PROJECT

HASKELL SECURITY VESTIBULE ADDITION

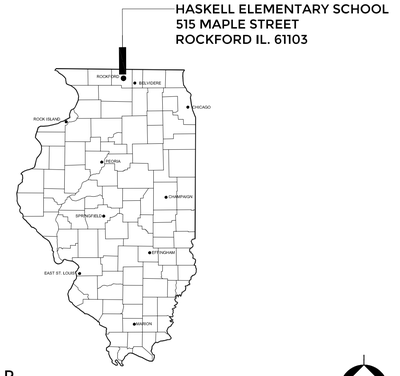
515 MAPLE STREET,
ROCKORD, ILLINOIS 61103

OWNER

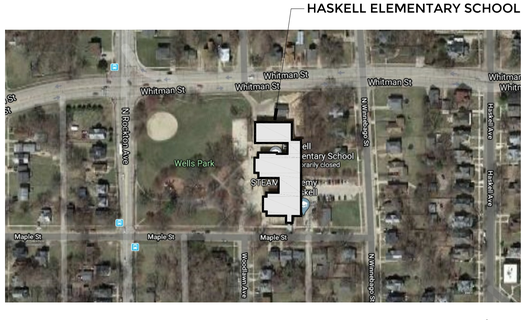
ROCKFORD PUBLIC SCHOOL DISTRICT 205

501 SEVENTH STREET,
ROCKFORD, ILLINOIS 61103 (IFB #21-45)

ROCKFORD PUBLIC SCHOOLS



STATE MAP
SCALE: N.T.S.



SITE LOCATION MAP
SCALE: N.T.S.

ARCHITECT OF RECORD	CIVIL	STRUCTURAL	MECHANICAL / ELECTRICAL / PLUMBING
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 STATE OF ILLINOIS · SCOTT R. JOHNSON 01 4871 · LICENSED ARCHITECT 5-6-2021 DATE EXPIRES 11-30-2022	FEHR GRAHAM ENGINEERING & ENVIRONMENTAL 200 Prairie Street, Suite 208 Rockford, IL. 61107 PHONE: 815/394-4700 FAX 815/394-4702 www.fehr-graham.com IL. Design Firm No. 184-003525 LICENSED PROFESSIONAL ENGINEER · PRINCIPAL · 062-058979 · EXPIRES 11-30-22 · STATE OF ILLINOIS 5-6-2021 DATE	HIGHLAND ENGINEERING P.C. Consulting & Forensic Engineers 700 INDUSTRIAL DRIVE, SUITE A CARY IL. 60013 PHONE: 847/639- 9000 FAX 847/639-9002 www.highlandengineeringpc.com IL. Design Firm No. 184.003362 STATE OF ILLINOIS · TODD M. LESPERANCE · 081-006057 · LICENSED STRUCTURAL ENGINEER 5/06/2021 EXP:11/30/2022	SYSTEM DESIGN SERVICE ENGINEERING 3600 EAST STATE STREET, SUITE 215 Rockford IL. 61108 PHONE: 815/399-3381 FAX 815/399-3383 www.sdsegroup.com IL. Design Firm No. 184.004999 LICENSED PROFESSIONAL ENGINEER · SCOTT JAY BAIER 062-059748 · STATE OF ILLINOIS 5MAY21 EXP 30NOV21

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HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
TITLE SHEET

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
T101

EROSION CONTROL NOTES

1. UNLESS OTHERWISE SPECIFIED, ALL EROSION AND SEDIMENT CONTROL MEASURES AND THEIR MAINTENANCE, CLEARING AND REMOVAL SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

2. THIS WORK SHALL CONFORM TO THE APPLICABLE STANDARDS FROM THE ILLINOIS URBAN MANUAL, THE ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION, CURRENT EDITION, THE PROJECT SPECIFICATIONS, AND THE APPROPRIATE DETAILS.

3. THE GENERAL CONTRACTOR AND ANY SUBCONTRACTOR SHALL BE RESPONSIBLE FOR SEDIMENT AND EROSION CONTROL MEASURES OR CONSTRUCTION ACTIVITIES THAT DISTURB SITE SOIL.

4. THE CONTRACTOR SHALL IMPLEMENT THE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THESE EROSION CONTROL PLANS BEFORE CONSTRUCTION BEGINS.

5. THE CONTROLS SHALL BE INSTALLED AS DETAILED AND WHERE INDICATED ON THE EROSION CONTROL PLAN SHEETS AND AS DIRECTED BY THE INSPECTOR.

6. SITE ACTIVITIES SHOULD ENSURE THAT EXISTING VEGETATION IS PRESERVED WHERE PRACTICABLE.

7. DISTURBED PORTIONS OF THE SITE SHALL BE STABILIZED (TEMPORARILY OR PERMANENTLY SEEDED, MULCHED, SODDED OR PAVED) AS SOON AS PRACTICABLE, BUT IN NO CASE MORE THAN 7 CALENDAR DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

8. UNTIL SUCH TIME AS THE PROJECT SITE REACHES FINAL STABILIZATION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ADJUST, REPAIR, OR REPLACE, ALL VEGETATION, EROSION CONTROLS, SEDIMENT CONTROLS, AND ANY OTHER PROTECTIVE MEASURES AS REQUIRED IN ORDER TO MAINTAIN THEIR INTENDED FUNCTION IN A GOOD AND EFFECTIVE OPERATING CONDITION.

9. EXCEPT FOR FLOWS FROM FIRE FIGHTING ACTIVITIES, SOURCES OF NON-STORM WATER EXPECTED DURING THE CONSTRUCTION PROCESS THAT MAY BE COMBINED WITH STORM WATER DISCHARGES ARE:

   A. FIRE HYDRANT FLUSHING
   B. WATERS USED TO WASH VEHICLES (DETERGENTS ARE NOT TO BE USED)
   C. WATERS USED TO CONTROL DUST
   D. POTABLE WATER FROM WATER MAIN FLUSHING
   E. LANDSCAPE IRRIGATION DRAINAGE
   F. UNCONTAMINATED GROUND WATER FROM DEWATERING EXCAVATED TRENCHES
   G. PAVEMENT WASH WATERS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED (UNLESS ALL SPILLED MATERIAL HAS BEEN REMOVED) ALSO, DETERGENTS ARE NOT TO BE USED
   H. UNCONTAMINATED AIR CONDITIONING CONDENSATE
   I. THE ABOVE NON-STORM WATER DISCHARGES SHALL BE DIRECTED AWAY FROM UNPROTECTED, BARE, OR OTHERWISE UNSTABILIZED SOIL. THE CONTRACTOR SHALL FURTHER IMPLEMENT APPROPRIATE POLLUTION PREVENTION MEASURES TO ENSURE THAT ANY OF THE ABOVE DISCHARGES DO NOT CAUSE EROSION OR DEGRADE THE QUALITY OF RUNOFF FROM THE CONSTRUCTION SITE.

10. THE INSPECTOR SHALL HAVE AUTHORIZATION TO DETERMINE THE ADEQUACY OF THE CONTRACTOR'S EROSION CONTROL EFFORTS. THE OWNER OR THE INSPECTOR SHALL HAVE FULL AUTHORITY OVER THE GENERAL CONTRACTOR AND ANY SUBCONTRACTOR TO CAUSE POLLUTANT CONTROL MEASURES TO BE REPAIRED, MODIFIED, MAINTAINED, SUPPLEMENTED, OR WHATEVER ELSE IS NECESSARY IN ORDER TO ACHIEVE EFFECTIVE POLLUTANT CONTROL OR TO SUSPEND OR LIMIT THE CONTRACTORS OPERATIONS PENDING ADEQUATE PERFORMANCE.

11. PERIMETER EROSION BARRIER TO BE CONSTRUCTED OF SILT FENCE UNLESS NOTED OTHERWISE.

12. INLET PROTECTION SHALL BE A ROCSOC, OR APPROVED EQUAL.

13. EROSION CONTROL BLANKET SHALL BE OF NORTH AMERICAN GREEN DS75 OR APPROVED EQUAL.

14. A TEMPORARY CONCRETE WASHOUT FACILITY SHALL BE CONSTRUCTED AT A LOCATION APPROVED BY THE ENGINEER. WASHOUT FACILITY SHALL BE UTILIZED FOR ALL APPLICABLE OPERATIONS.

15. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED, TO THE DIMENSIONS AS SHOWN, AT APPROVED LOCATIONS FOR THIS PROJECT. ALL CONSTRUCTION TRAFFIC MUST UTILIZE THE STABILIZED CONSTRUCTION ENTRANCES WHEN EXITING THE SITE. ALL COST FOR EROSION CONTROL AND RESTORATION WORK ASSOCIATED WITH THE APPROVED STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

16. TEMPORARY EROSION CONTROL MEASURES INCLUDE TEMPORARY DITCH CHECKS, PERIMETER EROSION BARRIER, INLET AND PIPE PROTECTION, TEMPORARY SEEDING, AND ANY OTHER TEMPORARY EROSION CONTROL MEASURE NEEDED TO LIMIT THE AMOUNT OF SOIL EROSION AND SEDIMENTATION DURING CONSTRUCTION.

17. AT THE COMPLETION OF THE PROJECT, ALL TEMPORARY EROSION CONTROL ITEMS SHALL BE REMOVED FROM THE SITE, AND BECOME THE PROPERTY OF THE CONTRACTOR. CONTRACTOR MUST STABILIZE ANY AREA DISTURBED BY THE REMOVAL OF EROSION CONTROL ITEMS.

18. CONTRACTOR SHALL CLEAN ANY DEBRIS TRACKED OFFSITE DAILY.

SEEDING OF DISTURBED AREAS

1. THE FINAL TOP 6" INCHES OF SOIL IN ANY DISTURBANCE AREA MUST BE A COHESIVE SOIL CAPABLE OF SUPPORTING VEGETATION.

2. FERTILIZER HAVING AN ANALYSIS OF 10-10-10 SHALL BE APPLIED AT A RATE OF 90 LBS/ACRE TO ALL DISTURBED AREAS AND INCORPORATED INTO THE SEEDBED PRIOR TO SOWING THE SEED.

3. THE CONTRACTOR SHALL SEED AND STABILIZE ALL DISTURBED AREAS ADJACENT TO IMPROVEMENTS WITH SEEDING, IDOT CLASS 1A AND NAG DS75 EROSION CONTROL BLANKET OR APPROVED EQUAL IN ACCORDANCE WITH IDOT STANDARD SPECIFICATION OR AS APPROVED BY THE ENGINEER.

4. GUARANTEE: ALL SEEDED AREAS SHALL BE MAINTAINED AND MOWED FOR AT LEAST 30 DAYS AFTER GERMINATION. SCATTERED BARE SPOTS NO LARGER THAN TWO SQUARE FOOT WILL BE ALLOWED UP TO A MAXIMUM OF 5% OF ANY SEEDED AREA INCLUDING 30-DAY MAINTENANCE, MOWING AND WATERING AS NECESSARY.

5. THIS WORK SHALL CONFORM TO THE APPLICABLE STANDARDS FROM THE ILLINOIS URBAN MANUAL, THE ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION SECTIONS, CURRENT EDITION, THE PROJECT SPECIFICATIONS, AND THE APPROPRIATE DETAILS.

6. RESTORATION – THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED DURING CONSTRUCTION OF THE IMPROVEMENTS AND RELATED APPURTENANCES OR AS PART OF ANY OF THEIR ACTIVITIES TO A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL CONDITION.

SUBGRADES, SUBBASES, AND BASE COURSES

1. THE CONTRACTOR WILL BE REQUIRED TO SUBSTANTIATE BASE COURSE THICKNESSES AND FINISH PAVEMENT THICKNESSES. THE ENGINEER SHALL INSPECT BASE COURSE COREOUT PRIOR TO PLACING BASE COURSE TO ENSURE REQUIRED BASE COURSE DEPTH IS PRESENT. IN ADDITION, THE ENGINEER AND/OR THE CITY ENGINEER SHALL WITNESS THE PLACEMENT OF BITUMINOUS BINDER AND SURFACE COURSE. CORE DRILLING MAY BE REQUIRED TO DEMONSTRATE THAT BASE COURSE AND PAVEMENT THICKNESSES CONFORM TO THE SPECIFICATIONS. PRIOR TO PLACING BASE COURSE MATERIAL, THE CONTRACTOR SHALL TEST ROLL THE SUBGRADE, IN THE PRESENCE OF THE ENGINEER OR HIS AGENT TO DEMONSTRATE THAT SAID SUBGRADE IS READY FOR BASE. PRIOR TO PLACEMENT OF THE BITUMINOUS SURFACE, THE SAME VERIFICATION PROCEDURE SHALL BE PERFORMED ON THE BASE COURSE MATERIAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO PERFORMING ANY OF THE REQUIRED TESTS SO THAT A REPRESENTATIVE MAY BE PRESENT.

2. PRIOR TO ANY EMBANKMENT OR ROAD BASE BEING PLACED, SHOULD IT BE DETERMINED BY THE ENGINEER THAT THE SUBGRADE MATERIAL IS UNSUITABLE ON WHICH TO CONSTRUCT THE ROADWAY STRUCTURE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING THE UNSUITABLE MATERIAL TO THE SATISFACTION OF THE ENGINEER AND REPLACING SAME WITH STABILIZING SUBBASE CONSISTING OF SUBBASE GRANULAR MATERIAL, TYPE B IN ACCORDANCE WITH THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION. TO HELP MINIMIZE THE AMOUNT OF SUBBASE MATERIAL INSTALLED FOR GROUND STABILIZATION, GEOTECHNICAL FABRIC MAY BE INSTALLED AS APPROVED BY THE ENGINEER. FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 210 OF THE IDOT STANDARD SPECIFICATIONS. THE COARSE AGGREGATE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR SUBBASE GRANULAR MATERIAL, TYPE B. THE EXCAVATION AND DISPOSAL OF THE UNSUITABLE MATERIAL SHALL BE CONSIDERED INCIDENTAL TO SUBBASE GRANULAR MATERIAL, TYPE B. STABILIZING FABRIC SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD FOR GEOTECHNICAL FABRIC FOR GROUND STABILIZATION.

EXCAVATION/EARTHWORK

1. THE CONTRACTOR SHALL USE CARE IN GRADING OR EXCAVATION NEAR ANY AND ALL EXISTING ITEMS WHICH ARE NOT INDICATED TO BE REMOVED. ANY DAMAGE DONE TO EXISTING ITEMS BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT NO ADDITIONAL EXPENSE TO THE OWNER.

2. PRIOR TO STARTING EARTHWORK OR UTILITY TRENCHING, THE CONTRACTOR SHALL STRIP THE SITE OF TOPSOIL TO A DEPTH OF 4" AND TO THE LIMITS APPROVED BY THE ENGINEER. THIS MATERIAL SHALL BE STOCKPILED IN A REMOTE LOCATION OF THE SITE (APPROVED BY THE ENGINEER) UNTIL THE PLAN IMPROVEMENTS ARE COMPLETED AND THE EXCESS MATERIAL SPREAD AS DIRECTED. IT SHALL THEN BE THE RESPONSIBILITY OF THE CONTRACTOR TO SPREAD THIS TOPSOIL MATERIAL IN AREAS OF THE SITE, OVER AREAS WHERE EXCESS EXCAVATED MATERIAL, SAND, GRAVEL HAS BEEN SPREAD OR IN OTHER AREAS AS DESIGNATED BY THE ENGINEER. THE MATERIAL SHALL THEN BE COMPACTED TO A MINIMAL DEPTH OF 4" AND FINE GRADED IN A MANNER ACCEPTABLE TO THE ENGINEER. THIS WORK SHALL BE IN ACCORDANCE WITH THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION.

3. CLEAN CONSTRUCTION OR DEMOLITION DEBRIS (CCDD) REQUIREMENTS-"THE CONTRACTOR IS RESPONSIBLE FOR THE ASSESSMENT AND PROPER DISPOSAL OF ALL EXCESS SOIL AND SUBSURFACE MATERIALS THAT ARE NOT ABLE TO BE RE-USED ON THE PROJECT SITE AS SUITABLE CLEAN FILL. CONTRACTOR RESPONSIBILITY'S SHALL INCLUDE ALL REQUIRED SOIL SAMPLING, LABORATORY ANALYSIS, DISPOSAL PROFILING FEES, TRANSPORTATION, AND DISPOSAL TIPPING FEES AND SURCHARGES."

4. ROCK IS NOT ANTICIPATED TO BE ENCOUNTERED.

5. ALL EXCAVATIONS FOR STRUCTURES AND PIPE SHALL BE KEPT DEWATERED DURING CONSTRUCTION UNTIL BACKFILL IS IN PLACE. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO SEDIMENT BASINS OR SILT TRAPS. (COST INCIDENTAL)

6. EARTH EXCAVATION SHALL CONFORM TO SECTION 202 OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION. THIS WORK SHALL INCLUDE THE EXCAVATION OF ALL MATERIALS TO DESIGN SUBGRADE ELEVATIONS INDICATED IN THE PLANS.

7. SHEETING AND SHORING SHALL BE CONSIDERED INCIDENTAL TO CONTRACT IF REQUIRED.

8. ALL REMOVAL ITEMS, EXCESS EARTH EXCAVATION OR LEFT OVER MATERIALS SHALL BE DISPOSED OF BY CONTRACTOR AND SHALL BE INCIDENTAL TO THE PROJECT.

9. WHENEVER THE CONTRACTOR WORKS NEAR EXISTING FACILITIES WITHIN THE LIMITS OF THE IMPROVEMENTS DURING TRENCHING OPERATIONS, HE WILL BE REQUIRED TO HAND TRENCH IN THAT AREA IN ORDER NOT TO DAMAGE THESE FACILITIES. PUSH HOLES AND SEARCH HOLES THAT ARE DUG BY THE CONTRACTOR SHALL BE BACKFILLED BY TAMPING THE EXCAVATED MATERIAL BACK IN PLACE TO KEEP SETTLEMENT TO A MINIMUM. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

10. EMBANKMENT WORK SHALL CONSIST OF THE CONSTRUCTION OF EMBANKMENTS BY DEPOSITING, PLACING AND COMPACTING EARTH, STONE, GRAVEL OR OTHER MATERIALS OF ACCEPTABLE QUALITY ABOVE THE NATURAL GROUND OR OTHER SURFACE IN ACCORDANCE WITH THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS", CURRENT EDITION.

11. IF SUFFICIENT TOPSOIL IS NOT PRESENT, THE CONTRACTOR SHALL SPREAD FURNISHED TOPSOIL SO AS TO MEET THE REQUIREMENTS OF THE CONTRACT. FURNISHED TOPSOIL SHALL ONLY BE USED WITH APPROVAL BY THE ENGINEER. THIS FURNISHED TOPSOIL SHALL BE INCIDENTAL TO THE CONTRACT.

12. IN PROPOSED FILL AREAS FOR PAVEMENT AND EMBANKMENT, TOPSOIL AND TURF SHALL BE SCARIFIED AND REMOVED PRIOR TO CONSTRUCTING THE EMBANKMENT.

HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
GENERAL NOTES

PROJECT INFORMATION
Date: MAY 6, 2021
Rev. Date:
RLJA Proj: 2020-013

SHEET NUMBER
C100

FG JOB NUMBER: 20-714

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS
IOWA
WISCONSIN

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PLOT DATE: 5/5/21 G:\C30\20\20-714\20-714 Design.dwg, g notes

LEGEND

- EXISTING BITUMINOUS PAVEMENT
- EXISTING BITUMINOUS PAVEMENT TO BE REMOVED
- EXISTING CONCRETE SIDEWALK
- EXISTING CONCRETE SIDEWALK TO BE REMOVED
- EXISTING CONCRETE SIDEWALK TO BE REMOVED WITH DISTRICT APPROVAL

EXISTING BUILDING

ROCK TO BE REMOVED & RELOCATED PER OWNER

SIGN TO BE REMOVED AND RETURNED TO OWNER

BITUMINOUS PAVEMENT TO BE REMOVED

FFE = 735.36

BITUMINOUS PAVEMENT TO BE REMAIN

SAWCUT

STORM MANHOLE TO BE REMOVED

EXISTING STORM SEWER TO BE REMOVED

SAWCUT

BITUMINOUS PAVEMENT TO BE REMOVED

BITUMINOUS PAVEMENT TO BE REMAIN

SAWCUT

BITUMINOUS PAVEMENT TO BE REMAIN

EXISTING CURB & GUTTER TO BE REMOVED

SIGN TO BE REMOVED & RELOCATED PER OWNER

SAWCUT AT CONTROL JOINT AS DETERMINED IN THE FIELD

SAWCUT

SAWCUT AT CONTROL JOINT AS DETERMINED IN THE FIELD

FOUND IRON PIN

MAPLE STREET

BM1

BM1 = CUT 'X' IN BACK OF CURB, 71' NORTH OF SIDEWALK AT BOC
N 2,06,588.73 E 2,586,650.74 ELEV 736.65

BM2 = MAG HUB, 40 FEET WEST OF SOUTHWEST BUILDING CORNER
N 2,046,600.64 E 2,586,554.00 ELEV 734.44

BM3 = CUT 'X' IN SIDEWALK, 64' NORTH OF DOORS ON WEST SIDE OF BUILDING
N 2,046,702.81 E 2,586,571.73 ELEV 734.71

N E S W

5 0 5 10 15 FEET

PLOT DATE: 5/5/21 G:\C30\20\20-714\20-714 Design.dwg, removal

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FG JOB NUMBER: 20-714

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ILLINOIS DESIGN FIRM NO. 184-003525

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HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
SITE REMOVAL PLAN

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
C101

LEGEND

- EXISTING BITUMINOUS PAVEMENT
- PROPOSED BITUMINOUS PAVEMENT PER DETAIL ON SHEET C103
- EXISTING CONCRETE SIDEWALK
- PROPOSED CONCRETE SIDEWALK PER DETAIL ON SHEET C103

GENERAL NOTES:

CONTRACTOR TO RESTORE ANY DISTURBED AREAS TO PRE-CONSTRUCTION CONDITIONS

CONTRACTOR TO COORDINATE LIMITS OF CONSTRUCTION WITH ARCHITECT AND RPS 205 PRIOR TO INITIATING WORK ON PREMISE

CONTRACTOR TO PROVIDE FENCING TO PROTECT SITE IN ACCORDANCE WITH RPS 205 REQUIREMENTS

HEAVY EQUIPMENT ENTRANCE TO BE DETERMINED ON SITE BY ARCHITECT AND RPS 205. CONTRACTOR RESPONSIBLE FOR ALL SITE RESTORATION ASSOCIATED WITH USE OF ENTRANCE.

CONTRACTOR TO PROVIDE SILT FENCE, INLET PROTECTION, CONCRETE WASHOUT AREA AND STABILIZED CONSTRUCTION ENTRANCE AS DIRECTED BY ARCHITECT PER THE STANDARD DETAILS IN SHEET C103.

CONTRACTOR IS REQUIRED TO PROVIDE A CONSTRUCTION FENCE OF CHAIN-LINK TYPE WITH A MINIMUM HEIGHT AND DESIGN TO ADEQUATELY SECURE AND PROTECT THE CONSTRUCTION SITE DURING ALL PHASES OF THE PROJECT TO THE SATISFACTION OF RPS 205.

EXISTING BUILDING

PROPOSED BUILDING
FFE = 735.36

FFE = 735.36

CONCRETE STOOP; SEE ARCHITECTURAL DRAWINGS

CONNECT TO EXISTING 8" STORM SEWER AT INV 730.63

FINAL LOCATION TO BE COORDINATED WITH MEP CONTRACTOR

INV = 730.62

CLEAN OUT

6" DIA. PVC STORM SEWER AT 1.0% MINIMUM

16 L.F. OF 8" DIA. PVC STORM SEWER @ 1.0%

STORM MH #1
RIM = 734.66
INV = 730.47

29 L.F. OF 8" DIA. PVC STORM SEWER @ 0.75%

TAPER NEW CONCRETE CURB & GUTTER TO WALK OVER 10'

WATER VALVE TO BE ADJUSTED

NEW CONCRETE CURB & GUTTER

STORM MH #2
RIM = 734.64
INV = 730.25

BM1

FOUND IRON PIN

STORM MH
RIM = 735.68
INV IN = 739.96 8" DI NE
INV IN = 729.86 N 12" RCP
INV OUT = 729.88 S 12" RCP

MAPLE STREET

STORM INLET
RIM = 733.16

BM1 = CUT 'X' IN BACK OF CURB, 71' NORTH OF SIDEWALK AT BOC
N 2,06,588.73 E 2,586,650.74 ELEV 736.65

BM2 = MAG HUB, 40 FEET WEST OF SOUTHWEST BUILDING CORNER
N 2,046,600.64 E 2,586,554.00 ELEV 734.44

BM3 = CUT 'X' IN SIDEWALK, 64' NORTH OF DOORS ON WEST SIDE OF BUILDING
N 2,046,702.81 E 2,586,571.73 ELEV 734.71

N E S W

5 0 5 10 15 FEET

PLOT DATE: 5/5/21 G:\C3D\20\20-714\20-714 Design.dwg, site

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FG JOB NUMBER: 20-714

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525

ILLINOIS
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HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

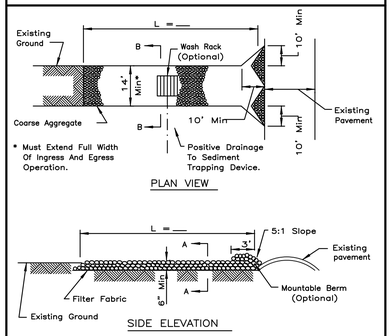
RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
SITE PLAN

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
C102

STABILIZED CONSTRUCTION ENTRANCE PLAN

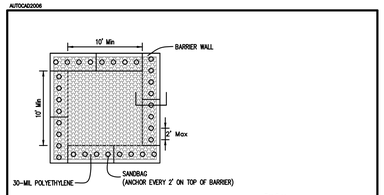


PLAN VIEW

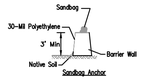
SIDE ELEVATION

NOTES:
1. Filter fabric shall meet the requirements of material specification 592 GEOTEXTILE, Table I or 2, Class , I dR Mnd shall be placed over the cleared area prior to the placing of rock.
2. Rock or reclaimed concrete shall meet one of the following IDOT coarse aggregate gradation, CA-1, CA-2, CA-3 or CA-4 and be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class III compaction.
3. Any drainage facilities required because of washing shall be constructed according to manufacturers specifications.
4. If wash racks are used they shall be installed according to the manufacturer's specifications.

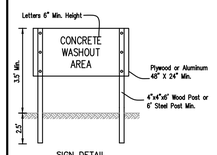
REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-630
Designed Date		SHEET 1 OF 2
Checked Date		DATE 8-18-94
Approved Date		



PLAN VIEW



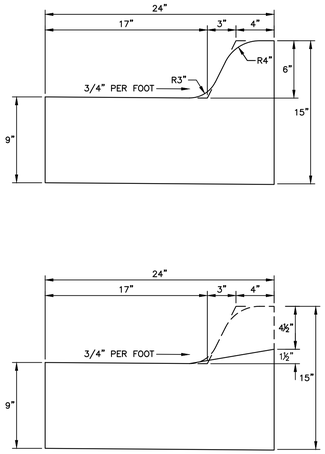
BARRIER WALL ANCHOR SECTION



SIGN DETAIL

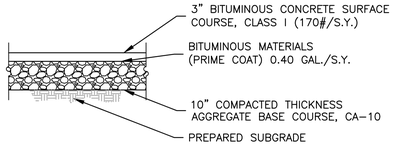
NOTES:
1. Maintaining temporary concrete washout facilities shall include removing and disposing of hardened concrete and/or slurry and returning the facilities to a functional condition.
2. Facility shall be cleaned or reconstructed in a new area once washout becomes two-thirds full.

TEMPORARY CONCRETE WASHOUT FACILITY – BARRIER WALL



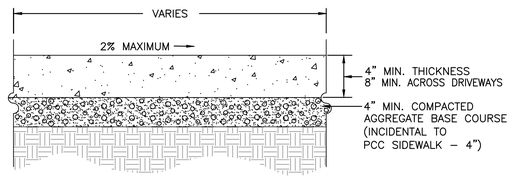
CITY OF ROCKFORD
COMBINATION CONCRETE CURB & GUTTER
TYPE M6.18 MODIFIED
N.T.S.

DTL-CURB M6.18 2009



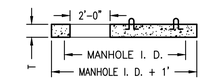
LIGHT DUTY BITUMINOUS PAVEMENT

BITUMINOUS PAVEMENT CROSS SECTION
N.T.S.



NOTE: CONTROL JOINTS SHALL BE PLACED EVERY 5'.

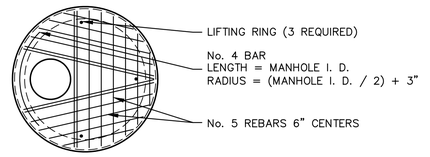
CONCRETE SIDEWALK SECTION
N.T.S.



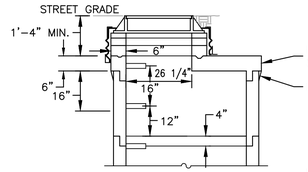
T = 6" FOR 4' DIA. MANHOLE

T = 10" FOR 6' DIA. MANHOLE

IDOT STD. 602601 P.R.C. FLAT SLAB TOP MAY ALSO BE USED.



FLAT TOP MANHOLE LID



FLAT TOP MANHOLE SECTION

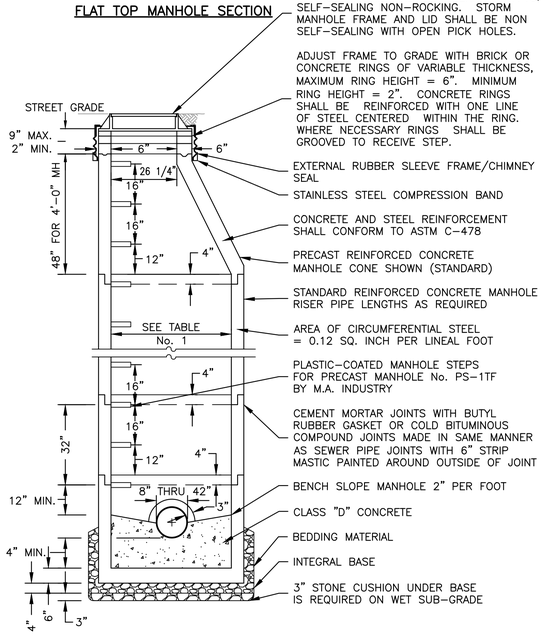


TABLE No. 1

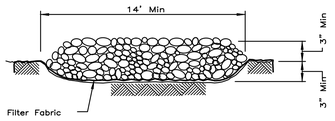
PIPE DIA.	MH DIA.	WALL THICKNESS
8" THRU 30"	4'-0"	5"
36"	5'-0"	6"
42"	6'-0"	7"

NOTE: TYPE I FRAME/CHIMNEY JOINT REQUIRED ON ALL STORM MANHOLES UNLESS OTHERWISE SPECIFIED. TYPE III JOINT REQUIRED IN ALL STORM MANHOLES.

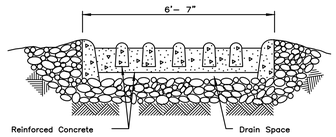
FLAT TOP MANHOLE DETAILS APPLY WHEN THE DIFFERENCE BETWEEN THE INVERT ELEVATION AND FINISHED GRADE IS LESS THAN FIVE FEET.

PRECAST MANHOLE DETAIL
N.T.S.

STABILIZED CONSTRUCTION ENTRANCE PLAN



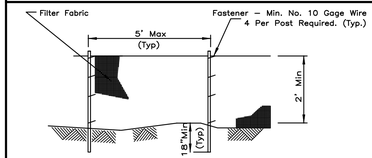
SECTION A–A



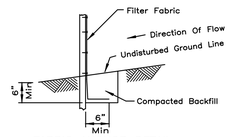
SECTION B–B

REFERENCE		STANDARD DWG. NO.
Project	NRCS Natural Resources Conservation Service	IL-630
Designed Date		SHEET 2 OF 2
Checked Date		DATE 8-18-94
Approved Date		

SILT FENCE PLAN



ELEVATION



FABRIC ANCHOR DETAIL

NOTES:
1. Temporary sediment fence shall be installed prior to any grading work in the area to be protected. They shall be maintained throughout the construction period and removed in conjunction with the final grading and site stabilization.
2. Filter fabric shall meet the requirements of material specification 592 Geotextile Table 1 or 2, Class with equivalent opening size of at least 30 for nonwoven and 40 for woven.
3. Fence posts shall be either standard steel post or wood post with a minimum cross-sectional area of 3.0 sq. in.

REFERENCE		STANDARD DWG. NO.
Project		IUM-620
Designed Date		SHEET 1 OF 2
Checked Date		DATE 3-16-12
Approved Date		

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FG JOB NUMBER: 20-714

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525
ILLINOIS
IOWA
WISCONSIN

HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
DETAILS

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
C103

PLOT DATE: 5/5/21 G:\C30\20\20-714\20-714 Design.dwg, Details

DESIGN DATA

CODES AND STANDARDS

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES AND STANDARDS:

"INTERNATIONAL BUILDING CODE", 2015 EDITION, INTERNATIONAL CODE COUNCIL WITH ALL LOCAL BUILDING CODE AMENDMENTS AND REQUIREMENTS
"ASCE 7, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES", LATEST EDITION, AMERICAN SOCIETY OF CIVIL ENGINEERS
"ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"ACI 301, SPECIFICATION FOR STRUCTURAL CONCRETE", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"ACI 305 GUIDE TO HOT WEATHER CONCRETING", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"ACI 306 GUIDE TO COLD WEATHER CONCRETING", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"ACI 315 DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"ACI 315R MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURE", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"ACI 302 GUIDE TO CONCRETE FLOOR AND SLAB CONSTRUCTION" LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"MANUAL OF STANDARD PRACTICE", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"ACI 530, BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"ACI 530.1, SPECIFICATIONS FOR MASONRY STRUCTURES", LATEST EDITION, AMERICAN CONCRETE INSTITUTE
"TMS 402/602 BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES", LATEST EDITION, THE MASONRY'S SOCIETY
"MANUAL OF STEEL CONSTRUCTION", 15TH EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION
"AISC 360 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", LATEST EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION
"SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", LATEST EDITION, RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.
"AISC 303, CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", LATEST EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION
"ASTM A123 STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", LATEST EDITION, ASTM INTERNATIONAL.
"AWS D1.1, STRUCTURAL WELDING CODE-STEEL", LATEST EDITION, AMERICAN WELDING SOCIETY
"AWS D1.3, STRUCTURAL WELDING CODE-SHEET STEEL", LATEST EDITION, AMERICAN WELDING SOCIETY
"AWS D1.4, STRUCTURAL WELDING CODE-REINFORCING STEEL", LATEST EDITION, AMERICAN WELDING SOCIETY
"AWS D1.8, STRUCTURAL WELDING CODE-SEISMIC SUPPLEMENT", LATEST EDITION, AMERICAN WELDING SOCIE
"AISI S100, NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION, AMERICAN IRON AND STEEL INSTITUTE
"AISI S202, CODE OF STANDARD PRACTICE FOR COLD-FORMED STEEL STRUCTURAL FRAMING", AMERICAN IRON AND STEEL INSTITUTE
"D100, COLD-FORMED STEEL DESIGN MANUAL", LATEST EDITION, AMERICAN IRON AND STEEL INSTITUTE
"ANSI/SCI RD, STANDARD FOR STEEL ROOF DECK", LATEST EDITION, STEEL DECK INSTITUTE
"SDI SHORT FORM SPECIFICATIONS", LATEST EDITION, STEEL DECK INSTITUTE
"CODE OF STANDARD PRACTICE FOR COMPOSITE DECK, FORM DECK AND ROOF DECK CONSTRUCTION", LATEST EDITION, STEEL DECK INSTITUTE
"ASTM STANDARDS", LATEST EDITIONS, ASTM INTERNATIONAL

SCOPE OF WORK

NEW ONE STORY OFFICE ADDITION TO EXISTING SCHOOL BUILDING.

DESIGN LOADS

FLOOR LIVE LOAD

SCHOOL CLASSROOMS (SLAB ON GRADE)	40 PSF
OFFICE/CORRIDORS (SLAB ON GRADE)	100 PSF

ROOF LIVE LOADS

MINIMUM LIVE LOAD	20 PSF

SNOW LOADS

GROUND SNOW, Pg	20 PSF
FLAT ROOF SNOW LOAD, Pf	17.25 PSF
EXPOSURE FACTOR, Ce	1.0
IMPORTANCE FACTOR, I	1.0
THERMAL FACTOR, Ct	1.0
ROOF SNOW (DESIGN)	25 PSF
ROOF SNOW DRIFT, SEE DIAGRAM ON	S200

WIND LOADS

BASIC WIND SPEED	V(ult)=107 MPH
EXPOSURE	C
RISK CATEGORY	II
INTERNAL PRESSURE COEFFICIENT, GCpi	±0.18
MWFRS, COMPONENTS AND CLADDING	SEE TABLES ON S001
NET UPLIFT – METAL DECK/ROOF JOIST	20 PSF

SEISMIC LOADS

RISK CATEGORY	II
SEISMIC IMPORTANCE FACTOR, Ie	1.0
MCER, 0.2-SECOND (Ss)	0.120
MCER, 1-SECOND (S1)	0.057
SITE CLASS	D
SPECTRAL RESPONSE COEFFICIENT (SDS)	0.128
SPECTRAL RESPONSE COEFFICIENT (SD1)	0.091
SEISMIC DESIGN CATEGORY	C
SEISMIC FORCE RESISTING SYSTEM	INT. REINF. MASONRY SHEAR WALLS
LATERAL FORCE PROCEDURE	EQUIVALENT
RESPONSE MODIFICATION COEFFICIENT	3.5
SEISMIC BASE SHEAR – NS & EW	2.0 K (ULT)

MATERIALS

CONCRETE

CONCRETE EXPOSED TO WEATHER AND EARTH SHALL BE AIR-ENTRAINED
AIR-ENTRAINMENT 5% ± 1½% BY VOLUME (REFER TO ACI 318-14 TABLE 19.3.3.1)

AIR-ENTRAINMENT ADMIXTURE	ASTM C260
CEMENT (TYPE I, II, OR III)	ASTM C150
CEMENT (CAST AGAINST EARTH-TYPE III)	ASTM C150

NORMAL WEIGHT CONCRETE (145 PCF) 28 DAY COMPRESSIVE STRENGTH AS FOLLOWS:

APPLICATION (EXPOSURE CLASSIFICATION)

FOOTINGS & MAT FOUNDATIONS (F1, S0, W0, C0)	3000 PSI
WALLS (F1, S0, W0, C1)	4000 PSI
INT. SLAB-ON-GRADE (F0, S0, W0, C0)	4000 PSI
EXT. WALLS AND STAIRS/RAMPS (F3, S0, W0, C2)	5000 PSI

REINFORCING STEEL

DEFORMED REINFORCING BARS	ASTM A615, 60 KSI
WELDED WIRE REINFORCEMENT	ASTM A1064

STRUCTURAL STEEL

STRUCTURAL WIDE FLANGE SHAPES	ASTM A992 GR. 50
MISCELLANEOUS SHAPES & PLATES	ASTM A36 U.N.O. ON DRAWINGS
ANCHOR BOLTS, ¾"ø U.N.O.	ASTM F1554 GR36 MIN
STRUCTURAL BOLTS	ASTM A325 N
WELDING ELECTRODES	E-70XX
HEADED STUDS, ¾"ø U.N.O.	ASTM A1044
POST INSTALLED ANCHORS (MECHANICAL/CHEMICAL)	HILTI, SIMPSON, DEWALT OR APPROVED EQUAL

METAL DECKING

METAL ROOF DECK SHALL BE 1.5B20 (1½", 20 GA. ROOF DECK), Fy=33 KSI (MIN) AS NOTED ON DWGS.

L.G.S. CONNECTORS

#8 SCREWS	0.114"ø x 5⁄16" LONG
#10 SCREWS	0.189"ø x ½" LONG
#12 SCREWS	0.215"ø x ½" LONG
¼" SCREWS	0.25"ø x ½" LONG

MASONRY

MASONRY PRISM COMPRESSIVE STRENGTH	F'm = 2000 PSI
LOAD BEARING/REINFORCED CMU 28 DAY COMPRESSIVE STRENGTH (3 UNIT)	ASTM C90, TYPE 1 2800 PSI MINIMUM
MORTAR (REINFORCED MASONRY)	ASTM C270, TYPE S
MORTAR (FACE BRICK)	ASTM C270, TYPE N
GROUT 28 DAY COMPRESSIVE STRENGTH	ASTM C476 3000 PSI MINIMUM
NON-LOAD BEARING/UNREINFORCED 28 DAY COMPRESSIVE STRENGTH (3 UNIT)	ASTM C129, TYPE I 600 PSI MINIMUM
MASONRY REINFORCEMENT, GALVANIZED	ASTM A951
FACING BRICK	ASTM C216 CSA A82, F'm = 3000 PSI TYPE N MORTAR

FOUNDATIONS

1. AN ALLOWABLE SOIL BEARING CAPACITY OF 3000 PSF HAS BEEN ASSUMED FOR DESIGN PURPOSES. THE CONTRACTOR SHALL VERIFY THE ALLOWABLE BEARING CAPACITY PRIOR TO CONSTRUCTION AND NOTIFY HIGHLAND ENGINEERING IMMEDIATELY OF ANY DISCREPANCIES.
2. FOUNDATIONS SHALL BE PLACED ON UNDISTURBED SOIL, OR COMPACTED FILL HAVING A MINIMUM NET ALLOWABLE BEARING CAPACITY OF 3000 PSF.
3. ALL WELL GRADED GRANULAR MATERIAL FOR FILLS DEEMED ACCEPTABLE BY THE OWNER'S GEOTECHNICAL ENGINEER SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS, AND COMPACTED TO MINIMUM OF 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTM D1557)
4. ALL FOOTING SUBGRADES AND ALL SLAB SUBGRADES INCLUDING PIT SLABS, ALL BACKFILL AROUND AND ABOVE ALL FOUNDATION ELEMENTS, FOOTINGS, CAPS, MATS, GRADE BEAMS AND PITS, SHALL BE COMPACTED TO MINIMUM 95 PERCENT OF THE MODIFIED PROCTOR DENSITY IN ACCORDANCE WITH ASTM D1557.

CONSTRUCTION

GENERAL

1. REPRODUCTION OF ALL OR PART OF THE STRUCTURAL CONTRACT PLANS OR DETAIL DRAWINGS FOR RESUBMITTAL AS SHOP OR ERECTION DRAWINGS IS PROHIBITED. SHOP DRAWING SUBMITTALS PRODUCED IN SUCH A MANNER SHALL BE REJECTED AND RETURNED WITHOUT FURTHER REVIEW.
2. THE STRUCTURAL CONTRACT PLANS AND DETAIL DRAWINGS ARE ONLY COMPLETE WHEN USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL/SITE DRAWINGS. CONTRACTOR(S) SHALL REFER TO THE COMPLETE SET OF DRAWINGS WHEN PREPARING SUBMITTAL PACKAGES.
3. THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL/SITE DRAWINGS FOR DIMENSIONS, DETAILS, ETC. OF THE ITEMS WHICH PENETRATE OR ATTACH TO THE BUILDING STRUCTURE.
4. IN CASE OF CONFLICT BETWEEN NOTES, DETAILS AND SPECIFICATIONS, THE MOST STRINGENT REQUIREMENT SHALL GOVERN.
5. THE CONTRACTOR(S) SHALL COORDINATE THE DIMENSIONS ON THE STRUCTURAL DRAWINGS WITH THOSE ON THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL/SITE DRAWINGS. THE CONTRACTOR(S) SHALL IMMEDIATELY REPORT ANY DISCREPANCIES TO THE ARCHITECT.
6. CONTRACTOR(S) SHALL VISIT SITE PRIOR TO FINALIZING PRICING AND PROPOSAL AND SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO STARTING WORK. CONTRACTOR(S) SHALL NOTIFY ARCHITECT IMMEDIATELY IF FIELD CONDITIONS VARY FROM THOSE SHOWN ON DRAWINGS. HIGHLAND ENGINEERING, P.C. IS NOT RESPONSIBLE FOR THE ACCURACY OF EXISTING INFORMATION PROVIDED BY OTHERS. ADDITIONAL SERVICES MAY BE CHARGED FOR DESIGN WORK RESULTING FROM THE VARIATION OF EXISTING CONDITIONS.
7. WRITTEN REQUESTS FOR INFORMATION (RFI) SHALL BE INITIATED BY CONTRACTOR FOR INQUIRES, CLARIFICATIONS, DISCREPANCIES, INTERPRETATION OF CONTRACT DOCUMENTS, ETC. CONTRACTOR SHALL NOT PROCEED WITH THE WORK UNTIL A WRITTEN RESPONSE IS RECEIVED FROM THE ENGINEER.
8. IF CONTRACTOR DETERMINES THAT A CHANGE IN THE SCOPE OF WORK EXISTS THAT WILL RESULT IN INCREASED COSTS, CONTRACTOR SHALL SUBMIT A CHANGE ORDER REQUEST TO THE PROJECT OWNER AND SHALL NOT PROCEED WITH THE CHANGED WORK UNTIL WRITTEN RESPONSE TO REQUEST HAS BEEN RECEIVED FROM OWNER.
9. REFER TO PROJECT SPECIFICATIONS FOR REQUIRED INSPECTIONS AND ASSOCIATED COSTS.
10. MANUFACTURED ITEMS SHALL COMPLY WITH CODES AND SPECIFICATIONS, INDUSTRY STANDARDS, LOCAL JURISDICTIONS AND SPECIFIC CRITERIA NOTED HEREIN. COMPLIANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, DESIGN MANUFACTURING AND INSTALLATION AND SHALL REST SOLELY ON THE MANUFACTURER.
11. ALL GALVANIZING OF STEEL SHALL CONFORM TO ASTM A123, A53, A653 OR A767.
12. THESE DRAWINGS DESCRIBE THE COMPLETED PROJECT. THEY DO NOT INDICATE ELEMENTS WHICH MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE CONTRACTOR(S) IS SOLELY RESPONSIBLE FOR THE SAFETY IN AND ABOUT THE JOB SITE. OBSERVATION VISITS BY FIELD REPRESENTATIVE (ARCHITECT/ENGINEER) SHALL NOT INCLUDE OBSERVATIONS OF THE CONTRACTORS SAFETY PROVISIONS.
13. THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS AND MATERIALS INDICATED ON THE DRAWINGS AND FOR THE LIVE LOADS INDICATED IN THE DESIGN DATA. IT IS THE CONTRACTOR(S) RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC.
14. HIGHLAND ENGINEERING, P.C. PROHIBITS THE USE OF OR THE SUITABILITY OF THESE DOCUMENTS ON EXTENSIONS OF THIS PROJECT OR OTHER PROJECTS. ANY RE-USE WITHOUT WRITTEN PERMISSION OF HIGHLAND ENGINEERING, P.C. IS AT THE SOLE RISK OF OTHERS AND WITHOUT LEGAL EXPOSURE TO OR LIABILITY TO HIGHLAND ENGINEERING, P.C.
15. HIGHLAND ENGINEERING, P.C. IS NOT RESPONSIBLE FOR SUPERVISING, DIRECTING, OR HAVING CONTROL OVER THE CONSTRUCTION WORK. HIGHLAND ENGINEERING, P.C. DOES NOT HAVE THE AUTHORITY OR RESPONSIBILITY FOR THE CONTRACTOR'S CHOSEN MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION.
16. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL SAFETY REQUIREMENTS AND REGULATIONS OF ALL LOCAL AND FEDERAL GOVERNING AUTHORITIES.

FOUNDATIONS

1. REFER TO THE PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT REQUIREMENTS FOR EXCAVATION AND PREPARATION OF THE FOUNDATIONS AND THE SLAB-ON-GRADE SUBGRADE, INCLUDING COMPACTION PROCEDURES.
2. THE CONTRACTOR SHALL PROTECT CONCRETE BEARING ELEVATIONS FROM FROST AT ALL TIMES. FROZEN SOIL BELOW CONCRETE BEARING ELEVATIONS MUST BE REMOVED.
3. ALL EXTERIOR FOUNDATIONS SHALL BEAR A MINIMUM OF 3'-6" BELOW FINISHED GRADE, U.N.O.
4. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL.
5. CONCRETE FOR THE FOUNDATIONS SHALL BE POURED THE SAME DAY SUBGRADE APPROVAL IS GIVEN BY THE OWNER'S GEOTECHNICAL ENGINEER.
6. PROOF ROLLING OPERATIONS SHALL BE PERFORMED UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. ANY SOFT SPOTS OR AREAS DETERMINED BY THE GEOTECHNICAL ENGINEER SHALL BE IMPROVED OR REPLACED AS DIRECTED BY THE OWNER'S GEOTECHNICAL ENGINEER.
7. GENERAL CONTRACTOR SHALL COORDINATE STEP FOOTING LOCATIONS WITH FINAL PRECAST CONCRETE MANUFACTURERS SHOP DRAWINGS.
8. NEW FOUNDATIONS ADJACENT TO EXISTING FOUNDATIONS SHALL BE CONSTRUCTED IN A MANNER NOT TO DISTURB OR UNDERMINE THE EXISTING FOUNDATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY BRACING AND/OR SHORING REQUIRED TO CONSTRUCT THE NEW FOUNDATIONS.

STRUCTURAL FILL UNDERNEATH FOOTINGS & SLAB-ON-GRADE

1. APPROVED MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS, MOISTURE CONDITIONED AS REQUIRED TO ACHIEVE COMPACTION TO A MINIMUM OF 95% MODIFIED PROCTOR UNDER FOOTINGS. COMPACTION OF FILL SOILS USED FOR SLAB-ON-GRADE SUBGRADE CONSTRUCTION SHALL BE SIMILARLY COMPACTED TO 95% OF STANDARD PROCTOR.
2. SUPERVISION OF THE PLACEMENT OF COMPACTED STRUCTURAL FILL SHALL BE BY A QUALIFIED GEOTECHNICAL ENGINEER/OWNER'S GEOTECHNICAL ENGINEER.

BACKFILL

1. ALL BACKFILL SHALL BE ACCOMPLISHED USING MATERIALS CONSISTING OF BANK RUN GRAVEL, CRUSHED STONE AND/OR MATERIAL APPROVED BY THE OWNER'S GEOTECHNICAL ENGINEER WITH OPTIMUM MOISTURE CONTENT TO COMPACTING AND SHALL BE FREE FROM DEBRIS.
2. BACKFILL SHALL BE PLACED EQUALLY ON BOTH SIDES OF FOUNDATION WALLS AND GRADE BEAMS. NO BACKFILL SHALL BE PLACED AGAINST BASEMENT WALLS UNTIL THE UPPER BRACING FLOORS ARE IN PLACE OR UNTIL ADEQUATE BRACING IS INSTALLED.

CONCRETE

1. THE COMPRESSIVE STRENGTH OF GROUT USED TO CONSTRUCT LEVEL COLUMN BEARING PLATES SHALL MATCH THE COMPRESSIVE STRENGTH OF THE SUPPORTING CONCRETE.
2. CONCRETE OR CONCRETE ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL NOT BE PERMITTED IN ANY CONCRETE.
3. CONCRETE SHALL BE ADEQUATELY CONSOLIDATED DURING PLACEMENT. NEITHER OVER CONSOLIDATING NOR TRANSPORTING CONCRETE WITH VIBRATORS SHALL BE PERMITTED.
4. PREPARE AND TEST CONCRETE CYLINDERS AS OUTLINED IN CHAPTER 16 OF ACI 301 OR IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS.
5. COLD WEATHER CONCRETE SHALL BE IN ACCORDANCE WITH ACI 306. HOT WEATHER CONCRETE SHALL BE IN ACCORDANCE WITH ACI 305.
6. ALL REINFORCING BARS AND ACCESSORIES SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH ACI STANDARDS 315 AND 315R.
7. EPOXY COATED REINFORCING SHALL BE TOUCHED UP AFTER FABRICATION OR FIELD MODIFICATION TO PREVENT UNCOATED AREAS.
8. WELDING OF REINFORCING BARS SHALL NOT BE PERMITTED UNLESS SHOWN ON THE DRAWINGS. WHEN WELDING IS SHOWN, WELDS MUST COMPLY WITH "RECOMMENDED PRACTICE FOR WELDING REINFORCEMENT STEEL, METAL INSERTS AND CONNECTIONS IN REINFORCED CONCRETE CONSTRUCTION", AWS D1.4. IN NO CASE SHALL WELDING BE PERMITTED AT BAR BENDS, NOR TACK WELDING OF CROSSING BARS.
9. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER	2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, WALLS, JOISTS	¾"
BEAMS, COLUMNS	1½"

10. WALL POURS SHALL BE LIMITED TO 100 FEET. THE END OF POURS SHALL BE BULKHEADED WITH A SHEAR KEY AND DOWELS TO ENGAGE THE ADJACENT POUR. EXPOSED WALLS SHALL HAVE UNIFORM CONTROL JOINTS NOT TO EXCEED 20 FEET ON CENTER.
11. SLABS-ON-GRADE SHALL HAVE CONTROL JOINTS IN A SQUARE OR RECTANGULAR PATTERN. THE JOINT SPACING SHALL BE LIMITED TO THREE (3) TIMES THE SLAB THICKNESS (IN FEET) OR 12 FEET, WHICHEVER IS LESS. (U.N.O. ON DRAWINGS)
12. VAPOR BARRIER SHALL BE A MINIMUM OF 15 MIL. VAPOR BARRIER SHALL BE INSTALLED IN MAXIMUM SHEET SIZE AND A MINIMUM OF JOINTS. JOINTS SHALL BE LAPPED A MINIMUM OF 6" AND SHALL BE FULLY TAPED. LOCATION OF VAPOR BARRIER BELOW SLAB SHALL BE BASED ON OWNER'S USE AND SELECTED ARCHITECTURAL FINISH TREATMENTS. CONTRACTOR SHALL REFER TO THE LATEST EDITION OF ACI 302 FOR RECOMMENDED LOCATION. CONTRACTOR SHALL ALSO CONSULT PROJECT GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION. CARE SHALL BE TAKEN TO PREVENT RUPTURE OF VAPOR BARRIER.
13. GENERAL CONTRACTOR SHALL COORDINATE AND CHECK WITH TRADE CONTRACTORS, ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, INSERTS, SLAB DEPRESSIONS AND OTHER ITEMS RELATED TO CONCRETE WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY BEFORE PERMITTING CONCRETE PLACEMENT. CONCRETE SURFACES SHALL BE SLOPED AS SHOWN ON DRAWINGS OR AS REQUIRED.
14. ALUMINUM, OR MATERIALS CONTAINING ALUMINUM, SHALL NOT BE PERMITTED IN THE CONCRETE UNLESS AN ADEQUATE COATING TO PREVENT ALUMINUM-CONCRETE REACTION IS PROVIDED. THIS INCLUDES PUMPING CONCRETE THROUGH ALUMINUM PIPE.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE REFERENCED CODES AND STANDARDS NOTED ABOVE.
2. HORIZONTAL ELEMENTS SHALL BE DETAILED, MANUFACTURED AND INSTALLED WITH THE NATURAL CAMBER UP.
3. TYPICAL BEAM CONNECTIONS SHALL BE DESIGNED FOR 50% OF THE 'ALLOWABLE UNIFORM LOAD IN KIPS' AS FOUND IN THE MANUAL OF STEEL CONSTRUCTION, UNLESS NOTED OTHERWISE ON DRAWINGS. THE STEEL CONTRACTOR HAS THE OPTION OF BOLTED OR WELDED CONNECTIONS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
4. TYPICAL COMPOSITE BEAM CONNECTIONS SHALL BE DESIGNED FOR 75% OF THE 'ALLOWABLE UNIFORM LOAD IN KIPS' AS FOUND IN THE MANUAL OF STEEL CONSTRUCTION, UNLESS NOTED OTHERWISE ON DRAWINGS. THE STEEL CONTRACTOR HAS THE OPTION OF BOLTED OR WELDED CONNECTIONS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
5. MOMENT CONNECTIONS SHALL BE DESIGNED FOR FORCES NOTED ON DRAWINGS. IF NO FORCES ARE PROVIDED, THE CONNECTION SHALL BE DESIGNED TO DEVELOP THE FULL CAPACITY OF THE SPECIFIED MEMBER. THE STEEL CONTRACTOR HAS THE OPTION OF BOLTED OR WELDED CONNECTIONS, UNLESS NOTED OTHERWISE ON THE DRAWINGS. MOMENT CONNECTIONS WILL BE REVIEWED FOR COMPLIANCE OR CALCULATIONS MAY BE REQUIRED.
6. ALL WELDED CONNECTIONS AND JOINTS SHALL BE PERFORMED USING AWS PREQUALIFIED WELDING PROCEDURES AND AWS CERTIFIED WELDERS.
7. ALL BOLTED CONNECTIONS SHALL CONTAIN A MINIMUM OF TWO (2) BOLTS.
8. POST-INSTALLED ANCHORS SHALL BE PROVIDED TO ANCHOR STEEL TO MASONRY WHEN ANCHOR BOLTS, BEARING PLATES OR OTHER ANCHORAGE IS NOT SPECIFIED AND SHALL BE INSTALLED PER MANUFACTURERS WRITTEN INSTRUCTION WITH MINIMUM EFFECTIVE EMBEDMENT DEPTH OF 8 TIMES ANCHOR DIAMETER, U.N.O.
9. STEEL BEAMS SHALL BEAR A MINIMUM OF 8" ON CONCRETE OR MASONRY, UNLESS NOTED OTHERWISE ON DRAWINGS. MINIMUM ANCHORAGE TO CONCRETE OR MASONRY SHALL BE (2) ½" DIAMETER HOOKED ANCHOR BOLTS OR HEADED STUDS WITH 4" EMBEDMENT.
10. STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF APPROVED PRIME PAINT, 2 MILS DFT, UNLESS NOTED OTHERWISE ON DRAWINGS OR ARCHITECTURAL SPECIFICATIONS. REFER TO ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL PAINTING REQUIREMENTS FOR EXPOSED STRUCTURAL STEEL.
11. STEEL/LINTELS IN EXTERIOR WALLS SHALL BE HOT DIPPED GALVANIZED, U.N.O.
12. ALL COPES SHALL BE SHAPED NOTCH FREE TO A MINIMUM RADIUS OF ½ INCH
13. THE COMPLETED STRUCTURE LATERAL LOAD RESISTANCE AND STABILITY IS PROVIDED BY THE MASONRY WALLS NOTED ON THE DRAWINGS. THE ROOF SYSTEM IS HORIZONTAL DIAPHRAGM TO TRANSFER THE HORIZONTAL FORCES TO THE RESISTING SYSTEM. THE SHEAR WALLS CARRY THE LATERAL LOADS TO THE FOUNDATIONS.

METAL DECK

1. ALL METAL DECK WORK SHALL CONFORM TO THE REFERENCE CODES AND STANDARDS ABOVE.
2. SPECIFIED METAL DECK SHALL BE CONTINUOUS OVER 3 OR MORE SUPPORTS, U.N.O. ON DRAWINGS.
3. THE METAL ROOF DECK IS A HORIZONTAL DIAPHRAGM FOR THE LATERAL LOAD RESISTING SYSTEM. THE DIAPHRAGM SHALL BE CAPABLE OF TRANSFERRING A SHEAR FORCE OF 200 PLF MIN. TO THE SUPPORTING MEMBERS. THE MINIMUM DECK ATTACHMENT SHALL BE ⅝" PUDDLE WELDS OR APPROVED EQUIVALENT FASTENERS AT 12" O.C. IN THE FIELD, AT 6" O.C. ALONG THE PERIMETER AND AT INTERIOR LATERAL RESISTING SYSTEMS (6'-0" OR (2) PANEL WIDTHS FROM PERIMETER OR LATERAL RESISTING ELEMENTS). SIDE LAP CONNECTIONS SHALL BE #10 TEK SCREWS TO PROVIDE THE DIAPHRAGM SHEAR FORCE NOTED ABOVE. A MAXIMUM 36" SPACING BETWEEN SIDE LAP CONNECTIONS IS REQUIRED WHEN THE DECK SUPPORT SPACING IS GREATER THAN 5'-0".
4. METAL DECK SHALL NOT BE USED TO SUPPORT CONDUIT, PIPING, FIXTURES, ETC.
5. CONSTRUCTION JOINTS IN THE CONCRETE SLAB ON METAL DECKING SHALL BE LOCATED AS NOT TO IMPAIR THE STRENGTH OF THE SYSTEM. JOINTS SHALL BE MADE AT THE CENTERLINE OF SUPPORTING MEMBERS.
6. METAL DECK WITH EXTERIOR EXPOSURE AND ALL ROOF DECK SHALL BE GALVANIZED (G60 MIN. U.N.O. ON DRAWINGS OR PROJECT SPECIFICATIONS).
7. NO METAL ROOF DECK OPENINGS SHALL BE CUT UNLESS AUTHORIZED AND/OR DIRECTED BY THE ARCHITECT. THE FOLLOWING GUIDELINES SHALL APPLY WHEN OPENINGS ARE REQUIRED:

   6" OR LESS, ONE RIB REMOVED: NO REINFORCING REQUIRED

   6" TO 8" OPENING, ONE RIB REMOVED: 18 GA. REINFORCING PLATE SCREWED TO ADJACENT RIBS W/#10-16 TEK SCREWS @ 3" O.C. ALONG PERIMETER.

   8" TO 12" OPENING, TWO RIBS REMOVED: 16 GA. REINFORCING PLATE SCREWED TO ADJACENT RIBS W/#10-16 TEK SCREWS @ 3" O.C. ALONG PERIMETER.

   OPENINGS GREATER THAN 12" SHALL INCLUDE AUXILIARY STEEL SUPPORT FRAMING AS NOTED IN THE DETAIL DRAWINGS
8. WHEN ROOF OPENINGS ARE LOCATED NEAR THE ENDS OF METAL DECK, PROVIDE 1½" DEEP REINFORCING CHANNEL MEMBERS (FLUSH WITH TOP OF DECK), SPANNING BETWEEN ROOF DECK SUPPORTS.
9. PROVIDE STANDARD GALVANIZED SUMP PANS AT ALL ROOF DRAINS, REFER TO ARCHITECTURAL SPECIFICATIONS FOR MORE INFORMATION.

LIGHT GAUGE STEEL FRAMING

1. SECTION PROPERTIES FOR LIGHT GAUGE STEEL FRAMING SHALL BE EQUAL TO THOSE PUBLISHED BY "THE STEEL STUD MANUFACTURERS ASSOCIATION".
2. LIGHT GAUGE STUDS SUPPORTING EXTERIOR VENEER SHALL BE DESIGNED TO WITHSTAND THE APPLIED HORIZONTAL LOADS WITH A MAXIMUM ALLOWABLE DEFLECTION OF L/720.
3. LIGHT GAUGE JOISTS AND WALL STUDS SHALL ALIGN. PROVIDE ADDITIONAL STUDS AT JOIST BEARING AS REQUIRED.
4. SHOP DRAWINGS AND CALCULATIONS, SEALED BY A REGISTERED STRUCTURAL ENGINEER IN THE STATE OF THE PROJECT SHALL BE SUBMITTED FOR EACH LIGHT GAUGE COMPONENT. THE SHOP DRAWINGS AND CALCULATIONS SHALL INCLUDE, BUT NOT BE LIMITED TO, SIZE, SPACING, CONNECTIONS, BEARING STIFFENERS, WEB STIFFENERS, BLOCKING, JACK STUDS, CRIPPLE STUDS AND TEMPORARY BRACING.

MASONRY

1. MASONRY WALLS SHOWN ON THE STRUCTURAL DRAWINGS HAVING TWO OR MORE WYTHES, EXCEPT CAVITY WALLS, OF BRICK AND/OR CONCRETE BLOCK SHALL HAVE VERTICAL COLLAR JOINTS FILLED WITH MORTAR FOR THEIR FULL HEIGHT. PARGING IS NOT ACCEPTABLE.
2. THE OWNER SHALL RECEIVE AFFIDAVITS FROM AN APPROVED TESTING LABORATORY CERTIFYING ALL MASONRY UNITS CONFORM TO THEIR RESPECTIVE ASTM REQUIREMENTS PRIOR TO THEIR DELIVERY TO THE JOB SITE.
3. PROVIDE HORIZONTAL REINFORCING, MINIMUM W1.7 (9 GAGE WIRE DIAMETER), AT EVERY SECOND BLOCK COURSE, 16" O.C. VERTICALLY IN ALL WALLS. INSTALL JOINT REINFORCEMENT IN THE FIRST AND SECOND BED JOINTS, EIGHT INCHES (8") O.C. IMMEDIATELY ABOVE AND BELOW MASONRY OPENINGS. THE JOINT REINFORCEMENT SHALL BE EXTENDED A MINIMUM OF 24" BEYOND JAMBS.
4. VERTICAL REINFORCEMENT SHALL BE #5 @ 16" O.C. MINIMUM OR AS NOTED ON THE PLAN. PROVIDE TWO (2) BARS, ONE (1) EACH FACE, SAME SIZE AS VERTICAL REINFORCEMENT, EACH SIDE OF OPENING AND AT BUILDING CORNERS, FULL HEIGHT. PROVIDE TWO (2) BARS UNDER ALL GRILLAGE BEAMS AND BEAM BEARING PLATES, UNLESS NOTE OTHERWISE. PROVIDE DOWELS TO FOUNDATION WALLS BELOW. DOWELS SHALL MATCH WALL VERTICAL REINFORCING BARS NOTED AND SHALL BE 5'-0" LONG AND EMBEDDED 2'-6" INTO THE FOUNDATION WALL BELOW.
5. GROUT ALL CAVITIES AND/OR BOND BEAMS CONTAINING REINFORCEMENT SOLID. CAVITIES SHALL BE GROUTED IN LIFTS NOT EXCEEDING 5'-0". DO NOT DISPLACE THE REINFORCEMENT WHILE PLACING THE GROUT.
6. THE REINFORCEMENT PLACEMENT SHALL BE CHECKED PRIOR TO GROUTING THE FIRST LIFT OF WALL ABOVE THE SLAB AND PRIOR TO GROUTING THE TOP LIFT OF THE WALL. AT EACH REINFORCEMENT CHECK, THREE (3) GROUT AND MORTAR SPECIMENS SHALL BE TAKEN FOR EACH 500 SQUARE FEET OF MASONRY BEING ERECTED. TEST SPECIMENS AT SEVEN (7) DAYS, AT TWENTY-EIGHT (28) DAYS, AND HOLD THE THIRD SPECIMEN FOR FURTHER TESTING, AS REQUIRED.
7. SPLICED REINFORCEMENT SHALL BE LAPPED 24" OR FORTY EIGHT (48) BAR DIAMETERS, WHICHEVER IS GREATER.

HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON
ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
GENERAL NOTES

PROJECT INFORMATION	
Date	MAY 6, 2021
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8. CONTROL JOINTS ARE REQUIRED IN ALL WYTHES OF MASONRY AT A MAXIMUM HORIZONTAL SPACING OF 25'–0" O.C. REFER TO THE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF CONTROL JOINTS. NO PLATES SHALL BE LOCATED WITHIN TWO (2) FEET OF BEAM BEARING. NO RIGID ELEMENTS SHALL BE INSTALLED ACROSS JOINT THAT WILL HINDER THE PERFORMANCE OF THE JOINT.
9. BOND BEAMS SHALL BE LAPPED A MINIMUM OF 4'–0" IN STEPPED BOND BEAM COURSES.
10. A 1½" FLEXIBLE JOINT SHALL BE PROVIDED ON ALL SIDES OF STEEL BEAMS AND/OR STEEL JOISTS PENETRATING NON–BEARING MASONRY WALLS.
11. CALCIUM CHLORIDE AND/OR ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL NOT BE USED IN MORTAR OR GROUT MIXES. NO ANTI–FREEZE CHEMICALS SHALL BE USED TO LOWER THE FREEZING POINT OF EITHER MORTAR OR GROUT.
12. MASONRY SHALL NOT BE LAID IN HOT WEATHER OR COLD WEATHER UNLESS THE RECOMMENDATIONS IN ACI 530.1 ARE STRICTLY ADHERED TO.
13. MASONRY BELOW GRADE SHALL BE SET WITH TYPE 'S' MORTAR. THE UNITS SHALL BE SOLID OR BE GROUTED SOLID.
14. MASONRY WALLS SHALL BE BRACED TO WITHSTAND THE CODE SPECIFIED HORIZONTAL LOADS DURING THEIR ERECTION, AND UNTIL THEIR DESIGN SUPPORTS ARE IN PLACE. BRACING SYSTEMS SHALL BE DESIGNED BY A QUALIFIED STRUCTURAL ENGINEER. SHORES AND/OR FORMS SHALL NOT BE REMOVED, NOR CONCENTRATED LOADS APPLIED, UNTIL MASONRY HAS SET ADEQUATELY ENOUGH TO CARRY ITS OWN WEIGHT AND ANY APPLIED LOADS.
15. MASONRY WALLS THAT ARE NON–LOAD BEARING SHALL BE ANCHORED TO THE STRUCTURE ABOVE PER THE STRUCTURAL DETAILS. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE LOCATION AND EXTENT OF ALL MASONRY WALLS.
16. QUALITY ASSURANCE AND INSPECTION OF WORK, AS DEFINED IN THE CODES AND STANDARDS ABOVE, THE ARCHITECTURAL SPECIFICATIONS AND LOCAL AUTHORITIES SHALL BE STRICTLY ADHERED TO.
17. LINTELS SHALL BEAR ON 1'–4" x 1'–4" SOLID, OR GROUTED SOLID MASONRY EACH END, UNLESS NOTED OTHERWISE. PROVIDE BEARING PLATES OR MASONRY ANCHORS, AS NOTED ON THE DRAWINGS. STEEL LINTELS SHALL BE WELDED TO BEARING PLATES.
18. LINTELS IN EXTERIOR WALLS SHALL BE HOT DIPPED GALVANIZED, U.N.O.
19. EMBEDDED STEEL SHALL HAVE ADJUSTABLE MASONRY ANCHORS SPACED NOT GREATER THAN 16" VERTICALLY, 32" HORIZONTALLY, UNLESS NOTED OTHERWISE.

SPECIAL INSPECTIONS

1. ALL TESTS AND INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND INSPECTION AGENCY. THE SPECIAL INSPECTOR FROM THIS TESTING AGENCY SHALL OBSERVE THE WORK FOR THE CONFORMANCE TO THE DESIGN DRAWINGS AND SPECIFICATIONS.
2. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE ENGINEER OR THE ARCHITECT OF RECORD, AND ALL OTHER DESIGNATED INDIVIDUALS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. THEN, IF NOT CORRECTED, TO THE PROPER DESIGN AUTHORITY AND TO THE BUILDING OFFICIAL.
3. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS, SPECIFICATIONS, SOILS REPORT, AND APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE.
4. THE FOLLOWING ITEMS MARKED 'X' REQUIRE SPECIAL INSPECTIONS: (REFER TO IBC 2015 CHAPTER 17 FOR ADDITIONAL INFORMATION)

SHOP DRAWING AND PRODUCT SUBMITTAL

1. SHOP DRAWINGS AND PROJECT SHALL BE FULLY REVIEWED BY THE CONTRACTOR PRIOR TO THE SUBMITTAL TO THE ARCHITECT/ENGINEER. SHOP DRAWINGS/CALCULATIONS SHALL BE SEALED BY A REGISTERED STRUCTURAL ENGINEER IN THE STATE OF ILLINOIS.
2. SHOP DRAWINGS/CALCULATIONS/SUBMITTALS SHALL BE PROVIDED TO THE ARCHITECT/ENGINEER AND SHALL INCLUDE, BUT NOT BE LIMITED TO SIZE, SPACING, CONNECTIONS, BEARING STIFFENERS, WEB STIFFENERS, BLOCKING, PLACEMENT, ETC. FOR THE FOLLOWING:

- MASONRY WORK: (MASONRY MORTAR, GROUT, PLACEMENT, PLACEMENT OF ALL STEEL REINFORCING)
- CONCRETE WORK: (MIX DESIGNS, PLACEMENT OF ALL STEEL REINFORCEMENT)
- METAL ROOF DECK PLACEMENT, FASTENERS, CLOSURES, DECK REINFORCEMENT.
- STEEL FRAMING, CONNECTION DESIGN, COATING.

COMPONENT AND CLADDING WIND LOAD SUMMARY

WALL/ROOF SURFACE	ZONE	<10 SF TRIBUTARY	50 SF TRIBUTARY	>100 SF TRIBUTARY
ROOF:	NEG ZONE 1	–25.0	–24.1	–22.9
	NEG ZONE 2	–41.9	–36.0	–27.1
	NEG ZONE 3	–63.1	–48.8	–27.1
	POSITIVE	+22.9	+21.5	+19.5
		<10 SF TRIBUTARY	50 SF TRIBUTARY	>500 SF TRIBUTARY
WALLS:	NEG ZONE 4	–24.8	–22.4	–19.1
	NEG ZONE 5	–30.5	–25.8	–19.1
	POSITIVE	+22.9	+20.5	+17.2

MAIN WIND FORCE RESISTING SYSTEM LOAD SUMMARY

WALL/ROOF SURFACE	PRESSURES (PSF)	
	W/+GCpi	W/–GCpi
WINDWARD WALL	+10.6	+18.2
WINDWARD/LEEWARD PARAPET	+32.0	–21.3
LEEWARD WALL	–16.4	–5.2
SIDE WALL	–16.4	–8.8
ROOF:		
0 TO H/2	–20.0	+1.0
H/2 TO H	–20.0	+1.0
H TO 2H	–12.8	+1.0
> 2H	–9.2	+1.0

2015 IBC INSPECTION SCHEDULE

				YES	
				CONTINUOUS	PERIODIC
1		STEEL CONSTRUCTION (IBC 2015 – 1705.2)			
	A	MATERIAL VERIFICATION OF HIGH–STRENGTH BOLTS, NUTS AND WASHERS			X
	B	INSPECTION OF HIGH STRENGTH BOLTING			
		a	BEARING TYPE		X
		b	PRETENSIONED/SLIP CRITICAL TYPE W/MATCHMARKING, TWIST OFF OR DIRECT TENSION INDICATOR METHODS		X
		c	PRETENSIONED/SLIP CRITICAL TYPE WITHOUT MATCHMARKING, TWIST OFF OR DIRECT TENSION INDICATOR METHODS	X	
	C	INSPECTION OF WELDING			
		a	COMPLETE AND PARTIAL PENETRATION WELDS	X	
		b	MULTI PASS FILLET WELDS	X	
		c	SINGLE PASS FILLET WELDS > 5/16"	X	
		d	SINGLE PASS FILLET WELDS ≤ 5/16"		X
		e	PLUG AND SLOT WELDS	X	
		f	FLOOR AND ROOF DECK		X
	D	INSPECTION OF STEEL FRAME DETAILS			X
	E	MATERIAL VERIFICATION OF COLD–FORMED STEEL DECK			X
	F	ANCHORAGE OF COLD–FORMED STEEL TO BUILDING FRAME			X
2		CONCRETE CONSTRUCTION (IBC 2015 – 1705.3)			
	A	INSPECTION OF REINFORCING STEEL			X
	B	INSPECTION OF BOLTS INSTALLED IN CONCRETE (CAST IN PLACE)		X	
	C	INSPECTION OF POST – INSTALLED ANCHOR IN CONCRETE			X
	D	VERIFY USE OF REQUIRED MIX DESIGN			X
	E	SAMPLING FRESH CONCRETE AND PERFORMING SLUMP, AIR CONTENT, AND DETERMINING THE TEMPERATURE OF FRESH CONCRETE AT TIME OF MAKING SPECIMENS FOR STRENGTH TESTS.		X	
	F	INSPECTION OF CONCRETE PLACEMENT		X	
	G	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TECHNIQUES			X
	H	INSPECTION OF FORM WORK FOR SHAPE, LOCATION & PLACEMENT			X
3		MASONRY CONSTRUCTION (IBC 2015 – 1705.4)			
	A	COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED			X
	B	VERIFICATION OF f'_m PRIOR TO CONSTRUCTION			X
	C	AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE.			
		a	PROPORTIONS OF SITE–PREPARED MORTAR.		X
		b	CONSTRUCTION OF MORTAR JOINTS.		X
		c	LOCATION OF REINFORCEMENT		X
	D	DURING CONSTRUCTION THE INSPECTION PROGRAM SHALL VERIFY:			
		a	SIZE AND LOCATION OF STRUCTURAL ELEMENTS		X
		b	TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION.		X
		c	SPECIFIED SIZE, GRADE AND TYPE OF REINFORCEMENT		X
		d	WELDING OF REINFORCING BARS.	X	
		e	PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)		X
	E	PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:			
		a	CLEANLINESS OF GROUT SPACE.		X
		b	PLACEMENT OF REINFORCEMENT AND CONNECTORS.		X
		c	PROPORTIONS OF SITE–PREPARED GROUT.		X
		d	CONSTRUCTION OF MORTAR JOINTS.		X
	F	PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS SHALL BE OBSERVED.		X	
	G	GROUT PLACEMENT SHALL BE VERIFIED TO ENSURE COMPLIANCE WITH CODE AND CONSTRUCTION DOCUMENT PROVISIONS.		X	
4		SOILS (IBC 2015 – 1705.6)			
	A	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.			X
	B	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.			X
	C	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.			X
	D	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.		X	
	E	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.			X

HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
GENERAL NOTES

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Date: MAY 6, 2021
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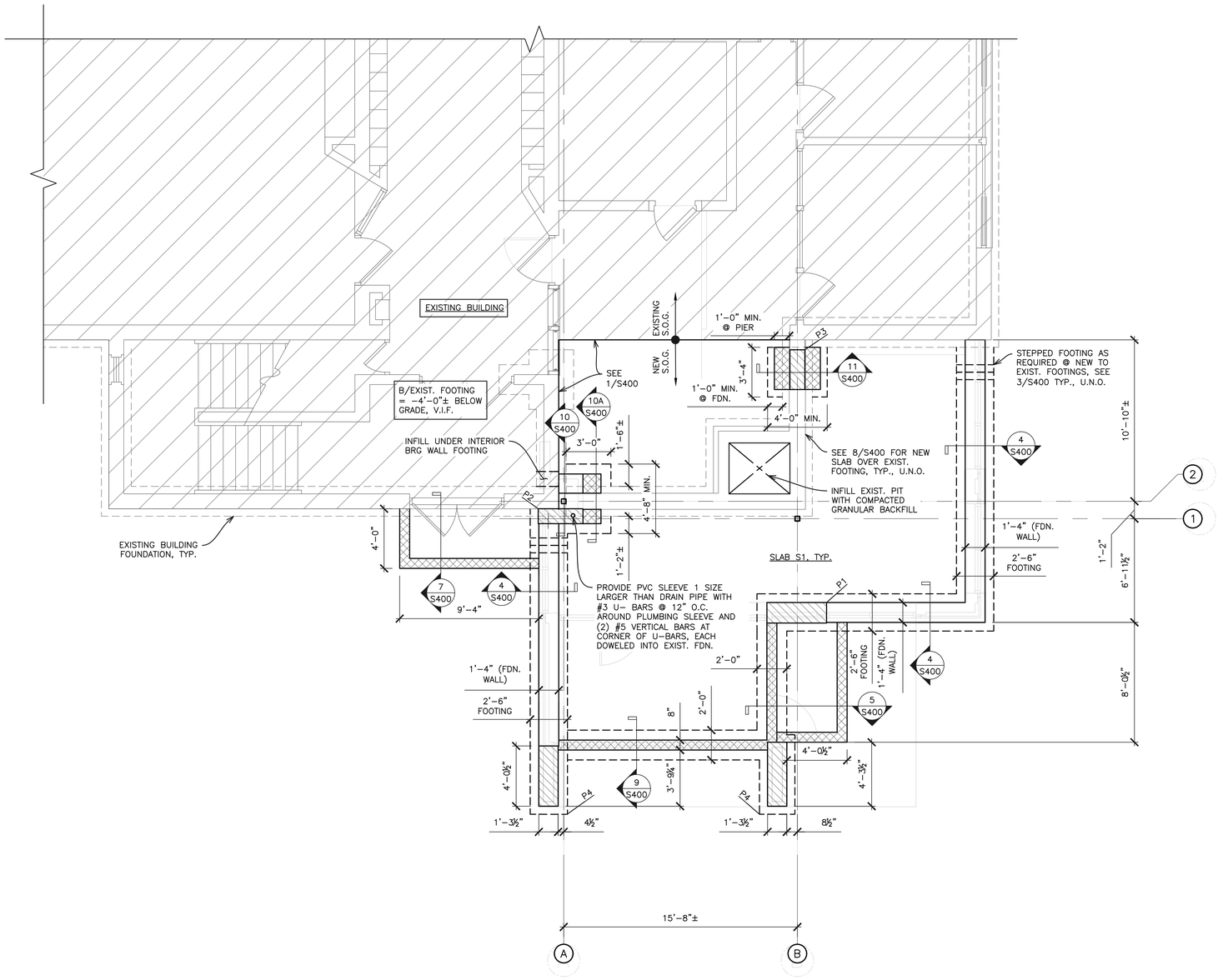
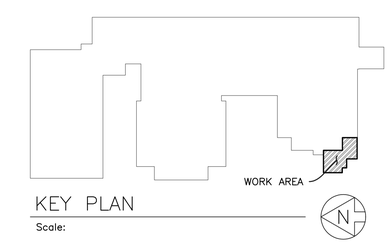


1 PARTIAL FOUNDATION PLAN

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

NOTES:

1. FINISHED FLOOR ELEVATION = 0'-0", COORDINATE W/ARCHITECTURAL DRAWINGS.
2. COORDINATE AND VERIFY ALL FOOTING AND FOUNDATION LOCATIONS W/ARCHITECTURAL DRAWINGS.
3. SLAB S1: 4" CONCRETE SLAB W/6x6-W2.9xW2.9 W.W.R. ON 6" MIN. COMPACTED GRANULAR FILL. PROVIDE SAWCUT CONTROL/CONSTRUCTION JOINTS @ 12'-0" O.C. MAXIMUM, SEE DETAIL 1/S300. SEE ARCH DWGS FOR VAPOR BARRIER INFORMATION.
4. T/FOUNDATION WALL ELEVATION = 0'-0", TYP., U.N.O., COORD. W/ARCHITECTURAL DRAWINGS.
5. T/DEPRESSED FOUNDATION WALL ELEVATION = -0'-8" BELOW F.F., U.N.O., COORD. W/ARCHITECTURAL DRAWINGS, SEE SECTION 6/S400
6. B/EXTERIOR FOOTING = -3'-6" MIN. BELOW GRADE, TYP., U.N.O., MATCH B/EXIST. FOOTING IF LOWER, G.C. V.I.F.
7. PX = PIER:
   - 7.1. P1 = 4'-0" x 1'-4½" WITH MATCHING VERTICAL BARS TO MASONRY PIER ABOVE FULL HEIGHT OF WALL W/STD. HOOK INTO FOOTING. #3 TIES @ TOP 3" & 10" O.C. REMAINDER
   - 7.2. P2 = 2'-8½" x 1'-0" WITH MATCHING VERTICAL BARS TO MASONRY PIER ABOVE FULL HEIGHT OF WALL W/STD. HOOK INTO FOOTING. #3 TIES @ TOP 3" & 10" O.C. REMAINDER
   - 7.3. P3 = EXISTING CONCRETE FOUNDATION WALL WITH HILTI HIT-RE 500 V3 EPOXY DOWELS TO MATCH VERTICAL BARS IN MASONRY PIER ABOVE
   - 7.4. P4 = SEE PLAN FOR DIMENSIONS WITH MATCHING VERTICAL BARS TO MASONRY PIER ABOVE FULL HEIGHT OF WALL W/STD. HOOK INTO FOOTING. #3 TIES @ TOP 3" & 10" O.C. REMAINDER
8. COORDINATE STEPPED FOOTING AND GRADE ELEVATION W/ARCHITECTURAL AND CIVIL DRAWINGS, SEE 3/S400



KEY PLAN

Scale:

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

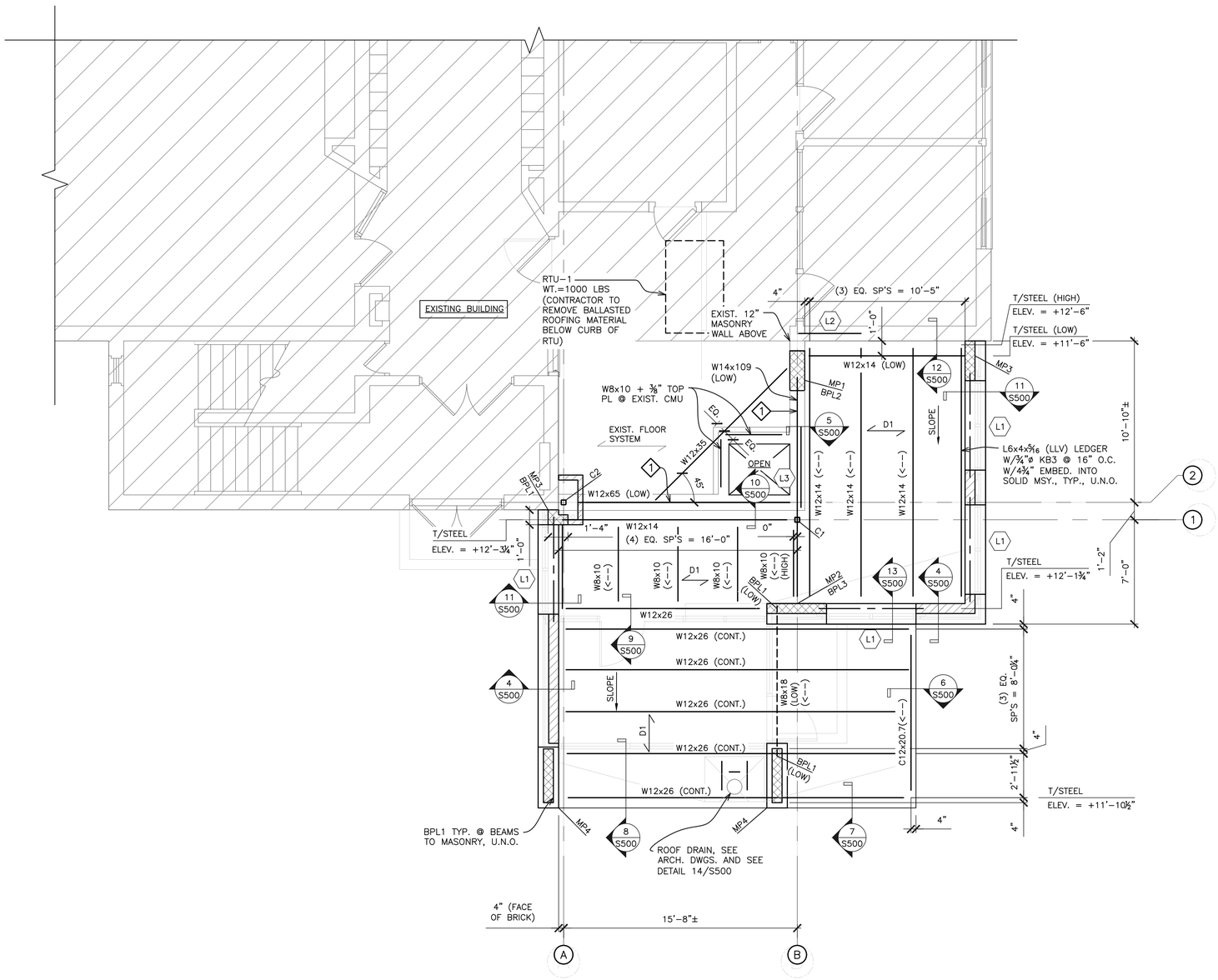
SHEET IDENTIFICATION

PARTIAL FOUNDATION PLAN

PROJECT INFORMATION			
Date	MAY 6, 2021		
Rev. Date			
RLJA Proj	2020-013		

SHEET NUMBER

S100

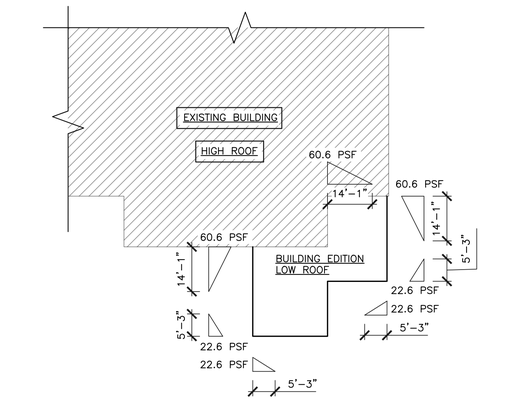


1 PARTIAL ROOF FRAMING PLAN

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

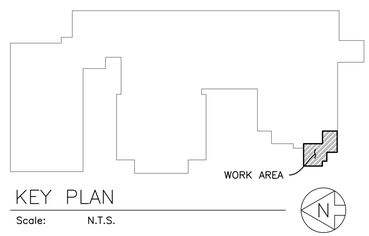
NOTES:

1. FINISHED ROOF ELEVATION = VARIES, COORDINATE ROOF SLOPES W/ARCHITECTURAL DRAWINGS.
2. T/STEEL ELEVATIONS VARIES, SEE PLAN & COORDINATE W/ARCHITECTURAL DRAWINGS.
3. VERIFY ALL ROOF OPENING SIZES AND LOCATIONS W/ARCHITECTURAL AND MECHANICAL DRAWINGS, SEE SECTION 14/S500
4. DECK D1 = 1.5B20 3 SPAN CONTINUOUS
5. LX = LINTELS, SEE LINTEL SCHEDULE ON S300. COORDINATE BOTTOM OF LINTELS W/ARCHITECTURAL DRAWINGS.
6. BPLX = BEARING PLATE, SEE DETAIL 3/S500 AND SCHEDULE ON S300
7. MPX = MASONRY PIERS:
   - 7.1. MP1 = 1'-0" WIDE X 2'-8" MIN. WITH (1) #5 VERTICAL @ 8" O.C. AND (MIN. 9 GAGE) W1.7 LADDER TYPE JOINT REINFORCEMENT @ 16" O.C.
   - 7.2. MP2 = 8" WIDE X 4'-0" MIN. WITH (1) #5 VERTICAL @ 8" O.C. AND (MIN. 9 GAGE) W1.7 LADDER TYPE JOINT REINFORCEMENT @ 16" O.C.
   - 7.3. MP3 = 8" WIDE X 1'-4" LONG X 1'-0" LONG MIN. WITH (2) #5 VERTICAL @ 8" O.C. AND (MIN. 9 GAGE) W1.7 LADDER TYPE JOINT REINFORCEMENT @ 16" O.C.
   - 7.4. MP4 = 8" WIDE X LENGTH OF WALL (MINIMUM 3'-0" LONG) WITH (1) #5 VERTICAL EACH END AND (1) #5 VERTICAL INTERMEDIATE @ 24" O.C. AND (MIN. 9 GAGE) W1.7 LADDER TYPE JOINT REINFORCEMENT @ 16" O.C.
8. CX = COLUMN, SEE COLUMN SCHEDULE ON S300
9. 8" MASONRY WALL REINFORCEMENT = (1) #5 VERTICAL @ 16" O.C. W/(MIN. 9 GAGE) W1.7 LADDER TYPE JOINT REINFORCEMENT @ 16" O.C. PROVIDE (1) #5 VERT. BAR @ CORNERS, EACH SIDE OF OPENING AND EACH SIDE OF CONTROL JOINT, U.N.O. REFER TO DETAIL 1/S300.
10. (1) REMOVE AND REPLACE MASONRY BELOW P.C. DOUBLE TEES AND INFILL BETWEEN TOP OF NEW BEAM AND UNDERSIDE OF P.C. DOUBLE TEES. COORDINATE INFILL LOCATIONS TO AVOID NEW MECHANICAL DUCTWORK.



2 SNOW DRIFT DIAGRAM

Scale: N.T.S.



KEY PLAN

Scale: N.T.S.

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

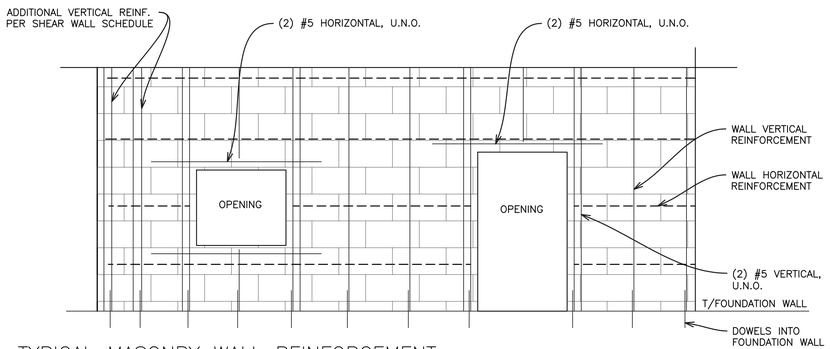
SHEET IDENTIFICATION

PARTIAL ROOF FRAMING PLAN

PROJECT INFORMATION			
Date	MAY 6, 2021		
Rev. Date			
RLJA Proj	2020-013		

SHEET NUMBER

S200



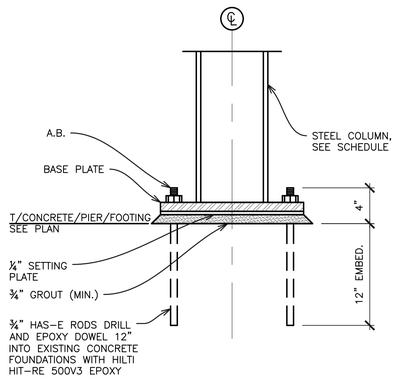
1 TYPICAL MASONRY WALL REINFORCEMENT

Scale: N.T.S.

TYPICAL REINFORCED MASONRY NOTES

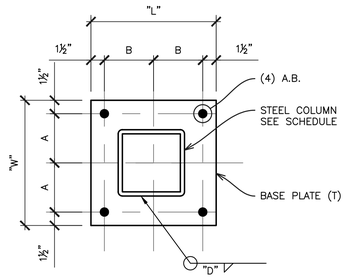
TYPICAL HORIZONTAL AND VERTICAL REINFORCING BARS SHALL BE AS NOTED ON THE PLAN SHEET.
ADDITIONAL REINFORCING SHALL BE AS FOLLOWS:

1. (2) #5 VERTICAL REINFORCING BARS SHALL BE PROVIDED, CONTINUOUSLY FROM SUPPORT TO SUPPORT (FINISHED FLOOR TO ROOF) AT:
   A. EACH END OF WALL;
   B. EACH WALL INTERSECTION;
   C. EACH SIDE OF A MASONRY OPENING > 1'–0" IN WIDTH;
   D. EACH SIDE OF A MASONRY CONTROL OR EXPANSION JOINT;
   E. EACH CORNER OF THE BUILDING.
2. (2) #5 HORIZONTAL REINFORCING BARS SHALL BE PROVIDED AT:
   A. TOP AND BOTTOM OF MASONRY OPENINGS;
   B. FLOOR AND ROOF LEVELS, CONTINUOUS;
   C. TOP OF MASONRY WALLS, CONTINUOUS;
   D. BOTTOM OF MASONRY WALLS, CONTINUOUS.
3. FOR LARGE OPENINGS, PROVIDE SAME NUMBER OF BARS, EACH SIDE OF OPENING AS THAT NUMBER OF BARS INTERRUPTED BY OPENING.
4. PROVIDE DOWELS TO FOUNDATION WALLS BELOW. DOWELS SHALL MATCH REINFORCING BARS NOTED AND SHALL BE 5'–0" LONG AND EMBEDDED 2'–6" INTO THE FOUNDATION WALL BELOW



2 ANCHOR BOLT DETAIL

Scale: N.T.S.



3 COLUMN BASE PLATE DETAIL

Scale: N.T.S.

STEEL COLUMN SCHEDULE

MARK / ELEVATION	C1	C2
ROOF		
EXIST. 2ND FLOOR	HSS4x4x¼	
F.F.	SEE PLAN; BEAM, SEE PLAN	HSS4x4x¼
BASE PLATE (T x L x W)	¾" x 10" x 0'–10"	¾" x 10" x 0'–6"
REMARKS	A= 3½" B= STD. BEAM GAGE	A= 1½" B= 3½"
DETAIL	2 & 3/S300	2 & 3/S300

NOTES:
1. A.B. = ¾"ø ANCHOR BOLTS, TYP. U.N.O., SEE 2/S300
2. WELD "D" = 5⁄16" TYP. U.N.O.

LINTEL SCHEDULE

MARK	MEMBERS	SHP.	BRG.	REMARKS
L1	W8x13 + HSS3½x3½x¼ CONT. + 5⁄16" ℄ CONT. TO MATCH WALL WIDTH (LESS ½")	Io	8"	PROVIDE BEARING PLATE BPL1 E.E.
L2	W8x13 + 5⁄16" BOTTOM ℄ CONT. TO MATCH WALL WIDTH (LESS ½")	I	8"	PROVIDE BEARING PLATE BPL1 E.E., MAX. CLEAR OPENING NOT TO EXCEED 4'–0"
L3	W8x13 + 5⁄16" BOTTOM ℄ CONT. TO MATCH WALL THICKNESS + EXTENDED UNDER TO SUPPORT BRICK VENEER	BRICK VENEER	8"	PROVIDE BEARING PLATE BPL1 E.E., MAX. CLEAR OPENING NOT TO EXCEED 4'–0"

NOTES:
1. LINTELS SHALL BEAR ON SOLID/GROUTED SOLID MASONRY, SEE GENERAL NOTES AND DETAILS
2. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING SIZES, LOCATIONS AND ELEVATIONS.
3. FOR BEARING PLATE DETAIL, SEE 3/S500

MISCELLANEOUS LINTEL SCHEDULE (NON–BEARING WALLS)

WALL THICKNESS	≤4'–0" MSY. OPNG.	4'–0" TO 8'–0" MSY. OPNG.
EACH 4"	8" MSY. BOND BM. W/(1) #4 OR L3x3x5⁄16	L6x3x5⁄16 (LLV)
6"	8" MSY. BOND BM. W/(2) #4	N.A.
8"	8" MSY. BOND BM. W/(2) #4 OR (2) L3½x3½x5⁄16	W8x10 + 5⁄16" ℄ CONT.

NOTES:
1. LINTELS SHALL BEAR ON SOLID/GROUTED SOLID MASONRY, SEE GENERAL NOTES AND DETAILS
2. REFER TO ARCHITECTURAL DRAWINGS FOR OPENING SIZES, LOCATIONS AND ELEVATIONS.
3. FOR BEARING PLATE DETAIL, SEE 3/S500

BEARING PLATE SCHEDULE

MK	MEMBERS	REMARKS
BPL 1	½" THICK x 7½" W x 8" LONG W/(2) ½"ø x 4" HEADED STUDS	SEE DETAIL 3/S500
BPL 2	½" THICK x 11½" W x LENGTH OF NEW PIER (1'–4" MIN.) LONG W/(4) ½"ø x 4" HEADED STUDS	SEE DETAIL 3/S500
BPL 3	½" THICK x 7½" W x 1'–4" LONG W/(3) ½"ø x 4" HEADED STUDS	SEE DETAIL 3/S500

NOTES:
1. BEARING PLATE SHALL BEAR ON SOLID/GROUTED SOLID MASONRY, SEE GENERAL NOTES AND DETAILS 2 & 3/S500

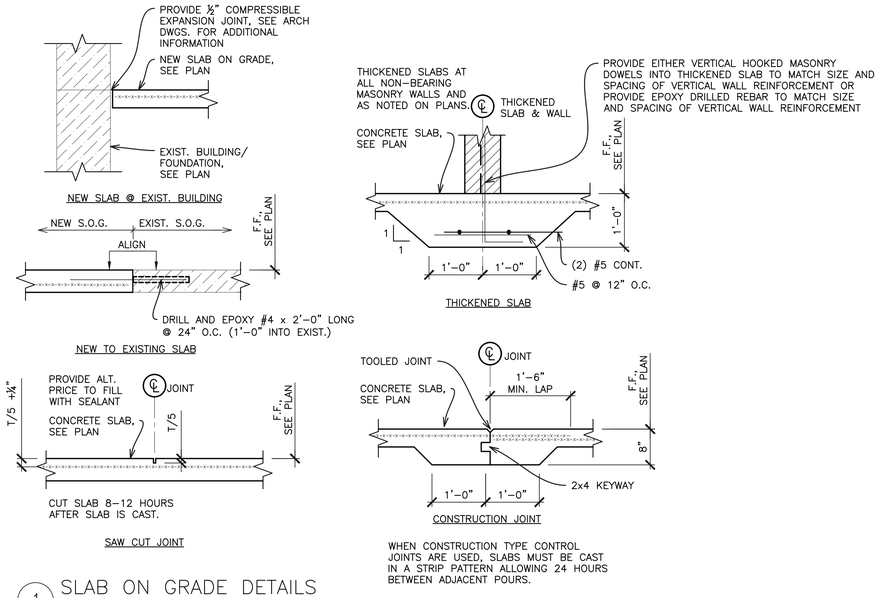
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
SCHEDULES

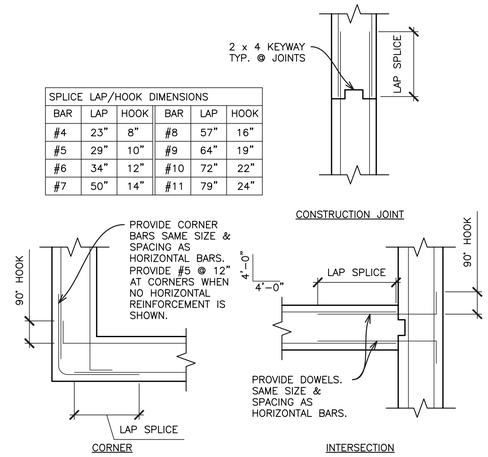
PROJECT INFORMATION
Date: MAY 6, 2021
Rev. Date:
RLJA Proj: 2020-013

SHEET NUMBER
S300



1 SLAB ON GRADE DETAILS

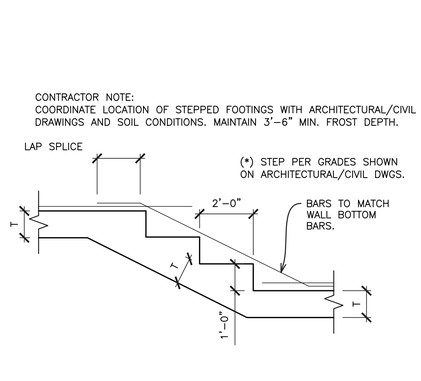
Scale: N.T.S.



SPLICE LAP/HOOK DIMENSIONS					
BAR	LAP	HOOK	BAR	LAP	HOOK
#4	23"	8"	#8	57"	16"
#5	29"	10"	#9	64"	19"
#6	34"	12"	#10	72"	22"
#7	50"	14"	#11	79"	24"

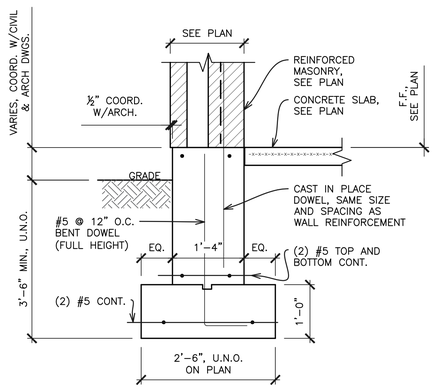
2 CONCRETE WALL DETAILS

Scale: N.T.S.



3 STEPPED FOOTING DETAIL

Scale: N.T.S.



4 SECTION

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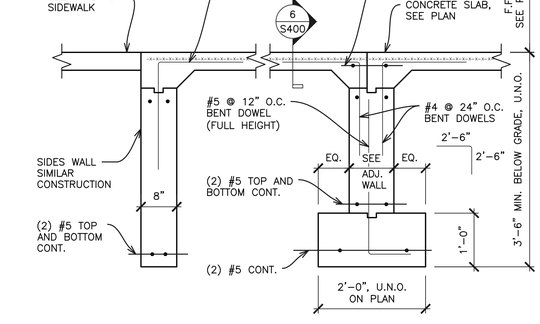

5 SECTION

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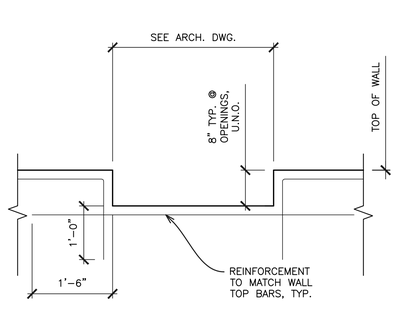
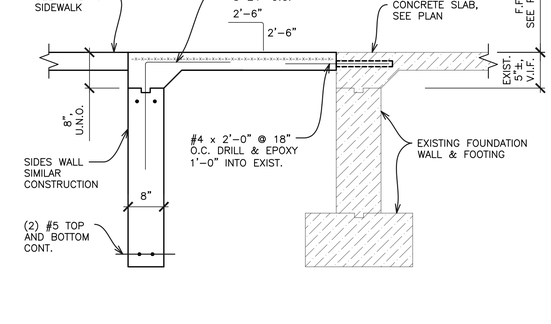


6 DEPRESSED WALL DETAIL

Scale: N.T.S.



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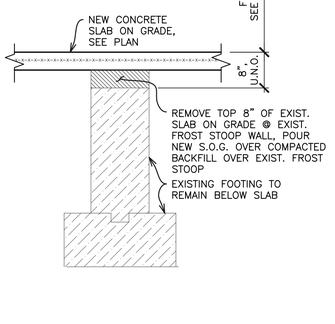

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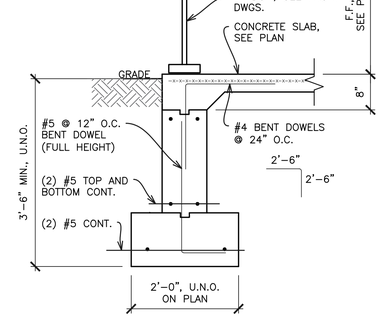

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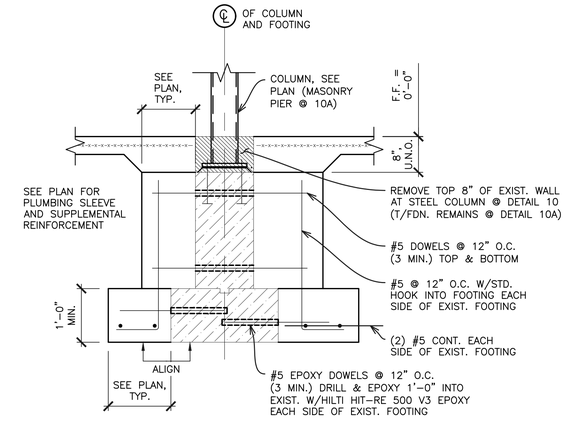

10 10A SECTION

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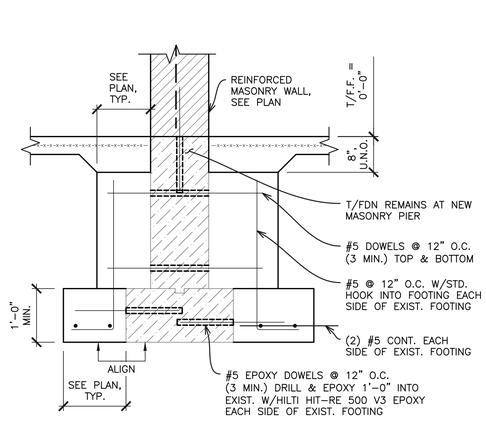


11 SECTION

Scale: N.T.S.

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

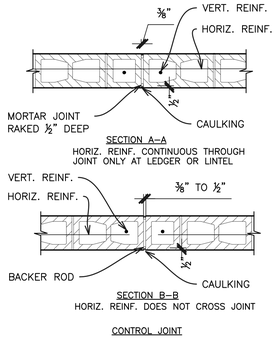
FOUNDATION DETAILS

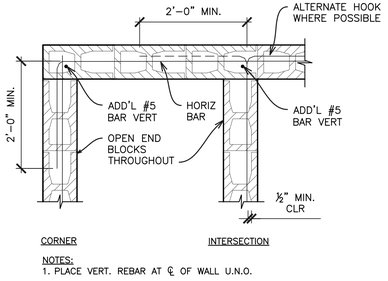
PROJECT INFORMATION

Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

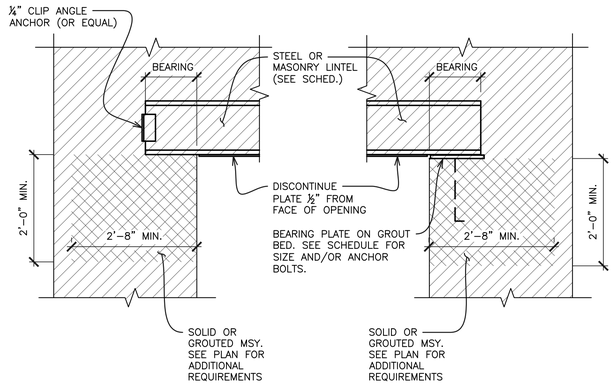
SHEET NUMBER

S400

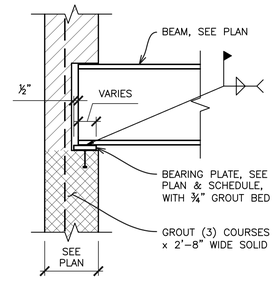




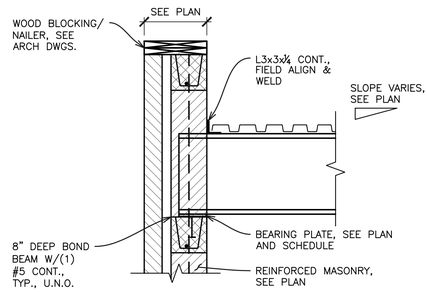
1 MASONRY WALL DETAILS
Scale: N.T.S.



2 LINTEL DETAIL
Scale: N.T.S.



3 BEARING PLATE DETAIL
Scale: N.T.S.



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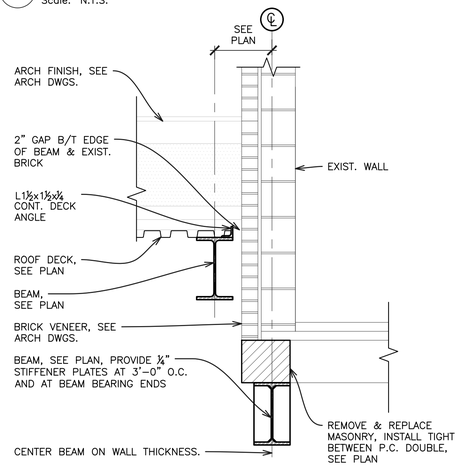

5 DETAIL
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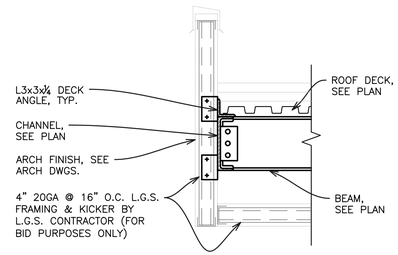

6 DETAIL
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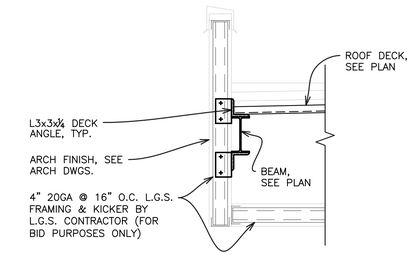
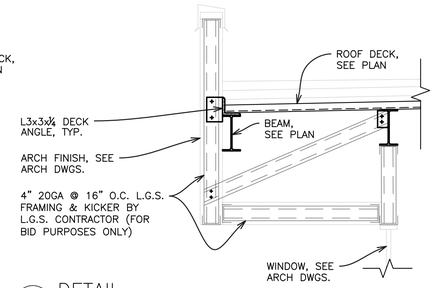
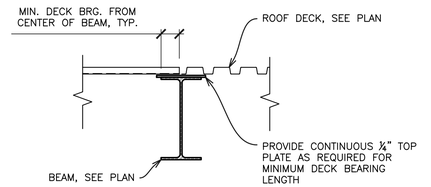


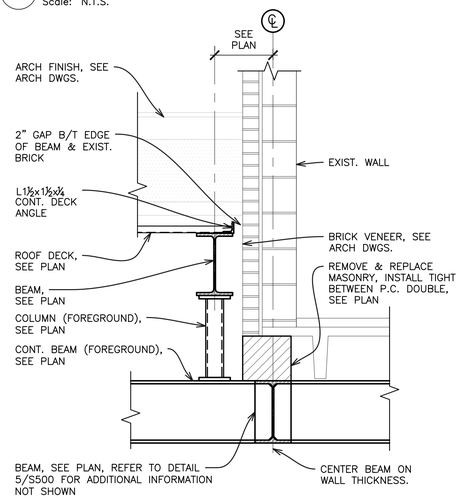
7 DETAIL
Scale: N.T.S.



8 DETAIL
Scale: N.T.S.



9 DETAIL
Scale: N.T.S.



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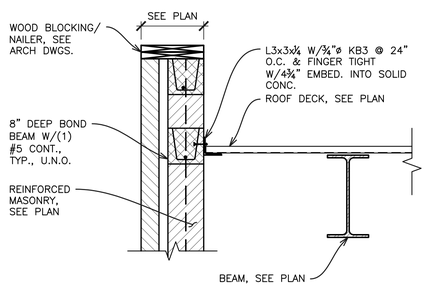

11 DETAIL
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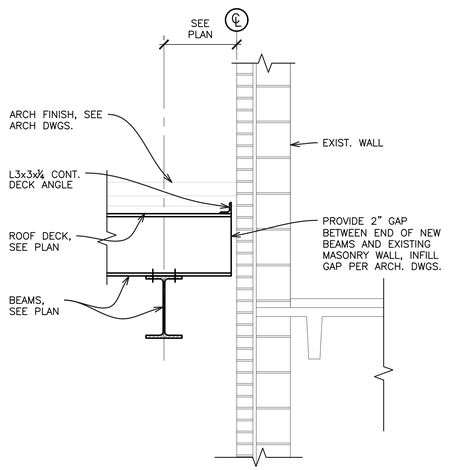
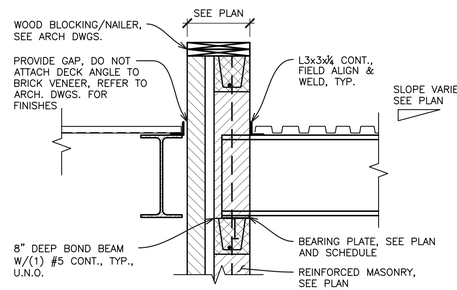
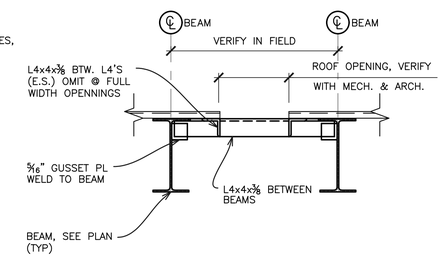


12 DETAIL
Scale: N.T.S.



13 DETAIL
Scale: N.T.S.



14 DETAIL
Scale: N.T.S.

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

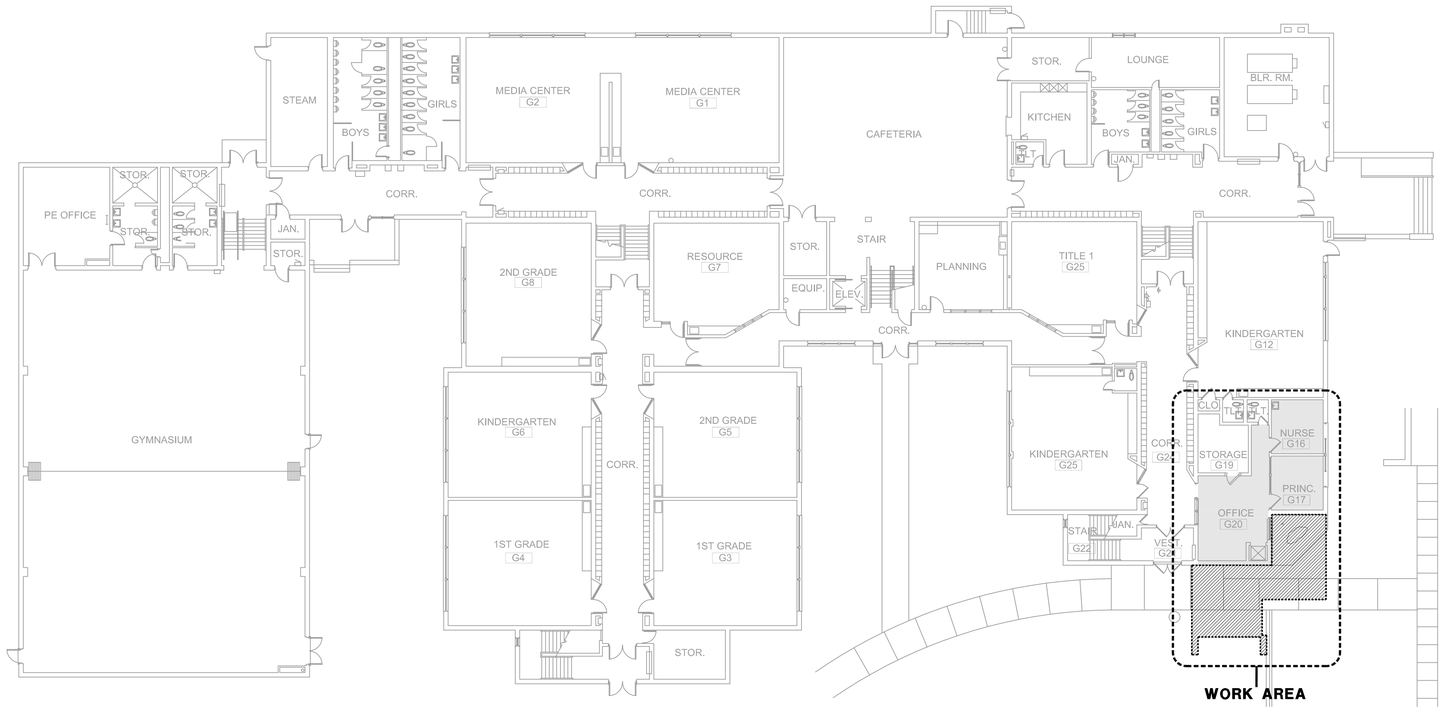
RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
FRAMING DETAILS

PROJECT INFORMATION

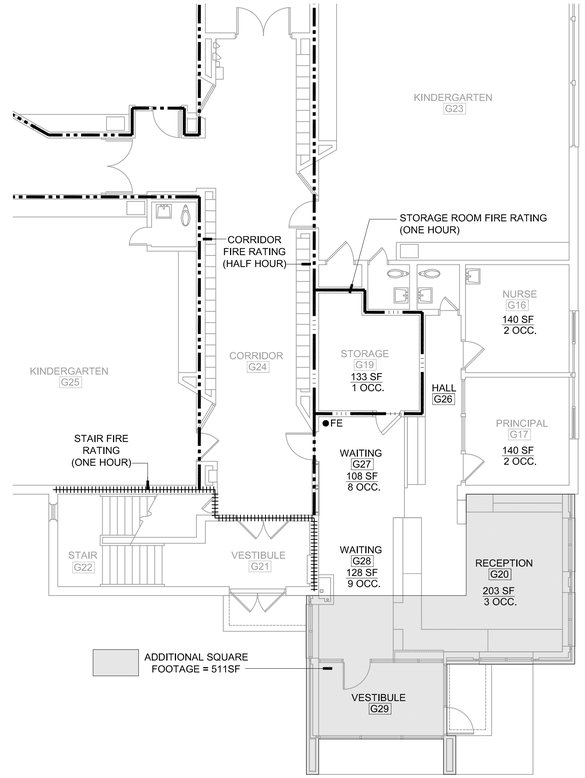
Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

SHEET NUMBER
S500



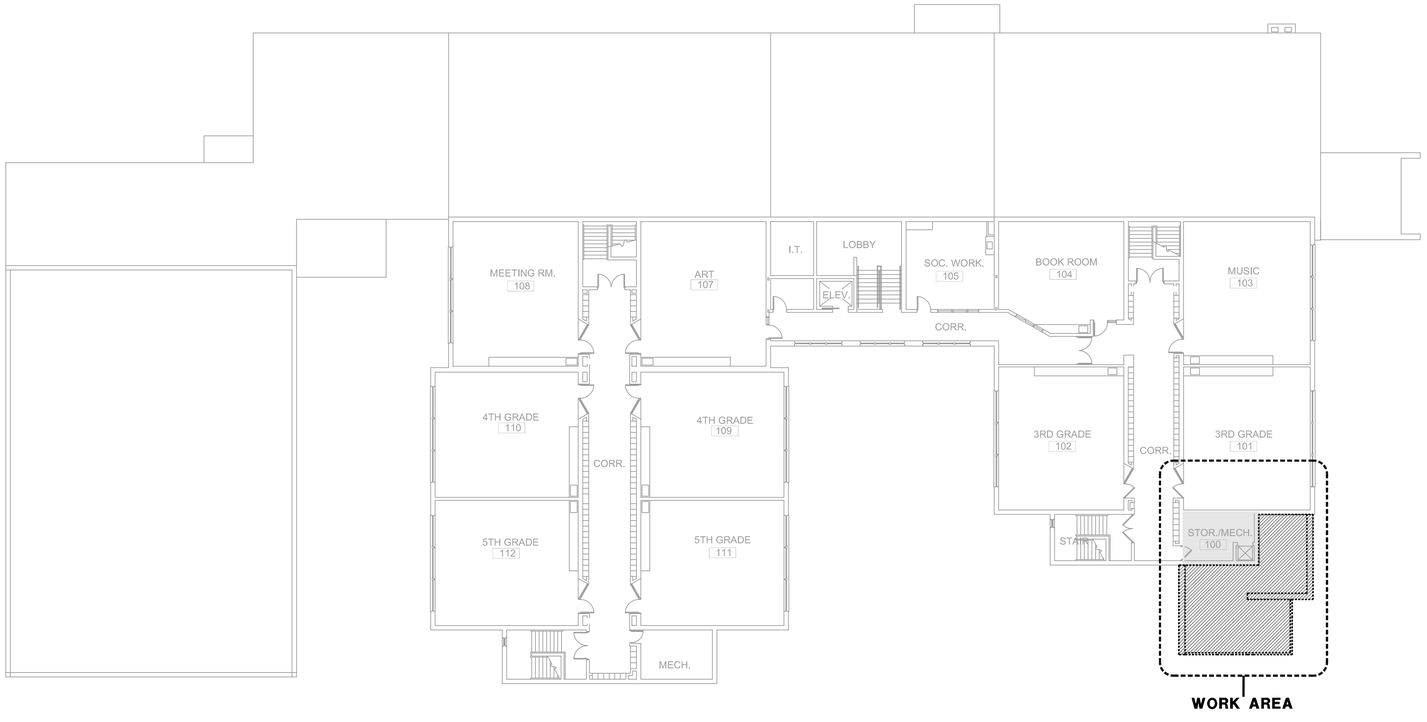
1 OVERALL FIRST FLOOR PLAN

SCALE: 1/16"=1'-0"



3 PARTIAL CODE PLAN

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



2 OVERALL SECOND FLOOR PLAN

SCALE: 1/16"=1'-0"

CODE REVIEW DATA

APPLICABLE CODES

- 2015 INTERNATIONAL BUILDING CODE
- LATEST ILLINOIS PLUMBING CODE
- 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
- 2018 ILLINOIS ACCESSIBILITY CODE
- 2015 INTERNATIONAL ENERGY CONSERVATION CODE
- 2015 INTERNATIONAL FIRE CODE
- CURRENT NATIONAL ELECTRICAL CODE
- 2015 INTERNATIONAL MECHANICAL CODE
- 2015 INTERNATIONAL FUEL GAS CODE

TYPE OF PROJECT	ADDITION AND REMODELING
TYPE OF CONSTRUCTION	IIB
USE GROUP	"E" EDUCATIONAL
FIRE SUPPRESSION SYSTEM	N/A

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

OVERALL REFERENCE PLANS AND CODE INFORMATION

PROJECT INFORMATION

Date	MAY 6, 2021
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SHEET NUMBER

G101

ABBREVIATIONS

ACT	ACOUST. CEILING TILE SYSTEM	CTOP	COUNTERTOP	FAAP	FIRE ALARM ANNUNCIATOR PANEL	IN	INCH	PR	PAIR	STRUC	STRUCTURAL
ACU	AIR CONDITIONING UNIT	CTR	COUNTER	FACP	FIRE ALARM CONTROL PANEL	INSUL	INSULATION	PT	PAINT	SUH	SUSPENDED UNIT HEATER
ADJ	ADJACENT	CUH	CABINET UNIT HEATER	FB	FACE BRICK	INT	INTERIOR	PLYWD	PLYWOOD	SUSP	SUSPENDED
ADS	ADJUSTABLE SHELVES	CUV	CABINET UNIT VENTILATOR	FBO	FURNISHED BY OWNER/OTHERS	JAN	JANITOR	QT	QUARRY TILE	SV	SHEET VINYL
AFF	ABOVE FINISH FLOOR	DEF	DEFIBRILLATOR	FD	FLOOR DRAIN	KEH	KITCHEN EXHAUST HOOD	QTZ	QUARTZ TILE	TB	TACK BOARD
AHU	AIR HANDLING UNIT	DF	DRINKING FOUNTAIN	FDTN	FOUNDATION	LAM	LAMINATE	R	RISER	TERR	TERRAZZO
AL	ALUMINUM	DIA	DIAMETER	FE	FIRE EXTINGUISHER	LAV	LAVATORY	RAD	RADIATION	T/O	TOP OF
ALT	ALTERNATE	DIM	DIMENSION	FEC	FIRE EXTINGUISHER CABINET	LF	LATERAL FILE	RB	RUBBER BASE	TP	TACK PANEL
AVG	AVERAGE	DN	DOWN	FH	FIRE HYDRANT	LK	LOCK/LOCKABLE CABINET	RD	ROOF DRAIN	TS	TACK STRIP
BD	BOARD	DP	DEEP	FHC	FIRE HOSE CABINET	LP	LIGHT POLE	REINF	REINFORCEMENT	TYP	TYPICAL
BITUM	BITUMINOUS	DR	DOOR	FIN	FINISH	LVT	LUXURY VINYL TILE	REQ'D	REQUIRED	UE	UNDERGROUND ELECTRICAL
BLDG	BUILDING	DS	DOWNSPOUT	FLR	FLOOR	MAS	MASONRY	RFT	RUBBER FLOOR TILE	UC	UNDERGROUND CABLE
BM	BEAM	DTL	DETAIL	FP	FOLDING PARTITION	MAX	MAXIMUM	RM	ROOM	UG	UNDERGROUND GAS
B/O	BOTTOM OF	DWG	DRAWING	FRP	FIBERGLASS REINFORCED PANEL	MB	MARKER BOARD	RST	RUBBER STAIR TREAD	UH	UNIT HEATER
BRG	BEARING	EA	EACH	FS	FLOOR SINK	MECH	MECHANICAL	RTU	ROOFTOP UNIT	U.N.O.	UNLESS NOTED OTHERWISE
BS	BACKSPLASH	EEW	EMERGENCY EYE WASH	FT	FEET	MEZZ	MEZZANINE	SAN	SANITARY SEWER	UV	UNIT VENTILATOR
CAB	CABINET	EF	EXHAUST FAN	FTG	FOOTING	MFR	MANUFACTURER	SB	SMART BOARD	VAT	VINYL ASBESTOS TILE
CB	CHALKBOARD	EIFS	EXTERIOR INSULATION & FINISH SYSTEMS	FURN	FURNACE	MH	MANHOLE	SC	SEALED CONCRETE	VCT	VINYL COMPOSITION TILE
CJ	CONTROL JOINT			G	GAS	MIN	MINIMUM	SECT	SECTION	VERT	VERTICAL
CLG	CEILING	EJ	EXPANSION JOINT	GA	GAUGE	MISC	MISCELLANEOUS	SF	SQUARE FOOT	V.I.F.	VERIFY IN FIELD
CLR	CLEAR	EL	ELEVATION	GALV	GALVANIZED	MLB	MAIL BOXES	SG	SINGLE	W	WATER
CMU	CONCRETE MASONRY UNIT	ELEC	ELECTRIC	GL	GLASS	MTL	METAL	SGT	STRUCTURAL GLAZED TILE	WC	WATER CLOSET
CO	CLEANOUT	ERF	EPOXY RESINOUS FLOORING	GMT	GROMMET	NTS	NOT TO SCALE	SIM	SIMILAR	WD	WOOD
COL	COLUMN	EMRG	EMERGENCY	GYP	GYPSUM WALL BOARD	OC	ON CENTER	SK	SINK	WDW	WINDOW
CONC	CONCRETE	EPDM	ETHYL. PROPYL. DIENE MONOMER	HC	HANDICAP	OE	OVERHEAD ELECTRICAL	SM	SMARTBOARD BY OWNER	WH	WATER HEATER
CONT	CONTINUOUS	EPT	EPOXY PAINT	HDWR	HARDWARE	OH	OVERHEAD	SQ	SQUARE	WS	WATER SOFTENER
CORR	CORRIDOR	EQ	EQUAL	HM	HOLLOW METAL	OPP	OPPOSITE	SS	STAINLESS STEEL	WT	WEIGHT
CPT	CARPET TILES	EXP	EXPOSED/EXPANSION	HORIZ	HORIZONTAL	P.LAM	PLASTIC LAMINATE	ST	STORM SEWER	WWF	WELDED WIRE FABRIC
CPT-W	WALK-OFF CARPET TILES	EXT	EXTERIOR	HR	HOUR	PC	PRECAST CONCRETE	STD	STANDARD	W/	WITH
CR	COAT ROD	EXTG	EXISTING	HT	HEIGHT	PL	PLATE	STL	STEEL	W/O	WITHOUT
CT	CERAMIC TILE	FA	FIRE ALARM	HVAC	HEATING/VENTILATION/AIR COND.	PLAS	PLASTER	STP	STONE PANEL	YR	YEAR

ROOM FINISH SCHEDULE

ROOM NO.	ROOM	FLOOR	BASE	WALLS				CEILING	REMARKS
				NORTH	SOUTH	EAST	WEST		
G16	NURSE	EXTG	EXTG	EXTG	EXTG	EXTG	EXTG	ACT-1	-
G17	PRINCIPAL	EXTG	EXTG	EXTG	EXTG	EXTG	EXTG	ACT-1	-
G26	HALL	CPT-2	RB	EXTG/PT	EXTG/PT	EXTG/PT	-	ACT-1	NOTE 2
G27	WAITING	CPT-1	RB	EXTG/PT	CMU/PT	EXTG/PT	-	ACT-1	NOTE 2, 3
G28	WAITING	CPT-1	RB	EXTG/CMU/PT	-	-	GYP/PT	ACT-1	-
G20	RECEPTION	CPT-2	RB	CMU/PT	CMU/PT	EXTG//CMU/PT	CMU-PT	ACT-1	-
G29	VESTIBULE	CPT-1	RB	CMU/PT	CMU/PT	GYP/PT	-	ACT-1	NOTE 5
100	STORAGE MECHANICAL	EXTG	EXTG	EXTG	EXTG	EXTG	EXTG/CMU/PT	EXTG	NOTE 4

ROOM FINISH NOTES

NOTE 1: PAINT NEW GYP SOFFITS
NOTE 2: PAINT EXISTING HOLLOW METAL DOOR FRAMES IN WALLS CALLED TO BE PAINTED
NOTE 3: EXISTING VAULT DOOR AND FRAME SHALL BE PAINTED - COLOR TO MATCH NEW WALL PAINT
NOTE 4: PAINT WEST WALL OF EXISTING DUMB WAITER SHAFT ONLY
NOTE 5: PROVIDE HOLD DOWN CLIPS FOR VESTIBULE CEILING TILE

DOOR SCHEDULE

DOOR NO.	DOORS				DOOR TYPE		FRAMES		GLAZING		DETAILS			HDWR GROUP	LABEL	REMARKS
	SG/PR	WIDTH	HEIGHT	THICK	MTL	ELEV.	MTL	ELEV.	DOOR	FRAME	HEAD	JAMB	SILL			
G27	SG	+/-3'-0"	+/-7'-0"	1 3/4"	WD	D2	EXTG	-	GL-3	-	EXTG	EXTG	EXTG	1	1/3 HR	NOTE 1, 2
G28	SG	3'-0"	7'-2"	2"	AL	D1	AL	F1	GL-2	GL-2	3/A108	4&5/A109	-	2	-	-
G29	SG	3'-0"	7'-2"	2"	AL	D1	AL	F2	GL-1	GL-1	7/A108	5&7/A109	-	3	-	-

DOOR SCHEDULE GENERAL NOTES

NOTE: NEW WOOD DOORS SHALL BE FACTORY STAINED - SEE SPECIFICATIONS

DOOR SCHEDULE NOTES

NOTE 1: FIELD VERIFY OPENING OF EXISTING FRAME PRIOR TO FABRICATION OF NEW WOOD DOOR
NOTE 2: AFTER INSTALLATION OF NEW DOOR HARDWARE, PATCH EXISTING DOOR FRAME AS REQUIRED AND PAINT

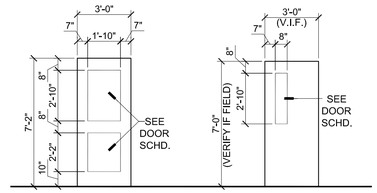
GLASS TYPES

GL-1	1" INSULATED, LOW 'E', CLEAR, TEMPERED, LAMINATED GLASS
GL-2	1/4", CLEAR, TEMPERED, LAMINATED GLASS
GL-3	1/4", 20 MIN. FIRE RATED GLASS
GL-4	1" INSULATED, LOW 'E', CLEAR, TEMPERED, GLASS

PARTITION TYPES

MASONRY

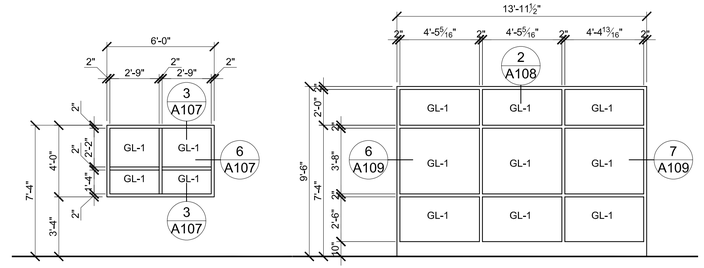
M1	12" CMU EXTEND UP TO UNDERSIDE OF STRUCTURE ABOVE
M2	4" CMU EXTEND 4" ABOVE CEILING
M3	8" CMU EXTEND UP TO UNDERSIDE OF STRUCTURE ABOVE



D1 D2

DOOR TYPES

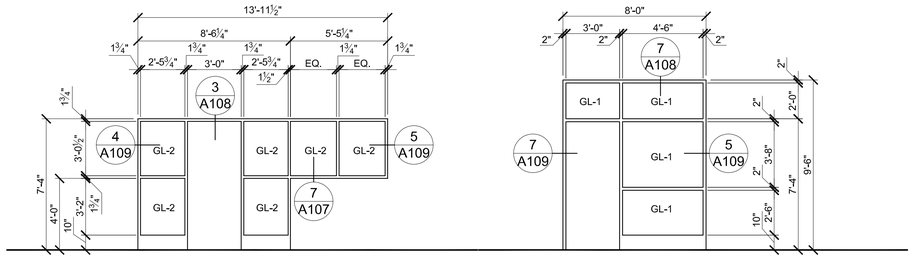
SCALE: 1/4"=1'-0"



W1 W2

WINDOW TYPES

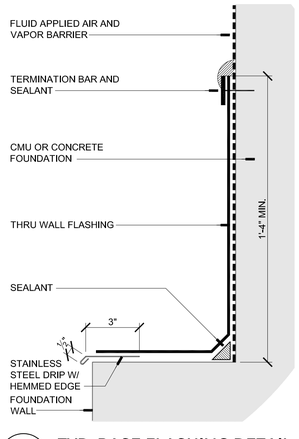
SCALE: 1/4"=1'-0"



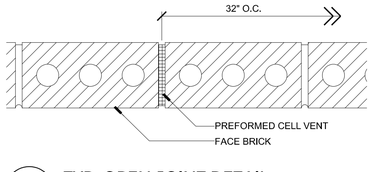
F1 F2

FRAME TYPES

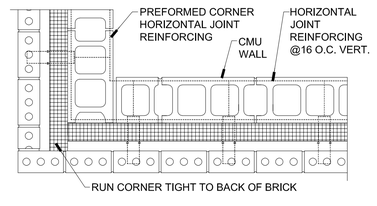
SCALE: 1/4"=1'-0"



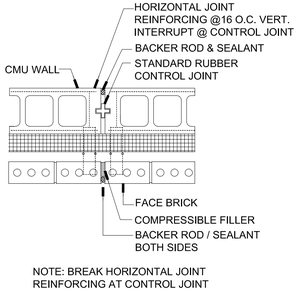
1 TYP. BASE FLASHING DETAIL
SCALE: 3"=1'-0"



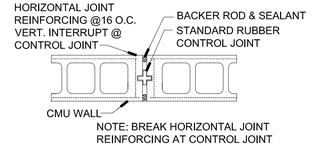
2 TYP. OPEN JOINT DETAIL
SCALE: 3"=1'-0"



3 TYP. CORNER DETAIL
SCALE: 1"=1'-0"



4 TYP. CONTROL JOINT - C AVITY WALL
SCALE: 1"=1'-0"



5 TYP. CONTROL JOINT
SCALE: 1"=1'-0"

MATERIAL / CONSTRUCTION LEGEND

CASEWORK ELEVATION
1 / 3 A-7 9 / 2 — ELEVATION NUMBER, SHEET NUMBER

BUILDING SECTION
1 / A-6 — DETAIL NUMBER, SHEET NUMBER

BUILDING ELEVATION
1 / A-6 — DETAIL NUMBER, SHEET NUMBER

DETAIL SYMBOL
1 / A-6 — DETAIL NUMBER, SHEET NUMBER

DOOR IDENTIFICATION
102 — NEW DOOR AND FRAME, DOOR NUMBER
EXISTING DOOR

PLAN SYMBOLS
1 — KEY NOTE
M1 — PARTITION INDENTIFICATION
12 — DEMOLITION BOX NOTE
211 — ROOM IDENTIFICATION

STANDARD WALL IDENTIFICATION
NEW MASONRY PARTITION
NEW DRYWALL PARTITION W/ BATT. INSUL.
EXISTING WALL PARTITION
EXISTING ITEMS TO BE DEMOLISHED

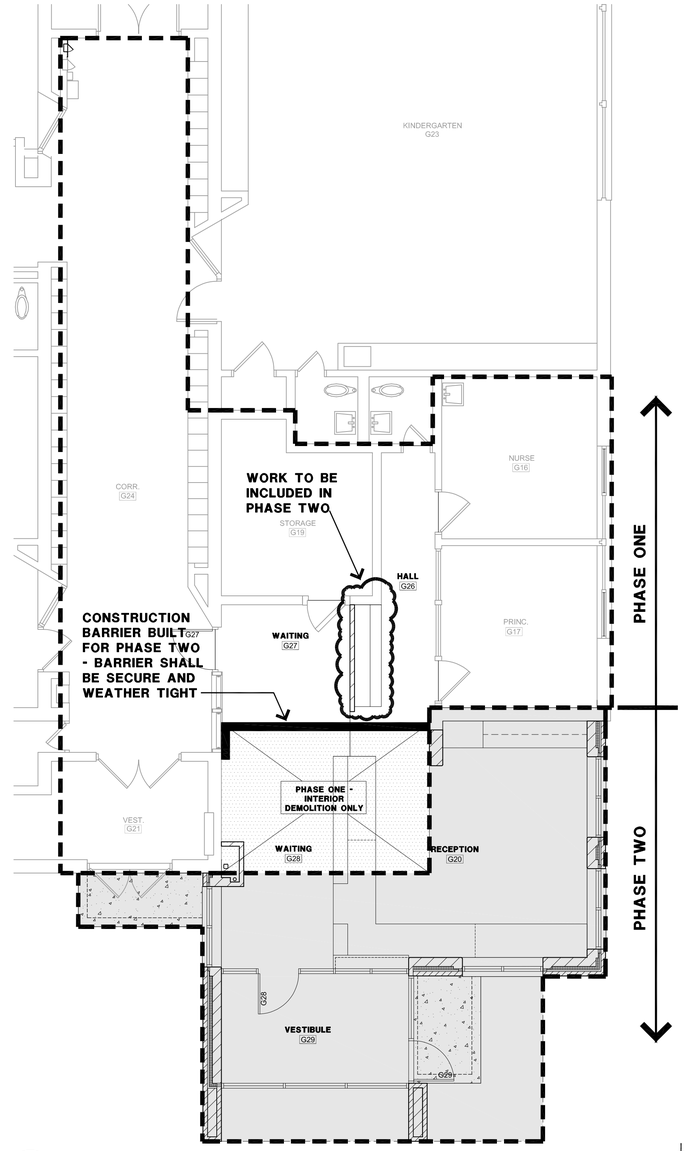
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
GENERAL INFORMATION, SCHEDULES, DOOR AND FRAME ELEV, AND TYP. DETAILS

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

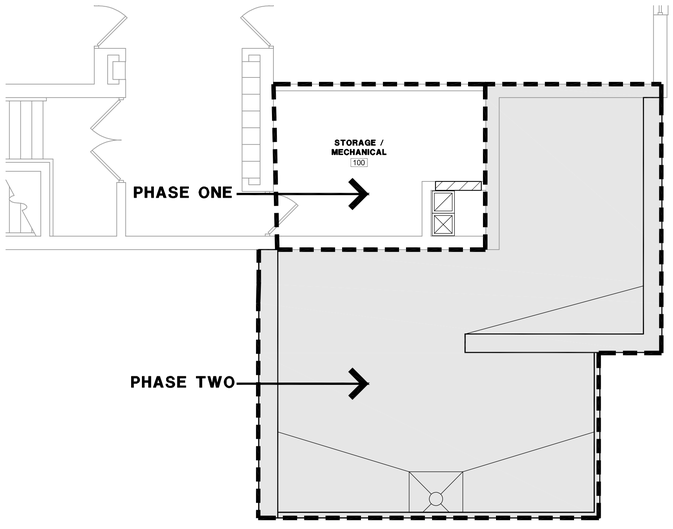
SHEET NUMBER
G102



1 PHASING PLAN - FIRST FLOOR

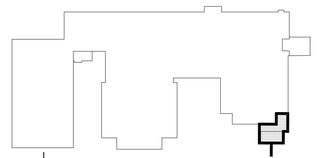
SCALE: NTS

PHASE ONE DATES	PHASE TWO DATES
CONSTRUCTION START DATE:.....JULY 1, 2021	CONSTRUCTION START DATE:.....JULY 1, 2021
SUBSTANTIAL COMPLETION DATE:.....AUGUST 20, 2021	SUBSTANTIAL COMPLETION DATE:.....NOVEMBER 10, 2021
FINAL COMPLETION DATE:.....AUGUST 27, 2021	FINAL COMPLETION DATE:.....NOVEMBER 20, 2021



2 PHASING PLAN - SECOND FLOOR

SCALE: NTS



HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON
ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

PHASING PLAN

PROJECT INFORMATION

Date	MAY 6, 2021
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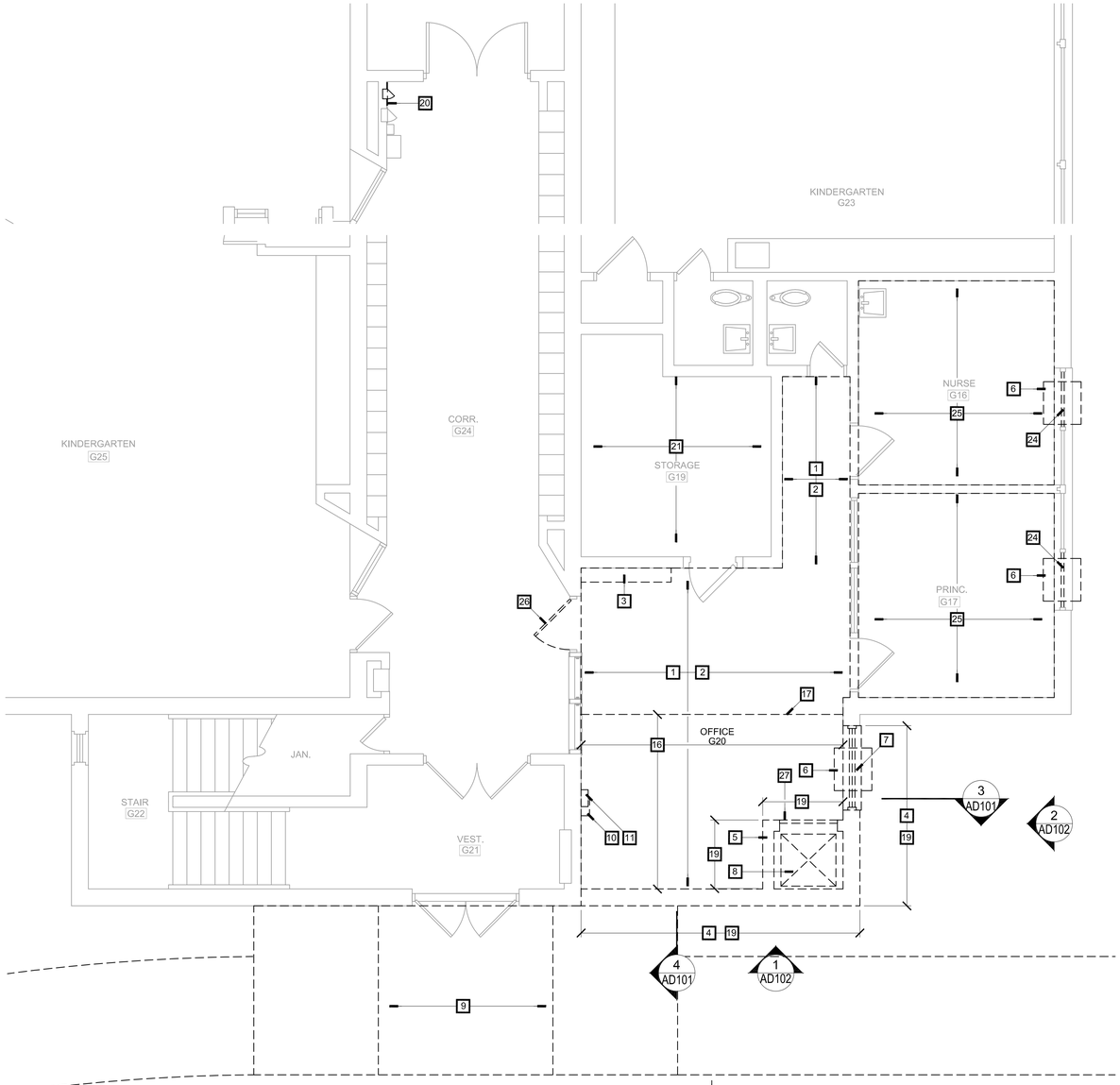
RLJA Proj	2020-013

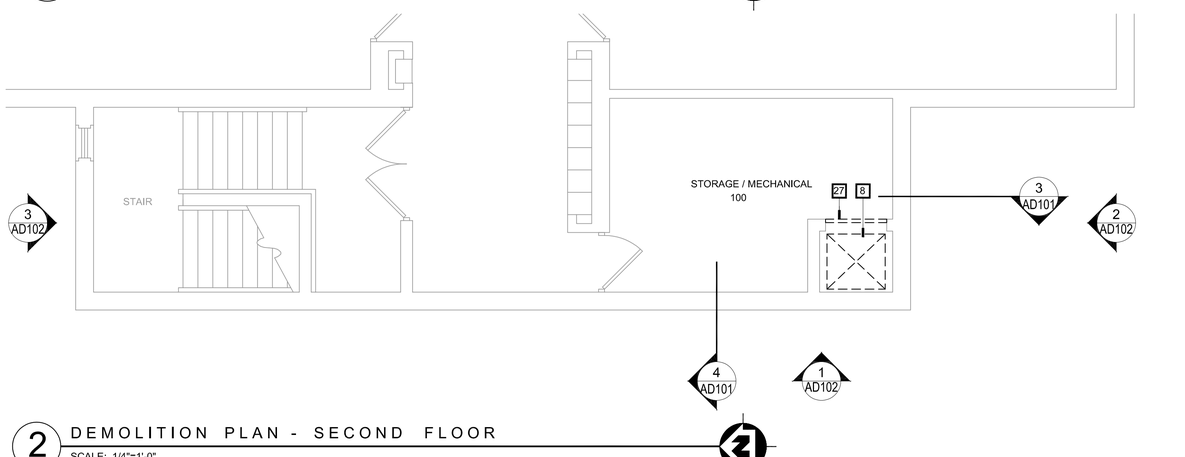
SHEET NUMBER

G103



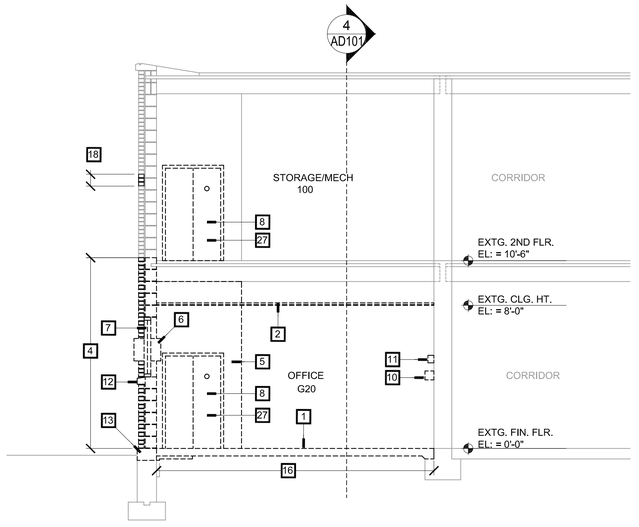
1 DEMOLITION PLAN - FIRST FLOOR

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



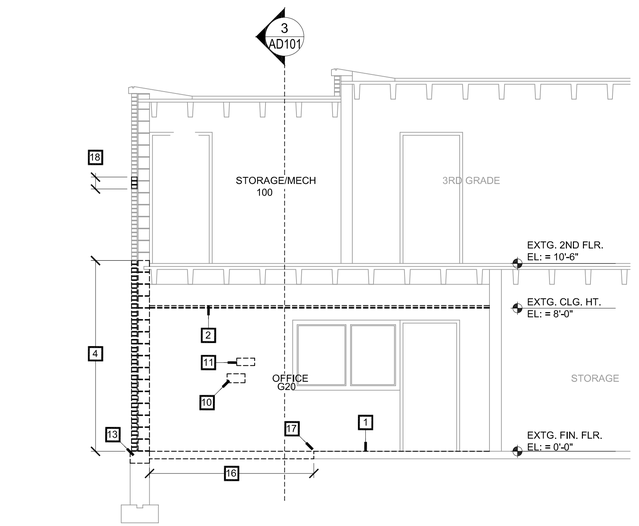
2 DEMOLITION PLAN - SECOND FLOOR

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



3 DEMOLITION - SECTION

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



4 DEMOLITION - SECTION

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

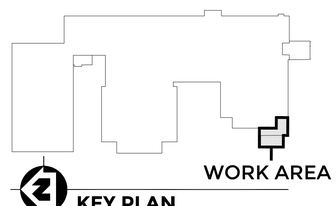
DEMOLITION GENERAL NOTES

APPLIES TO SHEETS AD101 & AD102

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 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. THIS DEMOLITION PLAN IS TO BE USED IN CONJUNCTION WITH THE REST OF THE SHEETS IN THE SET
6. EACH CONTRACTOR IS RESPONSIBLE TO PATCH AND MATCH EXISTING TO REMAINING OPENINGS CREATED FROM DEMOED PENETRATIONS THRU WALLS, CEILINGS AND FLOORS
7. EACH CONTRACTOR IS RESPONSIBLE TO PATCH AND MATCH EXISTING TO WALLS, AND FLOORS FROM DEMOED RADIATORS AND UNIT VENTILATORS
8. ALL ITEMS TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR UNLESS NOTED OTHERWISE
9. REFERENCE HVAC, PLUMBING, AND ELECTRICAL SHEETS FOR ITEMS TO BE REMOVED AND/OR RELOCATED
10. PRIOR TO DEMOLITION THE CONTRACTOR SHALL VERIFY WITH THE OWNER OF ITEMS TO BE SALVAGED IN THE PROJECT AREAS IDENTIFIED FOR DEMOLITION - SALVAGED ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND RETURNED TO THE OWNER - ANY ITEMS NOT WANTED BY THE OWNER SHALL BE DISPOSED OF BY THE CONTRACTOR

DEMOLITION BOX NOTES

1. REMOVE EXISTING CARPET AND PREP FOR NEW FLOOR FINISH
2. REMOVE EXISTING SUSPENDED CEILING SYSTEM, LIGHT FIXTURES AND DIFFUSERS - SEE MEP DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS
3. REMOVE EXISTING BASE CABINET AND UPPER MAIL BOX CASEWORK
4. REMOVE EXISTING BEARING WALL AND FACE BRICK AS REQUIRED - SUPPORT STRUCTURE ABOVE - SALVAGE ENOUGH FACE BRICK TO REINSTALL AND PATCH WALL FOR NEW COUNTER FLASHING - CLEAN SALVAGED FACE BRICK AS REQUIRED
5. REMOVE EXISTING MASONRY WALL - SUPPORT STRUCTURE ABOVE
6. REMOVE EXISTING AND SALVAGE WINDOW AIR CONDITIONER UNIT AND TURN OVER TO THE OWNER
7. REMOVE EXISTING WINDOW COMPLETE
8. CAREFULLY REMOVE EXISTING DUMB WAITER COMPLETE - OWNER WOULD LIKE TO REMOVE LOST ITEMS AT BOTTOM OF SHAFT - OWNER SHALL BE PRESENT DURING REMOVAL - COORDINATE WITH OWNER
9. REMOVE EXISTING PAVING AND STOOP FOOTINGS - SEE CIVIL DRAWINGS FOR DEMOLITION ITEMS
10. REMOVE AND SALVAGE EXISTING MASTER CLOCK SYSTEM - SEE ELECTRICAL DRAWINGS FOR ADDITIONAL NOTES
11. REMOVE AND SALVAGE EXISTING FIRE ALARM PANEL - SEE ELECTRICAL DRAWINGS FOR ADDITIONAL NOTES
12. REMOVE EXISTING STONE WINDOW SILL
13. SAWCUT AND REMOVE EXISTING FOUNDATION AS REQUIRED - SEE STRUCTURAL DRAWINGS FOR NEW WORK
14. REMOVE EXISTING LIGHT FIXTURE AND ASSOCIATED WIRING - SEE ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS
15. REMOVE AND SALVAGE EXISTING WALL MOUNTED BUILDING SIGNAGE AND TURN OVER TO THE OWNER - GROUT SOLID OLD ANCHOR HOLES
16. REMOVE EXISTING CONCRETE SLAB AS REQUIRED
17. SAWCUT EXISTING SLAB - CONTRACTOR TO LOCATE UNDER SLAB UTILITIES PRIOR TO CUTTING/REMOVAL OF CONCRETE
18. REMOVE EXISTING FACE BRICK ONLY
19. CUT DOWN TOP OF EXISTING FOUNDATION - SEE STRUCTURAL
20. REMOVE EXISTING ELECTRICAL PANEL AND MASONRY AS REQUIRED FOR NEW LARGER ELECTRICAL PANEL - SEE ELECTRICAL DRAWINGS FOR PANEL REQUIRMENTS
21. SEE MECHANICAL FOR ADDITIONAL DEMOLITION ITEMS
22. REMOVE AND RELOCATE EXISTING CONDENSATE - SEE MECHANICAL DRAWINGS
23. EXISTING EXHAUST HOOD TO REMAIN
24. REMOVE AND SALVAGE EXISTING INSULATED PANEL - TURN OVER TO THE OWNER
25. REMOVE EXISTING SUSPENDED CEILING SYSTEM - LIGHT FIXTURES SHALL BE REMOVED AND SALVAGED TO INSTALL IN NEW CEILING SYSTEM - SEE MEP DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS
26. REMOVE EXISTING DOOR AND DOOR HARDWARE AS REQUIRED - EXISTING DOOR FRAME TO REMAIN
27. REMOVE DUMB WAITER DOOR AND DOOR FRAME



KEY PLAN

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

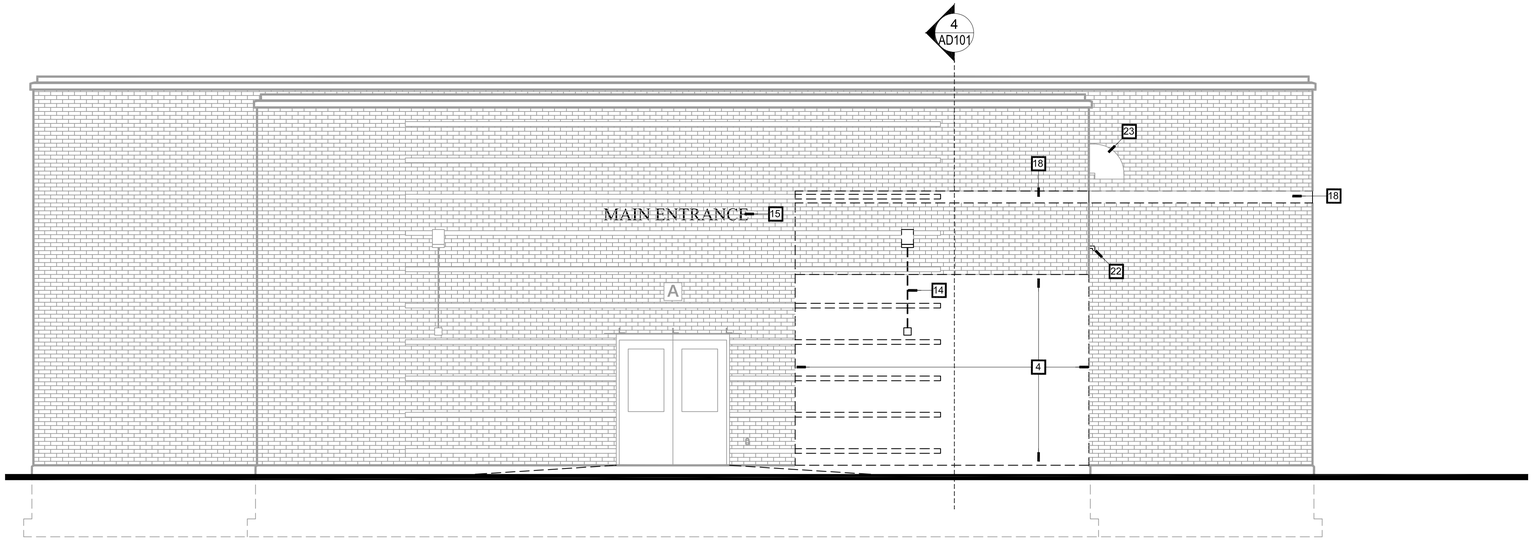
PARTIAL DEMOLITION PLANS, SECTIONS AND NOTES

PROJECT INFORMATION

Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

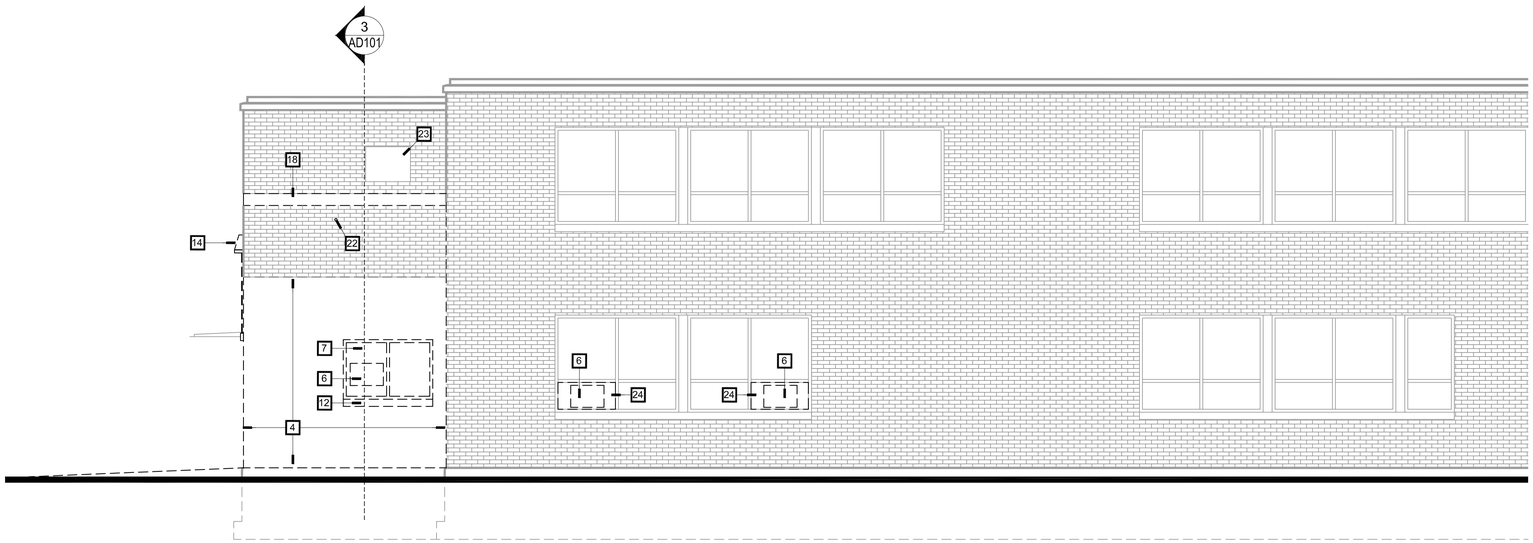
SHEET NUMBER

AD101



1 DEMOLITION - WEST ELEVATION

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

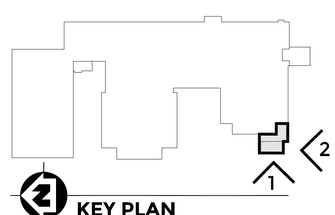


2 DEMOLITION - SOUTH ELEVATION

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

DEMOLITION BOX NOTES

1. REMOVE EXISTING CARPET AND PREP FOR NEW FLOOR FINISH
2. REMOVE EXISTING SUSPENDED CEILING SYSTEM, LIGHT FIXTURES AND DIFFUSERS - SEE MEP DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS
3. REMOVE EXISTING BASE CABINET AND UPPER MAIL BOX CASEWORK
4. REMOVE EXISTING BEARING WALL AND FACE BRICK AS REQUIRED - SUPPORT STRUCTURE ABOVE - SALVAGE ENOUGH FACE BRICK TO REINSTALL AND PATCH WALL FOR NEW COUNTER FLASHING - CLEAN SALVAGED FACE BRICK AS REQUIRED
5. REMOVE EXISTING MASONRY WALL - SUPPORT STRUCTURE ABOVE
6. REMOVE EXISTING AND SALVAGE WINDOW AIR CONDITIONER UNIT AND TURN OVER TO THE OWNER
7. REMOVE EXISTING WINDOW COMPLETE
8. CAREFULLY REMOVE EXISTING DUMB WAITER COMPLETE - OWNER WOULD LIKE TO REMOVE LOST ITEMS AT BOTTOM OF SHAFT - OWNER SHALL BE PRESENT DURING REMOVAL - COORDINATE WITH OWNER
9. REMOVE EXISTING PAVING AND STOOP FOOTINGS - SEE CIVIL DRAWINGS FOR DEMOLITION ITEMS
10. REMOVE AND SALVAGE EXISTING MASTER CLOCK SYSTEM - SEE ELECTRICAL DRAWINGS FOR ADDITIONAL NOTES
11. REMOVE AND SALVAGE EXISTING FIRE ALARM PANEL - SEE ELECTRICAL DRAWINGS FOR ADDITIONAL NOTES
12. REMOVE EXISTING STONE WINDOW SILL
13. SAWCUT AND REMOVE EXISTING FOUNDATION AS REQUIRED - SEE STRUCTURAL DRAWINGS FOR NEW WORK
14. REMOVE EXISTING LIGHT FIXTURE AND ASSOCIATED WIRING - SEE ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS
15. REMOVE AND SALVAGE EXISTING WALL MOUNTED BUILDING SIGNAGE AND TURN OVER TO THE OWNER - GROUT SOLID OLD ANCHOR HOLES
16. REMOVE EXISTING CONCRETE SLAB AS REQUIRED
17. SAWCUT EXISTING SLAB - CONTRACTOR TO LOCATE UNDER SLAB UTILITIES PRIOR TO CUTTING/REMOVAL OF CONCRETE
18. REMOVE EXISTING FACE BRICK ONLY
19. CUT DOWN TOP OF EXISTING FOUNDATION - SEE STRUCTURAL
20. REMOVE EXISTING ELECTRICAL PANEL AND MASONRY AS REQUIRED FOR NEW LARGER ELECTRICAL PANEL - SEE ELECTRICAL DRAWINGS FOR PANEL REQUIRMENTS
21. SEE MECHANICAL FOR ADDITIONAL DEMOLITION ITEMS
22. REMOVE AND RELOCATE EXISTING CONDENSATE - SEE MECHANICAL DRAWINGS
23. EXISTING EXHAUST HOOD TO REMAIN
24. REMOVE AND SALVAGE EXISTING INSULATED PANEL - TURN OVER TO THE OWNER
25. REMOVE EXISTING SUSPENDED CEILING SYSTEM - LIGHT FIXTURES SHALL BE REMOVED AND SALVAGED TO INSTALL IN NEW CEILING SYSTEM - SEE MEP DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS
26. REMOVE EXISTING DOOR AND DOOR HARDWARE AS REQUIRED - EXISTING DOOR FRAME TO REMAIN
27. REMOVE DUMB WAITER DOOR AND DOOR FRAME



HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

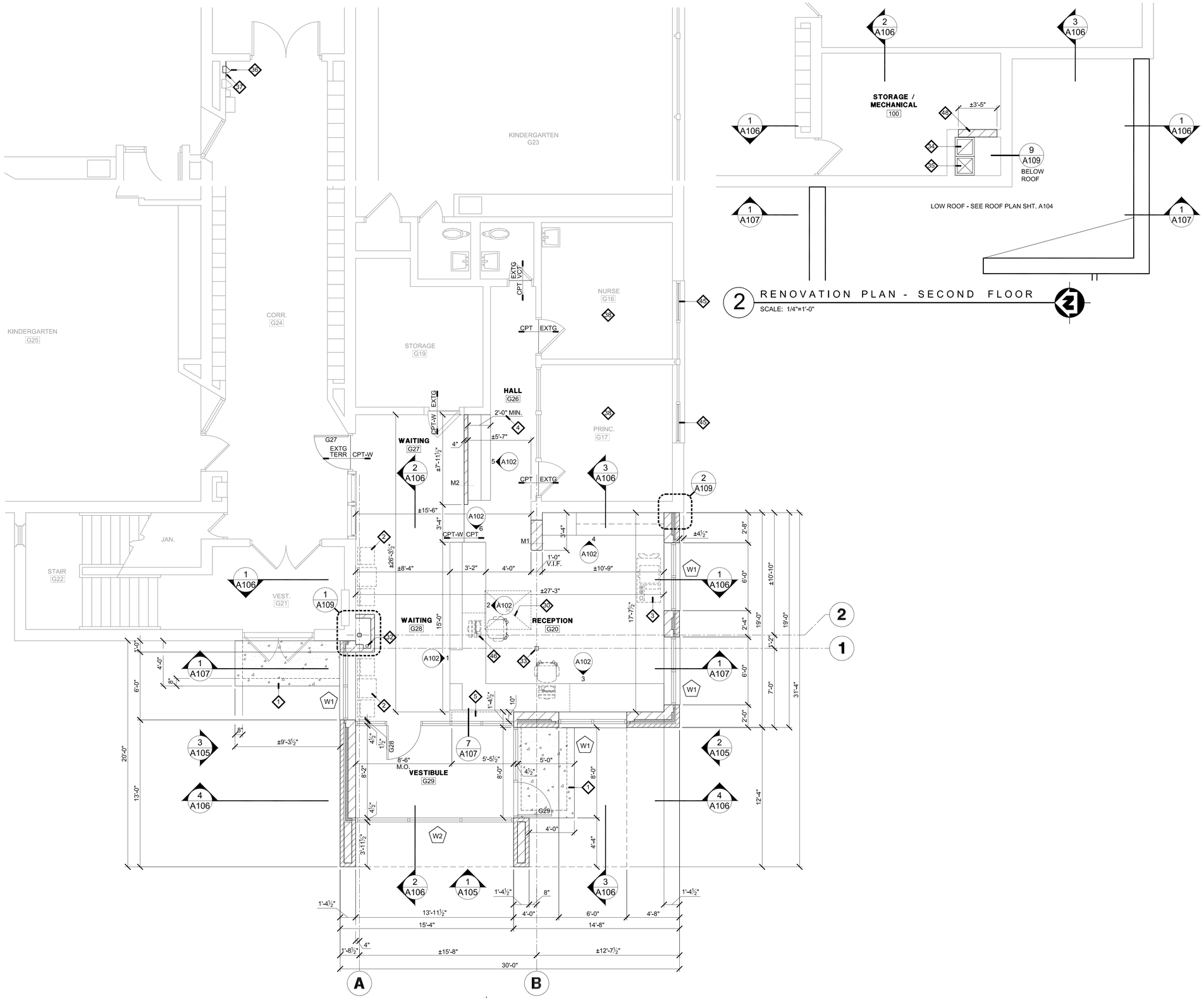
DEMOLITION ELEVATIONS AND NOTES

PROJECT INFORMATION

Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

SHEET NUMBER

AD102



1 RENOVATION PLAN - FIRST FLOOR

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

2 RENOVATION PLAN - SECOND FLOOR

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

KEY NOTES

1. CONCRETE STOOP - PROVIDE POSITIVE SLOPE AWAY FROM THE ENTRANCE - OVERALL SLOPE 1' MAX
2. FURNITURE - BY OWNER
3. EXISTING COPIER - BY OWNER
4. IF MORE ROOM IS NEEDED - 4" WALL CAN BE MOVED OVER DOOR FRAME OF VAULT DOOR - BUT DO NOT IMPEDE A 90 DEGREE DOOR SWING - COORDINATE WITH ARCH./OWNER
5. P.LAM CAP AND APRON OVER MASONRY HALF WALL
6. TOOTH IN MASONRY INFILL - NO RUBBER BASE - DO NOT PAINT CMU
7. EXISTING CONCRETE DOUBLE-TEE FLOOR SYSTEM
8. METAL STUD FRAMING WITH GYP BOARD ABOVE ALUMINUM FRAMING BEYOND
9. STRUCTURAL ANGLED SUPPORT STEEL - SEE STRUCTURAL
10. METAL COPING CAP
11. FACE BRICK - PROVIDE ANTI-GRAFFITI COATING FULL HEIGHT OF WALL - TYPICAL
12. LIMESTONE SILL
13. METAL PANEL
14. EXISTING FACE BRICK
15. ALUMINUM WINDOW SYSTEM
16. EXPOSED CONCRETE SHALL HAVE RUBBED FINISH
17. MEMBRANE FLASHING BEYOND
18. ALUMINUM ENTRANCE SYSTEM
19. CAST ALUMINUM SIGNAGE - SEE SHEET A109
20. ENTRANCE DOOR SIGNAGE - SEE SHEET A109
21. OVERFLOW SCUPPER
22. EXISTING METAL CANOPY
23. EXISTING WALL MOUNTED LIGHT FIXTURE
24. METAL COUNTER FLASHING
25. SALVAGED FACE BRICK - REINSTALLED
26. ROOF DRAIN
27. 4'X4' TARGET SUMP
28. CONTINUOUS METAL SOFFIT VENT
29. CONTINUE METAL PANEL TO UNDERSIDE OF SOFFIT
30. BACKFILL DUMBWAITER PIT AS REQUIRED - SEE STRUCTURAL
31. PROVIDE ADDITIONAL FILL AS REQUIRED OVER EXISTING GRANULAR FILL - SEE STRUCTURAL
32. CONCEAL ROOF DRAIN IN MASONRY PIER - SEE PLUMBING DRAWINGS
33. COLUMN IS SHOWN FOR REFERENCE ONLY - THE COLUMN IS LOCATED ABOVE CEILING - SEE STRUCUTRAL
34. RETURN DUCT DROP IN EXISTING SHAFT - SEE MECHANICAL
35. SUPPLY DUCT DROP IN EXISTING SHAFT - SEE MECHANICAL
36. NEW ELECTRICAL PANEL - SEE ELECTRICAL DRAWINGS
37. PATCH NEW OPENING AS REQUIRED - SEE ELECTRICAL FOR NEW PANEL SIZE - PANEL TRIM SHALL COVER ENLARGED OPENING - VERIFY IN FIELD
38. ROOM TO RECEIVE NEW CEILING - SEE CEILING PLAN AND MECHANICAL DRAWINGS
39. EXISTING EXHAUST HOOD
40. ROOF TOP UNIT - SEE MECHANICAL DRAWINGS
41. INSULATED DUCT WORK - SEE MECHANICAL DRAWINGS
42. REWORKED CONDENSATE DRAIN LINE TO EXTERIOR WALL - SEE MECHANICAL DRAWINGS
43. PROVIDE WALKWAY PAD UNDERNEATH CONDENSATE DRAIN
44. PROVIDE WALKWAY PADS AROUND RTU AND BACK TO EXISTING WALKWAY PADS LEADING OUT FROM THE EXISTING ROOF HATCH
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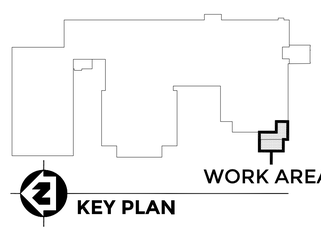
48. MASONRY INFILL - MATCH EXISTING WALL THICKNESS AND COURSING



HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

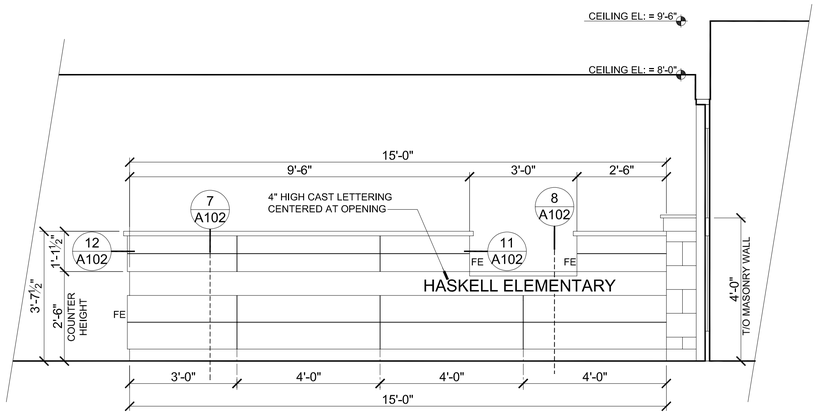
PARTIAL RENOVATION PLANS AND NOTES

PROJECT INFORMATION

Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

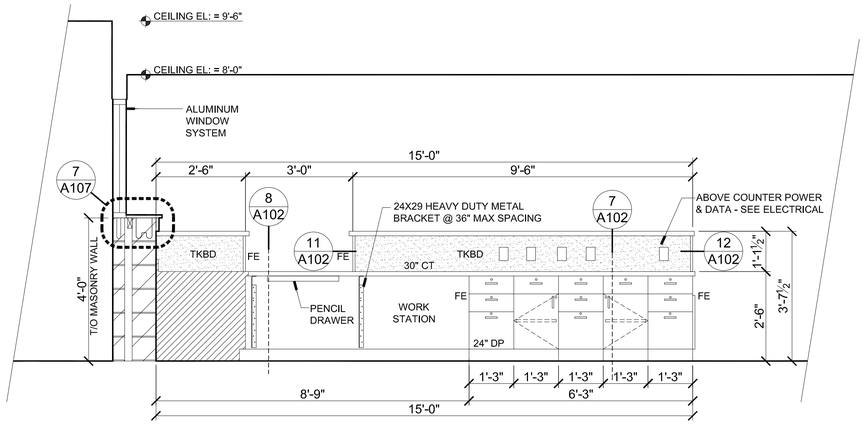
SHEET NUMBER

A101



1 ELEVATION — WAITING RM G28

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

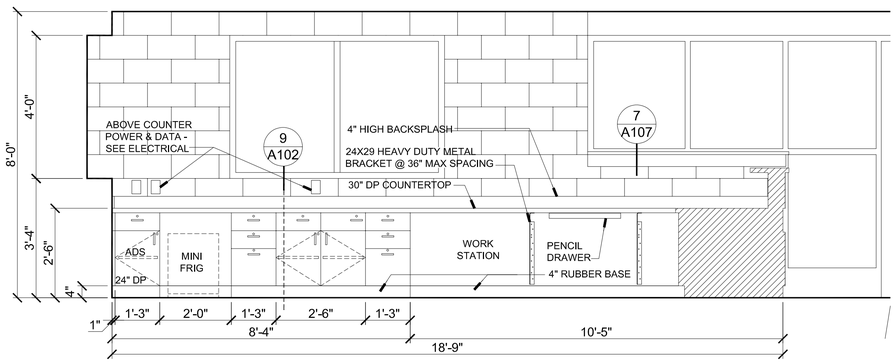


2 ELEVATION — RECEPTION RM G20

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

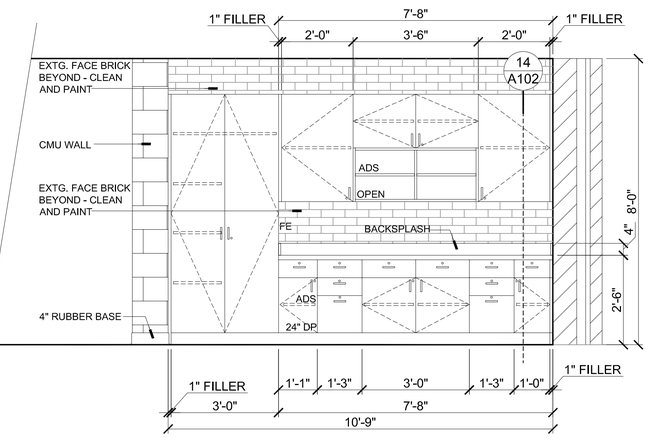
GENERAL NOTES - CASEWORK

1. PROVIDE VERTICAL AND HORIZONTAL FILLER STRIPS AT CABINETS AND WALLS. PROVIDE BACKSPLASH AND RETURNS AT CONNECTIONS BETWEEN VERTICAL WALLS AND A COUNTERTOP.
2. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
3. PROVIDE BACKSPLASH WHEN COUNTERTOPS MEET A WALL OR TALL CABINET.
5. ALL EXPOSED SIDES AND SURFACES OF CABINETS TO BE FINISHED IN LAMINATE UNLESS OTHERWISE NOTED.
6. ALL CASEWORK TO HAVE ADJUSTABLE SHELVES.
7. PROVIDE LOCKS FOR ALL CABINETS AND DRAWERS.
8. WHERE FILLERS ARE SHOWN CLOSE OFF THE TOP AND BOTTOM WITH FILLER PANEL.
9. ALL EXPOSED CORNERS OF COUNTERTOP TO BE ROUNDED.
10. HEAVY DUTY METAL BRACKET SHALL HAVE A MAX. SPACING OF 3'-0"
11. INSTALL GROMMETS IN COUNTERTOP AS NEEDED TO ACCESS POWER OUTLETS.



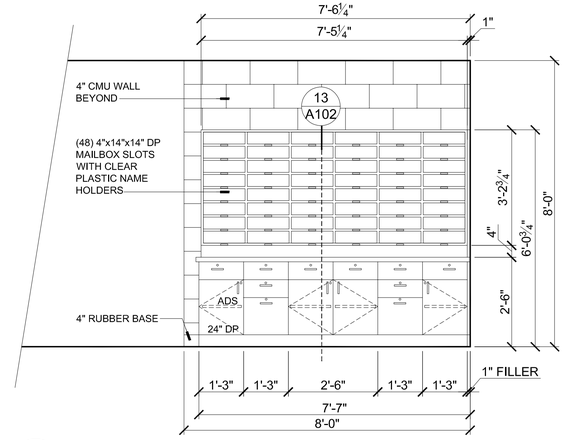
3 ELEVATION — RECEPTION RM G20

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



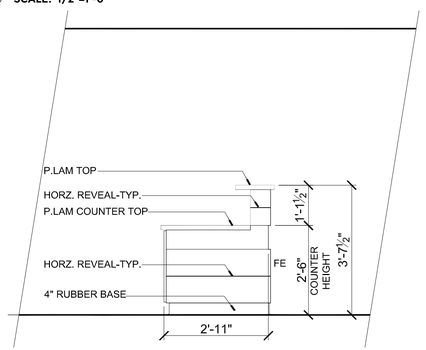
4 ELEVATION — RECEPTION RM G20

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



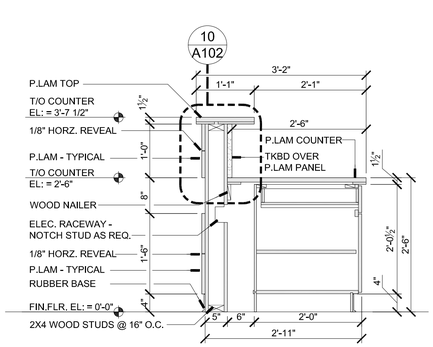
5 ELEVATION — HALL RM G26

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



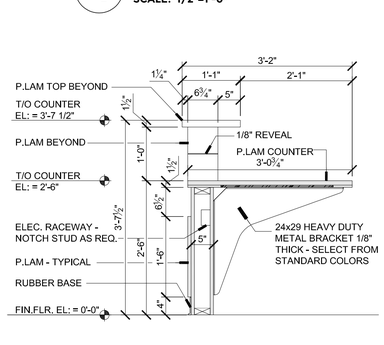
6 ELEVATION — WAITING RM G27

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



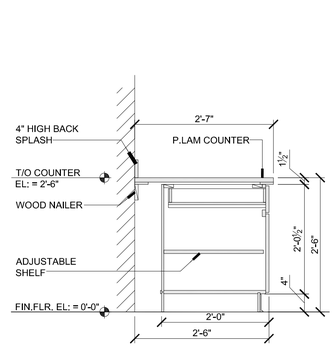
7 DETAIL

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



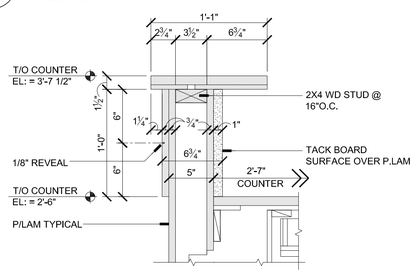
8 DETAIL

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



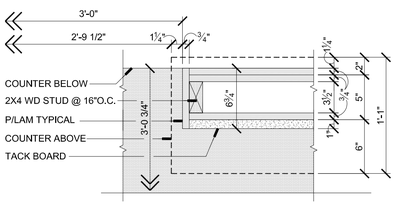
9 DETAIL

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



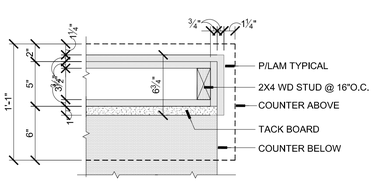
10 DETAIL

SCALE: 11/2"=1'-0"



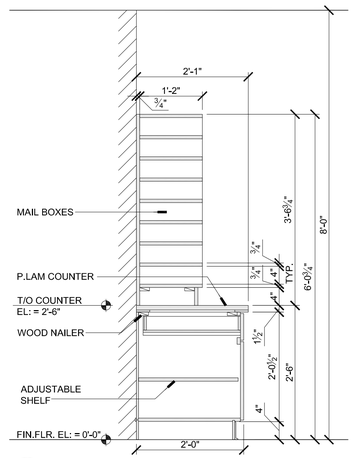
11 DETAIL

SCALE: 11/2"=1'-0"



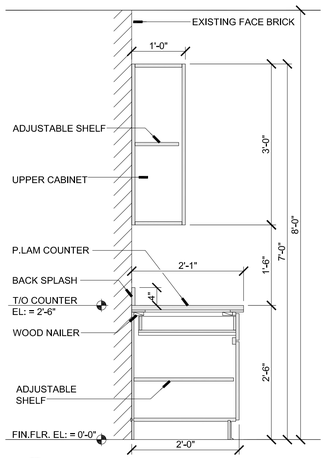
12 DETAIL

SCALE: 11/2"=1'-0"



13 DETAIL

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



14 DETAIL

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

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

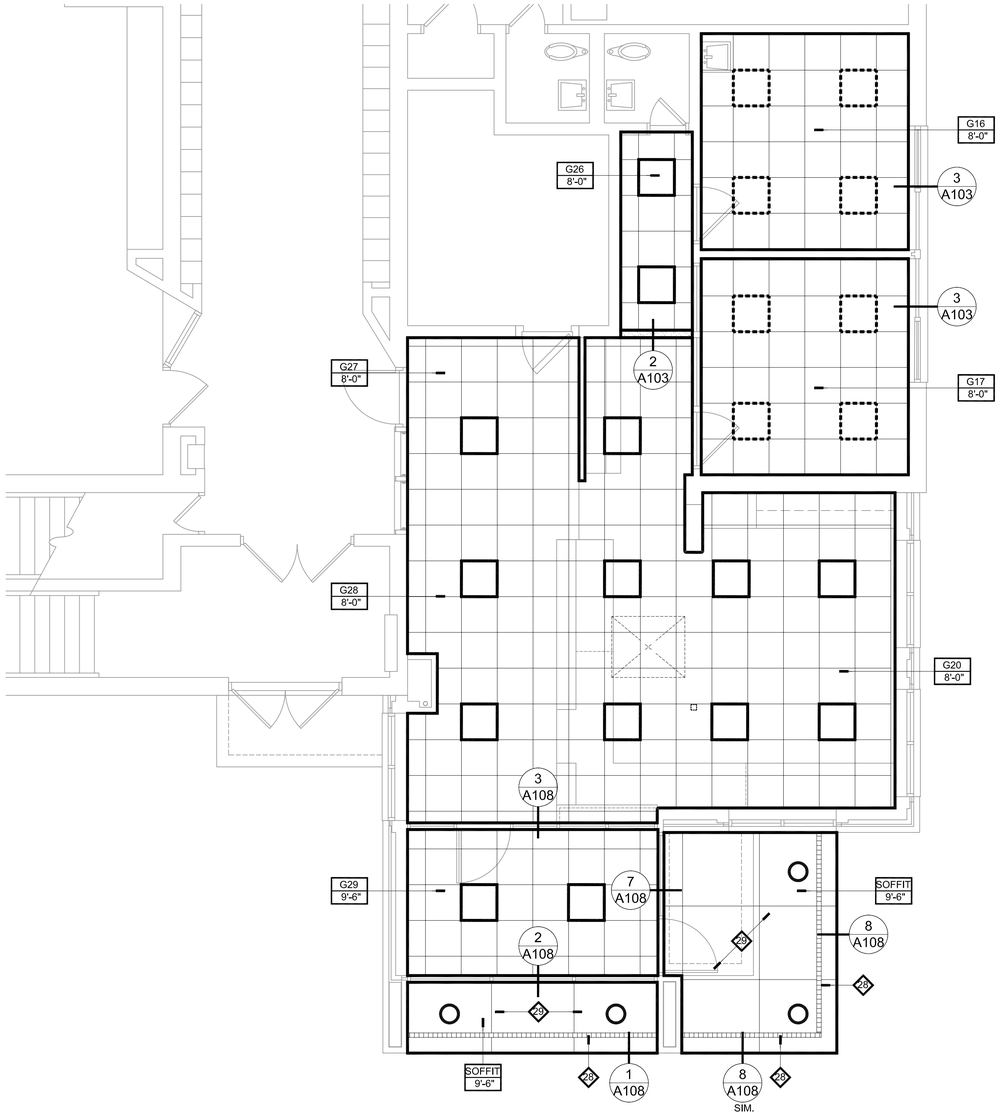
SHEET IDENTIFICATION

CASEWORK ELEVATIONS DETAILS AND NOTES

PROJECT INFORMATION			
Date	MAY 6, 2021		
Rev. Date		RLJA Proj	2020-013

SHEET NUMBER

A102



1 PARTIAL REFLECTED CEILING PLAN - FIRST FLOOR

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, ETC.
3. VERIFY NEW CEILING HEIGHT SHOWN.
4. PROVIDE ADEQUATE CLEARANCE FOR ELECTRICAL AND MECHANICAL WORK.
5. PRIOR TO THE INSTALLATION OF ANY MODIFIED CEILING HEIGHTS NOTIFY ARCHITECT

REFLECTED CEILING PLAN LEGEND

LIGHTING IDENTIFICATION

- 2' X 2' RECESSED LED LIGHT FIXTURE - SEE ELECTRICAL DWGS
- ROUND RECESSED CAN LED LIGHT FIXTURE - SEE ELECTRICAL DRAWINGS

CEILING TILE IDENTIFICATION

- 2'X2' ACOUSTICAL CEILING TILE AND GRID
- GYPSUM WALL BOARD CEILING OR SOFFIT - PAINT

CEILING HEIGHT SYMBOL

- 103 / 9'-0" — ROOM NUMBER / CEILING HEIGHT

DETAIL SYMBOL

- 1 / A106 — DETAIL NUMBER / SHEET NUMBER

KEY NOTES

1. CONCRETE STOOP - PROVIDE POSITIVE SLOPE AWAY FROM THE ENTRANCE - OVERALL SLOPE 1' MAX
2. FURNITURE - BY OWNER
3. EXISTING COPIER - BY OWNER
4. IF MORE ROOM IS NEEDED - 4" WALL CAN BE MOVED OVER DOOR FRAME OF VAULT DOOR - BUT DO NOT IMPEDE A 90 DEGREE DOOR SWING - COORDINATE WITH ARCH./OWNER
5. P.LAM CAP AND APRON OVER MASONRY HALF WALL
6. TOOTH IN MASONRY INFILL - NO RUBBER BASE - DO NOT PAINT CMU
7. EXISTING CONCRETE DOUBLE-TEE FLOOR SYSTEM
8. METAL STUD FRAMING WITH GYP BOARD ABOVE ALUMINUM FRAMING BEYOND
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19. CAST ALUMINUM SIGNAGE - SEE SHEET A109
20. ENTRANCE DOOR SIGNAGE - SEE SHEET A109
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22. EXISTING METAL CANOPY
23. EXISTING WALL MOUNTED LIGHT FIXTURE
24. METAL COUNTER FLASHING
25. SALVAGED FACE BRICK - REINSTALLED
26. ROOF DRAIN
27. 4'X4' TARGET SUMP
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30. BACKFILL DUMBWAITER PIT AS REQUIRED - SEE STRUCTURAL
31. PROVIDE ADDITIONAL FILL AS REQUIRED OVER EXISTING GRANULAR FILL - SEE STRUCTURAL
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35. SUPPLY DUCT DROP IN EXISTING SHAFT - SEE MECHANICAL
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37. PATCH NEW OPENING AS REQUIRED - SEE ELECTRICAL FOR NEW PANEL SIZE - PANEL TRIM SHALL COVER ENLARGED OPENING - VERIFY IN FIELD
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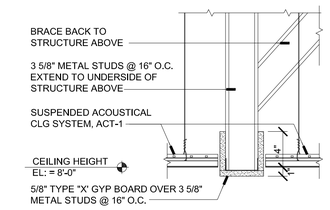
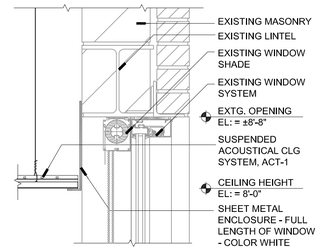


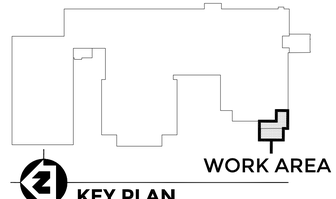
2 DETAIL

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



3 DETAIL

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



KEY PLAN

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

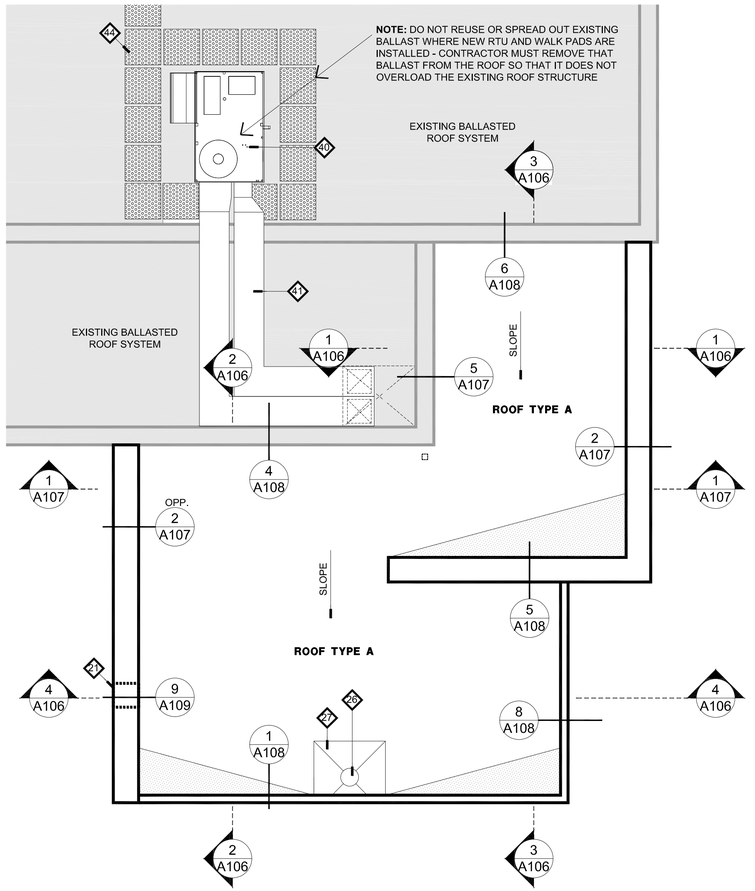
PARTIAL REFLECTED CEILING PLAN, NOTES AND DETAILS

PROJECT INFORMATION

Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

SHEET NUMBER

A103



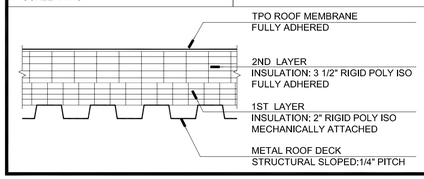
1 PARTIAL ROOF PLAN

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

ROOF TYPES

ROOF TYPE "A"
SCALE: N.T.S

MIN. R-VALUE = R-30ci



ROOF PLAN - LEGEND

INDICATES TAPERED INSULATION SADDLE, SLOPE OF TAPER TO BE 1/2" PER FOOT - VERIFY SLOPE IN FIELD. TAPERED INSULATION MANUFACTURER TO DESIGN TAPERED INSULATION AS REQUIRED TO PROVIDE PROPER SLOPE

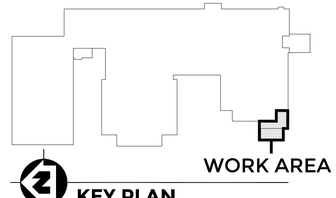
INDICATES EXISTING ROOF

ROOF PLAN - GENERAL NOTES

1. ALL DETAILS SHALL BE APPROVED BY THE ROOFING MANUFACTURER IN ORDER TO KEEP THE NEW ROOFING WARRANTY INTACT
2. PROVIDE SADDLES AT ALL MECHANICAL ROOF TOP UNITS AND OTHER ROOF PENETRATIONS
3. FLASH IN ANY EXISTING ROOF PENETRATIONS PER ROOFING MANUFACTURER'S GUIDELINES
4. ALL FLOW THRU SCUPPERS TO BE INSTALLED PER SMACNA AND MANUFACTURER'S RECOMMENDATIONS
5. ALL EXISTING ROOFS HAVE EXCEEDED MANUFACTURED WARRANTIES

KEY NOTES

1. CONCRETE STOOP - PROVIDE POSITIVE SLOPE AWAY FROM THE ENTRANCE - OVERALL SLOPE 1' MAX
2. FURNITURE - BY OWNER
3. EXISTING COPIER - BY OWNER
4. IF MORE ROOM IS NEEDED - 4" WALL CAN BE MOVED OVER DOOR FRAME OF VAULT DOOR - BUT DO NOT IMPEDE A 90 DEGREE DOOR SWING - COORDINATE WITH ARCH./OWNER
5. P.LAM CAP AND APRON OVER MASONRY HALF WALL
6. TOOTH IN MASONRY INFILL - NO RUBBER BASE - DO NOT PAINT CMU
7. EXISTING CONCRETE DOUBLE-TEE FLOOR SYSTEM
8. METAL STUD FRAMING WITH GYP BOARD ABOVE ALUMINUM FRAMING BEYOND
9. STRUCTURAL ANGLED SUPPORT STEEL - SEE STRUCTURAL
10. METAL COPING CAP
11. FACE BRICK - PROVIDE ANTI-GRAFFITI COATING FULL HEIGHT OF WALL - TYPICAL
12. LIMESTONE SILL
13. METAL PANEL
14. EXISTING FACE BRICK
15. ALUMINUM WINDOW SYSTEM
16. EXPOSED CONCRETE SHALL HAVE RUBBED FINISH
17. MEMBRANE FLASHING BEYOND
18. ALUMINUM ENTRANCE SYSTEM
19. CAST ALUMINUM SIGNAGE - SEE SHEET A109
20. ENTRANCE DOOR SIGNAGE - SEE SHEET A109
21. OVERFLOW SCUPPER
22. EXISTING METAL CANOPY
23. EXISTING WALL MOUNTED LIGHT FIXTURE
24. METAL COUNTER FLASHING
25. SALVAGED FACE BRICK - REINSTALLED
26. ROOF DRAIN
27. 4'X4' TARGET SUMP
28. CONTINUOUS METAL SOFFIT VENT
29. CONTINUE METAL PANEL TO UNDERSIDE OF SOFFIT
30. BACKFILL DUMBWAITER PIT AS REQUIRED - SEE STRUCTURAL
31. PROVIDE ADDITIONAL FILL AS REQUIRED OVER EXISTING GRANULAR FILL - SEE STRUCTURAL
32. CONCEAL ROOF DRAIN IN MASONRY PIER - SEE PLUMBING DRAWINGS
33. COLUMN IS SHOWN FOR REFERENCE ONLY - THE COLUMN IS LOCATED ABOVE CEILING - SEE STRUCUTRAL
34. RETURN DUCT DROP IN EXISTING SHAFT - SEE MECHANICAL
35. SUPPLY DUCT DROP IN EXISTING SHAFT - SEE MECHANICAL
36. NEW ELECTRICAL PANEL - SEE ELECTRICAL DRAWINGS
37. PATCH NEW OPENING AS REQUIRED - SEE ELECTRICAL FOR NEW PANEL SIZE - PANEL TRIM SHALL COVER ENLARGED OPENING - VERIFY IN FIELD
38. ROOM TO RECEIVE NEW CEILING - SEE CEILING PLAN AND MECHANICAL DRAWINGS
39. EXISTING EXHAUST HOOD
40. ROOF TOP UNIT - SEE MECHANICAL DRAWINGS
41. INSULATED DUCT WORK - SEE MECHANICAL DRAWINGS
42. REWORKED CONDENSATE DRAIN LINE TO EXTERIOR WALL - SEE MECHANICAL DRAWINGS
43. PROVIDE WALKWAY PAD UNDERNEATH CONDENSATE DRAIN
44. PROVIDE WALKWAY PADS AROUND RTU AND BACK TO EXISTING WALKWAY PADS LEADING OUT FROM THE EXISTING ROOF HATCH
45. INSTALL INSULATED GLASS IN EXISTING WINDOW FRAME - FIELD VERIFY EXACT DIMENSION - GLASS TYPE TO BE (GL-4)
46. AIPHONE MASTER STATION TO BE LOCATED AT THIS WORK AREA - COORDINATE WITH ELECTRICAL AND OWNER
47. TYPICAL WALL PANEL REVEALS - SEE DETAILS ON SHEET A109
48. MASONRY INFILL - MATCH EXISTING WALL THICKNESS AND COURSING



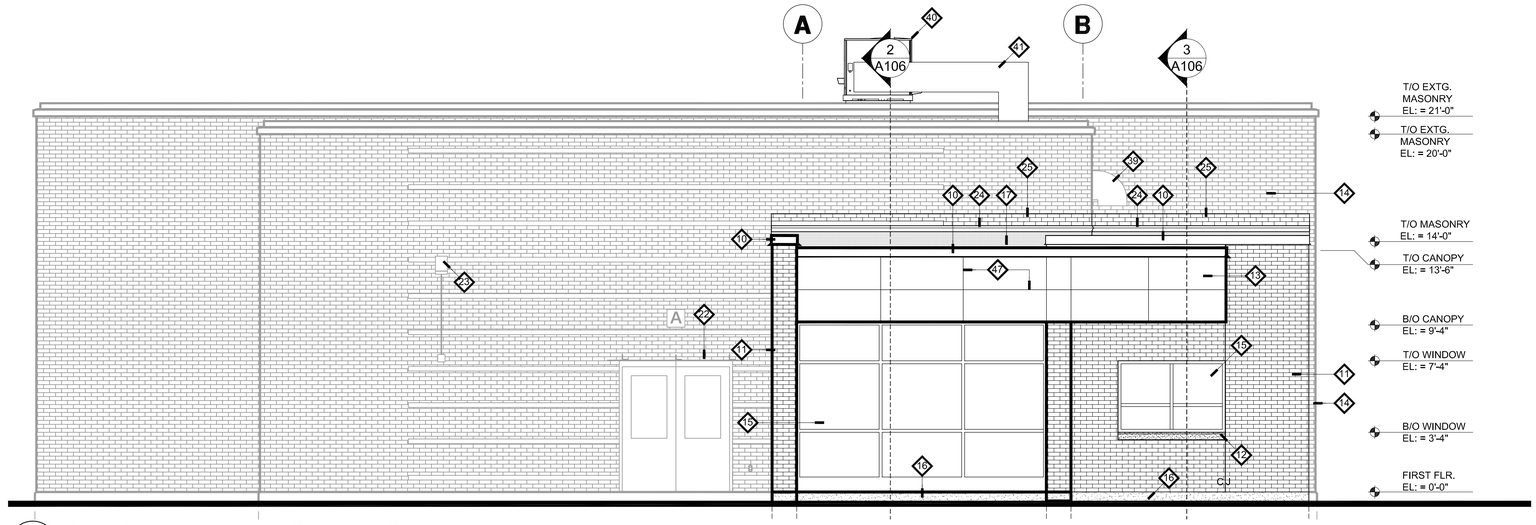
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
PARTIAL ROOF PLAN, NOTES AND DETAILS

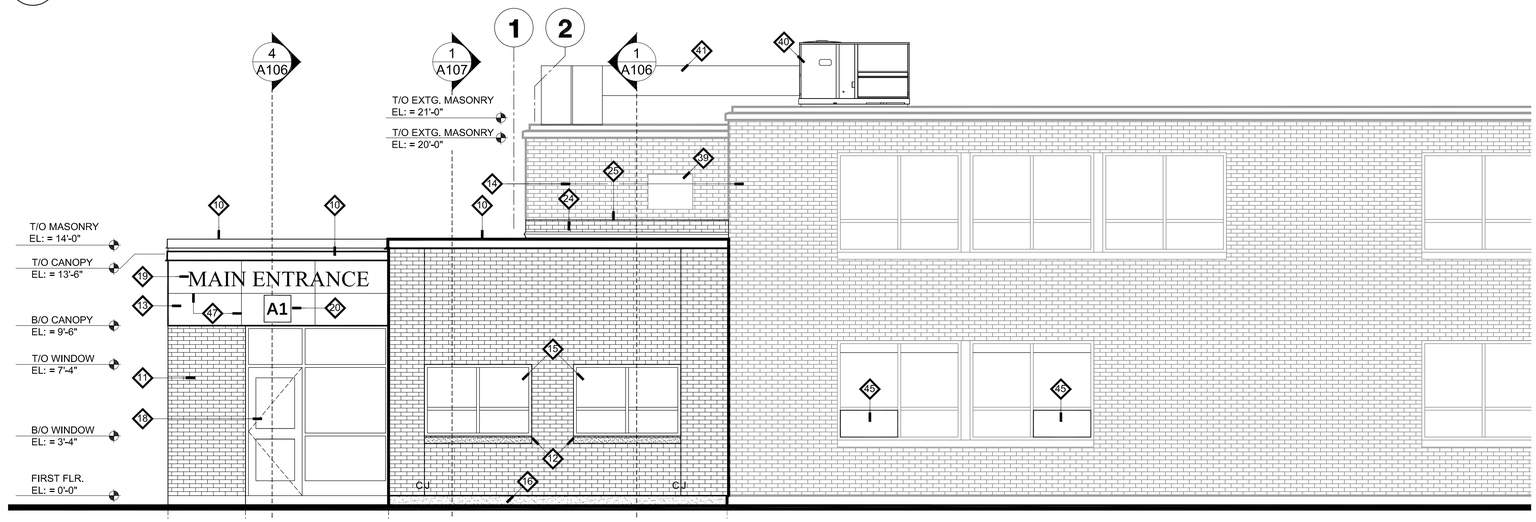
PROJECT INFORMATION
Date: MAY 6, 2021
Rev. Date:
RLJA Proj: 2020-013

SHEET NUMBER
A104



1 BUILDING ELEVATION - WEST

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



2 BUILDING ELEVATION - SOUTH

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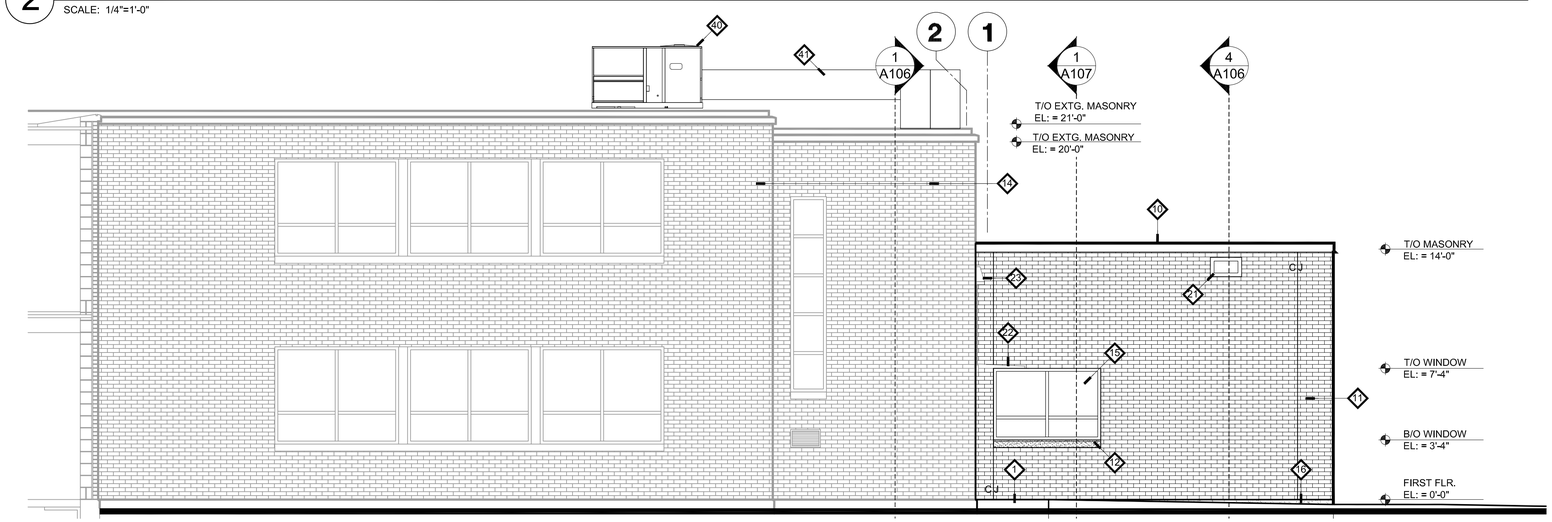

3 BUILDING ELEVATION - NORTH

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KEY NOTES

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23. EXISTING WALL MOUNTED LIGHT FIXTURE
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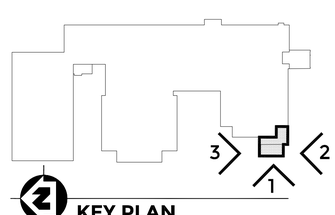


HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

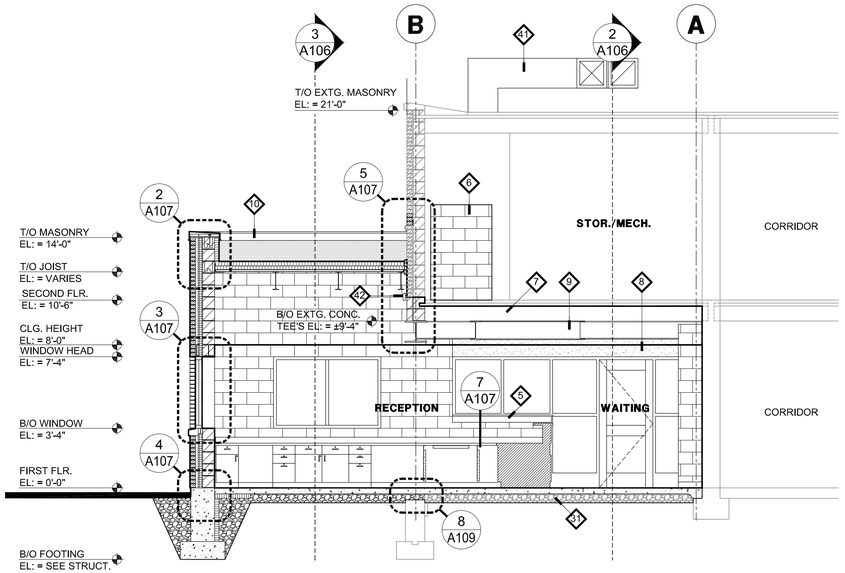
SHEET IDENTIFICATION

BUILDING ELEVATIONS

PROJECT INFORMATION	
Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

SHEET NUMBER

A105



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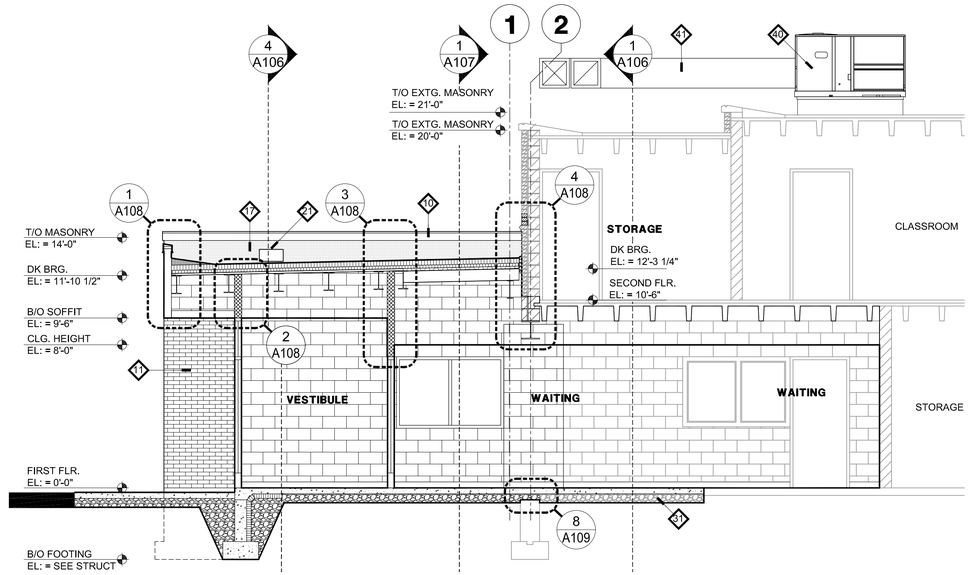

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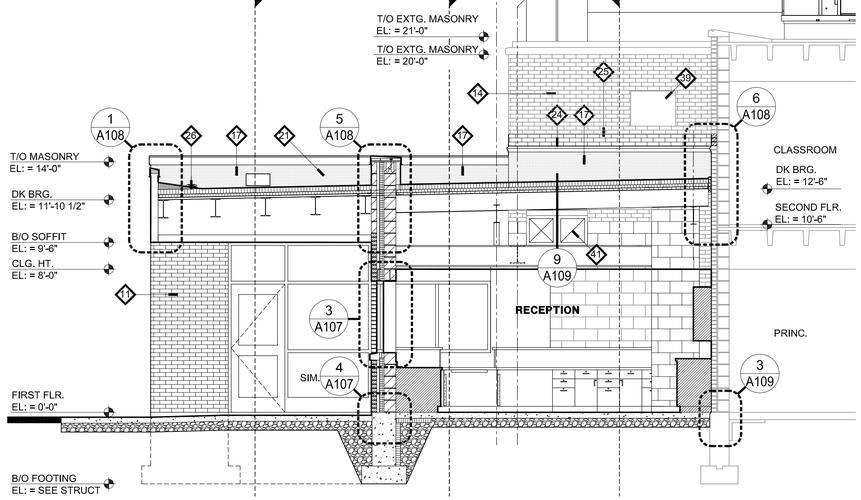

3 BUILDING SECTION

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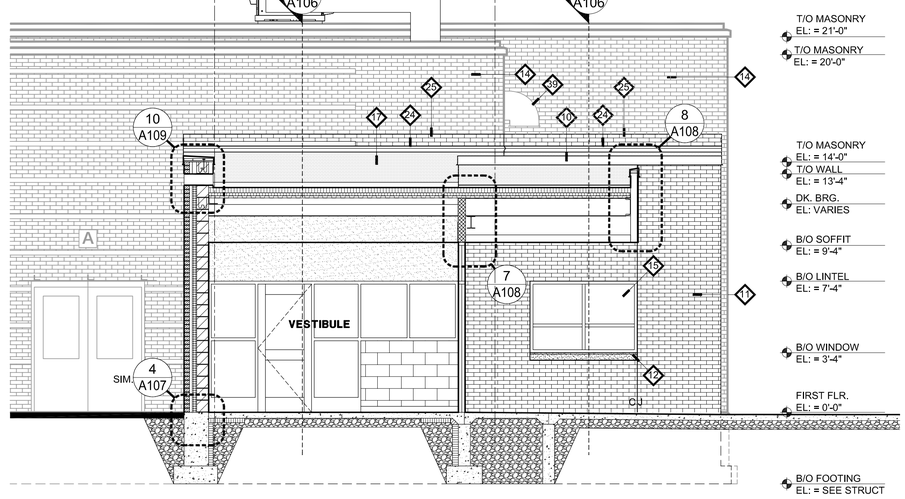

4 BUILDING SECTION

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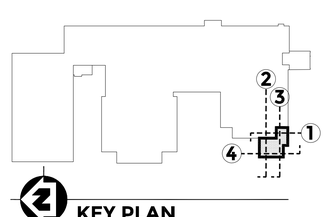


KEY PLAN

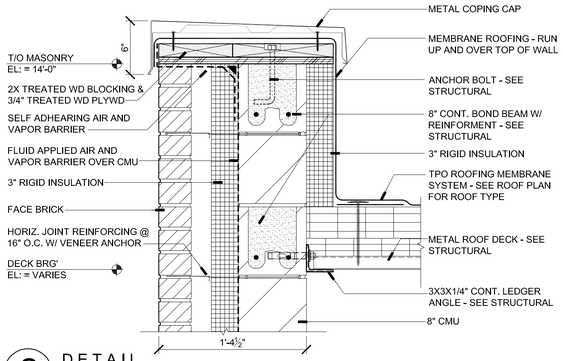
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

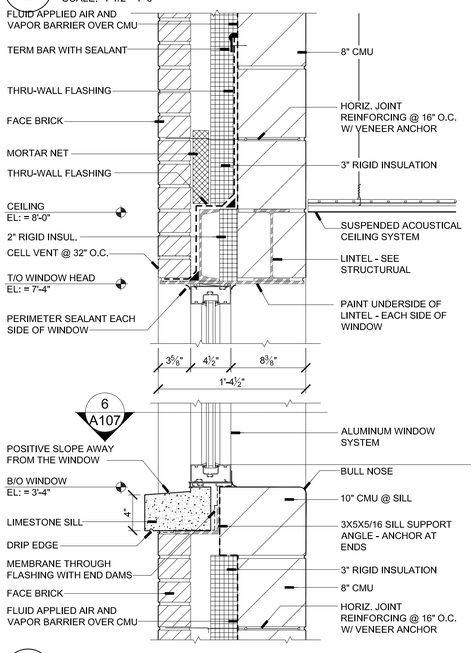
SHEET IDENTIFICATION
BUILDING SECTIONS

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

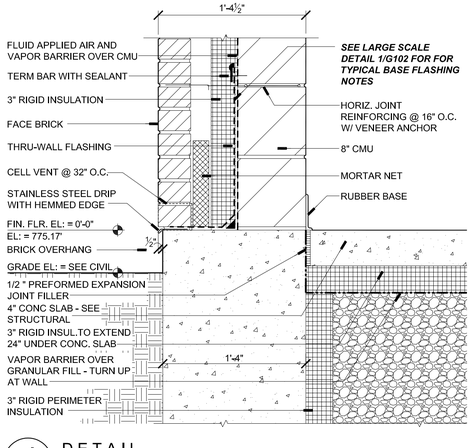
SHEET NUMBER
A106



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



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



4 DETAIL
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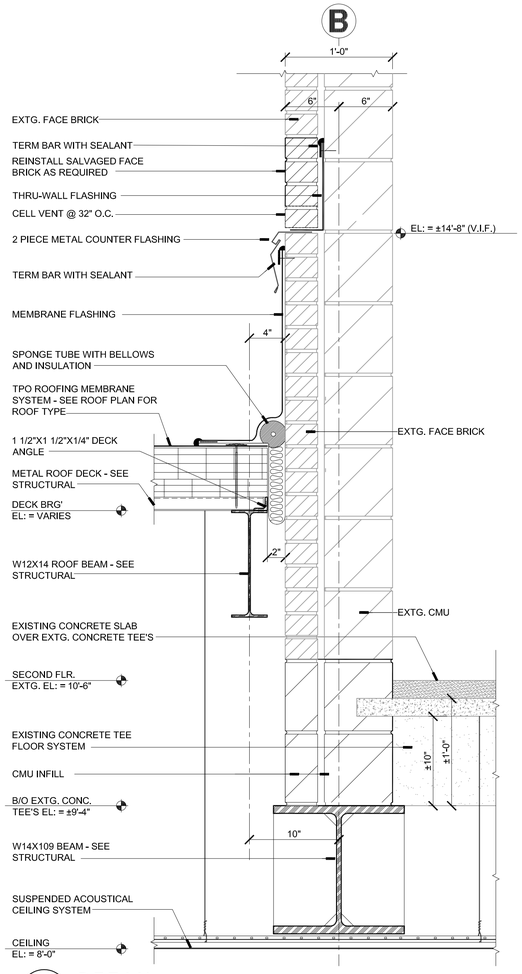
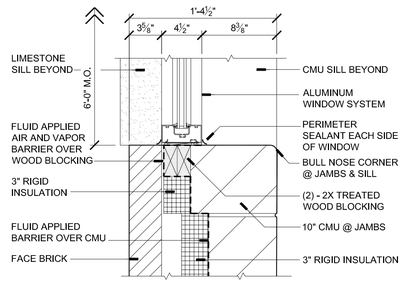
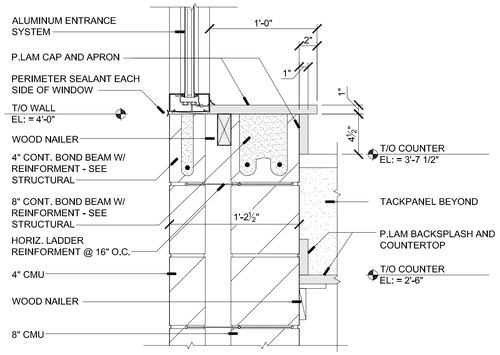


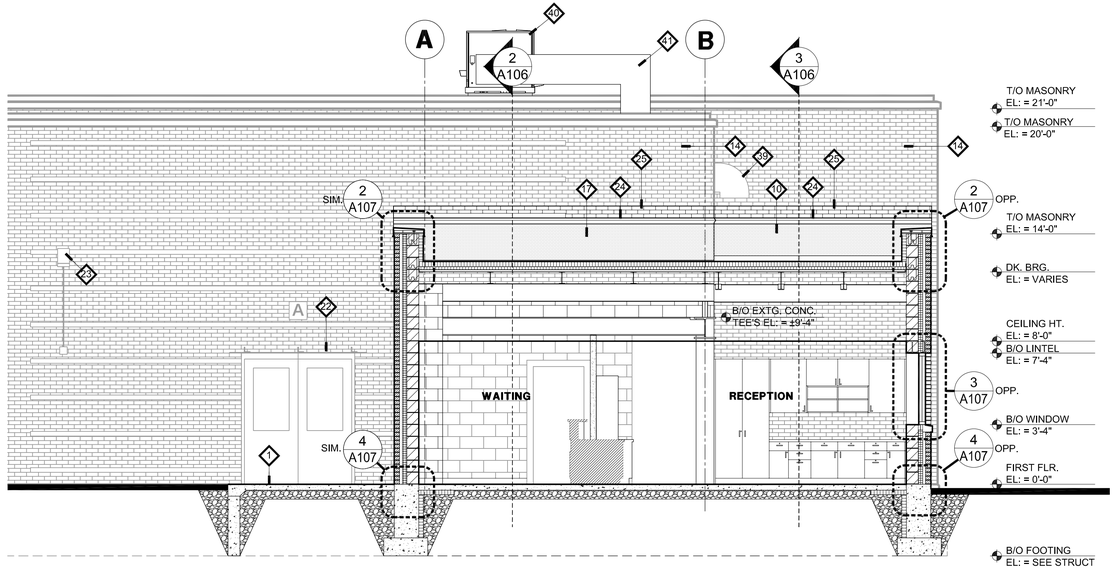
5 DETAIL
SCALE: 1 1/2"=1'-0"



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



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



1 BUILDING SECTION
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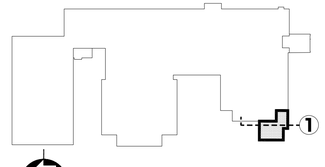


KEY PLAN

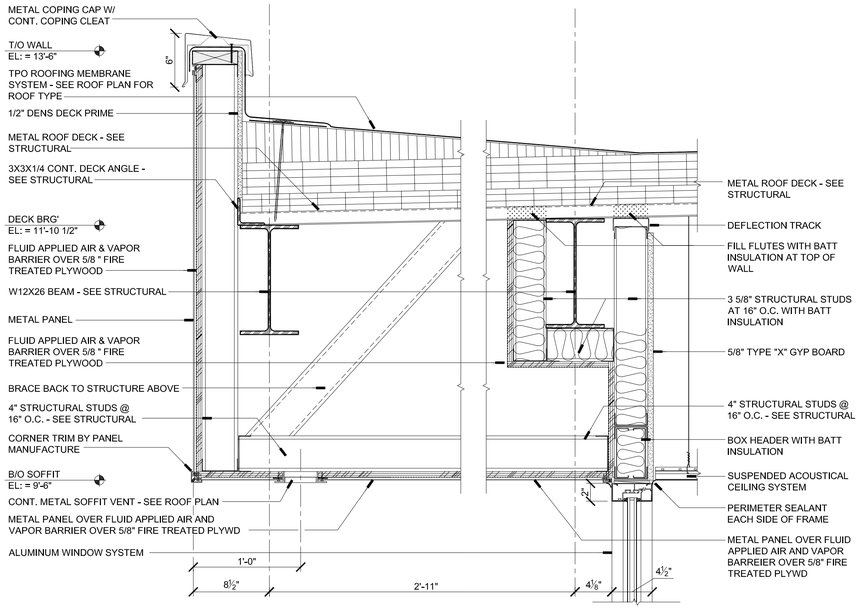
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
BUILDING SECTION AND BUILDING DETAILS

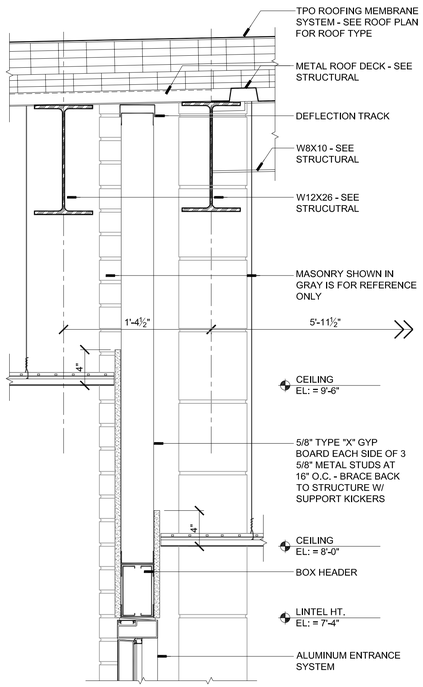
PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
A107



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

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



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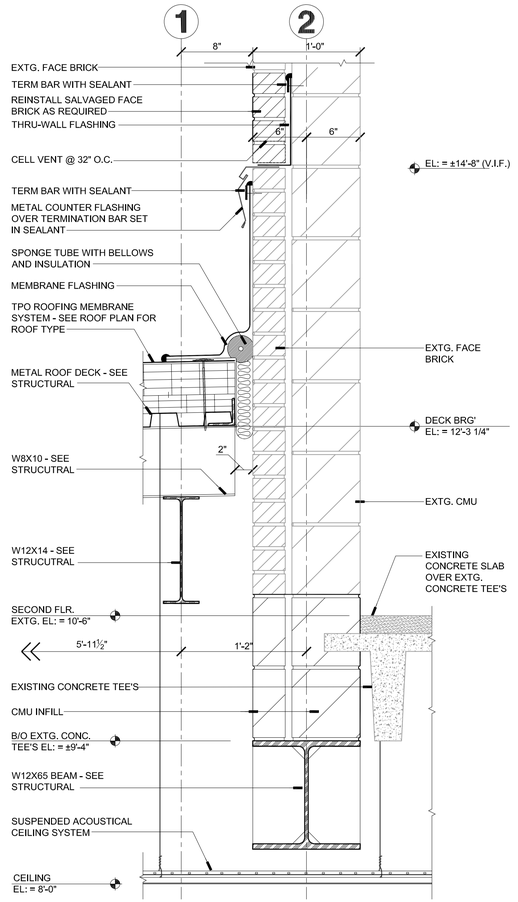

4 DETAIL
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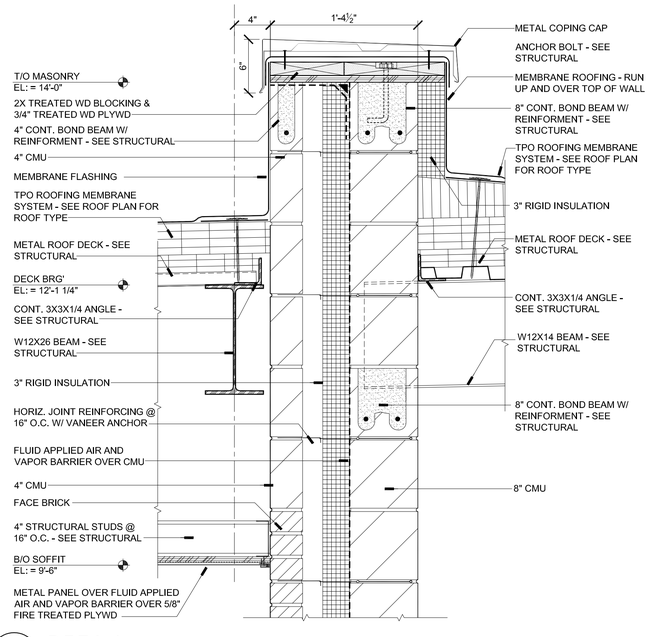

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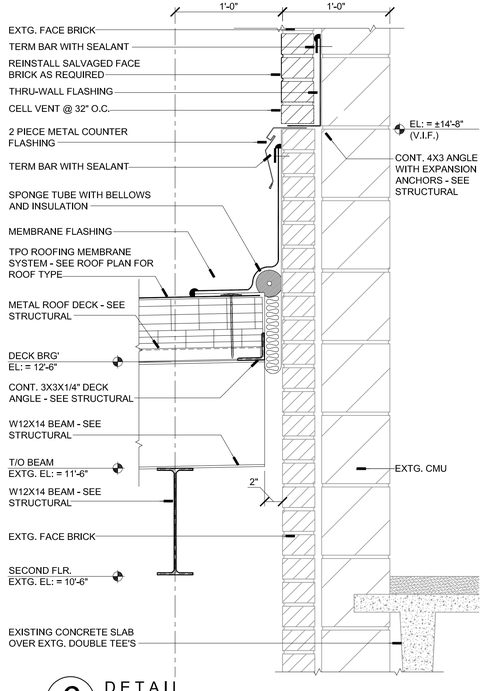

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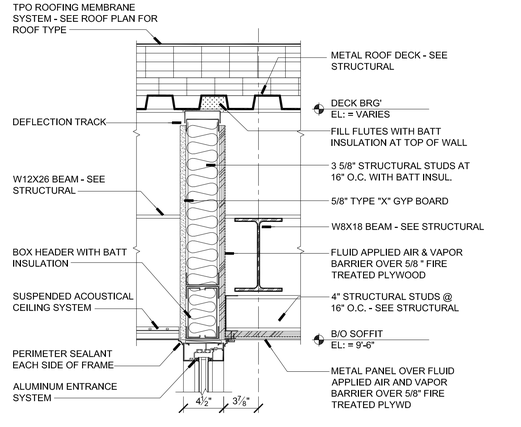

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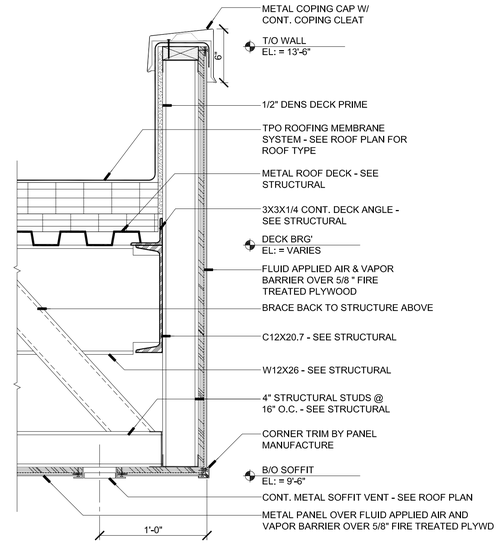


8 DETAIL
SCALE: 1 1/2"=1'-0"

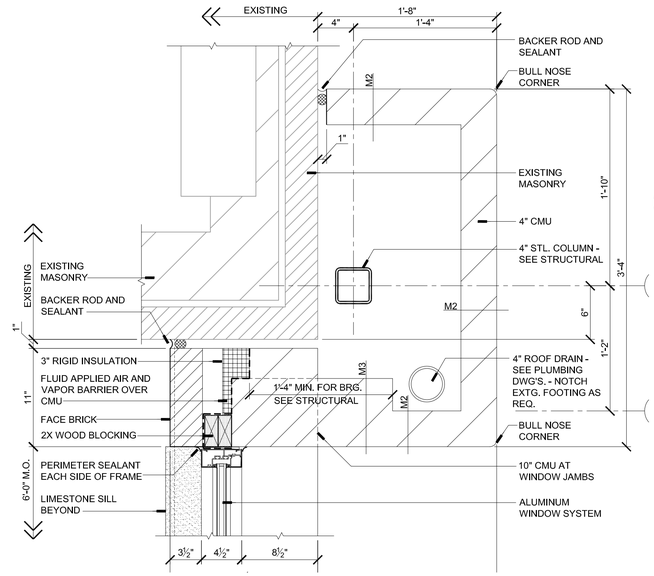
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

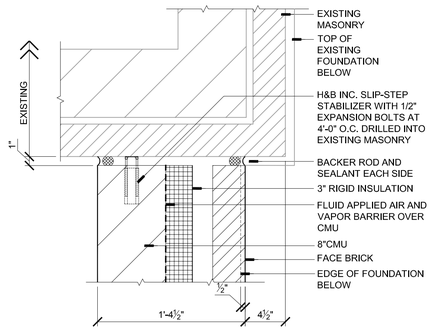
SHEET IDENTIFICATION
BUILDING DETAILS

PROJECT INFORMATION			
Date	MAY 6, 2021		
Rev. Date		RLJA Proj	2020-013

SHEET NUMBER
A108



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



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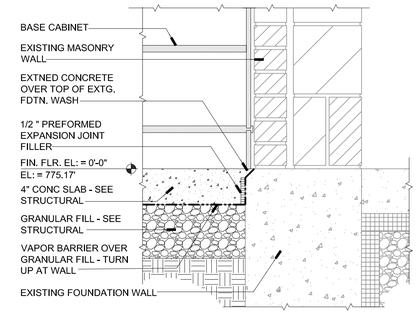
SCALE: 1 1/2"=1'-0"



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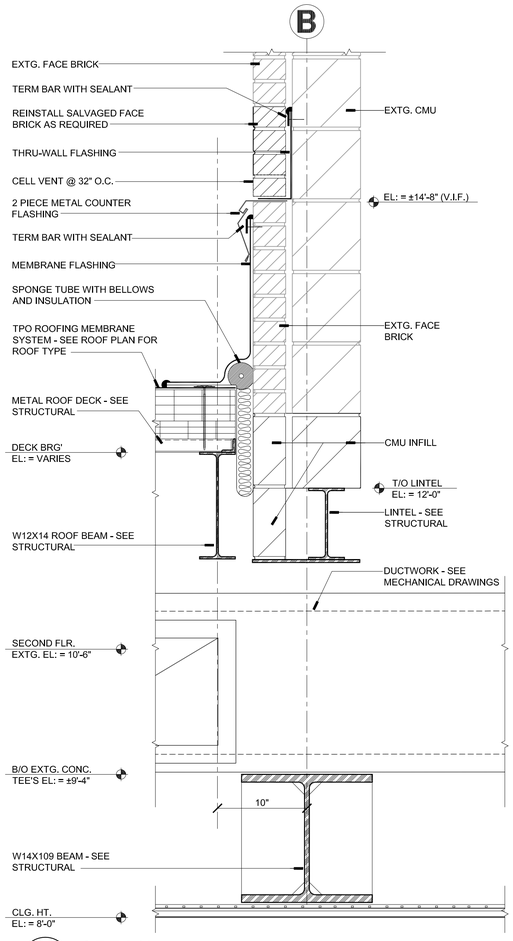
SCALE: 1 1/2"=1'-0"



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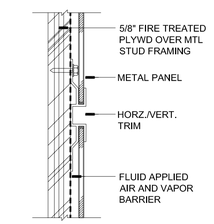
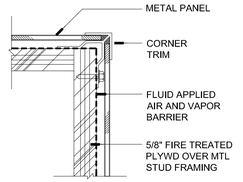
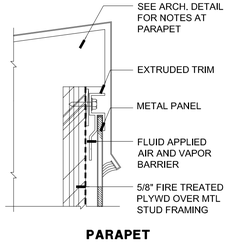


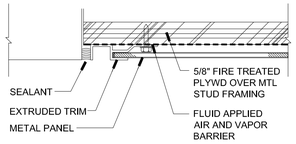
HORIZ./VERT



OUTSIDE CORNER

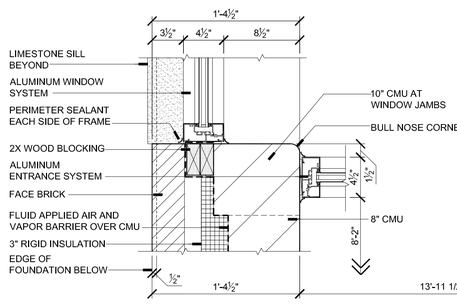


PARAPET

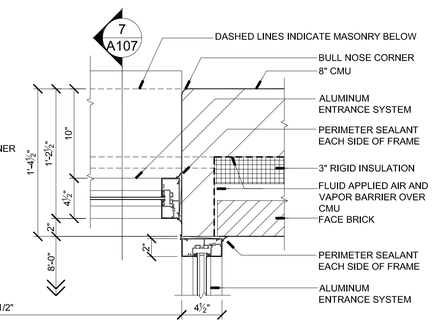


PERIMETER J

11 TYP. METAL WALL PANEL JOINT DETAILS
SCALE: N.T.S.



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



5 DETAIL
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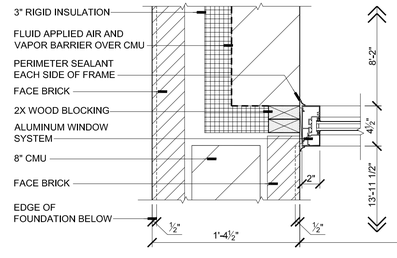

6 DETAIL
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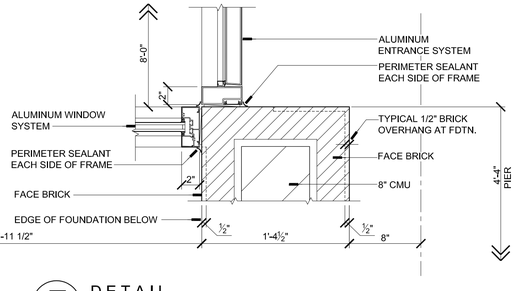
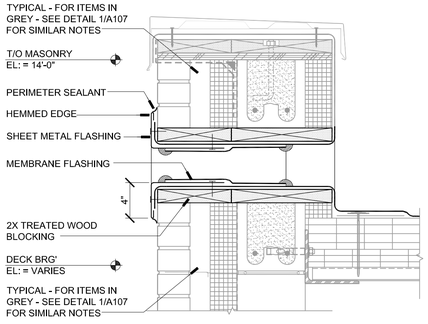
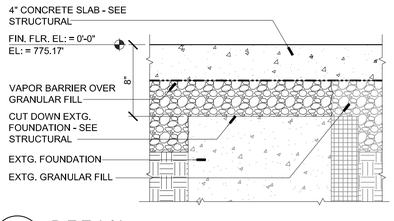


7 DETAIL
SCALE: 1 1/2"=1'-0"



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



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

SIGN TYPE LEGEND (EXTERIOR) SCALE: NTS

NOTE: SEE EXTERIOR ELEVATIONS FOR EXACT PLACEMENT

EXTERIOR DIMENSIONAL LETTERING
10" HIGH LETTERS
CAST ALUMINUM
FONT - VERIFY AND MATCH EXISTING
COLOR - BLACK

MAIN ENTRANCE
10"
+/- 10'-1"

EXTERIOR DOOR IDENTIFICATION SIGN
16"X16" ALUMINUM SINGLE SIDED SIGN
RADIUS CORNERS
CONTACT "SMART SIGNS INC." FOR DISTRICT STANDARDS
- LETTERS TO BE WHITE - VERIFY & MATCH EXISTING
- FIELD COLOR TO BE RED - VERIFY & MATCH EXISTING
- FONT - VERIFY & MATCH EXISTING

A1

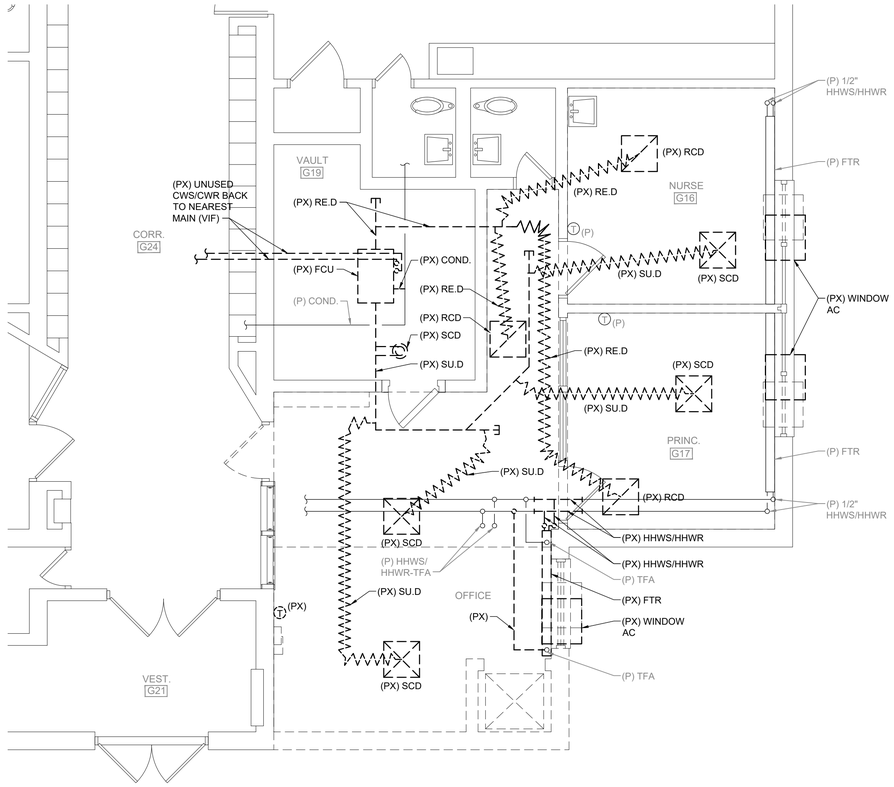
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
BUILDING DETAILS AND EXTERIOR SIGNAGE

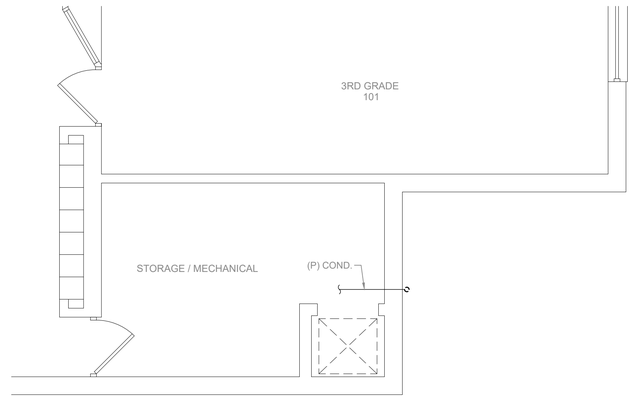
PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
A109



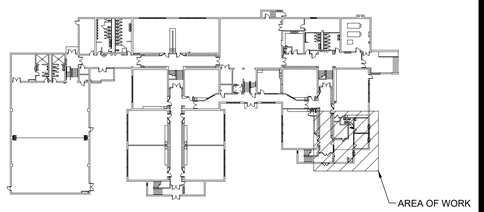
FIRST FLOOR DEMOLITION PLAN - MECHANICAL

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



SECOND FLOOR DEMOLITION PLAN - MECHANICAL

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



KEY PLAN

NO SCALE

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

HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

ROCKFORD, ILLINOIS

(IFB # 21-45)

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

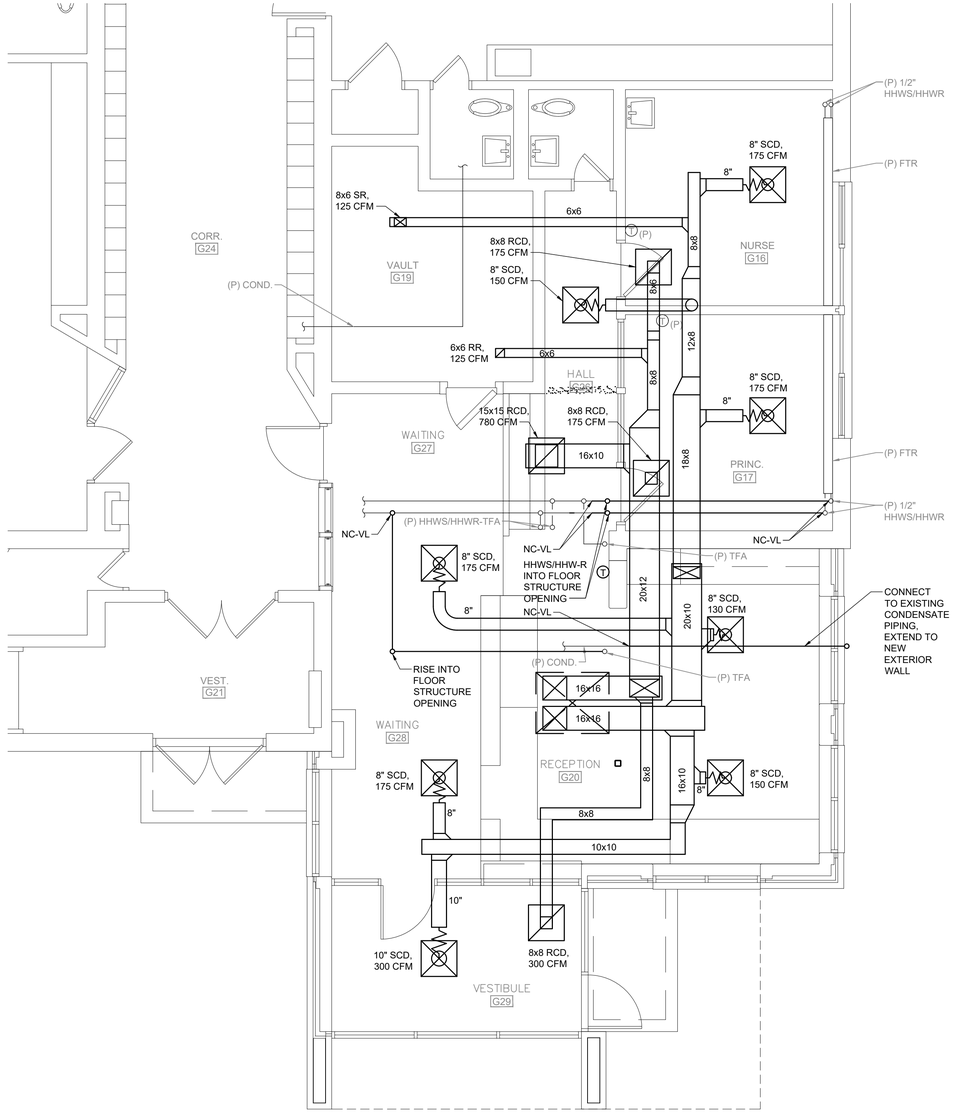
MECHANICAL DEMOLITION PLANS

PROJECT INFORMATION

Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

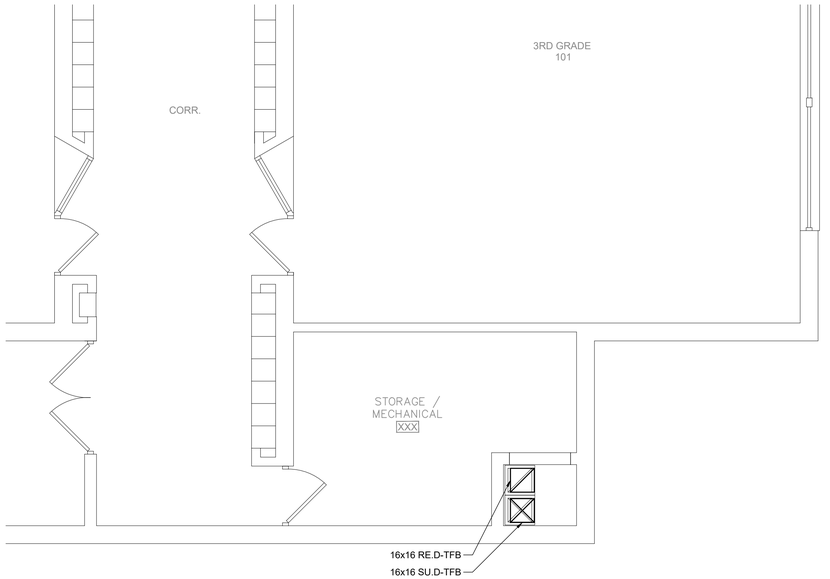
SHEET NUMBER

M101



FIRST FLOOR NEW WORK PLAN - MECHANICAL

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



SECOND FLOOR NEW WORK PLAN - MECHANICAL

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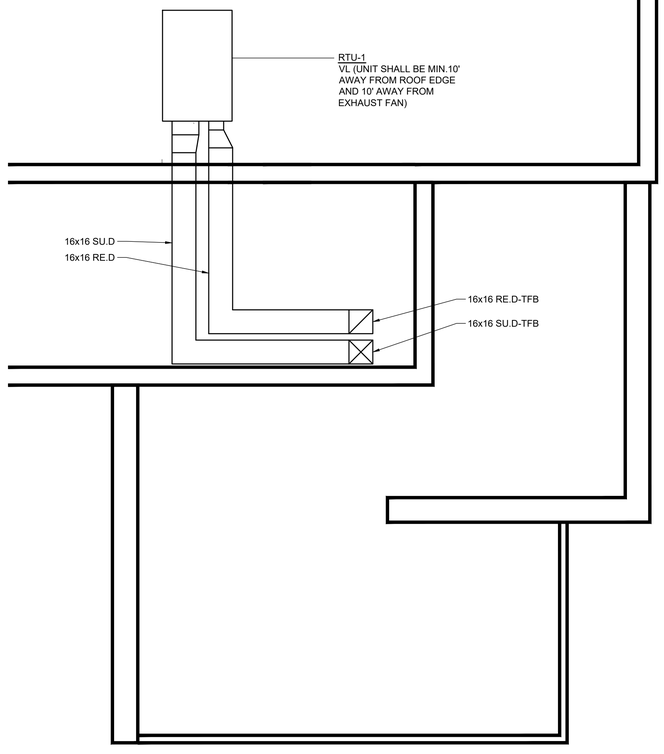
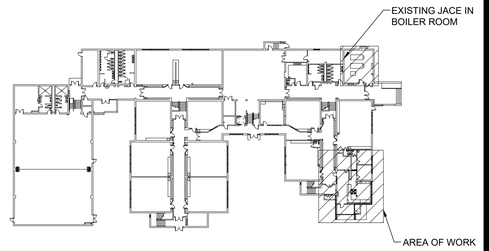


ROOF NEW WORK PLAN - MECHANICAL

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



KEY PLAN

NO SCALE

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
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HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

MECHANICAL NEW WORK PLANS

PROJECT INFORMATION			
Date	MAY 6, 2021		
Rev. Date			
		RLJA Proj	2020-013

SHEET NUMBER

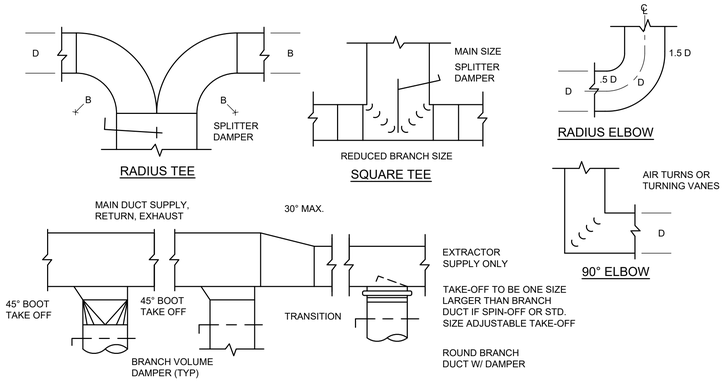
M102

ROOFTOP UNIT (RTU) EQUIPMENT SCHEDULE:

PLAN NO.	RTU-1
RTU MFR	CARRIER
RTU MODEL	48JCEV05
FUEL	NATURAL GAS
MBH IN/OUT MIN	110/88
MBH IN/OUT MAX	82/65
EFFICIENCY	81%
HTG STAGES	2
CFM/ESP (INCHES)	1555/1.0"
OUTSIDE AIR (CFM)	175
DRIVE/SPEEDS	DIRECT/1
NOM COOL CAP @ 95° F. (TON)	4
COOL STAGES	VARIABLE
FILTERS	2"
UNIT VOLTAGE	208-3-60
UNIT MCA	27
UNIT MOCP	30
COMP RLA	14.1
COMP LRA	38
INDOOR FAN FLA	7.1
CONDENSER FAN FLA	1.5
EFFICIENCY RATING	20 SEER
REFRIGERANT	R-410A
APPROX. WT. IN LBS.	1000
NOTES	1-9

NOTES: SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

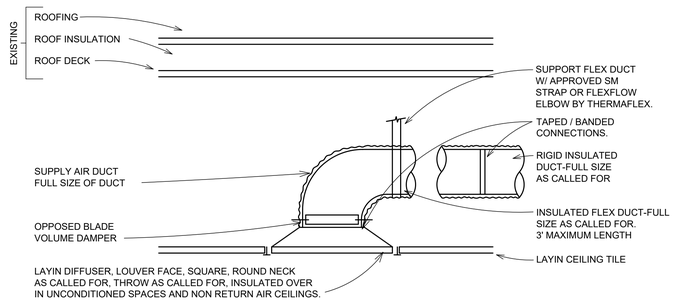
1. UNIT SHALL BE EQUIPPED WITH FULL MODULATING ULTRA LOW LEAK ECONOMIZER, ADJUSTABLE TEMPERATURE LIMIT CONTROLS, BAROMETRIC RELIEF DAMPERS, LOW AMBIENT CONTROL, NON FUSED DISCONNECT.
2. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL VIBRATION ISOLATION CURB, MIN 14" TALL.
3. ALL TO HAVE MINIMUM VENTILATION QUANTITIES SET AS CALLED FOR DURING OCCUPIED HOURS. SET ECONOMIZER CHANGEOVER CONTROL TO LOWEST DEWPOINT (50 DEG. F.) POSSIBLE TO LIMIT MOISTURE CONTENT OF AIR ENTERING BUILDING. PROVIDE DEEP SEAL TRAPPED CONDENSATE FROM DRAIN PAN CONNECTION TO ROOF.
4. CONTROLS CONTRACTOR TO FURNISH AND INSTALL ALL DDC CONTROLS TO TIE INTO EXISTING CONTROLS SYSTEM; UNIT CONTROLLER (LONWORKS), WALL MOUNTED TEMPERATURE SENSOR, SYSTEM SENSORS, WIRING, PROGRAMMING, GRAPHICS, ETC. AS SHOWN ON CONTROLS DIAGRAMS AND POINTS LIST.
5. UNIT TO HAVE FULL SIZE GAS CONNECTION WITH LINE SIZE VALVE, UNION AND DIRT LEG.
6. UNIT TO HAVE FULL SIZE FLEXIBLE DUCT CONNECTION AT UNIT WITH FULL SIZE SUPPLY AND RETURN DUCT CONNECTIONS WITH 1" DL AT DROPS.
7. UNIT TO OPERATE FOR OCCUPIED MODE WITH FAN OPERATION, HEAT OR COOL AS CALLED FOR ON CONTROLLING ROOM TEMPERATURE SENSOR, OUTSIDE AIR DAMPER OPEN TO MINIMUM POSITION. UNIT TO CYCLE FOR UNOCCUPIED MODE WITH HEAT OR COOL AS CALLED FOR ON CONTROLLING ROOM TEMPERATURE SENSOR, OUTSIDE AIR DAMPER CLOSED.
8. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE FILTER, ECONOMIZER, OR UNIT PRESSURE DROPS.
9. HVAC CONTRACTOR TO COORDINATE ALL FINAL SIZES WITH MANUFACTURER(S) PRIOR TO ORDERING, TO ASSURE PROPER USE AND SELECTION. CONTROL PACKAGES TO INCLUDE ALL NECESSARY RELAYS, DUCT SMOKE DETECTOR (BY E.C.), CONTACTORS, CONTROL CABINET/ PANELS, TRANSFORMERS, WIRING TERMINAL STRIP, WIRING DIAGRAMS, COMPLETE INSTALLATION DETAILS/MATERIAL LISTS/STARTUP AND CHECK OUT PROCEDURE FOR THE SYSTEM BY MANUFACTURER'S REP AND FACTORY CHECK OUT WITH WRITTEN ASSURANCE THAT THE SYSTEM IS OPERATING AND INSTALLED IN CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS/RECOMMENDATIONS.



MAIN-BRANCH DUCT CONNECTIONS

DUCT DETAILS

NO SCALE



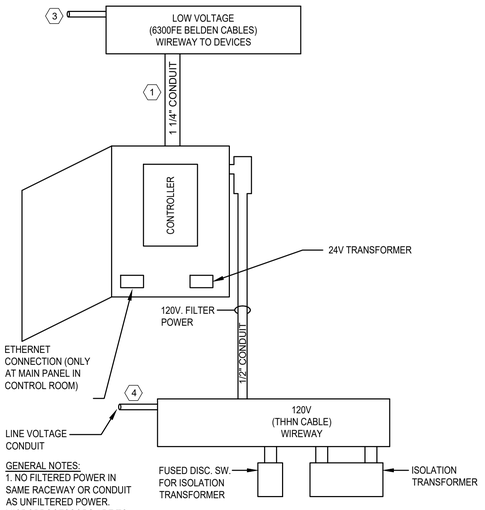
LAY-IN CEILING DIFFUSER DETAIL

NO SCALE

CONTROLS SYMBOLS	
SYMBOL	DESCRIPTION
AI POINT NAME / POINT NAME AO	DDC POINT DESCRIPTOR WITH NAME AI - ANALOG INPUT DI - DIGITAL INPUT AO - ANALOG OUTPUT DO - DIGITAL OUTPUT
TS1	TEMPERATURE SENSOR WITH AVERAGING ELEMENT
TS1	TEMPERATURE SENSOR WITH SINGLE POINT ELEMENT
ACT	DAMPER ACTUATOR
SD1	SMOKE DETECTOR
DPS1	DIFFERENTIAL PRESSURE SWITCH
NO / NC	WIRING CONNECTION NORMALLY OPEN AND NORMALLY CLOSED
	TWO WAY CONTROL VALVE

MINIMUM CONTROLS POINTS LIST:

Rooftop Unit (RTU)	System Point Names
Outside Air Temperature	OAT
Outside Air Damper Command	OaDmprCmd
Outside Air Damper Set Point	OaDmprMinStPt
Outside Air Damper Status	OaDmprSts
Economizer Set Point	EconStPt
Return Air Damper Command	RaDmprCmd
Return Air Damper Set Point	RaDmprStPt
Return Air Damper Status	RaDmprSts
Filter Alarm	FilterAlm
Mixed Air Temperature	MAT
Heating Command	HtgCmd
Heating Status	HtgSts
Cooling Command	ClgCmd
Cooling Status	ClgSts
Supply Fan Command	SFanCmd
Supply Fan Status	SFanSts
Supply Fan Alarm	SFanAlm
Supply Air Temperature	SAT
Space Temperature	SpaceTemp
Occupied Command	OccCmd
Unoccipied Command	UnOccCmd
Occupied Heating Set Point	OccHtgStPt
UnOccupied Heating Set Point	UnOccHtgStPt
Occupied Cooling Set Point	OccClgStPt
UnOccupied Cooling Set Point	UnOccClgStPt



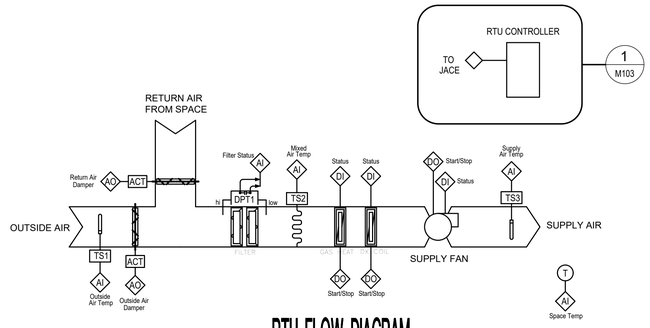
GENERAL NOTES:
1. NO FILTERED POWER IN SAME RACEWAY OR CONDUIT AS UNFILTERED POWER. MICROPROCESSORS ARE TO USE FILTERED POWER.
2. ALL 120V POWER BY E.C., ALL 24V CONTROL POWER BY CONTROLS CONTRACTOR.

TYPICAL LOCAL CONTROLLER DETAIL 1

NO SCALE

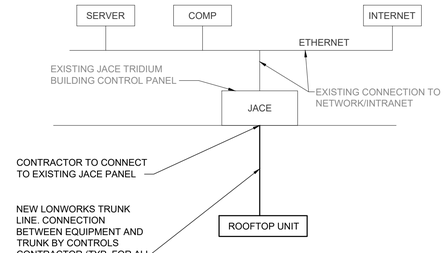
NOTES:

1. INSTALL NEW CONDUIT WITH 6300FE BELDEN CABLE TO TOP WIREWAY.
2. INSTALL NEW CONDUIT WITH THHN CABLE TO BOTTOM WIREWAY FOR FILTERED POWER.
3. TO LONWORKS DEVICES PER FLOW DIAGRAMS.
4. INSTALL NEW 3/4" CONDUIT WITH 3-#12 THHN CABLES FROM BOTTOM WIREWAY. CONTROL CONTRACTOR TO SOURCE 110V FROM LOCAL DISTRIBUTION SUPPLY. SEE ELECTRICAL DRAWINGS.



RTU FLOW DIAGRAM

NO SCALE



CONTROLS DIAGRAM

DIAGRAMATIC ONLY

SYSTEMS DESIGN SERVICE ENGINEERING LLP
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HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
MECHANICAL EQUIPMENT SCHEDULES, DETAILS, AND CONTROLS DIAGRAMS

PROJECT INFORMATION
Date: MAY 6, 2021
Rev. Date:
RLJA Proj: 2020-013

SHEET NUMBER
M103

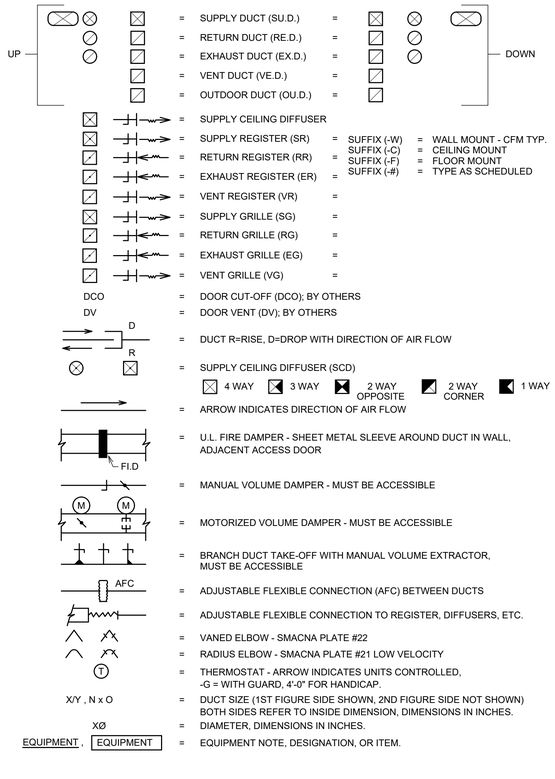
BASIC ABBREVIATIONS

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
CD	CEILING DIFFUSER (S) SUPPLY (R) 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
IWS	IN WALL SPACE, CONCEALED	W/	WITH

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

HVAC SHEET METAL SYMBOLS:

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



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 PIPING 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
      - PATCH AND REPAIR UNUSED PRESENT HOLES AND OPENINGS, AND THOSE LEFT BY THE REMOVAL OF PRESENT EQUIPMENT AND ADMISSION OF NEW EQUIPMENT.
      - 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.

E. 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.

PXR — 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. OTHER DISTURBED WORK OF EVERY KIND RESTORED, PATCHED, TESTED, COVERED, PAINTED, ETC., EQUAL TO EXISTING OR NEW WORK.

PXN — SAME AS "PXR" EXCEPT REMOVED, CLEANED AND RESTORED TO GOOD OPERATING ETC. CONDITION AND REINSTALLED SAME AS NEW WORK, IN NEW POSITION MARKED "PN" WITH SAME LETTER. IF RECONDITIONING IS IMPRACTICAL, PROVIDE NEW DEVICE, AS APPROVED BY ARCHITECT, AT NO INCREASE IN CONTRACT PRICE.

PN — COMPLETELY REINSTALL DEVICE, LINE OR DUCT, REMOVED AT "PXN" LOCATION AND ETC. INSTALL AS INDICATED IN NEW LOCATION, SAME AS NEW WORK.

F. 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.

G. NEW PIPING SERVING NEW AND/OR PRESENT EQUIPMENT 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 PIPING IS PERMITTED IN FINISHED PRESENT ROOMS BY ARCHITECT IN WRITING.

H. UNNEEDED EQUIPMENT, PIPING, 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.

I. 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. CONTRACTOR SHALL PROVIDE TRAPPED COOLING COIL CONDENSATE DRAIN LINES FROM ALL ROOFTOP UNITS TO ROOF.

4. CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR FOR ALL CEILING DIFFUSERS, REGISTERS, AND/OR GRILLES AS TO LOCATION, QUANITITIES AND PROPER TYPES FOR SURFACE MOUNT AND/OR LAY-IN SUSPENDED CEILINGS AND LIGHT PATTERNS. OPENINGS SHALL BE IN CENTER OF TILES OR AS DIRECTED BY ARCHITECT/ENGINEER.

5. CONTRACTOR SHALL INCLUDE IN HIS WORK THE RELOCATION OF ALL CROSS BRACING, AS REQUIRED TO FIT DUCTS BETWEEN JOISTS. THIS WORK SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR WITH ARCHITECTURAL APPROVAL.

6. CONTRACTOR SHALL PROVIDE ALL DUCT DROPS AND OFFSETS TO AVOID INTERFERENCES WITH JOISTS, OTHER DUCTS, LIGHTS, PIPES, ETC.

7. ALL DUCTWORK TO BE HELD TIGHT TO STRUCTURAL ROOF JOISTS, BEAMS, ETC. AS CLEARANCE IS MINIMAL. COORDINATE WITH OTHER CONTRACTORS TO AVOID CONFLICT. ALL DUCTWORK IS ABOVE SUSPENDED CEILINGS, UNLESS NOTED OTHERWISE.

8. SHEETMETAL DUCT SIZES MAY BE ALTERED TO FIT JOB CONDITIONS, BUT NET FREE AREAS MUST BE MAINTAINED. INCREASE SHEETMETAL DUCT SIZE TO ALLOW FOR DUCT LINING. INSULATE DUCTWORK AS NOTED.

9. INSTALL 1" OF NON-SHRINK GROUT AROUND DUCTWORK ON EACH WALL FACE TO SEAL OPENINGS AND ELIMINATE SOUND TRANSFER WITH AIR-TIGHT CONNECTIONS.

10. CONTRACTOR SHALL INCLUDE IN HIS WORK (1) SET OF FILTERS TO BE USED DURING CONSTRUCTION FOR ALL AIR HANDLING EQUIPMENT, FURNACES, ENERGY RECOVERY VENTILATORS, ROOFTOP UNITS, RETURN FANS, FILTER BOXES, FAN OPERATED VAV BOXES, ETC. CONTRACTOR PRIOR TO AIR BALANCING AND BUILDING OCCUPANCY SHALL INSTALL A COMPLETE SET OF CLEAN FILTERS. PROVIDE TO OWNER (1) COMPLETE SPARE/REPLACEMENT SET OF FILTERS FOR EACH PIECE OF EQUIPMENT. PROVIDE ALSO TO OWNER IN WRITING REPLACEMENT SIZES, TYPE, NUMBER PER EQUIPMENT, LOCATIONS, ETC.

11. UPON BALANCING, IF SYSTEM(S) 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.

12. SCHEDULE OF DUCT INSULATION:

    A. RECTANGULAR/ROUND SU.D/RE.D/VE.D, W/ 3" DC, MINIMUM INSTALLED R FACTOR OF 12; IN ATTIC SPACE.
    B. RECTANGULAR SU.D./RE.D, 2" DC, MINIMUM INSTALLED R FACTOR OF 6; ASC OR IN NON-CONDITIONED SPACES.
    C. ROUND SU.D./RE.D, 2" DC, MINIMUM INSTALLED R FACTOR OF 6; ASC OR IN NON-CONDITIONED SPACES.
    D. ROUND FLEXIBLE SU.D., W/2" MINIMUM INSTALLED R FACTOR OF 6; PRE-INSULATED DC. 3 FT. 0 IN. MAX. LENGTH.
    E. EXTERIOR RECTANGULAR/ROUND SU.D/RE.D, W/ 3" DC, 6 LB. DENSITY, DUCTBOARD WITH FOIL FACE, MINIMUM INSTALLED R FACTOR OF 12; .020 ALUMINUM JACKET (JACKETING TO BE MANUFACTURER STANDARD COLOR SELECTED BY ARCHITECT). SEAL WEATHERTIGHT.

13. 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.

14. DESIGN CONDITIONS:

    DEPARTMENT OF ENERGY VERSION 2.2 BUILDING SIMULATION, NATIONAL WEATHER SERVICE TMY 2 DATA FOR ROCKFORD, IL BUILDING PEAK HEATING AND COOLING LOADS SUMMARY:

			Occupancy per 1000					PER EQUEST DOE-2.2 SIMULATION ENVELOPE (BTUH)		OUTSIDE AIR (BTUH)	
	Az	Rp	Ra	SQFT	Pz	RpPz	RaAz	Vbz	HEAT LOAD	COOL LOAD	HEAT	COOL
Vestibule	114	0	0	0	0.0	0.0	0.0	0.0	7061.5	13079.2	0.0	0.0
Reception	202	5	0.06	30	6.1	30.3	12.1	42.4	4055.8	7639.6	4234.4	1251.4
Waiting/Hall	459	5	0.06	30	13.8	68.9	27.5	96.4	1136.5	2749.4	9621.6	2843.5
Vault	132	0	0	0	0.0	0.0	0.0	0.0	37.5	722.0	0.0	0.0
Principal	140	5	0.06	5	0.7	3.5	8.4	11.9	1804.7	5735.8	1187.9	351.1
Nurse	140	5	0.06	5	0.7	3.5	8.4	11.9	1838.6	5866.0	1187.9	351.1
	1187				Total Outside Air (CFM)			162.6	15935	35792	16231.7	4797.0

PEAK CONDITIONS:
WINTER: JAN 30, 7AM, -12°F DB, -13°F WB, WIND @ 7.1 KNTS
SUMMER: JUN 30, 5PM, 92°F DB, 76°F WB, WIND @ 7.8 KNTS

15. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAINTED SAME AS NEW CONSTRUCTION.

16. 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.

17. SEE SPECIFICATIONS FOR ADDITIONAL NOTES, SYMBOLS, ABBREVIATIONS, PREFIXES AND SUFFIXES.

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ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
MECHANICAL ABBREVIATIONS, DEMOLITION NOTES, AND GENERAL NOTES

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
M104

DIVISION 23 - MECHANICAL

SECTION 23010 - 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. PERMITS AND FEES:

HVAC SHALL BE RESPONSIBLE FOR THE OBTAINING OF THEIR RESPECTIVE PERMITS, AND THEIR COSTS, AS WELL AS OTHER FEES NECESSARY TO THE PROJECT INCLUDING INSPECTIONS. PERMITS AND FEES SHALL ALL BE INCLUDED FOR ALL REQUIRED NATURAL GAS, BUILDING DEPT. REQUIREMENTS, ETC.

5. 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.

6. MATERIALS AND EQUIPMENT:

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

7. 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. SPRINKLER HEADS.
C. SHEET METAL DUCT WORK/HVAC UNITS.
D. PLUMBING WASTE LINES, DOWN SPOUTS AND VENTS.
E. SPRINKLER LINES.
F. PLUMBING WATER LINES.
G. ELECTRICAL CONDUITS.
H. CONTROL AIR LINES OR CONDUIT.

8. 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.

9. 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.

10. OPENINGS, SLEEVES, AND CHASES:

EACH RESPECTIVE CONTRACTOR SHALL SET SLEEVES AND INSERTS REQUIRED FOR PIPING, HANGERS, INTAKES, LOUVERS, VENTILATORS, DUCTWORK, CURBS, ETC., IN CONSTRUCTION. RESPECTIVE CONTRACTOR TO FURNISH GENERAL CONTRACTOR WITH COMPLETE INFORMATION AS TO SIZE AND LOCATION OF OPENINGS THROUGH WALLS, FLOORS, ROOFS, ETC., FOR INSTALLING THIS WORK. IF THIS INFORMATION IS NOT SUPPLIED BEFORE NEW WALLS, FLOORS, ROOFS, ETC., ARE BUILT, RESPECTIVE CONTRACTOR SHALL FURNISH, CUT AND PATCH ALL REQUIRED OPENINGS FOR INSTALLATION OF EQUIPMENT, MATERIAL, DEVICES, ETC., AS REQUIRED AND APPROVED BY THE ARCHITECT. FOR NEW CONSTRUCTION, GENERAL CONTRACTOR WILL CUT HOLES THROUGH ROOF AND ROOFING CONTRACTOR WILL DO ALL FLASHING, ROOF PATCHING, ETC., UNLESS OTHERWISE NOTED. ROOF OPENINGS 18" AND LARGER SHALL BE FRAMED WITH HEADERS CONNECTED TO ROOF JOISTS WITH STEEL MEMBERS FRAMED BETWEEN. VERIFY WITH ARCHITECT. ALL ROOFING WORK AND EQUIPMENT TO MEET REQUIREMENTS OF NATIONAL ASSOCIATION OF ROOFING CONTRACTORS.

12. ACCESS PANELS:

HVAC OR RESPECTIVE SUB-CONTRACTOR SHALL PROVIDE ACCESS PANELS FOR ALL VALVES, CONTROLS, ETC., IN DRYWALL CEILING, CHASES AND OTHER OTHERWISE UNACCESSIBLE LOCATIONS. ACCESS PANELS SHALL BE OF PRIMED STEEL CONSTRUCTION WITH HINGED COVER. PANEL SHALL BE PROVIDED WITH DRYWALL RING WHEN INSTALLED IN DRYWALL CEILINGS OR WALLS. PANEL SHALL BE OF MILCOR PRODUCTS, ELMDOR, INLAND STEEL OR OTHER EQUIVALENT MAKE. MINIMUM SIZE SHALL BE 18" X 18" UNLESS APPROVED OTHERWISE. COORDINATE PANEL LOCATION AND SIZING INFORMATION WITH GENERAL CONTRACTOR, AND PROVIDE PANELS TO GENERAL CONTRACTOR FOR INSTALLATION.

13. 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.

14. 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.

15. 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.

16. 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	1

17. IDENTIFICATION:

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 AND DUCT MARKERS ON ALL PIPING AND DUCT 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 AND DUCT MARKERS AS FOLLOWS:

A. ON PIPING AND DUCT ABOVE REMOVABLE ACOUSTICAL CEILINGS.
B. NEAR EACH VALVE AND CONTROL DEVICE.
C. NEAR EACH BRANCH CONNECTION.
D. NEAR LOCATIONS WHERE PIPES AND DUCTS PASS THROUGH WALLS OR FLOORS/CEILINGS OR ENTER NON-ACCESSIBLE ENCLOSURES.
E. AT ACCESS DOORS AND SIMILAR ACCESS POINTS.
F. NEAR MAJOR EQUIPMENT ITEMS AND OTHER POINTS OF ORIGINATION AND TERMINATION.
G. SPACED INTERMEDIATELY AT MAXIMUM SPACING OF 25 FEET ALONG EACH PIPING AND DUCT RUN.
H. 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.

18. PAINTING:

COORDINATE PAINTING REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.

19. 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.

20. 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.

21. 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 23010

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SHEET IDENTIFICATION
MECHANICAL SPECIFICATIONS

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
M105

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. SHEET METAL DUCTWORK AND ACCESSORIES, FLEXIBLE INSULATED DUCTWORK, DIFFUSERS/ GRILLES/REGISTERS.
D. ROOFTOP UNITS, EXHAUST FANS.

3. SHEET METAL DUCTWORK AND ACCESSORIES:

SHEET METAL DUCTWORK TO BE INSTALLED, CONSTRUCTED, FABRICATED, ETC., IN ACCORDANCE WITH LATEST SMACNA MANUAL, ALL LOCAL CODES; GALVANIZED SHEET STEEL OR 2S OR 3S ALUMINUM SHEETS. FURNISH VOLUME DAMPERS WITH EXTERNAL LOCKING QUADRANTS. BRANCH SU.D., RE.D., EX.D., BY-PASS DUCTS, VENT DUCTS, OU.D. TO HAVE VOLUME DAMPERS. PROVIDE SEALED HINGED-REMOVABLE ACCESS DOORS WHERE CALLED FOR AND/OR REQUIRED FOR ACCESS TO CONTROLS, OPERATORS, SENSORS, FILTERS, ETC. SEE PLANS FOR ADDITIONAL NOTES.

SHEET METAL DUCTWORK FOR VARIABLE VOLUME DAMPER SYSTEMS SHALL BE SEALED IN ACCORDANCE WITH SMACNA SEAL CLASS C. SEE DUCT SEALING REQUIREMENTS AND COMMENTARY IN SMACNA STANDARDS MANUAL FOR LOW PRESSURE APPLICATION. OTHER DUCTS SHALL BE CONSTRUCTED AND INSTALLED TO MINIMIZE LEAKAGE AS RECOMMENDED BY SMACNA STANDARDS.

HANGING, INSTALLATION, CONSTRUCTION AND SUPPORT OF ALL DUCTWORK THROUGHOUT SHALL BE IN ACCORDANCE WITH SMACNA LOW VELOCITY-PRESSURE DUCT CONSTRUCTION AND INSTALLATION PROCEDURES, UNLESS OTHERWISE NOTED. HANGERS ON ALL DUCTS, 24" AND WIDER, SHALL BE STEEL RODS WITH BOTTOM ANGLES. STRAPS WILL NOT BE ACCEPTABLE. ALL HORIZONTAL DUCTS SHALL BE TRUE, STRAIGHT, PARALLEL TO WALL AS HIGH AS POSSIBLE. SEAL DUCTS TO PREVENT AIR LEAKAGE.

ELBOWS AND TURNS SHALL HAVE INSIDE RADIUS NOT LESS THAN ONE-HALF WIDTH OF DUCTS, OTHERWISE SHALL HAVE TURNING VANES (LSE). SUPPLY DUCT BRANCHES SHALL HAVE VOLUME DAMPERS. MAIN SU.D THAT SPLITS SHALL HAVE SPLITTER DAMPERS. RETURN DUCT BRANCHES AND EXHAUST DUCT BRANCHES SHALL HAVE VOLUME DAMPERS. PROVIDE ADDITIONAL DAMPERS AS REQUIRED TO ASSURE DESIGNED AIR DISTRIBUTION. DAMPERS SHALL HAVE ACCESSIBLE EXTERNAL INDICATING LOCKING QUADRANTS. QUADRANTS EXPOSED ON FINISHED CEILING SHALL BE EQUAL TO "YOUNG" REGULATORS, CHROMIUM PLATED.

ROUND AND OVAL DUCT CONCEALED AND EXPOSED TO VIEW TO BE PART OF SPIRAL DESIGN, TYPE AS MANUFACTURED BY AJAX, SEMCO, SPIRO-J, TANGENT AIR, UNITED, OR EQUIVALENT MAKE. ALL FITTINGS TO BE OF SAME MANUFACTURER AS SPIRAL DUCT. ROUND BRANCH TAKEOFFS TO BE CONICAL TYPE, RECTANGULAR BRANCH TAKEOFFS TO BE SADDLE BOOT TYPE, BOTH WITH VOLUME DAMPER AND SEALED CONNECTIONS. RECTANGULAR BRANCH SUPPLY REGISTER OR RETURN REGISTER TO BE SADDLE BOOT TYPE WITH VOLUME DAMPER AND SEALED CONNECTION.

GALVANIZED STEEL AND ASSOCIATED ACCESSORIES TO BE USED IN ALL LOCATIONS EXCEPT WET LOCATIONS OR AS OTHERWISE CALLED FOR. ALUMINUM AND ASSOCIATED ACCESSORIES TO BE USED IN ALL WET LOCATIONS SUCH AS SHOWER ROOMS, TOILET ROOMS ADJACENT TO SHOWER/LOCKER/ SAUNA/DAMP AREAS, LOCKER ROOMS, SAUNAS, SPAS, DAMP AREAS, ETC., TO BE WATERPROOF CONSTRUCTION, ARRANGED TO DRAIN TO LOW POINTS IF WATER EVIDENCED.

4. FLEXIBLE INSULATED DUCTWORK:

FLEXIBLE DUCTS SHALL BE OF FLEXMASTER, GENFLEX, THERMAFLEX, WIREMOLD, OR EQUIVALENT MAKE, WIREMOLD TYPE WG CONSTRUCTED OF HIGH TEMPERATURE, VINYL ORGANOSOL COATED GLASS FABRIC; 14 OZ. AND COLD-ROLLED CORROSION-RESISTANT COATED STEEL SPIRAL. FACTORY PRE-INSULATED DUCT SHALL BE MINIMUM OF 1" OF 3/4 LB. DENSITY GLASS FIBER BLANKET, SHEATHED WITH AN EXTERIOR FLAME-RESISTANT VINYL VAPOR BARRIER. STRAP CLAMPS SHALL BE PLASTIC STRAP OR STAINLESS STEEL DRAW-UP CLAMPS FOR SECURING FLEXIBLE AIR DUCT TO SHEET METAL DUCT, DIFFUSERS, REGISTERS, ETC. PRIOR TO CLAMPING, DUCT SHALL BE SEALED AS PER MANUFACTURER'S RECOMMENDATIONS. FLEXIBLE DUCT TO BE SUITABLE FOR USE WITH SYSTEM PRESSURE RATING AND DESIGN. NOTE: MAXIMUM LENGTH OF FLEX DUCT USED TO BE 5'-0". PROVIDE AS SCHEDULED ON DRAWINGS.

THE FLAME SPREAD AND SMOKE DEVELOPED RATINGS TO MEET OR EXCEED CURRENT (LATEST EDITION) OF APPLICABLE CODE. FLAME SPREAD/SMOKE DEVELOPED RATINGS OF 25/50 IN ACCORDANCE WITH ASTM E 84, NFPA 255, AND UL 723.

5. DIFFUSERS/GRILLES/REGISTERS:

REGISTERS, GRILLES, CEILING DIFFUSERS TO BE TYPE AS MANUFACTURED BY AIRMATE, ANEMOSTAT, CARNES, HART & COOLEY, J&J, KEES, KRUEGER, METALAIRE, NAILOR, PRICE, TITUS, TUTTLE & BAILEY, OR EQUIVALENT MAKE.

SUPPLY CEILING DIFFUSERS: TITUS MODEL TMS, 24x24 FRAME AS SHOWN ON DRAWINGS, SQUARE LOUVERED FACE DIFFUSER, WITH FRAME, FINISHED STEEL OR ALUMINUM, BAKED ON OFF WHITE ENAMEL, FOR LAY-INCEILING MOUNTING, NECK SIZE AS CALLED FOR ON DRAWINGS.

RETURN OR EXHAUST CEILING DIFFUSERS: TITUS MODEL PAR, 24x24 SQUARE PERFORATED FACE DIFFUSER, WITH FRAME, FINISHED STEEL OR ALUMINUM, BAKED ON OFF-WHITE ENAMEL, FOR LAY-IN CEILING MOUNTING, NECK SIZE AS CALLED FOR ON DRAWINGS.

WALL OR CEILING RETURN & EXHAUST REGISTERS: TITUS MODEL 350R, 35 DEGREE DEFLECTION, FINISHED STEEL OR ALUMINUM, BAKED ON OFF-WHITE ENAMEL (CEILING) OR PAINTED FINISH TO MATCH WALL COLOR (WALL), SIZES AS CALLED FOR ON DRAWINGS.

SUPPLY REGISTERS: TITUS MODEL S300F, DOUBLE DEFLECTION, STEEL OR ALUMINUM, PAINTED FINISH TO MATCH DUCT COLOR, COORDINATE WITH ARCHITECTURAL DRAWINGS. ADJUSTABLE DEFLECTORS (HORIZONTAL FRONT BLADES, VERTICAL BACK BLADES), FOR FLUSH SPIRAL DUCT MOUNTING, SIZES AS CALLED FOR ON DRAWINGS.

STEEL PRODUCTS TO BE USED IN ALL LOCATIONS EXCEPT WET LOCATIONS OR AS OTHERWISE CALLED FOR. ALUMINUM PRODUCTS TO BE USED IN ALL WET LOCATIONS SUCH AS SHOWER ROOMS, ROOMS, TOILET ROOMS ADJACENT TO SHOWER/LOCKER/SAUNA/DAMP AREAS, LOCKER ROOMS, SAUNAS, SPAS, DAMP AREAS, ETC. OR AS OTHERWISE CALLED FOR.

6. ROOFTOP UNITS:

PROVIDE OUTDOOR TYPE ROOFTOP UNITS AS MANUFACTURED BY AAON, BRYANT, CARRIER, LENNOX, TRANE, YORK, OR EQUIVALENT MAKE, WHICH SHALL MEET THE REQUIREMENTS OF UL, NEC, AGA, OWNER'S INSURANCE COMPANY, AND SHALL INCLUDE BUT SHALL NOT BE LIMITED TO, THE TYPE, SIZE, CAPACITY AS CALLED FOR WITH MANUFACTURER AS LISTED.

ENTIRE CABINET SHALL BE OF GALVANIZED STEEL CONSTRUCTION WITH BAKED ENAMEL FINISH AND INSULATED WITH 1" FIBERGLASS INSULATION THROUGHOUT. ACCESS DOORS/PANELS TO BE REMOVABLE/REPLACEABLE-WEATHERTIGHT.

TWIN FORWARD CURVED TYPE BLOWERS, DIRECT/MULTI-SPEED OR BELT DRIVEN VIBRATION ISOLATED FOR MAXIMUM EFFICIENCY WITH NONFERROUS, PERMANENTLY LUBRICATED WEATHER SEALED BALL BEARINGS. QUIET OPERATING AGAINST EXTERNAL STATIC PRESSURE LISTED/REQUIRED.

CONDENSER FANS OF ALUMINUM, BALL BEARING TYPE CONDENSER MOTORS OF WEATHERPROOF CONSTRUCTION, VIBRATION ISOLATED, SERVICEABLE/REMOVABLE FAN GUARD, QUIET OPERATING.

CONDENSER AND EVAPORATOR COILS TO HAVE ALUMINUM FINS WITH COPPER TUBES, WITH OR WITHOUT ELIMINATORS TO PREVENT MOISTURE CARRY-OVER. EVAPORATORS NOT LESS THAN THREE (3) ROWS DEEP TO GIVE PROPER DEHUMIDIFICATION.

MOTORS SHALL BE BALL BEARING, TO HAVE THERMAL OVERLOAD PROTECTION ON EACH PHASE LEG. ALL MOTORS TO BE VIBRATION ISOLATED TO PREVENT NOISE AND VIBRATION CARRY-OVER TO BUILDING'S STRUCTURE FOR ALL FREQUENCIES AND MOUNTING INVOLVED FOR 95% EFFICIENCY.

OUTDOOR AIR INTAKE HOOD WITH NON-FERROUS BIRD SCREEN ON FA INTAKE SECTION. IF ECONOMIZER IS SPECIFIED, IT SHALL INCLUDE COMPRESSOR LOCKOUT, RELIEF DAMPER WITH OUTLET, FULL MODULATING CONTROL AND ADJUSTABLE DISCHARGE TEMPERATURE LOW-LIMIT CONTROLLER.

ECONOMIZER TO HAVE DUAL INPUT AND DEW POINT CONTROLLER TO LIMIT OPERATION WHEN DEWPOINT SETTING EXCEEDED. WHERE CALLED FOR, MOTORIZED EXHAUST OR RETURN AIR FANS SHALL BE PROVIDED.

UNIT'S ADJUSTMENT ON THE MOTORIZED OUTDOOR AIR DAMPER (MOAD) SHALL BE SET TO THE PERCENTAGE OF THE UNITS TOTAL FAN AIR HANDLING CAPACITY AS CALLED FOR. DAMPER POSITIONING TO BE ADJUSTABLE AND LABELED. THE ABOVE PERCENTAGE IS FOR DESIGN CONDITIONS LISTED.

REFRIGERANT SERVICE VALVES/PORTS ON LIQUID LINE, COMPRESSOR DISCHARGE, SUCTION LINE; HIGH AND LOW PRESSURE COMPRESSOR PROTECTION; COMPRESSOR TIME DELAY TO PREVENT SHORT CYCLING; COMPRESSOR (THERMALLY CONTROLLED) CRANKCASE HEATER, DISCHARGE TEMPERATURE LIMITER, REPLACEABLE LIQUID LINE DRYER(S), CURREOL POINT ADJUSTMENT AND TEMPERATURE SENSING MOTOR OVERLOAD PROTECTION; COMPRESSORS-SEALED HERMETIC OR SCROLL DESIGN AND SHALL OPERATE ON R-410A, 5 YEAR WARRANTY.

COMPRESSOR(S) SHALL BE VIBRATION ISOLATED, HAVE FLEXIBLE PIPING CONNECTIONS SO VIBRATION IS NOT TRANSMITTED TO UNIT AND BUILDING STRUCTURE. COMPRESSOR LOCKOUT (WHERE CALLED FOR) TO STOP COMPRESSOR WHEN AMBIENT DROPS TO 45° F. WHERE CALLED FOR, COMPRESSOR AND CONDENSER SHALL BE SUITABLE FOR OPERATION TO 0° F. AND SHALL HAVE MANUFACTURERS DEVICES TO PROVIDE THIS LOW AMBIENT OPERATION.

ISOLATION ROOF CURB AS CALLED FOR, 14" MINIMUM.

PIPE CONDENSATE TO DRAIN ON ROOF WITH TRAP.

VOLTAGE OF UNIT TO BE VERIFIED PRIOR TO ORDERING. WEATHERPROOF FUSETRON TYPE DISCONNECT SWITCH ON UNIT (PROVIDED BY ELECTRICAL CONTRACTOR). UNIT SHALL CONTAIN ALL NECESSARY LINE AND LOW VOLTAGE RELAYS, TRANSFORMERS, DEVICES, SAFETY DEVICES, WIRING DIAGRAMS TO GIVE COMPLETE SATISFACTORY OPERATION.

FOR COMBINATION GAS HEAT ELECTRIC COOL UNITS, HEAT EXCHANGER AND BURNERS AS SUPPLIED OF ALUMINIZED STEEL CONSTRUCTION WITH 10 YEAR WARRANTY, AUTOMATIC ELECTRIC IGNITION, FORCED DRAFT POWER VENTER, MAIN GAS VALVE AND PRESSURE REGULATOR, STANDARD FAN AND LIMIT CONTROLS WITH INTERLOCKS AND 100% SAFETY SHUTDOWN. UNIT TO HAVE SINGLE OR TWO STAGE HEAT AS CALLED FOR. GAS CONNECTION TO UNIT SHALL BE FULL SIZE WITH LINE SIZE VALVE, UNION AND DIRT LEG. UNIT SHALL OPERATE ON 4-13" WC GAS PRESSURE AVAILABLE.

FILTERS TO BE PLEATED THROWAWAY TYPE 2" THICK, TO BE CLEANED AT TIME OF BALANCING, WITH 100% SPARE REPLACEMENTS PROVIDED AT TIME OF ACCEPTANCE, DELIVERED TO THE OWNER. ALL RETURN AIR AND OUTDOOR AIR TO BE FILTERED.

UNIT MANUFACTURER TO FURNISH COMPLETE UNIT CONTROLS AS CALLED FOR AND/OR SPECIFIED TO GIVE OPERATION OF UNITS AS CALLED FOR. REMAINING CONTROLS ARE FURNISHED BY CONTROLS CONTRACTOR AND WIRING OF SAME SHALL BE BY HVAC CONTRACTOR OR SUBCONTRACTOR AS REQUIRED. VERIFY BEFORE ROUGH-IN TO AVOID CONFLICTS. FOR CONTROL WIRING, RUN WIRING TO CONDUIT, CONCEALED IN FINISHED AREAS AND EXPOSED IN UNFINISHED AREAS. CONTROL WIRING USED IN PLENUM APPLICATIONS SHALL BE PLENUM RATED CABLE. UNITS SHALL BE CONTROLLED AS OUTLINED OR AS CALLED FOR FROM ROOM THERMOSTAT WITH SUBBASE OR FROM EXISTING ON SITE CONTROL SYSTEM. PROVIDE GUARD OVER ALL STATS OR SENSORS.

UNIT SHALL HAVE FLEXIBLE DUCT CONNECTIONS AT POINTS OF CONNECTION OR CONNECTION TO DUCT AT EQUIPMENT.

HVAC CONTRACTOR SHALL COMPLETELY BALANCE EACH UNIT'S AIR HANDLING CAPACITY AT SUPPLY AND RETURN LOCATIONS TO AIR QUANTITIES AS CALLED FOR.

SEE DRAWINGS, SPECIFICATIONS, SCHEDULES FOR CAPACITY AS REQUIRED.

7. AUTOMATIC TEMPERATURE CONTROLS:

FURNISH AND INSTALL A COMPLETE EXTENSION OF THE EXISTING NIAGARA DDC SYSTEM (LONWORKS) CONTROL FOR ALL NEW HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT AS SHOWN ON PLANS, INCLUDING BUT NOT LIMITED TO MOTOR OPERATED OUTSIDE AIR DAMPERS, CONTROL VALVES, SENORS, CONTROLLERS AND OTHER DEVICES WHERE SPECIFICALLY CALLED FOR. THE ELECTRIC SYSTEM SHALL BE SUITABLE FOR PRIMARY POWER SUPPLY OF 120 VOLT, 1 PHASE, 60 CYCLE CURRENT UNLESS OTHERWISE NOTED. PROVIDE COMPLETE DAY-NIGHT OR OCCUPIED-UNOCCUPIED MODE OF CONTROL FOR ALL EQUIPMENT. CONTROLS CONTRACTOR/SUBCONTRACTOR SHALL HAVE QUALIFICATIONS AVAILABLE FOR REVIEW AND TO HAVE BEEN IN THE TEMPERATURE CONTROL BUSINESS FOR NOT LESS THAN FIVE YEARS.

THE TEMPERATURE CONTROL CONTRACTOR SHALL FURNISH PROGRAMMING, GRAPHIC SCREENS, STATUS AND TEMPERATURE MONITORING, ALARM REPORTING, TREND REPORTING, INSTALLATION, AND STARTUP. THIS SYSTEM SHALL BE BASED ON THE EXISTING SYSTEM. THE SYSTEM SHALL BE WARRANTED FOR A PERIOD OF ONE YEAR. PROVIDE ONE DAY OF OWNER INSTRUCTIONS AND TRAINING.

SYSTEM SHALL BE COMPLETE IN ALL RESPECTS WITH COMPLETE PERMANENT FORM OPERATING SYSTEM INSTRUCTIONS, HARDWARE, SOFTWARE, AND CONTROL DIAGRAMS. NOTE: PROVIDE COMPLETE SHOP DRAWINGS OF CONTROLS, SEQUENCE OF OPERATION, CONTROLS AND PROPOSED CONTROL INSTALLATION, FOR REVIEW, PRIOR TO ROUGH-IN OR INSTALLATION, REGARDLESS OF TYPE OF SYSTEM, VALVES AND DAMPERS MUST ASSUME SPECIFIED NORMAL POSITIONS ON CURRENT FAILURE. THE INSTALLATION, INCLUDING SUPERVISION OF WIRING, SHALL BE MADE BY THE CONTROL OR THE HVAC CONTRACTOR (AS APPLICABLE) IN CONJUNCTION WITH THE CONTRACTOR AND/OR SUBCONTRACTOR.

COMMISSION AND PROGRAM SHALL BE PROVIDED TO INTEGRATE THE NEW CONTROL SYSTEMS INTO THE EXISTING. PROVIDE ON-SITE TRAINING TO FULLY FAMILIARIZE THE OWNER WITH THE NEW CONTROL COMPONENTS AND THEIR OPERATION.

THE SYSTEM SHALL INCLUDE ALL NECESSARY CONTROL WIRING, THERMOSTATS, TEMPERATURE TRANSMITTERS, CONTROLLERS, AUTOMATIC VALVES, DAMPER OPERATORS, P.E. AND E.P. SWITCHES, CONTROL PANELS, AND OTHER ACCESSORY EQUIPMENT ALONG WITH A COMPLETE SYSTEM OF ELECTRICAL WIRING TO FILL THE INTENT OF THE SPECIFICATIONS AND PROVIDE FOR A COMPLETE AND OPERABLE SYSTEM. ALL CONTROL EQUIPMENT SHALL BE FULLY PROPORTIONING, EXCEPT AS NOTED OTHERWISE.

ROOM SENSORS SHALL HAVE NEAT CASES, GUARDED THERMOMETERS, AND LOCKED ADJUSTMENTS. THERMOSTATS IN PUBLIC PLACES, STORAGE AREAS, WORK AREAS, ETC., SHALL HAVE GUARDS. CONTROLLING ROOM SENSORS MUST BE GRADUAL ACTING. REMOTE SENSORS TO HAVE PANEL OR CENTRAL POINT ADJUSTMENT AND MONITOR STATUS. START AND STOP THERMOSTATS MUST BE POSITIVE ACTING. ELECTRONIC CONTROLS MOUNTED IN UNCONDITIONED SPACES SHALL BE SUITABLE FOR AMBIENT OPERATING CONDITIONS FROM -40 DEG. TO 148 DEG. F.

AUTOMATIC CONTROL VALVES (ACV) MUST BE THROTTLING TYPE. ACV SHALL BE OF STRAIGHT WAY OR ANGLE TYPE, NEATLY FINISHED, PLATED OR ENAMELED WITH UNION OUTLETS. ACV MUST BE ARRANGED SO THAT CAPACITY MAY BEADJUSTED DOWNWARD IN THE FIELD, WITHOUT CHANGING VALVE BODY. ACV MUST BE OPEN TO ELEMENT ON CURRENT FAILURE. ACV SHALL BE PRECEDED BY MANUAL SHUT-OFF OR ISOLATION VALVE.

DAMPERS SHALL BE LOW LEAKAGE GALVANIZED STEEL OPPOSED MULTI-BLADE TYPE WITH CONTROL RODS, BLADE EDGE SEALS OF PVC, JAMB SEALS OF FLEXIBLE METAL-COMPRESSION TYPE, NON-CORROSIVE BEARINGS AND MOUNTED IN GALVANIZED FRAMES. DAMPERS MUST BE TIGHT CLOSING AND GRADUAL ACTING OF TYPE CALLED FOR OR SAME MAKE AS CONTROL SYSTEM. DAMPERS TO BE FURNISHED EITHER WITH MECHANICAL EQUIPMENT OR BY CONTROL CONTRACTOR OR HVAC CONTRACTOR (AS APPLICABLE) (DO NOT DUPLICATE) AND INSTALLED BY HVAC CONTRACTOR.

ACTUATORS FOR MOTORIZED OUTSIDE AIR DAMPERS (MOAD) AND MOTORIZED RETURN AIR DAMPERS (MRAD) FOR AIR HANDLING SYSTEMS SHALL BE GRADUAL ACTING AND SHALL CLOSE INTERLOCKED SO THAT MRAD CLOSES AS MOAD OPENS, AND VICE VERSA. MOAD SHALL CLOSE AND MRAD SHALL OPEN IN CASE OF CURRENT FAILURE AND WHEN ASSOCIATED FAN SYSTEM IS STOPPED.

DAMPER AND VALVE MOTORS SHALL BE SUFFICIENTLY LARGE TO INSURE GRADUAL OPERATION AND SUFFICIENT POWER FOR SIZE OF DAMPER OR VALVE TO CONTROL AGAINST AIR OR WATER VOLUMES AND PRESSURES AS DESIGNED. MOTORS TO ACT IN RESPONSE AS CALLED FOR BY ELECTRIC CONTROLLER SIGNAL ON VOLTAGE AS DETERMINED BY CONTROL MANUFACTURER. CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING AND PROVIDING ALL REQUIRED POWER, FUSING, WIRING, ETC., FOR MOTOR OPERATION. MOTORS TO FAIL CONTROLLED DEVICES TO FULL FLOW TO ELEMENT OR TO ROOM.

ON ELECTRIC/ELECTRONIC PORTION OF THE SYSTEM, PROVIDE ALL RELAYS, TRANSFORMERS, PROTECTION, CONTACTORS, DEVICES, ETC., WITH WIRING IN CONDUIT AS REQUIRED BY LATEST EDITION OF N.E.C. WIRING IN CONDUIT SHALL BE TYPE AS APPROVED BY N.E.C. FOR INTENDED USE. CONCEAL PIPING, CONDUITS, WIRING, ETC., IN ALL FINISHED AREAS. RUN PIPING, CONDUITS, ETC., EXPOSED IN UNFINISHED AREA SUCH AS MECHANICAL ROOMS, BOILER ROOMS, TUNNELS, ETC., AND WHERE ALLOWED. WHERE EXPOSED, RUN CONDUIT AND PIPING IN STRAIGHT LINES, PARALLEL TO WALLS AND CEILINGS. 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. PROTECTED TYPE CABLING REQUIRED FOR INSTALLATION OF ALL CONTROLS SHALL BE PROVIDED, AS REQUIRED, TO ASSURE PROPER OPERATION AND INSTALLATION AS RECOMMENDED BY MANUFACTURER.

LABEL ALL CONTROLS, SET POINTS, DEVICES BEING CONTROLLED, ETC. FURNISH AS-BUILT CONTROL DRAWINGS AND SUBMIT FOR REVIEW AT PROJECT COMPLETION. PROVIDE OWNER AND ARCHITECT/ENGINEER WITH (FINAL) COPIES..

TEMPERATURE CONTROL PANELS SHALL BE CONSTRUCTED OF FURNITURE STEEL AND/OR PLASTIC FOR RIGID STRUCTURE WITH REAR CONNECTIONS WITH DEVICES NEATLY AND PERMANENTLY LABELED AS TO FUNCTION AND POSITION. PANEL(S) SHALL HAVE BRACED FACE DOOR(S), TO PREVENT SWAY OR SAG, MOUNTED WITH PIANO HINGES AND KEYED LOCKS. ALL INSTRUMENTS SHALL BE CONTAINED WITHIN DOOR FACE AREA OF THE PANEL. PANEL ITSELF SHALL BE SECURED OR ANCHORED TO WALL OR SHALL BE RECESSED IN WALL AS CALLED FOR. PANEL SHALL INCLUDE SCHEMATIC CONTROL LAYOUT DIAGRAM(S) OF THE SYSTEM(S) FOR WHICH THE CONTROL THE POINTS REPRESENT. THESE SHALL BE PLACED INSIDE THE PANEL. ALL CONTROLS IN PANEL, CONTROLS AND/OR CONTROLLERS TO BE LABELED AS TO PROPER NAME, POSITION AND FUNCTION. ALL CONTROL DIAGRAMS TO BE STORED IN CONTROL PANEL WITH ANY "AS-BUILT" FIELD CHANGES INDICATED. "AS-BUILT" CONTROL DIAGRAMS AND EQUIPMENT TO BE SUBMITTED FOR FINAL PROJECT REVIEW PRIOR TO PROJECT CLOSE OUT. MOUNT ALL CONTROLLING INSTUMENTS BEHIND PANEL FACE BUT ACCESSSIBLE FOR SERVICE FROM FRONT, ENDS OR REAR OF PANEL. ALL INDICATING DEVICES AND MANUALLY ADJUSTED DEVICES TO BE FLUSH MOUNTED ON FACE OF PANEL. PANEL SHALL INCLUDE BUT SHALL NOT BE LIMITED TO THE FOLLOWING:

A. MAIN CONTROL POWER SWITCH AND FUSING.
B. SUBMASTER CONTROL SWITCHES FOR DEVICES CONTROLLED ON PANEL.
C. CONTROL AMPLIFIER MODULES AS REQUIRED.
D. LOAD LIMITING CONTROLLERS AS REQUIRED.
E. NAMEPLATE AND SERVICE INFORMATION.
F. OPERATING INSTRUCTIONS AND LOCAL CONTROL DIAGRAMS LOCATED WITHIN CONFINES OF PANEL.
G. REMOTE THERMOMETER INDICATING OUTDOOR TEMPERATURE WITH SHIELDED BULB LOCATED UNDER EAVES OR IN SHADED LOCATION.
H. DEVICES, TEMPERATURE INDICATORS, SWITCHED, ETC., AS SPECIFICALLY CALLED FOR UNDER THAT CONTROL SECTION OR AS REQUIRED.

AFTER COMPLETION OF THE INSTALLATION, CONTROL CONTRACTOR IN CONJUNCTION WITH HVAC CONTRACTOR SHALL PERFORM THE FINAL CALIBRATION AND ADJUSTMENT OF ALL THE EQUIPMENT. CONTRACTOR TO LABEL ALL CONTROLS, SET POINTS, DEVICES BEING CONTROLLED, ETC. FURNISH "AS-BUILT" CONTROL DRAWINGS AND EQUIPMENT AT PROJECT COMPLETION. SUBMIT FOR FINAL REVIEW SAME AS SHOP DRAWINGS. PRIOR TO CLOSE OUT. LOCATED AT PROJECT SITE IN OWNER'S POSSESSION AND COPY WITH ENGINEER.

CONTROL CONTRACTOR SHALL PROVIDE UPON COMPLETION OF THE INSTALLATION, THREE COPIES OF AN OPERATOR'S MANUAL DESCRIBING ALL OPERATING AND ROUTINE MAINTENANCE SERVICE PROCEDURES TO BE USED WITH THE TEMPERATURE CONTROL. THE HVAC CONTRACTOR AND CONTROL CONTRACTOR WILL BE INVOLVED TO INSTRUCT THE OWNER'S DESIGNATED REPRESENTATIVES IN THESE PRODUCERS DURING THE START UP AND TEST PERIOD. PROVIDE INSTRUCTION TIME AS SCHEDULED UNDER SPECIAL SUPERVISION.

ALL SYSTEM DEVICES AND THE INSTALLATION ARE WARRANTED TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM THE DATE OF JOB ACCEPTANCE BY THE OWNER. ANY EQUIPMENT, SOFTWARE REVISIONS, PROGRAMMING, SOFTWARE OR LABOR FOUND TO BE DEFECTIVE DURING THIS PERIOD WILL BE REPAIRED OR REPLACED WITHOUT EXPENSE TO THE OWNER (WIRING BY HVAC CONTRACTOR).

FOR SPECIFIC CONTROL OF EQUIPMENT SEE RESPECTIVE EQUIPMENT SECTION, SEQUENCE OF OPERATION SECTION AND/OR DRAWINGS FOR OPERATION AND CONTROL AS CALLED FOR.

END OF SECTION 235000

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ROCKFORD, ILLINOIS

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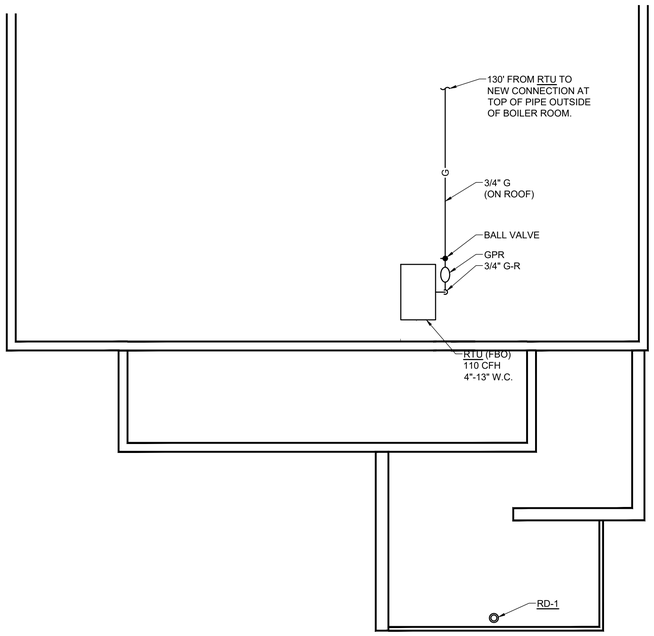
SHEET IDENTIFICATION
MECHANICAL SPECIFICATIONS

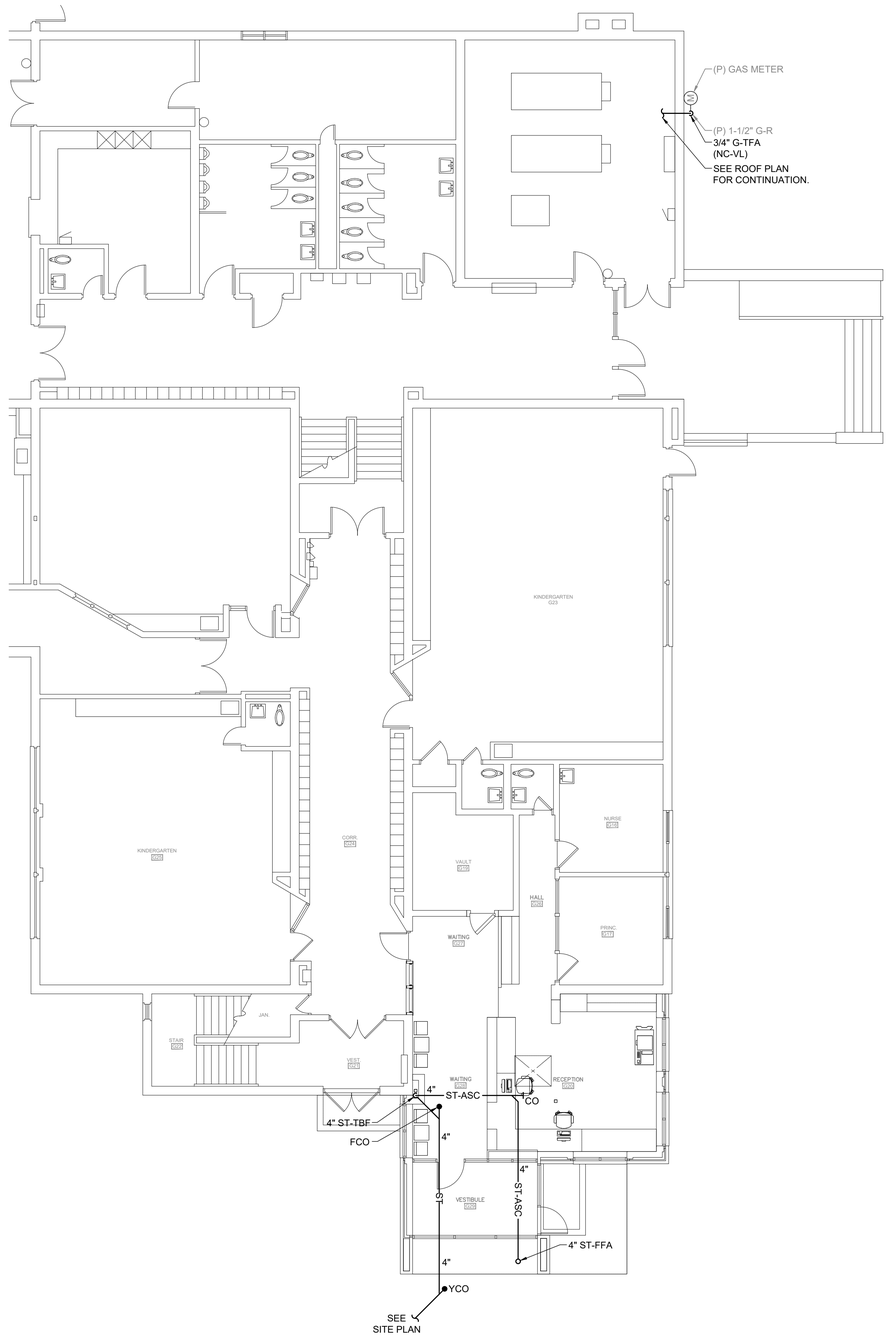
PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
M106



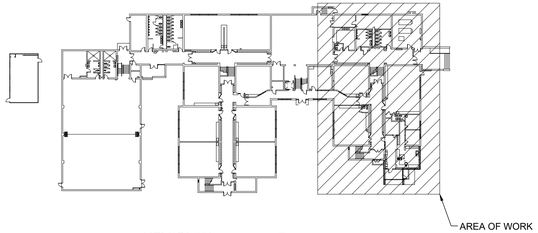
ROOF PLAN - PLUMBING

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



FIRST FLOOR PLAN - PLUMBING

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



KEY PLAN

NO SCALE

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BASIC ABBREVIATIONS

MARK	DESCRIPTION	MARK	DESCRIPTION
AFF	ABOVE FINISH FLOOR	GPR	GAS PRESSURE REGULATOR
ASC	ABOVE SUSPENDED CEILING	INV	INVERT
BV	BALL VALVE	NC	NEW CONNECTION
CTC	CLOSE TO CEILING	P	PRESENT TO REMAIN
CTF	CLOSE TO FLOOR	R	RISE
CTW	CLOSE TO WALL	ST	STORM SEWER
D	DROP	STMH	STORM MANHOLE
FBF	FROM BELOW FLOOR	TAF	TO ABOVE FLOOR
FBO	FURNISHED BY OTHERS	TBF	TO BELOW FLOOR
FCO	FLOOR CLEANOUT	TFA	TO FLOOR ABOVE
FFA	FROM FLOOR ABOVE	TFB	TO FLOOR BELOW
FFB	FROM FLOOR BELOW	UF	UNDER FLOOR
FFE	FINISHED FLOOR ELEVATION	UG	UNDER GROUND
FGE	FINISH GRADE ELEVATION	VL	VERIFY LOCATION
FV	FIELD VERIFY	WCO	WALL CLEANOUT
G	GAS PIPING	YCO	YARD CLEANOUT

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

PLUMBING SYMBOLS:

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

- G = GAS
- = DIRECTION OF SYSTEM FLOW
- BV = BALL VALVE
- GPR = GAS PRESSURE REGULATOR
- WCO = WALL CLEANOUT - EXPOSED
- FCO = FLOOR CLEANOUT
- ST = STORM SEWER
- RD = ROOF DRAIN
- = RISE
- = DROP
- NC = NEW CONNECTION

PIPING STRAIGHT AND PARALLEL TO WALLS, FREE TO EXPAND AND CONTRACT. WATER LINES MUST DRAIN COMPLETELY THRU LOWER FIXTURE, UNION, BRASS CAP, BRASS PLUG AT LOW POINT, AND MUST VENT COMPLETELY THRU FIXTURE ABOVE OR AIR VENT.

VALVES MUST BE ACCESSIBLE THRU ACCESS DOOR (AD) AND/OR ACCESS PANEL (AP) AS REQUIRED WITH ADJACENT UNIONS FOR REMOVAL OF BODIES.

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

-P = EXISTING OR PRESENT EQUIP./ DEVICE/ SERVICE/ LINE

PX = PX OF EXISTING OR PRESENT EQUIP./ DEVICE/ SERVICE/ LINE

PLUMBING GENERAL NOTES:

1. DRAWINGS ARE GENERALLY DIAGRAMMATIC. EACH CONTRACTOR SHALL MAKE DRAWINGS ARE GENERALLY DIAGRAMMATIC. EACH CONTRACTOR SHALL MAKE 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 CONTRACTOR WILL INTERFERE WITH THE WORK OF OTHER CONTRACTORS, EACH 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 PLUMBING 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 PLUMBING 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 PLUMBING CONTRACTOR TO GIVE QUANTITIES OF REMOVAL/REPLACEMENT REQUIREMENTS TO A GENERAL CONTRACTOR.

2. THE INSTALLATION OF ALL PIPING SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS IT PERTAINS WITH CLEARANCE OF PIPING IN RELATIONSHIP TO ELECTRICAL EQUIPMENT, SWITCHGEAR, PANELS, ETC. PIPING SHALL NOT CROSS OVER THE TOP OR IMPINGE UPON THE ELECTRICAL EQUIPMENT.

3. CROSS CONNECTION CONTROL DEVICES SHALL BE USED AND INSTALLED AS REQUIRED BY CODE.

4. UNUSED OPENINGS IN DUCTS, SEWERS, MANHOLES, ETC., SHALL BE CAPPED; THOSE IN PIPING SHALL BE CAPPED OR PLUGGED; THOSE IN CONDUITS, BOXES, CABINETS AND PANELS SHALL BE FILLED. STRUCTURAL MEMBRANES AND SUPPORTS SHALL NOT BE CUT UNLESS AUTHORIZED BY ARCHITECT, IN WRITING.

5. PRESENT PAINTED CONSTRUCTION WHICH IS MARRED SHALL BE REPAINTED SAME AS NEW CONSTRUCTION.

6. THE USER OF THESE 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 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 CONTRACT DOCUMENTS.

7. SEE SPECIFICATIONS FOR ADDITIONAL NOTES, SYMBOLS, ABBREVIATIONS, PREFIXES AND SUFFIXES.

DIVISION 22 - PLUMBING

SECTION 22400 - PLUMBING 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 22010 - BASIC PLUMBING REQUIREMENTS ALSO APPLIES TO THIS SECTION.

2. SYSTEMS:

PLUMBING SYSTEM PROVIDED SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO:

A. CONDITIONS, SYSTEMS.
B. PIPING, PIPING INSULATION, VALVES.
C. TRENCHING, EXTERIOR EXCAVATION AND BACKFILLING.

3. PIPING:

EXTERIOR, ABOVE GRADE, NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE, WELDED OR SEAMLESS, PER ASTM A53 WITH MALLEABLE IRON FITTINGS, 150 LB. S.W.P., 300 LB. WOG, AT -20 TO 150 DEG. F. PER ASTM A197 AND ANSI B16.3. FOR PIPE SIZES 2" AND UNDER PROVIDE THREADED JOINTS PER ASTM A120. GAS PIPING SHALL CONFORM TO NFPA PAMPHLET #54 AND ANY LOCAL AMENDMENTS. FURNISH AND INSTALL REGULATORS OF THE SIZE AS SCHEDULED ON THE DRAWINGS WITH AN INTERNAL RELIEF VALVE. WHERE REQUIRED, PROVIDE ALL PIPING AND FITTINGS FOR VENTING OF REGULATORS TO ATMOSPHERE.

PROVIDE ROOF SUPPORTS EQUAL TO ERICO CADDY PYRAMID ST, SPACED 8' OC OR PER MANUFACTURER'S RECOMMENDATION. COORDINATE ROOF SUPPORT INSTALLATION WITH NEW ROOF INSTALLATION.

ALL EXPOSED EXTERIOR GAS PIPING AND CLAMPS SHALL BE PAINTED WITH HOT PITCH, BITUMASTIC COATING OR RUST PROOF PAINT. COLOR TO BE APPROVED AS DIRECTED BY ARCHITECT.

AFTER COMPLETION OF WORK, THE ENTIRE GAS SYSTEM SHALL BE TESTED TO AN AIR PRESSURE OF 125 PSI FOR A PERIOD OF TWO HOURS AND PROVED TIGHT BY INSPECTION AND TO SATISFACTION OF THE GOVERNING AGENCY. RESULTS OF THE TEST, SIGNED BY THE CONTRACTOR, SHALL BE FURNISHED TO THE ARCHITECT-ENGINEER.

INTERIOR ABOVE FLOOR AND BELOW FLOOR STORM SEWER PIPING SHALL BE HUBLESS SERVICE WEIGHT CAST IRON PIPE PER CISPI 301, TAR COATED INSIDE AND OUTSIDE, JOINTS SHALL BE CAST IRON NO-HUB WITH NEOPRENE COMPRESSION GASKETS PER CISPI 310, NEOPRENE GASKET PER ASTM C564; OR SERVICE WEIGHT CAST IRON SOIL PIPE, TAR COATED INSIDE AND OUTSIDE PER ASTM A74 WITH LEAD AND OAKUM, HUB AND SPIGOT, PUSH-ON JOINTS; OR PVC DRAIN, WASTE AND VENT PIPE AND FITTINGS, WITH SOCKET WELD JOINTS PER ASTM D2665.

WHERE PIPES PASS THROUGH FIRE-RATED WALLS, PARTITIONS, FLOORS AND CEILINGS, SEAL OPENINGS IN ACCORDANCE WITH ICC, NEC AND LOCAL REQUIREMENTS.

MAKE AMPLE PROVISIONS FOR EXPANSION AND CONTRACTION IN PIPING, WITH EXTRA PRECAUTIONS FOR COPPER PIPE. PIPING SHALL BE HUNG INDEPENDENTLY OF CONNECTIONS AND SLEEVES. ALL PIPING TO BE IDENTIFIED. REFER TO SECTION ON "IDENTIFICATION" FOR ADDITIONAL INFORMATION.

HANGERS IN CONTACT WITH GALVANIZED SHEET METAL SHIELDS OR STEEL PIPING TO BE STEEL. REFER TO PIPING INSULATION FOR APPLICATIONS. HANG PIPE ALONG WALLS WITH RING OR BRACKET TYPE HANGERS; PIPING OTHER THAN COPPER OR STEEL HANG WITH ADJUSTABLE STEEL RODS AND RING TYPE CLEVISED HANGERS. HANGERS TO BE DOUBLE NUTTED OR COACH SCREW TYPE BY CRANE, CRAWFORD, FEE MASON, GRINNELL, OR EQUIVALENT COPPER AND STEEL PIPE HANGER MINIMUM SPACING ARE AS FOLLOWS: UP TO 1/4": 4'-0' O.C., 3/8" TO 1-1/4": 6'-0" O.C., 1-1/2" TO 4": 10'-0" O.C., 5" TO 12": 12'-0" O.C., HANGER SPACING FOR PVC PIPING SHALL BE AS FOLLOWS: ALL SIZES- 4'-0" O.C. ALL IN ACCORDANCE WITH APPLICABLE CODES INVOLVED. PLACE SUPPORT OR HANGER WITHIN 1 FOOT OF EACH HORIZONTAL ELBOW, JOINT OR CONNECTION. SUPPORT VERTICAL PIPING AT EVERY FLOOR LINE. WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AT THE SAME ELEVATION, PROVIDE MULTIPLE OR TRAPEZE HANGERS. WHERE PRACTICAL, SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING. INSTALL DIELECTRIC INSULATING FITTINGS OR UNION AT ALL JOINING OF DISSIMILAR METALS.

PROVIDE SLEEVES WHERE PIPES PASS THROUGH ROOFS, WALLS, PARTITIONS, FLOORS, ETC., OF PROPER SIZE TO ALLOW FOR EXPANSION AND CONTRACTION AND TRIM FLUSH WITH SURFACES. PROVIDE ESCUTCHEON PLATES AT SLEEVES IN FINISHED AREAS. SLEEVES ON PIPING SHALL BE LARGE ENOUGH TO PERMIT COVERING TO BE CONTINUOUS. SEAL SLEEVES, PIPE TO SLEEVE, SLEEVE TO CONSTRUCTION AT FIRE RATED CONSTRUCTION AS DETAILED ON DRAWING AND/OR SEAL OPENINGS IN ACCORDANCE WITH LOCAL BUILDING CODES OR WITH UL RATED MATERIALS.

VERTICAL PIPING SHALL BE SECURED TO KEEP PIPING IN ALIGNMENT AND CARRY THE WEIGHT OF PIPING AT THE PIPE MAXIMUM LOADED CAPACITY. STACKS SHALL BE SUPPORTED AT THE BASE, SPECIFIED INTERVALS AND AT EACH FLOOR BY FLOOR CLAMPS AS REQUIRED BY THE RESPECTIVE CODES.

FLASH AND COUNTER-FLASH WHERE MECHANICAL EQUIPMENT, PIPING OR PIPING EQUIPMENT PASSES THROUGH WEATHER OR WATERPROOFED WALLS, FLOORS AND ROOFS. FLASH VENT AND SOIL PIPES PROJECTING 12" MINIMUM ABOVE FINISHED ROOF SURFACE WITH LEAD WORKED 1" MINIMUM INTO HUB, 8" MINIMUM CLEAR ON SIDES WITH MINIMUM 24" X 24" SHEET SIZE, COORDINATE WITH ROOFING CONTRACTOR. FOR PIPES THROUGH OUTSIDE WALLS, TURN FLANGE BACK INTO WALL AND CAULK. PROVIDE CURBS FOR MECHANICAL ROOF INSTALLATIONS 8" MINIMUM HIGH.

INSTALL CLEANOUT PLUGS AT EACH 90° CHANGE IN DIRECTION IN HORIZONTAL SEWER PIPING. WHERE NOT OTHERWISE INDICATED, INSTALL CLEANOUTS AT 50 FOOT INTERVALS FOR PIPING 4" AND SMALLER, AND AT 100 FOOT INTERVALS FOR PIPING 6" AND LARGER. INSTALL FLOOR AND WALL CLEANOUTS AT LOCATIONS INDICATED AND AS REQUIRED BY CODE. CLEANOUTS SHALL BE SAME SIZE AS MAINS UP TO AND INCLUDING 4" DIAMETER PIPING AND MINIMUM OF 4" DIAMETER FOR LARGER LINES.

4. PIPING INSULATION:

STORM WATER PIPING SHALL BE COVERED WITH FIBERGLASS INSULATION WITH FACTORY-APPLIED ALL-PURPOSE JACKET CONSISTING OF HIGH-DENSITY, WHITE KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH FIBERGLASS YARN, STAPLED 6" O.C. AND SEALED WITH VAPOR BARRIER ADHESIVE OR USING SELF-SEALING LAP. COVERING SHALL BE EQUAL TO MANVILLE PRODUCTS MICRO-LOK 650 AND SHALL BE SUITABLE FOR SERVICES FROM 35 DEGREES F TO 650 DEGREES F, 3.5 POUND DENSITY. STORM SEWER PIPE INSULATION SHALL BE 1/2" THICKNESS. COVERING SHALL BE ARMSTRONG, KNAUF, MANVILLE, OWENS-CORNING OR EQUIVALENT MAKE. COVERING ON PIPING SHALL BE CONTINUOUS THROUGH HANGERS AND SLEEVES. HANGERS ON PIPING SHALL ENCIRCLE PIPE COVERING, BEAR ON A 20 GAUGE SHEET METAL PLATE 4 DIAMETERS LONG. ENDS OF COVERING SHALL BE NEATLY TAPERED AND SEALED. ANY MILDEWED COVERING MUST BE REPLACED. FITTINGS SHALL BE COVERED WITH A ZESTON FITTING COVER AND FACTORY-SUPPLIED FIBERGLASS INSERT WHERE AVAILABLE, ALL INSTALLED ACCORDING TO MANUFACTURERS' INSTRUCTIONS. 1/2" ARMAFLEX INSULATION MAY BE USED IN LIEU OF THE ABOVE, IN CONCEALED AREAS WITH SPACE LIMITATIONS. HORIZONTAL INTERIOR STORM SEWER PIPE TO BE INSULATED FROM ROOF DRAIN TO A MINIMUM 1'-0" DOWN FROM DOWNSPOUT/DROP.

5. VALVES:

VALVES SHALL BE APOLLO, B & G, CRANE, GRISWALD, HAMMOND, ILLINOIS, JENKINS, NIBCO, POWELL, STOCKHAM, TOUR & ANDERSSON, WALWORTH, WATTS OR EQUIVALENT, WITH METAL HANDLES AND BUILT FOR 125 PSI WORKING PRESSURE FOR ALL USES. VALVES PROVIDED SHALL BE SUITABLE FOR INTENDED SERVICE. SHUT-OFF TYPE SHALL BE GATE PATTERN OR BALL TYPE. USE OF THREADED ENDS OR FLANGED ENDS OR SOLDERED ENDS IS THE CONTRACTOR'S OPTION WITHIN THE SIZE LISTED. VALVES AND COCKS MUST BE ACCESSIBLE FOR SERVICING. BALL VALVES ON INSULATED PIPING SYSTEMS SHALL BE PROVIDED WITH EXTENDED HANDLES.

6. TRENCHING:

PROVIDE A MINIMUM OF 3" SAND BEDDING UNDER ALL UNDERGROUND OR UNDER FLOOR PIPING. SAND BEDDING SHALL EXTEND TO A MINIMUM OF 12" ABOVE THE SPRING LINE OF THE PIPE. COMPACT TO 95% PER ASTM D1557.

7. EXTERIOR EXCAVATION AND BACKFILLING:

CONTRACTOR SHALL DO EXCAVATING REQUIRED TO INSTALL WORK INDICATED (INCLUDING DEPRESSIONS FOR TILE BELLS, VALVE BODIES, FLANGES, ETC.). AFTER THE WORK HAS BEEN INSTALLED, TESTED AND APPROVED, CONTRACTOR SHALL BACKFILL AND THOROUGHLY TAMP EARTH AROUND PIPES AND SHALL SETTLE THE EARTH AS DIRECTED BY THE ARCHITECT. BACKFILL UNDER ROADS, PARKING AREAS, STREETS, DRIVES, WALKS, FOOTINGS, ETC., AND WITHIN 5'-0" OF FOOTINGS SHALL BE SETTLED WITH WATER IN 8" LAYERS TO 85% OF OPTIMUM DENSITY. NO MATERIALS EXCEPT CLEAN SAND OR SOIL SHALL BE PLACED WITHIN 6" OF ANY METAL PIPE, VALVE OR METAL PART. EXCESS EXCAVATIONS SHALL BE FILLED WITH THOROUGHLY COMPACTED SAND OR LEAN CONCRETE TO PROVIDE ADEQUATE BEDDING AND SUPPORT FOR ALL LINES. NO TRENCHES SHALL BE FILLED UNTIL WORK HAS BEEN INSPECTED AND APPROVED BY THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION. TOP SOIL SHALL BE REMOVED, STORED AND REPLACED AS DIRECTED BY THE ARCHITECT.

END OF SECTION 22400

DIVISION 22 - PLUMBING

SECTION 22010 - BASIC PLUMBING REQUIREMENTS:

1. CONDITIONS:

THIS SECTION SHALL APPLY TO ALL SECTIONS IN DIVISION 22.

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. PLUMBING 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 PLUMBING 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, OPENINGS, SLEEVES AND CHASES, EQUIPMENT INSTALLATION (FBO)- FURNISHED BY OTHERS, EQUIVALENT MAKE EQUIPMENT, SHOP DRAWINGS.
C. VERIFICATION, IDENTIFICATION, PAINTING, EXCAVATION, TRENCHING AND BACKFILLING, CLEANING, TESTING AND BALANCING, GUARANTEE, RECORD DOCUMENTS.

4. PERMITS AND FEES:

PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE OBTAINING OF THEIR RESPECTIVE PERMITS, AND THEIR COSTS, AS WELL AS OTHER FEES NECESSARY TO THE PROJECT MANAGER INCLUDING INSPECTIONS. PERMITS AND FEES SHALL ALL BE INCLUDED FOR ALL REQUIRED NATURAL GAS, WATER, SANITARY, STORM, BUILDING DEPT. REQUIREMENTS, ETC.

5. 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.

6. MATERIALS AND EQUIPMENT:

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

7. 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. PLUMBING WASTE LINES, DOWN SPOUTS AND VENTS.
D. REFRIGERATION LINES.
E. ELECTRICAL CONDUITS.
F. CONTROL AIR LINES OR CONDUIT.

8. 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.

9. OPENINGS, SLEEVES, AND CHASES:

EACH RESPECTIVE CONTRACTOR SHALL SET SLEEVES AND INSERTS REQUIRED FOR PIPING, HANGERS, INTAKES, LOUVERS, VENTILATORS, DUCTWORK, CURBS, ETC., IN CONSTRUCTION. RESPECTIVE CONTRACTOR TO FURNISH GENERAL CONTRACTOR WITH COMPLETE INFORMATION AS TO SIZE AND LOCATION OF OPENINGS THROUGH WALLS, FLOORS, ROOFS, ETC., FOR INSTALLING THIS WORK. IF THIS INFORMATION IS NOT SUPPLIED BEFORE NEW WALLS, FLOORS, ROOFS, ETC., ARE BUILT, RESPECTIVE CONTRACTOR SHALL FURNISH, CUT AND PATCH ALL REQUIRED OPENINGS FOR INSTALLATION OF EQUIPMENT, MATERIAL, DEVICES, ETC., AS REQUIRED AND APPROVED BY THE ARCHITECT. FOR NEW CONSTRUCTION, GENERAL CONTRACTOR WILL CUT HOLES THROUGH ROOF AND ROOFING CONTRACTOR WILL DO ALL FLASHING, ROOF PATCHING, ETC., UNLESS OTHERWISE NOTED. ROOF OPENINGS 18" AND LARGER SHALL BE FRAMED WITH HEADERS CONNECTED TO ROOF JOISTS WITH STEEL MEMBERS FRAMED BETWEEN. VERIFY WITH ARCHITECT. ALL ROOFING WORK AND EQUIPMENT TO MEET REQUIREMENTS OF NATIONAL ASSOCIATION OF ROOFING CONTRACTORS.

10. EQUIPMENT INSTALLATION (FBO) - FURNISHED BY OTHERS:

EQUIPMENT MARKED (FBO) SHALL BE FURNISHED AND INSTALLED BY GENERAL CONTRACTOR.

THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING SHALL BE OBTAINED FROM THE GENERAL CONTRACTOR OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY. IF THIS CONTRACTOR SHOULD FAIL TO ASCERTAIN SUCH LOCATIONS BEFORE PROCEEDING WITH HIS WORK, AND IF THIS WORK DOES NOT CONFORM TO THE INTENDED DESIGN, THIS CONTRACTOR SHALL REVISE HIS WORK, AT NO ADDITIONAL COST, AS DIRECTED BY THE OWNER. THE OWNER RESERVES THE RIGHT TO MAKE MINOR CHANGES IN THE LOCATIONS OF PIPING AND EQUIPMENT, UP TO THE TIME OF ROUGHING-IN AND INSTALLATION, WITHOUT ADDITIONAL CHARGE.

WORK BY GENERAL CONTRACTOR: THE FOLLOWING MATERIAL AND EQUIPMENT WILL BE FURNISHED; THE FOLLOWING INSTALLATION WORK WILL BE DONE; AND THE FOLLOWING OTHER WORK WILL BE DONE BY THE GENERAL CONTRACTOR AT NO EXPENSE TO ANY OTHER CONTRACTOR.

A. FURNISHING, INSTALLING, FITTING TO THE BUILDING, SETTING, BOLTING IN PLACE OF EQUIPMENT MARKED "FBO."
B. FURNISHING TO THE PLUMBING CONTRACTOR, ON THE JOB, LOOSE PLUMBING TRIM INCLUDING ALL ABOVE DECK FAUCETS, VACUUM BREAKERS, GAS COCKS, AUTOMATIC VALVES, ETC., FOR EQUIPMENT MARKED (FBO).
C. FURNISHING OF APPROVED DETAILED SHOP DRAWINGS SHOWING METHOD OF INSTALLING LOOSE TRIM AND MAKING OF FINAL CONNECTIONS; WIRING AND CONTROL DIAGRAM, FOR EQUIPMENT MARKED (FBO).

PLUMBING CONTRACTORS SHALL CAREFULLY CHECK THE LOOSE TRIM DELIVERED TO THEM AGAINST THE APPROVED SHOP AND OTHER DRAWINGS AND SHALL REPORT ANY DISCREPANCIES OR SHORTAGES, OR LACK OF DATA TO THE GENERAL CONTRACTOR AND TO THE ARCHITECT FOR ADJUSTMENT, WITHIN ONE WEEK AFTER DEVICES ARE RECEIVED. IF SUCH A REPORT IS NOT MADE WITHIN ONE WEEK, IT WILL BE ASSUMED THAT NO SHORTAGES, DISCREPANCIES OR LACK OF DATA HAS BEEN FOUND, AND THE SUB-CONTRACTOR WILL BE REQUIRED TO MAKE GOOD ANY SHORTAGES, DISCREPANCIES, OR LACK OF DATA AT A LATER DATE.

WORK BY PLUMBING CONTRACTOR: PLUMBING CONTRACTOR SHALL PROVIDE ALL TRAPS AND BELOW DECK SUPPLIES AND SHUT-OFF VALVES, AND MAKE ALL FINAL CONNECTIONS AND INSTALL GAS PIPING AND LOOSE GAS SHUT-OFF VALVES, AND PERFORM TESTING.

11. 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. IDENTIFICATION:

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. ON PIPING ABOVE REMOVEABLE ACOUSTICAL CEILINGS.
B. NEAR EACH VALVE AND CONTROL DEVICE.
C. NEAR EACH BRANCH CONNECTION.
D. NEAR LOCATIONS WHERE PIPES PASS THROUGH WALLS OR FLOORS/CEILINGS OR ENTER NON-ACCESSIBLE ENCLOSURES.
E. NEAR MAJOR EQUIPMENT ITEMS AND OTHER POINTS OF ORIGINATION AND TERMINATION.
F. FUEL GAS PIPING SHALL BE IDENTIFIED AT INTERVALS OF NOT MORE THAN 50 FEET IN EXPOSED LOCATIONS AND NOT LESS THAN ONCE IN ANY ROOM OR SPACE.

15. PAINTING:

COORDINATE PAINTING REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO BIDDING.

16. EXCAVATION, TRENCHING, AND BACKFILLING:

FOR EXCAVATION, TRENCHING AND BACKFILLING, DEPTH OF BURY OR COVER OVER EXTERIOR UNDERGROUND CONSTRUCTION SHALL NOT BE LESS THAN THE FOLLOWING, UNLESS OTHERWISE NOTED ON DRAWINGS:

A. STORM SERVICE 48"

DEPTH OF COVER OR BURY SHALL BE INCREASED AS REQUIRED TO CONFORM TO THE STANDARDS OF ALL AUTHORITIES HAVING JURISDICTION, WITHOUT INCREASE IN CONTRACT PRICE.

EACH CONTRACTOR SHALL DO EXCAVATING REQUIRED TO INSTALL THEIR WORK. AFTER WORK HAS BEEN TESTED AND APPROVED, EACH CONTRACTOR SHALL REPLACE ROADS, STREETS, DRIVES, CURBS, WALKS, TOP SOIL AND SOD, WHICH THEY HAVE DISTURBED. SURPLUS EARTH AND DEBRIS SHALL BE REMOVED FROM THE PREMISES AS DIRECTED BY THE ARCHITECT. BACKFILL UNDER FLOOR SLABS, ROADS, STREETS, DRIVES, WALKS, FOOTINGS, FOUNDATIONS, ETC., AND WITHIN 5' 0" OF SAME SHALL BE THOROUGHLY COMPACTED SAND OR SMALL SIZE GRAVEL. OTHER BACKFILL SHALL BE FREE OF DEBRIS, ROCK, CONCRETE, ETC., AND SETTLED WITH WATER IN LAYERS AS DIRECTED BY THE ARCHITECT. NO MATERIALS EXCEPT CLEAN SAND SHALL BE PLACED WITHIN 6" OF ANY PIPE, CONDUIT, CABLE OR METAL PART.

EXCESSIVE EXCAVATIONS REQUIRED TO REACH UNDISTURBED SOIL SHALL BE FILLED WITH THOROUGHLY COMPACTED SAND (MAXIMUM 9" LIFTS) TO PROVIDE ADEQUATE BEDDING AND SUPPORT. LINES SHALL BE BEDDED ON AT LEAST 2" THICK COMPACTED SAND.

NO TRENCHES SHALL BE FILLED UNTIL WORK HAS BEEN INSPECTED AND APPROVED BY THE ARCHITECT AND ALL AUTHORITIES HAVING JURISDICTION. TOP SOIL SHALL BE CAREFULLY REMOVED, STORED, AND REPLACED, AS DIRECTED BY THE ARCHITECT.

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. VALVES, PIPING, LAVS, WATER CLOSETS, URINALS, SINKS, DRAINS, EQUIPMENT, DOMESTIC WATER SERVICE, FIRE PROTECTION SERVICE, ETC., SHALL BE FLUSHED, TESTED AND INSPECTED PRIOR TO FINAL ACCEPTANCE.

18. GUARANTEE:

PLUMBING 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 22010

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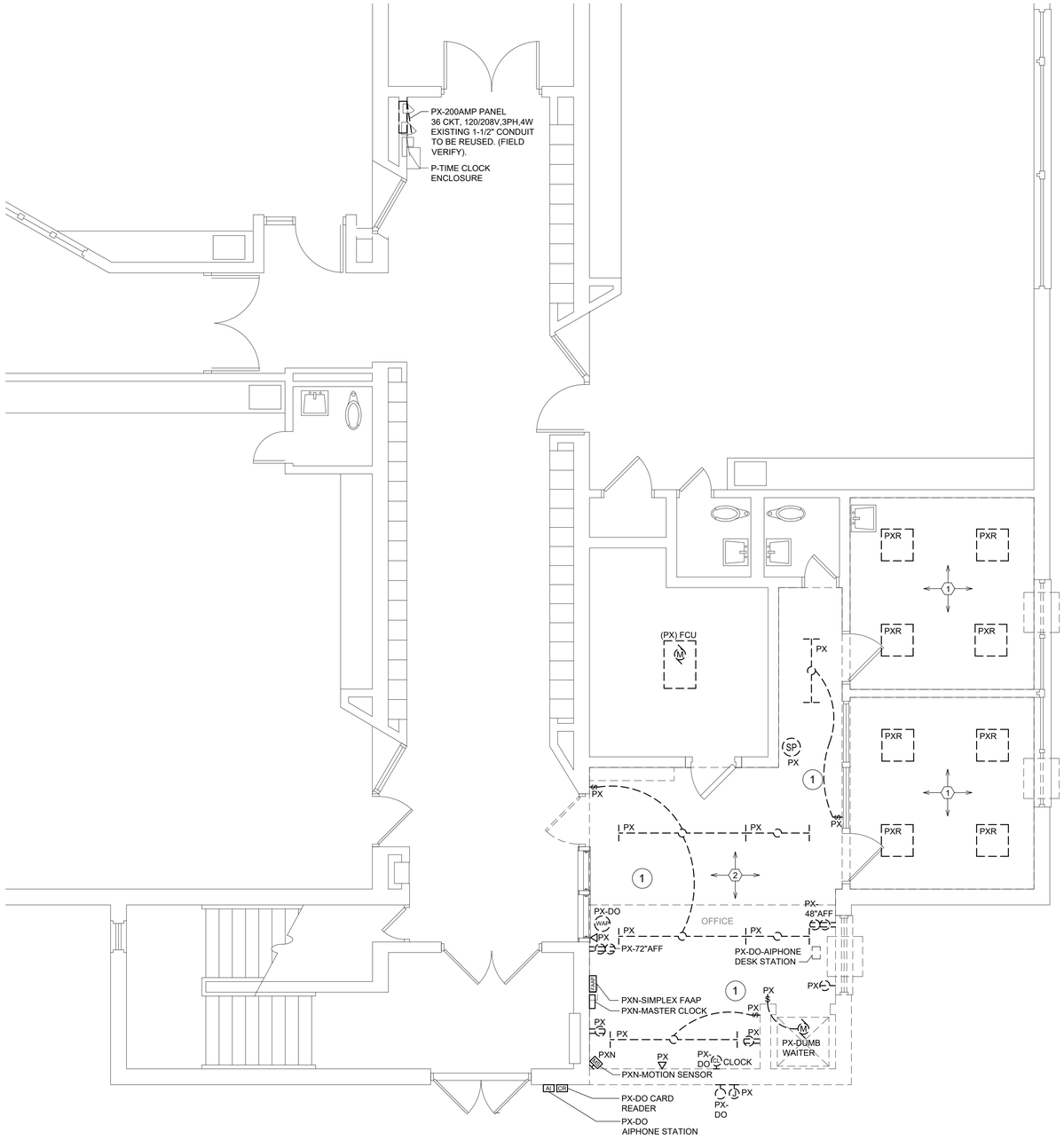
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
PLUMBING ABBREVIATIONS, SYMBOLS, GENERAL NOTES, AND SPECIFICATIONS

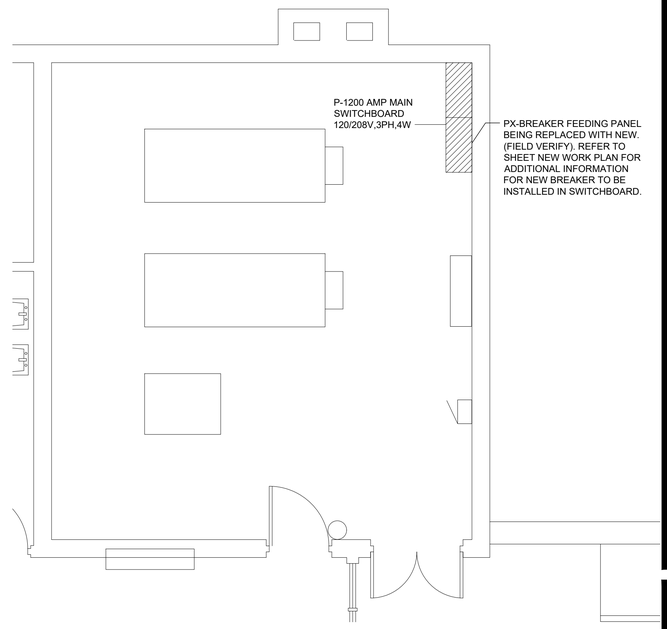
PROJECT INFORMATION	
Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

SHEET NUMBER
P102



FIRST FLOOR PLAN - ELECTRICAL DEMOLITION

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



PARTIAL BOILER ROOM PLAN - ELECTRICAL DEMOLITION

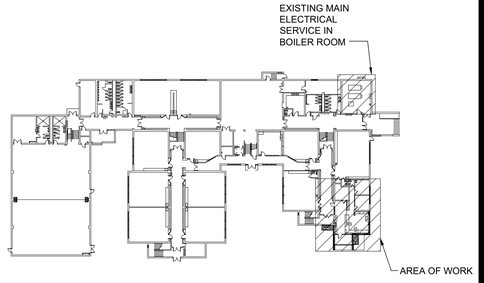
SCALE: 1/4" = 1'-0"

GENERAL DEMOLITION NOTE

1. 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)

DRAWING KEY NOTES FOR THIS SHEET ONLY

1. REMOVE (PX) LIGHT FIXTURES AND REINSTALL (PXR) IN SAME ORIGINAL LOCATION.
2. REMOVE (PX) OR REWORK CONDUITS ABOVE CEILING AS REQUIRED FOR NEW WORK. FIELD VERIFY EXISTING CONDITIONS. REFER TO ELECTRICAL DEMOLITION NOTES FOR ADDITIONAL INFORMATION.



KEY PLAN

NO SCALE

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HASKELL SECURITY VESTIBULE ADDITION

ROCKFORD PUBLIC SCHOOL DISTRICT 205

(IFB # 21-45)

ROCKFORD, ILLINOIS

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SHEET IDENTIFICATION

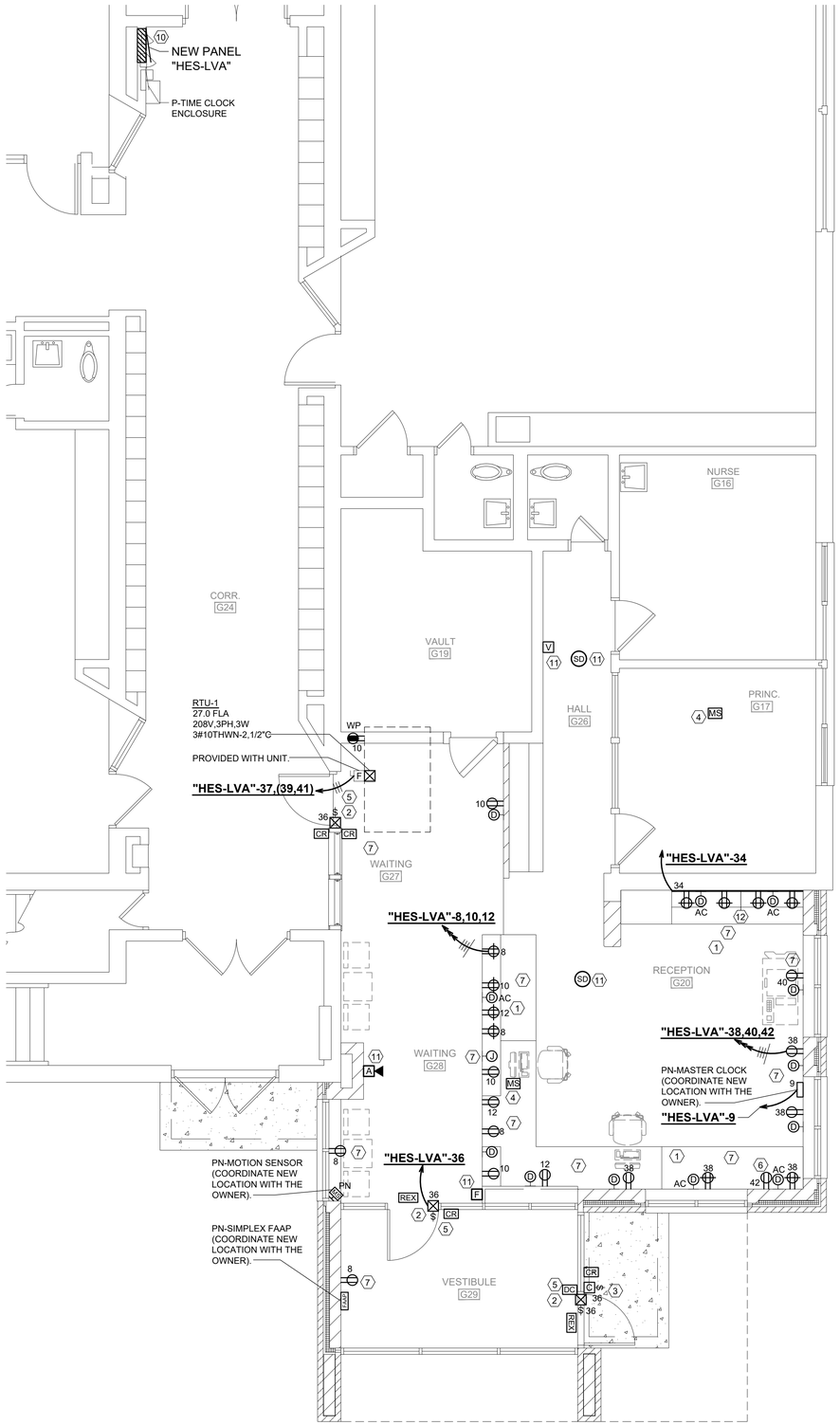
ELECTRICAL DEMOLITION WORK PLANS

PROJECT INFORMATION

Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

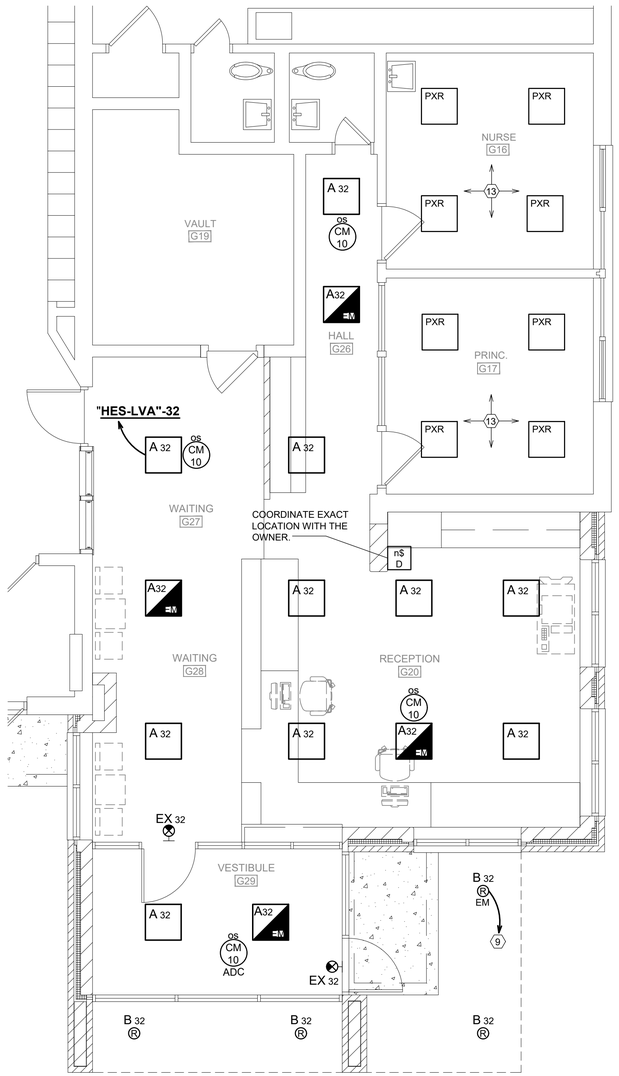
SHEET NUMBER

E101



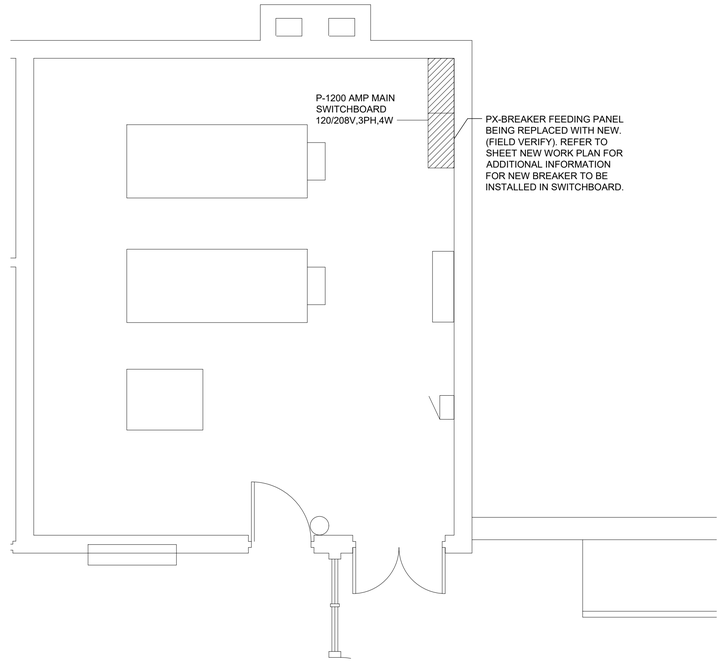
FIRST FLOOR NEW WORK PLAN - POWER & SYSTEMS

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



FIRST FLOOR NEW WORK PLAN - LIGHTING

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

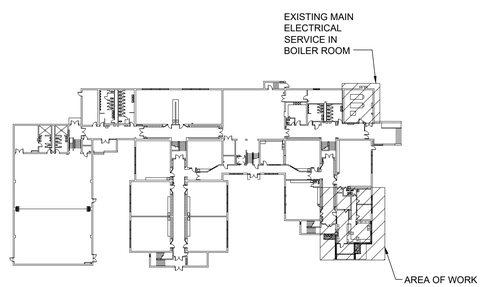


PARTIAL BOILER ROOM PLAN - NEW WORK ELECTRICAL

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

DRAWING KEY NOTES FOR THIS SHEET ONLY

1. COORDINATE MOUNTING REQUIREMENTS FOR DESK AND COUNTER AREAS WITH ARCHITECT PRIOR TO ROUGH-IN. (TYPICAL FOR ALL LOCATIONS).
2. NEW ELECTRIC DOOR STRIKE. WIRE TO AIPHONE SYSTEM AS REQUIRED. COORDINATE WITH THE GENERAL CONTRACTOR AND ARCHITECT.
3. NEW AIPHONE JP SERIES (JP-4MED), CAMERA AND CALL BUTTON MODEL JP-DV. **PROVIDE TWO (2) MASTER STATIONS WITH STANDS.** LOCATED AS DIRECTED BY OWNER. WIRE AS REQUIRED TO DOOR STRIKE(S). E.C. TO INCLUDE 64GB SDHC CARD FOR IMAGE STORAGE. PROVIDE MULLION MOUNTING BRACKET JK-MB, IF REQUIRED. COORDINATE WITH G.C./ARCHITECT FOR MOUNTING REQUIREMENTS.
4. AIPHONE MASTER STATION - COORDINATE LOCATION WITH OWNER AND DESK LOCATIONS. WIRE SYSTEM PER MANUFACTURER REQUIREMENTS.
5. PROVIDE AND WIRE NEW CARD READERS TO EXISTING S2 SECURITY ACCESS CONTROL PANEL. (VERIFY PRIOR TO ROUGH-IN) 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.
6. LOCATE RECEPTACLE FOR UNDERCOUNTER REFRIGERATOR. CONFIRM EXACT LOCATION PRIOR TO ROUGH-IN.
7. ALL WIRING DEVICES AND WALL PLATES TO BE LIGHT GRAY. COORDINATE WITH OWNER PRIOR TO ORDERING.
8. NOT USED
9. TIE NEW EXTERIOR LIGHTING INTO EXISTING EXTERIOR LIGHTING CONTROLS. IF NO CONTROLS AVAILABLE, PROVIDE NEW LIGHTING CONTACTOR, PHOTOCELL AND TIMECLOCK AS REQUIRED FOR "ON-OFF" CONTROL. LOCATE IN BOILER ROOM. FIELD VERIFY EXACT LOCATION.
10. COORDINATE NEW PANEL INSTALLATION WITH EXISTING CONDITIONS AND SPACE LIMITATIONS. ELECTRICAL CONTRACTOR SHALL FIELD MEASURE EXISTING OPENING. PANEL SHALL BE EQUAL TO SQUARE D PANEL, ML0 AND WIDTH TO MATCH EXISTING DIMENSION AS DETERMINED IN THE FIELD. CUT AND PATCH EXISTING WALL AS REQUIRED FOR NEW PANELBOARD. PROVIDE A CUSTOM COVER TO CONCEAL ANY GAPS.
11. TIE IN NEW FIRE ALARM DEVICE TO PRESENT FACP LOCATED IN BOILER ROOM. PROVIDE ALL REQUIRED COMPONENTS FOR NEW WORK. COORDINATE MOUNTING LOCATION WITH ARCHITECT.
12. 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. COORDINATE WIREMOLD MOUNTING HEIGHT WITH ARCHITECT.
13. REMOVE (PX) LIGHT FIXTURES AND REINSTALL (PXR) IN SAME ORIGINAL LOCATION.



KEY PLAN

NO SCALE

SYSTEMS DESIGN SERVICE engineering
3600 EAST STATE STREET • SUITE 215 • ROCKFORD, ILLINOIS • 61108
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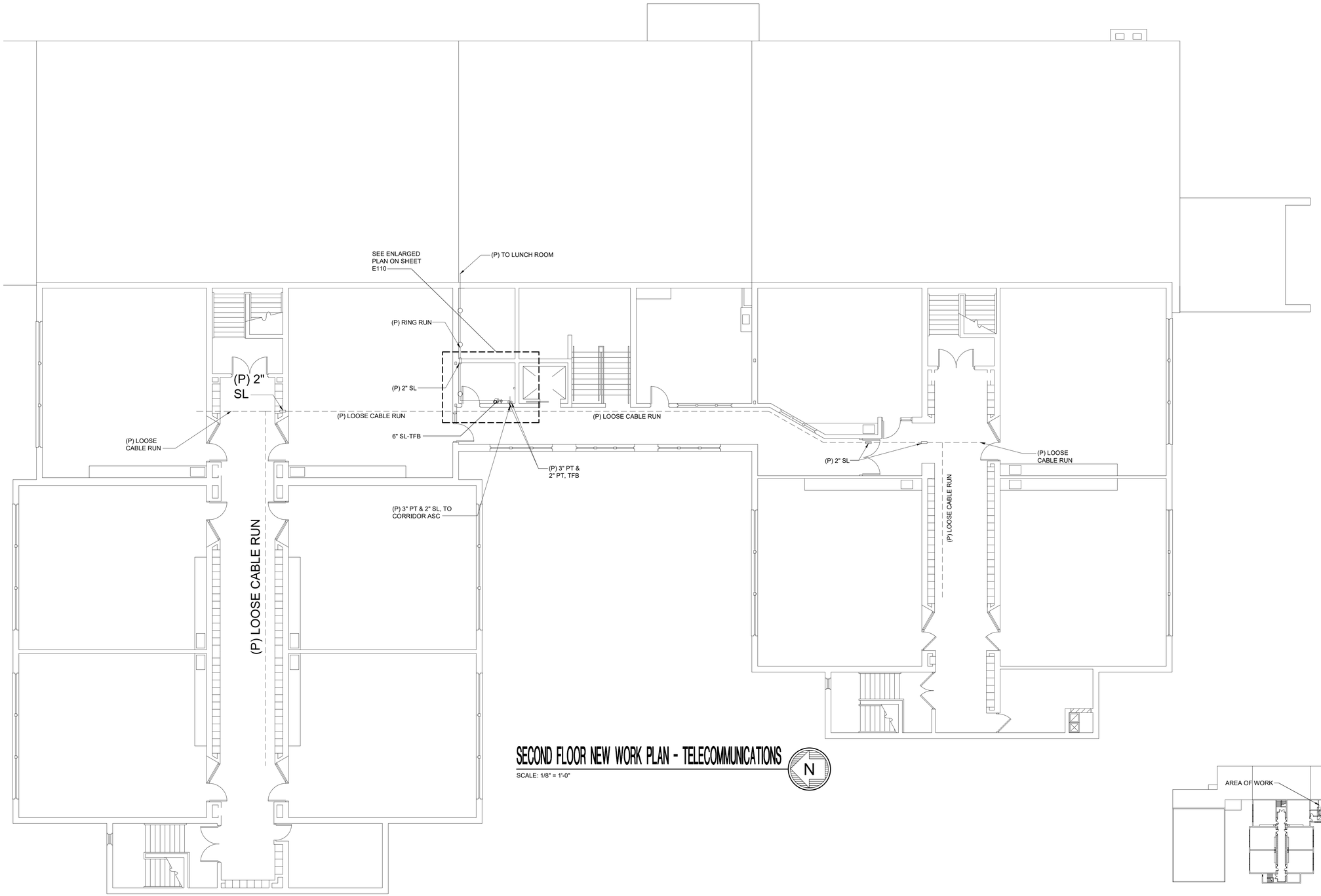
HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
NEW WORK
ELECTRICAL PLANS

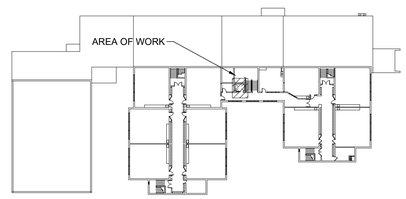
PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
E102



SECOND FLOOR NEW WORK PLAN - TELECOMMUNICATIONS

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



KEY PLAN - SECOND FLOOR

NO SCALE

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ROCKFORD PUBLIC SCHOOL DISTRICT 205

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ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION

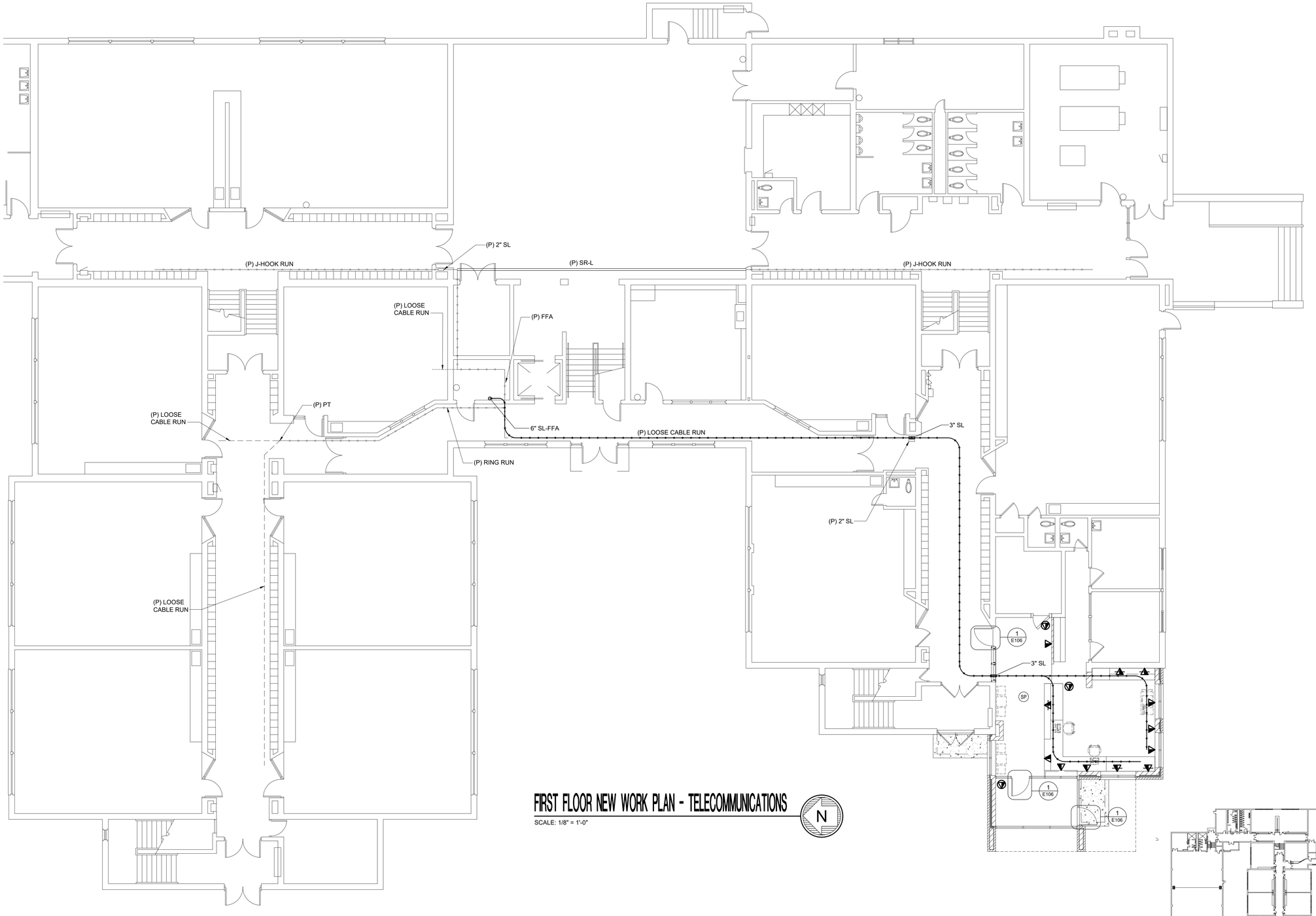
NEW WORK
TELECOMMUNICATIONS
SECOND FLOOR PLAN

PROJECT INFORMATION

Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

SHEET NUMBER

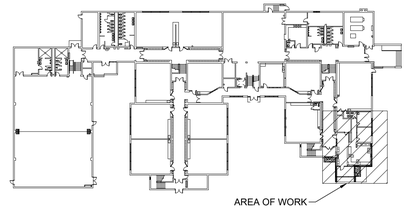
E103



FIRST FLOOR NEW WORK PLAN - TELECOMMUNICATIONS

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

N



KEY PLAN

NO SCALE

N

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SHEET IDENTIFICATION

NEW WORK
TELECOMMUNICATION PLAN

PROJECT INFORMATION

Date	MAY 6, 2021
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SHEET NUMBER

E104

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
●H	BRACKET FIXTURE
▭	RECESSED LED FIXTURE
H	SURFACE OR PENDANT LED FIXTURE
H	WALL LED FIXTURE (VERIFY HEIGHT)
⊗H	BRACKET EXIT LIGHT
⊗	CEILING EXIT LIGHT
	→ DIRECTIONAL ARROW
	LIGHT TRACK
	EXTERIOR POLE FIXTURE
●	BOLLARD FIXTURE
E	BATTERY EMERGENCY FIXTURE (R=REMOTE HEAD)
	NUMBER=CIRCUIT LETTER=SWITCH F1,F2,F3=FIXTURE SEE SPECIFICATIONS AND FIXTURE SCHEDULE
S	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
	UP 4'-0", UNLESS NOTED OTHERWISE
	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
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
H	CONDUIT RUN CONCEALED IN OR UNDER FLOORS
X	CONDUIT RUN EXPOSED, IN STRAIGHT LINES
U	CONDUIT RUN UNDERGROUND
E	EMERGENCY WIRING, IN CONDUIT, CONCEALED
H	HOMERUN TO PANEL, IN CONDUIT, CONCEALED ARROWS INDICATE NUMBER OF CIRCUITS
	CHARACTER MARKS= NUMBER OF WIRES, IF NONE ARE SHOWN TWO ARE REQUIRED
T	TELEPHONE CONDUIT RUN ABOVE CEILINGS OR IN WALLS
T	TELEPHONE CONDUIT RUN IN OR UNDER FLOORS
	EMPTY CONDUIT, CONCEALED
TⒸ	TELECOMMUNICATIONS OUTLET - REFER TO TELECOMMUNICATIONS PLAN FOR ADDITIONAL REQUIREMENTS.

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	HP	HORSEPOWER
AFF	ABOVE FINISHED FLOOR	IWS	IN WALL SPACE
ASC	ABOVE SUSPENDED CEILING	JB	JUNCTION BOX
C	CONDUIT	KW	KILOWATTS
CF	CARPET FLANGE	LTG	LIGHTING
CTC	CLOSE TO CEILING	MAX	MAXIMUM
CTF	CLOSE TO FLOOR	MFG	MANUFACTURER
CTW	CLOSE TO WALL	MIN	MINIMUM
E	EMERGENCY	MOB	MOTOR OUTLET BOX
EBBC	ELECTRIC BASEBOARD CONVECTOR	MTD	MOUNTED
		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

FIRE ALARM SYSTEM SYMBOLS

FACP	PRESENT FIRE ALARM CONTROL PANEL SIMPLEX 4006 (LOCATED IN BOILER ROOM).
F	FIRE ALARM SYSTEM WIRING IN CONDUIT, CONCEALED WHERE POSSIBLE
V	FIRE ALARM SYSTEM MULTI-CANDELA STROBE LIGHT SIGNAL WALL MOUNTED DEVICE. MOUNT AT 80" AFF. (VERIFY)
A	FIRE ALARM SYSTEM MULTI-CANDELA STROBE LIGHT SIGNAL AND HORN WALL MOUNTED DEVICE. MOUNT AT 80" AFF. (VERIFY)
F	MANUAL PULL STATION
SD	CEILING MOUNTED SMOKE DETECTOR

FIRE ALARM SYSTEM NOTES:

FIRE ALARM SYSTEM SHALL BE INSTALLED AND WIRED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WIRING DIAGRAMS. CONTRACTOR SHALL PROVIDE IN SHOP DRAWINGS THE FINAL WIRING SCHEMATIC & ZONE SCHEDULE & BATTERY CALC'S AS REQUIRED.
E.C. TO VERIFY ALL LOCAL REQUIREMENTS WITH LOCAL AUTHORITY PRIOR TO SUBMITTING FINAL BID TO INCLUDE ALL NECESSARY MATERIALS REQUIRED FOR A COMPLETE SYSTEM. ELECTRICAL CONTRACTOR TO INCLUDE ALL NECESSARY LABOR AND MATERIALS REQUIRED FOR FIRE ALARM SYSTEM EXPANSION. ALL LABOR AND MATERIALS SHALL BE INCLUDED IN FINAL BID.
COORDINATE WITH THE LOCAL AUTHORITY PRIOR TO SUBMITTING FINAL BIDS TO INCLUDE ALL MATERIAL AND LABOR.

ALL CANDELA INTENSITIES SHALL BE FIELD ADJUSTED PER NFPA 72 SECTION 7.5. (TYPICAL).

ALL NEW ALARM DEVICES SHALL MEET ALL NFPA AND A.D.A OPERATION AND MOUNTING REQUIREMENTS.

ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS FINAL BID ANY ADDITIONAL COMPONENTS REQUIRED FOR NEW DEVICES TO BE TIED INTO THE EXISTING FACP AS REQUIRED. ALL FIRE ALARM SYSTEM EXPANSION WORK SHALL BE FIELD VERIFIED AND ALL LABOR AND MATERIALS SHALL BE INCLUDED IN THE FINAL SUBMITTED BID. BID SHALL INCLUDE ALL LABOR AND RELATED EQUIPMENT REQUIRED FOR TIE INTO EXISTING SYSTEM.

FIRE ALARM SYSTEM SPECIFICATIONS

GENERAL
A. CONTRACTOR SHALL FIELD VERIFY EXISTING FACP AND PROVIDE A FULLY FUNCTIONAL ALARM SYSTEM WITH NEW DEVICES AS INDICATED ON PLAN.
B. THE CONTRACTOR SHALL PROVIDE ALL WIRING AND SYSTEM EXPANSION AS REQUIRED TO COMPLETE WORK, INCLUDING, BUT NOT LIMITED TO; INSTALLATION AND RE-WIRING OF ANY SMOKE AND HEAT DETECTORS, INSTALLATION AND WIRING OF ALL VISUAL AND AUDIBLE NOTIFICATION APPLIANCES, ADDITIONAL NAC POWER DEVICES FOR NAC CIRCUITS AS REQUIRED, ADDITIONAL EXPANSION CARDS OR SOFTWARE PROGRAMMING FOR THE EXISTING FACP TO PROVIDE THE ADDITIONAL ZONING FOR THE ALTERATIONS, AND SYSTEM TESTING/VERIFICATION.
C. THE INSTALLATION SHALL CONFORM TO NFPA 72, STATE AND LOCAL CODES AS WELL AS THOSE AUTHORITIES HAVING JURISDICTION.

PRODUCTS
A. EXISTING FIRE ALARM SYSTEM CONTROL PANEL
   1. EXISTING FACP MANUF/MODEL: SIMPLEX 4020
   2. ANNUNCIATION: OPERATION OF ALARM INITIATING DEVICES SHALL BE ANNUNCIATED AT THE FACP, THE FAAP, AND ALL REMOTE ANNUNCIATORS, INDICATING THE LOCATION AND TYPE OF DEVICE AT THE FACP.
B. SMOKE AND HEAT DETECTORS
   1. DETECTORS SHALL MEET THE REQUIREMENTS OF THE ADA (AMERICANS WITH DISABILITIES ACT) AS WELL AS UL STANDARD 1971.

EXECUTION
A. ELECTRICAL CONTRACTOR TO COMPLETELY WIRE AND RE-PROGRAM SYSTEM AS REQUIRED.
B. GENERAL ALARM: A SYSTEM GENERAL ALARM SHALL INCLUDE;
   1. INDICATION OF ALARM CONDITION AT THE FACP AND ANY REQUIRED REMOTE ANNUNCIATOR(S).
   2. IDENTIFICATION OF THE DEVICE THAT IS THE SOURCE OF THE ALARM AT THE FACP AND ANY REQUIRE REMOTE ANNUNCIATOR(S).
   3. OPERATION OF AUDIBLE AND VISIBLE NOTIFICATION APPLIANCES THROUGHOUT THE BUILDING UNTIL SILENCED AT FACP. AUDIBLE AND VISUAL ALARM NOTIFICATION SHALL OPERATE UNDER SYNCHRONIZE TEMPORAL CODE.
   4. UNLOCKING DESIGNATED DOORS.
   5. SHUTTING DOWN SUPPLY AND RETURN FANS SERVING ZONE WHERE ALARM IS INITIATED.
   6. INITIATION OF SMOKE CONTROL SEQUENCE.
      a. NOTIFYING THE LOCAL FIRE DEPARTMENT.
   7. ALL CIRCUITS REQUIRING SYSTEM-OPERATING POWER SHALL BE 24 VDC AND SHALL BE INDIVIDUALLY FUSED AT THE CONTROL PANEL.
C. AN UPDATED, TYPED DEVICE DIRECTORY, IDENTIFYING EACH INDIVIDUAL SLC/NAC CIRCUIT, ZONES AND DEVICE CODES SHALL BE PROVIDED FOR THE FACP.

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.

LIGHTING CONTROL DEVICE AND WIRE LEGEND

	CAT5e Pre-terminated CAT5e cable
n$ D	nLight n$D NPODM DX XX - Low Voltage Push-Button Wallpod, Raise/Lower Dimming
CM 10	CM PDT 10 - Low Voltage Ceiling Mount Sensor, Passive Dual Technology, Large Motion / Extended Range 360° Lens
CM 10 ADC	CM PDT 10 ADC - Low Voltage Ceiling Mount Sensor, Passive Dual Technology, Large Motion / Extended Range 360° Lens, Dimming with Photocell
nP	nLight nP NPP16 EFP Power/Relay Pack, External Fault Protection
	Note: Provide emergency shunting device for fixtures indicated as "EM" on plan.
	ALL WALL SENSORS AND WALL PLATES TO BE LIGHT GRAY. COORDINATE WITH OWNER PRIOR TO ORDERING.

LIGHTING SENSOR GENERAL NOTES

1. SENSORS IN ELECTRICAL/MECHANICAL LOCATIONS NEED TO BE VERIFIED WITH AUTHORITY HAVING JURISDICTION. (REFER TO NEC 110.26.D)
*Illumination. Illumination shall be provided for all working spaces about service equipment, switchboards, panelboards, or motor control centers installed indoors. Additional lighting outlets shall not be required where the work space is illuminated by an adjacent light source or as permitted by 210.70(A)(1), Exception No. 1, for switched receptacles. In electrical equipment rooms, the illumination shall not be controlled by automatic means only."

2. ONE POWER PACK IS NEEDED PER CIRCUIT /ZONE TO BE CONTROLLED BY A MAXIMUM OF 14 LOW VOLTAGE SENSORS. POWER PACK PLACEMENT ON DRAWINGS IS FOR COUNTING ONLY. FINAL PLACEMENT OF POWER PACK IS UP TO CONTRACTOR/ENGINEER. PLEASE RECHECK COUNTS TO VERIFY THE NUMBER OF POWER PACKS NEEDED TO MAKE A COMPLETE SYSTEM. THE MAXIMUM NUMBER OF POWER PACKS THAT CAN BE CONTROLLED BY A GROUP OF SENSORS IS 5. IF YOU HAVE MORE THEN 5 CIRCUITS CONTROLLING A SPACE YOU WILL EITHER HAVE TO BREAK UP THE SPACE INTO ZONES OR USE ONE POWER PACK PER LIGHTING CONTACTOR TO PULL IN THE CIRCUITS.

3. SENSOR PLACEMENT AND TYPES WERE PLACED WITH CURRENT PROJECT INFORMATION. ADDITIONAL SENSORS AND TYPES OF SENSORS MAY BE REQUIRED TO PROVIDE COMPLETE COVERAGE DEPENDING ON DRAWING CHANGES, EMS/BMS, FINAL PARTITION HEIGHT/PLACEMENT, FURNITURE PLACEMENT, EQUIPMENT HEIGHT/PLACEMENT AND SHELVING HEIGHT/PLACEMENT.

4. CEILING MOUNTED EXTENDED RANGE 360° SENSORS: FOR MAXIMUM DISTANCE ROTATE TO SENSOR CLOCKWISE SO THAT THE SCREW AXIS IS POSITIONED 7.5° OFF THE ENTRANCE AXIS. WHEN WALKING ACROSS A SENSOR'S BEAM, DETECTION WILL OCCUR AT APPROXIMATELY 28', WHEN WALKING DIRECTLY INTO A SENSOR'S BEAM, DETECTION WILL OCCUR AT APPROXIMATELY 24'. (REFER TO CUT SHEET FOR PICTORIAL OF ALIGNMENT)

5. SENSOR MASKING KITS MAY BE REQUIRED TO LIMIT COVERAGE DEPENDING ON YOUR REQUIREMENTS.

6. ALL RELATED COMPONENTS SHALL BE INCLUDED FOR A COMPLETE STAND-ALONE LIGHTING CONTROL SYSTEM AS INDICATED FOR EACH AREA.

EXISTING PANELBOARD NOTES

ELECTRICAL CONTRACTOR SHALL FIELD VERIFY USE OF EXISTING BRANCH CIRCUITS BEING REUSED FOR NEW. UPDATE ALL PANEL SCHEDULES AS REQUIRED. REWORK BRANCH CIRCUITS INDICATED IF NEEDED TO ACCOMMODATE NEW ELECTRICAL DEVICES. TYPICAL FOR ANY EXISTING PANELS BEING REVISED.

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 CONTRACTOR IS RESPONSIBLE FOR LEGALLY DISPOSING OF ALL FIXTURE BALLASTS AND LAMPS FROM THE OWNER'S PROPERTY. MANAGEMENT AND DISPOSAL OF FLUORESCENT LIGHT BULBS AND OTHER MERCURY-CONTAINING BULBS SHALL COMPLY WITH THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) UNIVERSAL WASTE RULE (UWR) AND SUBTITLE C HAZARDOUS WASTE REGULATIONS. REFER TO SPECIFICATIONS SECTION 017419 FOR ADDITIONAL INFORMATION.

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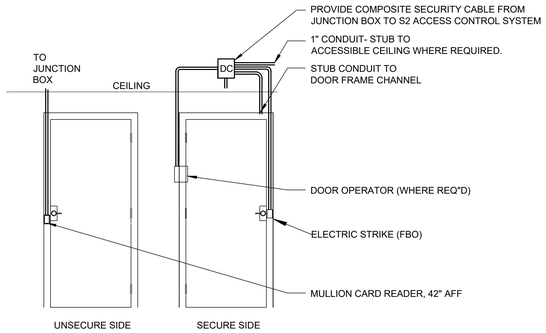
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
ELECTRICAL NOTES, SYMBOLS, AND ABBREVIATIONS

PROJECT INFORMATION
Date: MAY 6, 2021
Rev. Date:
RLJA Proj: 2020-013

SHEET NUMBER
E105



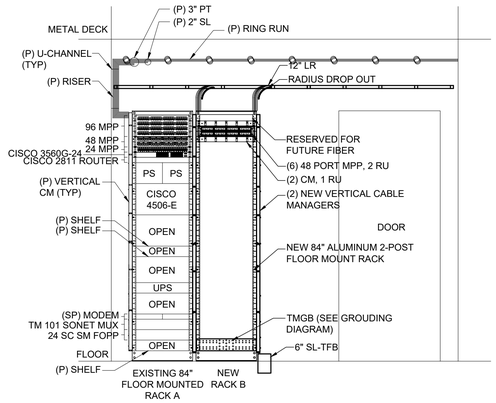
NOTE:

ALL CONCEALED RACEWAY SHALL BE 3/4" CONDUIT. EXPOSED RACEWAY SHALL BE SURFACE MOUNTED WIREMOLD, COLOR AS SELECTED BY ARCHITECT.

2. REFER TO PLANS FOR EXACT DOOR SWING AND TYPE.

CARD READER ROUGH-IN DETAIL 1

NO SCALE



RACK ELEVATION - ER 106 1 E110

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

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	LAMP SIZE AND TYPE	MOUNTING	MANUFACTURER'S NUMBER	REMARKS
A	80 CRI L.E.D., 4000K LP840, 4843 LUMENS (36 WATTS)	RECESSED IN GRID CEILING (VERIFY)	LITHONIA NO. EPANL-2X2-4800LM-80CRI-40K-MIN1-NLIGHT-MVOLT-*EM OPTION E10WCP	2' X 2' LED RECESSED EDGE-LIT FLAT PANEL WITH SATIN WHITE ACRYLIC LENS, MULTI-VOLT, LED 0-10V DIMMING DRIVER, AND nlight OPTION. ***PROVIDE INTEGRAL BATTERY PACK OPTION WHERE NOTED WITH "EM". LOCATE REMOTE TEST SWITCH BELOW CEILING AT OWNER DESIGNATED LOCATION. (E.C. TO VERIFY IN FIELD WITH THE OWNER).**
B	L.E.D. 24.0 WATTS, 4000K, 80 CRI (2334 LUMENS)	RECESSED IN EXTERIOR CANOPY (VERIFY)	INDY LIGHTING NO. L6-17-40K-G4-80CRI-NL-WET-ZT-WPR-CS-HB** IF REQUIRED FOR INSTALL. VERIFY LENGTH/TYPE PRIOR TO ORDERING.	6" RECESSED ROUND LED DOWNLIGHT FIXTURE WITH CLEAR SPECULAR REFLECTOR FINISH, WHITE FLANGE, nlight CONTROL OPTION, ELECTRONIC LED DRIVER, MULTI-VOLT, 1000 LUMEN EMERGECY BATTERY PACK INTEGRAL TO THE FIXTURE. COORDINATE REMOTE TEST SWITCH IN ACCESSIBLE LOCATION. (VERIFY LOCATION WITH THE OWNER). FIXTURE IS WET LOCATION LISTED.
EX1	L.E.D. LAMPS FURNISHED WITH FIXTURE - VERIFY	CEILING OR WALL AS REQUIRED (VERIFY)	LITHONIA NO. LQM-S-W-3-R-EL N-SD-120/277 VOLT OR EQUAL	UNIVERSAL SELF-POWERED EMERGENCY L.E.D. "EXIT" SIGN WITH 6" HIGH RED LETTERS, WHITE HOUSING, 120/277 VOLT AC INPUT

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.

DIAGRAM SHOWING ELECTRICAL SERVICE AND DISTRIBUTION SYSTEM

NO SCALE PURELY DIAGRAMMATIC

REFER TO FLOOR PLANS, PANEL SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. COORDINATE AVAILABLE FAULT CURRENT WITH THE LOCAL UTILITY COMPANY. (VERIFY PRIOR TO SUBMITTING FINAL BID). ADJUST A.I.C. RATINGS FOR ALL OVERCURRENT PROTECTION DEVICES AS REQUIRED. (VERIFY). COORDINATE EXACT EQUIPMENT LOCATIONS WITH ALL OTHER TRADE CONTRACTORS ASSOCIATED WITH THIS PROJECT PRIOR TO ROUGH-IN OF ANY ELECTRICAL EQUIPMENT. ALL EQUIPMENT SHALL BE PROVIDED WITH 90° CENTIGRADE LUGS FOR THWN WIRING.

ELECTRICAL CONTRACTOR SHALL PROVIDE ARC FLASH CALCULATIONS AND LABELS FOR ALL DISTRIBUTION EQUIPMENT ASSOCIATED WITH THIS PROJECT.

PANEL SCHEDULE

PANEL: NEW HES-LVA

LOCATION: CORRIDOR G24 | **VOLTAGE:** 208 /120 V | **A.I.C. RATING:** kAIC COORDINATE
SUPPLY FROM: 1200A MAIN SWBD | **PHASE:** 3 PH | **MAINS TYPE:** LSI MLO
MOUNTING: RECESSED | **WIRE:** 4 W | **MAINS RATING:** 150 A
ENCLOSURE: NEMA 1 | **MCB RATING:** 125 A (100% RATED)

CKT	DESCRIPTION	TRIP	POLES	DEMAND CODE	A		B		C		DEMAND CODE	POLES	TRIP	DESCRIPTION	CKT
1	LIGHTING G-25 (EXISTING)	20	1	L	720	720					R	1	20	RECEPT G-25 (EXISTING)	2
3	LIGHTING G-25 (EXISTING)	20	1	L			720	720			L	1	20	LIGHTING G-26 (EXISTING)	4
5	RECEPT - G-25-26 CORRIDOR (EXST)	20	1	R					720	720	L	1	20	LIGHTING G-26 (EXISTING)	6
7	ENTRY HEATER (EXISTING)	20	1	H	1,200	1,200					R	1	20	NEW RECEPT	8
9	EXISTING - MASTER CLOCK (VERIFY)	20	1	G			720	1,200			R	1	20	NEW RECEPT	10
11	EXISTING - TELECOR (VERIFY)	20	1	G					600	1,200	R	1	20	NEW RECEPT	12
13	RECEPT - KINDERGARTEN (EXST)	20	1	R	720	500					R	1	20	EXISTING RECEPT	14
15	LIGHTING KINDERGARTEN (EXST)	20	1	L			720				L	1	20	EXISTING LIGHTING	16
17	LIGHTING KINDERGARTEN (EXST)	20	1	L					720	600	L	1	20	EXISTING LIGHTING	18
19	EXTERIOR FANS/JAN RM FAN (EXST)	20	1	G	720	720					G	1	20	EXTERIOR SOUTH (EXISTING)	20
21	CORR. LTG WEST (EXISTING)	20	1	L			720	720			G	1	20	EXTERIOR NORTH (EXISTING)	22
23	EXTERIOR NORTH (EXISTING)	20	1	G					600	720	L	1	20	CORR. LTG (EXISTING)	24
25	EXISTING	20	1	G	720	600					G	1	20	CUSTODIAN OFFICE (EXISTING)	26
27	EXISTING	20	1	G			720	1,250			G	2	30	EXISTING - VERIFY IN USE	28
29	EXISTING	20	1	G					720	1,250	G				30
31	EXISTING	20	1	G	720	584					L	1	20	NEW - LIGHTING	32
33	EXISTING	20	1	G			800	600			R	1	20	NEW WIREMOLD	34
35	EXISTING	20	1	G					500	1,300	R	1	20	AI PHONE, DOOR CONTROL	36
37	NEW RTU-1	30	3	H	3,238	1,040					R	1	20	NEW -RECEPT	38
39				H			3,238	1,200				1	20	NEW -COPIER	40
41				H					3,238	1,200		1	20	NEW -U.C. REFRIG RECEPT	42
				TOTAL CONN:	13,402	VA	13,328	VA	14,088	VA					

LOAD CLASSIFICATION	DEMAND CODE	CONNECTED LOAD		DEMAND FACTOR	DEMAND	
HVAC/MECH	H	10,914	VA	80.0%	8,731	VA
RECEPTACLES	R	9,200	VA	100.0%	9,200	VA
LIGHTING	L	6,944	VA	125.0%	8,680	VA
GENERAL	G	11,360	VA	100.0%	11,360	VA
KITCHEN	K	0	VA	100.0%	0	VA
LARGEST MOTOR	1 HP	0	VA	125.0%	0	VA

PANEL TOTALS
TOTAL CONN. LOAD: 40,818 VA
TOTAL DEMAND LOAD: 37,971 VA
TOTAL CONN. CURRENT: 114 A
TOTAL DEMAND CURRENT: 105 A

NOTE: E.C. TO CONFIRM ALL NEW CIRCUITS WITH EXISTING CIRCUITS REQUIRED TO REMAIN OPERATIONAL. ADJUST BRANCH CIRCUITS AS NEEDED TO ACCOMMODATE NEW WORK. VERIFY PRIOR TO ORDERING NEW PANEL.

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ROCKFORD PUBLIC SCHOOL DISTRICT 205 (IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
ELECTRICAL DETAILS AND NOTES

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
E106

TELECOMMUNICATIONS SYMBOLS

PB	PULL BOX (SIZE AS INDICATED)
	SURFACE TELECOMMUNICATIONS PANELBOARD
C	CONDUIT RUN CONCEALED (OR PARTIALLY CONCEALED) IN CEILINGS OR WALLS
	CONDUIT RUN CONCEALED IN OR UNDER FLOORS (ARROWS INDICATE NUMBER OF CABLES)
SR	CABLE IN SURFACE RACEWAY RUN EXPOSED
ST	CONDUIT TO CABLE TRAY CONDUIT RUN EXPOSED
CC	CONDUIT RUN ABOVE CEILING, CONCEALED
CF	CONDUIT RUN IN/UNDER FLOOR, CONCEALED
CT	CONDUIT RUN TO CABLE TRAY, CONCEALED
CT-#	CABLE TRAY (WIDTH IN INCHES AS INDICATED), 4" DEEP
	LADDER RACK (WIDTH IN INCHES AS INDICATED)
CO	COPPER BACKBONE CABLE
	INTERIOR PATHWAY - J HOOK OR RING RUN ABOVE CEILING
▽	TELECOMMUNICATIONS OUTLET - SEE DETAILS ON THIS SHEET.
SP	PA SYSTEM SPEAKER TO MATCH EXISTING SYSTEM. FIELD VERIFY EXISTING CONDITIONS. TIE INTO EXISTING SYSTEM.
CR	CARD READER
DC	DOOR CONTACT
REX	REQUEST TO EXIT

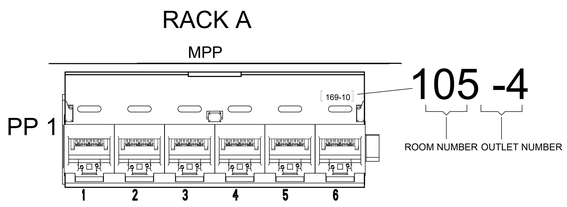
NOTES:

TELECOMMUNICATIONS OUTLET BOXES INSTALLED IN FIRE RATED ASSEMBLIES SHALL COMPLY WITH IECC 712 (NOT LESS THAN 24" O.C.)

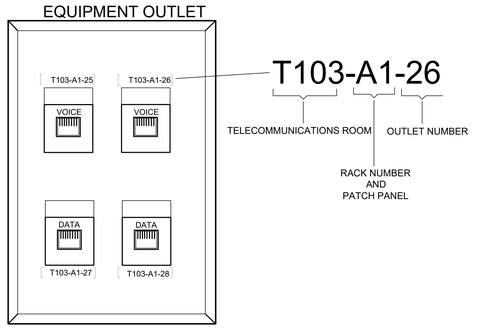
ELECTRICAL DEVICES TO BE INSTALLED IN ACCORDANCE WITH ADA SPECIFICATIONS. VERIFY HEIGHTS AND SPECIFIC DIMENSIONS.

TELECOMMUNICATIONS ABBREVIATIONS

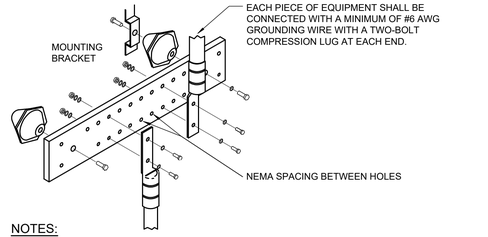
802.1P	IEEE STANDARD FOR LINK LAYER PRIORITIZATION
AC	ABOVE COUNTER
ACL	ACCESS CONTROL LIST
AFF	ABOVE FINISHED FLOOR
AP	ACCESS POINT (THIN)
ASC	ABOVE SUSPENDED CEILING
BEP	BUILDING ENTRANCE PROTECTOR
C	CONDUIT
CA	CABLE
CM	CABLE MANAGEMENT
CPB	CONDUIT TO PULL BOX
CT	CABLE TRAY
CO	COPPER BACKBONE CABLE
CWO	COORDINATE WITH OWNER
DD	DISTRIBUTION DUCT
ER	EQUIPMENT ROOM (MDF)
FBO	FURNISHED BY OWNER
FD	FEEDER DUCT
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FO	FIBER OPTIC
FOPP	FIBER OPTIC PATCH PANEL
FW	FIREWALL
IDF	INTERMEDIATE DISTRIBUTION FACILITY-TELECOMMUNICATIONS ROOM
LC	"LC TYPE" FIBER OPTIC CONNECTOR
LR	LADDER RACK
MDF	MAIN DISTRIBUTION FACILITY-EQUIPMENT ROOM
MPP	MODULAR PATCH PANEL, CATEGORY 6
MUTOA	MULTI-USER TELECOMMUNICATIONS OULET ASSEMBLY
MM	MULTIMODE FIBER
PB	PULL BOX
POE	POWER OVER ETHERNET
PT	POKE THROUGH
RU	RACK UNIT
SM	SINGLEMODE FIBER
SC	"SC TYPE" FIBER OPTIC CONNECTOR
SF	SURFACE TO FLOOR
SL	SLEEVE
SP	SERVICE PROVIDER
SR	SURFACE RACEWAY (SIZED AT MAX 50% FILL)
ST	"ST TYPE" FIBER OPTIC CONNECTOR
TC	TELECOMMUNICATIONS CONTRACTOR
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TR	TELECOMMUNICATIONS ROOM (IDF)
UPS	UNIVERSAL POWER SUPPLY
VIF	VERIFY IN FIELD
VLAN	VIRTUAL LOCAL AREA NETWORK
W	WALL JACK
WLAN	WIRELESS LOCAL AREA NETWORK



NOTE: INSERTS/JACKS PER SPECIFICATIONS, MATCH EXISTING.



NOTE: ALL FACE PLATE COLORS SHALL BE OFF-WHITE; BLANK FILLERS ARE TO MATCH FACEPLATE COLOR.



NOTES:

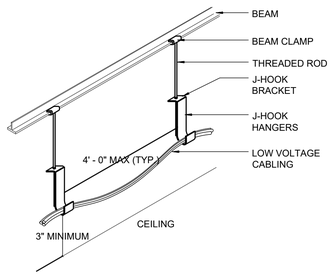
1. THE TELECOMMUNICATINS GROUDING BUSBAR (TGB) SHALL HAVE MINIMUM DIMENSIONS OF 6.3 mm (0.25 in) THICK BY 50 mm (2 in) WIDE, AND VARIABLE IN LENGTH DEPENDING ON NEED, WITH A MINIMUM LENGTH OF 10 INCHES.
2. THE TELECOMMUNICATIONS GROUNDING BUSBAR(S) SHALL BE CONNECTED TO THE TELECOMMUNICATIONS MAIN GROUNDING BUSBAR WITH #1/0 GROUND WIRE.
3. THE TELECOMMUNICATIONS MAIN GROUNDING BUSBAR SHALL BE BONDED TO THE ELECTRICAL POWER GROUND WITH #3/0 GROUND WIRE.
4. THE GROUNDING BUSBAR(S) SHALL BE INSTALLED AT +18" A.F.F. WITH 6" CLEAR ON ALL OTHER SIDES.
5. COORDINATE EXACT LOCATION OF GROUNDING BUSBAR(S) WITH OTHER TRADES.
6. MOUNTING BRACKETS AND INSULATOR SHALL BE MOUNTED TO PROVIDE A 3.750 INCH SPACE FROM MOUNTING BACKBOARD TO BUSBAR.

TELECOMMUNICATIONS GROUNDING DETAIL

NO SCALE

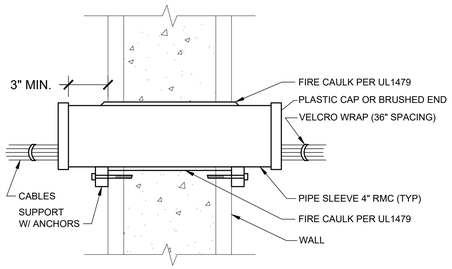
TELECOMMUNICATIONS LABELING DIAGRAM

NOTE: ALL OUTLETS AND PATCH PANELS SHALL BE LABELED PER THIS SCHEME, OR MATCH EXISTING DISTRICT SCHEME.



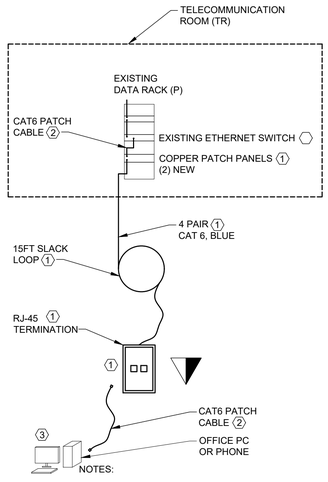
CABLING SUPPORT DETAIL

NO SCALE



PIPE SLEEVE THRU WALL

NO SCALE



NOTES:

(1) BY LOW VOLTAGE CONTRACTOR

(2) FURNISHED BY CONTRACTOR, INSTALLED BY OWNER.

(3) BY OWNER (FBO).

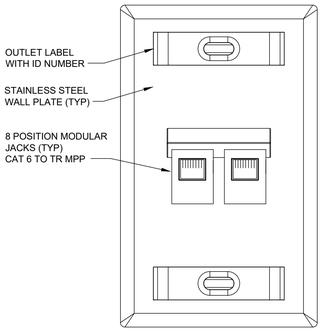
DATA TERMINATION (TYPICAL)

NO SCALE

(2) CAT6A MODULAR PLUG TERMINATED LINKS (MPTL) PER ANSI/TIA-568.2-D WITH 12 FT (MINIMUM) COILED CABLE ABOVE SUSPENDED CEILING.

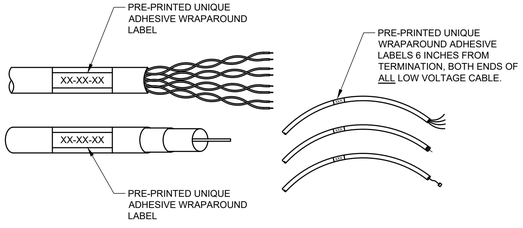
WAP/CAMERA OUTLET

NO SCALE - 94" AFF OR ABOVE CEILING (UNO)



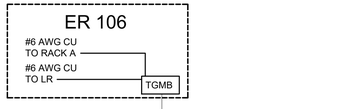
2 PORT OUTLET

NO SCALE - 18" AFF OR ABOVE COUNTER, UNO
ALL JACKS AND CABLES SHALL BE BLUE IN COLOR
FACEPLATES SHALL BE LIGHT GRAY



TYPICAL HORIZONTAL CABLE LABELS

NO SCALE



TELECOMMUNICATIONS BONDING BACKBONE

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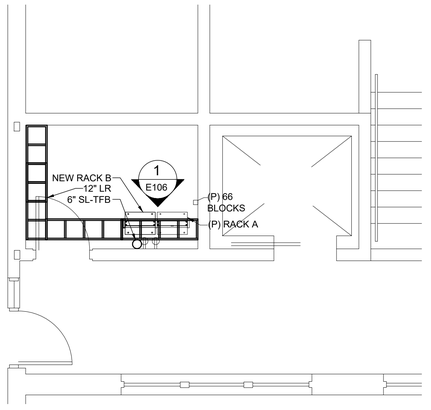

ENLARGED PLAN - ER 106

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

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ROCKFORD, ILLINOIS

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SHEET IDENTIFICATION
TELECOMMUNICATIONS DETAILS, AND NOTES

PROJECT INFORMATION
Date MAY 6, 2021
Rev. Date
RLJA Proj 2020-013

SHEET NUMBER
E107

DIVISION 26 ELECTRICAL SPECIFICATIONS

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 LOCATIONS.

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.

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 HAZARDOUS (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 PANELBOARDS

SECURELY MOUNT PANELBOARDS SO THAT THE TOP OPERATING HANDLE DOES NOT EXCEED 72-INCHES ABOVE THE FINISHED FLOOR. DO NOT MOUNT EQUIPMENT WITHIN 42 INCHES OF THE FRONT OF THE PANEL. DIRECTORY CARD INFORMATION SHALL BE COMPLETE AND LEGIBLE.

3.7 ELECTRICAL STUDY

COMPLETE A COMPUTER-BASED, ARC FLASH, FAULT-CURRENT AND OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY PER ANSI/NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) AND NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

1. ESA INC. EASY POWER
2. SKM SYSTEMS ANALYSIS, INC. POWER TOOLS

COMPLETE STUDY FOR ALL NEW EQUIPMENT. TRANSFORMERS, SWITCHBOARD, DISCONNECTS AS WELL AS EXISTING PANELBOARDS.

A. FAULT CURRENT STUDY: CALCULATE THE MAXIMUM AVAILABLE SHORT-CIRCUIT CURRENT IN AMPERES RMS SYMMETRICAL AT CIRCUIT-BREAKER POSITIONS OF THE ELECTRICAL POWER DISTRIBUTION SYSTEM. THE CALCULATION SHALL BE FOR A CURRENT IMMEDIATELY AFTER INITIATION AND FOR A THREE-PHASE BOLTED SHORT CIRCUIT.
STUDY ELECTRICAL DISTRIBUTION SYSTEM FROM NORMAL UTILITY POWER SOURCES THROUGHOUT ELECTRICAL DISTRIBUTION SYSTEM FOR PROJECT. INCLUDE STUDIES OF SYSTEM-SWITCHING CONFIGURATIONS AND ALTERNATE OPERATIONS THAT COULD RESULT IN MAXIMUM FAULT CONDITIONS. INITIAL FAULT CALCULATION SHALL BE COMPLETED AND SUBMITTED PRIOR TO ELECTRICAL EQUIPMENT SUBMITTALS.
B. COORDINATION STUDY: PERFORM COORDINATION STUDY USING APPROVED COMPUTER SOFTWARE PROGRAM. PREPARE A WRITTEN REPORT USING RESULTS OF FAULT-CURRENT STUDY. COMPLY WITH IEEE 399. CALCULATE THE MAXIMUM AND MINIMUM 1/2-CYCLE SHORT-CIRCUIT CURRENTS. CALCULATE THE MAXIMUM AND MINIMUM GROUND-FAULT CURRENTS. COMPLY WITH IEEE 242 RECOMMENDATIONS FOR FAULT CURRENTS AND TIME INTERVALS.
C. ARC FLASH STUDY: COMPLETE AN ARC FLASH HAZARD ANALYSIS ON THE ELECTRICAL DISTRIBUTION SYSTEM PER NFPA 70E REGULATIONS AND NEC 110.16. THE ANALYSIS INCLUDES THE SITE DATA COLLECTION AND VERIFICATION OF THE ELECTRICAL DISTRIBUTION SYSTEM ATTRIBUTES THAT AFFECT THE INCIDENT ENERGY AVAILABLE. VINYL UV RESISTANT ARC FLASH LABELS SHALL BE INSTALLED ON ALL APPLICABLE ELECTRICAL ENCLOSURES. THE LABELS SHALL CLEARLY INDICATE THE ELECTRICAL HAZARDS PRESENT IN THE ELECTRICAL PANELS. THE HAZARD LABELS LIST DETAILED INFORMATION SUCH AS: THE REQUIRED SAFE WORK DISTANCE FOR EACH TASK, THE ARC FLASH HAZARD IN CAL/CM², THE LEVEL AND TYPE OF PERSONAL PROTECTIVE EQUIPMENT THAT MUST BE WORN WHEN WORKING IN THE ENCLOSURE LIVE AND IDENTIFICATION OF THE ENCLOSURE WITH A SPECIFIC NAME.

3.8 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.

3.9 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

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RICHARD L. JOHNSON
ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
ELECTRICAL SPECIFICATIONS

PROJECT INFORMATION	
Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

SHEET NUMBER
E108

DIVISION 27 - COMMUNICATIONS

SECTION 270511 - GENERAL TELECOMMUNICATIONS REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. THIS SECTION, REQUIREMENTS FOR COMMUNICATIONS INSTALLATIONS, APPLIES TO ALL SECTIONS OF DIVISION 27.

B. HASKELL ELEMENTARY SCHOOL ALREADY HAS AN ESTABLISHED BASE OF TELECOMMUNICATIONS SYSTEMS INCLUDING ROOMS, RACKS, CABLING AND PATHWAYS, CONSISTING PRIMARILY OF CATEGORY 5, 5E, AND SOME CATEGORY 6 HORIZONTAL CABLING. THIS PROJECT ADDS, OR CHANGES INFORMATION OUTLETS WITH NEW CATEGORY 6 HORIZONTAL COPPER.

C. THE LOW VOLTAGE CONTRACTOR SHALL FURNISH AND INSTALL ALL COMMUNICATIONS CABLING, SYSTEMS, EQUIPMENT, AND ACCESSORIES IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS. THE INSTALLING CONTRACTOR SHALL PROVIDE ALL INSTALLATION MATERIALS AND THAT ARE REQUIRED TO PERFECT THE INSTALLATION AND TO PROVIDE A COMPLETE, FUNCTIONAL SYSTEM AS DESCRIBED IN THE SPECIFICATIONS AND PROJECT DRAWINGS

1.2 MINIMUM REQUIREMENTS

A. REFERENCES TO INDUSTRY AND TRADE ASSOCIATION STANDARDS AND CODES ARE MINIMUM INSTALLATION REQUIREMENT STANDARDS.

B. DRAWINGS AND OTHER SPECIFICATION SECTIONS SHALL GOVERN IN THOSE INSTANCES WHERE REQUIREMENTS ARE GREATER THAN THOSE SPECIFIED IN THE ABOVE STANDARDS.

1.3 QUALIFICATIONS (PRODUCTS AND SERVICES)

A. MANUFACTURERS QUALIFICATIONS: THE MANUFACTURER SHALL REGULARLY AND PRESENTLY PRODUCE, AS ONE OF THE MANUFACTURER'S PRINCIPAL PRODUCTS, THE EQUIPMENT AND MATERIAL SPECIFIED FOR THIS PROJECT, AND SHALL HAVE MANUFACTURED THE ITEM FOR AT LEAST THREE YEARS.

B. PRODUCT QUALIFICATION:

1. MANUFACTURER'S PRODUCT SHALL HAVE BEEN IN SATISFACTORY OPERATION, ON THREE INSTALLATIONS OF SIMILAR SIZE AND TYPE AS THIS PROJECT, FOR APPROXIMATELY THREE YEARS.

C. SERVICE QUALIFICATIONS: THERE SHALL BE A PERMANENT SERVICE ORGANIZATION MAINTAINED OR TRAINED BY THE MANUFACTURER WHICH WILL RENDER SATISFACTORY SERVICE TO THIS INSTALLATION WITHIN FOUR HOURS OF RECEIPT OF NOTIFICATION THAT SERVICE IS NEEDED. SUBMIT NAME AND ADDRESS OF SERVICE ORGANIZATIONS.

1.4 MANUFACTURED PRODUCTS

A. MATERIALS AND EQUIPMENT FURNISHED SHALL BE OF CURRENT PRODUCTION BY MANUFACTURERS REGULARLY ENGAGED IN THE MANUFACTURE OF SUCH ITEMS, FOR WHICH REPLACEMENT PARTS SHALL BE AVAILABLE.

B. WHEN MORE THAN ONE UNIT OF THE SAME CLASS OF EQUIPMENT IS REQUIRED, SUCH UNITS SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER.

C. EQUIPMENT ASSEMBLIES AND COMPONENTS:

1. COMPONENTS OF AN ASSEMBLED UNIT NEED NOT BE PRODUCTS OF THE SAME MANUFACTURER.
2. MANUFACTURERS OF EQUIPMENT ASSEMBLIES, WHICH INCLUDE COMPONENTS MADE BY OTHERS, SHALL ASSUME COMPLETE RESPONSIBILITY FOR THE FINAL ASSEMBLED UNIT.
3. COMPONENTS SHALL BE COMPATIBLE WITH EACH OTHER AND WITH THE TOTAL ASSEMBLY FOR THE INTENDED SERVICE.
4. CONSTITUENT PARTS WHICH ARE SIMILAR SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER, SO AS TO PROVIDE THE REQUIRED MANUFACTURER'S WARRANTY.

D. FACTORY WIRING SHALL BE IDENTIFIED ON THE EQUIPMENT BEING FURNISHED AND ON ALL WIRING DIAGRAMS.

1.5 EQUIPMENT PROTECTION

A. EQUIPMENT AND MATERIALS SHALL BE PROTECTED DURING SHIPMENT AND STORAGE AGAINST PHYSICAL DAMAGE, DIRT, MOISTURE, COLD AND RAIN:

1. DURING INSTALLATION, ENCLOSURES, EQUIPMENT, CONTROLS, CONTROLLERS, CIRCUIT PROTECTIVE DEVICES, AND OTHER LIKE ITEMS, SHALL BE PROTECTED AGAINST ENTRY OF FOREIGN MATTER; AND BE VACUUM CLEANED BOTH INSIDE AND OUTSIDE BEFORE TESTING AND OPERATING AND REPAINTING IF REQUIRED.
2. DAMAGED EQUIPMENT SHALL BE, AS DETERMINED BY THE OWNER, PLACED IN FIRST CLASS OPERATING CONDITION OR BE RETURNED TO THE SOURCE OF SUPPLY FOR REPAIR OR REPLACEMENT.
3. PAINTED SURFACES SHALL BE PROTECTED.
4. DAMAGED PAINT ON SURFACES, EQUIPMENT AND MATERIALS SHALL BE REFINISHED WITH THE SAME QUALITY OF PAINT AND WORKMANSHIP AS USED BY THE MANUFACTURER SO REPAIRED AREAS ARE NOT OBVIOUS.

1.6 WORK PERFORMANCE

A. JOB SITE SAFETY AND WORKER SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR.

B. FOR ALL WORK, ARRANGE, PHASE AND PERFORM WORK TO ASSURE COMMUNICATIONS SERVICE FOR BUILDINGS REMAIN ACTIVE AT ALL TIMES. COORDINATE ANY AND ALL POTENTIAL OUTAGES WITH THE OWNER PRIOR TO EXECUTION OF WORK.

C. NEW WORK SHALL BE INSTALLED AND CONNECTED TO EXISTING WORK NEATLY AND CAREFULLY. DISTURBED OR DAMAGED WORK SHALL BE REPLACED OR REPAIRED TO ITS PRIOR CONDITIONS.

D. COORDINATE LOCATION OF EQUIPMENT AND PATHWAYS WITH OTHER TRADES TO MINIMIZE INTERFERENCES.

1.7 EQUIPMENT IDENTIFICATION

A. NAMEPLATES SHALL BE LAMINATED BLACK PHENOLIC RESIN WITH A WHITE CORE WITH ENGRAVED LETTERING, A MINIMUM OF 6 MM (1/4 INCH) HIGH. SECURE NAMEPLATES WITH SCREWS. NAMEPLATES SHALL BE PLACED ON ALL RACKS, CABINETS, AND PATCH PANELS.

1.8 SUBMITTALS

B. THE OWNER'S APPROVAL SHALL BE OBTAINED FOR ALL EQUIPMENT AND MATERIAL BEFORE DELIVERY TO THE JOB SITE.

SECTION 270528 - COMMUNICATIONS PATHWAYS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. THE WORK COVERED UNDER THIS SECTION CONSISTS OF THE FURNISHING OF ALL NECESSARY LABOR, SUPERVISION, MATERIALS, EQUIPMENT, AND SERVICES TO COMPLETELY EXECUTE THE HORIZONTAL CABLE PATHWAY SYSTEM OF NON-CONTINUOUS CABLE SUPPORTS, CONDUIT OR CABLE TRAY AS DESCRIBED IN THE DRAWINGS. EXISTING PATHWAYS SHALL BE USED WHERE POSSIBLE.

B. RELATED REQUIREMENTS:

1. DIVISION 27 SECTION “COMMUNICATIONS EQUIPMENT ROOM FITTINGS”.
2. DIVISION 27 SECTION “COMMUNICATION HORIZONTAL CABLING”.

1.3 REFERENCES

A. ANSI/NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) 2017

B. ASTM B633 - SPECIFICATION FOR ELECTRODEPOSITED COATINGS OF ZINK ON IRON AND STEEL

C. ASTM A653 - SPECIFICATION FOR STEEL SHEET, ZINK-COATED (GALVANIZED) BY THE HOT DIP PROCESS

D. ASTM A123 - SPECIFICATION FOR ZINK (HOT GALVANIZED) COATINGS ON IRON AND STEEL

E. ASTM A510 - SPECIFICATION FOR GENERAL REQUIREMENTS FOR WIRE RODS AND COARSE ROUND WIRE, CARBON STEEL

F. ASTM A 641 - STANDARD SPECIFICATION FOR ZINC-COATED (GALVANIZED) CARBON STEEL WIRE

G. ASTM A 580 - STANDARD SPECIFICATION FOR STAINLESS STEEL WIRE

H. ASTM D 769 - STANDARD SPECIFICATION FOR BLACK OXIDE COATINGS

I. NEMA VE 1-2002 - METAL CABLE TRAY SYSTEMS

J. NEMA VE 2-2006 - CABLE TRAY INSTALLATION GUIDELINES

K. UL COMPLIANCE - PROVIDE PRODUCTS THAT ARE UL-CLASSIFIED AND LABELED

L. ANSI/TIA-569-B COMMERCIAL BUILDING STANDARD FOR TELECOMMUNICATIONS PATHWAYS AND SPACES

M. ANSI/TIA J-STD-607-A COMMERCIAL BUILDING GROUNDING (EARTHING) AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

N. IEC 61537 (2001) - CABLE TRAY SYSTEMS AND CABLE LADDER SYSTEMS FOR CABLE MANAGEMENT

O. BICSI TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL

1.4 COORDINATION WITH OTHER TRADES

A. COORDINATE THE CABLE PATHWAYS SUPPORT SYSTEMS AS TO NOT INTERFERE WITH OTHER BUILDING SYSTEMS.

B. COORDINATE ROUTING OF CABLE PATHWAYS WITH THE WORK OF OTHER TRADES TO MAINTAIN ADEQUATE WORKING CLEARANCES ABOVE, BELOW AND TO THE SIDES OF CABLE PATHWAYS.

PART 2 - PRODUCTS

2.1 NON-CONTINUOUS CABLE SUPPORT (J-HOOKS)

A. ACCEPTABLE MANUFACTURERS

a. COOPER B-LINE
b. ERICO
c. CHATSWORTH PRODUCTS, INC.
d. PANDUIT

B. GENERAL

1. J-HOOKS SHALL HAVE FLARED EDGES TO PREVENT DAMAGE WHILE INSTALLING CABLES.
2. J-HOOKS SHALL HAVE AN PLASTIC, ELECTRO-GALVANIZED OR G 60 FINISH AND SHALL BE RATED FOR INDOOR USE FOR NON-CORROSIVE ENVIRONMENTS.
3. J-HOOK CABLE SUPPORTS SHALL PROVIDE A BEARING SURFACE OF SUFFICIENT WIDTH TO COMPLY WITH THE BEND RADII OF HIGH PERFORMANCE CABLES.
4. J-HOOKS SHALL HAVE A STAINLESS STEEL CABLE LATCH RETAINER TO PROVIDE CONTAINMENT OF CABLES WITHIN THE HOOK. THE RETAINER SHALL BE REMOVABLE AND REUSABLE.

C. SIZE

1. J-HOOKS SHALL PROVIDE A BEARING SURFACE OF SUFFICIENT WIDTH TO COMPLY WITH REQUIRED BEND RADII OF HIGH PERFORMANCE CABLES. J-HOOKS SHALL HAVE A MINIMUM BEARING SURFACE OF 1 ¾ INCHES.
2. J-HOOKS SHALL HAVE FLARED EDGES OR BE OF A DESIGN AS TO RELIEVE STRESS ON CABLES AT THE BOTTOM OF THE BUNDLE THAT COULD IMPINGE ON THE CABLES PERFORMANCE.
3. FOLLOW MANUFACTURES RECOMMENDATIONS FOR ALLOWABLE FILL CAPACITY FOR EACH SIZE J-HOOK CABLE SUPPORT. TYPICALLY FILL CAPACITY FOR A CADDY CAT32 TYPE J-HOOK IS 80 CAT 5 CABLES OR 50 CAT 6 CABLES.

D. SUPPORT

1. J-HOOKS MAY BE MOUNTED TO STUDS AND STUD WALLS. WHEN MOUNTING J-HOOKS TO STUD WALLS THE J-HOOK SHALL BE CONNECTED DIRECTLY TO THE STUD, THE J-HOOK SHALL NOT BE SUPPORTED BY THE WALL COVERING/ FINISH ALONE.
2. J-HOOKS MAY BE SUPPORTED BY THREADED ROD. REFER TO MANUFACTURER'S SUGGESTED ATTACHMENT METHOD TO ATTACH J-HOOK TO THREADED ROD USING STANDARD NUTS.
3. J-HOOKS MAY BE SUPPORTED BY THE USE OF BEAM ATTACHMENTS EITHER FACTORY OR JOBSITE ASSEMBLED EITHER HAMMER OR SCREW ON TYPE, C & Z PERLIN SUPPORT, WALL, CONCRETE OR JOIST SUPPORT USING FACTORY APPROVED ATTACHMENT METHOD.

E. INSTALLATION: PROVIDE DEDICATED SPACE SURROUNDING THE NON-CONTINUOUS CABLE PATHWAYS TO PERMIT ACCESS FOR INSTALLING AND MAINTAINING CABLES. REFER TO SECTION 3.2 BELOW FOR SPECIFIC CLEARANCES REQUIRED.

2.2 BOXES AND ENCLOSURES

A. ACCEPTABLE MANUFACTURERS:

1. PANDUIT
2. COOPER TECHNOLOGIES COMPANY; COOPER CROUSE-HINDS.
3. HOFFMAN; A PENTAIR COMPANY.
4. HUBBELL INCORPORATED; KILLARK DIVISION.
5. RACO; A HUBBELL COMPANY.
6. WIREMOLD / LEGRAND.

B. GENERAL REQUIREMENTS FOR BOXES, ENCLOSURES, AND CABINETS:

1. COMPLY WITH ANSI/TIA-569-B.
2. BOXES, ENCLOSURES AND CABINETS INSTALLED IN WET LOCATIONS SHALL BE LISTED FOR USE IN WET LOCATIONS.

C. SHEET-METAL BOXES: COMPLY WITH NEMA OS 1 AND UL 514A.

D. BOX EXTENSIONS USED TO ACCOMMODATE NEW BUILDING FINISHES SHALL BE OF SAME MATERIAL AS RECESSED BOX.

E. SMALL SHEET METAL PULL AND JUNCTION BOXES: NEMA OS 1.

F. TYPICAL DEVICE BOX DIMENSIONS: 4-11/16 INCHES SQUARE BY 2-1/8 INCHES DEEP (119 MM SQUARE BY 60 MM DEEP), UNLESS OTHERWISE NOTED.

G. GANGABLE BOXES ARE PROHIBITED.

H. NONMETALLIC OUTLET AND DEVICE BOXES: COMPLY WITH NEMA OS 2 AND UL 514C.

I. ENCLOSURES:

1. COMPLY WITH UL 50 AND NEMA 250, TYPE 1 GALVANIZED-STEEL BOX WITH REMOVABLE INTERIOR PANEL AND REMOVABLE FRONT, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL.
2. METAL ENCLOSURES: STEEL, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL.
3. NONMETALLIC ENCLOSURES:
   a. MATERIAL: PLASTIC.
   b. FINISHED INSIDE WITH RADIO-FREQUENCY-RESISTANT PAINT.
4. INTERIOR PANELS: STEEL; ALL SIDES FINISHED WITH MANUFACTURER'S STANDARD ENAMEL.
5. METAL BARRIERS TO SEPARATE WIRING OF DIFFERENT SYSTEMS AND VOLTAGE.
6. ACCESSORY FEET WHERE REQUIRED FOR FREESTANDING EQUIPMENT.
7. NONMETALLIC CABINETS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

2.3 LADDER RACK SUPPORT SYSTEM

A. ACCEPTABLE MANUFACTURERS

1. CHATSWORTH PRODUCTS (BASIS OF DESIGN) MODEL 11275-X18
2. COOPER B-LINE
3. PANDUIT

B. GENERAL

1. PROVIDE METAL; CABLE TRAYS, OF TYPES, CLASSES, AND SIZE INDICATED; WITH SPLICE PLATES, BOLTS, NUTS AND WASHERS FOR CONNECTING SECTIONS. CONSTRUCT SYSTEM MAINTAINING ROUNDED EDGES AND SMOOTH SURFACES IN COMPLIANCE WITH THE APPLICABLE STANDARDS. CABLE TRAY SHALL BE INSTALLED ACCORDING TO THE LATEST REVISION OF NEMA VE-2.
2. LADDER TRAY SHALL CONSIST OF TWO LONGITUDINAL MEMBERS (SIDE RAILS) WITH TRANSVERSE MEMBERS (RUNGS) WELDED OF MECHANICALLY FASTENED TO THE SIDE RAILS.
3. STRAIGHT SECTIONS, FITTING SIDE RAILS, RUNGS AND SPLICE PLATES SHALL BE EXTRUDED FROM ALUMINUM (ASTM B 221 6063 ALLOY) OR SHALL HAVE STRINGERS MADE OF 16 GAUGE HOT ROLLED STEEL TUBING AND CROSS MEMBERS SHALL BE MADE OF 12 GAUGE COLD ROLLED STEEL (ASTM A 569).
4. THE CABLE RACEWAY SHALL BE AVAILABLE IN BLACK AND GRAY PAINTED FINISHES AND CLEAR ANODIZED ALUMINUM FINISH.
5. GROUND CABLE RACK AT END OF EVERY RUN.
6. BOND EVERY SECTION OF CABLE RACK TO THE ADJOINING SECTION AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE CABLE DROP OUT BRACKETS AT EVERY LOCATION WHERE CABLE EXITS THE TRAY.
8. PROVIDE PLASTIC END CAPS ON SIDE RAILS ENDS.

C. SIZE

1. LADDER RACK SHALL CONSIST OF TWO SIDE RAILS WITH TRANSVERSE RUNGS WELDED, OR MECHANICALLY FASTENED TO THE SIDE RAILS. RUNGS SHALL BE SPACED AT 9 INCHES ON CENTER AND SHALL HAVE A MINIMUM WIDTH OF 1” FOR CABLE LAYING.
2. STRAIGHT SECTIONS SHALL BE SUPPLIED IN STANDARD 10 FOOT LENGTHS.
3. LADDER RACK SHALL BE AVAILABLE IN 6, 9, 12, 18 AND 24 INCH WIDTHS (AS INDICATED ON THE DRAWINGS).
4. ALL FITTINGS SHALL HAVE A MINIMUM BEND RADIUS OF 12 INCHES
5. ALL SECTION SPLICES SHALL BE MADE PER MANUFACTURER'S STANDARDS.

D. SUPPORT

1. THE CABLE RACEWAY SHALL BE SUPPORTED BY THE SIDE RAILS OR TRAPEZE SUPPORT BY A MINIMUM 3/8 INCH THREADED ROD AND AT INTERVALS OF NO MORE THAN 5'.
2. SPECIAL ACCESSORIES SHALL BE FURNISHED AS REQUIRED TO PROTECT SUPPORT AND INSTALL A COMPLETE LADDER RACK SUPPORT SYSTEM.
3. THE CABLE RACEWAY SHALL BE CAPABLE OF SUPPORTING 115 LB/FT WHEN SUPPORTED AT 5' INTERVALS.
4. THE MANUFACTURER SHALL PROVIDE HARDWARE FOR JOINING SECTIONS OF CABLE RACEWAY IN STRAIGHT LINES AND AT RIGHT ANGLES. THERE SHALL ALSO BE HARDWARE PROVIDED TO MOUNT AND JOIN THE CABLE RACEWAY IN VARIOUS CONFIGURATIONS AND ATTACHMENT METHODS TO WALLS, RACKS, AND EQUIPMENT.

E. INSTALLATION

1. INSTALL LADDER RACK AS INDICATED ON DRAWINGS. INSTALLATION SHALL BE IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S INSTRUCTION, AND WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT LADDER RACK COMPLIES WITH REQUIREMENTS OF NEC AND APPLICABLE PORTIONS OF NFPA 70B REFERENCE NEMA-VE2 FOR GENERAL LADDER RACK INSTALLATION GUIDELINES.
2. COORDINATE LADDER RACK INSTALLATION WITH OTHER ELECTRICAL WORK AS NECESSARY TO PROPERLY INTEGRATE INSTALLATION WITH OTHER WORK.
3. PROVIDE DEDICATED SPACE ENCOMPASSING THE LADDER RACKING TO PERMIT ACCESS FOR INSTALLING AND MAINTAINING CABLES. REFER TO SECTION 3.2 BELOW FOR SPECIFIC CLEARANCES REQUIRED.
4. LADDER RACK FITTING SUPPORTS SHALL BE LOCATED SUCH THAT THEY MEET THE STRENGTH REQUIREMENTS OF STRAIGHT SECTIONS. INSTALL FITTING SUPPORTS PER NEMA VE-2 GUIDELINES, OR IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.
5. TEST LADDER RACK TO ENSURE ELECTRICAL CONTINUITY OF BONDING AND GROUNDING CONNECTIONS, AND TO DEMONSTRATE COMPLIANCE WITH SPECIFIED MAXIMUM GROUNDING RESISTANCE. SEE NFPA 70B, CHAPTER 18, FOR TESTING AND TEST METHODS2.2 LADDER RACK SUPPORT SYSTEM

A. ACCEPTABLE MANUFACTURERS

1. CHATSWORTH PRODUCTS (BASIS OF DESIGN) MODEL 11275-X18
2. COOPER B-LINE
3. PANDUIT

B. GENERAL

1. PROVIDE METAL; CABLE TRAYS, OF TYPES, CLASSES, AND SIZE INDICATED; WITH SPLICE PLATES, BOLTS, NUTS AND WASHERS FOR CONNECTING SECTIONS. CONSTRUCT SYSTEM MAINTAINING ROUNDED EDGES AND SMOOTH SURFACES IN COMPLIANCE WITH THE APPLICABLE STANDARDS. CABLE TRAY SHALL BE INSTALLED ACCORDING TO THE LATEST REVISION OF NEMA VE-2.
2. LADDER TRAY SHALL CONSIST OF TWO LONGITUDINAL MEMBERS (SIDE RAILS) WITH TRANSVERSE MEMBERS (RUNGS) WELDED OF MECHANICALLY FASTENED TO THE SIDE RAILS.
3. STRAIGHT SECTIONS, FITTING SIDE RAILS, RUNGS AND SPLICE PLATES SHALL BE EXTRUDED FROM ALUMINUM (ASTM B 221 6063 ALLOY) OR SHALL HAVE STRINGERS MADE OF 16 GAUGE HOT ROLLED STEEL TUBING AND CROSS MEMBERS SHALL BE MADE OF 12 GAUGE COLD ROLLED STEEL (ASTM A 569).
4. THE CABLE RACEWAY SHALL BE AVAILABLE IN BLACK AND GRAY PAINTED FINISHES AND CLEAR ANODIZED ALUMINUM FINISH.
5. GROUND CABLE RACK AT END OF EVERY RUN.
6. BOND EVERY SECTION OF CABLE RACK TO THE ADJOINING SECTION AS PER MANUFACTURER'S SPECIFICATION.
7. PROVIDE CABLE DROP OUT BRACKETS AT EVERY LOCATION WHERE CABLE EXITS THE TRAY.
8. PROVIDE PLASTIC END CAPS ON SIDE RAILS ENDS.

C. SIZE

1. LADDER RACK SHALL CONSIST OF TWO SIDE RAILS WITH TRANSVERSE RUNGS WELDED, OR MECHANICALLY FASTENED TO THE SIDE RAILS. RUNGS SHALL BE SPACED AT 9 INCHES ON CENTER AND SHALL HAVE A MINIMUM WIDTH OF 1” FOR CABLE LAYING.
2. STRAIGHT SECTIONS SHALL BE SUPPLIED IN STANDARD 10 FOOT LENGTHS.
3. LADDER RACK SHALL BE AVAILABLE IN 6, 9, 12, 18 AND 24 INCH WIDTHS (AS INDICATED ON THE DRAWINGS).
4. ALL FITTINGS SHALL HAVE A MINIMUM BEND RADIUS OF 12 INCHES
5. ALL SECTION SPLICES SHALL BE MADE PER MANUFACTURER'S STANDARDS.

D. SUPPORT

1. THE CABLE RACEWAY SHALL BE SUPPORTED BY THE SIDE RAILS OR TRAPEZE SUPPORT BY A MINIMUM 3/8 INCH THREADED ROD AND AT INTERVALS OF NO MORE THAN 5'.
2. SPECIAL ACCESSORIES SHALL BE FURNISHED AS REQUIRED TO PROTECT SUPPORT AND INSTALL A COMPLETE LADDER RACK SUPPORT SYSTEM.
3. THE CABLE RACEWAY SHALL BE CAPABLE OF SUPPORTING 115 LB/FT WHEN SUPPORTED AT 5' INTERVALS.
4. THE MANUFACTURER SHALL PROVIDE HARDWARE FOR JOINING SECTIONS OF CABLE RACEWAY IN STRAIGHT LINES AND AT RIGHT ANGLES. THERE SHALL ALSO BE HARDWARE PROVIDED TO MOUNT AND JOIN THE CABLE RACEWAY IN VARIOUS CONFIGURATIONS AND ATTACHMENT METHODS TO WALLS, RACKS, AND EQUIPMENT.

E. INSTALLATION

1. INSTALL LADDER RACK AS INDICATED ON DRAWINGS. INSTALLATION SHALL BE IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S INSTRUCTION, AND WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT LADDER RACK COMPLIES WITH REQUIREMENTS OF NEC AND APPLICABLE PORTIONS OF NFPA 70B REFERENCE NEMA-VE2 FOR GENERAL LADDER RACK INSTALLATION GUIDELINES.
2. COORDINATE LADDER RACK INSTALLATION WITH OTHER ELECTRICAL WORK AS NECESSARY TO PROPERLY INTEGRATE INSTALLATION WITH OTHER WORK.
3. PROVIDE DEDICATED SPACE ENCOMPASSING THE LADDER RACKING TO PERMIT ACCESS FOR INSTALLING AND MAINTAINING CABLES. REFER TO SECTION 3.2 BELOW FOR SPECIFIC CLEARANCES REQUIRED.
4. LADDER RACK FITTING SUPPORTS SHALL BE LOCATED SUCH THAT THEY MEET THE STRENGTH REQUIREMENTS OF STRAIGHT SECTIONS. INSTALL FITTING SUPPORTS PER NEMA VE-2 GUIDELINES, OR IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.
5. 5. TEST LADDER RACK TO ENSURE ELECTRICAL CONTINUITY OF BONDING AND GROUNDING CONNECTIONS, AND TO DEMONSTRATE COMPLIANCE WITH SPECIFIED MAXIMUM GROUNDING RESISTANCE. SEE NFPA 70B, CHAPTER 18, FOR TESTING AND TEST METHODS.

2.4 CONDUITS/SLEEVES

A. GENERAL

1. CONDUIT/SLEEVE SHALL BE EMT GRADE METALLIC CONDUIT SCHEDULE 5 OR HEAVIER.
2. ANY CONDUIT/SLEEVE INSTALLED FOR COMMUNICATION CABLING SHALL HAVE A COUPLER ON EACH END WITH A PLASTIC BUSHING FOR CABLE PROTECTION.
3. TERMINATE METAL CONDUIT USING CONNECTORS WITH PLASTIC BUSHINGS.
4. PROVIDE NYLON OR PLASTIC PULL STRINGS IN ALL CONDUIT RUNS.

B. FIRE WALL PENETRATIONS

1. APPLY FIRESTOPPING TO PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES FOR COMMUNICATIONS INSTALLATIONS TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY. FIRESTOPPING MATERIALS AND INSTALLATION REQUIREMENTS ARE SPECIFIED IN DIVISION 07 SECTION “PENETRATION FIRESTOPPING.”
2. FIRE STOP PENETRATIONS SEAL METHODS AND MATERIALS SHALL BE FM-APPROVED AND UL LISTED AS APPLICABLE AND AS APPROVED BY THE AUTHORITIES HAVING JURISDICTION.
3. ALL SEALING METHODS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW .

2.4 NONMETALLIC RACEWAY

A. ACCEPTABLE MANUFACTURERS

1. LEGRAND-WIREMOLD ECLIPSE PN05 SERIES,
2. PANDUIT LDPH5 SERIES,
3. HUBBELL PW1,

B. FLEXIBLE RACEWAY SHALL MATCH EXISTING WALL/CELING COLOR.

C. NON-METALLIC RACEWAY SHALL MEET THE REQUIREMENTS:

1. NEC ARTICLES 770 AND 800 FOR TELECOMMUNICATIONS CABLES.
2. RACEWAY SHALL BE UL LISTED UNDER UL 910 STANDARD FOR PLENUM APPLICATION FOR OPTICAL FIBER RACEWAY.

D. FLEXIBLE RACEWAY SHALL BE PROVIDED WITH A PULL (MULE) TAPE ROUTED THROUGHOUT THE RACEWAY CONTAINING FOOTAGE MARKINGS.

E. ALL RACEWAY FITTING AND ACCESSORIES SHALL BE MANUFACTURED BY THE SAME MANUFACTURER AS THE NON-METALLIC RACEWAY.

PART 3 - EXECUTION

3.1 INSTALLATION

A. PATHWAYS SHALL PRIMARILY BE CONSTRUCTED FROM WALL/STRUCTURE MOUNTED J-HOOKS, J-HOOKS HUNG FROM CEILING, RING TYPE SUPPORTS, WIRE BASKET TRAYS SUPPORTED BY THREADED ROD OR WALL BRACKETS, LADDER RACK SUPPORTED BY THREADED ROD OR WALL BRACKETS, OR CONDUIT SUPPORTED AS PER THE NEC.

B. J-HOOKS SHALL NOT BE ATTACHED TO THE ANY DROP CEILING GRID WIRING.

C. IN FINISHED AREAS, CONCEAL CONDUITS AND FLUSH MOUNT BOXES.

D. CONDUIT INSTALLATION SHALL BE COORDINATED WITH THEIR RESPECTIVE TERMINATION EQUIPMENT LAYOUTS AT EACH BACKBOARD LOCATION AS REQUIRED TO PROVIDE ADEQUATE DEDICATED SPACE FOR EQUIPMENT PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR .

E. CABLE PATHWAY SYSTEMS SHALL BE SUPPORTED BY SUPPORT SYSTEMS SPECIFICALLY DESIGNED AND MANUFACTURED FOR THE SUPPORT OF CABLE PATHWAY SYSTEMS. THE CABLE PATHWAY SYSTEMS SHALL NOT BE SUPPORTED BY OTHER INSTALLED BUILDING SYSTEMS.

F. INSTALL ALL PATHWAY SYSTEMS AS PER MANUFACTURERS RECOMMENDED PRACTICES AND AS PER LOCAL GOVERNMENTAL REGULATIONS AND NEC, AND BICSI REGULATIONS AND PRACTICES.

G. ALL CABLE PATHWAY ROUTES ARE TO BE PARALLEL AND/OR PERPENDICULAR WITH THE OUTSIDE WALLS OF THE BUILDING. ALTERNATE PATHS MUST BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION OF THE CABLING.

I. CABLE PATHWAYS

1. A DEDICATED PATHWAY SHALL BE PROVIDED FOR EACH LOW VOLTAGE COMMUNICATIONS CABLING SUB-SYSTEM, INCLUDING BUT NOT LIMITED TO THE STRUCTURED CABLING SYSTEM, SECURITY SYSTEMS, AUDIO/VISUAL SYSTEMS AND OTHER LOW VOLTAGE CONTROL SYSTEM CABLING.

J. NON-CONTINUOUS CABLE PATHWAYS (J-HOOKS/RINGS)

1. NON-CONTINUOUS CABLE SUPPORT SHALL BE LOCATED AT INTERVALS OF FOUR (4) FEET MAXIMUM.
2. NON-CONTINUOUS CABLE SUPPORTS SHALL BE INSTALLED SUCH THAT ALL CABLE RUNS THROUGH THEM MAINTAIN A MINIMUM CLEARANCE OF 12-INCHES IN RELATION TO ALL FLUORESCENT LIGHTS AND EMF SOURCES. ANY VIOLATIONS OF THIS RULE WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
3. HORIZONTAL CABLING SHALL NOT LAY ON ANY CEILING OR CEILING TILE. ALL HORIZONTAL CABLING SHALL MAINTAIN A MINIMUM CLEARANCE OF 6” ABOVE CEILING, CEILING TILE AND SUPPORT CHANNELS.
4. CABLE PATHWAYS SHALL NOT BE ROUTED PARALLEL WITH ELECTRICAL CONDUITS OR STRAPPED TO OR SUPPORTED BY ANY ELECTRICAL CONDUITS OR ANY OTHER BUILDING SERVICE EQUIPMENT.

K. CONDUIT/ SLEEVES

1. ANY SECTION OF CONDUIT LONGER THAN 150 FEET OR CONTAINING MORE THAN A TOTAL 180 DEGREES OF BENDS SHALL HAVE PULL BOXES. THESE BOXES WILL NOT BE SHOWN ON DRAWINGS. REFER TO THE BICSI TDMM FOR PULL BOX SIZING.
2. EACH CONDUIT BEND SHALL BE A LONG SWEEP RADIUS WHEREVER POSSIBLE. IN NO INSTANCE SHALL THE INSIDE RADIUS OR BEND BE LESS THAN SIX (6) TIMES THE INTERNAL DIAMETER OF THE CONDUIT FOR CONDUITS THAT ARE 2” IN DIAMETER OR LESS, FOR CONDUITS LARGER THAN 2” THE BEND RADIUS SHALL BE NO LESS THAN 10 (TEN) TIMES THE INSIDE DIAMETER.
3. ALL SLEEVES SHALL BE OF A SIZE AS TO NOT HAVE MORE THAN 40% OF THE SLEEVE FILLED WITH LOW VOLTAGE CABLE AT THE COMPLETION OF THE INSTALLATION. PROVIDE A MINIMUM OF 50% CAPACITY FOR FUTURE GROWTH AT EACH SLEEVE LOCATION.
4. IN LOCATIONS CONTAINING MULTIPLE SLEEVES, SLEEVES SHALL BE FILLED TO CAPACITY BEFORE INSTALLING CABLING IN ADJACENT SLEEVES.
5. ALL CONDUITS/SLEEVES SHALL BE SECURED AND STRAPPED TO BUILDING SURFACES PER NATIONAL ELECTRIC CODE (NEC 2008 ARTICLE 358.30 (A) AND (B)).

L. PULL BOXES

1. INSTALL PULL BOXES WHERE REQUIRED TO MAINTAIN MINIMUM BEND RADIUS AT WALL/PATHWAY TRANSITIONS.
2. ALL PULL BOXES INSTALLED IN LOW VOLTAGE COMMUNICATIONS CONDUIT RUNS SHALL BE SIZED PER NEC OR TABLE 4.7 OF THE BICSI TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL, WHICH EVER REQUIREMENT RESULTS IN A LARGER PULL BOX.
3. PROVIDE DEDICATED SPACE ENCOMPASSING PULL BOX TO PERMIT ACCESS FOR INSTALLING AND MAINTAINING CABLES. REFER TO SECTION 3.2 BELOW FOR SPECIFIC CLEARANCES REQUIRED.

M. FIRESTOPPING

1. COMPLY WITH REQUIREMENTS IN ANSI/TIA-569-B.
2. RESPONSIBILITY FOR SEALING OF OPENING AROUND THE EXTERIOR OF THE LOW VOLTAGE SYSTEM SLEEVES SHALL BE BY THE CONTRACTOR AS DESCRIBED BELOW:
   a. SLEEVES THROUGH FIRE RATED AND SMOKE WALLS CREATED BY THE LOW VOLTAGE CONTRACTOR FOR CABLE PASS THROUGH SHALL BE THE RESPONSIBILITY OF THE LOW VOLTAGE CONTRACTOR.
   b. SLEEVES THROUGH FIRE RATED AND SMOKE WALLS CREATED BY THE ELECTRICAL CONTRACTOR FOR CABLE PASS THROUGH SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
   c. SLEEVES OF OPENINGS BETWEEN FLOORS CREATED BY THE LOW VOLTAGE CONTRACTOR FOR CABLE PASS THROUGH SHALL BE THE RESPONSIBILITY OF THE LOW VOLTAGE CONTRACTOR.
   d. SLEEVES OF OPENINGS BETWEEN FLOORS CREATED BY THE ELECTRICAL CONTRACTOR FOR CABLE PASS THROUGH SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
3. SEALING OF THE SPACE INTERNAL TO ALL SLEEVES OR OPENINGS SPECIFICALLY DESIGNATED FOR TELECOMMUNICATIONS CABLING SHALL BE THE RESPONSIBILITY OF THE LOW VOLTAGE CONTRACTOR.
4. SEALING MATERIAL AND APPLICATION OF THIS MATERIAL SHALL BE ACCOMPLISHED IN SUCH A MANNER WHICH IS ACCEPTABLE TO THE LOCAL FIRE AND BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS WORK.

N. SEPARATION FROM EMI SOURCES:

1. COMPLY WITH BICSI TDMM AND ANSI/TIA-569-B RECOMMENDATIONS FOR SEPARATING UNSHIELDED COPPER VOICE AND DATA COMMUNICATION CABLE FROM POTENTIAL EMI SOURCES, INCLUDING ELECTRICAL POWER LINES AND EQUIPMENT.

SECTION 271500 - COMMUNICATIONS HORIZONTAL CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. SECTION INCLUDES:

1. UTP CABLING
2. CABLE CONNECTING HARDWARE, PATCH PANELS, AND CROSS-CONNECTS.
3. TELECOMMUNICATIONS OUTLET/CONNECTORS.
4. CABLE MANAGEMENT SYSTEM.

B. RELATED REQUIREMENTS

1. DIVISION 27 SECTION "PATHWAYS FOR COMMUNICATIONS SYSTEMS" FOR CABLE TRAYS AND ACCESSORIES.

1.2 SUMMARY OF WORK

A. FURNISH AND INSTALL COMPLETE WITH ALL ACCESSORIES A HORIZONTAL STRUCTURED CABLING SYSTEM (SCS

B. WIRING UTILIZED FOR DATA AND VOICE COMMUNICATIONS SHALL ORIGINATE AT NETWORK SWITCHES AND CONCENTRATORS EITHER WALL MOUNTED, IN VERTICAL FREE STANDING EQUIPMENT RACKS, AND/OR ENCLOSED WALL MOUNTED VERTICAL EQUIPMENT RACKS LOCATED AT THE TELECOMMUNICATIONS EQUIPMENT ROOM (ER) AND/OR THE TELECOMMUNICATIONS ROOM (TR) LOCATION(S). ALL CONNECTIVITY, WIRING, TERMINATIONS AND PATCH BAYS BETWEEN THESE DESIGNATED DEMARCATION POINTS AND OUTLET LOCATIONS DESIGNATED ON THE PLANS SHALL BE CONSIDERED PART OF THE CONTRACT. TELECOMMUNICATION OUTLETS (TO) SHALL BE FURNISHED, WIRED AND INSTALLED BY THE SCS CONTRACTOR.

C. ALL COPPER CABLE TERMINATIONS SHALL COMPLY WITH, AND BE TESTED TO ANSI/TIA 568-C STANDARDS FOR CATEGORY 6 CABLE INSTALLATIONS.

1.3 REFERENCES

A. ANSI/TIA-568-C.0 - GENERIC TELECOMMUNICATIONS CABLING FOR CUSTOMER PREMISES

B. ANSI/TIA-568-C.1 - COMMERCIAL BUILDING TELECOMMUNICATIONS WIRING STANDARDS, GENERAL REQUIREMENTS.

C. ANSI/TIA-568-C.2 - COMMERCIAL BUILDING TELECOMMUNICATIONS WIRING STANDARDS, BALANCED TWISTED PAIR CABLING COMPONENTS.

D. ANSI/TIA-569-B - COMMERCIAL BUILDING STANDARD FOR TELECOMMUNICATIONS PATHWAYS AND SPACES.

E. ANSI/TIA-606-A - ADMINISTRATION STANDARDS FOR COMMERCIAL TELECOMMUNICATIONS INFRASTRUCTURES.

F. ANSI J-STD-607-A COMMERCIAL BUILDING GROUNDING (EARTHING) AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS.

G. INTERNATIONAL STANDARDS ORGANIZATION/INTERNATIONAL ELECTROTECHNICAL COMMISSION (ISO/IEC) 11801.

H. UNDERWRITERS LABORATORIES (UL) CABLE CERTIFICATION AND FOLLOW UP PROGRAM.

I. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA).

J. AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM).

K. NATIONAL ELECTRIC CODE (NEC),2008

L. INSTITUTE OF ELECTRICAL AND ELECTRONIC Construction ManagerS (IEEE).

M. UL TESTING BULLETIN.

N. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) X3T9.5 REQUIREMENTS FOR UTP AT 100 MBPS.

O. BICSI - TDMM, BUILDING INDUSTRIES CONSULTING SERVICES INTERNATIONAL, TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL (TDMM) MOST RECENT VERSION.

1.4 CLOSEOUT SUBMITTALS

A. AS-BUILT DOCUMENTATION: AS SPECIFIED IN SECTION 3.7 /H. /2. /B.

B. TEST RESULTS: TEST RESULTS SHALL BE SUBMITTED IN BOTH PDF FORM AND IN THE NATIVE ELECTRONIC FILE FORMAT OF THE TEST EQUIPMENT.

1. AS SPECIFIED IN SECTION 3.8.
   a. COPPER TEST RESULTS
2. TEST EQUIPMENT FIRMWARE AND SOFTWARE VERSIONS.
3. TEST EQUIPMENT PROOF OF CALIBRATION DOCUMENTATION.

1.5 QUALIFICATIONS

A. THE CONTRACTOR SELECTED TO PROVIDE THE INSTALLATION OF THIS SYSTEM SHALL BE TRAINED BY THE MANUFACTURING COMPANY IN ALL ASPECTS OF DESIGN, INSTALLATION, AND TESTING OF THE PRODUCTS DESCRIBED HEREIN SO AS TO PROVIDE THE MANUFACTURER'S WARRANTY OF THE SYSTEM.

B. THE CONTRACTOR SHALL UTILIZE THE AUTHORIZED MANUFACTURER COMPONENTS AND DISTRIBUTION CHANNELS IN PROVISIONING THIS PROJECT.

1.6 QUALITY ASSURANCE

A. THE CONTRACTOR SHALL GUARANTEE THAT ALL TWISTED PAIR COPPER AND FIBER OPTIC CABLING, CABLE PATHWAYS AND ASSOCIATED COMPONENTS MEET OR EXCEED SPECIFICATIONS (INCLUDING INSTALLATION) OF ANSI/TIA/EIA-568-C.1, 568-C.2, 568-C.3 AND 569-B.

PART 2 - PRODUCTS

2.1 HORIZONTAL STRUCTURED CABLING SYSTEM

A. HORIZONTAL CABLING SHALL BE CATEGORY 6 4-PAIR UNSHIELDED TWISTED PAIR (UTP) CABLING THAT MEETS THE CHANNEL REQUIREMENTS.

B. THE HORIZONTAL STRUCTURED CABLING SYSTEM SPECIFIED IN THIS SPECIFICATION SHALL BE MANUFACTURED EITHER BY A SINGLE MANUFACTURER OR TWO MANUFACTURERS HOLDING A HIGH LEVEL PARTNERSHIP CAPABLE OF PROVIDING THE EXTENDED WARRANTY OUTLINED ABOVE. INCLUDING:

1. 4-PAIR UTP CABLING
2. RJ-45 CONNECTORS
3. PATCH PANELS
4. PATCH/ STATION CORDS
5. 110-STYLE PUNCH BLOCKS

C. ACCEPTABLE HORIZONTAL STRUCTURED CABLING SYSTEM MANUFACTURES:

1. PANDUIT
2. COMMSCOPE/SYSTIMAX
3. BELDEN

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

HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
TELECOMMUNICATIONS SPECIFICATIONS

PROJECT INFORMATION	
Date	MAY 6, 2021
Rev. Date	
RLJA Proj	2020-013

SHEET NUMBER
E109

4. SIEMON
5. HUBBELL

2.2 PRODUCT WARRANTY AND APPLICATION ASSURANCE

A. THE STRUCTURED CABLING SYSTEM (SCS) SHALL BE PROVIDED WITH AN EXTENDED PRODUCT WARRANTY AND APPLICATION ASSURANCE PROGRAM GUARANTEEING PERFORMANCE AND OPERATION OF THE SCS (INCLUDING OPTICAL FIBER AND COPPER CABLING).

2.3 HORIZONTAL CABLING

A. ACCEPTABLE CABLE MANUFACTURERS:
1. PANDUIT: PAN NET TX6000
2. SYSTIMAX 71E GIGASPEED XL
3. BERK-TEK LANMARK 1000/2000
4. GENERAL CABLE GENSPEED 6500E
5. BELDEN 2413 ENHANCED
6. COMMSCOPE 7504

B. DESCRIPTION: 100-OHM, FOUR-PAIR UTP CABLE.
1. COMPLY WITH ICEA S-102-700-2004 FOR CATEGORY 6.
2. COMPLY WITH ANSI/TIA-568-C.2 FOR CATEGORY 6.
3. ALL CABLES SHALL BE PLENUM RATED, AND CERTIFIED WITH THE COPPER SOLUTION MANUFACTURER AS TO PROVIDE THE MANUFACTURER'S EXTENDED WARRANTY AS SPECIFIED.
4. ALL CABLE SHALL BE VERIFIED USING A UL HOLOGRAPHIC IDENTITY CARD; NON-CONFORMING CABLE SHALL BE REJECTED AND REPLACED BY THE SUPPLIER.
5. LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AS COMPLYING WITH UL 444 AND NFPA 70 FOR THE FOLLOWING TYPES:
   a. COMMUNICATIONS, PLENUM RATED: TYPE CMP, COMPLYING WITH NFPA 262.
   b. MULTIPURPOSE, PLENUM RATED: TYPE MPP, COMPLYING WITH NFPA 262.

C. CATEGORY 6 GUARANTEED CHANNEL PERFORMANCE
1. THE CATEGORY 6, 4 PAIR UTP CHANNEL SHALL CONSIST OF ALL CABLE AND COMPONENTS WITH FOUR CONNECTIONS THAT COMPRISE THE FULL 100 METER (328 FEET) LENGTH CIRCUIT FROM THE HUB/SERVER/LAN ELECTRONICS PORT LOCATED IN THE ER AND/OR TR TO THE DEVICE PORT LOCATED AT THE USER WORK STATION.
2. ALL COPPER CABLE AND APPARATUS SHALL CONFORM TO THE CATEGORY 6/ CLASS E CHANNEL PERFORMANCE SPECIFICATION.
3. THE CATEGORY 6, 4 PAIR UTP CHANNEL SHALL BE CAPABLE OF PROVIDING STABLE AND CONTINUAL PERFORMANCE UP TO 250 MHZ OVER THE ENTIRE SWEPT FREQUENCY RANGE.
4. THE CATEGORY 6 CABLE AND COMPONENTS SHALL BE ELECTRICALLY COMPATIBLE WITH FUTURE NETWORKS AND BACKWARD COMPATIBLE WITH EXISTING CATEGORY 3, 5, 5E. COMPONENTS OF THE CATEGORY 6 CHANNEL SHALL BE ENGINEERED AND MANUFACTURED TO COMPENSATE FOR ANY CATEGORY 3, 5 OR 5E COMPONENT CROSSTALK AND SHALL PROVIDE AT LEAST CATEGORY 3, 5 OR 5E PERFORMANCE IN ALL OF THE CUSTOMER'S EXISTING INSTALLED BASE OF VOICE/DATA/VIDEO. THE CATEGORY 6 CABLE AND COMPONENTS SHALL BE PHYSICALLY COMPATIBLE WITH EXISTING INSTALLED BASE OF EQUIPMENT.
5. THE CATEGORY 6 CABLE AND COMPONENTS SHALL NOT REQUIRE SPECIAL CORDS, SPECIALTY TOOLS OR SPECIAL INSTALLATION REQUIREMENTS.
6. THE CATEGORY 6, 4 PAIR UTP CHANNEL SHALL BE CAPABLE OF PROVIDING STABLE AND CONTINUAL PERFORMANCE FROM 0 MHZ TO 250 MHZ OVER THE ENTIRE SWEPT FREQUENCY RANGE.
7. THE DELAY SKEW ON THE 100 METER CHANNEL SHALL NOT EXCEED 50 NS.
8. EACH INSTALLED CHANNEL (CONSISTING OF CABLE, CORDS AND UP TO FOUR CONNECTIONS) SHALL PROVIDE THE FOLLOWING PERFORMANCE ABOVE (MARGIN/ HEADROOM) THE ANSI/TIA-568-C.2 STANDARD FOR A CATEGORY 5E FOUR CONNECTOR CHANNEL OVER THE ENTIRE SWEPT FREQUENCY RANGE FROM 0 MHZ TO 250 MHZ:
   a. INSERTION LOSS: 5.0%
   b. NEXT (NEAR END CROSS TALK): 6.0 DB
   c. PSNEXT (POWER SUM NEAR END CROSS TALK): 7.5 DB
   d. ELFEXT (EQUAL LEVEL FAR END CROSS TALK): 6.0 DB
   e. PSELFEXT (POWER SUM EQUAL LEVEL FAR END CROSS TALK): 8.0 DB
   f. RETURN LOSS: 2.0 DB

2.2 MODULAR PATCH PANELS

A. APPROVED PATCH PANELS
1. 48-PORT PATCH PANEL
   a. PANDUIT: CP48WSBLY

B. THE CATEGORY 6 MODULAR JACK PANELS SHALL MEET OR EXCEED THE CATEGORY 6 STANDARDS REQUIREMENTS IN ISO/IEC 11801 (2002), CENLEC EN 50173 (2002) AND ANSI/TIA-569-C.2-10 AND SHALL BE UL LISTED.
C. THE 48 PORT PANEL SHALL BE 2RU IN HEIGHT, (1 RU FOR 24 PORT) CAPABLE OF ACCEPTING MODULAR JACKS.
D. THE JACK PANELS SHALL BE 19-INCH RACK MOUNTABLE.
E. THE PATCH PANEL SHALL BE AVAILABLE IN 24 AND 48 PORT CONFIGURATIONS.
F. THE PATCH PANEL SHALL ENSURE ALIEN CROSSTALK PERFORMANCE.
G. PROVIDE HORIZONTAL WIRE MANAGEMENT CONTAINING PATCH CORD ORGANIZERS BETWEEN EACH MODULAR PATCH PANEL AS SHOWN ON PROJECT DRAWINGS.
1. SHALL HAVE HORIZONTAL ROUTING VIA METAL DISTRIBUTION RINGS
2. SHALL HAVE PLASTIC CLIPS TO PROVIDE VERTICAL PATHWAYS FOR PATCH CABLES

2.3 OUTLETS

A. FACEPLATES
1. ACCEPTABLE MANUFACTURERS:
   a. PANDUIT: MINI COM CLASSIC SLOPED FACEPLATE
   b. SYSTIMAX: LE SERIES FACEPLATE
   c. COMMSCOPE: 107713 ANGLED FACEPLATE
   d. BELDEN MEDIAFLEX WITH ANGLED INSERTS
2. GENERAL REQUIREMENTS
   a. FACEPLATES SHALL BE AVAILABLE IN SINGLE, DUPLEX, QUADPLEX, AND SIXPLEX ARRANGEMENTS IN A SINGLE GANG CONFIGURATION.
   b. THE OUTLETS SHALL BE CAPABLE OF BEING INSTALLED IN ANY MODULAR FACEPLATE, FRAME, FLUSH MOUNTED BOX OR SURFACE-MOUNTED BOX AVOIDING THE NEED FOR SPECIAL FACEPLATES.
   c. FACEPLATE OUTLET OPENINGS SHALL BE NUMBERED ON BOTH SIDES FOR INSTALLATION AND MAINTENANCE IDENTIFICATION.
   d. FACEPLATE SHALL BE INSTALLED WITH THE NUMBER OF PORTS AS REQUIRED BY THE DESIGNATED OUTLET. EACH UNUSED PORT SHALL CONTAIN A BLANK INSERT.
   e. MODULAR JACK MOUNTING IN FACEPLATE SHALL BE IN A VERTICALLY SLOPED/ ANGLED CONFIGURATION.
3. MODULAR FLUSH MOUNTED FACEPLATES
   a. FACEPLATES SHALL BE HIGH-IMPACT, FLAME RETARDANT, UL-RATED 94V-0 THERMOPLASTIC.
   b. THE STANDARD FACEPLATE COLOR SHALL BE LIGHT GRAY UNLESS NOTED OTHERWISE ON THE PLANS.
4. METAL MODULAR FACEPLATES SHALL BE STAINLESS STEEL.

B. CATEGORY 6 GIGABIT OUTLETS
1. ACCEPTABLE MANUFACTURERS:
   a. PANDUIT: MINI-COM TX6 PLUS JACK MODULES
   b. COMMSCOPE GIGASPEED XL MGS400
   c. BELDEN GIGAFLEX PS6+
2. ALL CATEGORY 6 OUTLETS SHALL MEET OR EXCEED CATEGORY 6 TRANSMISSION REQUIREMENTS FOR CONNECTING HARDWARE, AS SPECIFIED IN ANSI/TIA-568-C.2 COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING STANDARD, ISO/IEC 11801:2002 SECOND EDITION AND BE PART OF THE UL LAN CERTIFICATION AND FOLLOW-UP PROGRAM.
3. THE CATEGORY 6 OUTLETS SHALL BE BACKWARD COMPATIBLE WITH CATEGORY 5E, 5 AND 3 CORDS AND CABLES.
4. CATEGORY 6 RJ-45 JACKS SHALL BE:
   a. 8-POSITION/ 8-CONDUCTOR MODULAR OUTLETS.
   b. TERMINATED UTILIZING INSULATION DISPLACEMENT.
   c. EQUIPPED WITH T568A AND T568B UNIVERSAL WIRING LABELS.
5. THE OUTLET SHALL ACCEPT EITHER THE T568A OR T568B WIRING CONFIGURATIONS. THE T568B WIRING SCHEME SHALL BE USED.
6. GENERAL SPECIFICATIONS:
   a. MEETS OR EXCEEDS THE MECHANICAL, ELECTRICAL, AND CLEARANCE SPECIFICATIONS IN FCC RULES AND REGULATIONS, PART 68, SUBPART F
   b. MEET OR EXCEED THE CATEGORY 6 REQUIREMENTS IN ISO/IEC 11801, CENELEC EN 50173, AND ANSI/TIA-568-C.2.
   c. CERTIFICATIONS: UL LISTED, CSA CERTIFIED AND AUSTEL APPROVED.
7. COLOR OF JACKS:
   a. ALL JACKS: BLUE

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. COMPONENTS OF THE SCS SYSTEM SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
B. WIRING COLOR CODES SHALL BE STRICTLY OBSERVED AND TERMINATIONS SHALL BE UNIFORM THROUGHOUT THE SYSTEM.
C. IDENTIFICATION MARKINGS AND SYSTEMS SHALL BE UNIFORM.

3.2 WIRING METHODS

A. INSTALL CABLES IN RACEWAYS AND CABLE TRAYS. CONCEAL CONDUCTORS AND CABLES IN ACCESSIBLE CEILINGS, WALLS, AND FLOORS WHERE POSSIBLE.
B. PROVIDE A MINIMUM 6'-0" OF SERVICE LOOP/ FIGURE EIGHT AT THE TELECOMMUNICATIONS ROOMS FOR EACH PERMANENT LINK.
C. PROVIDE A MINIMUM OF 18" OF SERVICE LOOP/ FIGURE EIGHT IN THE CEILING ABOVE THE TELECOMMUNICATIONS OUTLET FOR EACH CHANNEL.
D. PROVIDE A MINIMUM OF 8" SLACK OF CABLE AT EACH COPPER UTP OUTLET LOCATION FOR JACK TERMINATION.
E. BUNDLE, LACE, AND TRAIN CABLES TO TERMINAL POINTS WITH NO EXCESS AND WITHOUT EXCEEDING MANUFACTURER'S LIMITATIONS ON BENDING RADII. PROVIDE AND USE LACING BARS AND DISTRIBUTION SPOOLS.

3.3 REQUIREMENTS FOR CABLE ROUTING AND INSTALLATION

A. CABLING
1. ALL COMMUNICATIONS CABLING USED THROUGHOUT THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS AS OUTLINED IN THE NATIONAL ELECTRIC CODE (NEC) ARTICLES 725, 760, 770, AND 800 AND THE APPROPRIATE LOCAL CODES.
2. ALL COPPER CABLING SHALL BEAR CMP (PLENUM RATED) AND/OR APPROPRIATE MARKINGS FOR THE ENVIRONMENT IN WHICH THEY ARE INSTALLED.

B. CABLE PATHWAY
1. IN SUSPENDED CEILING AND RAISED FLOOR AREAS WHERE DUCT, CABLE TRAYS OR CONDUIT ARE NOT AVAILABLE, THE CONTRACTOR SHALL BUNDLE, IN BUNDLES OF 50 OR LESS, STATION WIRING WITH CABLE TIES SNUG, BUT NOT DEFORMING THE CABLE GEOMETRY.
2. CABLE BUNDLES SHALL BE SUPPORTED VIA "J" HOOKS OR RING ATTACHED TO THE EXISTING BUILDING STRUCTURE AND FRAMEWORK AT INTERVALS OF FOUR (4) FEET AVERAGE WITH A MAXIMUM SEPARATION OF FIVE (5) FEET
3. PLENUM RATED CABLE TIES SHALL BE USED IN ALL APPROPRIATE AREAS.
4. THE CONTRACTOR SHALL ADHERE TO THE MANUFACTURERS' REQUIREMENTS FOR BENDING RADIUS AND PULLING TENSION OF ALL DATA AND VOICE CABLES.
5. ALL CABLING SHALL BE RUN IN AND SUPPORTED BY CABLE PATHWAYS THAT ARE INSTALLED SOLELY FOR THE PURPOSE OF SUPPORTING LOW VOLTAGE COMMUNICATIONS CABLING.
6. CABLES SHALL NOT BE ATTACHED TO LIFT OUT CEILING GRID SUPPORTS OR LAID DIRECTLY ON THE CEILING GRID.
7. CABLES SHALL NOT BE ATTACHED TO OR SUPPORTED BY FIRE SPRINKLER HEADS OR DELIVERY SYSTEMS OR ANY ENVIRONMENTAL SENSOR LOCATED IN THE CEILING AIR SPACE.
8. CABLES SHALL MAINTAIN ADEQUATE SEPARATION FROM EMI AND HEAT SOURCES SUCH AS LIGHTING FIXTURES ETC.
9. COORDINATE THE SUPPORT OF CABLE PATHWAYS SUPPORT SYSTEMS WITH THE WORK OF OTHER TRADES.
10. COORDINATE ROUTING OF CABLE PATHWAYS WITH THE WORK OF OTHER TRADES TO MAINTAIN ADEQUATE WORKING CLEARANCES ABOVE, BELOW AND TO THE SIDES OF CABLE PATHWAYS.
11. COORDINATE WITH OTHER CONTRACTORS DURING THE FINAL BIM COORDINATION MEETINGS TO PROVIDE SHARED HANGERS TO SUPPORT CABLE PATHWAY SYSTEMS.

C. PENETRATIONS OF WALLS, FLOORS AND CEILINGS
1. PRIOR CONSENT: THE CONTRACTOR SHALL MAKE NO PENETRATION OF FLOORS, WALLS OR CEILING WITHOUT THE PRIOR CONSENT FROM OWNER.
2. SEALING PENETRATIONS: THE AREA AROUND THE EXTERIOR OF THE SLEEVE SHALL BE SEALED BY THE CONTRACTOR WHO INSTALLED THE SLEEVE, THE AREA INTERNAL TO THE SLEEVE SHALL BE SEALED BY THE CONTRACTOR WHO PULLED OR PLACED THE CABLES.
3. PENETRATIONS THROUGH ACOUSTICAL WALLS OR OTHER WALLS FOR CABLEWAYS THAT HAVE BEEN PROVIDED FOR THE CONTRACTOR OR MADE BY THE CONTRACTOR SUCH PENETRATIONS SHALL BE SEALED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE CODE REQUIREMENTS AND AS DIRECTED BY OWNER OR ARCHITECT.

D. FIRE STOPPING
1. ALL NEW WALL PENETRATIONS SHALL BE FIRE STOPPED. RESPONSIBILITY FOR SEALING OF OPENING AROUND THE EXTERIOR OF THE LOW VOLTAGE SYSTEM SLEEVES SHALL BE BY THE CONTRACTOR AS DESCRIBED BELOW:
   a. SLEEVES THROUGH FIRE RATED AND SMOKE WALLS CREATED BY THE CONTRACTOR FOR CABLE PASS THROUGH SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
   b. SLEEVES THROUGH FIRE RATED AND SMOKE WALLS CREATED BY THE CONTRACTOR FOR CABLE PASS THROUGH SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
   c. SLEEVES OF OPENINGS BETWEEN FLOORS CREATED BY THE CONTRACTOR FOR CABLE PASS THROUGH SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
   d. SLEEVES OF OPENINGS BETWEEN FLOORS CREATED BY THE CONTRACTOR FOR CABLE PASS THROUGH SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. SEALING OF THE SPACE INTERNAL TO ALL SLEEVES OR OPENINGS SPECIFICALLY DESIGNATED FOR TELECOMMUNICATIONS CABLING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. SEALING MATERIAL AND APPLICATION OF THIS MATERIAL SHALL BE ACCOMPLISHED IN SUCH A MANNER WHICH IS ACCEPTABLE TO THE LOCAL FIRE AND BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS WORK.

E. CONTRACTOR RESPONSIBILITY
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY SURFACES OR WORK DISRUPTED AS A RESULT OF HIS WORK. REPAIR OF SURFACES, INCLUDING PAINTING, SHALL BE INCLUDED AS NECESSARY.
2. THE CONTRACTOR SHALL ENSURE THAT ALL RECOMMENDED CABLE PULLING TENSIONS AND PULLING BENDING RADIUS ARE NOT EXCEEDED. ANY CABLE BENT OR KINKED TO A RADIUS LESS THAN THE RECOMMENDED DIMENSION SHALL NOT BE INSTALLED. ANY CABLE THAT IS BENT OR KINKED TO A RADIUS LESS THAN THE RECOMMENDED DIMENSION DURING INSTALLATION SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.

F. HORIZONTAL CABLING
1. THE CONTRACTOR SHALL SUPPLY HORIZONTAL CABLES TO CONNECT EACH INFORMATION OUTLET TO THE BACKBONE SUBSYSTEM ON THE SAME FLOOR.
2. UNLESS OTHERWISE NOTED ON THE FLOOR PLANS OR WITHIN THIS DOCUMENT, THE TYPE OF HORIZONTAL CABLES USED FOR EACH WORK LOCATION SHALL BE 4-PAIR UNSHIELDED TWISTED PAIR (UTP).
3. THE 4_PAIR UTP CABLES SHALL BE RUN USING A STAR TOPOLOGY FORMAT FROM THE ADMINISTRATION SUBSYSTEM (TELECOMMUNICATIONS ROOM) ON EACH FLOOR TO EVERY INDIVIDUAL TELECOMMUNICATION OUTLET.
4. ALL CABLE ROUTES ARE TO BE PARALLEL AND/OR PERPENDICULAR WITH THE OUTSIDE WALLS OF THE BUILDING. ALTERNATE PATHS MUST BE APPROVED BY THE Construction Manager OF RECORD PRIOR TO INSTALLATION OF THE CABLING.
5. THE LENGTH OF EACH INDIVIDUAL RUN OF HORIZONTAL CABLE FROM THE ADMINISTRATION SUBSYSTEM (TELECOMMUNICATIONS ROOM) ON EACH FLOOR TO THE TELECOMMUNICATION OUTLET SHALL NOT EXCEED 295 FT (90 M).
6. CONDUIT RUNS INSTALLED BY THE CONTRACTOR SHOULD NOT EXCEED 100 FEET OR CONTAIN MORE THAN TWO 90 DEGREE SWEEPING BENDS WITHOUT UTILIZING APPROPRIATELY SIZED PULL BOXES.
7. THE CONTRACTOR SHALL ADHERE TO THE MANUFACTURES RECOMMENDATIONS AND SPECIFICATIONS WITH REGARD TO THE BENDING RADIUS AND PULLING STRENGTH REQUIREMENTS OF THE 4_PAIR UTP CABLE DURING HANDLING AND INSTALLATION.
8. THE CONTRACTOR SHALL MAINTAIN THE HORIZONTAL UTP CABLE TWIST RATE FOR EACH PAIR IN THE CABLE TO WITHIN 0.5-INCHES OF THE CABLE TERMINATION OR TO THE MANUFACTURER'S TERMINATION INSTRUCTIONS, WHICHEVER IS MORE STRINGENT. THE CABLE JACKET SHALL BE REMOVED ONLY TO THE EXTENT REQUIRED TO MAKE THE TERMINATION.
9. EACH RUN OF CABLE BETWEEN THE TERMINATION BLOCK AND THE INFORMATION OUTLET SHALL BE CONTINUOUS WITHOUT ANY JOINTS OR SPLICES.
10. IN SUSPENDED CEILING AND RAISED FLOOR AREAS WHERE WALKER DUCT, CABLE TRAYS OR CONDUIT ARE NOT AVAILABLE, THE CONTRACTOR SHALL BUNDLE STATION WIRING WITH VELCRO TYPE CABLE TIES AT APPROPRIATE DISTANCES.
11. THE CONTRACTOR SHALL CONCEAL HORIZONTAL DISTRIBUTION WIRING INTERNALLY WITHIN THE WALLS WHERE POSSIBLE.
12. EVERY EFFORT WILL BE MADE TO COMPLETE ALL ABOVE CEILING WORK WITHOUT DECONSTRUCTION OF THE EXISTING CEILING SYSTEM. IN THE EVENT THE CONTRACTOR IS REQUIRED TO REMOVE CEILING TILES, SUCH WORK SHALL NOT BREAK OR DISTURB GRID AND MUST BE REPLACED TO MATCH EXISTING IF DAMAGED.

3.4 INSTALLATION

A. ALL INSTALLATION SHALL BE DONE IN CONFORMANCE WITH ANSI/TIA-568-C STANDARDS, FEDERAL AND LOCAL STANDARDS AND THE SCS MANUFACTURER DESIGN AND INSTALLATION GUIDELINES.
1. THE CONTRACTOR SHALL ENSURE THAT THE MAXIMUM PULLING TENSIONS OF THE SPECIFIED DISTRIBUTION CABLES ARE NOT EXCEEDED AND CABLE BENDS MAINTAIN THE PROPER RADIUS DURING THE PLACEMENT OF THE FACILITIES. FAILURE TO FOLLOW THE APPROPRIATE GUIDELINES WILL REQUIRE THE CONTRACTOR TO PROVIDE IN A TIMELY FASHION THE ADDITIONAL MATERIAL AND LABOR NECESSARY TO PROPERLY RECTIFY THE SITUATION AT NO ADDITIONAL COST TO THE OWNER. THIS SHALL ALSO APPLY TO ANY AND ALL DAMAGES SUSTAINED TO THE CABLES BY THE CONTRACTOR DURING THE IMPLEMENTATION.
2. THE CONTRACTOR SHALL MAKE PROVISIONS SO THAT ALL CABLING IS STORED WITHIN A TEMPERATURE CONTROLLED SPACE TO ENSURE THAT CABLING IS UNSPOOLED, MANIPULATED, AND WORKED WITH ONLY WHEN THE CABLING IS WITHIN THE MANUFACTURER'S INSTALLATION TEMPERATURE SPECIFICATIONS AND FREE OF CONDENSATION.

B. BONDING AND GROUNDING
1. COMPLY WITH REQUIREMENTS IN DIVISION 27 SECTION "GROUNDING AND BONDING FOR COMMUNICATIONS SYSTEMS" FOR GROUNDING CONDUCTORS AND CONNECTORS.
2. COMPLY WITH ANSI-J-STD-607-A.

C. POWER SEPARATION: THE CONTRACTOR SHALL NOT PLACE ANY DISTRIBUTION CABLING ALONGSIDE POWER LINES, OR SHARE THE SAME CONDUIT, CHANNEL OR SLEEVE WITH ELECTRICAL APPARATUS.

D. SEPARATION FROM EMI SOURCES:
1. COMPLY WITH ARTICLE 800.52 OF ANSI/NFPA 70, BICSI TDMM AND ANSI/TIA-569-B RECOMMENDATIONS FOR SEPARATING UNSHIELDED COPPER VOICE AND DATA COMMUNICATION CABLE FROM POTENTIAL EMI SOURCES, INCLUDING ELECTRICAL POWER LINES AND EQUIPMENT.

E. MISCELLANEOUS EQUIPMENT: THE CONTRACTOR SHALL PROVIDE ANY NECESSARY SCREWS, ANCHORS, CLAMPS, TIE WRAPS, DISTRIBUTION RINGS, WIRE MOLDING (ER & TR LOCATIONS), MISCELLANEOUS GROUNDING AND SUPPORT HARDWARE, ETC., NECESSARY TO FACILITATE THE INSTALLATION OF THE SCS SYSTEM.

F. SPECIAL EQUIPMENT AND TOOLS: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH ANY SPECIAL INSTALLATION EQUIPMENT OR TOOLS NECESSARY TO PROPERLY COMPLETE THE SYSTEM. TOOLS SHALL INCLUDE, BUT ARE NOT LIMITED TO:
1. TOOLS FOR TERMINATING CABLES,
2. TESTING AND SPLICING EQUIPMENT FOR COPPER/FIBER CABLES,
3. COMMUNICATION DEVICES,
4. JACK STANDS FOR CABLE REELS,
5. CABLE WENCHES.

3.5 IDENTIFICATION/ LABELING

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GENERATING AND PLACING PRINTED LABELS FOR ALL CABLES AND CORDS, DISTRIBUTION FRAMES, AND OUTLET LOCATIONS AT THE TIME OF DELIVERY.
B. ADHERE TO THE STANDARDS FOR IDENTIFICATION/LABELING AS SHOWN ON PROJECT DRAWINGS.
C. AS-BUILT DOCUMENTATION
1. UPON COMPLETION OF THE PROJECT, CONTRACTOR IS TO PREPARE "AS-BUILT" DOCUMENTATION SHOWING ACTUAL SITE CONDITIONS AND INSTALLATION AS CONSTRUCTED. PROVIDE COPIES OF SUCH DOCUMENTATION TO OWNER AS MENTIONED BELOW.

3.6 TESTING / WARRANTY

A. COPPER CABLE TESTING
1. TESTING OF ALL COPPER WIRING SHALL BE PERFORMED PRIOR TO SYSTEM ACCEPTANCE.
2. ONE HUNDRED PERCENT OF THE PERMANENT INSTALLED LINKS SHALL BE TESTED FOR CONFORMANCE TO THE MANUFACTURERS GUARANTEED PERFORMANCE LEVELS AS SPECIFIED IN THE MANUFACTURER'S EXTENDED PRODUCT WARRANTY PLATFORM.
   a. ANY PAIRS NOT MEETING OR EXCEEDING THE REQUIREMENTS OF THE GUARANTEED PERFORMANCE LEVELS SHALL BE BROUGHT INTO COMPLIANCE BY THE CONTRACTOR, AT NO CHARGE TO THE OWNER.
   b. ALL CABLING SHALL EXCEED THE SPECIFICATIONS OF ANSI/TIA-568-C.2 (SPECIFIC TO THE CATEGORY STANDARDS THE CABLING IS MANUFACTURED TO) BY THE MARGINS (HEADROOM) SPECIFIED IN THE MANUFACTURER'S EXTENDED PRODUCT WARRANTY PLATFORM.
3. ONE HUNDRED PERCENT OF THE HORIZONTAL AND RISER WIRING PAIRS SHALL BE TESTED FOR OPENS, SHORTS, POLARITY REVERSALS, TRANSPOSITION AND PRESENCE OF AC VOLTAGE.
4. ONE HUNDRED PERCENT OF HORIZONTAL CABLES SHALL BE TESTED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS UTILIZING THE LATEST FIRMWARE AND SOFTWARE.
   a. TESTING SHALL INCLUDE ALL OF THE ELECTRICAL PARAMETERS.
   b. THE DETAILED TEST RESULTS SHALL INCLUDE THE FOLLOWING:
      1) WIRE MAP
      2) LENGTH
      3) INSERTION LOSS
      4) NEAR-END CROSS TALK (NEXT)
      5) POWER SUM NEAR-END CROSSTALK (PSNEXT)
      6) EQUAL-LEVEL FAR END CROSSTALK (ELFEXT)
      7) POWER SUM EQUAL-LEVEL FAR-END CROSSTALK (PSELFEXT)
      8) RETURN LOSS
      9) PROPAGATION DELAY
      10) DELAY SKEW
5. COMPLETE, END TO END, TEST RESULTS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.

B. EXTENDED PRODUCT AND APPLICATION ASSURANCE WARRANTY WORK
1. UNDER THE EXTENDED PRODUCT AND APPLICATION ASSURANCE WARRANTY, THE MANUFACTURER SHALL REPLACE ANY AND ALL DEFECTIVE PRODUCT OR PRODUCT NOT FUNCTIONING TO THE LEVELS GUARANTEED AT THE TIME OF THE WARRANTY ISSUE AT THE MANUFACTURER'S COST.

3.7 COMPLETION OF WORK

A. AT THE COMPLETION OF THE SYSTEM, THE CONTRACTOR SHALL RESTORE TO ITS FORMER CONDITION, ALL ASPECTS OF THE PROJECT SITE AND ON A DAILY BASIS, SHALL REMOVE ALL WASTE AND EXCESS MATERIALS, RUBBISH DEBRIS, TOOLS AND EQUIPMENT RESULTING

SECTION 28 15 00 - ACCESS CONTROL

PART 1 - GENERAL

1.1 SCOPE OF WORK.

A. PROVIDE NEW ACCESS CONTROL DEVICES AND WIRING, INSTALL AND WAIRE ALL NEW COMPONENTS. FINAL TERMINATION OF SECURITY CABLE AND DEVICE PROGRAMMING WILL BE PERFORMED BY THE DISTRICT'S SECURITY CONTRACTOR.

1.2 GENERAL

A. THIS SCOPE OF WORK MUST BE FOLLOWED BY THE WINNING BIDDER AND SUB-CONTRACTOR.
B. ALL REQUIREMENTS MUST BE ADHERED TO, INCLUDING NOTIFICATION OF PROJECT AWARD, DISCUSSION OF THE PROJECT PRIOR TO START AND PROVIDING A PROJECT SCHEDULE.
C. THE CONTRACTED INSTALLER OF THESE SYSTEMS WILL HEREIN BE REFERRED TO AS THE CONTRACTOR.
D. THE CONTRACTOR:
1. WILL PROPOSE A SCHEDULE OF DATES AND TIMES THAT THE INSTALLATION WILL BE PERFORMED, INCLUDING ANTICIPATED COMPLETION DATE. THIS INFORMATION SHALL BE UPDATED AS NECESSARY.
2. WILL FURNISH AND INSTALL ALL EQUIPMENT, CABLES, WIRES, CONNECTOR, LABOR AND COMPLETE ANY ELECTRICAL REQUIREMENTS THAT ARE NECESSARY FOR THE INSTALLATION OF THE ELECTRONIC SECURITY SYSTEMS CONTAINED WITHIN THIS STATEMENT OF WORK.
3. THE CONTRACTOR SHALL PROVIDE 12 MONTHS ON-SITE WARRANTY, INCLUDING EQUIPMENT AND ASSOCIATED WORKMANSHIP, COMMENCING FROM THE DATE OF ACCEPTANCE FOR THE COMPLETE SYSTEM AT INDIVIDUAL FIELD OFFICES. THE CONTRACTOR SHALL RESTORE NORMAL OPERATIONAL CONDITIONS OF REPORTED PROBLEMS WITHIN TWO (2) BUSINESS DAYS OF THE SERVICE REQUEST. THE CUSTOMER MAY REQUEST THE SERVICE VIA TELEPHONE, EMAIL, OR VERBAL REQUEST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTIONS DUE TO WORK PERFORMED FOR THE ONE (1) YEAR PERIOD AT NO ADDITIONAL COST TO THE AGENCY. ONE YEAR STARTS AT TIME OF GOVERNMENT ACCEPTANCE.
4. IF REQUIRED THE CONTRACTOR MUST INSTALL ALL NECESSARY ELECTRICAL OUTLETS AND COMPLETE HARDWIRING OF CIRCUITS, AS NEEDED (OR HAVE WIRED BY A LICENSED ELECTRICIAN), TO ENSURE THAT ALL DEVICES FUNCTION AS DESIGNED. ALL ELECTRICAL WORK NECESSARY TO MAKE THE SYSTEMS FUNCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. MUST PROVIDE “AS-BUILT” DRAWINGS DEPICTING THE LOCATION OF EACH SPECIFIC DEVICE FOR ALL IDS, PACS, VSS, ETC. SYSTEMS TO INCLUDE WIRING PATHS, ZONE DESCRIPTIONS, CAMERA LIST, ETC. THE AS-BUILT DRAWINGS MUST BE PREPARED IN AUTOCAD AND DELIVERED BOTH ON PAPER AND IN ELECTRONIC FORMAT. COPIES OF THE AS-BUILT DRAWINGS SHALL BE PROVIDED TO THE SITE REPRESENTATIVE AND SENT TO DCBFQM.OSEP.OPSS.FIELD.OPERATIONS@SSA.GOV.
6. MUST SECURELY FASTEN ALL WIRES IN THE CEILING TO OVERHEAD WIRE SUPPORTS TO PREVENT DAMAGE THAT MAY OCCUR FROM EXISTING OR FUTURE WIRE RUNS IN THE CEILINGS.
7. WILL INSTALL SYSTEM IN ACCORDANCE WITH ALL CODES AND STANDARDS SET FORTH BY, BUT NOT LIMITED TO; THE NATIONAL ELECTRICAL CODE, UNDERWRITERS LABORATORIES AND THE LOCAL JURISDICTION HAVING AUTHORITY, WITH A MINIMUM OF SHIELDED PLENUM WIRING USING PLENUM OR RISER WIRE AS REQUIRED BY CODE/STANDARDS. ALL WIRING WILL BE CONCEALED AND OF A GAUGE NO LESS THAN 18. NO MECHANICAL PULLING OF WIRES IS ALLOWED.
8. WITH THE CUSTOMER PRESENT, THE CONTRACTOR WILL ASK THE AGENCY CONTACT ABOUT THE EXACT PROPOSED LOCATION OF EACH REQUIRED DEVICE. THIS WILL BE DONE AT THE START OF THE JOB WITH THE CONTRACTOR AND RESPONSIBLE AGENCY CONTACT. ANY MAJOR CHANGES NEED TO BE APPROVED BY THE CONTRACTING OFFICER. (FOR EXAMPLE, “ITS OKAY TO PUT THE KEYPAD ON THE RIGHT SIDE OF THE DOOR INSTEAD OF THE LEFT SIDE WITH AGENCY CONTACT APPROVAL - CANNOT PUT THE KEYPAD IN SOMEONE'S PRIVATE OFFICE IF IT WAS SUPPOSED TO BE AT THE FRONT DOOR WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER AS THIS WOULD CHANGE THE “SCOPE” OF THE PROJECT).
9. EACH AND EVERY ITEM, INCLUDING EACH DETECTOR, SENSOR, DURESS BUTTON, CONTROL PANEL, TRANSFORMER, LAN/DATA JACK, ETC. MUST BE LABELED TO SHOW THE DEVICE AND/OR ZONE NUMBER ON THE FRONT COVER OF THE SPECIFIC DEVICE.
10. ALL PATCHING, PAINTING, ETC. NECESSARY AS A RESULT OF THIS INSTALLATION OR IN THE EVENT OF AN ERROR (DRILLING THROUGH A WALL BY MISTAKE) MUST BE HANDLED BY THE WINNING BIDDER. NO ADDITIONAL MONIES WILL BE PAID FOR REPAIRS, PATCHING, PAINTING, ETC. THIS ALSO APPLIES TO DEMO OF ANY EXISTING ELECTRONIC SECURITY RELATED EQUIPMENT BEING REPLACED BY THE AFOREMENTIONED SYSTEMS.
11. THE CONTRACTOR SHALL LABEL ALL WIRING WITH INFORMATION THAT ALLOWS FOR EASY IDENTIFICATION FROM EITHER TERMINATING LOCATION. EXCEPT FOR PATCH CABLES, ALL CABLE INSTALLATIONS WILL INCLUDE CABLE LABELING, THE CONTRACTOR SHALL INSTALL PLENUM-RATED CABLE.
12. THE CONTRACTOR WILL ENSURE ALL SYSTEMS (AND COMPONENTS) HAVE A ONE-YEAR WARRANTY, INCLUDING ALL PARTS, LABOR, WIRING, SERVICE TRAVEL HOURS, PARKING, ETC. NO ADDITIONAL COSTS TO BE PAID FOR SERVICE DURING THE ONE YEAR WARRANTY PERIOD DUE TO MALFUNCTION OF SYSTEM. ONE YEAR STARTS AT TIME OF GOVERNMENT ACCEPTANCE.
13. UPON COMPLETION OF EACH DAY'S WORK CLEAN, REMOVE AND DISPOSE OF ANY DIRT AND DEBRIS.
14. REMEDY PROJECT ACTIVITIES THAT REQUIRE CUTTING, DRILLING, OR OTHER DAMAGING EFFECTS (INTENTIONAL OR UNINTENTIONAL) ON BUILDING FINISHES AND CLEAN ALL DEBRIS.
15. REPAIR ALL HOLES AND WALL DAMAGE, REFINISH, REPAINT, AND CLEAN ALL DEBRIS WHEN REMOVING EXISTING EQUIPMENT.
16. MATCH THE SURFACE IN REPAIR TO EXISTING SURFACES AND FINISH THE SURFACE IN REPAIR AS FLUSH WITH THE EXISTING SURFACES.
17. COORDINATE ACTIVITIES WITH THE FACILITY MANAGER; IF ANY PROPOSED WORK IS DEEMED DISRUPTIVE TO THE OPERATION OR OCCUPANTS, THE CONTRACTOR WILL NEED TO SCHEDULE WORK OUTSIDE OF NORMAL HOURS AT NO ADDITIONAL COST TO THE GOVERNMENT
18. THE CONTRACTOR SHALL INSTALL ALL COMPONENTS SECURELY AND IN ACCORDANCE WITH THE MANUFACTURER INSTRUCTIONS AT THE INDICATED LOCATIONS ON THE DRAWING. THE CONTRACTOR SHALL VERIFY ALL COMPONENTS OF ANY EXISTING SYSTEM AS FUNCTIONAL WHEN INCORPORATING EQUIPMENT WITH NEW SYSTEMS.
19. AFTER JOB COMPLETION AND AGENCY ACCEPTANCE, ANY MATERIALS FURNISHED BY THE CONTRACTOR BECOME THE SOLE PROPERTY OF THE ROCKFORD SCHOOL DISTRICT.
20. THE CONTRACTOR WILL PROVIDE ALL TOOLS AND ITEMS TO COMPLETE THE SERVICES AND ACTIVITIES REQUIRED UNDER THIS CONTRACT. REMOVE ALL UNUSED LEGACY SYSTEM CABLES UPON COMPLETION OF THE NEW SYSTEM
21. THE CONTRACTOR SHALL PROVIDE USER AND ORIGINAL EQUIPMENT MANUFACTURER (OEM) TRAINING FOR THE PROVIDED SYSTEMS UPON COMPLETION OF THE INSTALLATION. TRAINING ON THE EQUIPMENT WILL INCLUDE THE OPERATION OF ANY SOFTWARE ASSOCIATED WITH THE SYSTEM TO END-USER KEY PERSONNEL. SPECIFIC AREAS OF TRAINING MAY INCLUDE OPERATIONAL TECHNOLOGIES AND TECHNIQUES, MINOR AND ROUTINE SYSTEM TESTING, AND TROUBLESHOOTING TIPS. THE CONTRACTOR SHALL DEMONSTRATE FULL FUNCTIONALITY TO THE ON-SITE END USER.
22. THE CONTRACTOR WILL SECURELY HANDLE ANY SYSTEM COMPONENTS THAT COULD POTENTIALLY CONTAIN SENSITIVE INFORMATION AND RETURN THE COMPONENTS TO THE AGENCY. EXAMPLES OF SYSTEM COMPONENTS ARE COMPUTERS, HARD DRIVES, DIGITAL STORAGE ARRAYS, OR EQUIPMENT WITH STORED MEMORY.

PART 2 - PRODUCTS

2.1 PHYSICAL ACCESS CONTROL SYSTEM COMPONENTS
1. CARD READERS
   a. HID MINIPROX
2. REQUEST TO EXIT
   a. BOSCH DS 150I
3. DOOR CONTACTS
   a. SDC MC-4
   b. BOSCH ISN CSM20 WG

2.2 ACCESS CONTROL CABLES

GENERAL CABLE REQUIREMENTS: COMPLY WITH UL AND NEC, AND AS RECOMMENDED BY SYSTEM MANUFACTURER FOR INTEGRATION REQUIREMENT. CABLE EQUAL TO BELDEN 538AFS COMPOSITE CABLE.

A. LOW-VOLTAGE CONTROL CABLE SHALL BE SEQUENTIALLY MARKED AT TWO-FOOT INTERVALS.
B. PLENUM-RATED, ELECTRONIC STRIKE CABLE: NFPA 70, TYPE CMP.
1. 4 NO. 16 AWG, STRANDED (19X30) TINNED COPPER CONDUCTORS.
2. PVC INSULATION.
3. SHIELDED.
4. PVC JACKET.
5. FLAME RESISTANCE: COMPLY WITH NFPA 262.
C. PLENUM-RATED, CARD READER CABLE: NFPA 70, TYPE CMP.
1. 3 PAIR, TWISTED, NO. 22 AWG, STRANDED (19X30) TINNED COPPER CONDUCTORS.
2. FLUORINATED ETHYLENE PROPYLENE INSULATION.
3. PLASTIC JACKET.
4. FLAME RESISTANCE: NFPA 262, FLAME TEST.
D. PLENUM-RATED DOOR CONTACT CABLE: NFPA 70, TYPE CMP.
1. 2 NO. 22 AWG, STRANDED (7X30) TINNED COPPER CONDUCTORS.
2. FLUORINATED ETHYLENE PROPYLENE INSULATION.
3. PLASTIC JACKET.
4. FLAME RESISTANCE: NFPA 262, FLAME TEST.
E. PLENUM-RATED REQUEST-TO-EXIT/ SPARE CABLE: NFPA 70, TYPE CMP.
1. 4 NO. 22 AWG, STRANDED (7X30) TINNED COPPER CONDUCTORS.
2. FLUORINATED ETHYLENE PROPYLENE INSULATION.
3. PLASTIC JACKET.
4. FLAME RESISTANCE: NFPA 262, FLAME TEST.
B. LAN CABLING:
1. COMPLY WITH REQUIREMENTS IN SECTION 27 15 13 "COMMUNICATIONS COPPER HORIZONTAL CABLING."

PART 3 - EXECUTION

3.1 INTEGRATED SYSTEM FUNCTIONAL REQUIREMENTS

A. SPECIFIC SUBSYSTEM CONSISTING OF THE FOLLOWING:
1. AUTOMATED ACCESS CONTROL SUBSYSTEM: DOOR ACCESS CONTROL NODES, AND ELECTRONIC DEVICES TO INCLUDE DOOR CONTACTS, CARD READERS, AND REQUEST TO EXIT SENSORS/MODULES TO CONTROL PERSONNEL MOVEMENT THROUGH NORMAL ACCESS ROUTES IN AND OUT OF THE SCHOOL.
2. COMMUNICATIONS SUBSYSTEM: CABLING/WIRING BETWEEN ELEMENTS REQUIRED TO ENSURE THAT PERTINENT DATA IS TRANSFERRED FROM POINT OF ORIGIN TO POINT WHERE APPROPRIATE ACTIONS CAN BE TAKEN

B. THE INSTALLER WILL INSTALL AALL DEVICES AND TERMINATE CABLE TO SHOWN DEVICES. CABLE WILL BE PULLED TO THE EXISTING S2 ACCESS CONTROL SYSTEM AND LABELED. TERMINATION OF CABLE ON THE EXISTING S2 SYSTEM, AND, ALL PRGRAMMING OF DEVICES WILL BE PERFORMED BY THE DISTRICT'S SECURITY CONTRACTOR.

END OF SECTION 28 15 00

SYSTEMS DESIGN SERVICE
ENGINEERING LP
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HASKELL SECURITY VESTIBULE ADDITION
ROCKFORD PUBLIC SCHOOL DISTRICT 205
(IFB # 21-45)
ROCKFORD, ILLINOIS

RICHARD L. JOHNSON
ASSOCIATES | ARCHITECTS

SHEET IDENTIFICATION
TELECOMMUNICATIONS SPECIFICATIONS

PROJECT INFORMATION
Date: MAY 6, 2021
Rev. Date:
RLJA Proj: 2020-013

SHEET NUMBER
E110