OF EGRESS HAVE REMAINED IN THE ORIGINALLY APPROVED CONFIGURATIONS AND CAPACITIES.

CHAPTER 6 FEATURES of FIRE PROTECTION:

ALLOWABLE: PER MICHIGAN SCHOOL RULES, 10-1.6

CODE ANALYSIS AREA DATA - GROSS AREA - 'E' USE:

(EXISTG. AREA) LOWER LEVEL	= 33,754 SQ FT
(REFURBISHED AREA 'A' AND 'B')	= 1577 SQ FT

PER LSC SECTION 9-1.7 & 10-1.7 AND MICHIGAN SCHOOL RULES 10-1.7.1

ALLOWANCES PER OCCUPANT:

- 29-1.7- STORAGE: 1 PERSON/300 SQ FT
- 29-1.7- MECHANICAL : 1 PERSON/300 SQ FT SIMILAR OCCUPANCY AS STORAGE

CODE INFORMATION - NARATIVE

EXISTING BUILDING:

THE ORIGINAL BUILDING WAS CONSTRUCTED IN 1930 AS AN EDUCATIONAL BUILDING. THE BUILDING HAS BEEN CONTINUALLY OCCUPIED AS AN EDUCATIONAL FACILITY FROM THAT TIME. THE CURRENT SCHOOL HAS BEEN CONSTRUCTED / RENOVATED AND APPROVED FOR OCCUPANCY UNDER PREVIOUS CODES. THE STRUCTURE IS MASONRY BEARING WITH CONCRETE FLOOR AND BEAMS.

PROPOSED PROJECT SCOPE:

THE PROPOSED PROJECT IS TO REMOVE AND REPLACE THE EXISTING POOL FILTRATION AND HEATING SYSTEMS INCLUDING THE MAIN INCOMING WATER SERVICE. THE EXISTING POOL FILTER ROOM AND POOL STORAGE ROOM WILL HAVE THE EXISTING FINISHES UPGRADED. THE NON-COMPLIANT STAIRS TO THE LOWER FLOOR ELEVATION TO BE UPGRADED. ROOM EXHAUST SYSTEM WILL BE REPLACED WITH ADDITIONAL EXTERIOR LOUVERS ADDED. THE EXISTING WALLS OF THE POOL FILTER AND STORAGE ROOMS WILL BE UPGRADED WITH OPENING INFILL AND FIRE SEALING OF JOINTS FOR 1 HOUR FIRE SEPARATION. DOORS WILL BE REPLACED AND UPGRADED AS A MAINTENANCE REPLACEMENT. ASSOCIATED ELECTRICAL MODIFICATION TO SUPPORT THE REPLACEMENT / UPGRADES.

RENOVATION AREAS:

RENOVATION AREAS INDICATED ON THE COMPOSITE PLAN ARE EXISTING SPACES IN THEIR ORIGINAL CONFIGURATION. THE PROJECT IS A MAINTENANCE REPLACEMENT OF EXISTING EQUIPMENT SERVING THE POOL. FINISHES, DOORS, LANDINGS, AND MECHANICAL EXHAUST HAVE BEEN UPGRADED.

MECHANICAL AND ELECTRICAL SYSTEM UPGRADES:

POOL FILTRATION SYSTEM IS BEING REPLACED AND UPGRADED AS PART OF A MAINTENANCE INCLUDING REPLACEMENT OF THE EXISTING POOL HEATER AND ASSOCIATED PUMPS AND PIPING. THE SYSTEM TECHNOLOGY AND CONTROLS ARE BEING UPGRADED TO IMPROVE WATER QUALITY. THE INCOMING WATER SERVICE PIPING IS BEING REPLACED WITH OTHER SELECT WATER DISTRIBUTION PIPING. A NEW ROOM VENTILATION SYSTEM IS BEING ADDED IN THE POOL FILTER, AND STORAGE ROOM TO CONTROL HUMIDITY AND AIR QUALITY FOR PRESERVATION OF THE NEW EQUIPMENT. ELECTRICAL AND LIGHTING CHANGES ARE IN SUPPORT OF EQUIPMENT REPLACEMENT.

CODE INFORMATION - BUREAU OF CONSTR. CODES

GOVERNING CODES:

2012 MICHIGAN BUILDING CODE w/ AMENDMENTS (MBC)
2011 NATIONAL ELECTRICAL CODE w/ AMENDMENTS (NEC)
2012 MICHIGAN MECHANICAL CODE w/ AMENDMENTS (MMC)
2012 MICHIGAN PLUMBING CODE w/ AMENDMENTS (MPC)
2009 ICC / ANSI A 117.1

CLASSIFICATION OF OCCUPANCY (PER MBC SECTION 305)

- USE GROUP
  E - EDUCATIONAL

CONSTRUCTION TYPE (PER MBC CHAPTER 6)

- EXISTING BUILDING : TYPE IB, NOT FIRE SUPPRESSED
- EXISTING BUILDING : 3 STORIES, LOWER LEVEL IS 13'-8"" BELOW GRADE
- WORK AREAS 'A' AND 'B' ARE APPROXIMATELY 800 SF ON THE LOWER LEVEL.

ALLOWABLE HEIGHT AND BUILDING AREA (PER MBC TABLE 503)

CODE ANALYSIS AREA DATA - GROSS AREA - 'E' USE : 3 STORIES

(EXISTG. AREA) LOWER LEVEL	= 33,754 SQ FT
(EXISTG. AREA) MAIN LEVEL	= 63370 SQ FT
(EXISTG AREA) UPPER LEVEL	= 63370 SQ FT
EXISTIG AREA TOTAL	= 160494 SQ FT

EXISTING AREA TO BE REFURBISHED :

AREAS A	= 909 SQ FT
AREA B	= 668 SQ FT
REFURBISHED AREA TOTAL	= 1577 SQ FT

OCCUPANT LOADS HAVE NOT CHANGED AS THE REFURBISHED USE AND AREAS HAVE NOT CHANGED.

MEANS OF EGRESS CAPACITY (PER MBC 1005.3.2)

MEANS OF EGRESS CAPACITY FACTOR 0.2" PER OCCUPANT
NUMBER AND MEANS OF EGRESS HAVE NOT CHANGED. DOORS HAVE BEEN UPGRADED TO 45 MIN HOLLOW METAL DOORS IN THERE ORIGINAL SIZE AND LOCATIONS. (MAINTENANCE REPLACEMENT)

NUMBER OF MEANS OF EGRESS (ADDITION) (PER MBC 1015.1)

MEANS OF EGRESS NUMBER REMAINS UNALTERED. COMPLIANT STAIR AND LANDINGS HAVE BEEN ADDED TOO THE ROOMS WITH LOWER ELEVATION,

GENERAL LIFE SAFETY NOTES

1. ALL FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS SHALL BE IDENTIFIED WITH SIGNS OF STENCILING (WHERE WALL AREAS ARE CONCEALED FROM VIEW). LETTERS MUST BE A MIN. 3" IN HEIGHT WITH A MIN. 3/8" STROKE IN CONTRASTING COLOR, AND READ "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS". LOCATE WITHIN 15'-0" OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30'-0".
2. THESE CODE ANALYSIS DRAWINGS (SHEET A0-02), NOTES, PLANS AND WALL IDENTIFICATION TYPES AND LOCATIONS ARE FOR FIRE RATINGS AND / OR SMOKE BARRIERS AS REQUIRED FOR LIFE SAFETY AND BUILDING CODE COMPLIANCE. ALL OTHER CONSTRUCTION REQUIREMENTS ARE INDICATED ON THE CONSTRUCTION DOCUMENTS.
3. ALL FIRE RATED WALLS OF ANY TYPE SHALL BE SEALED TIGHT TO ROOF DECK SYSTEM ABOVE WITH UL APPROVED MATERIAL BY EITHER JOHNS MANSVILLE FIRETEMP, HILTI FIRESTOP COMPOUND, OR 3M. ALL PRODUCTS / MATERIALS MUST BE UL APPROVED AND CLASSIFIED AND SUBMITTED FOR REVIEW AND APPROVAL BY ARCHITECT BEFORE APPLICATION/INSTALLATION.

BUILDING CODE PLAN LEGEND

- NEW, OR EXISTING TO BE UPGRADED, 1-HOUR "FIRE PARTITION" CONSTRUCTION PER 2012 MBC SECTION 708. THIS WALL CONSTRUCTION HAS 20 MINUTE DOOR AND FRAME PROTECTIVES FOR ALL CORRIDORS.
- # — OCCUPANT LOAD EXITING THROUGH EGRESS COMPONENT
- # — OCCUPANT CAPACITY OF EGRESS COMPONENT
- # — OCCUPANT LOAD OF ROOM OR AREA
- EXISTING BUILDING TO REMAIN
- REFURBISHED AREA

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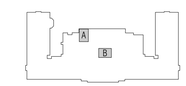
KEY PLAN



LOWER LEVEL

OWNER

Hamtramck
Public Schools

PROJECT NAME

Hamtramck High School
Pool Filtration System
Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding - Construction 03/17/2016

N

DRAWN BY
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ACS

APPROVED BY
MAM

SHEET NAME

LIFE SAFETY PLAN
& ANALYSIS

SHEET NO.

A0-03

Room Finish Schedule

ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING FIN.	ROOM FINISH KEY NOTES
101	ENTRY AREA	EXPOY	--	--	EPOXY	EPOXY	--	EXPOSED - EPOXY PNT	3, 5
102	POOL STORAGE	EXPOY	NONE	EPOXY	EPOXY	EPOXY	EPOXY	EXPOSED - EPOXY PNT	1, 2, 3
103	FILTER AREA	EXPOY	NONE	EPOXY	EPOXY	EPOXY	EPOXY	EXPOSED - EPOXY PNT	1, 2, 3, 4

Room Finish General Notes:

A. REFER TO SPECIFICATION MANUAL FOR INDIVIDUAL SECTIONS PERTAINING TO FINISHES.
B. JOINTS AT WALL / FLOOR TO BE SEALED W/ CLEAR SEALANT.
C. PROTECT EXISTING EQUIPMENT, PIPING AND FIXTURES TO REMAIN.

Room Finish Key Notes:

1. CLEAN, DEGREASE AND PREP EXISTING CONC FLOOR TO RECEIVE NEW EPOXY FLOOR FINISH.
2. CLEAN / DEGREASE LOWER WALL SURFACE TO RECEIVE NEW EPOXY PAINT FINISH.
3. REMOVE LOOSE AND CRACKED / DAMAGED PAINT IN PREPARATION TO RECEIVE NEW PAINTED FINISH.
4. REMOVE COLLECTED DEBRIS AND CLEAN RUSTED SURFACE TO RECEIVE NEW FINISH AT MAIN POOL DRAIN WELL.

Door/ Opening Schedule

DOOR NO.	DOOR/OPENG SIZE (W x H)	DOOR TYPE	DOOR MAT.	DOOR FINISH	FRAME TYPE	FRAME MAT.	FRAME FINISH	DETAILS HEAD	DETAILS JAMB	DETAILS THRES./ SILL	HARDWARE SET #	LABEL (MIN)	DOOR/ OPENING KEY NOTES
101	3'-0" x 7'-0"	F	HM	PNT	F1	HM	PNT	D2	D1	T1	--		1, 2, 3, 6
102	3'-0" x 7'-0"	F	HM	PNT	F1	HM	PNT	D2	D1	--	--	45	4, 5, 6
103	3'-0" x 7'-0"	N	HM	PNT	F1	HM	PNT	D2	D1	--	--	45	2, 4, 5, 6

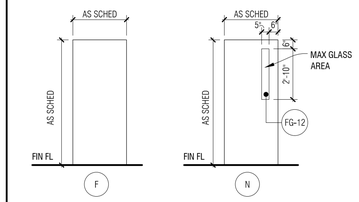
Door/ Openings General Notes:

A. FIELD VERIFY ALL OPENINGS PRIOR TO DOOR/FRAME FABRICATION.

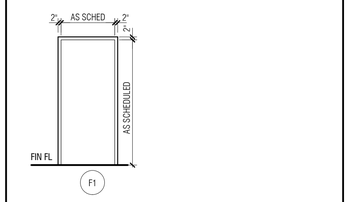
Door/ Opening Key Notes:

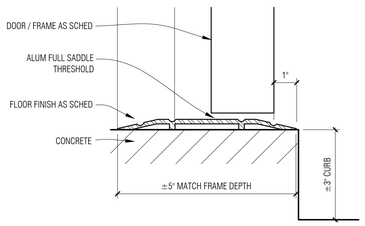
1. PROVIDE FULL SET OF WEATHER STRIPING.
2. COORDINATE DOOR INSTALLATION AFTER NEW POOL EQUIPMENT DELIVERY.
3. COORDINATE FRAME INSTALLATION W/ NEW MECH LOUVER OPENING ABOVE.
4. UNDERCUT DOOR 3/4".
5. DOOR TO OPEN 180° - COORDINATE FRAME LOCATION.
6. DOOR/FRAME TO BE G90 GALV.

Door Types

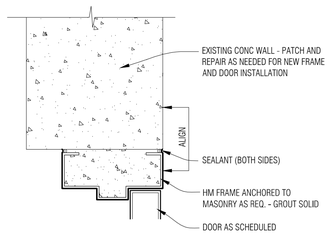


Frame Types

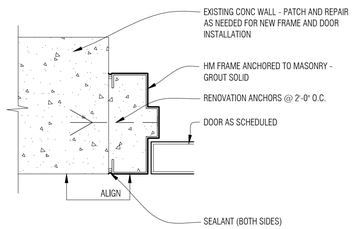




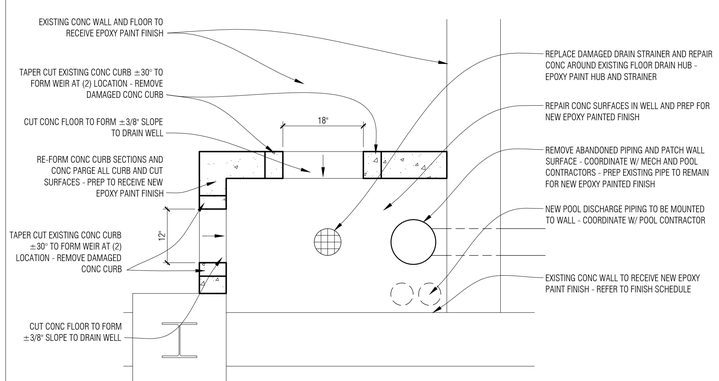
FULL SADDLE THRESHOLD — T1



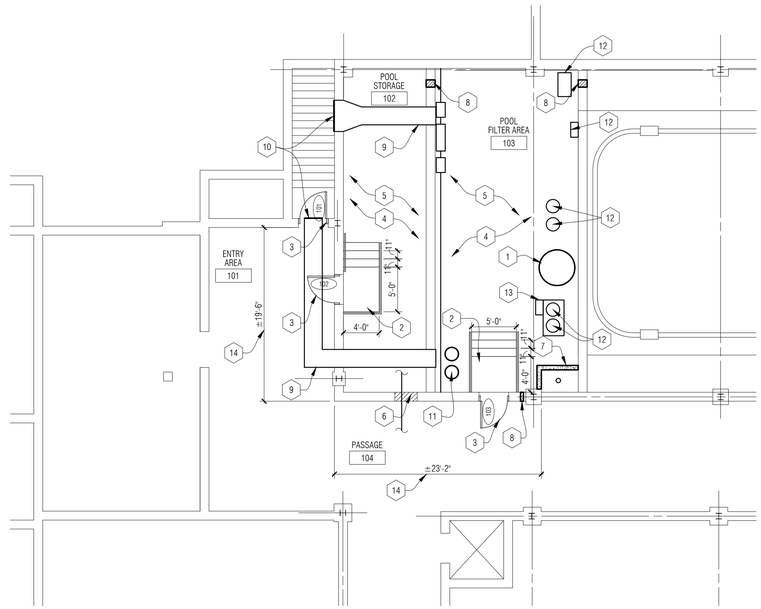
HM HEAD AT MASONRY — 3" = 1'-0" — D2



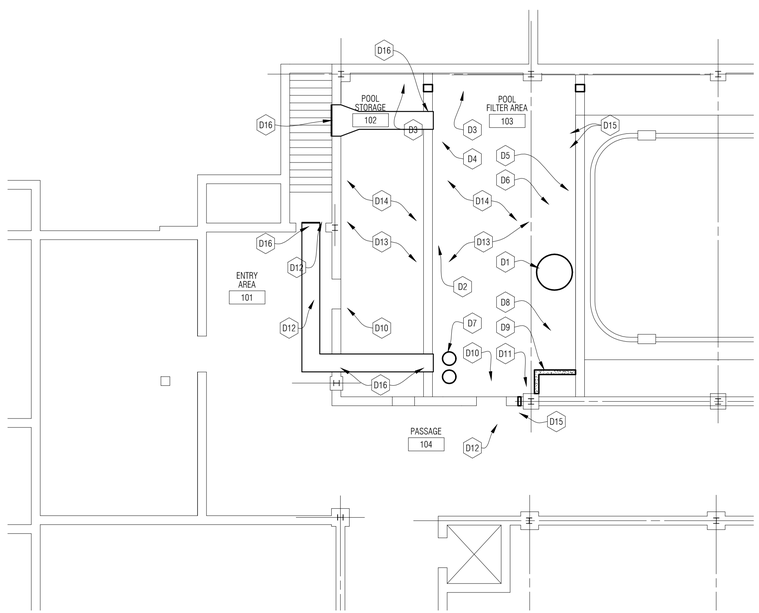
HM JAMB AT MASONRY — D1



3 / A3-01 Plan Detail @ Main Drain
3/4" = 1'-0"



2 New Work Partial Lower Level Floor Plan - Area A
1/8" = 1'-0"



1 Demo Partial Lower Level Floor Plan - Area A
1/8" = 1'-0"

NEW WORK FLOOR PLAN - GENERAL NOTES:

A. DO NOT SCALE DRAWINGS. USE DIMENSIONS PROVIDED. IF A CONFLICT IS ENCOUNTERED OR A REQUIRED DIMENSION IS NOT PROVIDED, REQUEST A CLARIFICATION FROM THE ARCHITECT.

B. COORDINATE SIZE AND LOCATION OF ALL DUCT, SHAFT AND LOUVER OPENINGS IN WALLS AND FLOORS WITH MECHANICAL AND ELECTRICAL. PROVIDE ALL REQUIRED LINTELS FOR OPENINGS.

C. ALL EXPOSED CORNERS OF MASONRY BLOCK ARE TO BE BULLNOSED.

D. EXISTING MASONRY WALL INTERSECTIONS WHICH ARE LEFT EXPOSED AFTER DEMOLITION OF ADJACENT MASONRY CONSTRUCTION MUST BE PATCHED AND REPAIRED WITH NEW MASONRY OR EXISTING BRICK VENEER, TOOTH-IN TO MATCH EXISTING COURSING AND BOND PATTER, TYPICAL AT ALL LOCATIONS.

E. FIRE RATED PARTITIONS ARE INDICATED ON CODE PLANS.

F. REFER TO MECH / ELEC / POOL DRAWINGS FOR INSTALLATION OF NEW EQUIPMENT, WIRING, ETC AT EXISTING WALLS. ALL ITEMS ARE TO BE INSTALLED WITHIN EXISTING WALLS - REMOVE AND REINSTALL MASONRY (TOOTH-IN) AT ALL LOCATIONS.

G. REFER TO MECH / ELEC DRAWINGS FOR REMOVAL OF EXISTING EQUIPMENT WITHIN EXISTING CONSTRUCTION - TOOTH-IN NEW MASONRY BLOCK AND PREP FOR NEW FINISH.

H. FIELD VERIFY ALL EXISTING OPENINGS TO RECEIVE NEW WORK PRIOR TO FABRICATION OF ANY FRAME TYPES - NOTIFY ARCHITECT OF ANY DISCREPANCIES.

I. PREP AND REFINISH FLOOR AND WALLS BEFORE POOL EQUIPMENT AND PIPING IS INSTALLED.

J. PROVIDE PAINTED FINISH ON ALL INSULATED PIPE INSTALLATION AND EXISTING PIPING TO REMAIN. LABEL MECH PIPING INSTALLATION AND POOL HEATER PIPING - REFER TO SPECIFICATIONS.

NEW WORK FLOOR PLAN - KEY NOTES:

1. EXISTING SURGE TANK TO BE RE-PIPED - COORDINATE W/ POOL CONTRACTOR.
2. NEW CONC STEPS, LANDING, GALV GUARD AND HAND RAILS - REFER TO DETAIL 3/A5-01.
3. NEW HM DOOR AND FRAME. PATCH AND REPAIR EXISTING WALL JAMB - REFER TO DOOR OPENING SCHEDULE.
4. NEW EPOXY FLOOR FINISH AND 4" HIGN PAINTED BASE - REFER TO SPEC.
5. PAINT WALLS W/ EPOXY PAINT INCLUDING REMAINING AND NEW ELEC CONDUIT AND BOXES.
6. INFILL EXISTING OPENING AROUND EXISTING PIPES W/ MATCHING CONSTRUCTION AND (1)-HOUR FIRE RATED JOINT SEALANT SYSTEM.
7. NEW CONC CURB MODIFICATION AND PATCHING W/ EPOXY FINISH - REFER TO PLAN DETAIL 3/A3-01.
8. INFILL OPENING AT REMOVED MECH PIPING / DUCTWORK W/ MATCHING WALL CONSTRUCTION. PRIME AND PAINT TO MATCH NEW ROOM FINISHES. (1)-HOUR RATED CONSTRUCTION.
9. LINE OF NEW DUCTWORK ABOVE W/ WALL PENENTRATIONS. SEAL PENETRAITON W/ (1)-HOUR FIRE RATED SEALANT SYSTEM.
10. NEW EXTERIOR WALL LOUVER. SEAL WEATHER TIGHT PER DETAIL 1/A5-01.
11. EXISTING WATER TREATMENT EQUIPMENT, CONTROLS AND FEED PIPING - REFER TO MECH.
12. NEW POOL FILTERS, PUMPS AND WALL-MOUNTED CONTROLS - REFER TO POOL FILTER DRAWINGS. COORDINATE W/ MECH AND ELEC.
13. NEW CONCRETE HOUSE KEEPING PAD FOR POOL FILTER EQUIPMENT. COORDINATE SIZE AND DEPTH AND LOCATION W/ POOL CONTRACTOR. SET PAD AND EPOXY FINISH W/ FLOOR.
14. PAINT EXPOSED WALL SURFACE FULL HEIGHT TO EXTENT INDICATED - INCLUDE ALL SIDES OF CONC COLUMN. PREP WALL SURFACE AS REQ'D.

DEMO FLOOR PLAN - GENERAL NOTES:

A. COORDINATE POOL SHUT DOWN SCHEDULE W/ PIPING DEMO.

B. COORDINATE WATER SERVICE SHUT DOWN W/ OWNER. SCHEDULE REMOVAL / REINSTALLATION TO MINIMIZE DOWNTIME.

C. COORDINATE DOOR AND FRAME REMOVAL W/ POOL EQUIPMENT DELIVERY.

DEMO FLOOR PLAN - KEY NOTES:

D1. EXISTING SURGE TANK TO REMAIN - COORDINATE PIPING REMOVAL / REPLACEMENT W/ POOL AND MECH CONTRACTORS.
D2. REMOVE EXISTING IN WATER SERVICE - COORDINATE W/ MECH.
D3. REMOVE EXISTING PIPING - COORDINATE W/ MECH TRADES. REMOVE ABANDONED PIPING. VERIFY EXTENT AND RUN. CUT FLUSH WITH WALL SERVICE.
D4. REMOVE EXISTING VALVES, METER, AND PIPING - COORDINATE W/ UTILITY COMPANY.
D5. REMOVE EXISTING POOL CONTROLS - REFER TO POOL REPLACEMENT DRAWINGS SP-1.
D6. REMOVE POOL EQUIPMENT - REFER TO POOL EQUIPMENT DRAWINGS SP-1.
D7. EXISTING WATER TREATMENT TANKS TO REMAIN - PROTECT EXISTING EQUIPMENT, CONTROLS AND TREATMENT SUPPLY PIPING.
D8. POOL CIRCULATION PUMPS AND CONTROLS TO BE REMOVED - COORDINATE W/ MECH AND POOL CONTRACTORS - CONC PAD TO REMAIN.
D9. EXISTING FLOOR MAIN DRAIN WELL TO REMAIN. SAW CUT AND REMOVE LOOSE / DAMAGED CONC CURB AND DEBRIS, CLEAN SURFACE TO RECEIVE NEW WORK AND FINISH. REFER TO NEW WORK PLAN AND MECH.
D10. REMOVE EXISTING CONC STAIRS - SAW CUT FOR CLEAN TRANSITION LINE AT SILL WALL.
D11. REMOVE EXISTING ELEC BOXES, PUMP MOTOR CONTROLS AND ELEC FEED DIST BOX.
D12. REMOVE EXISTING DOOR AND FRAME COMPLETE. PREP EXISTING MASONRY FOR NEW DOOR AND FRAME.
D13. CLEAN AND PREP EXISTING FLOOR - REFER TO ROOM FINISH SCHEDULE.
D14. CLEAN AND PREP EXISTING WALLS - REFER TO ROOM FINISH SCHEDULE.
D15. REMOVE EXISTING ABANDONED HEAT EXCHANGER AND ASSOCIATED HEATING HOT WATER PIPING.
D16. SAW CUT AND REMOVE EXISTING CONC WALL CONSTRUCTION FOR NEW DUCT OPENING - COORDINATE W/ MECH.

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KEY PLAN

LOWER LEVEL

OWNER

Hamtramck Public Schools

PROJECT NAME

Hamtramck High School Pool Filtration System Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding - Construction 03/17/2016

N

DRAWN BY

CHECKED BY
ACS

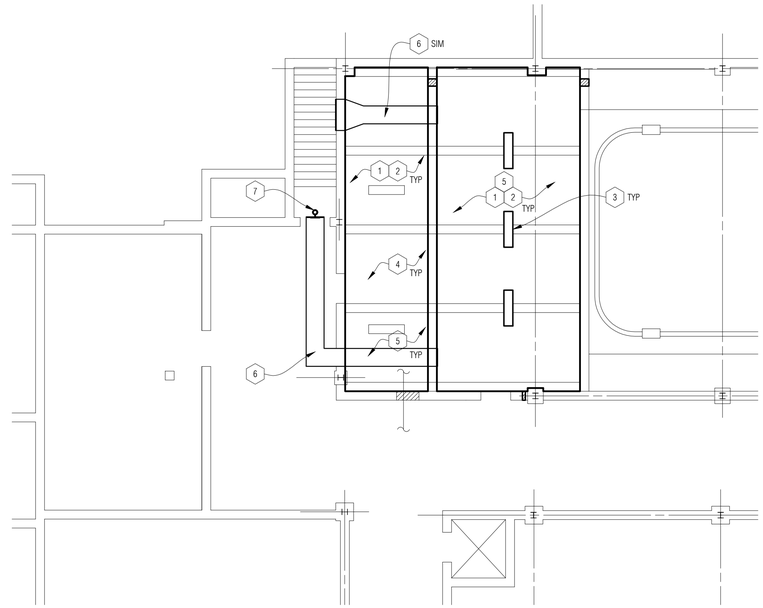
APPROVED BY
MAM

SHEET NAME

LOWER LEVEL FLOOR PLANS

SHEET NO.

A3-01



NEW WORK CEILING PLAN - GENERAL NOTES:

A. REFER TO FINISH SCHEDULE AND SPECIFICATIONS FOR ROOF FINISH PREP

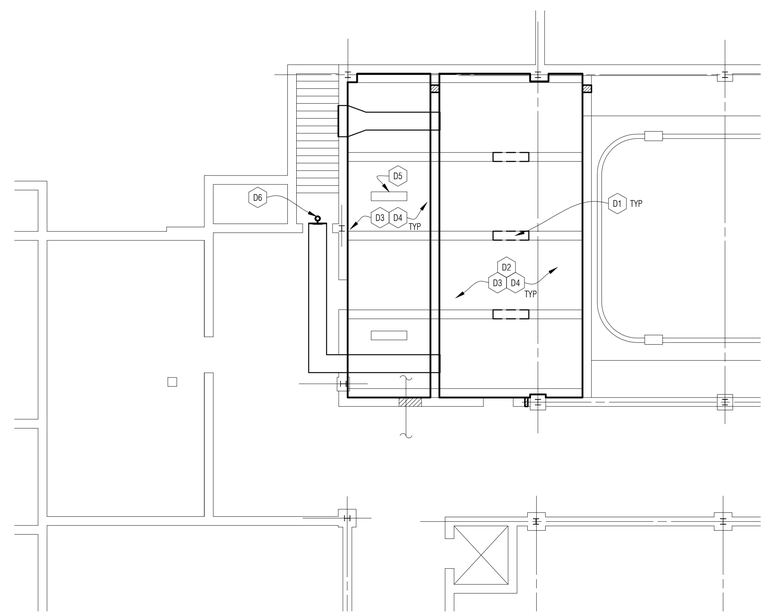
B. PROTECT EXISTING EQUIPMENT & LIGHT FIXTURES TO REMAIN.

C. PAINT EXTERIOR MOUNTED ELECTRICAL CONDUIT TO MATCH BRICK COLOR.

NEW WORK CEILING PLAN - KEY NOTES:

1. PREP & PAINT ENTIRE CONCRETE CEILING AND BEAMS.
2. PREP & PAINT EXISTING PIPING, CONDUIT, & ELECTRICAL BOXES SCHEDULED TO REMAIN, INCLUDING HANGERS.
3. NEW LIGHTING FIXTURE AND CONDUIT INSTALLATION. PAINT EXPOSED CONDUIT & BOXES. REFER TO ELEC.
4. PAINT EXISTING PIPING, PIPE INSULATION, HANGERS & CONDUIT. REFER TO MECH & ELEC. PROTECT EXISTING LIGHT FIXTURES TO REMAIN.
5. PREP & PAINT NEW DUCTWORK EXPOSED IN ROOM, INCLUDING EXTERIOR INSULATION JACKET AS OCCURS. REFER TO MECH.
6. NEW DUCTWORK MOUNTED IN CORRIDOR TO BE PAINTED. COORDINATE DUCT INSTALLATION WITH EXISTING CONDUIT, DUCT AND LIGHTING IN CORRIDOR.
7. RE-MOUNT EXISTING ELEC LIGHTING FIXTURE WITH NEW PAINTED CONDUIT. REFER TO ELEC AND ARCHITECTURAL ELEVATIONS.

2 New Work Patial Lower Level Relected Ceiling Plan
1/8" = 1'-0"



DEMO CEILING PLAN - GENERAL NOTES:

A. COORDINATE REMOVAL OF PIPING AND ASSOCIATED HANGERS W/ MECH, POOL CONTRACTOR.

B. COORDINATE REMOVAL OF ELEC CONDUIT AND LIGHTING WITH ELEC.

C. REFER TO FINISH SCHEDULE AND SPECIFICATIONS FOR PREP AND CEILING FINISH.

DEMO CEILING PLAN - KEY NOTES:

1. REMOVE EXISTING SURFACE MOUNTED LIGHT FIXTURES AND ASSOCIATED CONDUIT. REFER TO ELEC.
2. REMOVE ALL ABANDONED CEILING MOUNTED CONDUIT, PIPING AND ASSOCIATED HANGERS / ANCHORS. REFER TO MECH / ELEC / POOL DRAWINGS.
3. FILL REMOVED ANCHOR POINTS & VOIDS FOR NEW FINISH.
4. PREP EXISTING CONCRETE CEILING AND BEAM SURFACES TO RECEIVE EPOXY PAINTED FINISH.
5. EXISTING LIGHTING FIXTURES AND PIPING TO REMAIN U.N.O. PROTECT DURING DEMO / NEW WORK INSTALLATION.
6. EXISTING EXTERIOR LIGHT FIXTURE / CONDUIT TO BE REMOVED AND RELOCATED. REFER TO ELEC.

1 Demo Patial Lower Level Reflected Ceiling Plan
1/8" = 1'-0"

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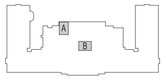

LOWER LEVEL

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Pool Filtration System
Upgrades

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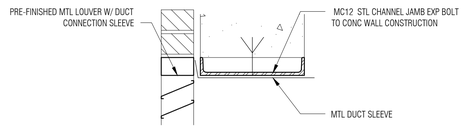
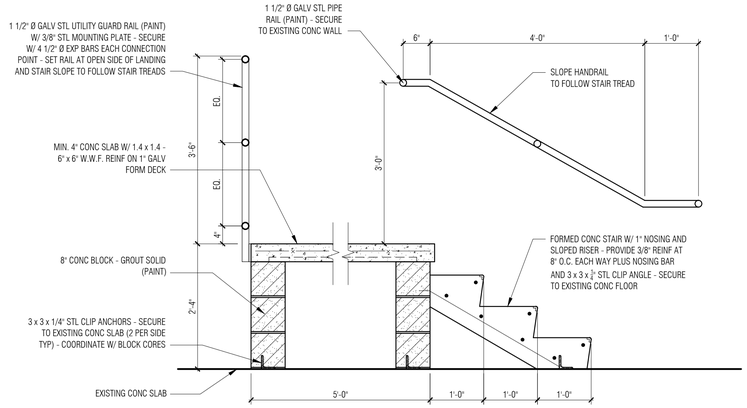
SHEET NAME

LOWER LEVEL
REFLECTED
CEILING PLANS

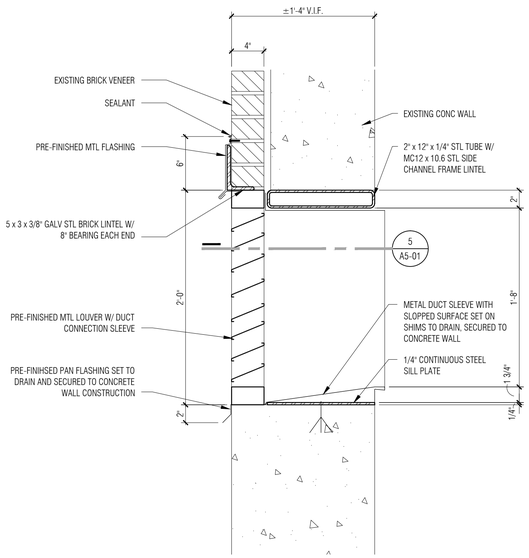
SHEET NO.
A4-01



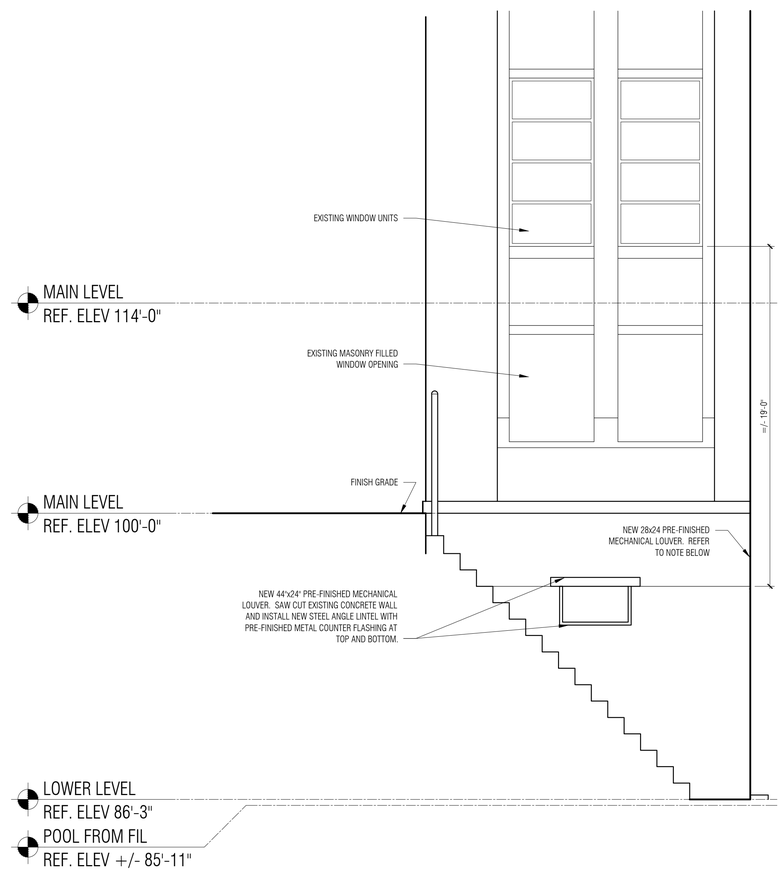
5 / A5-01 Jamb Detail @ New Louver Opening
1 1/2" = 1'-0"



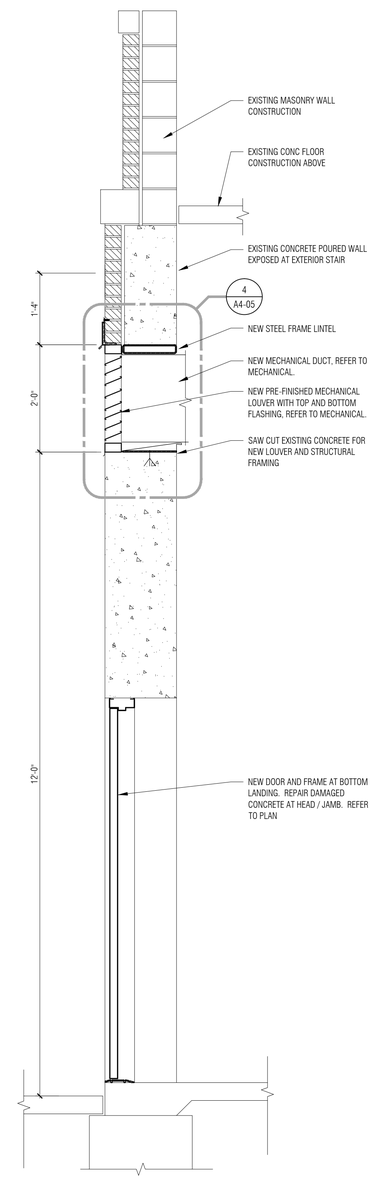
3 / A3-01 Detail Thru New Stair and Landing
3/4" = 1'-0"



4 / A5-01 Section Thru New Louver Opening
1 1/2" = 1'-0"



2 Partial Exterior Elevation
1/4" = 1'-0"



1 Wall Section
3/4" = 1'-0"

HS POOL EXTERIOR ELEVATIONS - DEMO KEY NOTES:

D1 REMOVE EXISTING VINYL SIDING AND PROTECT PLYWOOD SUBSTRATE FOR INSTALLATION OF NEW PREFINISHED INSULATED WALL METAL PANELS ON WEATHER RESISTIVE BARRIER. VERIFY IN FIELD EXTENTS.

D2 REMOVE EXISTING GRAVEL STOP AS REQUIRED FOR INSTALLATION OF NEW GRAVEL STOP. PROTECT EXISTING ROOF SYSTEM.

HS POOL EXTERIOR ELEVATIONS - KEY NOTES:

1 INSTALL NEW ARCHITECTURAL PREFINISHED INSULATED METAL WALL PANELS ON WEATHER RESISTIVE BARRIER (MP-1). VERIFY IN FIELD EXTENTS.

2 INSTALL NEW ARCHITECTURAL PREFINISHED INSULATED METAL WALL PANELS ON WEATHER RESISTIVE BARRIER (MP-2). VERIFY IN FIELD EXTENTS.

3 INSTALL NEW PREFINISHED METAL GRAVEL STOP.

4 NEW COUNTER FLASHING SYSTEM.

5 AT ALL VERTICAL JOINTS, PROVIDE A WEATHER TIGHT SEAL PER MANUFACTURERS RECOMMENDATIONS. PROVIDE ADDITIONAL CONCEALED ATTACHMENTS AT UPPER AND LOWER EDGES OF METAL WALL PANELS AT EXISTING FRAMING ON EACH SIDE OF VERTICAL JOINTS.

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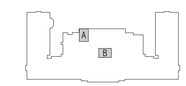
KEY PLAN



LOWER LEVEL

OWNER

Hamtramck
Public Schools

PROJECT NAME

Hamtramck High School
Pool Filtration System
Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding - Construction 03/17/2016

N

DRAWN BY

CHECKED BY
ACS

APPROVED BY
MAM

SHEET NAME

ELEVATIONS,
SECTIONS,
DETAILS

SHEET NO.
A5-01

MECHANICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
AAV	AUTOMATIC AIR VENT / AIR ADMITTANCE VALVE
AD	ACCESS DOOR
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
APD	AIR PRESSURE DROP
ASR	AUTOMATIC SPRINKLER RISER
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
BWV	BACKWATER VALVE
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CIRC	CIRCULATING
CLG	COOLING
CO	CLEAN OUT
CONT	CONTINUATION OR CONTINUED
CONV	CONVECTOR
CUH	CABINET UNIT HEATER
CV	CONTROL VALVE
DB	DRY BULB TEMPERATURE
DEG	DEGREES
DDC	DIRECT DIGITAL CONTROL
DN	DOWN
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
(E)	EXISTING
EA/EXH	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB TEMPERATURE
EF	EXHAUST FAN
EJ	EXPANSION JOINT
EL	ELEVATION
ELECT	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB TEMPERATURE
EWC	ELECTRIC WATER COOLER
°F	DEGREES FAHRENHEIT
FA	FACE AREA (COIL) / FREE AREA (LOUVER)
FC	FLEXIBLE CONNECTION
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE
FLA	FULL LOAD AMPS
FLR	FLOOR
FPM	FEET PER MINUTE
FFD	FUNNEL FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FS	FLOOR SINK
FT	FEET
FV	FACE VELOCITY
FVC	FIRE VALVE CABINET
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HO	HUB OUTLET
HP	HORSEPOWER

MECHANICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
HR	HOUR
HTG	HEATING
HYD	HYDRANT
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
INV	INVERT
ISP	INTERNAL STATIC PRESSURE
IW	INDIRECT WASTE
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LBS/HR	POUNDS PER HOUR
LDB	LEAVING DRY BULB TEMPERATURE
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB TEMPERATURE
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MOTOR OPERATED DAMPER (AUTOMATIC)
MOP	MAXIMUM OVER-CURRENT PROTECTION
N.C.	NOISE CRITERIA
NIC	NOT IN CONTRACT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NOM	NOMINAL
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER / CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
ORS	OVERFLOW ROOF SUMP
OS&Y	OUTSIDE SCREW AND YOKE
PD	PRESSURE DROP (FEET OF WATER)
PRV	PRESSURE REDUCING VALVE
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAUGE
PT	PRESSURE / TEMPERATURE PORT
RA	RETURN AIR
RH	RELATIVE HUMIDITY
REQD	REQUIRED
REL.A	RELIEF AIR
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE
RS	ROOF SUMP
SA	SUPPLY AIR
SH	SHOWER
SP	STATIC PRESSURE
SqFt / SF	SQUARE FOOT/SQUARE FEET
SS	SERVICE SINK
TC	TEMPERATURE CONTROL
T & P	TEMPERATURE AND PRESSURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE

MECHANICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
UR	URINAL
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VTR	VENT THRU ROOF
W	WASTE
W&V	WASTE AND VENT
WB	WET BULB TEMPERATURE
WC	WATER CLOSET
WG	WATER GAUGE
WH	WALL HYDRANT

MECHANICAL PIPING SYMBOLS

ABBREV.	DESCRIPTION
	PIPE ELBOW UP
	PIPE ELBOW DOWN
	PIPE TEE DOWN
	DIRECTION OF FLOW
	UNION
	STRAINER
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	EXPANSION JOINT
	FLEXIBLE CONNECTION
	PIPE ANCHOR
	PIPE GUIDE
	PIPE CAP OR PLUG
	ISOLATION VALVE
	CIRCULATING PUMP
	GLOBE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	ANGLE VALVE
	CHECK VALVE (SWING)
	CHECK VALVE (SPRING)
	PLUG VALVE
	NEEDLE VALVE
	OUTSIDE SCREW AND YOKE VALVE (OS&Y)
	PRESSURE REGULATING VALVE
	SOLENOID VALVE
	CONTROL VALVE (2-WAY / 3-WAY)
	CENTRIFUGAL FAN
	AUTOMATIC GAS SHUT-OFF VALVE
	TRAP (PLAN VIEW)
	FLOOR DRAIN / FUNNEL FLOOR DRAIN (PLAN VIEW)
	FLOOR DRAIN / FUNNEL FLOOR DRAIN (ELEVATION)
	ROOF SUMP
CO	CLEAN OUT (IN FLOOR)
CO	CLEAN OUT (IN LINE)
WCO	CLEAN OUT (WALL)
BFP	BACKFLOW PREVENTER
M	WATER METER ASSEMBLY
	HOSE BIBB, WALL HYDRANT
	DIRECTION OF PIPE PITCH
	SPRINKLER HEAD (UPRIGHT)
	SPRINKLER HEAD (SIDEWALL)
FS	FLOW SWITCH
	SIAMESE CONNECTION (YARD)
	SIAMESE CONNECTION (WALL MOUNTED)
	FIRE HYDRANT
	FLOW MEASURING DEVICE
	BALANCING VALVE
	COMBINATION FLOW MEASURING AND BALANCING DEVICE
AAV	AUTOMATIC AIR VALVE
MAV	MANUAL AIR VALVE

MECHANICAL SYMBOLS

ABBREV.	DESCRIPTION
	RECTANGULAR TAKE-OFF (SINGLE LINE)
	RECTANGULAR TAKE-OFF (DOUBLE LINE)
	ROUND TAKE-OFF (SINGLE LINE)
	ROUND TAKE-OFF (DOUBLE LINE)
	SPIN-IN FITTING (WITH VOLUME DAMPER)
	ELBOW (WITH TURNING VANES)
	RADIUS RECTANGULAR ELBOW
	RADIUS ROUND ELBOW
	RECTANGULAR ELBOW UP
	ROUND ELBOW UP
	RECTANGULAR ELBOW DOWN
	ROUND ELBOW DOWN
	CONCENTRIC TRANSITION (DOUBLE LINE)
	CONCENTRIC TRANSITION (SINGLE LINE)
	ECCENTRIC TRANSITION (DOUBLE LINE)
	ECCENTRIC TRANSITION (SINGLE LINE)
R	INCLINED RISE IN DIRECTION OF AIR FLOW (DOUBLE LINE)
R	INCLINED RISE IN DIRECTION OF AIR FLOW (SINGLE LINE)
D	INCLINED DROP IN DIRECTION OF AIR FLOW (DOUBLE LINE)
D	INCLINED DROP IN DIRECTION OF AIR FLOW (SINGLE LINE)
	FLEXIBLE CONNECTION
	FLEXIBLE DUCT CONNECTION TO SUPPLY DIFFUSER
	SUPPLY DIFFUSER
	LINEAR SLOT DIFFUSER
	RETURN OR EXHAUST GRILLE
	TRANSFER GRILLE
	CROSS SECTION OF SUPPLY AIR DUCT
	CROSS SECTION OF EXHAUST OR RETURN AIR DUCT
EXISTING / NEW	FIRE DAMPER (HORIZONTAL)
EXISTING / NEW	FIRE DAMPER (VERTICAL)
EXISTING / NEW	SMOKE DAMPER
EXISTING / NEW	COMBINATION FIRE/SMOKE DAMPER (VERTICAL)
EXISTING / NEW	COMBINATION FIRE/SMOKE DAMPER (HORIZONTAL)
	VOLUME DAMPER (MANUALLY ADJUSTABLE)
M	MOTORIZED DAMPER
SD	SMOKE DETECTOR
CO2	CO2 SENSOR
T	THERMOSTAT OR TEMPERATURE SENSOR
H	HUMIDISTAT OR HUMIDITY SENSOR
	RETURN OR EXHAUST / SUPPLY AIR FLOW

PIPING LEGEND

ABBREV.	DESCRIPTION
CA	COMPRESSED AIR PIPING
CD	CONDENSATE DRAIN PIPING
DT	DRAIN TILE
F	FIRE PROTECTION PIPING
FOR	FUEL OIL RETURN PIPING
FOS	FUEL OIL SUPPLY PIPING
G	NATURAL GAS PIPING
BCW	BOOSTED-DOMESTIC COLD WATER PIPING
BHW	BOOSTED-DOMESTIC HOT WATER PIPING
CW	DOMESTIC COLD WATER PIPING
NPCW	NON POTABLE COLD WATER PIPING
TW	TEMPERED WATER PIPING
HW	DOMESTIC HOT WATER PIPING
HW(140°F)	DOMESTIC 140°F HOT WATER PIPING
HWR	DOMESTIC HOT WATER RETURN PIPING
SAN	SANITARY WASTE PIPING
PSAN	PUMPED SANITARY PIPING
V	VENT PIPING
ST	STORM SEWER PIPING
PST	PUMPED STORM PIPING
RC	RAIN CONDUCTOR PIPING
ORC	OVERFLOW RAIN CONDUCTOR PIPING
CHWR	CHILLED WATER RETURN PIPING
CHWS	CHILLED WATER SUPPLY PIPING
CWR	CONDENSER WATER RETURN PIPING
CWS	CONDENSER WATER SUPPLY PIPING
HHWR	HEATING HOT WATER RETURN PIPING
HHWS	HEATING HOT WATER SUPPLY PIPING
HPLR	HEAT PUMP LOOP RETURN PIPING
HPLS	HEAT PUMP LOOP SUPPLY PIPING
RL	REFRIGERANT LIQUID PIPING
RS	REFRIGERANT SUCTION PIPING
HGB	HOT GAS BY-PASS PIPING
GXHR	GEO HEAT EXCHANGE RETURN
GXHS	GEO HEAT EXCHANGE SUPPLY
STM	STEAM PIPING
HPS	HIGH PRESSURE STEAM PIPING
LPS	LOW PRESSURE STEAM PIPING
CR	STEAM CONDENSATE RETURN PIPING
PCR	PUMPED STEAM CONDENSATE RETURN PIPING
LPC	LOW PRESSURE CONDENSATE PIPING
HPC	HIGH PRESSURE CONDENSATE PIPING
MA	MEDICAL AIR PIPING
N	NITROGEN GAS PIPING
O2	OXYGEN GAS PIPING
VAC	VACUUM PIPING

APPLICABLE CODES AND REGULATIONS

YEAR	CODE
2012	MICHIGAN BUILDING CODE
2012	MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS
2012	MICHIGAN PLUMBING CODE
2012	MICHIGAN MECHANICAL CODE
2009	MICHIGAN UNIFORM ENERGY CODE
2012	INTERNATIONAL FUEL GAS CODE
2009	NFPA 90A
2007	NFPA 13
2003	ICC/ANSI ACCESSIBLE AND USABLE BUILDING & FACILITIES
–	AMERICANS WITH DISABILITIES ACT ACCESSIBILITIES GUIDELINE (ADA-AG)

DRAWING INDEX

SHT NO	DESCRIPTION
M000	MECHANICAL GENERAL INFORMATION
M100	MECHANICAL PLANS, DETAILS, AND SCHEDULES

DRAWING NOTATION

SYMBOL	DESCRIPTION
1	NEW WORK KEY NOTE NO. 1
1	DEMOLITION KEY NOTE NO. 1
EF 1	EQUIPMENT DESIGNATION, (IE: EXHAUST FAN NO. 1)
S-1 8ø 100	AIR TERMINAL TAG: IE: DIFFUSER TYPE = S-1, NECK SIZE = 10"x10", CFM = 100 (TYPICAL FOR 2) — S = SUPPLY, R = RETURN, E = EXHAUST
	EXISTING DEVICES OR EQUIPMENT
	NEW OR MODIFIED DEVICES OR EQUIPMENT
	EXISTING SYSTEM COMPONENT TO BE REMOVED
	POINT OF NEW CONNECTION

SECTION NO. 4 — 4 / M5.2 — SHEET M5.2 ON WHICH SECTION IS DRAWN

SECTION NO. 6 — 6 / M5.2 — **SECTION** — SCALE: 1/4" = 1' – 0" — SHEET M5.2 ON WHICH SECTION IS CUT (ENLARGED PARTIAL PLAN SIMILAR)

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SES Project # 15 0357 04

KEY PLAN

LOWER LEVEL

OWNER

Hamtramck
Public Schools

PROJECT NAME

Hamtramck High School
Pool Filtration System
Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding/Construction	03/17/16

N

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XXX

CHECKED BY
XXX

APPROVED BY
XXX

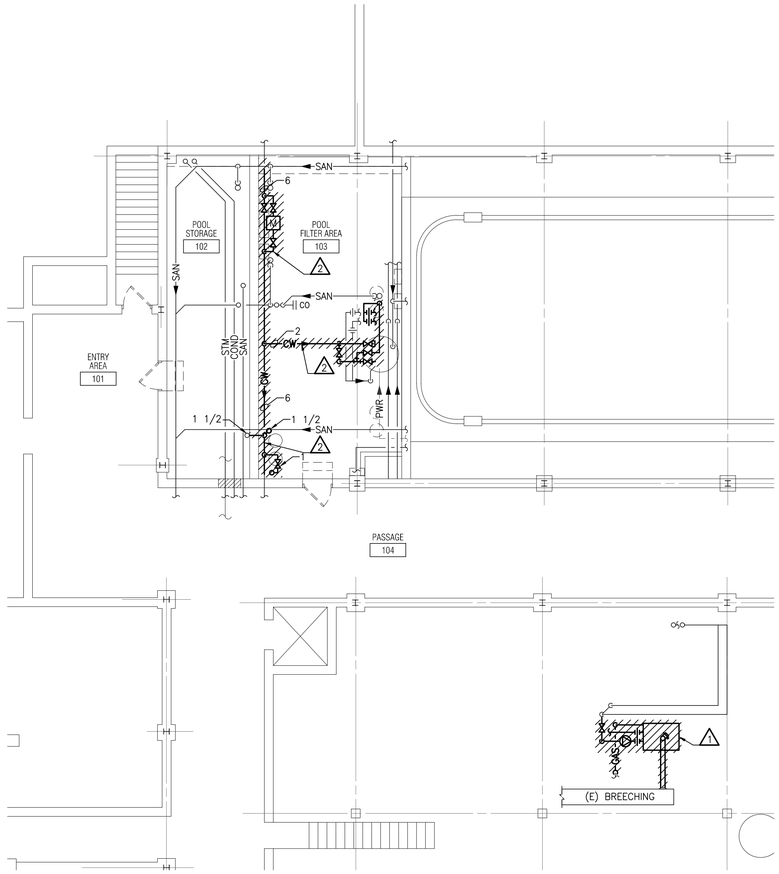
SHEET NAME

MECHANICAL
GENERAL
INFORMATION

SHEET NO.

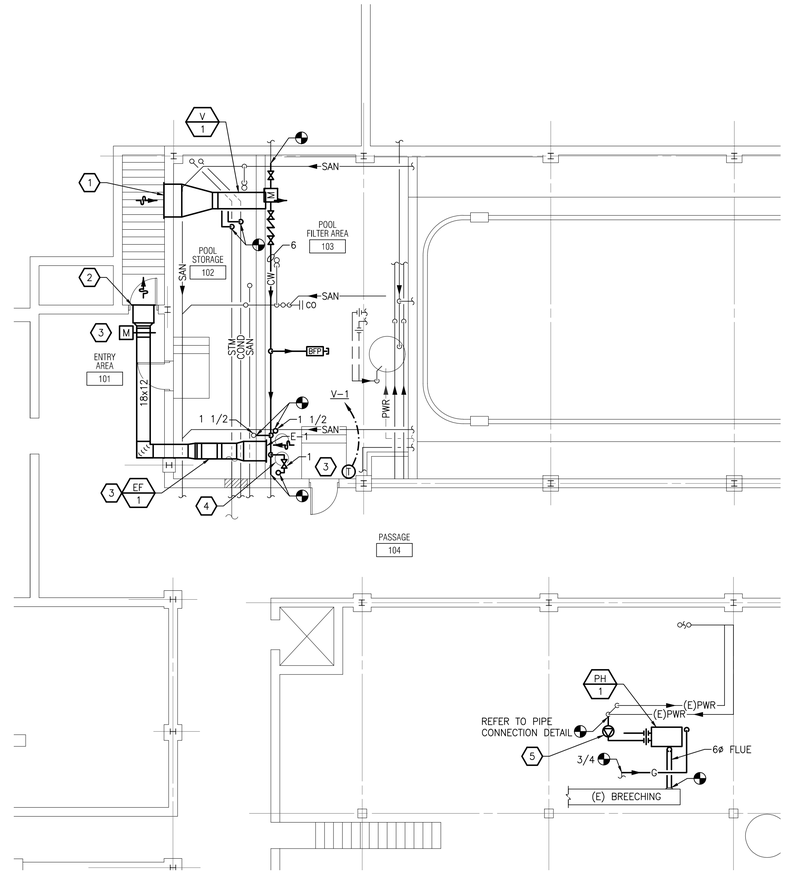
M000

Drawing: S:\15 0357 04 HPS - High School Pool Equipment Room\CAD\Mech\15 0357 04-M000.dwg
Date: Mar 16, 2016, 11:27am Layout: M000 Plotted by: rrs



MECHANICAL DEMOLITION PLAN

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



MECHANICAL NEW WORK PLAN

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

GENERAL DEMOLITION NOTES

1. ANY INTERRUPTIONS OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE SO AS NOT TO INTERFERE WITH THE PRESENT BUILDING'S OPERATION.
2. THIS DRAWING IS DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK TO BE PERFORMED. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
3. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE WITH ALL RELATED ITEMS INCLUDING HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.
4. ALL DEMOLITION OF THE EXISTING MECHANICAL SYSTEMS, INCLUDING BUT NOT LIMITED TO PIPING, DUCTWORK, CONTROLS, SUPPORTS, HANGERS, AND EQUIPMENT SHALL BE UNDER SCOPE OF DIVISION 20 THRU 23 OF THE SPECIFICATIONS.
5. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT BEING REMOVED.

DEMOLITION KEYED NOTES

1. REMOVE POOL HEATER COMPLETE. PREPARE REMAINING PIPING FOR NEW WORK.
2. REMOVE INCOMING DOMESTIC WATER PIPING, METER, AND BRANCH PIPING WITHIN POOL EQUIPMENT ROOM. PREPARE REMAINING PIPES TO BE RECONNECTED TO NEW PIPING. EXISTING WATER TREATMENT TO REMAIN.

MECHANICAL GENERAL NOTES

1. THIS DRAWING IS DIAGRAMMATIC & INDICATES THE GENERAL EXTENT OF THE WORK. PROVIDE PLUMBING AND HVAC SYSTEMS COMPLETE PER SPECIFICATION, SMACNA STANDARDS, AND PER APPLICABLE CODES INCLUDING ALL NECESSARY OFFSETS, FITTINGS, SPECIAL RADIUS OR MITERED ELBOWS WHICH ARE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER STRUCTURAL CONDITIONS.
2. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES. VERIFY ALL CLEARANCES PRIOR TO THE FABRICATION OF ANY WORK.
3. DUCTWORK/PIPING SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT/PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. DUCTWORK/PIPING SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT CLEARANCE.
4. THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS.
5. COORDINATE FLOOR, WALL, ROOF PENETRATIONS, LOUVER SIZES, PAD LOCATIONS ETC. WITH ARCHITECTURAL TRADES.
6. PIPING SHALL NOT BE INSTALLED IN A LOCATION THAT RESTRICTS THE ACCESS TO MECHANICAL DEVICES REQUIRING ACCESS.

KEYED NOTES

1. 44x18 INTAKE LOUVER SIZED FOR 1400 CFM @ 500 FPM AND 50% FREE AREA. PROVIDE WITH INTERIOR BIRD SCREEN. COORDINATE WITH ARCHITECTURAL TRADES. PROVIDE MINIMUM 24" DEEP PLENUM.
2. 28x18 EXHAUST LOUVER SIZED FOR 1400 CFM @ 800 FPM AND 50% FREE AREA. COORDINATE WITH ARCHITECTURAL TRADES. PROVIDE MINIMUM 24" DEEP PLENUM.
3. VENTILATION UNIT SHALL OPERATE 24/7/365. AS SPACE TEMPERATURE DROPS BELOW SETPOINT, THE FACE AND BYBASS DAMPERS SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT. EXHAUST FAN SHALL BE INTERLOCKED WITH VENTILATION UNIT. WHEN EQUIPMENT IS ENERGIZED, IT'S ASSOCIATED ISOLATION DAMPER SHALL BE OPEN. WHEN EQUIPMENT IS DE-ENERGIZED, IT'S ISOLATION DAMPER SHALL BE CLOSED.
4. EXISTING WATER TREATMENT TO BE RECONNECTED TO 6" COLD WATER MAIN.
5. POOL HEATER MANUFACTURER TO PROVIDE GRUNDFOS MAGNA1 40-80 F N CIRCULATION PUMP SELECTED FOR 40 GPM AT 12 FT OF HEAD. PUMP SHALL OPERATE CONTINUOUSLY TO MAINTAIN POOL WATER TEMPERATURE AND PROPER FLOW THROUGH THE POOL HEATER. POOL HEATER PUMP SHALL BE INTERLOCKED WITH THE POOL SYSTEM PUMPS FOR SHUT DOWN AND BACKWASH. LOCATE THE PUMP A MINIMUM OF 5 FEET UPSTREAM OF THE POOL HEATER.

VENTILATION UNIT SCHEDULE

UNIT ID	SERVING	AIRFLOW CFM	ESP (IN. WC.)	HEATING				FAN MOTOR		ELECTRICAL		DISCONNECT				MODEL NO.	ACCESSORIES
				STEAM PRESSURE (PSIG)	COND. LOAD (LBM/HR)	EAT °F	LAT °F	HP	RPM	VOLTS	PHASE	TYPE	FURNISHED DIVISION	INSTALLED DIVISION	CONNECT DIVISION		
V-1	POOL EQUIPMENT ROOM	1400	0.1	5	133	-10	77.8	1/6	1150	230	1	SWITCH	26	26	26	FASU-17-H	

NOTES:

1. MODEL NUMBERS ARE LJ WING UNLESS OTHERWISE NOTED. 2. FURNISHED WITH FAN, FACE & BY-PASS COIL, TYPE 1F DISCHARGE GRILLE, FACTORY MOUNTED CONTROLS, STARTER, AND REMOTE THERMOSTAT.

FAN SCHEDULE

UNIT ID	SERVING	TYPE	CFM	ESP (IN WG)	MODULATION TYPE	FAN RPM	MOTOR				ELECTRICAL		MODEL NO.	REMARKS
							BHP	HP	RPM	DRIVE TYPE	VOLTS	PHASE		
EF-1	POOL EQUIPMENT ROOM	INLINE	1400	0.5	CONSTANT	1338	0.31	1/2	1725	BELT	115	1	BSQ-130-3	

NOTES:

1. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED. 2. CONTROL SHALL BE BY MANUAL MOTOR STARTER PROVIDED BY ELECTRICAL TRADES, AND INTERLOCKED WITH VENTILATION UNIT.

POOL HEATER SCHEDULE

UNIT ID	FUEL TYPE	INLET GAS PRESSURE (WC)	INPUT (BTUH)	MAX WORKING PRESSURE (PSIG)	WATER			MODEL NO.	REMARKS
					EWT °F	LWT °F	FLOW (GPM)		
PH-1	NAT GAS	5-14	399,999	125	62	82	40	ERN402	MANUFACTURER TO PROVIDE CIRCULATION PUMP TO MAINTAIN PROPER FLOW AND WATER TEMPERATURE TO POOL LOOP

NOTES:

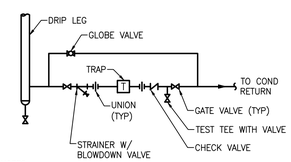
1. MODEL NUMBERS ARE LOCHINVAR UNLESS OTHERWISE NOTED.
2. PERFORMANCE DATA IS BASED ON WATER, UNLESS OTHERWISE NOTED.
3. MANUFACTURER TO PROVIDE CSD-1 & GE GAP GAS TRAIN.
4. PROVIDE WITH CUPRO-NICKEL HEAT EXCHANGER.

GRILLE, REGISTER AND DIFFUSER SCHEDULE

UNIT ID	FACE SIZE	NECK SIZE	MOUNTING	ACCESSORY	FINISH	MATERIAL	TYPE	MODEL NO.	REMARKS
E-1	NECK+2"	26x16	WALL	–	WHITE	STEEL	GRILLE	610Z	

NOTES:

1. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.

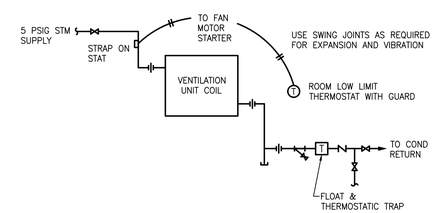


NOTES:

1. FOR HEATING COILS, AND END OF MAIN DRIPS, PROVIDE FLOAT& THERMOSTATIC TRAPS SIZED AT TWICE THE CONDENSATE LOAD.
2. FOR VALVES & FITTINGS, SEE PIPING STANDARD IN SPECIFICATION.

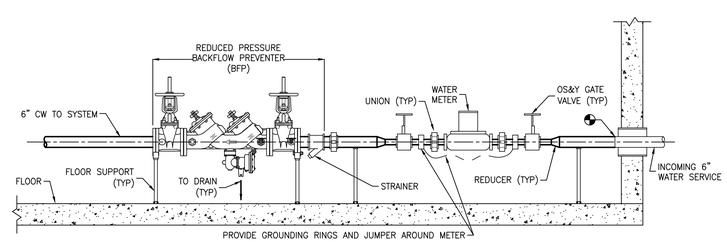
DRIP TRAP DETAIL

NO SCALE



VENTILATION AIR UNIT PIPING DETAIL

NO SCALE

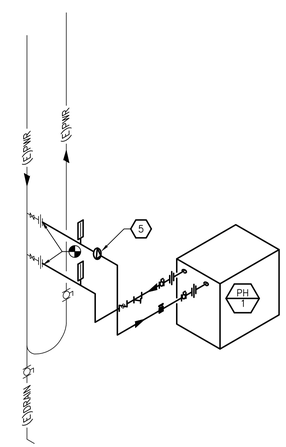


NOTES:

1. WATER METER & BFPs SHALL BE SUPPORTED FROM THE FLOOR AND/OR WALL.
2. BACKFLOW PREVENTER SERVING BUILDING DOMESTIC WATER TO BE EQUAL TO FEBCO LF860-OSY WITH OS&Y GATE VALVES, TEST COCKS AND STRAINER.
3. BACKFLOW PREVENTER SERVING IRRIGATION SYSTEM TO BE EQUAL TO WATTS 909 WITH OUTLET BALL VALVES, TEST COCKS AND STRAINER.

WATER METER/BACKFLOW PREVENTER DETAIL

NO SCALE



PIPE CONNECTION DETAIL

NO SCALE

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SES Project # 15 0357 04

KEY PLAN

LOWER LEVEL

OWNER

Hamtramck Public Schools

PROJECT NAME

Hamtramck High School Pool Filtration System Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding/Construction 03/17/16

DRAWN BY XXX

CHECKED BY XXX

APPROVED BY XXX

SHEET NAME

MECHANICAL PLANS, DETAILS, AND SCHEDULES

SHEET NO.

M100

Drawing: S:\15 0357 04 HPS - High School Pool Equipment Room\CAD\Mech\15 0357 04-M100.dwg
Date: Mar 18, 2016, 11:27am Layout: M100 Plotted by: rrs

LUMINAIRE SCHEDULE

FIXTURE MARK	DESCRIPTION	MANUFACTURER(S)	LAMP SOURCE	WATTS
LA	4'–0" LONG ENCLOSED AND GASKETED INDUSTRIAL CHAIN HUNG LUMINAIRE, ONE PIECE 5VA FIBERGLASS HOUSING WITH STAINLESS STEEL LATCHES AND MOUNTING BRACKETS, ACRYLIC LINEAL RIBBED FROSTED LENS, STANDARD DISTRIBUTION, IP RATING, 0–10V DIMMING DRIVER, INTEGRAL SURGE PROTECTION.	1. LITHONIA FEM4LED–4L–IMAFL–HC36 2. H.E. WILLIAMS 96 LED SERIES 3. LSI LED EG3 SERIES	LED 4100°K MVOLT 65 CRI	61

LUMINAIRE SCHEDULE GENERAL NOTES

1. REFER TO ELECTRICAL SPECIFICATIONS FOR MORE INFORMATION.
2. ALL LIGHT FIXTURES SHALL BE UL LABELED.
3. FIRST MANUFACTURER LISTED IS BASIS OF DESIGN. OTHER MANUFACTURERS LISTED ARE APPROVED MANUFACTURERS.
4. ELECTRICAL TRADES SHALL PROVIDE COMPLETE SUBMITTALS (SHOP DRAWINGS) ON ALL LIGHT FIXTURES, LAMPS, CONTROLS AND ACCESSORIES, ETC. REFER TO SPECIFICATION FOR SUBMITTAL FORMAT AND PROCESS.
5. ALL LUMINARIES AND CONTROLS SHALL COMPLY WITH THE MICHIGAN UNIFORM ENERGY CODE AND ASHRAE 90.1.

LIGHTING SYMBOL LIST

SYMBOL	DESCRIPTION
	FLUORESCENT LIGHT FIXTURE
	FLUORESCENT NIGHT LIGHT FIXTURE
	FLUORESCENT EMERGENCY LIGHT FIXTURE
	WALL MOUNTED FLUORESCENT LIGHT FIXTURE
	DOWNLIGHT
	DOWNLIGHT WALL WASH FIXTURE
	WALL SCONCE LIGHT FIXTURE
	SURFACE MOUNTED LIGHT FIXTURE
	INTERIOR WALL MOUNTED LIGHT FIXTURE
	TRACK AND TRACK MOUNTED LIGHT FIXTURES
	CEILING MOUNTED EXIT LIGHT – ARROWS AS INDICATED ON PLAN (SHADED AREA INDICATES FACE(S) OF FIXTURE)
	WALL MOUNTED EXIT LIGHT – ARROWS AS INDICATED ON PLAN (SHADED AREA INDICATES FACE(S) OF FIXTURE)
	EMERGENCY BATTERY UNIT
	COMBINATION EMERGENCY BATTERY UNIT/EXIT SIGN
	EXTERIOR POLE MOUNTED LIGHT FIXTURE
	EXTERIOR WALL MOUNTED LIGHT FIXTURE
	EXTERIOR POST TOP LIGHT FIXTURE
	BOLLARD LIGHT FIXTURE
$	SINGLE POLE SWITCH
$2	TWO POLE SWITCH
$3	THREE WAY SWITCH
$4	FOUR WAY SWITCH
$K	KEYED SWITCH
$D	DIMMER SWITCH
$L	LOW VOLTAGE SWITCH
$P	SWITCH WITH PILOT LIGHT
$ $	DUAL SWITCH

LIGHTING CONTROLS LEGEND

SYMBOL	DESCRIPTION
$T	DIGITAL TIMER SWITCH
$O	WALL OCCUPANCY SENSOR SWITCH
OS	OCCUPANCY SENSOR
DLS	DAYLIGHT SENSOR
P	PHOTOCELL

NOTES:
1. DRAWINGS INDICATE DESIGN INTENT ONLY.
2. SENSOR SELECTION, QUANTITY AND LOCATION TO BE DETERMINED BY MANUFACTURER BASED ON AREA TO BE COVERED.

FIRE ALARM SYMBOL LIST

SYMBOL	DESCRIPTION
F	AUDIBLE DEVICE
F	COMBINATION AUDIBLE/VISUAL DEVICE
F	CEILING MOUNTED AUDIBLE/VISUAL DEVICE
S	VISUAL DEVICE
S	CEILING MOUNTED VISUAL DEVICE
FD	FIRE DEPARTMENT COMMUNICATION OUTLET
F	MANUAL PULL STATION
DH	DOOR HOLDER
S	SMOKE DETECTOR (ZONED AS INDICATED)
S P	PHOTOELECTRIC SMOKE DETECTOR (ZONED AS INDICATED)
H	HEAT DETECTOR (ZONED AS INDICATED)
TS	TAMPER SWITCH
FS	FLOW SWITCH
D	DUCT MOUNTED SMOKE DETECTOR
FAA	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL

ELECTRICAL ABBREVIATIONS

ABBREV.	DESCRIPTION
AF	AMP FUSE
AFF	ABOVE FINISHED FLOOR
AIC	AVAILABLE INTERRUPTING CURRENT (AMPS)
ATS	AUTOMATIC TRANSFER SWITCH
CB	CIRCUIT BREAKER
(E)	EXISTING ELECTRICAL EQUIPMENT OR WORK
EMT	ELECTRICAL METALLIC TUBING
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
G/GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
HOA	HAND–OFF–AUTO
IG	ISOLATED GROUND
LP	LIGHTING PANEL
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUG ONLY
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON–FUSIBLE
NIC	NOT IN CONTRACT
P	POLE
(R)	RELOCATED EXISTING ELECTRICAL EQUIPMENT
(RR)	REMOVE AND REINSTALL
RMC	RIGID METALLIC CONDUIT
RP	RECEPTACLE PANEL
TBB	TELEPHONE BACKBOARD
TYP.	TYPICAL
WG	WIRE GUARD
WP	WEATHERPROOF

POWER SYMBOL LIST

SYMBOL	DESCRIPTION
TC	TIME CLOCK
C	CONTACTOR
J	HARD WIRE CONNECTION BY ELECTRICAL CONTRACTOR
	SINGLE RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET MOUNTED 6" ABOVE FINISH COUNTER
C	CEILING MOUNTED DUPLEX RECEPTACLE OUTLET
	EMERGENCY DUPLEX RECEPTACLE OUTLET
	DEDICATED DUPLEX RECEPTACLE OUTLET
	QUAD RECEPTACLE OUTLET
	DEDICATED QUAD RECEPTACLE OUTLET
	FLOOR MOUNTED DUPLEX RECEPTACLE OUTLET
	NEMA RECEPTACLE OUTLET (CONFIGURATION AS NOTED)
	PLUG STRIP
J	JUNCTION BOX (C=CEILING MOUNTED)
	RECEPTACLE PANEL
	LIGHTING PANEL
	DISTRIBUTION/EQUIPMENT POWER PANEL
T	TRANSFORMER
	SINGLE PHASE MOTOR
	THREE PHASE MOTOR
	CONDUIT DOWN
	CONDUIT UP
	GROUNDING ROD
	GROUND
	GROUNDING BAR
M	METER
	NON–FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	COMBINATION MAGNETIC MOTOR STARTER
$M	MOTOR RATED SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR

AUXILIARY SYST. SYMBOL LIST

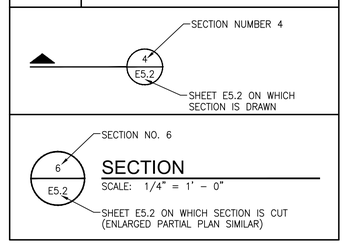
SYMBOL	DESCRIPTION
	TELEPHONE OUTLET
	FLOOR MOUNTED TELEPHONE OUTLET BOX (TYP.)
	TELEPHONE OUTLET MOUNTED 6" ABOVE FINISHED COUNTER
	DATA OUTLET
	COMBINATION OUTLET (VOICE, VIDEO, AND/OR DATA)
C	CEILING MOUNTED OUTLET BOX (TYP.)
	PUSH BUTTON
	BELL
CR	CARD READER
DH	MAGNETIC DOOR HOLD
TV	TELEVISION OUTLET
	WALL CLOCK
	DOUBLE SIDED WALL CLOCK
S	COMBINATION WALL CLOCK / SPEAKER
S	SPEAKER
	CAMERA

DRAWING INDEX

SHT NO	DESCRIPTION
E000	ELECTRICAL GENERAL INFORMATION
E100	ELECTRICAL PLANS

DRAWING NOTATION

SYMBOL	DESCRIPTION
FA	LIGHTING FIXTURE TAG
1	CONSTRUCTION KEY NOTE NUMBER 1
1	DEMOLITION KEY NOTE NUMBER 1
EF 1	EQUIPMENT DESIGNATION, (I.E. EXHAUST FAN NUMBER 1)
	EXISTING DEVICES OR EQUIPMENT
	NEW OR MODIFIED DEVICES OR EQUIPMENT
	NEW OR MODIFIED UNDERGROUND WIRING
	EXISTING SYSTEM COMPONENT TO BE REMOVED



APPLICABLE CODES AND REGULATIONS

YEAR	CODE
2014	MICHIGAN ELECTRICAL CODE RULES, PART 8
2014	NATIONAL ELECTRICAL CODE (NFPA 70)
2012	MICHIGAN BUILDING CODE
2012	MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS
2009	MICHIGAN RESIDENTIAL CODE
2009	MICHIGAN UNIFORM ENERGY CODE
2010	NFPA 20
2010	NFPA 72
2012	NFPA 101
2010	NFPA 110
2009	ICC A117.1 ACCESSIBLE AND USABLE BUILDINGS & FACILITIES

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KEY PLAN

LOWER LEVEL

OWNER

Hamtramck
Public Schools

PROJECT NAME

Hamtramck High School
Pool Filtration System
Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding/Construction	03/17/16

N

DRAWN BY
XXX

CHECKED BY
XXX

APPROVED BY
XXX

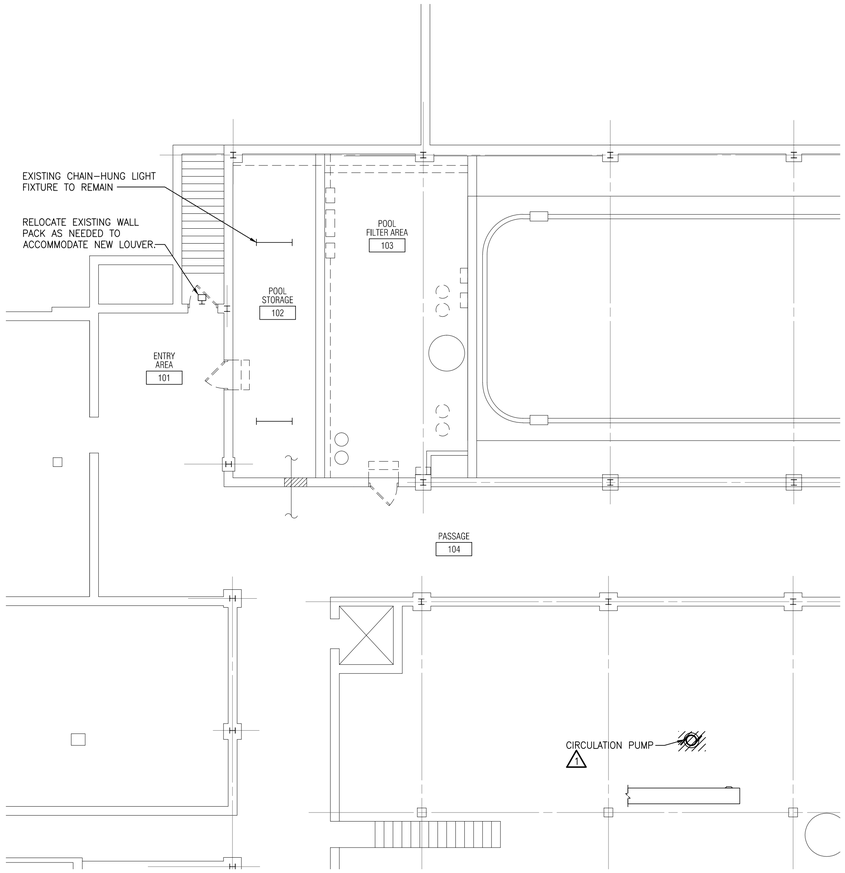
SHEET NAME

ELECTRICAL
GENERAL
INFORMATION

SHEET NO.

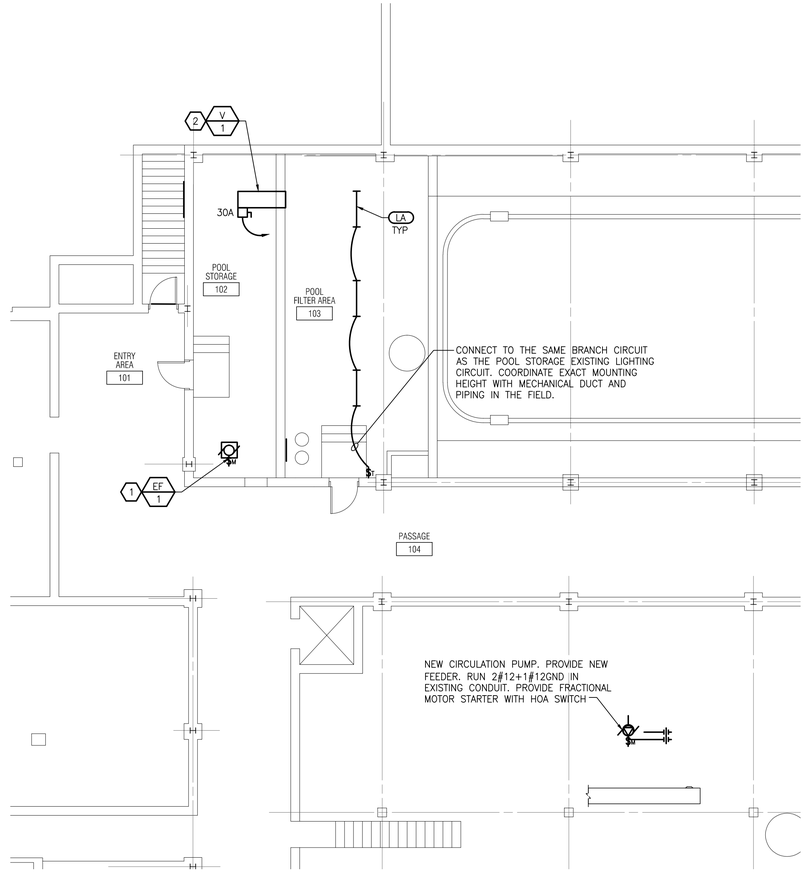
E000

Drawing: S:\15 0357 04 HPS - High School Pool Equipment Room\CAD\Elec\15 0357 04-E000.dwg
Date: Mar 18, 2016, 11:27am Layout: E000 Plotted by: rrs



ELECTRICAL DEMOLITION PLAN

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



ELECTRICAL NEW WORK PLAN

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

GENERAL DEMOLITION NOTES

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES, BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION OF DEVICES AND EQUIPMENT REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES.
3. REMOVE LIGHTING FIXTURES AND ELECTRICAL DEVICES AS INDICATED ON PLAN. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO THOSE DEVICES SHOWN.
4. COORDINATE WITH NEW WORK PLANS, ONE LINE AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
5. COORDINATE ANY SHUTDOWN OF EXISTING SERVICES AND EQUIPMENT REMAINING IN USE WITH OWNERS' REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COST TO PERFORM THIS WORK DURING EVENINGS AND WEEKENDS. INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUTDOWNS OCCUR FOR PERIODS LONGER THAN THE ABOVE STATED HOURS.
6. COORDINATE THE SHUT DOWN OF ELECTRICAL EQUIPMENT WITH THE OWNERS' REPRESENTATIVE A MINIMUM OF 72 HOURS PRIOR TO SHUT DOWN.
7. REMOVE ALL CONDUIT AND WIRE BACK TO NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
8. WHERE DEMOLITION WORK AFFECTS ELECTRICAL SERVICE TO DOWNSTREAM DEVICES TO REMAIN; EXTEND CONDUIT AND WIRE AS REQUIRED TO MAINTAIN ELECTRICAL SERVICE.
9. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PRIOR TO DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
10. PROVIDE BLANK COVER PLATES WHERE SWITCHES AND DEVICES ARE REMOVED AND WALL REMAINS INTACT. MARK ALL UNUSED CIRCUIT BREAKERS AS "SPARE".
11. CONTRACTOR TO TAG ALL CIRCUITS AT BOTH ENDS AFFECTED BY THIS ALTERATION.
12. CONTRACTOR SHALL PROVIDE UPDATED, TYPED-IN DIRECTORIES FOR ALL PANELS AFFECTED BY THIS ALTERATION.
13. CONTRACTOR SHALL VERIFY ALL UNDERGROUND AND IN-SLAB UTILITIES LOCATIONS PRIOR TO SAW CUTTING OR PENETRATING ANY FLOOR SLABS.
14. REFER TO NEW WORK SHEETS FOR LIGHTING AND POWER CIRCUIT DESIGNATIONS.
15. EXTEND EXISTING CONDUIT AND WIRE AS REQUIRED FOR ALL RELOCATED DEVICES.

DEMOLITION KEYED NOTES

1. DISCONNECT POWER TO EXISTING CIRCULATION PUMP COMPLETE WITH DISCONNECT SWITCH, STARTER AND WIRING BACK TO SOURCE. RETAIN EXISTING CONDUIT TO REUSE FOR NEW PUMP INSTALLED IN PLACE. REFER TO NEW WORK.

ELECTRICAL GENERAL NOTES

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LIGHTING FIXTURES UNLESS OTHERWISE NOTED.
2. SEE LUMINAIRE SCHEDULE ON ELECTRICAL GENERAL INFORMATION SHEET.
3. EXIT LIGHTS AND EMERGENCY BATTERY UNITS SHALL BE UNCONTROLLED AND TIED AHEAD OF LOCAL AREA LIGHTING SWITCH, UNLESS CIRCUITED OTHERWISE.
4. WHERE MORE THEN ONE LIGHT SWITCH IS INDICATED TO BE INSTALLED AT THE SAME LOCATION, THEY SHALL BE GROUPED UNDER ONE COMMON FACEPLATE.
5. ALL ELECTRICAL DEVICES SHOWN ON THIS PLAN SHALL BE NEW UNLESS OTHERWISE NOTED.
6. ANY 120 VOLT BRANCH CIRCUIT FEEDER LONGER THAN 75'-0" TO LAST DEVICE SHALL BE SIZED TO THE NEXT LARGER STANDARD AWG SIZE. E.C. SHALL FIELD VERIFY ALL LENGTHS OF FEEDERS.
7. ALL RECEPTACLES SHALL BE 20A. RATED.
8. ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE.
9. ALL RECEPTACLES WITHIN 6'-0" OF SINK OR OTHER WATER SUPPLY SHALL BE GFCI TYPE RECEPTACLE.
10. REFER TO ARCHITECTURAL FLOOR PLAN AND ELEVATIONS FOR EXACT LOCATION OF DEVICES.
11. ALL JUNCTION BOXES SERVING BRANCH CIRCUIT WIRING SHALL BE LABELED WITH CIRCUITS SERVED.
12. ALL 120 VOLT CIRCUITS SHALL UTILIZE A SEPARATE NEUTRAL.
13. ALL CONDUITS SERVING 120 VOLTS OR GREATER SHALL INCLUDE A GROUND WIRE.
14. ALL CONDUITS SHALL BE ROUTED CONCEALED UNLESS NOTED OTHERWISE.
15. ALL ELECTRICAL EQUIPMENT MOUNTED ON THE FLOOR SHALL BE MOUNTED ON A 4" CONCRETE HOUSE KEEPING PAD.
16. ALL BRANCH CIRCUIT WIRING SHALL BE 2#12, 1#12GND IN 3/4" CONDUIT, UNLESS NOTED OTHERWISE.

KEYED NOTES

1. NEW EXHAUST FAN, 120V-1ø-1/3HP. CONNECT UNIT TO EXISTING PANEL LOCATION IN BOILER ROOM APPROXIMATE 120 FEET AWAY. PROVIDE 20A-1P BREAKER IN AVAILABLE SPACE OR AVAILABLE SPARE BREAKER. RUN 2#12+1#12GND IN 3/4". UPDATE PANEL DIRECTORY. PROVIDE FRACTIONAL MOTOR STARTER WITH HOA SWITCH.
2. NEW VENT UNIT, 240V-1ø-1/6HP. CONNECT UNIT TO EXISTING PANEL LOCATION IN BOILER ROOM APPROXIMATE 120 FEET AWAY. PROVIDE 20A-2P BREAKER IN AVAILABLE SPACE OR AVAILABLE SPARE BREAKER. RUN 2#12+1#12GND IN 3/4". UPDATE PANEL DIRECTORY. DISCONNECT SWITCH PROVIDED BY ELECTRICAL CONTRACTOR AND STARTER BY MECHANICAL CONTRACTOR.

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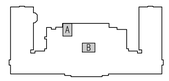

LOWER LEVEL

OWNER

Hamtramck Public Schools

PROJECT NAME

Hamtramck High School Pool Filtration System Upgrades

11410 Charest
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ISSUES / REVISIONS

Bidding/Construction	03/17/16

N

DRAWN BY

HMN

CHECKED BY

FAA

APPROVED BY

FAA

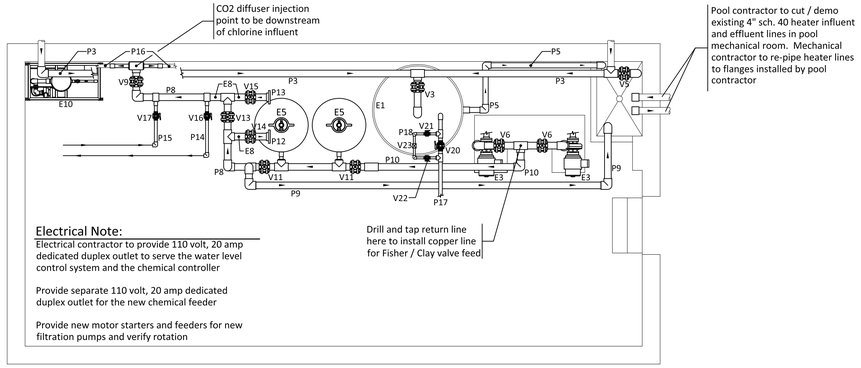
SHEET NAME

ELECTRICAL PLANS, DETAILS, AND SCHEDULES

SHEET NO.

E100

Drawing: S:\15 0357 04 HPS - High School Pool Equipment Room\CAD\Elec\15 0357 04-E100.dwg
Date: Mar 17, 2016, 4:37pm Layout: E100 Plotted by: hmtn

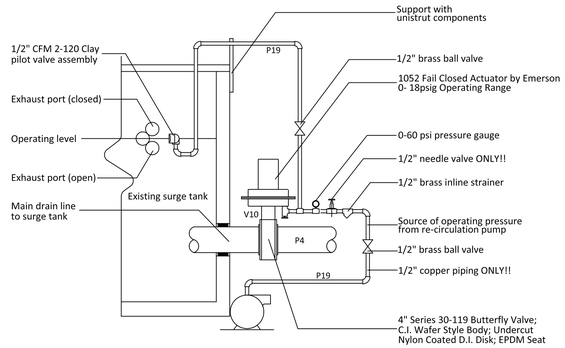


Electrical Note:
Electrical contractor to provide 110 volt, 20 amp dedicated duplex outlet to serve the water level control system and the chemical controller

Provide separate 110 volt, 20 amp dedicated duplex outlet for the new chemical feeder

Provide new motor starters and feeders for new filtration pumps and verify rotation

PUMP PRESSURE & GUTTER PIPING PLAN
Scale: 1/4" = 1'-0"



FISHER & PILOT VALVE PIPING DETAIL
Scale: none

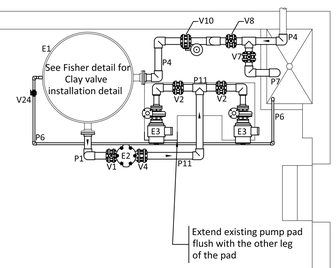
Pool Filtration Data

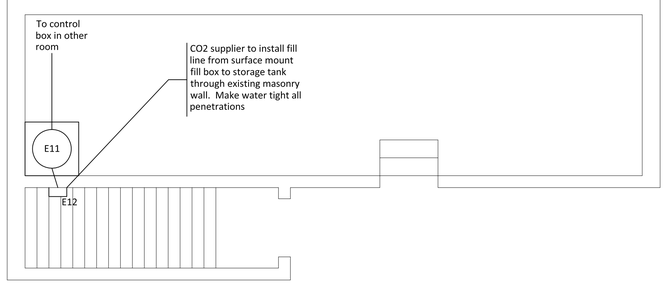
Pool Area:	1,500 SF
Pool Gallons:	74,000 GAL
Perimeter:	170 LF
Turnover:	6.0 HR
Turnover Rate:	205 GPM
Filter Area:	14.12 SQFT
Filtration Rate:	14.52 GPM/SQFT < 20.0 GPM/SQFT

Demolition Note:
Remove all existing pool process plumbing to the extent possible with the exception of the pool return line. Remove all existing pumps, filters and other pool equipment with the exception of the existing surge tank and pump pad

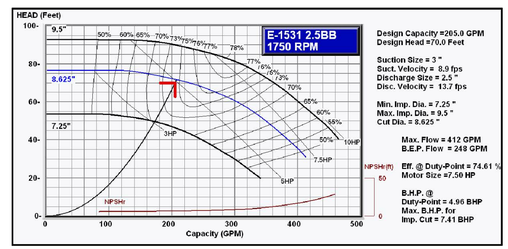
All existing pool plumbing and equipment support hardware is to be completely removed from room. NO EXISTING HARDWARE TO BE RE-USED!!

New Pumps:
Provide vibration couplings on suction side and discharge of both pumps. Couplings to be concentrically or eccentrically flanged and braided material to be stainless steel





PUMP SUCTION & MAIN DRAIN PIPING PLAN
Scale: 1/4" = 1'-0"



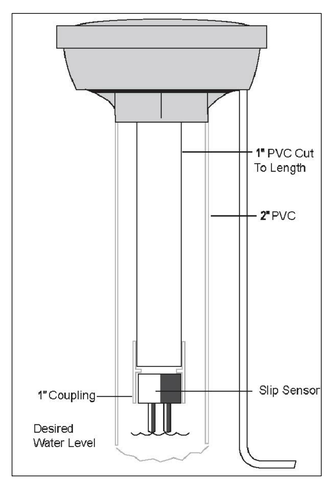
PROPOSED PUMP PERFORMANCE CURVE
Scale: none

Valve Schedule

Tag	Size	Description	Position
V1	4"	Butterfly valve w/ lever operator (suction from tank isolation)	N.O.
V2	4"	Butterfly valve w/ lever operator (influent pump selection and/ or isolation)	
V3	4"	Butterfly valve w/ lever operator (gutter line isolation)	N.O.
V4	4"	Double door check valve by Duo-chek w/ EPDM seat	
V5	4"	Butterfly valve w/ lever operator (gutter to waste valve)	N.C.
V6	4"	Butterfly valves w/ lever operators (pump effluent selection and/or isolation valves)	
V7	4"	Butterfly valve w/ lever operator (main drain to waste)	N.C.
V8	4"	Butterfly valve w/ lever operator (main drain isolation)	N.O.
V9	4"	Butterfly valve w/ lever operator (return line isolation)	N.O.
V10	4"	Fisher Bray Series 30-119 Butterfly Valve; C.I. Wafer Style Body; Undercut Nylon Coated D.I. Disk; EPDM Seat; 1052 Size 40 Fail Closed Actuator; 0-18 psig Operating Range. See detail	
V11	4"	Butterfly valve w/ lever operator (filter influent)	N.O.
V12	4"	Butterfly valve w/ lever operator (filter backwash)	N.C.
V13	4"	Butterfly valve w/ lever operator (heater bypass)	
V14	4"	Butterfly valve w/ lever operator (heater influent isolation)	N.O.
V15	4"	Butterfly valve w/ lever operator (heater effluent isolation)	N.O.
V16	1.5"	Sch. 80 true union ball valve (chlorinator influent isolation)	N.O.
V17	1.5"	Sch. 80 true union ball valve (chlorinator effluent isolation)	N.O.
V18	1.5"	Sch. 80 IPEX true union check valve (not shown)	
V19	1.5"	Sch. 80 IPEX true union Y-strainer (not shown)	
V20	2"	Sch. 80 true union ball valve (manual fill valve)	N.C.
V21	1"	Sch. 80 true union ball valve (auto fill solenoid valve isolation)	N.O.
V22	1"	Sch. 80 true union ball valve (auto fill solenoid valve isolation)	N.O.
V23	1"	24 volt auto fill solenoid (provided w/ Levelor auto-fill system)	N.C.
V24	1"	Sch. 80 true union ball valve (surge tank drain)	N.C.

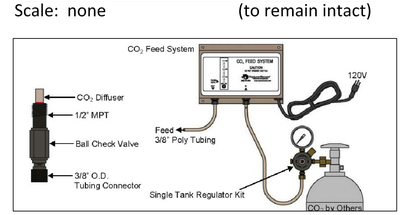
Equipment Schedule

Tag	Description	Qty.
E1	Existing 5'-0" dia. x 7'-0" deep fiberglass surge tank	1
E2	New 4" hair & lint strainer with extra stainless steel basket by Neptune Benson model #1500NBFG04R1	1
E3	New 7.5 HP, 3 phase 208-240/460 volt close coupled centrifugal pump by Bell & Gossett, Series E-1531, model # 2.5BB w/ 3" suction & 2-1/2" discharge. Pump capable of 205 GPM @ 70' of TDH. Plumb so that pumps can be run A/B (not in unison)	2
E4	New chemical controller with flow cell assembly	1
E5	New TR-140-C commercial high rate sand filters by Pentair. Plumb in series. Use ONLY TDS Aqua-Quartz #20 pool filter silica sand. Install per manuf. instructions	2
E6	New Signet Blue Cap flow meter model #2536. Install in strict accordance w/ manuf. specifications Hook into new controller for flow display	1
E7	Trident CO2 feed system by Neptune Benson. Provide 750 lb. storage tank with exterior stainless steel fill box.	1
E8	Inline thermometer and well. Install on heater influent, effluent and mixed water lines	3
E9	Zodiac K-1100 water level controller (110 volt) with surge tank sensor wire	1
E10	New calcium hypo-chlorite system by Axiall model # 3075 PowerBase. Install with self cleaning line and valve (not shown)	1
E11	New 750 lb. stainless steel CO2 tank on new 36" x 36" concrete housekeeping pad. Provide two (2) stainless steel chains with eye bolts to chain tank to wall for security	1
E12	Surface mount fill box for new CO2 system w/ lockable cover	1



AUTO-FILL SENSOR DETAIL
Scale: none

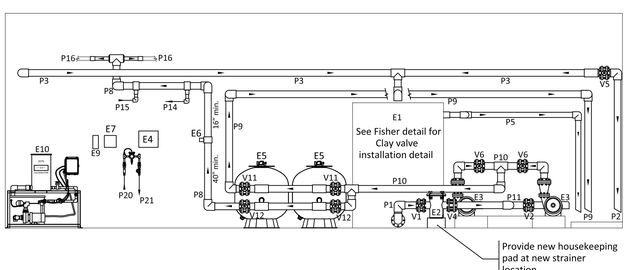
EXISTING SURGE TANK
Scale: none (to remain intact)



TRIDENT CO2 SYSTEM
Scale: none

Pipe Schedule- Sch. 80 u.n.o.

Tag	Size	Description
P1	4"	Pump suction line from surge tank
P2	4"	Gutter to waste / overflow. Run into ex. sump provide for required air gap
P3	4"	Gutter line to surge tank. Connect to existing line running from pool w/ inside coupling if req'd
P4	4"	Main drain line to surge tank. Connect to existing line running from pool w/ inside coupling if req'd
P5	3"	Surge tank overflow. Run into ex. sump and air gap
P6	1"	Surge tank drain line. Run into ex. sump and air gap
P7	4"	Main drain to waste. Run into ex. sump and air gap
P8	4"	Filter effluent line
P9	4"	Filter backwash line. run into ex. sump and air gap
P10	4"	Filter influent line
P11	4"	Pump suction line
P12	4"	Heater influent- terminate in flange as shown
P13	4"	Heater effluent- terminate in flange as shown
P14	1.5"	Chlorinator influent
P15	1.5"	Chlorinator effluent
P16	2"	Existing return lines back to pool
P17	2"	Fresh water supply from 2" RPZ installed by others
P18	1"	Fresh water bypass loop for auto fill solenoid valve
P19	1/2"	Fisher actuator and Clay pilot valve influent- COPPER
P20	1/2"	Sample cell influent- clear poly tubing
P21	1/2"	Sample cell effluent- clear poly tubing



NEW PIPING / EQUIPMENT ELEVATION
Scale: 1/4" = 1'-0"

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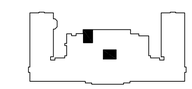
KEY PLAN



LOWER LEVEL

OWNER

Hamtramck Public Schools

PROJECT NAME

Hamtramck High School Pool Filtration System Upgrades

11410 Charest
Hamtramck, MI 48212

PROJECT NO.

15-163

ISSUES / REVISIONS

Bidding - Construction 03/17/2016

N

DRAWN BY
NJS

CHECKED BY
ACS

APPROVED BY
MAM

SHEET NAME
POOL MECHANICAL ROOM PIPING & DETAILS

SHEET NO. SP-1