PROJECT

SECURE ENTRANCE RENOVATION PROJECT AT AUBURN HIGH SCHOOL

IFB NO. 20-42

AUBURN HIGH SCHOOL
5110 AUBURN STREET
ROCKFORD, ILLINOIS 61101

OWNER

ROCKFORD PUBLIC SCHOOL DISTRICT #205

501 7TH STREET,
ROCKFORD, ILLINOIS 61104

STATE MAP
SCALE: N.T.S.

ARCHITECT OF RECORD

RICHARD L. JOHNSON ASSOCIATES
4703 Charles Street
Rockford IL. 61108
PHONE: 815/398-1231 FAX 815/398-1280
www.rljarch.com
IL. Design Firm No. 187-000524

DRAWINGS:
A101

STATE OF ILLINOIS
SCOTT R. JOHNSON
01 4871
LICENSED ARCHITECT

3-10-2020
DATE

EXPIRES 11-30-2020

MECHANICAL / ELECTRICAL / PLUMBING

SYSTEM DESIGN SERVICE ENGINEERING
3600 East State Street, Suite 215
Rockford, IL. 61108
PHONE: 815/399-3381 FAX 815/399-338
www.sdsegroup.com
IL. Design Firm No. 184.004999

DRAWINGS:
M101 thru M103, E101 thru E103

10 MAR 20
EXP 30 NOV 21

LICENSED PROFESSIONAL ENGINEER
SCOTT JAY BAIER
062-059748
STATE OF ILLINOIS

SHEET INDEX

SECURE ENTRANCE RENOVATION PROJECT AT
AUBURN HIGH SCHOOL FOR
ROCKFORD PUBLIC SCHOOL DISTRICT 205
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
TITLE SHEET

PROJECT INFORMATION

Date	March 10, 2020
Rev. Date	
RLJA Proj	2020-009

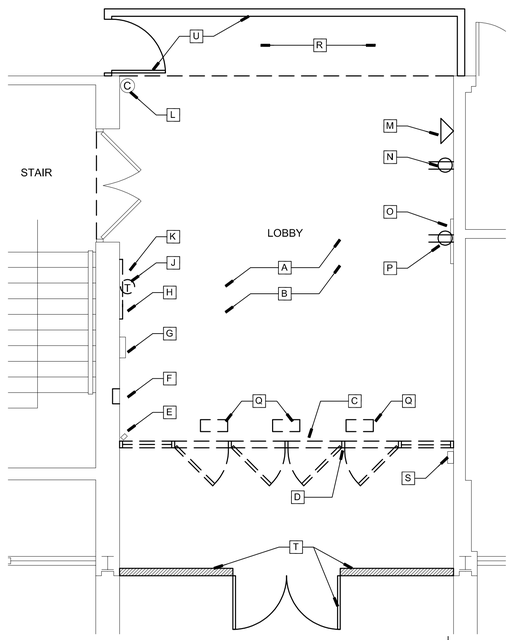
SHEET NUMBER
T101
OF
1

DEMOLITION GENERAL NOTES

1. THE GENERAL CONTRACTOR IS TO COORDINATE AND PROVIDE ALL DEMOLITION AND REMOVAL OF DEBRIS NECESSARY TO ACCOMMODATE NEW CONSTRUCTION
2. THE DEMOLITION PLAN IS PROVIDED AS AN AID IN PLANNING AND DOES NOT RELIEVE THE CONTRACTOR'S RESPONSIBILITY IN FIELD VERIFYING THE EXISTING JOB SITE
3. PROVIDE ALL TEMPORARY SHORING AS REQUIRED TO SUPPORT STRUCTURES AND FINISHES TO REMAIN
4. ALL AREAS, FINISHES AND ITEMS NOT REQUIRING DEMOLITION MUST BE PROTECTED DURING DEMOLITION AND CONSTRUCTION WORK
5. EACH CONTRACTOR IS RESPONSIBLE TO PATCH AND MATCH EXISTING WALLS, CEILINGS AND FLOORS AFTER DEMOLITION WORK IS COMPLETE.
6. REFERENCE HVAC, PLUMBING, AND ELECTRICAL SHEETS FOR ITEMS TO BE REMOVED AND/OR RELOCATED.
7. ALL ITEMS TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR UNLESS NOTED OTHERWISE. VERIFY WITH OWNER WHAT ITEMS THEY WANT TO SALVAGE PRIOR TO REMOVING THEM OFF SITE.
8. PATCH EXISTING FLOORS, WALLS AND CEILINGS OF EXISTING BUILDING AS REQUIRED AFTER DEMOLITION TO MATCH EXISTING.

DEMOLITION KEY NOTES

- A REMOVE EXISTING LAY-IN CEILING SYSTEM AND LIGHTS. SEE ELECTRICAL DRAWINGS.
- B REMOVE EXISTING CARPET TILE FLOORING.
- C REMOVE EXISTING ALUMINUM FRAMES, DOORS, GLASS AND HARDWARE.
- D REMOVE, SALVAGE AND RE-INSTALL EXISTING CARD READER ON TO NEW ALUMINUM DOOR FRAMING. SEE ELECTRICAL.
- E REMOVE, SALVAGE AND RE-INSTALL EXISTING MOTION DETECTOR. SEE ELECTRICAL.
- F REMOVE EXISTING ELECTRICAL DEVICE. SEE ELECTRICAL.
- G EXISTING FIRE ALARM ANNUNCIATOR PANEL TO REMAIN.
- H REMOVE EXISTING WALL ART AND TURN OVER TO THE OWNER.
- J REMOVE EXISTING THERMOSTAT . SEE MECHANICAL DRAWINGS.
- K REMOVE EXISTING LIGHT SWITCH. SEE ELECTRICAL DRAWINGS.
- L EXISTING CAMERA TO REMAIN.
- M REMOVE EXISTING DATA AND PHONE JACK. SEE ELECTRICAL.
- N REMOVE EXISTING POWER OUTLET. SEE ELECTRICAL.
- O EXISTING BUILDING WALL PLAQUE TO REMAIN.
- P REMOVE EXISTING ELECTRICAL JUNCTION BOX. SEE ELECTRICAL.
- Q REMOVE EXISTING MECHANICAL CEILING DIFFUSERS. SEE MECHANICAL DRAWINGS.
- R EXISTING TERRAZZO FLOORING TO REMAIN.
- S EXISTING AIPHONE VIDEO DOOR BUTTON TO REMAIN. SEE ELECTRICAL.
- T TEMPORARY WOOD PARTITION BY CONTRACTOR TO SECURE ENTRANCE.
- U TEMPORARY DUST ENCLOSURE BY CONTRACTOR.



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

REFLECTED CEILING GENERAL NOTES

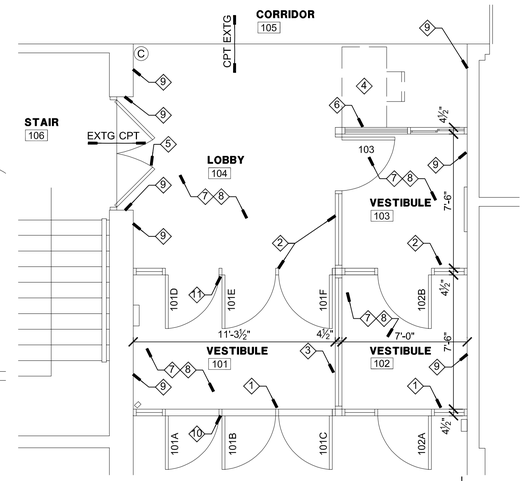
1. ALL CEILING HEIGHTS ARE TAKEN FROM FINISH FLOOR OF INDIVIDUAL AREAS.
2. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION OF BUILT-IN ITEMS, INCLUDING SUPPLY DIFFUSERS, EXHAUST REGISTERS, SPEAKERS, SPRINKLER HEADS, ETC.
3. PROVIDE ADEQUATE CLEARANCE FOR ELECTRICAL AND MECHANICAL WORK.
4. PRIOR TO THE INSTALLATION OF ANY MODIFIED CEILING HEIGHTS, NOTIFY ARCHITECT.

RENOVATION GENERAL NOTES

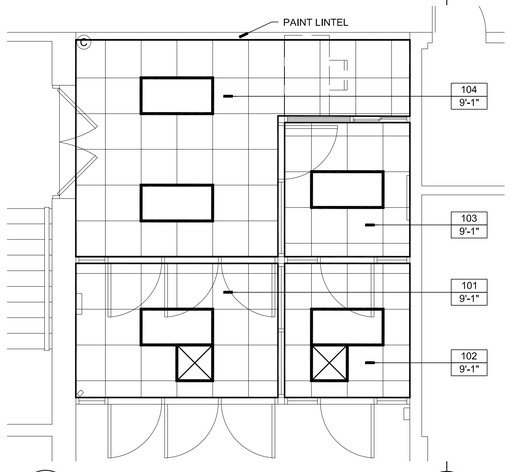
1. ALL PENETRATIONS THROUGH WALLS SHALL BE SEALED TIGHT.
2. OWNER TO REMOVE FURNITURE AS REQUIRED FOR NEW WORK.
3. ALL EXISTING WALLS AND SOFFITS CALLED TO BE PAINTED SHALL HAVE HOLES AND CRACKS FILLED, ANCHORS REMOVED AND PATCHED AS REQUIRED.
4. PATCH WALLS TO MATCH EXISTING WHEREVER A WALL IS REMOVED AND NOT COVERED UP FOR NEW CONSTRUCTION. MASONRY WALLS TO BE TOOTHED-IN.
5. CONTRACTOR TO PROVIDE WOOD BLOCKING AS REQUIRED IN WALLS FOR ATTACHMENT OF OTHER WORK.
5. HORIZONTAL SLIDING WINDOW TO BE READY ACCESS 275 LOW PROFILE SINGLE PANEL SLIDING TRANSACTION WINDOW WITH 1/4" TEMPERED GLASS OR APPROVED EQUAL DURING THE BIDDING PROCESS. FINISH TO BE CLEAR ANODIZED. WINDOW TO LATCH.

RENOVATION KEY NOTES

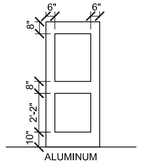
1. NEW EXTERIOR ALUMINUM STOREFORNT ENTRANCE FRAMING, DOORS, GLASS AND AND HARDWARE.
2. NEW INTERIOR ALUMINUM STOREFORNT ENTRANCE FRAMING, DOORS, GLASS AND AND HARDWARE. PROVIDE METAL STUDS 16" 0.C. ABOVE CEILING LINE. BRACE TO FLOOR STRUCTURE ABOVE.
3. NEW INTERIOR ALUMINUM STOREFORNT FRAMING AND GLASS. PROVIDE METAL STUDS 16" 0.C. ABOVE CEILING LINE. BRACE TO FLOOR STRUCTURE ABOVE. SEE FRAME TYPE F6.
4. SECURITY GUARD DESK BY OWNER.
5. PAINT EXISTING HOLLOW METAL DOORS AND FRAMES EACH SIDE.
6. NEW INTERIOR ALUMINUM STOREFORNT FRAMING AND GLASS. PROVIDE METAL STUDS 16" 0.C. ABOVE CEILING LINE. BRACE TO FLOOR STRUCTURE ABOVE. SEE FRAME TYPE F7.
7. NEW CARPET TILE FLOORING AND RUBBER BASE.
8. NEW LAY-IN CEILING SYSTEM INCLUDING LIGHTING. SEE ELECTRICAL DRAWINGS.
9. PAINT EXISTING WALL FROM FLOOR TO CEILING.
10. RE-INSTALL SALVAGED CARD READER ON NEW FRAME. SEE ELECTRICAL DRAWINGS
11. INSTALL NEW CARD READER ON NEW FRAME. SEE ELECTRICAL DRAWINGS.



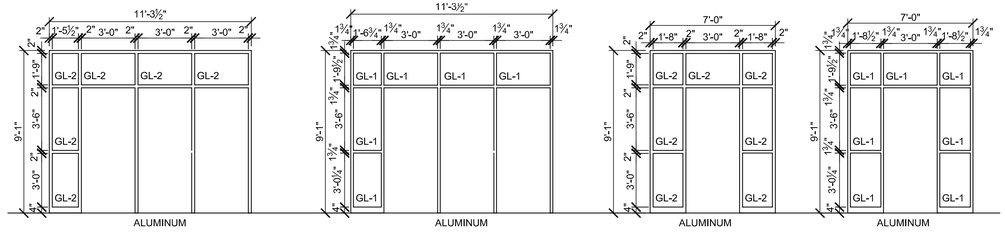
2 PARTIAL REVISED FLOOR PLAN
SCALE: 1/4"=1'-0"



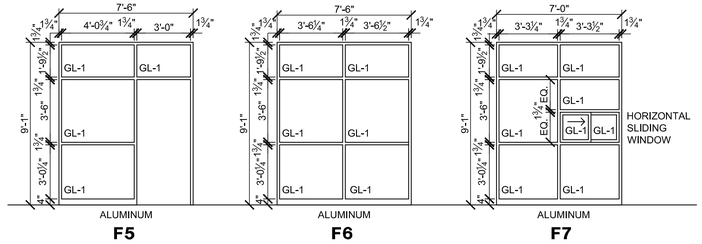
3 PARTIAL REFLECTED CEILING PLAN
SCALE: 1/4"=1'-0"



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



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



FRAME TYPES (CONT'D)
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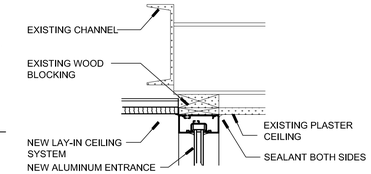
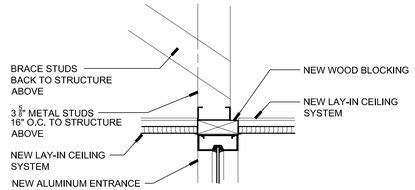
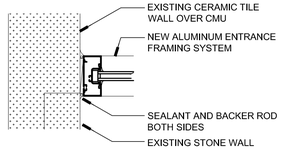


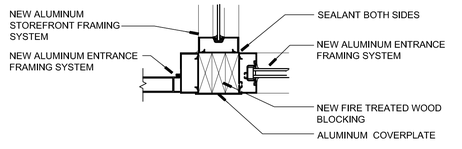
H1 DETAIL
SCALE: 1-1/2"=1'-0"



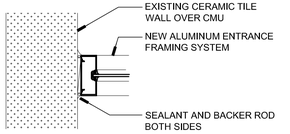
H2 DETAIL
SCALE: 1-1/2"=1'-0"



J1 DETAIL
SCALE: 1-1/2"=1'-0"



J2 DETAIL
SCALE: 1-1/2"=1'-0"



J3 DETAIL
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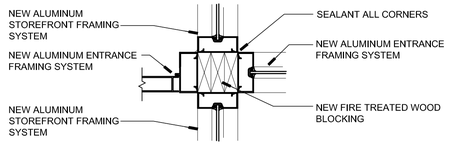
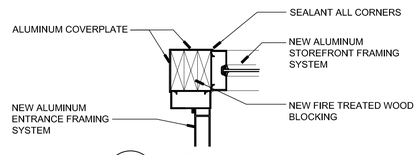


J4 DETAIL
SCALE: 1-1/2"=1'-0"



J5 DETAIL
SCALE: 1-1/2"=1'-0"

ROOM FINISH SCHEDULE

ROOM NO.	ROOM	FLOOR	BASE	WALLS NORTH	WALLS SOUTH	WALLS EAST	WALLS WEST	CEILING	REMARKS
101	VESTIBULE	CPT	RB	GLS	GLS	ECT/PT	GLS	ACT-1	-
102	VESTIBULE	CPT	RB	GLS	GLS	GLS	ECT/PT	ACT-1	-
103	VESTIBULE	CPT	RB	GLS	GLS	GLS	ECT/PT	ACT-1	-
104	LOBBY	CPT	RB	GLS	--	ECT/PT	ECT/PT	ACT-1	-
105	CORRIDOR	EXTG	EXTG	--	--	--	--	EXTG	-
106	STAIR	EXTG	EXTG	--	--	--	--	EXTG	-

DOOR SCHEDULE

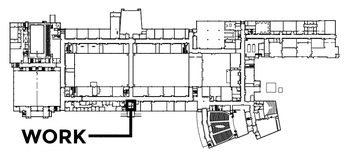
DOOR NO.	DOORS SG/PR	WIDTH	HEIGHT	THICK	DOOR TYPE MTL	ELEV.	FRAMES MTL	ELEV.	GLAZING DOOR	FRAME	DETAILS HEAD	JAMB	SILL	HDWR GROUP	LABEL	REMARKS
101A	SG	3'-0"	7'-0"	2"	AL	D1	AL	F1	GL-2	GL-2	H1	J1	-	1	-	NOTE 1
101B	SG	3'-0"	7'-0"	2"	AL	D1	AL	F1	GL-2	GL-2	H1	-	-	3	-	
101C	SG	3'-0"	7'-0"	2"	AL	D1	AL	F1	GL-2	GL-2	H1	J2	-	3	-	
101D	SG	3'-0"	7'-0"	2"	AL	D1	AL	F2	GL-1	GL-1	H2	J3	-	2	-	NOTE 1
101E	SG	3'-0"	7'-0"	2"	AL	D1	AL	F2	GL-1	GL-1	H2	-	-	4	-	
101F	SG	3'-0"	7'-0"	2"	AL	D1	AL	F2	GL-1	GL-1	H2	J4	-	4	-	
102A	SG	3'-0"	7'-0"	2"	AL	D1	AL	F3	GL-2	GL-2	H1	J1,J2	-	5	-	NOTE 2
102B	SG	3'-0"	7'-0"	2"	AL	D1	AL	F4	GL-1	GL-1	H2	J3,J4	-	6	-	NOTE 2
103	SG	3'-0"	7'-0"	2"	AL	D1	AL	F5	GL-1	GL-1	H2	J5	-	7	-	NOTE 2

NOTES
1. DOOR TO RECEIVE ELECTRONIC STRIKE AND CARD READER
2. DOOR TO RECEIVE ELECTRONIC STRIKE

GLASS TYPES

GL-1	1/4" CLEAR TEMPERED SAFETY GLASS
GL-2	1" INSULATED LAMINATED SAFETY GLASS

SEE SPECIFICATIONS FOR GLASS TYPES



AUBURN HIGH SCHOOL KEY PLAN

SECURE ENTRANCE RENOVATION PROJECT AT AUBURN HIGH SCHOOL FOR
ROCKFORD PUBLIC SCHOOL DISTRICT 205
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
PARTIAL DEMOLITION, PARTIAL REVISED FLOOR & REFLECTED CEILING PLANS, ELEVATIONS, DETAILS AND NOTES

PROJECT INFORMATION
Date: March 10, 2020
Rev. Date:
RLJA Proj: 2020-009

SHEET NUMBER
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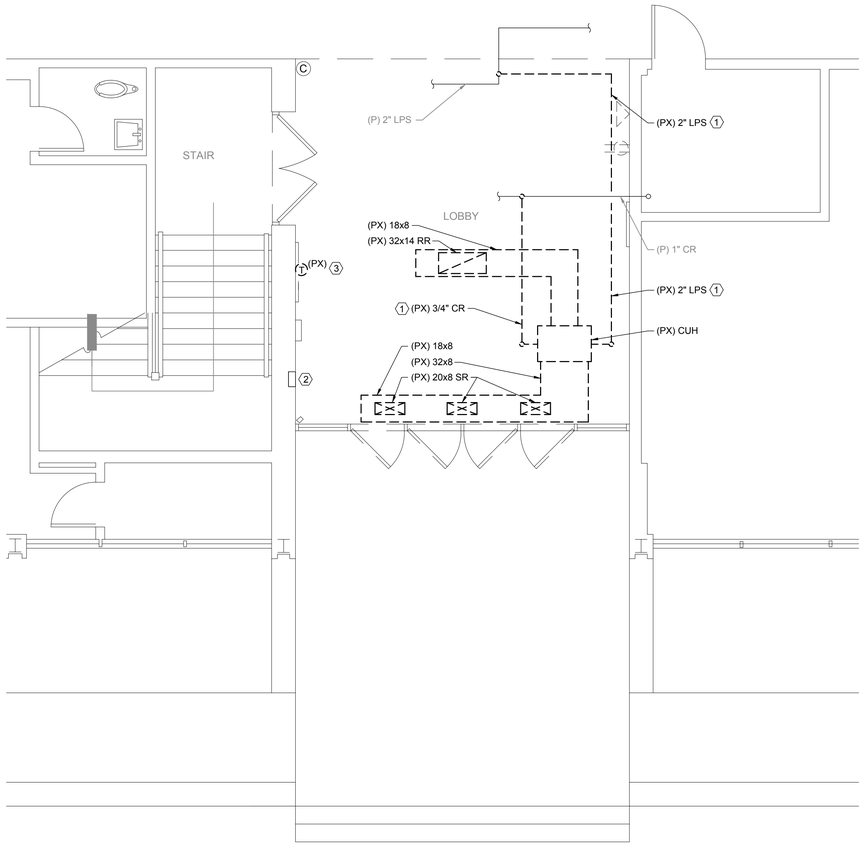
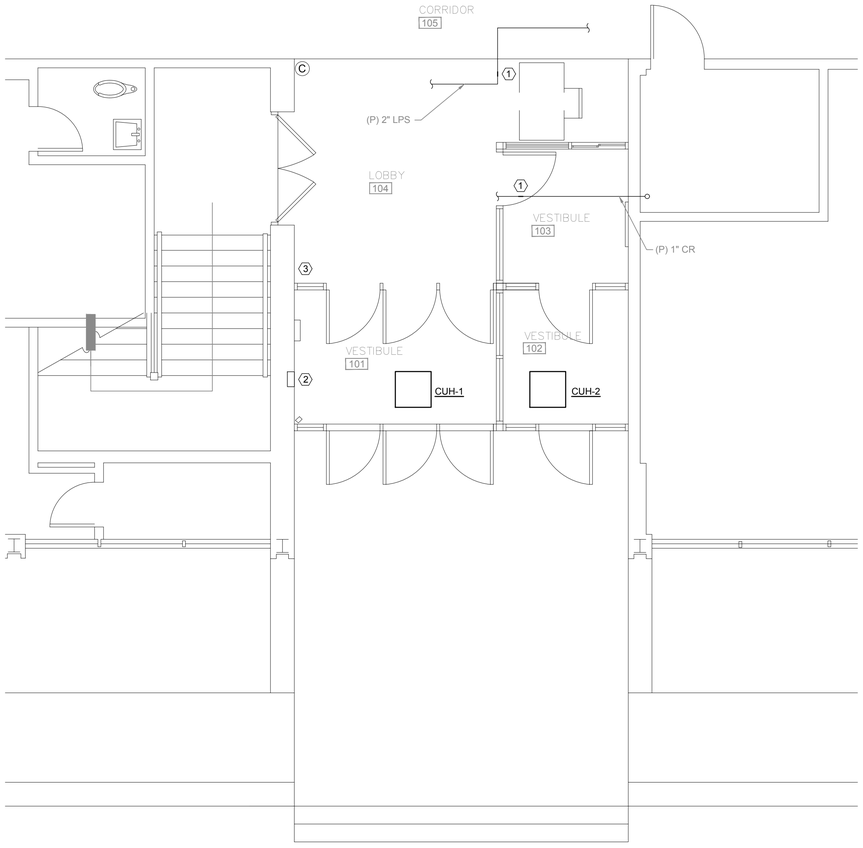
1



DEMOLITION PLAN - MECHANICAL

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

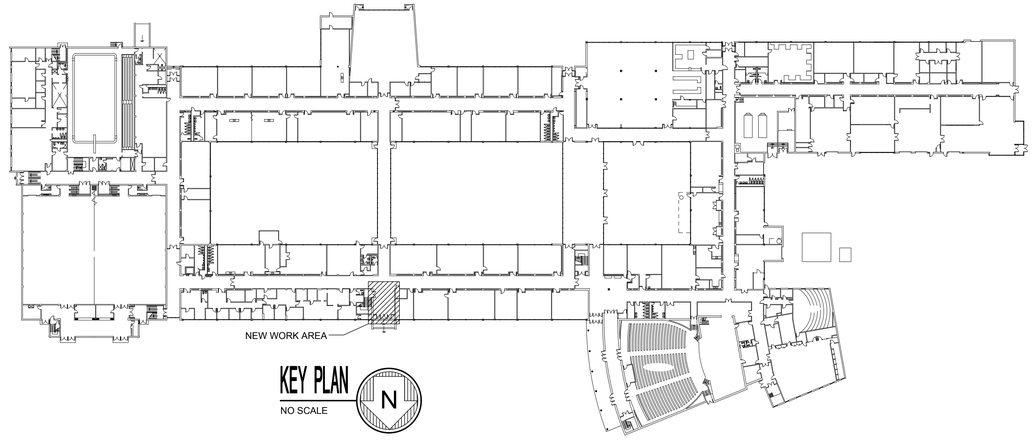


NEW WORK PLAN - MECHANICAL

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

KEY NOTES:

1. DEMO STEAM AND CONDENSATE PIPING BACK TO MAIN, CAP AT MAIN. PRIOR TO DEMOLITION, VERIFY THAT PIPING REMOVED IS NOT SERVING ANY OTHER EQUIPMENT THAT SHALL REMAIN IN SERVICE.
2. REMOVE TRIM AND ACCESS DOOR AND PROVIDE AND INSTALL SHEET METAL COVER PLATE FOR RECESSED CONTROLS.
3. REMOVE THERMOSTAT AND PROVIDE AND INSTALL SHEET METAL COVER PLATE.



KEY PLAN

NO SCALE

SYSTEMS DESIGN SERVICE ENGINEERING LLC
3600 EAST STATE STREET • SUITE 215 • ROCKFORD, ILLINOIS • 61108
PHONE (815) 399-3381 FAX (815) 399-3383 WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004999

SECURE ENTRANCE RENOVATION PROJECT AT
AUBURN HIGH SCHOOL FOR
ROCKFORD PUBLIC SCHOOL DISTRICT 205
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
MECHANICAL DEMOLITION AND NEW WORK PLANS

PROJECT INFORMATION		
Date	March 10, 2020	
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SHEET NUMBER
M101
OF
3

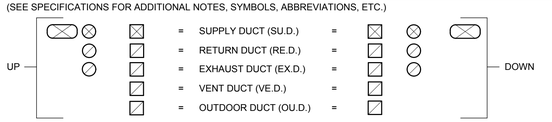
BASIC ABBREVIATIONS

MARK	DESCRIPTION	MARK	DESCRIPTION
AAD	AUTOMATIC ALUMINUM DAMPERS	MC	MECHANICAL CONTRACTOR
ACCU	AIR COOLED CONDENSING UNIT	MTD	MOUNTED
AD	ACCESS DOOR	NC	NEW CONNECTION
AFC	ADJUSTABLE FLEXIBLE CONNECTION	OA	OUTDOOR AIR
AFF	ABOVE FINISH FLOOR	OAD	OUTDOOR AIR DAMPER
ALUM	ALUMINUM	OAI	OUTDOOR AIR INTAKE
AP	ACCESS PANEL	OU.D.	OUTDOOR AIR DUCT
ASC	ABOVE SUSPENDED CEILING	P	PRESENT
BOD	BOTTOM OF DUCT	PC	PLUMBING CONTRACTOR
BDD	BACK DRAFT DAMPER	PRE	POWER ROOF EXHAUSTER
BJA	BETWEEN JOISTS ABOVE	RAD	RETURN AIR DAMPER
CAD	COMBUSTION AIR DAMPER	RE.D.	RETURN AIR DUCT
CR	CONDENSATE RETURN	REF	REFERENCE
CFM	CUBIC FEET PER MINUTE	REFRIG.	REFRIGERANT-LIQUID,SUCTION,HGBP
CLG	CEILING	RG	RETURN GRILLE
CTC	CLOSE TO CEILING (EXPOSED)	RR	RETURN REGISTER
CTF	CLOSE TO FLOOR	RTU	ROOFTOP UNIT
CTW	CLOSE TO WALL (EXPOSED)	SCD	SUPPLY CEILING DIFFUSER
D	DRAIN	SIM	SIMILAR
DC	DUCT COVERING	SG	SUPPLY GRILLE
DCO	DOOR CUTOFF (BY OTHERS)	SLD	SUPPLY LINEAR DIFFUSER
DL	DUCT LINING	SM	SHEET METAL
DS	DISCONNECT SWITCH	SR	SUPPLY REGISTER
DV	DOOR VENT (BY OTHERS)	SS	STAINLESS STEEL
EC	ELECTRICAL CONTRACTOR	STW	SLEEVE THRU WALL AND SEAL
EH	EXHAUST HOOD	SU.D.	SUPPLY DUCT
ER	EXHAUST REGISTER	TBF	TO BELOW FLOOR
EF	EXHAUST FAN	TC	TEMPERATURE CONTROL
EG	EXHAUST GRILLE	TFA	TO FLOOR ABOVE
EX.D.	EXHAUST DUCT	TFB	TO FLOOR BELOW
EXP	EXPOSED	TF.D.	TRANSFER DUCT
FBF	FROM BELOW FLOOR	TG	TRANSFER GRILLE
FBO	FURNISHED BY OTHERS	TJA	THRU JOIST ABOVE
FFA	FROM FLOOR ABOVE	TOD	TOP OF DUCT
FFB	FROM FLOOR BELOW	TR	THROUGH ROOF
FI.D.	FIRE DAMPER	TYP	TYPICAL
G	GAS PIPING	VE.D.	VENT AIR DUCT
GC	GENERAL CONTRACTOR	VD	VOLUME DAMPER
HGBP	HOT GAS BYPASS PIPING	VG	VENT GRILLE
HVAC	HEATING, VENTILATING & AIR CONDITION.	VTR	VENT THRU ROOF
LPS	LOW PRESSURE STEAM	W/	WITH

SEE SPECIFICATIONS FOR ADDITIONAL ABBREVIATIONS, PREFIXES, SUFFIXES, ETC.

HVAC SHEET METAL SYMBOLS:

(SEE SPECIFICATIONS FOR ADDITIONAL NOTES, SYMBOLS, ABBREVIATIONS, ETC.)

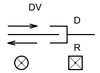


= SUPPLY DUCT (SU.D.)
= RETURN DUCT (RE.D.)
= EXHAUST DUCT (EX.D.)
= VENT DUCT (VE.D.)
= OUTDOOR DUCT (OU.D.)

= SUPPLY CEILING DIFFUSER
= SUPPLY REGISTER (SR)
= RETURN REGISTER (RR)
= EXHAUST REGISTER (ER)
= VENT REGISTER (VR)
= SUPPLY GRILLE (SG)
= RETURN GRILLE (RG)
= EXHAUST GRILLE (EG)
= VENT GRILLE (VG)

SUFFIX (-W) = WALL MOUNT - CFM TYP.
SUFFIX (-C) = CEILING MOUNT
SUFFIX (-F) = FLOOR MOUNT
SUFFIX (-#) = TYPE AS SCHEDULED

DCO = DOOR CUT-OFF (DCO); BY OTHERS
DV = DOOR VENT (DV); BY OTHERS

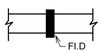


= DUCT R=RISE, D=DROP WITH DIRECTION OF AIR FLOW

= SUPPLY CEILING DIFFUSER (SCD)

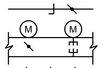
4 WAY, 3 WAY, 2 WAY OPPOSITE, 2 WAY CORNER, 1 WAY

= ARROW INDICATES DIRECTION OF AIR FLOW



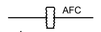
= U.L. FIRE DAMPER - SHEET METAL SLEEVE AROUND DUCT IN WALL, ADJACENT ACCESS DOOR

= MANUAL VOLUME DAMPER - MUST BE ACCESSIBLE



= MOTORIZED VOLUME DAMPER - MUST BE ACCESSIBLE

= BRANCH DUCT TAKE-OFF WITH MANUAL VOLUME EXTRACTOR, MUST BE ACCESSIBLE



= ADJUSTABLE FLEXIBLE CONNECTION (AFC) BETWEEN DUCTS

= ADJUSTABLE FLEXIBLE CONNECTION TO REGISTER, DIFFUSERS, ETC.

= VANED ELBOW - SMACNA PLATE #22

= RADIUS ELBOW - SMACNA PLATE #21 LOW VELOCITY

= THERMOSTAT - ARROW INDICATES UNITS CONTROLLED, -G = WITH GUARD, 4'-0" FOR HANDICAP.

X/Y , N x O = DUCT SIZE (1ST FIGURE SIDE SHOWN, 2ND FIGURE SIDE NOT SHOWN) BOTH SIDES REFER TO INSIDE DIMENSION, DIMENSIONS IN INCHES.

XØ = DIAMETER, DIMENSIONS IN INCHES.

EQUIPMENT , EQUIPMENT = EQUIPMENT NOTE, DESIGNATION, OR ITEM.

PRESENT EQUIPMENT AND DEMOLITION NOTES

A. THE FOLLOWING REMOVED PRESENT EQUIPMENT AND MATERIALS WHICH ARE IN GOOD OPERATING CONDITION (OR ARE PLACED IN GOOD CONDITION), SUITABLE, MEETING THE REQUIREMENTS OF THESE SPECIFICATIONS, AND ARE APPROVED IN WRITING BY ENGINEER, OR CALLED FOR MAY BE REUSED (PXR, PXN, AND PN).
B. REMOVED DUCTWORK MUST NOT BE REUSED.
C. ANY OF ABOVE EQUIPMENT WHICH IS NOT REUSED AND FOLLOWING REMOVED PRESENT EQUIPMENT SHALL BECOME PROPERTY OF CONTRACTOR, AND SHALL BE REMOVED FROM PREMISES (PX).
   1. EQUIPMENT SO DESIGNATED ON DRAWINGS.
D. CONTRACTOR SHALL:
   1. PROVIDE NEW FLOORS UNDER REMOVED PRESENT EQUIPMENT AND WHERE CALLED FOR
   2. REPAIR FLOORS UNDER AND WALLS ADJACENT TO REMOVED EQUIPMENT, TO MATCH ADJACENT CONSTRUCTION.
   3. FILL IN PRESENT CHASES WHICH ARE NO LONGER REQUIRED AND NEATLY PATCH TO MATCH ADJACENT CONSTRUCTION.
   4. CUT OPENINGS REQUIRED FOR:
      a. HIS WORK;
      b. ADMISSION OF NEW EQUIPMENT;
      c. REMOVAL OF PRESENT EQUIPMENT;
      d. NEW CONNECTION TO PRESENT CONSTRUCTION.
   5. PATCH AND REPAIR UNUSED PRESENT HOLES AND OPENINGS, AND THOSE LEFT BY THE REMOVAL OF PRESENT EQUIPMENT AND ADMISSION OF NEW EQUIPMENT.
   6. PATCH AND REPAIR PRESENT EQUIPMENT, AND BUILDING CONSTRUCTION WHICH HAS NOT BEEN CUT, REMOVED, DISTURBED OR MARRED, AS REQUIRED, TO RESTORE IT TO ORIGINAL CONDITION BEFORE BEING DISTURBED.
E. UNUSED OPENINGS IN EQUIPMENT, WALLS, CEILING, FLOOR, ETC. SHALL BE FILLED.
F. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAIRED SAME AS NEW CONSTRUCTION.
G. CERTAIN ABBREVIATIONS OR SYMBOLS, WHEN APPLIED TO PRESENT (TO EXISTING) LINE, DEVICE OR EQUIPMENT, SHALL HAVE THE FOLLOWING MEANINGS:

NC — NEW CONNECTIONS TO PRESENT DUCTWORK, EQUIPMENT, PIPING, ETC. INSTALL, TEST, COVER, PAINT, ETC., SAME AS NEW WORK.

P — TO REMAIN UNCHANGED, IF CHANGE CANNOT BE AVOIDED, CHANGE "P" TO "PXR", AT NO INCREASE IN CONTRACT PRICE. VERIFY LOCATION.

PX — TO BE COMPLETELY REMOVED, INCLUDING UNNEEDED CONNECTIONS, PIPING, DUCTS, WIRING, BASES, ETC., OF EVERY KIND. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., TO EQUAL ORIGINAL CONDITION. REMOVED MATERIAL MUST NOT BE REUSED UNLESS OTHERWISE SPECIFIED OR DIRECTED BY ENGINEER.

PXR — SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED, SAME AS NEW WORK, IN ORIGINAL POSITION, OR CLOSE TO ORIGINAL LOCATION. IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE.

PXN — REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED SAME AS NEW WORK, IN NEW POSITION MARKED "PN". IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS EXISTING OR NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., EQUAL TO EXISTING OR NEW WORK.

PN — COMPLETELY REINSTALL DEVICE AT NEW LOCATION TO EXISTING OR NEW DUCTWORK AS SHOWN, SAME AS NEW WORK. PROVIDE ALL NECESSARY DUCT OR PIPE EXTENSIONS AS REQUIRED.

PX-DO — SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED INTACT, AS FAR AS PRACTICAL, MATCHED MARKED, AND OTHERWISE IDENTIFIED AS REQUIRED AND DELIVERED TO OWNER OUTSIDE OF BUILDING AS DIRECTED BY ENGINEER.

H. WORK OF EVERY DIVISION SHALL BE COORDINATED WITH ALL OTHER WORK AND PRESENT CONDITIONS, SO THAT
   1. ELECTRICAL SERVICES TO PRESENT BUILDINGS OR PORTIONS OF BUILDING WILL NOT BE INTERRUPTED DURING PERIODS WHEN THOSE SERVICES ARE NEEDED.
   2. SPECIAL SYSTEMS SUCH AS FIRE ALARM, SOUND, ETC., OF EVERY KIND TO PRESENT BUILDINGS WILL NOT BE INTERRUPTED DURING WORKING AND/OR OCCUPIED HOURS, EXCEPT AS APPROVED BY THE OWNER.
I. DUCTWORK SERVING NEW AND/OR PRESENT MECHANICAL DEVICES IN FINISHED PRESENT ROOMS OR SPACES SHALL BE CONCEALED IN FINISHED ROOMS, WHERE POSSIBLE OR SHALL BE RUN IN ADJOINING UNFINISHED ROOMS, SHAFTS, CHAMBERS, CLOAK ROOMS, ETC., EXCEPT WHERE EXPOSED DUCT IS PERMITTED IN FINISHED PRESENT ROOMS BY ARCHITECT IN WRITING, PRESENT DIFFUSERS, GRILLS, REGISTERS, SWITCHES, ETC. SHALL BE REMOVED AS PER NOTE "PX" UNLESS ANOTHER SYMBOL IS SHOWN ON DRAWINGS OR THE DEVICES ARE SERVING OTHER EQUIPMENT. WHERE SPECIFICALLY APPROVED BY ARCHITECT IN WRITING, OPENINGS MAY BE PERMITTED TO REMAIN AND BE PROVIDED WITH NEAT FLUSH COVERS, EXTENDING OVER ENTIRE WALL OPENING.
J. UNNEEDED EQUIPMENT, DUCTWORK, ETC., SHALL BE COMPLETELY REMOVED; AND CONSTRUCTION PATCHED AS PER NOTE "PX". NEW CONNECTIONS TO PRESENT DUCTS/EQUIPMENT, SHALL BE MADE, TESTED, COVERED, PAINTED, ETC., SAME AS NEW EQUIPMENT. PRESENT EQUIPMENT, AND OTHER COVERING DISTURBED BY CONTRACTOR SHALL BE REPAIRED TO EQUAL NEW CONDITION AND PAINTED SAME AS NEW COVERING.
K. WORK SHALL BE COORDINATED SO THAT HEATING, PLUMBING, ELECTRICAL, INTERNET AND TELEPHONE SERVICES TO THE PRESENT BUILDING WILL NOT BE INTERRUPTED, EXCEPT AS APPROVED BY THE OWNER/ARCHITECT.

MECHANICAL GENERAL NOTES:

1. DRAWINGS ARE GENERALLY DIAGRAMMATIC. EACH CONTRACTOR SHALL MAKE REQUIRED CHANGES FROM THE GENERAL ROUTING SHOWN ON THESE DRAWINGS SUCH AS OFF SETS, BENDS OR CHANGES IN ELEVATION DUE TO COORDINATION WITH THE WORK OF OTHER TRADES AND THE BUILDING CONSTRUCTION. ALL CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER. FOR PRESENT CONSTRUCTION, VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING TO AVOID CONFLICT. IT IS INTENDED THAT ALL EQUIPMENT, MATERIAL, DEVICES, ETC., SHALL BE LOCATED SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS, NOTWITHSTANDING THE FACT THAT LOCATIONS INDICATED BY THESE DRAWINGS MAY BE DISTORTED FOR CLEARNESS OF PRESENTATION.

   CONTRACTOR IS ALLOWED TO MAKE MINOR CHANGES TO THE PIPING TO AVOID FIELD CONFLICTS AT NO ADDITIONAL COST TO THE OWNER AND AS LONG AS THE RELOCATION DOES NOT AFFECT THE PERFORMANCE OF THE SYSTEM.

   EACH CONTRACTOR SHALL CHECK DRAWINGS OF THE OTHER CONTRACTORS TO VERIFY SPACES IN WHICH THEIR WORK WILL BE INSTALLED IS CLEAR OF OBSTRUCTIONS. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION.

   FURNISH ALL TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF PIPING, DUCTWORK, EQUIPMENT, FRAMES, BOXES, SLEEVES AND OPENINGS NEEDED FOR WORK, AND ALSO FURNISH INFORMATION AND SHOP DRAWINGS TO PERMIT TRADES AFFECTED TO INSTALL THEIR WORK PROPERLY AND WITHOUT DELAY.

   WHERE THERE IS EVIDENCE THAT WORK OF ONE TRADE WILL INTERFERE WITH WORK OF OTHER TRADES, ALL TRADES SHALL ASSIST IN WORKING OUT SPACE CONDITIONS TO MAKE SATISFACTORY ADJUSTMENTS.

   CONTRACTOR TO REVIEW, PRIOR TO BIDDING, ALL DRAWINGS TO COORDINATE VARIOUS WORK AS CALLED FOR. CONTRACTOR SHALL CAREFULLY CHECK ALL DRAWINGS FOR ALL TRADES, AND ANY LACK OF COORDINATION BETWEEN HIS WORK AND DRAWINGS FOR JOB CONDITIONS SHALL BE IMMEDIATELY REPORTED TO ARCHITECT.

   CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING, INCLUDING CORE DRILLING, SAW CUTTING, ETC., AS REQUIRED TO ACCOMMODATE HIS WORK. CUTTING AND PATCHING AND PAYMENT OF SAID WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR REQUIRING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE MECHANICAL CONTRACTOR TO GIVE QUANTITIES OF PATCHING REQUIREMENTS TO A GENERAL CONTRACTOR. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

   CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, LIGHT FIXTURES, DIFFUSERS, DUCTWORK, PIPING, CONDUIT, ETC., AS REQUIRED FOR THE INSTALLATION OF HIS WORK. REMOVAL, REPLACEMENT AND PAYMENT FOR MECHANICAL/ELECTRICAL ITEMS SHALL BE THE RESPONSIBILITY OF THE APPLICABLE MECHANICAL CONTRACTOR. REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, ETC., SHALL BE THE RESPONSIBILITY OF CONTRACTOR MAKING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE MECHANICAL CONTRACTOR TO GIVE QUANTITIES OF REMOVAL/REPLACEMENT REQUIREMENTS TO A GENERAL CONTRACTOR.

2. HEATING, VENTILATING, AIR CONDITIONING, AND ELECTRICAL DESIGNS ARE BASED ON THE REQUIREMENTS FOR THE SPECIFIED EQUIPMENT MANUFACTURER. BASED ON THE REQUIREMENTS FOR THE SPECIFIED EQUIPMENT MANUFACTURER. CONDUITS, DISCONNECTS, BREAKERS, FUSES, AND WIRE SIZES ARE SELECTED ON THE BASIS OF SPECIFIED EQUIPMENT MANUFACTURER. INCREASED CURRENT REQUIREMENTS NECESSITATING LARGER WIRE, BREAKERS, FUSES, SWITCHES, ETC. TO ACCOMMODATE ANY ALTERNATE OR SUBSTITUTE MANUFACTURER'S EQUIPMENT OTHER THAN AS SHOWN ON DRAWINGS OR SCHEDULES SHALL BE PROVIDED WITHOUT INCREASE IN CONTRACT PRICE BY THE CONTRACTOR FURNISHING EQUIPMENT. WIRE SIZES ARE SELECTED ON THE BASIS OF SPECIFIED EQUIPMENT.
3. ALL THERMOSTATS LOCATED UP 4'-0" TO MEET ADA REQUIREMENTS WITH PLASTIC OR CAST GUARDS, AS SPECIFIED. ALL THERMOSTATS LOCATED ON EXTERIOR WALLS OR COLUMNS MUST BE MOUNTED ON THERMAL INSULATING BLOCKS.
4. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAINTED SAME AS NEW CONSTRUCTION.
5. THE USER OF THE DRAWINGS AGREES TO HOLD THE ENGINEER HARMLESS FOR ANY RESPONSIBILITY IN REGARD TO CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES AND FOR ANY SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK AND FURTHER SHALL HOLD THE ENGINEER HARMLESS FOR COST AND PROBLEMS ARISING FROM THE NEGLIGENCE OF THE CONTRACTOR, SUBCONTRACTOR, TRADESMEN OR WORKMEN. THE USE OF THESE DRAWINGS ALSO IMPLIES THAT THE ENGINEER SHALL TAKE NO RESPONSIBILITY FOR THE PLANNED USER'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE DRAWINGS OR CONTRACT DOCUMENTS.
6. SEE SPECIFICATIONS FOR ADDITIONAL NOTES, SYMBOLS, ABBREVIATIONS, PREFIXES AND SUFFIXES.

CABINET UNIT HEATER SCHEDULE:

PLAN NO.	CUH-1	CUH-2
SERVICE	VESTIBULE 101	VESTIBULE 102
MFGR.	QMARK	QMARK
MODEL	CDF-547	CDF-547
TYPE	ELECTRIC	ELECTRIC
VOLTAGE	277-1-60	277-1-60
AMPS	10.8	7.2
WATTS	3000	2000
BTU/HR	10,200	6,800
MOUNTING	CEILING	CEILING
APPROX. WT. IN LBS.	42	42
NOTES	1-3	1-3

NOTES: SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

1. UNIT TO BE CONTROLLED BY BUILT IN THERMOSTAT, SETPOINT PROVIDED BY OWNER.
2. PROVIDE RECESSED MOUNTING FRAME FOR HEATER.
3. UNIT TO BE FIELD CONVERTED TO WATTAGE AS SHOWN ON SCHEDULE.

SECURE ENTRANCE RENOVATION PROJECT AT
AUBURN HIGH SCHOOL FOR
ROCKFORD PUBLIC SCHOOL DISTRICT 205
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON
ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
MECHANICAL ABBREVIATIONS, NOTES, AND EQUIPMENT SCHEDULES

PROJECT INFORMATION
Date: March 10, 2020
Rev. Date:
RLJA Proj: 2020-009

SHEET NUMBER
M102
OF
3

SYSTEMS DESIGN SERVICE ENGINEERING
3600 EAST STATE STREET•SUITE 215•ROCKFORD, ILLINOIS•61108
PHONE (815) 399-3381 FAX (815) 399-3383 WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004499

SECTION 230100 - BASIC MECHANICAL REQUIREMENTS:

1. CONDITIONS:

THIS SECTION SHALL APPLY TO ALL SECTIONS IN DIVISION 23.

GENERAL CONDITIONS OF THE CONTRACT AND THE ARCHITECTURAL SUPPLEMENTARY AND GENERAL CONDITIONS APPLY TO THIS SECTION/DIVISION. THE SUPPLEMENTARY GENERAL CONDITIONS FOR DIVISION 26 - ELECTRICAL, ALSO APPLY TO THIS SECTION/DIVISION.

2. SCOPE OF WORK:

PROVIDE COMPLETE SYSTEMS AS CALLED FOR, AND/OR SHOWN, AND/OR SPECIFIED. HVAC OR RESPECTIVE SUBCONTRACTORS SHALL FURNISH AND COMPLETELY INSTALL THE SYSTEM, SERVICE, EQUIPMENT, OR MATERIAL NAMED, TOGETHER WITH OTHER ASSOCIATED DEVICES, EQUIPMENT, MATERIALS, WIRING, PIPING, ETC., AS REQUIRED FOR A COMPLETE SATISFACTORY OPERATING INSTALLATION BY THE RESPECTIVE CONTRACTOR. OTHER SUBCONTRACTORS, AS REQUIRED TO PERFORM WORK CALLED FOR, SHALL BE RESPONSIBLE TO THE HVAC CONTRACTOR RESPECTIVELY. SECURE ALL PERMITS FOR WORK AND INSPECTIONS AS REQUIRED.

3. BASIC SYSTEMS:

SYSTEMS PROVIDED SHALL INCLUDE BUT SHALL NOT BE LIMITED TO:

A. CONDITIONS, SCOPE OF WORK, BASIC SYSTEMS, PERMITS AND FEES, CODES, STANDARDS AND REGULATIONS.
B. MATERIALS AND EQUIPMENT, WORK PRIORITY OVER OTHER TRADES, COORDINATION, WIRING, OPENINGS, SLEEVES AND CHASES, EQUIPMENT INSTALLATION (FBO)-FURNISHED BY OTHERS, ACCESS PANELS, EQUIVALENT MAKE EQUIPMENT, SHOP DRAWINGS.
C. VERIFICATION, SUPERVISION AND INSTRUCTION, IDENTIFICATION, PAINTING, CLEANING, TESTING AND BALANCING, GUARANTEE, RECORD DOCUMENTS.

4. CODES, STANDARDS, AND REGULATIONS:

EQUIPMENT, DEVICES, APPARATUS AND INSTALLATIONS TO BE IN FULL COMPLIANCE WITH CURRENT (LATEST EDITION) APPLICABLE LOCAL, CITY, COUNTY, STATE AND GOVERNMENT REQUIREMENTS, RULES, REGULATIONS, CODES, STATUTES, ORDINANCES, ETC., OWNER'S INSURANCE COMPANY STANDARDS, AMERICANS WITH DISABILITIES ACT, LATEST EDITION OF ILLINOIS ACCESSIBILITY CODE, LATEST EDITION AND AMENDMENTS OF ILLINOIS STATE PLUMBING CODE, NATIONAL ASSOCIATION OF ROOFING CONTRACTORS, LOCAL GAS AND ELECTRIC UTILITY COMPANIES, LABOR REGULATIONS, AND OTHER STATE OF ILLINOIS DEPARTMENT OF PUBLIC HEALTH RULES. CHANGES REQUIRED TO CONFORM TO REQUIREMENTS SHALL BE MADE WITHOUT INCREASE IN CONTRACT PRICE AS APPROVED BY THE ARCHITECT.

ELECTRICAL EQUIPMENT, WIRING, GAS BURNING EQUIPMENT, HANDLING AND STORAGE EQUIPMENT, ALL WATER/STEAM/DRAIN/WASTE/VENT PIPING, REFRIGERATION PIPING, GAS VALVES AND PIPING, INSULATING MATERIALS, ETC., SHALL COMPLY WITH REQUIREMENTS OF NFPA, NEC, UL, AGA, OSHA, EPA, ICC, STATE AND FEDERAL SAFETY CODES FOR A PARTICULAR TYPE INSTALLATION AND SHALL BE SO LABELED WHERE APPLICABLE.

ELECTRICAL DESIGN FOR NUMBER OF WIRES AND SIZES, CONDUIT SIZES, CIRCUIT BREAKER SIZES, ETC., ARE BASED ON ELECTRICAL CHARACTERISTICS OF EQUIPMENT SCHEDULED OR SPECIFIED. IF ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE USED DIFFER FROM THOSE SPECIFIED, ALL CHANGES (IF REQUIRED) RELATIVE TO CIRCUIT BREAKER SIZES, NUMBER OF WIRES AND SIZES, CONDUIT SIZES, ETC., SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE EQUIPMENT FURNISHING OR INSTALLING CONTRACTOR. CHANGES RELATIVE TO THE ABOVE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT, ENGINEER, AND TRADES INVOLVED, IN WRITING AND SHALL BE APPROVED BEFORE INSTALLATION TO AVOID CONFLICT. CHANGES SHALL BE MADE WITHOUT INCREASE OF CONTRACT PRICE TO THE OWNER.

5. MATERIALS AND EQUIPMENT:

MATERIALS AND EQUIPMENT SHALL BE OF NEW CONSTRUCTION, AND QUALITY SPECIFIED.

6. WORK PRIORITY OVER THE OTHER TRADES:

ALL CONTRACTORS FOR THE MECHANICAL-ELECTRICAL TRADES ARE TO BE GOVERNED AS FOLLOWS AND WORK IN COOPERATION WITH ONE ANOTHER TO FIT PIPING AND DUCTWORK INTO THE STRUCTURE AS JOB CONDITIONS MAY DEMAND. ALL FINAL DECISIONS AS TO RIGHT OF WAY AND RUN OF PIPE, DUCTS, ETC., TO BE MADE BY ARCHITECT.

IN GENERAL, PRIORITY IS TO BE ARRANGED AS FOLLOWS:

A. RECESSED LIGHTING FIXTURES.
B. SHEET METAL DUCT WORK/HVAC UNITS.
C. ELECTRICAL CONDUITS.

7. COORDINATION:

COORDINATE WORK OF HVAC, TEMPERATURE CONTROLS, PLUMBING WORK, FIRE PROTECTION WORK, ELECTRICAL WORK, GENERAL CONTRACTOR TYPE WORK, ETC., TO AVOID INTERFERENCES AND CONFLICTS OF WORK INDICATED. WORK MUST BE COMPLETED AS SCHEDULED BY THE ARCHITECT. VERIFY AT TIME OF BIDDING TO AVOID MISUNDERSTANDING. ANY DISCREPANCIES NOTICED AT TIME OF PRE-BID MEETING AND/OR INSPECTION OF SITE BY THOSE INSPECTING FOR BIDDING THE PROJECT SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION IMMEDIATELY SO THAT CORRECTIONS CAN BE MADE BY ADDENDUM PRIOR TO BID DATE.

8. WIRING:

WIRING TO BE IN COMPLIANCE WITH CURRENT (LATEST EDITION) N.E.C. AND ALL APPLICABLE CODES. ALL MOTORS, EQUIPMENT, WIRING, CABLING, DEVICES, ETC., TO BE NON-RADIO INTERFERING. LINE WIRES, OF PROPER SIZE, SHALL BE FURNISHED TO THE EQUIPMENT WITH FINAL POWER CONNECTIONS MADE BY ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR WILL FURNISH DISCONNECT SWITCHES FOR EQUIPMENT AND WILL FURNISH STARTERS, EXCEPT FOR PACKAGED EQUIPMENT WHICH COMES FACTORY-WIRED COMPLETE WITH STARTERS. HVAC CONTRACTOR WITHIN HIS CONTRACT, SHALL BE RESPONSIBLE FOR PROVIDING RESPECTIVE CONTROLS FOR ALL OF HIS EQUIPMENT, PROVIDE CONTROL DEVICES, CONTROL PANELS, CONTROLS, INTERLOCKS, ETC., TO GIVE A COMPLETE/SATISFACTORY OPERATING SYSTEM. IF ELECTRICAL CONTRACTOR FAILS TO COORDINATE OR PROVIDE REQUIRED STARTERS, HVAC CONTRACTOR SHALL PROVIDE AS REQUIRED, TO GIVE A COMPLETE OPERATING, ACCEPTABLE SYSTEM. RESPECTIVE CONTRACTORS OR RESPECTIVE SUBCONTRACTORS WILL DO ALL CONTROL WIRING, INTERLOCK WIRING, ETC., FROM INFORMATION PROVIDED BY THE RESPECTIVE HVAC CONTRACTOR FOR WORK REQUIRED.

FOR ELECTRIC/ELECTRONIC PORTION OF THE SYSTEM, PROVIDE ALL RELAYS, TRANSFORMERS, PROTECTION, CONTACTORS, DEVICES, ETC., WITH WIRING IN CONDUIT AS REQUIRED BY LATEST USE. CONCEAL PIPING, CONDUITS, WIRING, ETC., IN ALL FINISHED AREAS. RUN PIPING, CONDUITS, ETC., EXPOSED IN UNFINISHED AREAS SUCH AS MECHANICAL ROOMS, ETC., AND WHERE ALLOWED. WHERE EXPOSED, RUN CONDUIT AND PIPING IN STRAIGHT LINES, PARALLEL TO WALLS AND CEILING. WHERE RETURN AIR PLENUMS ARE USED, PIPING, WIRING AND ALL CABLES USED SHALL BE SUITABLE FOR THIS TYPE INSTALLATION AND SHALL NOT CONTRIBUTE TO COMBUSTION OR PRODUCTION OF SMOKE IN EVENT OF FIRE. FOR CONTROL SYSTEMS, PROVIDE SHIELDED CABLE AND CONNECTIONS AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.

9. EQUIVALENT MAKE EQUIPMENT:

EQUIVALENT MAKE EQUIPMENT FOR EQUIPMENT MANUFACTURERS NOT LISTED IN SPECIFICATIONS ARE SUBJECT TO REVIEW OF SAID EQUIPMENT BEFORE BIDDING. PRIOR TO BIDDING, ANY COMPANY WHO EXPECTS TO BE NAMED BY CONTRACTOR AS A SUPPLIER OF EQUIPMENT SPECIFIED AND/OR CALLED FOR ON PLANS OR IN SPECIFICATIONS, SHALL HAVE ON FILE WITH THE DESIGN ENGINEER COPIES OF COMPLETE PUBLISHED TECHNICAL DATA.

IT SHALL BE THE MANUFACTURER'S RESPONSIBILITY TO CERTIFY THE FOLLOWING:

A. SHOW PERFORMANCE CHARACTERISTICS OF SELECTED EQUIPMENT, SIZES INDICATED AND DIMENSIONAL DATA TO SHOW THAT EQUIPMENT WILL FIT INTO SPACE ALLOWED.
B. INDICATE EQUIPMENT CONSTRUCTION AND MATERIALS USED IN SAME.
C. INDICATE APPLICATION AS CALLED FOR.
D. INDICATE ELECTRICAL REQUIREMENTS THAT ARE EQUAL TO OR LESS THAN EQUIPMENT SPECIFIED, COMPLETE SEQUENCE OF OPERATION AND COMPLETE INSTALLATION INSTRUCTIONS AS REQUIRED BY MANUFACTURER FOR INTENDED USE.
E. SHOW DATA, ITEM FOR ITEM, FOR EQUIPMENT SPECIFIED.

DATA SUBMITTED MUST BE RECEIVED BY THE DESIGN ENGINEER NOT LATER THAN TEN (10) WORKING DAYS PRIOR TO THE BID DATE TO ALLOW SUFFICIENT TIME FOR REVIEW OF SUBMITTALS. AN ADDENDA WILL BE ISSUED IF EQUIPMENT IS TO BE CONSIDERED AS AN "EQUIVALENT MAKE."

EQUIPMENT NOT CONFORMING TO THE ABOVE WILL NOT BE CONSIDERED.

12. SHOP DRAWINGS:

EACH RESPECTIVE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL, BEFORE CONSTRUCTION IS STARTED, SHOP DRAWINGS FOR EQUIPMENT, DEVICES, MATERIAL, CONTROLS, ACCESSORIES, WIRING DIAGRAMS, ETC., FOR RESPECTIVE INSTALLATION. SUBMITTALS SHALL BE IN ACCORDANCE WITH DIVISION 1 REQUIREMENTS.

13. VERIFICATION:

VERIFICATION OF MECHANICAL ITEMS FOR PROJECT SHALL BE INCLUDED. CONTRACTOR, PRIOR TO BIDDING, SHALL SECURE ALL NECESSARY INFORMATION, POINTS FOR NEW CONNECTIONS TO ANY TYPE OF SERVICE AS REQUIRED AND SHALL INCLUDE NECESSARY COST FOR FEE AS REQUIRED IN HIS BID FOR THESE CONNECTIONS. CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE FOR THE WORK TO ELIMINATE MISCONCEPTIONS OF FACT, TO VERIFY AND DETERMINE DIMENSIONS, ELEVATIONS, LOCATION OF EXISTING EQUIPMENT, SERVICES, PIPING, AND TO OBSERVE FEATURES AFFECTING WORKING CONDITIONS, TRANSPORTATION AND STORAGE FACILITIES. CONTRACTOR SHALL GIVE DUE CONSIDERATION TO SAME IN PREPARING PROPOSALS AS NO EXCEPTIONS WILL BE CONSIDERED AFTER AWARDING OF CONTRACT, NOR WILL CONTRACTOR BE ENTITLED TO ANY EXTRA COMPENSATION FOR HIS FAILURE TO VERIFY CONDITIONS AT THE SITE OR AT POINTS OF CONNECTION.

THE RUN OF ALL LINES SHOWN ON DRAWINGS IS TO BE REGARDED AS DIAGRAMMATIC AND TENTATIVE. CONTRACTOR SHALL CAREFULLY VERIFY LOCATION, DEPTH, AND SIZE OF LINE OR SEWER TO WHICH CONNECTION IS PROPOSED. BEFORE INSTALLING ANY LINES, CONTRACTOR SHALL ASSURE THAT THEY CAN BE RUN AS CONTEMPLATED WITHOUT TRAPPING OR INTERFERING WITH FOOTING, OTHER PIPING, FIXTURES, ETC. ANY NECESSARY DEVIATION SHALL BE REFERRED TO ARCHITECT FOR APPROVAL BEFORE ANY LINES OR SERVICE ARE RUN, AT NO INCREASE IN CONTRACT PRICE.

14. SUPERVISION AND INSTRUCTION:

SPECIAL SUPERVISION AND INSTRUCTIONS SHALL BE INCORPORATED INTO THE PROJECT. EACH SPECIALIZED INSTALLATION SHALL BE MADE UNDER SUPERVISION OF A FACTORY TRAINED ENGINEER OR CONTRACTOR'S SUPERINTENDENT WHO SHALL: (A) SUBMIT A WRITTEN REPORT THAT THE INSTALLATION HAS BEEN INSTALLED IN KEEPING WITH SPECIFIED REQUIREMENTS AND THE MANUFACTURER'S STANDARDS; (B) INSTRUCT OWNER'S OPERATING PERSONNEL BEFORE FINAL ACCEPTANCE; (C) PREPARE PERMANENT FORM OPERATING INSTRUCTIONS, PARTS LISTS, WIRING DIAGRAMS AND CONTROL DIAGRAMS, IN BOOKLET FORM, IN TRIPLICATE, TURNED OVER TO OWNER; (D) CERTIFY THAT INSTALLATION IS OPERATING SATISFACTORILY UNDER OWNER'S PERSONNEL; AND (E) VERIFY AND CERTIFY IN WRITING TO THE ARCHITECT THAT ALL EQUIPMENT AND CONTROL OPERATING INSTRUCTIONS, SERVICE AND MAINTENANCE MANUALS, AND COORDINATION OF EQUIPMENT TO OPERATION HAS BEEN COMPLETED. CERTIFICATION AND SIGN-OFF SHALL BE COMPLETED BY OWNER OR OWNER'S REPRESENTATIVE.

INSTRUCTION ON EQUIPMENT SHALL BE AS FOLLOWS:

INSTALLATION	REQUIRED EACH FOR 2 HOURS OR MORE NUMBER OF INSTRUCTION VISITS
HVAC SYSTEMS - TOTAL	2

15. INDENTIFICATION:

IDENTIFY EACH PIECE OF EQUIPMENT AND EACH CONTROL PANEL WITH 1" HIGH BLACK OR NOTICEABLE COLORED, PAINTED, STENCIL TYPE LETTERS ON THE EQUIPMENT. IDENTIFICATION TO BE VISIBLE USING ABBREVIATIONS AS CALLED FOR ON DRAWINGS. EQUIPMENT INCLUDES EF, EWH, FI.D, RTU, TC, ETC.

PROVIDE POLISHED BRASS VALVE TAG ON ALL VALVES, COCKS AND CONTROL DEVICES ON EACH PIPING SYSTEM. PROVIDE TYPED INDEX, MOUNTED IN LOCATION AS DIRECTED BY ARCHITECT. PROVIDE MARKED UP SET OF REDUCED SIZE DRAWINGS WHICH INDICATE LOCATIONS OF RESPECTIVE TAGGED VALVES. PROVIDE INCONSPICUOUS CEILING MARKERS INDICATING EQUIPMENT, VALVES, OR CONTROL DEVICES LOCATED ABOVE CEILINGS. REDUCED SIZE, FILE TYPE DRAWINGS SHALL BE SUBMITTED FOR REVIEW, SAME AS SHOP DRAWINGS, AND SHALL INCLUDE INDEX AND INDICATOR/LOCATOR FOR RESPECTIVE TAGGED VALVES AND/OR EQUIPMENT.

PROVIDE PIPE MARKERS ON ALL PIPING SYSTEMS PER ANSI A13.1 SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS AND 253.1 SAFETY COLOR CODE FOR MARKING PHYSICAL HAZARDS. MARKERS SHALL INCLUDE ARROWS TO SHOW NORMAL DIRECTION OF FLOW. LOCATE PIPE MARKERS AS FOLLOWS:

A. WHEREVER PIPING IS EXPOSED TO VIEW IN NON-CONCEALED LOCATIONS.
B. ON PIPING ABOVE REMOVEABLE ACOUSTICAL CEILINGS.
C. NEAR EACH VALVE AND CONTROL DEVICE.
D. NEAR EACH BRANCH CONNECTION.
E. NEAR LOCATIONS WHERE PIPES PASS THROUGH WALLS OR FLOORS/CEILINGS OR ENTER NON-ACCESSIBLE ENCLOSURES.
F. AT ACCESS DOORS AND SIMILAR ACCESS POINTS.
G. NEAR MAJOR EQUIPMENT ITEMS AND OTHER POINTS OF ORIGINATION AND TERMINATION.
H. SPACED INTERMEDIATELY AT MAXIMUM SPACING OF 50 FEET ALONG EACH PIPING RUN, EXCEPT REDUCE SPACING TO 25 FEET IN CONGESTED AREAS OF PIPING AND EQUIPMENT.
I. FUEL GAS PIPING SHALL BE IDENTIFIED AT INTERVALS OF NOT MORE THAN 50 FEET IN EXPOSED LOCATIONS, NOT MORE THAN 25 FEET IN CONCEALED LOCATIONS AND NOT LESS THAN ONCE IN ANY ROOM OR SPACE.

16. PAINTING:

COORDINATE PAINTING REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.

17. CLEANING, TESTING, AND BALANCING:

EACH CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING OF THEIR EQUIPMENT AND SYSTEMS AND SHALL REMOVE ALL DEBRIS CREATED BY THEMSELVES FROM THE PREMISES, PRIOR TO FINAL ACCEPTANCE.

EACH HEATING, AIR CONDITIONING, VENTILATING, EXHAUST, AIR MOVING SYSTEM, ETC., SHALL BE TESTED AND BALANCED (REBALANCE AS NECESSARY) TO APPROPRIATE AIR QUANTITIES, SOUND LEVELS, TEMPERATURE AND HUMIDITY AS CALLED FOR, TO GIVE UNIFORM OWNER ACCEPTABLE AIR DISTRIBUTION AND COMFORT. UPON BALANCING IF SYSTEM CANNOT BE SUCCESSFULLY BALANCED AS AGREED BY OWNER/ARCHITECT/ENGINEER THEN ADDITIONAL DAMPERS, BELTS, SHEAVES, OR PULLEYS WILL BE INSTALLED TO PROVIDE PROPER AIR QUANTITIES, ACCEPTABLE SOUND LEVELS AND TEMPERATURE/HUMIDITY REQUIREMENTS BY THE HVAC CONTRACTOR WITHOUT INCREASE IN CONTRACT PRICE WITHIN THE GUARANTEE PERIOD.

BALANCING TO BE DONE IN ACCORDANCE WITH AABC, ASHRAE, SMACNA, NEBB, SMARTA, OR EQUIVALENT STANDARDS. ALL AIR QUANTITIES OR SETTINGS SHALL BE RECORDED ON "AS-BUILT" DRAWINGS.

FINAL CERTIFIED REPORTS SHALL BE SUBMITTED IN THE FORM OF SHOP-DRAWINGS FOR REVIEW AND FINAL ACCEPTED SIGNATURES BY OWNER/ARCHITECT/ENGINEER.

18. GUARANTEE:

HVAC CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT, APPARATUS, MATERIALS AND WORKMANSHIP ENTERING INTO THIS CONTRACT AND SHALL REPLACE ALL PARTS AT HIS OWN EXPENSE WHICH HAVE PROVEN DEFECTIVE WITHIN ONE (1) YEAR FROM FORMAL ACCEPTANCE. INDIVIDUAL ITEMS SHALL BE GUARANTEED AS CALLED FOR IN ADDITION TO THE ABOVE.

19. RECORD DOCUMENTS:

CONTRACTOR SHALL MAINTAIN ONE (1) COMPLETE MARKED UP SET OF "AS-BUILT" PROJECT PRINTS DURING CONSTRUCTION. CONTRACTOR SHALL SUBMIT "AS-BUILTS" FOR REVIEW BY GENERAL CONTRACTOR AND ARCHITECT OR ENGINEER AT EACH WEEKLY PROJECT MEETING. AT COMPLETION OF PROJECT, "AS-BUILTS" SHALL BE SUBMITTED FOR REVIEW, SAME AS REQUIRED FOR SHOP DRAWINGS. UPON ACCEPTANCE, CONTRACTOR SHALL PROVIDE TWO (2) SEPARATE SETS OF REPRODUCIBLES OF THESE "AS-BUILT" PRINTS, ONE (1) SET FOR THE OWNER AND ONE (1) SET FOR THE ARCHITECT. CONTRACTOR SHALL RETAIN COPY OF PROJECT FOR HIS RECORDS. REFER TO DIVISION 1 SPECIFICATIONS FOR ADDITIONAL INFORMATION.

END OF SECTION 230100

DIVISION 23 - MECHANICAL

SECTION 235000 - HVAC SPECIFICATIONS/NOTATIONS

1. CONDITIONS:

GENERAL CONDITIONS OF THE CONTRACT AND THE ARCHITECTURAL SUPPLEMENTARY AND GENERAL CONDITIONS APPLY TO THIS SECTION/DIVISION. THE SUPPLEMENTARY GENERAL CONDITIONS FOR DIVISION 26 - ELECTRICAL, ALSO APPLY TO THIS SECTION/DIVISION.

SECTION 230100 - BASIC MECHANICAL REQUIREMENTS ALSO APPLIES TO THIS SECTION.

2. SYSTEMS:

MECHANICAL SYSTEM PROVIDED SHALL INCLUDE BUT NOT BE LIMITED TO:

A. CONDITIONS, SYSTEMS.
B. CABINET UNIT HEATERS - ELECTRIC.

2. CABINET UNIT HEATERS - ELECTRIC:

UNIT HEATERS TO BE THE WALL, SURFACE MOUNT TYPE AS MANUFACTURED BY QMARK, BERKO, OR EQUIVALENT MAKE. SIZES SHALL BE AS CALLED FOR ON DRAWINGS, WITH NON-GLOWING HEATING ELEMENTS.

THE HEATER ASSEMBLY WHICH FITS INTO THE BACK BOX SHALL CONSIST OF A FAN PANEL UPON WHICH IS MOUNTED ALL OF THE OPERATIONAL PARTS OF THE HEATER. THE HEATING ELEMENT SHALL BE OF THE NON GLOWING DESIGN CONSISTING OF A SPECIAL RESISTANCE WIRE ENCLOSED IN A STEEL SHEATH TO WHICH STEEL PLATE FINS ARE COPPER BRAZED. IT SHALL BE WARRANTED FOR 5 YEARS.

THE TAMPER PROOF THERMOSTAT SHALL BE OF THE BI-METALLIC SNAP ACTION TYPE WITH ENCLOSED CONTACTS. IT SHALL BE COMPLETELY CONCEALED BEHIND THE FRONT COVER TO BECOME TAMPER PROOF.

MOTORS TO BE TOTALLY ENCLOSED, FAN SHALL BE FIVE BLADED ALUMINUM. A MANUAL RESET THERMAL CUTOUT SHALL BE BUILT INTO THE SYSTEM TO SHUTOFF THE HEATER IN THE EVENT OF OVERHEATING. A DOUBLE POLE, SINGLE THROW ON/OFF SWITCH SHALL BE MOUNTED ON THE BACK BOX FOR POSITIVE DISCONNECT OF POWER SUPPLY. IT WILL BE COMPLETELY CONCEALED BEHIND THE FRONT GRILLE PANEL.

UNIT HEATER FAN CONTROL SHALL BE OF BI-METALLIC, SNAP ACTION TYPE AND SHAL ACTIVATE FAN AFTER HEATING ELEMENT REACHES OPERATING TEMPERATURE. THE FAN SHALL CONTINUE TO OPERATE AFTER THE THERMOSTAT IS SATISFIED AND UNTIL THE HEATING ELEMENT IS COOL.

THE BACK BOX SHALL BE DESIGNED FOR DUTY AS A RECESSED MOUNT BOX ON SUSPENDED CEILING INSTALLATIONS. THE BACK BOX SHALL BE 20 GAUGE GALVANIZED STEEL AND SHALL CONTAIN KNOCKOUTS THROUGH WHICH POWER LEADS ARE BROUGHT. THE FRONT PANEL SHALL BE OF THE BAR GRILLE TYPE AND SHALL BE CONSTRUCTED OF 16 GAUGE COLD ROLLED STEEL, WELDED INTO A UNIFORM GRILLE TO DIRECT THE WARM AIR TOWARD THE FLOOR. THE FRONT GRILLE SHALL BE SURROUNDED BY A DECORATIVE SATIN FINISH ALUMINUM "PICTURE" FRAME.

SECURE ENTRANCE RENOVATION PROJECT AT
AUBURN HIGH SCHOOL FOR
ROCKFORD PUBLIC SCHOOL DISTRICT 205
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

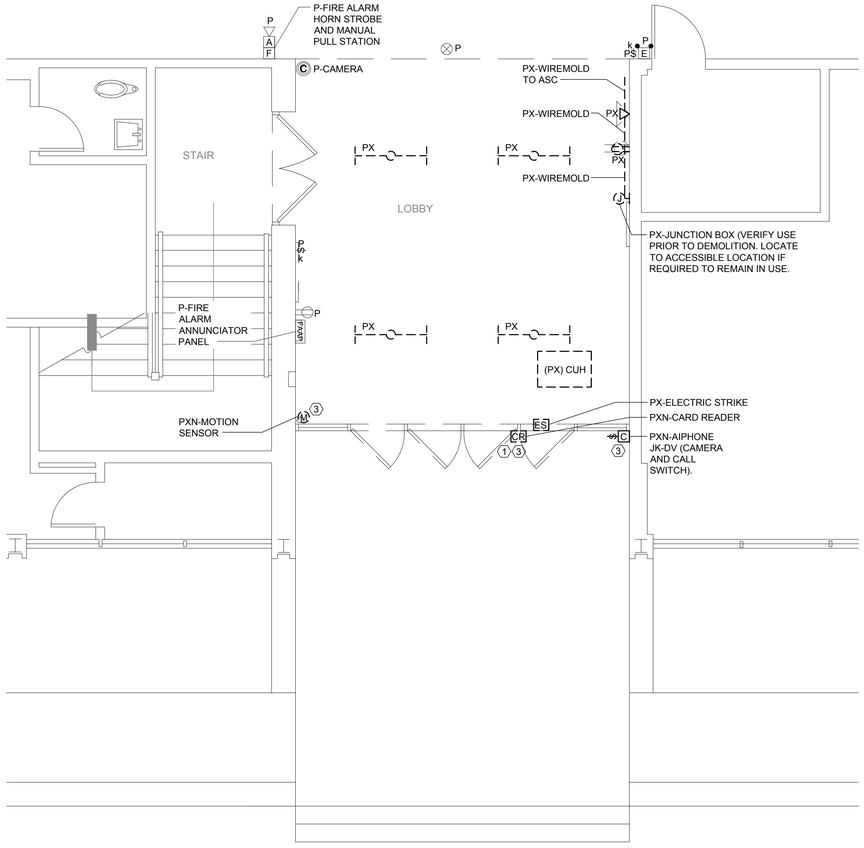
SHEET IDENTIFICATION
MECHANICAL SPECIFICATIONS

PROJECT INFORMATION

Date	March 10, 2020		
Rev. Date			
RLJA Proj	2020-009		

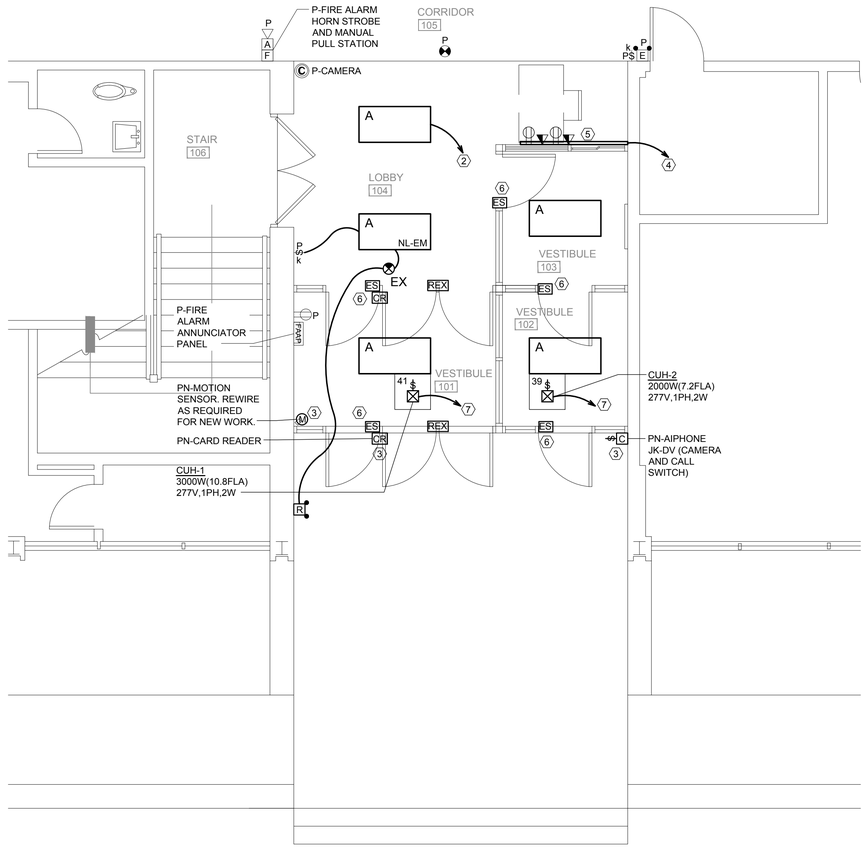
SHEET NUMBER
M103
OF
3

SYSTEMS DESIGN SERVICE ENGINEERING
3600 EAST STATE STREET • SUITE 215 • ROCKFORD, ILLINOIS • 61108
PHONE (815) 399-3381 FAX (815) 399-3383 WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004999



DEMOLITION PLAN - ELECTRICAL

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

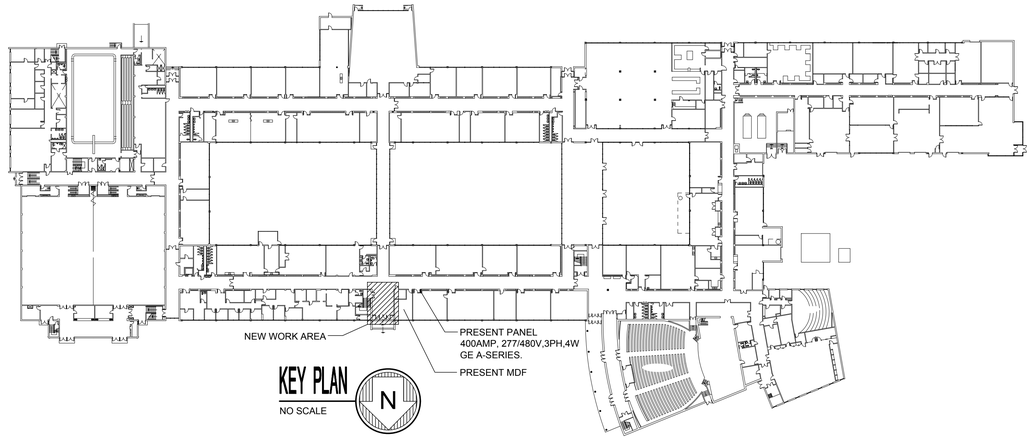


NEW WORK PLAN - ELECTRICAL

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

KEY NOTES (FOR THIS SHEET ONLY)

1. ELECTRICAL CONTRACTOR TO REMOVE AND REINSTALL CARD READER AS REQUIRED FOR NEW WORK. COORDINATE WITH OWNER AND ARCHITECT.
2. TIE INTO LIGHTING BRANCH CIRCUIT AND CONTROLS SERVING LIGHTING IN THIS AREA BEING REMOVED AND REPLACED WITH NEW.
3. REMOVE (PXN-PN) ANY DEVICES TO AVOID INTERFERENCE WITH NEW DOOR AND GLASS BEING INSTALLED. REINSTALL EXISTING DEVICES AS CLOSE AS POSSIBLE TO THE ORIGINAL LOCATION. EXTEND ANY WIRING AS NECESSARY. (TYPICAL).
4. WIRE NEW WIREMOLD TO EXISTING BRANCH CIRCUIT SERVING RECEPTACLE BEING REMOVED. WIRE NEW DATA TO TELECOMMUNICATIONS ROOM (SEE KEY PLAN). PROVIDE NEW CAT6 CABLING AND JACKS AS REQUIRED. REWORK AS REQUIRED TO ACCOMMODATE NEW WIREMOLD. FIELD VERIFY EXISTING CONDITIONS.
5. PROVIDE AND WIRE NEW WIREMOLD EQUAL TO LEGRAND TWO-PIECE STEEL 4000 SERIES RACEWAY. PROVIDE TWO (2) 2 GANG DUPLEX RECEPTACLES WITH DATA INSERT AT EACH LOCATION. PROVIDE ALL REQUIRED COMPONENTS FOR A COMPLETE OPERATIONAL SYSTEM. WIREMOLD SHALL BE MOUNTED ALONG THE BOTTOM OF THE NEW STOREFRONT FRAMING FROM WALL TO DESK. BOTTOM OF NEW FRAMING HEIGHT IS 4". REFERENCE ARCHITECTURAL PLAN A101 FOR ADDITIONAL INFORMATION. CONFIRM DEVICES WITH THE OWNER PRIOR TO ORDERING. FINISH TO BE ANODIZED ALUMINUM TO MATCH STOREFRONT FRAMING.
6. PROVIDE AND WIRE NEW CARD READERS (MATCH EXISTING DISTRICT STANDARDS. VERIFY PRIOR TO ORDERING) AND ELECTRIC STRIKES (FBO) AS REQUIRED FOR NEW WORK. PROVIDE NEW DOOR NODE CONTROLLER FOR SYSTEM EXPANSION AT THE EXISTING S2 DOOR ACCESS CONTROL EQUIPMENT LOCATION. COORDINATE ALL REQUIREMENTS WITH THE OWNER PRIOR TO ORDERING NEW EQUIPMENT.
7. WIRE NEW CABINET UNIT HEATERS TO EXISTING 400 AMP PANEL, 277/480VOLT,3PH,4W AS INDICATED ON KEY PLAN. PROVIDE (2) NEW 20A/1P BREAKER'S FOR CUH-1 AND CUH-2. UTILIZE SPACES #39 & #41. UPDATE EXISTING PANELBOARD DIRECTORY. ELECTRICAL CONTRACTOR TO REMOVE AND REINSTALL CEILING TILES AS REQUIRED FOR NEW CONDUIT FEEDS TO PANELBOARD. COORDINATE NEW CONDUIT ROUTING IN THE FIELD WITH EXISTING CONDITIONS.



KEY PLAN

NO SCALE

SYSTEMS DESIGN SERVICE ENGINEERING LLC
3600 EAST STATE STREET•SUITE 215•ROCKFORD, ILLINOIS•61108
PHONE (815) 399-3381 FAX (815) 399-3383 WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004999

SECURE ENTRANCE RENOVATION PROJECT AT
AUBURN HIGH SCHOOL FOR
ROCKFORD PUBLIC SCHOOL DISTRICT 205
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
ELECTRICAL DEMOLITION AND NEW WORK PLANS

PROJECT INFORMATION	
Date	March 10, 2020
Rev. Date	
RLJA Proj	2020-009

SHEET NUMBER
E101
OF
3

PRESENT EQUIPMENT AND DEMOLITION NOTES

A. FOLLOWING REMOVED PRESENT EQUIPMENT AND MATERIALS WHICH ARE IN GOOD OPERATING CONDITION (OR ARE PLACED IN GOOD CONDITION), SUITABLE, MEET REQUIREMENTS OF THESE SPECIFICATIONS, AND ARE APPROVED IN WRITING BY ENGINEER, OR CALLED FOR MAY BE REUSED (PXN-PN).
1. LIGHTING FIXTURES

B. REMOVED PIPE AND WIRE MUST NOT BE REUSED.

C. ANY OF ABOVE EQUIPMENT WHICH IS NOT REUSED AND FOLLOWING REMOVED PRESENT EQUIPMENT SHALL BECOME PROPERTY OF CONTRACTOR, AND SHALL BE REMOVED FROM PREMISES BY HIM (PX).
1. EQUIPMENT SO DESIGNATED ON DRAWINGS.

D. FOLLOWING PRESENT EQUIPMENT SHALL BE CAREFULLY REMOVED, INTACT, MATCH MARKED, INSOFAR AS IS PRACTICAL, SHALL REMAIN PROPERTY OF OWNER, AND SHALL BE DELIVERED TO OWNER OUTSIDE OF BUILDING WHERE DIRECTED BY THE ENGINEER (PX-DO).
1. EQUIPMENT SO DESIGNATED ON DRAWINGS.

E. CONTRACTOR SHALL:
1. PROVIDE NEW FLOORS UNDER REMOVED PRESENT EQUIPMENT AND WHERE CALLED FOR
2. REPAIR FLOORS UNDER AND WALLS ADJACENT TO REMOVED EQUIPMENT, TO MATCH ADJACENT CONSTRUCTION.
3. FILL IN PRESENT CHASES WHICH ARE NO LONGER REQUIRED AND NEATLY PATCH TO MATCH ADJACENT CONSTRUCTION.
4. CUT OPENINGS REQUIRED FOR:
   A. HIS WORK;
   B. ADMISSION OF NEW EQUIPMENT;
   C. REMOVAL OF PRESENT EQUIPMENT;
   D. NEW CONNECTION TO PRESENT CONSTRUCTION.
5. PATCH AND REPAIR UNUSED PRESENT HOLES AND OPENINGS, AND THOSE LEFT BY THE REMOVAL OF PRESENT EQUIPMENT AND ADMISSION OF NEW EQUIPMENT.
6. PATCH AND REPAIR PRESENT EQUIPMENT, AND BUILDING CONSTRUCTION WHICH HAS NOT BEEN CUT, REMOVED, DISTURBED OR MARRED, AS REQUIRED, TO RESTORE IT TO ORIGINAL CONDITION BEFORE BEING DISTURBED.

F. UNUSED OPENINGS IN ENCLOSURES, IN CONDUITS, BOXES, CABINETS, AND PANELS SHALL BE FILLED.

G. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAIRED SAME AS NEW CONSTRUCTION.

H. CERTAIN ABBREVIATIONS OR SYMBOLS, WHEN APPLIED TO PRESENT (TO EXISTING) LINE, DEVICE OR EQUIPMENT, SHALL HAVE THE FOLLOWING MEANINGS.

NC	NEW CONNECTIONS TO PRESENT PIPING, DEVICE WIRING, EQUIPMENT, ETC. INSTALL, TEST, COVER, PAINT, ETC., SAME AS NEW WORK.
P	TO REMAIN UNCHANGED, IF CHANGE CANNOT BE AVOIDED, CHANGE "P" TO "PXR", AT NO INCREASE IN CONTRACT PRICE. VERIFY LOCATION.
PX	TO BE COMPLETELY REMOVED, INCLUDING UNNEEDED CONNECTIONS, PIPING, DUCTS, WIRING, BASES, ETC., OF EVERY KIND. UNUSED OPENINGS PLUGGED OR CAPPED, TESTED, COVERED, PAINTED SAME AS NEW WORK. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., TO EQUAL ORIGINAL CONDITION. REMOVED MATERIAL MUST NOT BE REUSED UNLESS OTHERWISE SPECIFIED OR DIRECTED BY ENGINEER.
PX-DO	SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED INTACT, AS FAR AS PRACTICAL, MATCHED MARKED, AND OTHERWISE IDENTIFIED AS REQUIRED AND DELIVERED TO OWNER OUTSIDE OF BUILDING AS DIRECTED BY ENGINEER.
PXR	SAME AS "PX", EXCEPT REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED, SAME AS NEW WORK, IN ORIGINAL POSITION. IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE.
PXN ETC.	SAME AS "PXR" EXCEPT REMOVED, CLEANED AND RESTORED TO GOOD OPERATING CONDITION AND REINSTALLED SAME AS NEW WORK, IN NEW POSITION MARKED "PN". IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ENGINEER, AT NO INCREASE IN CONTRACT PRICE.
PN ETC.	COMPLETELY REINSTALL DEVICE, LINE OR EQUIPMENT REMOVED, AT NEW LOCATION, SAME, AS NEW WORK.

I. WORK OF EVERY DIVISION SHALL BE COORDINATED WITH ALL OTHER WORK AND PRESENT CONDITIONS, SO THAT
1. ELECTRICAL SERVICES TO PRESENT BUILDINGS OR PORTIONS OF BUILDING WILL NOT BE INTERRUPTED DURING PERIODS WHEN THOSE SERVICES ARE NEEDED.
2. SPECIAL SYSTEMS SUCH AS FIRE ALARM, SOUND, ETC., OF EVERY KIND TO PRESENT BUILDINGS WILL NOT BE INTERRUPTED DURING WORKING AND/OR OCCUPIED HOURS, EXCEPT AS APPROVED BY ENGINEER.

J. NEW CONDUIT SERVING NEW AND/OR PRESENT ELECTRICAL DEVICES IN FINISHED PRESENT ROOMS OR SPACES SHALL BE CONCEALED IN FINISHED ROOMS, WHERE POSSIBLE OR SHALL BE RUN IN ADJOINING UNFINISHED ROOMS, SHAFTS, STORAGE ROOMS, ETC., WHERE EXPOSED CONDUIT IS PERMITTED IN FINISHED PRESENT ROOMS BY ARCHITECT IN WRITING, IT SHALL BE WIREMOLD, WITH MATCHING BOXES, RUN INCONSPICUOUSLY AS POSSIBLE, IN STRAIGHT LINES, PARALLEL TO WALLS AND CEILINGS, WITH NEAT BENDS, UNNEEDED BOXES, SWITCHES AND WIRING SHALL BE COMPLETELY REMOVED AND OPENINGS PATCHED. IN PRESENT ROOMS OR LOCATIONS WHERE NEW LIGHTING EQUIPMENT IS SHOWN. PRESENT FIXTURES, BOXES, WIRING, SWITCHES, ETC. SHALL BE REMOVED AS PER NOTE "PX" UNLESS ANOTHER SYMBOL IS SHOWN ON DRAWINGS. WHERE SPECIFICALLY APPROVED BY ARCHITECT IN WRITING, BOXES MAY BE PERMITTED TO REMAIN AND BE PROVIDED WITH NEAT FLUSH COVERS, EXTENDING OVER ENTIRE WALL OPENING.

K. UNNEEDED ELECTRICAL FIXTURES, SWITCHES, STARTERS, DEVICES, ETC., SHALL BE COMPLETELY REMOVED; AND CONSTRUCTION PATCHED AS PER NOTE "PX" NEW CONNECTIONS TO PRESENT EQUIPMENT, SHALL BE MADE, TESTED, COVERED, PAINTED, ETC., SAME AS NEW EQUIPMENT. PRESENT EQUIPMENT, AND OTHER COVERING DISTURBED BY CONTRACTOR SHALL BE REPAIRED TO EQUAL NEW CONDITION AND PAINTED SAME AS NEW COVERING.

L. WHERE DEVICES ARE OMITTED FROM PRESENT BRANCH CIRCUITS, THE REMAINING DEVICES, ON THE SAME CIRCUIT AND/OR CONDUIT RUN, SHALL BE REWIRED, IF NEEDED AND AS REQUIRED, TO REMAIN ON THEIR RESPECTIVE CIRCUITS AND IN OPERATING CONDITION.

M. LIGHTING FIXTURES WHICH ARE REUSED SHALL HAVE LENS AND REFLECTORS CLEANED. ALL FIXTURES SHALL BE PROVIDED WITH NEW LAMPS.

N. WORK SHALL BE COORDINATED SO THAT HEATING, PLUMBING, ELECTRICAL, AND TELEPHONE SERVICES TO THE PRESENT BUILDING WILL NOT BE INTERRUPTED, EXCEPT AS APPROVED BY THE ARCHITECT.

ELECTRICAL SYMBOLS

F1 #a	RECESSED CEILING FIXTURE (◊ =WALL WASHER)
	SURFACE OR PENDANT CEILING FIXTURE
	BRACKET FIXTURE
	RECESSED LED FIXTURE
	SURFACE OR PENDANT LED FIXTURE
	WALL LED FIXTURE (VERIFY HEIGHT)
	BRACKET EXIT LIGHT } → DIRECTIONAL ARROW
	CEILING EXIT LIGHT } → DIRECTIONAL ARROW
	LIGHT TRACK
	EXTERIOR POLE FIXTURE
	BOLLARD FIXTURE
E	BATTERY EMERGENCY FIXTURE (R=REMOTE HEAD)
	SINGLE POLE SWITCH
3	THREE WAY SWITCH
4	FOUR WAY SWITCH
P	SWITCH WITH PILOT LIGHT
K	KEY OPERATED SWITCH
OS	OCCUPANCY SENSOR SWITCH (EQUAL TO LEVITON DECORA INFRARED ODS15-ID,UNO)
	DIMMER CONTROL SWITCH
	SWITCH WITH GROUNDED DUPLEX RECEPTACLE
	REMOTE CONTROL SWITCH OR PUSH BUTTON
	GROUNDED DUPLEX RECEPTACLE
	GROUNDED DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER HEIGHT
	GROUNDED DUPLEX GFCI RECEPTACLE
	GROUNDED DUPLEX GFCI RECEPTACLE MOUNTED ABOVE COUNTER HEIGHT
	GROUNDED SINGLE RECEPTACLE
	SPECIAL GROUNDED RECEPTACLE, SIZE AND TYPE AS SPECIFIED
	GROUNDED FLUSH FLOOR RECEPTACLE
WM	PLUGMOLD (VERIFY TYPE AND MOUNTING)
P D/T	POWER, DATA AND TELEPHONE FLUSH FLOOR BOX WITH COVER. PROVIDE EMPTY CONDUIT FOR DATA/TELEPHONE TO ABOVE SUSPENDED CEILING AS REQUIRED. SEE LOW VOLTAGE CONDUIT SIZING TABLE. (VERIFY)
	OUTLET WITH FINAL CONNECTIONS TO EQUIPMENT. EQUIPMENT FURNISHED BY OTHERS (FBO). PROVIDE NECESSARY RECEPTACLE, SAFETY SWITCH, WIRING ETC. FOR COMPLETE INSTALLATION VERIFY EXACT LOCATION AND HEIGHT BEFORE ROUGH-IN.
J	CEILING JUNCTION BOX } WITH FLUSH COVER
J	WALL JUNCTION BOX } WITH FLUSH COVER
F	SAFETY SWITCH (F=FUSED)
	SURFACE ELECTRICAL PANELBOARD
	RECESSED ELECTRICAL PANELBOARD
M	MOTOR CONTROLLER
R	CONTROL RELAY (LETTER=FLOOR, NUMBER=NO. OF RELAY)
T	TRANSFORMER
	CONDUIT RUN CONCEALED (OR PARTIALLY CONCEALED) IN CEILINGS OR WALLS
	CONDUIT RUN CONCEALED IN OR UNDER FLOORS
X	CONDUIT RUN EXPOSED, IN STRAIGHT LINES
U	CONDUIT RUN UNDERGROUND
E	EMERGENCY WIRING, IN CONDUIT, CONCEALED
	HOMERUN TO PANEL, IN CONDUIT, CONCEALED ARROWS INDICATE NUMBER OF CIRCUITS
T	TELEPHONE CONDUIT RUN ABOVE CEILINGS OR IN WALLS
T	TELEPHONE CONDUIT RUN IN OR UNDER FLOORS
	TELECOMMUNICATIONS OUTLET OR DATA ROUGH-IN ONLY (ROUGH-IN ONLY, PROVIDE 1" EMPTY CONDUIT TO ASC).
CR	CARD READER (MULLION MOUNTED) - VERIFY TYPE WITH OWNER.
ES	ELECTRIC DOOR STRIKE (FBO)
REX	REQUEST TO EXIT EQUAL TO BOSCH DS150I - VERIFY WITH OWNER.

NUMBER=CIRCUIT
LETTER=SWITCH
F1,F2,F3=FIXTURE
SEE SPECIFICATIONS AND FIXTURE SCHEDULE

UP 4'-0", UNLESS NOTED OTHERWISE

CHARACTER MARKS= NUMBER OF WIRES, IF NONE ARE SHOWN TWO ARE REQUIRED

EMPTY CONDUIT, CONCEALED

NOTES:
ELECTRICAL OUTLET BOXES INSTALLED IN FIRE RATED ASSEMBLIES SHALL COMPLY WITH LATEST IBC, SECTION 712 (NOT LESS THAN 24" O.C.)

ELECTRICAL DEVICES INSTALLED IN ACCORDANCE WITH ADA SPECIFICATIONS. VERIFY HEIGHTS AND SPECIFIC DIMENSIONS.

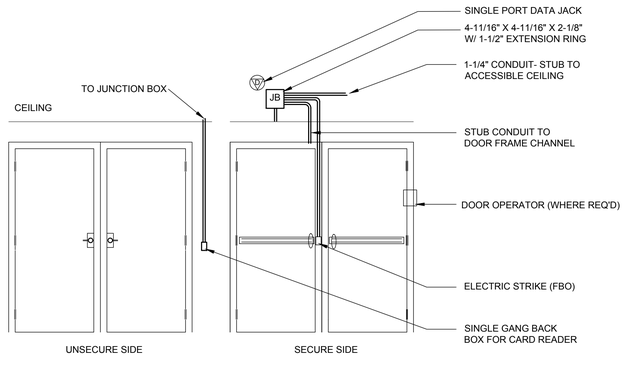
ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY LIGHTING CONTROLS AS TO COMPLY WITH LOCAL ENERGY CODE REQUIREMENTS. ENERGY MANGAGEMENT PRODUCTS SHALL BE EQUAL TO SENSORSWITCH. E.C. TO DETERMINE IF WALL OR CEILING OCCUPANCY DEVICE TYPE IS REQUIRED BASED ON PROJECT DESIGN AND IDEAL USE OF DEVICE. PROVIDE CONTROL DEVICE WITH SUITABLE FEATURES FOR INSTALLATION LOCATIONS OF THE CONTROL DEVICES REQUIRED FOR ENERGY CODE COMPLIANCE.

ELECTRICAL ABBREVIATIONS

AC	ABOVE COUNTER	JB	JUNCTION BOX
AFF	ABOVE FINISHED FLOOR	KW	KILOWATTS
ASC	ABOVE SUSPENDED CEILING	LTG	LIGHTING
C	CONDUIT	MAX	MAXIMUM
CF	CARPET FLANGE	MFG	MANUFACTURER
CTC	CLOSE TO CEILING	MIN	MINIMUM
CTF	CLOSE TO FLOOR	MOB	MOTOR OUTLET BOX
CTW	CLOSE TO WALL	MTD	MOUNTED
E	EMERGENCY	NEC	NATIONAL ELECTRICAL CODE
EDH	ELECTRIC DUCT HEATER	NL	NIGHT LIGHT
ESUH	ELECTRIC SUSPENDED UNIT HEATER	OS	OCCUPANCY SENSING DEVICE
		PH	PHASE (Ø)
EWC	ELECTRIC WATER COOLER	PNL	PANEL
EWH	ELECTRIC WATER HEATER	SW	SWITCH
FAAP	FIRE ALARM ANNUNCIATOR PANEL	TFA	TO FLOOR ABOVE
FACP	FIRE ALARM CONTROL PANEL	TFB	TO FLOOR BELOW
FBO	FURNISHED BY OTHERS	TTC	TELEPHONE TERMINAL CABINET
FFA	FROM FLOOR ABOVE	UNO	UNLESS NOTED OTHERWISE
FFB	FROM FLOOR BELOW	V	VOLTS
FLA	FULL LOAD AMPS	W	WIRE
GFI	GROUND FAULT INTERRUPTER	WP	WEATHER PROOF
HP	HORSEPOWER	WR	WEATHER RESISTANT
IWS	IN WALL SPACE		

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	LAMP SIZE AND TYPE	MOUNTING	MANUFACTURER'S NUMBER	REMARKS
A	80 CRI L.E.D., 4000K LP840, 4000 LUMENS (34 WATTS)	RECESSED IN GRID CEILING	LITHONIA NO. 2BLT4-40L-ADP-EZ1-LP840-EL14LSD-MVOLT	2' X 4' LED RECESSED* VOLUMETRIC FIXTURE WITH CURVED RIBBED DIFFUSER, MULTI-VOLT, LED 0-10V DIMMING DRIVER. **PROVIDE INTEGRAL BATTERY PACK OPTION WHERE NOTED WITH "EM".** *=PROVIDE SURFACE MOUNTING KIT IF REQUIRED FOR INSTALLATION. E.C. TO FIELD VERIFY EXISTING CLEARANCE ABOVE CEILING PRIOR TO ORDERING FIXTURES.
EX	L.E.D. LAMPS FURNISHED WITH FIXTURE - VERIFY	CEILING OR WALL AS REQUIRED (VERIFY)	LITHONIA NO. LHQ-LED-R-SD- 120/277 VOLT OR EQUAL EXIT SIGN W/REMOTE HEAD: LHQM-LED-W-R-HO-ELA T-QWP-L0309-SD 120/277 VOLT	UNIVERSAL SELF-POWERED EMERGENCY L.E.D. "EXIT" SIGN WITH 6" HIGH RED LETTERS, WHITE HOUSING, 120/277 VOLT AC INPUT. ELECTRICAL CONTRACTOR SHALL COORDINATE BEST MOUNTING LOCATION FOR REMOTE HEADS ON EXTERIOR OF BUILDING WHERE INDICATED ON PLAN.
NOTES:	**ALL FIXTURES SHALL INCLUDE THE REQUIRED COMPONENTS REQUIRED FOR LIGHTING CONTROLS, OR STANDALONE POWER PACKS FOR NON-NLIGHT FIXTURES. ALL RELATED DEVICES SHALL BE INCLUDED AS REQUIRED FOR A COMPLETE SYSTEM. FINAL SYSTEM DESIGN BY MANUFACTURER. E.C. TO COORDINATE WITH MANUFACTURER AS REQUIRED PRIOR TO INSTALLATION.** EMERGENCY BATTERIES SHALL PROVIDE A MINIMUM OF 90 MINUTES ILLUMINATION UPON POWER LOSS. ALL FIXTURE SELECTIONS AND FINISHES MUST BE APPROVED BY THE OWNER PRIOR TO ORDERING FIXTURES SPECIFIED ON THIS SCHEDULE. ALL RECESSED LUMINAIRES SHALL BE COMPLETE WITH TRIM TYPE REQUIRED FOR CEILING SYSTEM BEING INSTALLED. PRIOR TO ORDERING, CONFIRM CEILING CONSTRUCTION DETAILS AND ARCHITECTURAL FINISH FOR EACH AREA AS REQUIRED FOR PROPER INSTALLATION AND SUPPORT FOR ALL FIXTURES BEING INSTALLED. PROVIDE ADDITIONAL ACCESSORIES/KITS FOR LUMINAIRES AS REQUIRED FOR PROPER INSTALLATION AND SUSPENSION IN CEILING SYSTEM DESIGN. INSTALL RECESSED LUMINAIRES USING ACCESSORIES AND FIRESTOPPING MATERIALSTO MEET REGULATORY REQUIREMENTS FOR FIRE RATING, IF APPLICABLE FOR THIS PROJECT. ELECTRICAL CONTRACTOR SHALL KEEP INSULATION A MINIMUM OF 3" FROM ALL RECESSED CAN HOUSINGS AS REQUIRED FOR INSTALLATION. (IF APPLICABLE FOR THIS PROJECT). PROVIDE UL APPROVED LUMINAIRE DISCONNECT FOR EACH LIGHT FIXTURE PER NEC REQUIREMENTS EFFECTIVE JANUARY 1, 2008. E.C. TO COMPLY AS REQUIRED. THE FIXTURE SCHEDULE DOES NOT NECESSARILY LIST ALL ACCESSORIES AND HARDWARE NECESSARY FOR THE COMPLETION OF INSTALLATION, NOR DOES IT DETAIL THE CEILING CONSTRUCTION TO BE ENCOUNTERED FOR THIS PROJECT. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY DETERMINE AND PROVIDE THE CORRECT COMPONENTS, ACCESSORIES AND HARDWARE AS REQUIRED FOR THE INSTALLATION. ALL ADDITIONAL HARDWARE FOR MOUNTING FIXTURES SHALL BE PROVIDED AT NO EXTRA COST.			



NOTE:
1. ALL CONDUITS SHALL BE 3/4" UNLESS NOTED OTHERWISE.
2. REFER TO PLANS FOR EXACT DOOR SWING.

CARD READER ROUGH-IN DETAIL 1

NO SCALE

GENERAL NOTES APPLY TO ALL SHEETS

SEE DETAILS AND SCHEDULES ON DRAWINGS AND SPECIFICATIONS FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ARCHITECTURAL, STRUCTURAL, AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, BEAMS, DOOR SWINGS, WINDOWS, COORDINATION, ADDITIONAL INFORMATION, ETC. AND REPORT ANY DESCREPANCIES, CONFLICTS, ETC. TO ARCHITECT PRIOR TO SUBMITTING BID.

ALL EQUIPMENT FURNISHED BY OTHERS (FBO) SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S WIRING DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF (FBO) EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS.

CONTRACTOR SHALL VERIFY FINAL LOCATIONS AND CEILING TYPES FOR ALL ELECTRICAL EQUIPMENT WITH ARCHITECTURAL REFLECTED CEILING PLAN AND ALL TRADES BEFORE ORDERING OR ROUGH-IN OF EQUIPMENT TO AVOID CONFLICTS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING, INCLUDING CORE DRILLING, SAW CUTTING, ETC., AS REQUIRED TO ACCOMMODATE HIS WORK. CUTTING AND PATCHING AND PAYMENT OF SAID WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR REQUIRING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE ELECTRICAL CONTRACTOR TO GIVE QUANTITIES OF PATCHING REQUIREMENTS TO A GENERAL CONTRACTOR.

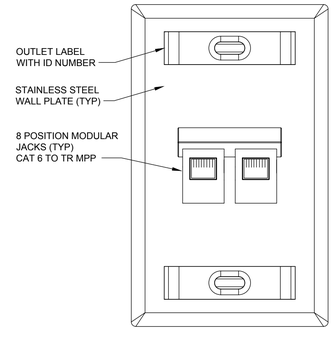
CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, LIGHT FIXTURES, DIFFUSERS, DUCTWORK, PIPING, CONDUIT, ETC., AS REQUIRED FOR THE INSTALLATION OF HIS WORK. REMOVAL, REPLACEMENT AND PAYMENT FOR MECHANICAL/PLUMBING ITEMS SHALL BE THE RESPONSIBILITY OF THE APPLICABLE ELECTRICAL CONTRACTOR. REMOVAL AND REPLACEMENT OF PRESENT CEILINGS, ETC., SHALL BE THE RESPONSIBILITY OF CONTRACTOR MAKING THE DISTURBANCE BUT SAME SHALL BE DONE BY A GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE APPROPRIATE ELECTRICAL CONTRACTOR TO GIVE QUANTITIES OF REMOVAL/REPLACEMENT REQUIREMENTS TO A GENERAL CONTRACTOR.

ELECTRICAL COORDINATION NOTE

THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS ASSOCIATED WITH ALL OTHER TRADES THAT INVOLVE THE ELECTRICAL CONTRACTOR TO PROVIDE POWER WIRING FOR DEVICES AND SYSTEMS PROVIDED BY OTHER TRADES. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ASPECTS OF WORK RELATED TO THESE SYSTEMS AND DEVICES PRIOR TO SUBMITTING FINAL BID. INCLUDE ALL NECESSARY LABOR AND MATERIALS ASSOCIATED WITH OTHER TRADES AS REQUIRED FOR COMPLETE OPERATIONAL SYSTEMS THAT REQUIRE THE ELECTRICAL CONTRACTOR TO WIRE.

GENERAL DEMOLITION NOTE

FOR ALL WALLS, CEILINGS, FLOORS, ETC. REQUIRED FOR CONSTRUCTION DEMOLITION WORK OR NEW CONSTRUCTION WORK, INCLUDING, BUT NOT LIMITED TO ITEMS SHOWN REMOVE (PX) AND/OR REMOVE AND RELOCATE (PXN-PN): ALL ELECTRICAL EQUIPMENT, DEVICES, BOXES, CONDUIT, WIRING, ETC., AS REQUIRED, FOR DEMOLITION OF PRESENT CONSTRUCTION AND TO AVOID INTERFERENCE WITH NEW CONSTRUCTION. (VERIFY BEFORE BIDDING TO INCLUDE ALL NECESSARY MATERIALS AND LABOR)



2 PORT OUTLET

NO SCALE - 18" AFF OR ABOVE COUNTER, UNO

SYSTEMS DESIGN SERVICE ENGINEERING LLP
3600 EAST STATE STREET • SUITE 215 • ROCKFORD, ILLINOIS • 61108
PHONE (815) 399-3381 FAX (815) 399-3383 WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004999

SECURE ENTRANCE RENOVATION PROJECT AT
AUBURN HIGH SCHOOL FOR
ROCKFORD PUBLIC SCHOOL DISTRICT 205
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
ELECTRICAL ABBREVIATIONS, NOTES, DETAILS AND LIGHTING FIXTURE SCHEDULE

PROJECT INFORMATION
Date: March 10, 2020
Rev. Date:
RLJA Proj: 2020-009

SHEET NUMBER
E102
OF
3

DIVISION 26 - ELECTRICAL

SECTION 262000 INTERIOR DISTRIBUTION SYSTEM

PART 1 GENERAL

THE SUPPLEMENTARY GENERAL CONDITIONS ALONG WITH THESE SPECIFICATIONS AND THE ACCOMPANYING DRAWINGS GOVERN WORK UNDER THIS SECTION. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE FOR A COMPLETE OPERATING SYSTEM. THE OMISSION OF REFERENCE TO MINOR SYSTEM COMPONENTS WHICH ARE REASONABLY REQUIRED FOR THE PROPER FUNCTIONING AND/OR SAFE OPERATION OF THE SYSTEM SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING SAME AT NO ADDITIONAL COST TO THE OWNER. IT IS THE FURTHER INTENT THAT THE SYSTEM SHALL BE TURNED OVER TO THE OWNER IN A FUNCTIONAL AND OPERATING CONDITION. THE CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE ELECTRICAL SYSTEM INCLUDING, BUT NOT LIMITED TO, SERVICE, LIGHTING, POWER, DEVICES, PANELS, CIRCUIT BREAKERS, CONDUIT AND WIRING. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND PAY FOR TEMPORARY AND NEW SERVICE, IF APPLICABLE TO THIS PROJECT. (VERIFY BEFORE BIDDING TO INCLUDE ALL WORK AS REQUIRED). THE WORK SHALL BE IN ACCORDANCE WITH THE REFERENCES LISTED BELOW AND ALL LOCAL CODES, LAWS, ORDINANCES AND STATE REGULATIONS WHICH GOVERN THE INSTALLATION.

1.1 REFERENCES

THE PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION TO THE EXTENT REFERENCED. THE PUBLICATIONS ARE REFERRED TO WITHIN THE TEXT BY THE BASIC DESIGNATION ONLY.

ASTM D 709	(2016) LAMINATED THERMOSETTING MATERIALS
EIA 480	(1981) TOGGLE SWITCHES
IEEE STDS DICTIONARY	(2009) IEEE STANDARDS DICTIONARY: GLOSSARY OF TERMS & DEFINITIONS
ICC/ANSI A117.1	(2009) ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
ICC	(2012) INTERNATIONAL ENERGY CONSERVATION CODE
ANSI Z535.1	(2006, R 2011) AMERICAN NATIONAL STANDARD FOR SAFETY--COLOR CODE
ANSI/NEMA FB 1	(2014) STANDARD FOR FITTINGS, CAST METAL BOXES, AND CONDUIT BODIES FOR CONDUIT, ELECTRICAL METALLIC TUBING, AND CABLE
ANSI/NEMA OS 1	(2013) SHEET-STEEL OUTLET BOXES, DEVICE BOXES, COVERS, AND BOX SUPPORTS
ANSI/NEMA OS 2	(2013) NONMETALLIC OUTLET BOXES, DEVICE BOXES, COVERS, AND BOX SUPPORTS
NEMA 250	(2014) ENCLOSURES FOR ELECTRICAL EQUIPMENT (1000 VOLTS MAXIMUM)
NEMA KS 1	(2013) ENCLOSED AND MISCELLANEOUS DISTRIBUTION EQUIPMENT SWITCHES (600 V MAXIMUM)
NEMA PB 1	(2011) PANELBOARDS
NEMA RN 1	(2005, R 2013) POLYVINYL-CHLORIDE (PVC) EXTERNALLY COATED GALVANIZED RIGID STEEL CONDUIT AND INTERMEDIATE METAL CONDUIT
NEMA TC 2	(2013) STANDARD FOR ELECTRICAL POLYVINYL CHLORIDE (PVC) CONDUIT
NEMA TC 3	(2015) STANDARD FOR POLYVINYL CHLORIDE (PVC) FITTINGS FOR USE WITH RIGID PVC CONDUIT AND TUBING
NEMA WD 1	(1999; R 2015) STANDARD FOR GENERAL COLOR REQUIREMENTS FOR WIRING DEVICES
NEMA WD 6	(2016) WIRING DEVICES DIMENSIONS SPECIFICATIONS
NFPA 70	(2014) NATIONAL ELECTRICAL CODE
NFPA 70E	(2015) STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE
UL 1	(2005; REPRINT JUL 2007) STANDARD FOR FLEXIBLE METAL CONDUIT
UL 1242	(2006; REPRINT MAR 2014) STANDARD FOR ELECTRICAL INTERMEDIATE METAL CONDUIT -- STEEL
UL 489	(2016) MOLDED-CASE CIRCUIT BREAKERS, MOLDED-CASE SWITCHES, AND CIRCUIT-BREAKER ENCLOSURES
UL 6	(2007; REPRINT NOV 2014) ELECTRICAL RIGID METAL CONDUIT-STEEL
UL 797	(2007; REPRINT DEC 2012) ELECTRICAL METALLIC TUBING -- STEEL
UL 870	(2016) STANDARD FOR WIREWAYS, AUXILIARY GUTTERS, AND ASSOCIATED FITTINGS

1.2 DEFINITIONS

A. UNLESS OTHERWISE SPECIFIED OR INDICATED, ELECTRICAL AND ELECTRONICS TERMS USED IN THESE SPECIFICATIONS, AND ON THE DRAWINGS, SHALL BE AS DEFINED IN IEEE STDS DICTIONARY.
B. THE TECHNICAL SECTIONS REFERRED TO HEREIN ARE THOSE SPECIFICATION SECTIONS THAT DESCRIBE PRODUCTS, INSTALLATION PROCEDURES, AND EQUIPMENT OPERATIONS AND THAT REFER TO THIS SECTION FOR DETAILED DESCRIPTION OF SUBMITTAL TYPES.
C. VERTICAL ASSEMBLY: A VERTICAL ASSEMBLY IS A POLE, TOWER OR OTHER SUCH SUPPORT, MOUNTING HARDWARE, ARMS, BRACKETS AND THE LOAD. LOAD CAN BE A LUMINAIRE, SIREN, LOUDSPEAKER OR OTHER DEVICE. ALL COMPONENTS OF A VERTICAL ASSEMBLY WILL BE RATED BY THE MANUFACTURER TO WITHSTAND 135 MPH WIND LOADING.

1.3 SUBMITTALS

SUBMIT THE FOLLOWING IN ACCORDANCE WITH SECTION SUBMITTAL PROCEDURES:PRECONSTRUCTION SUBMITTALS (SHOP DRAWINGS): SUBMIT PRODUCT DATA FOR THE FOLLOWING: CONDUITS, RACEWAYS AND FITTINGS, WIRE AND CABLE, SPLICES AND CONNECTORS, SWITCHES, RECEPTACLES, OUTLETS, OUTLET BOXES, AND PULL BOXES, CIRCUIT BREAKERS, PANELBOARDS,
LAMPS AND LIGHTING FIXTURES, AND DRY-TYPE DISTRIBUTION TRANSFORMERS. COORDINATE COLOR OF DEVICES AND COVERPLATES WITH ARCHITECT/OWNER PRIOR SUBMITTING SHOP DRAWING SUBMITTALS FOR APPROVAL. CLOSEOUT SUBMITTALS (O&M INSTRUCTIONS): SUBMIT TEST REPORTS FOR THE FOLLOWING: FIRE ALARM TEST, LOW VOLTAGE CABLE TEST, CONTINUITY TEST, PHASE-ROTATION TESTS, INSULATION RESISTANCE TEST, SUBMIT MANUFACTURER'S INSTRUCTIONS, MANUFACTURER'S START-UP AND CHECK-OUT CHECKLISTS, SUBMIT STATE FIRE ALARM CERTIFICATION, AND PRE-ENERGIZATION CHECKLISTS.

1.4 GENERAL REQUIREMENTS

SUBMIT MATERIAL, EQUIPMENT, AND FIXTURE LISTS FOR THE FOLLOWING ITEMS SHOWING MANUFACTURER'S STYLE OR CATALOG NUMBERS, SPECIFICATION AND DRAWING REFERENCE NUMBERS, WARRANTY INFORMATION, AND FABRICATION SITE.
SUBMIT MANUFACTURER'S INSTRUCTIONS INCLUDING SPECIAL PROVISIONS REQUIRED TO INSTALL EQUIPMENT COMPONENTS AND SYSTEM PACKAGES. SPECIAL NOTICES SHALL DETAIL IMPEDANCES, HAZARDS AND SAFETY PRECAUTIONS.SUBMIT CERTIFICATION REQUIRED TO INSTALL EQUIPMENT COMPONENTS AND SYSTEM PACKAGES.

1.5 MANUFACTURER'S NAMEPLATE

EACH ITEM OF EQUIPMENT SHALL HAVE A NAMEPLATE BEARING THE MANUFACTURER'S NAME, ADDRESS, MODEL NUMBER, AND SERIAL NUMBER SECURELY AFFIXED IN A CONSPICUOUS PLACE; THE NAMEPLATE OF THE DISTRIBUTING AGENT WILL NOT BE ACCEPTABLE.

1.6 FIELD FABRICATED NAMEPLATES

ASTM D 709. PROVIDE LAMINATED PLASTIC NAMEPLATES FOR EACH EQUIPMENT ENCLOSURE, RELAY, SWITCH, AND DEVICE; AS SPECIFIED IN THE TECHNICAL SECTIONS OR AS INDICATED ON THE DRAWINGS. EACH NAMEPLATE INSCRIPTION SHALL IDENTIFY THE FUNCTION AND, WHEN APPLICABLE, THE POSITION. NAMEPLATES SHALL BE MELAMINE PLASTIC, 0.125 INCH THICK, WHITE WITH BLACK CENTER CORE. SURFACE SHALL BE MATTE FINISH. CORNERS SHALL BE SQUARE. ACCURATELY ALIGN LETTERING AND ENGRAVE INTO THE CORE. MINIMUM SIZE OF NAMEPLATES SHALL BE ONE BY 2.5 INCHES. LETTERING SHALL BE A MINIMUM OF 0.25 INCH HIGH NORMAL BLOCK STYLE.

1.7 WARNING SIGNS

PROVIDE WARNING SIGNS FOR THE ENCLOSURES OF ELECTRICAL EQUIPMENT INCLUDING SUBSTATIONS, PAD-MOUNTED TRANSFORMERS, PAD-MOUNTED SWITCHES, GENERATORS, AND SWITCHGEAR HAVING A NOMINAL RATING EXCEEDING 600 VOLTS.

A. WHEN THE ENCLOSURE INTEGRITY OF SUCH EQUIPMENT IS SPECIFIED TO BE IN ACCORDANCE WITH IEEE C57.12.28 OR IEEE C57.12.29, SUCH AS FOR PAD-MOUNTED TRANSFORMERS, PROVIDE SELF-ADHESIVE WARNING SIGNS ON THE OUTSIDE OF THE HIGH VOLTAGE COMPARTMENT DOOR(S). SIGN SHALL BE A DECAL AND HAVE NOMINAL DIMENSIONS OF 7 BY 10 INCHES WITH THE LEGEND "DANGER HIGH VOLTAGE" PRINTED IN TWO LINES OF NOMINAL 2 INCH HIGH LETTERS. THE WORD "DANGER" SHALL BE IN WHITE LETTERS ON A RED BACKGROUND AND THE WORDS "HIGH VOLTAGE" SHALL BE IN BLACK LETTERS ON A WHITE BACKGROUND. DECAL SHALL BE PANDUIT NO. PPSO710D72 OR APPROVED EQUAL.

1.8 VERIFICATION OF POINTS

BEFORE SUBMITTING THEIR BID, THE CONTRACTOR SHALL VISIT THE SITE AND CONTACT THE CITY AND ALL UTILITIES TO CAREFULLY VERIFY ALL EXPOSED, CONCEALED AND BURIED POINTS OF CONNECTIONS, AS TO LOCATIONS, SIZE, TYPE, DEPTH, OPERATING CHARACTERISTICS ,ETC. INCLUDING BUT NOT LIMITED TO: PRESENT SITE CONDITIONS, PRESENT UTILITY COMPANY ELECTRICAL DISTRIBUTION SYSTEM, WORK ASSOCIATED WITH EQUIPMENT BY OTHERS, NEW CONNECTIONS TO PRESENT EQUIPMENT OR CONSTRUCTION, PRESENT EQUIPMENT TO BE REMOVED AND/OR RELOCATED. IF THE CONTRACTOR FINDS THAT PRESENT POINTS OF CONNECTION ARE INCORRECTLY SPECIFIED, THEY SHALL NOTIFY THE ARCHITECT, IN WRITING, AT LEAST 7 CALENDAR DAYS BEFORE BIDS ARE TO BE SUBMITTED. THE ARCHITECT WILL ISSUE AN ADDENDUM TO ADDRESS THE REVISED POINTS OF CONNECTION. IF THE CONTRACTOR FAILS TO NOTIFY THE ARCHITECT, IN WRITING, AS OUTLINED ABOVE, IT WILL BE ASSUMED THEIR BID INCLUDES EVERYTHING REQUIRED TO PROVIDE CONNECTIONS AS THEY ACTUALLY EXIST, OR AS THEY WILL BE REQUIRED BY THE UTILITY OR AUTHORITY HAVING JURISDICTION WITHOUT INCREASE TO THE CONTRACT PRICE.

1.9 COORDINATION

CERTAIN MOTORS, EQUIPMENT, CONTROLS, ETC ARE PROVIDED BY THE HEATING, VENTILATION, PLUMBING AND/OR OTHER CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED MOTOR STARTERS, SAFETY SWITCHES, VARIABLE FREQUENCY DRIVES, CONTROLS, ETC AND COMPLETELY WIRE ALL EQUIPMENT PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CODES. SEE SPECIFICATIONS AND DRAWINGS FOR ALL OTHER TRADES TO AVOID CONFLICTS OR DUPLICATING WORK TO BE PROVIDED BY OTHERS. (VERIFY PRIOR TO ROUGH-IN).

BEFORE BIDDING, THE CONTRACTOR SHALL CAREFULLY CHECK ALL PLANS AND SPECIFICATIONS FOR EVERY TRADE AND SHALL INCLUDE IN THEIR BID ALL ASSOCIATED LECTRICAL WORK TO BE PROVIDED FOR THE PROJECT. BEFORE ANY WORK IS INSTALLED OR ANY EQUIPMENT IS PURCHASED, THE CONTRACTOR SHALL CAREFULLY CHECK PLANS AND SPECIFICATIONS FOR EVERY TRADE AS WELL AS THE JOB CONDITIONS. ANY LACK OF COORDINATION BETWEEN THE WORK OF THE EC AND THEIR SUBS, SHALL BE REPORTED IMMEDIATELY TO THE ARCHITECT. THE ARCHITECT WILL WORK OUT CONFLICTS AND ADJUSTMENTS IN CONTRACT PRICE, IF WARRANTED. CHANGES IN EQUIPMENT SHALL BE INCORPORATED IN THE SHOP DRAWINGS.

IF CONFLICTS ARISE DURING THE CONSTRUCTION PERIOD, THEY SHALL BE REPORTED TO THE ARCHITECT, IN WRITING, AND THEY SHALL BE WORKED OUT BETWEEN THE ARCHITECT, GENERAL CONTRACTOR, AND OTHER ASSOCIATED TRADE AT NO INCREASE TO THE CONTRACT PRICE.

PART 2 PRODUCTS

2.1 MATERIALS

MATERIALS AND EQUIPMENT TO BE PROVIDED SHALL BE NEW, UL LISTED FOR THE REQUIRED LOCATION/USE, AND BEAR THE MANUFACTURER'S NAME, MODEL NUMBER, AND OTHER IDENTIFICATION MARKINGS. THE STANDARD CATALOGED PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE MANUFACTURE OF THE PRODUCTS. MATERIALS AND EQUIPMENT SHALL BE OF THE SAME MANUFACTURER THROUGHOUT THE PROJECT TO PROVIDE A UNIFORM APPEARANCE, OPERATION AND MAINTENANCE.

2.1.1 RIGID STEEL CONDUIT: RIGID STEEL CONDUIT SHALL COMPLY WITH UL 6 AND BE GALVANIZED BY THE HOT-DIP PROCESS. RIGID STEEL CONDUIT SHALL BE POLYVINYLCHLORIDE (PVC) COATED IN ACCORDANCE WITH NEMA RN 1, WHERE UNDERGROUND AND IN CORROSIVE AREAS, OR MUST BE PAINTED WITH BITUMASTIC. FITTINGS FOR RIGID STEEL CONDUIT SHALL BE THREADED. GASKETS SHALL BE SOLID. CONDUIT FITTINGS WITH BLANK COVERS SHALL HAVE GASKETS, EXCEPT IN CLEAN, DRY AREAS OR AT THE LOWEST POINT OF A CONDUIT RUN WHERE DRAINAGE IS REQUIRED. COVERS SHALL HAVE CAPTIVE SCREWS AND BE ACCESSIBLE AFTER THE WORK HAS BEEN COMPLETED.

2.1.2 ELECTRICAL METALLIC TUBING (EMT): EMT SHALL BE IN ACCORDANCE WITH UL 797 AND BE ZINC COATED STEEL. COUPLINGS AND CONNECTORS SHALL BE ZINC-COATED, RAINTIGHT, GLAND COMPRESSION WITH INSULATION THROAT. CRIMP, SPRING, OR SETSCREW TYPE FITTINGS ARE NOT ACCEPTABLE.

2.1.3 FLEXIBLE METALLIC CONDUIT: FLEXIBLE METALLIC CONDUIT SHALL COMPLY WITH UL 1 AND BE GALVANIZED STEEL. FITTINGS FOR FLEXIBLE METALLIC CONDUIT SHALL BE SPECIFICALLY DESIGNED FOR SUCH CONDUIT. PROVIDE LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT WITH A PROTECTIVE JACKET OF PVC EXTRUDED OVER A FLEXIBLE INTERLOCKED GALVANIZED STEEL CORE TO PROTECT WIRING AGAINST MOISTURE, OIL, CHEMICALS, AND CORROSIVE FUMES. SPECIFICALLY DESIGN FITTINGS FOR LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT.

2.1.4 INTERMEDIATE METAL CONDUIT: INTERMEDIATE METAL CONDUIT SHALL COMPLY WITH UL 1242 AND BE GALVANIZED.

2.1.5 RIGID NONMETALLIC CONDUIT: RIGID NONMETALLIC CONDUIT SHALL COMPLY WITH NEMA TC 2 AND NEMA TC 3 WITH WALL THICKNESS NOT LESS THAN SCHEDULE 40.

2.1.6 WIREWAYS AND AUXILIARY GUTTERS: WIREWAY AND AUXILIARY GUTTERS SHALL BE A MINIMUM 4-BY 4 INCH TRADE SIZE CONFORMING TO UL 870.

2.1.7 SURFACE RACEWAYS AND ASSEMBLIES: SURFACE METAL RACEWAYS AND MULTI-OUTLET ASSEMBLIES SHALL CONFORM TO NFPA 70. RECEPTACLES SHALL CONFORM TO NEMA WD 1, TYPE 5-20R.

2.2 WIRE AND CABLE

CONDUCTORS INSTALLED IN CONDUIT ABOVE GROUND SHALL BE COPPER 600-VOLT TYPE THWN-2, CONDUCTORS INSTALLED UNDERGROUND SHALL BE TYPE XHHW. ALL CONDUCTORS AWG NO. 8 AND LARGER, SHALL BE STRANDED. ALL CONDUCTORS SMALLER THAN AWG NO. 8 SHALL BE SOLID. FLEXIBLE CABLE SHALL BE TYPE SO AND CONTAIN A GROUNDING CONDUCTOR WITH GREEN INSULATION. CONDUCTORS INSTALLED IN PLENUMS SHALL BE MARKED PLENUM RATED.

2.3 SPLICES AND CONNECTORS

MAKE ALL SPLICES IN AWG NO. 8 AND SMALLER WITH APPROVED INSULATED ELECTRICAL TYPE OR INDENTOR CRIMP-TYPE CONNECTORS AND COMPRESSION TOOLS. MAKE ALL SPLICES IN AWG NO. 6 AND LARGER WITH BOLTED CLAMP-TYPE CONNECTORS. JOINTS SHALL BE WRAPPED WITH AN INSULATING TAPE THAT HAS AN INSULATION AND TEMPERATURE RATING EQUIVALENT TO THAT OF THE CONDUCTOR.

2.4 SWITCHES

ALL WIRING DEVICES SHALL BE HUBBELL, P & S, BYRANT, G.E. OR LEVITON UNDERWRITER'S APPROVED, NEC RATED AND SPECIFICATION GRADE

2.4.1 SAFETY SWITCHES: SAFETY SWITCHES SHALL COMPLY WITH NEMA KS 1, AND BE THE HEAVY-DUTY TYPE WITH ENCLOSURE, VOLTAGE, CURRENT RATING, NUMBER OF POLES, AND FUSING AS INDICATED. MAKE PROVISIONS TO LOCK THE HANDLE IN THE "OFF" POSITION, BUT THE SWITCH SHALL NOT BE CAPABLE OF BEING LOCKED IN THE "ON" POSITION. PROVIDE SWITCHES OF THE QUICK-MAKE, QUICK-BREAK TYPE. APPROVE TERMINAL LUGS FOR USE WITH COPPER CONDUCTORS. SAFETY COLOR CODING FOR IDENTIFICATION OF SAFETY SWITCHES SHALL CONFORM TO ANSI Z535.1.

2.4.2 TOGGLE SWITCHES: TOGGLE SWITCHES SHALL COMPLY WITH EIA 480, CONTROL INCANDESCENT, MERCURY, AND FLUORESCENT LIGHTING FIXTURES AND BE OF THE HEAVY DUTY, GENERAL PURPOSE, NONINTERCHANGEABLE FLUSH-TYPE. TOGGLE SWITCHES SHALL BE COMMERCIAL GRADE TOGGLE TYPE, SINGLE, DOUBLE-POLE, THREE/FOUR-WAY TWO-POSITION DEVICES RATED 20 AMPERES AT 120 OR 277 VOLTS, 60 HERTZ ALTERNATING CURRENT (AC) ONLY. ALL TOGGLE SWITCHES SHALL BE PRODUCTS OF THE SAME MANUFACTURER.

2.5 RECEPTACLES

RECEPTACLES SHALL BE COMMERCIAL GRADE, 20A, 125 VAC, 2-POLE, 3-WIRE DUPLEX CONFORMING TO NEMA WD 6, NEMA 5-20R, WATER RESTISTANT.

2.6 OUTLETS, OUTLET BOXES, AND PULL BOXES

OUTLET BOXES FOR USE WITH CONDUIT SYSTEMS SHALL BE IN ACCORDANCE WITH ANSI/NEMA FB 1 AND ANSI/NEMA OS 1 AND BE NOT LESS THAN 1-1/2 INCHES DEEP. FURNISH ALL PULL AND JUNCTION BOXES WITH SCREW-FASTENED COVERS, STAINLESS STEEL NEMA 4X AT QOUTDOOR LOCATIONDS.

2.7 CIRCUIT BREAKERS

CIRCUIT-BREAKER INTERRUPTING RATING SHALL BE NOT LESS THAN THOSE INDICATED AND IN NO EVENT LESS THAN THE MAXIMUM AVAILABLE FAULT CURRENT AT THE LOCATION. MULTIPOLE CIRCUIT BREAKERS SHALL BE THE COMMON-TRIP TYPE WITH A SINGLE HANDLE. MOLDED CASE CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE CONFORMING TO UL 489.

2.8 LAMPS AND LIGHTING FIXTURES

MANUFACTURERS AND CATALOG NUMBERS SHOWN ARE INTENDED TO RESTRICT THE SELECTION TO FIXTURES OF THE PARTICULAR MANUFACTURER UNLESS STATED AS "OR EQUAL" IN THE SCHEDULE. FIXTURES WITH THE SAME SALIENT FEATURES AND EQUIVALENT LIGHT DISTRIBUTION AND BRIGHTNESS CHARACTERISTICS, OF EQUAL FINISH AND QUALITY, MAY BE ACCEPTABLE. PROVIDE LAMPS OF THE PROPER TYPE AND WATTAGE FOR EACH FIXTURE. BALLASTS SHALL BE HIGH POWER FACTOR AND BE ENERGY EFFICIENT.

LED LUMINAIRES MUST BE NEMA SSL 1, UL 8750 LISTED. LED DRIVERS MUST BE ELECTRONIC, UL CLASS 1, CONSTANT-CURRENT TYPE AND COMPLY WITH THE FOLLOWING REQUIREMENTS:

1. POWER FACTOR (PF) GREATER THAN OR EQUAL TO 0.9.
2. CURRENT DRAW TOTAL HARMONIC DISTORTION (THD) OF LESS THAN 20 PERCENT.
3. CLASS A SOUND RATING.
4. OPERABLE AT INPUT VOLTAGE OF 120-277 VOLTS AT 60 HERTZ.
5. MINIMUM 5 YEAR MANUFACTURER'S WARRANTY.
6. ROHS COMPLIANT.
7. INTEGRAL THERMAL PROTECTION THAT REDUCES OR ELIMINATES THE OUTPUT POWER IF CASE TEMPERATURE EXCEEDS A VALUE DETRIMENTAL TO THE DRIVER.
8. UL LISTED FOR DRY OR DAMP LOCATIONS TYPICAL OF INTERIOR INSTALLATIONS.
   FULLY-DIMMABLE USING 0-10V CONTROL, OR AS INDICATED IN LUMINAIRE SCHEDULE.
9. LUMINAIRES FOR HAZARDOUS (CLASSIFIED) LOCATIONS SHALL BE LISTED AND LABELED FOR INDICATED CLASS AND DIVISION OF HAZARD BY AN NRTL.

2.9 DRY-TYPE DISTRIBUTION TRANSFORMERS

GENERAL PURPOSE DRY-TYPE TRANSFORMERS WITH WINDINGS 600 VOLTS OR LESS SHALL BE TWO-WINDING, 60 HERTZ, SELF-COOLED VENTILATED NEMA TYPE 2 ENCLOSURE IN ACCORDANCE WITH UL 506. COMPLY WITH 10 CFR 431 (DOE 2016) EFFICIENCY LEVELS. CORE SHALL BE ELECTRICAL GRADE, NON-AGING SILICON STEEL WITH HIGH PERMEABILITY AND LOW HYSTERESIS LOSSES. COILS SHALL BE CONTINUOUS COPPER WINDINGS WITHOUT SPLICES EXCEPT FOR TAPS. WINDINGS SHALL HAVE A MINIMUM OF TWO 2-1/2-PERCENT TAPS ABOVE AND BELOW NOMINAL VOLTAGE. INSULATION SHALL BE 220 DEG C, UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 150 DEG C RISE ABOVE 40 DEG C AMBIENT TEMPERATURE. PROVIDE GROUND-BAR KIT OR A GROUND BAR INSTALLED ON THE INSIDE OF THE TRANSFORMER ENCLOSURE. TRANSFORMERS SHALL BE AS MANUFACTURED BY HAMMOND, SQUARE D, OR CUTLER HAMMER.

PART 3 EXECUTION

ALL WORK SHALL BE PERFORMED BY TRAINED, EXPERIENCED PERSONNEL SKILLED IN THEIR VARIOUS CRAFTS, UNDER THE FULL TIME SUPERVISION OF AN APPROVED ENGINEER OR FOREMAN.

3.1 CONDUITS, RACEWAYS AND FITTINGS

PROVIDE A COMPLETE RACEWAY AND WIRING INSTALLATION, PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES. CONDUIT RUNS BETWEEN OUTLET AND OUTLET, BETWEEN FITTING AND FITTING, OR BETWEEN OUTLET AND FITTING SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS, INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE OUTLET OR FITTING. WIRING OF EVERY KIND MUST BE INSTALLED IN CONDUIT, UNLESS NOTED OTHERWISE OR AS APPROVED BY THE ARCHITECT. RACEWAYS SHALL BE GALVANIZED STEEL, UNLESS REQUIRED OTHERWISE OR AS NOTED AND SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, UNLESS NOTED OTHERWISE. ALL RACEWAYS SHALL BE APPROVED FOR THE INSTALLATION. DO NOT INSTALL CRUSHED OR DEFORMED CONDUIT. AVOID TRAPPED CONDUIT RUNS WHERE POSSIBLE. PULL OR JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO FACILITATE INSTALLATION OF RACEWAYS AND WIRING. TAKE CARE TO PREVENT THE LODGMENT OF FOREIGN MATERIAL IN THE CONDUIT, BOXES, FITTINGS, AND EQUIPMENT DURING THE COURSE OF CONSTRUCTION. CLEAR ANY CLOGGED CONDUIT OF OBSTRUCTIONS OR BE REPLACED. CONDUIT AND RACEWAY RUNS CONCEALED IN OR BEHIND WALLS, ABOVE CEILINGS, OR EXPOSED ON WALLS AND CEILINGS 5 FEET OR MORE ABOVE FINISHED FLOORS AND NOT SUBJECT TO MECHANICAL DAMAGE SHALL BE ELECTRICAL METALLIC TUBING (EMT). WIRE INSTALLED IN A PLENUM RATED CEILING SHALL BE INSTALLED IN CONDUIT OR SHALL BE TEFLON COATED PLENUM RATED AS REQUIRED TO COMPLY WITH THE NATIONAL ELECTRICAL CODE AND LOCAL CODE REQUIREMENTS.

3.1.1 RIGID STEEL CONDUIT: MAKE FIELD-MADE BENDS AND OFFSETS WITH APPROVED HICKEY OR CONDUIT BENDING MACHINE. CONDUIT ELBOWS LARGER THAN 2-1/2 INCHES SHALL BE LONG RADIUS. PROVIDE ALL CONDUIT STUBBED-UP THROUGH CONCRETE FLOORS FOR CONNECTIONS TO FREE-STANDING EQUIPMENT WITH THE EXCEPTION OF MOTOR-CONTROL CENTERS, CUBICLES, AND OTHER SUCH ITEMS OF EQUIPMENT, WITH A FLUSH COUPLING WHEN THE FLOOR SLAB IS OF SUFFICIENT THICKNESS. OTHERWISE,PROVIDE A FLOOR BOX SET FLUSH WITH THE FINISHED FLOOR. CONDUITS INSTALLED FOR FUTURE USE SHALL BE TERMINATED WITH A COUPLING AND PLUG SET FLUSH WITH THE FLOOR.

3.1.2 ELECTRICAL METALLIC TUBING (EMT): EMT SHALL BE GROUNDED IN ACCORDANCE WITH NFPA 70, USING PRESSURE GROUNDING CONNECTORS ESPECIALLY DESIGNED FOR EMT.

3.1.3 FLEXIBLE METALLIC CONDUIT: BONDING WIRES SHALL BE USED IN FLEXIBLE CONDUIT AS SPECIFIED IN NFPA 70, FOR ALL CIRCUITS. FLEXIBLE CONDUIT SHALL NOT BE CONSIDERED A GROUND CONDUCTOR. ELECTRICAL CONNECTIONS TO VIBRATION-ISOLATED EQUIPMENT SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT. LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED IN WET AND OILY LOCATIONS AND TO COMPLETE THE CONNECTION TO ENCLOSURES.

3.1.4 INTERMEDIATE CONDUIT: MAKE ALL FIELD-MADE BENDS AND OFFSETS WITH APPROVED HICKEY OR CONDUIT BENDING MACHINE. USE INTERMEDIATE METAL CONDUIT ONLY FOR INDOOR INSTALLATIONS.

3.1.5 RIGID NONMETALLIC CONDUIT: RIGID PVC CONDUIT SHALL BE DIRECT BURIED. A GREEN INSULATED COPPER GROUNDING CONDUCTOR SHALL BE IN CONDUIT WITH CONDUCTORS AND BE SOLIDLY CONNECTED TO GROUND AT EACH END. GROUNDING WIRES SHALL BE SIZED IN ACCORDANCE WITH NFPA 70.

3.1.6 WIREWAY AND AUXILIARY GUTTER: STRAIGHT SECTIONS AND FITTINGS SHALL BE BOLTED TOGETHER TO PROVIDE A RIGID, MECHANICAL CONNECTION AND ELECTRICAL CONTINUITY. DEAD ENDS OF WIREWAYS AND AUXILIARY GUTTERS SHALL BE CLOSED. PLUG ALL UNUSED CONDUIT OPENINGS. WIREWAYS FOR OVERHEAD DISTRIBUTION AND CONTROL CIRCUITS SHALL BE SUPPORTED AT MAXIMUM 5-FOOT INTERVALS. AUXILIARY GUTTERS USED TO SUPPLEMENT WIRING SPACES FOR EQUIPMENT NOT CONTAINED IN A SINGLE ENCLOSURE SHALL CONTAIN NO SWITCHES, OVERCURRENT DEVICES, APPLIANCES, OR APPARATUS AND BE NOT MORE THAN 30 FEET LONG.

3.1.7 SURFACE RACEWAYS AND ASSEMBLIES: SURFACE RACEWAYS SHALL BE MOUNTED PLUMB AND LEVEL, WITH THE BASE AND COVER SECURED. MINIMUM CIRCUIT RUN SHALL BE THREE-WIRE WITH ONE WIRE DESIGNATED AS GROUND.

3.1.8 CONDUIT FITTINGS FOR HAZAERDOUS (CLASSIFIED) LOCATIONS SHALL COMPLY WITH UL 1203 AND NFPA 70.

3.2 WIRING

CONDUCTORS UP TO AND INCLUDING AWG NO. 2 SHALL BE MANUFACTURED WITH COLORED INSULATING MATERIALS. CONDUCTORS LARGER THAN AWG NO. 2 SHALL HAVE ENDS IDENTIFIED WITH COLOR PLASTIC TAPE IN OUTLET, PULL, OR JUNCTION BOXES. SPLICE IN ACCORDANCE WITH THE NFPA 70. PROVIDE CONDUCTOR IDENTIFICATION WITHIN EACH ENCLOSURE WHERE A TAP, SPLICE, OR TERMINATION IS MADE AND AT THE EQUIPMENT TERMINAL OF EACH CONDUCTOR. TERMINAL AND CONDUCTOR IDENTIFICATION SHALL MATCH AS INDICATED. WHERE SEVERAL FEEDERS PASS THROUGH A COMMON PULLBOX, THE FEEDERS SHALL BE TAGGED TO CLEARLY INDICATE THE ELECTRICAL CHARACTERISTICS, CIRCUIT NUMBER, AND PANEL DESIGNATION.

3.3 WIRING DEVICES

3.3.1 RECEPTACLES: INSTALL RECEPTACLES SO THAT WHEN DEVICE PLATES ARE APPLIED, THE PLATES WILL BE ALIGNED VERTICALLY TO WITHIN 1/16 INCH. GROUND TERMINAL OF EACH FLUSH-MOUNTED RECEPTACLE SHALL BE BONDED TO THE OUTLET BOX WITH AN APPROVED GREEN BONDING JUMPER WHEN USED WITH DRY WALL TYPE CONSTRUCTION.

3.3.2 DEVICE PLATES: DEVICE PLATES FOR SWITCHES THAT ARE NOT WITHIN SIGHT OF THE LOADS CONTROLLED SHALL BE SUITABLY ENGRAVED WITH A DESCRIPTION OF THE LOADS. DEVICE PLATES AND RECEPTACLE COVER PLATES FOR RECEPTACLES OTHER THAN 125-VOLT, SINGLE-PHASE, DUPLEX, CONVENIENCE OUTLETS SHALL BE SUITABLY MARKED, SHOWING THE CIRCUIT NUMBER, VOLTAGE, FREQUENCY, PHASING, AND AMPERAGE AVAILABLE AT THE RECEPTACLE. REQUIRED MARKING SHALL CONSIST OF A SELF-ADHESIVE LABEL HAVING 1/4 INCH EMBOSSED LETTERS. DEVICE PLATES FOR CONVENIENCE OUTLETS SHALL BE SIMILARLY MARKED INDICATING THE SUPPLY PANEL AND CIRCUIT NUMBER.

3.4 BOXES AND FITTINGS

FURNISH AND INSTALL PULLBOXES WHERE NECESSARY IN THE CONDUIT SYSTEM TO FACILITATE CONDUCTOR INSTALLATION. CONDUIT RUNS LONGER THAN 100 FEET OR WITH MORE THAN THREE RIGHT-ANGLE BENDS SHALL HAVE A PULLBOX INSTALLED AT A CONVENIENT INTERMEDIATE LOCATION. SECURELY MOUNT BOXES AND ENCLOSURES TO THE BUILDING STRUCTURE WITH SUPPORTING FACILITIES INDEPENDENT OF THE CONDUIT ENTERING OR LEAVING THE BOXES. MOUNTING HEIGHT OF WALL-MOUNTED OUTLET AND SWITCH BOXES, MEASURED BETWEEN THE BOTTOM OF THE BOX AND THE FINISHED FLOOR, SHALL BE IN ACCORDANCE WITH ICC/ANSI A117.1 AND AS FOLLOWS:

LOCATION	MOUNTING HEIGHT
RECEPTACLES IN OFFICES	18 INCHES
RECEPTACLES IN CORRIDORS	18 INCHES
RECEPTACLES IN SHOPS AND LABORATORIES	48 INCHES
RECEPTACLES IN REST ROOMS	42 INCHES
SWITCHES FOR LIGHT CONTROL	42 INCHES

3.5 IDENTIFICATION PLATES AND WARNINGS

FURNISH AND INSTALL IDENTIFICATION PLATES FOR LIGHTING AND POWER PANELBOARDS, MOTOR CONTROL CENTERS, ALL LINE VOLTAGE HEATING AND VENTILATING CONTROL PANELS, FIRE DETECTOR AND SPRINKLER ALARMS, DOOR BELLS, PILOT LIGHTS, DISCONNECT SWITCHES, MANUAL STARTING SWITCHES, AND MAGNETIC STARTERS. PROCESS CONTROL DEVICES AND PILOT LIGHTS SHALL HAVE IDENTIFICATION PLATES. FURNISH IDENTIFICATION PLATES FOR ALL LINE VOLTAGE ENCLOSED CIRCUIT BREAKERS, IDENTIFYING THE EQUIPMENT SERVED, VOLTAGE, PHASE(S) AND POWER SOURCE. CIRCUITS 480 VOLTS AND ABOVE SHALL HAVE CONSPICUOUSLY LOCATED WARNING SIGNS IN ACCORDANCE WITH OSHA REQUIREMENTS. EACH IDENTIFICATION NAMEPLATE SHALL INCLUDE BUILDING NAME, PANELBOARD DESIGNATION, VOLTAGE AND WHERE PANELBOARD IS FED FROM.

3.6 FIELD TESTING

SUBMIT TEST REPORTS IN ACCORDANCE WITH REFERENCED STANDARDS IN THIS SECTION. AFTER COMPLETION OF THE INSTALLATION AND SPLICING, AND PRIOR TO ENERGIZING THE CONDUCTORS, PERFORM WIRE AND CABLE CONTINUITY AND INSULATION TESTS AS HEREIN SPECIFIED BEFORE THE CONDUCTORS ARE ENERGIZED. CONTRACTOR SHALL PROVIDE ALL NECESSARY TEST EQUIPMENT, LABOR, AND PERSONNEL TO PERFORM THE TESTS, AS HEREIN SPECIFIED. ISOLATE COMPLETELY ALL WIRE AND CABLE FROM ALL EXTRANEOUS ELECTRICAL CONNECTIONS AT CABLE TERMINATIONS AND JOINTS. SUBSTATION AND SWITCHBOARD FEEDER BREAKERS, DISCONNECTS IN COMBINATION MOTOR STARTERS, CIRCUIT BREAKERS IN PANEL BOARDS, AND OTHER DISCONNECTING DEVICES SHALL BE USED TO ISOLATE THE CIRCUITS UNDER TEST. PERFORM INSULATION-RESISTANCE TEST ON EACH FIELD-INSTALLED CONDUCTOR WITH RESPECT TO GROUND AND ADJACENT CONDUCTORS. APPLIED POTENTIAL SHALL BE 500 VOLTS DC FOR 300 VOLT RATED CABLE AND 1000 VOLTS DC FOR 600 VOLT RATED CABLE. TAKE READINGS AFTER 1 MINUTE AND UNTIL THE READING IS CONSTANT FOR 15 SECONDS. MINIMUM INSULATION-RESISTANCE VALUES SHALL NOT BE LESS THAN 25 MEGOHMS FOR 300 VOLT RATED CABLE AND 100 MEGOHMS FOR 600 VOLT RATED CABLE. FOR CIRCUITS WITH CONDUCTOR SIZES 8AWG AND SMALLER INSULATION RESISTANCE TESTING IS NOT REQUIRED.

PERFORM CONTINUITY TEST TO INSURE CORRECT CABLE CONNECTION (I.E CORRECT PHASE CONDUCTOR, GROUNDED CONDUCTOR, AND GROUNDING CONDUCTOR WIRING) END-TO END. ANY DAMAGES TO EXISTING OR NEW ELECTRICAL EQUIPMENT RESULTING FROM CONTRACTOR MIS-WIRING WILL BE REPAIRED AND RE-VERIFIED AT CONTRACTOR'S EXPENSE. ALL REPAIRS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO ACCEPTANCE OF THE REPAIR.

CONDUCT PHASE-ROTATION TESTS ON ALL THREE-PHASE CIRCUITS USING A PHASE-ROTATION INDICATING INSTRUMENT. PERFORM PHASE ROTATION OF ELECTRICAL CONNECTIONS TO CONNECTED EQUIPMENT CLOCKWISE, FACING THE SOURCE.

3.7 GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THE ELECTRICAL SYSTEM TO BE FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE.

END OF SECTION 262000

SYSTEMS DESIGN SERVICE ENGINEERING LP
3600 EAST STATE STREET • SUITE 215 • ROCKFORD, ILLINOIS • 61108
PHONE (815) 399-3381 FAX (815) 399-3383 WWW.SDSEGROUP.COM
IL PROF DESIGN FIRM #184.004999

SECURE ENTRANCE RENOVATION PROJECT AT AUBURN HIGH SCHOOL FOR
ROCKFORD PUBLIC SCHOOL DISTRICT 205
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
ELECTRICAL SPECIFICATIONS

PROJECT INFORMATION

Date	March 10, 2020
Rev. Date	
RLJA Proj	2020-009

SHEET NUMBER
E103
OF
3