STRUCTURAL GENERAL NOTES

SOIL DATA

1. A REPORT ON SUBSURFACE CONDITION ENTITLED "GEOTECHNICAL SUBSURFACE INVESTIGATION", DATED DECEMBER 29, 2017 HAS BEEN PREPARED BY GSG CONSULTANTS. SEE SPECIFICATIONS FOR A COPY OF THIS DOCUMENT.

EXCAVATION

1. THE CONTRACTOR SHALL DESIGN, PROVIDE, INSTALL, AND MAINTAIN ALL UNDERPINNING, SHORING, SHEETING, AND BRACING AS MAY BE REQUIRED FOR THE SUPPORT OF SURROUNDING PROPERTY, BUILDINGS, PAVEMENTS, SIDEWALKS, UTILITIES, UTILITY EQUIPMENT, ETC., UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. THE CONTRACTOR SHALL REMOVE ALL OR PARTS OF ANY EXISTING STRUCTURES AND OTHER DEBRIS WHICH INTERFERE WITH THE WORK, AND SHALL TAKE CARE TO PREVENT DAMAGE TO PORTIONS WHICH ARE TO REMAIN TEMPORARILY OR PERMANENTLY IN PLACE. THE CONTRACTOR SHALL ALSO PROTECT FROM DAMAGE ALL UTILITIES WHICH ARE TO REMAIN IN SERVICE.
3. ALL EXCAVATIONS SHALL BE CARRIED OUT IN ACCORDANCE WITH O.S.H.A. GUIDELINES. THE SIDEWALLS OF ANY EXCAVATION SHALL BE SLOPED AS REQUIRED TO PROVIDE STABLE SLOPES. WHERE ADEQUATE SLOPES CANNOT BE OBTAINED, THE EXCAVATION SHALL BE PERFORMED USING ALTERNATIVE METHODS TO RETAIN THE SOILS. PERFORM EARTHWORK IN COMPLIANCE WITH THE APPLICABLE REQUIREMENTS OF THE LOCAL CODES.
4. THE CONTRACTOR SHALL EFFECTIVELY MAINTAIN THE CONSTRUCTION AREA IN A DEWATERED STATE.
5. THE CONTRACTOR SHALL PREPARE ALL CONSTRUCTION AND EXCAVATION PROCEDURES AND SEQUENCES AND SUBMIT SUCH FOR THE OWNER'S AND ARCHITECT'S INFORMATION AND THE OWNER'S GEOTECHNICAL TESTING AGENCY'S REVIEW PRIOR TO THE START OF CONSTRUCTION.
6. THE CONTRACTOR SHALL PROOF ROLL AND UNIFORMLY COMPACT THE SUBGRADE AFTER STRIPPING THE AREAS THAT WILL NOT BE EXCAVATED FURTHER FOR BASEMENT CONSTRUCTION.
7. ALL FOUNDATIONS FOR CONVEYANCES (FOR EXAMPLE; ELEVATOR PITS), SHALL HAVE THEIR REQUIRED DEPTH VERIFIED WITH THE EQUIPMENT SUPPLIER BY THE GENERAL CONTRACTOR BEFORE BEGINNING EXCAVATIONS. NOTIFY THE ARCHITECT IF THE REQUIRED DEPTH DIFFERS FROM THAT SHOWN IN THE CONTRACT DOCUMENTS.

BACKFILL

1. WHERE BACKFILL IS REQUIRED ON BOTH SIDES OF A WALL OR GRADE BEAM, THE BACKFILL OPERATION SHALL PROCEED ON BOTH SIDES SIMULTANEOUSLY AT UNIFORM LEVELS OF FILL SO AS NOT TO CREATE UNBALANCED LATERAL EARTH PRESSURES WHICH COULD DAMAGE THE STRUCTURE.
2. BACKFILL SHALL NOT BE PLACED AGAINST BASEMENT WALLS OF THE BUILDING UNTIL THE FRAMED LEVEL AT THE TOP OF THE WALL (INCLUDING SLAB) AND THE SLAB ON GRADE AT THE BOTTOM OF THE WALL ARE IN PLACE AND HAVE DEVELOPED SUFFICIENT STRENGTH.
3. BACKFILL MATERIAL WITHIN THE BUILDING AREA SHALL BE STRUCTURAL FILL MATERIAL PLACED AND COMPACTED IN THIN LIFTS TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTM D-1557). THIS MATERIAL SHALL BE APPROVED BY THE OWNER'S GEOTECHNICAL TESTING AGENCY. THIS TYPE OF FILL SHALL BE PLACED TO WITHIN 14" OF THE BOTTOM OF SLAB ELEVATION, WHERE SLAB OCCURS (SEE GEOTECHNICAL REPORT).
4. BACKFILL ADJACENT TO WALLS, FOUNDATIONS AND OVER UTILITY TRENCHES SHALL BE FILL MATERIAL PLACED AND COMPACTED IN THIN LIFTS TO A MINIMUM OF 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTM D-1557). THIS FILL MATERIAL SHALL BE APPROVED BY THE OWNER'S GEOTECHNICAL AGENCY. (SEE GEOTECHNICAL REPORT)

FOUNDATIONS

1. THE BOTTOM OF THE ALL SPREAD FOOTINGS, STRIP FOOTINGS, AND ELEVATOR PITS SHALL REST ON NEW ENGINEERED GRANULAR FILL MATERIAL APPROVED BY THE OWNER'S GEOTECHNICAL TESTING AGENCY WITH A MINIMUM BEARING CAPACITY OF 3,000 PSF. (SEE GEOTECHNICAL REPORT)
2. THE BOTTOM OF FOOTING ELEVATIONS AND SOIL BEARING CAPACITIES AS SHOWN ON DRAWINGS ARE ESTIMATED FROM THE SOIL BEARING DATA. EXISTING FILL MATERIALS SHALL BE REMOVED FROM BELOW THE FOUNDATIONS, DOWN TO THE NATIVE CLAY SOILS. BASED ON THE DEPTH OF THE EXISTING FILL MATERIALS ENCOUNTERED IN THE BORINGS, UNDERCUTS OF UP TO 3 FEET MAY BE ANTICIPATED TO REACH SUITABLE NATIVE SOILS. (SEE GEOTECHNICAL REPORT.)
3. ALL FOUNDATION EXCAVATIONS SHALL BE CLEAN AND DRY PRIOR TO PLACING CONCRETE. BOTTOM SHALL BE INSPECTED AND DESIGN BEARING CAPACITY CONFIRMED BY THE OWNER'S GEOTECHNICAL TESTING AGENCY BEFORE FOOTINGS ARE PLACED.
4. NO FOOTING SHALL BE PLACED ON OR AGAINST SUBGRADES CONTAINING FREE WATER, FROST, OR ICE. SHOULD WATER, FROST, OR ICE ENTER AN AREA AFTER SUBGRADE APPROVAL, THE SUBGRADE SHALL BE REINSPECTED BY THE OWNER'S GEOTECHNICAL AGENCY AFTER REMOVAL OF WATER, FROST, OR ICE.

SLAB ON GRADE

1. THE SLABS ON GRADE SHALL BE PLACED ON A VAPOR RETARDER UNDERLAIN BY A LAYER OF COMPACTED GRANULAR FILL CONSISTING OF A MINIMUM OF 8 INCHES OF IDOT GRADATION CA-6 STONE PLACED UPON A MINIMUM OF 6 INCHES OF FREE DRAINING STONE SUCH AS CA-7. WHERE THE EXISTING FILL SOILS ARE TO REMAIN IN PLACE, THEY MUST BE OVEREXCAVATED AN ADDITIONAL 12 INCHES BELOW THE BOTTOM OF THE PROPOSED FLOOR SLAB SUBBASE. THE OVEREXCAVATION SHALL BE BACKFILLED WITH CA-6 GRADATION CRUSHED STONE. THE SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTM D-1557). SUBGRADE SHALL BE APPROVED BY THE OWNER'S GEOTECHNCIAL TESTING AGENCY PRIOR TO SLAB PLACEMENT.
2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING FLOOR DRAIN LOCATIONS WITH PLUMBING PLANS AND PLUMBING SUBCONTRACTOR. PROVIDE PROPER PITCH TO DRAIN AS INDICATED ON THE PLANS OR AS SPECIFIED.

CONCRETE (CAST IN PLACE)

1. CONCRETE COMPRESSIVE STRENGTHS (28 DAYS MINIMUM) SHALL BE AS FOLLOWS:

SPREAD FOOTINGS, STRIP FOOTINGS	4,000 PSI	NORMAL WT. CONCRETE
FOUNDATION WALLS, PIERS	4,000 PSI	NORMAL WT. CONCRETE
EXTERIOR SLABS-ON-GRADE, STAIRS-ON-GRADE, PADS, CUBRS	5,000 PSI	NORMAL WT. CONCRETE
INTERIOR SLABS-ON-GRADE, STAIRS-ON-GRADE, PADS, CURBS	4,000 PSI	NORMAL WT. CONCRETE
SLABS ON METAL DECK	4,000 PSI	LIGHT WT. CONCRETE (WEIGHT 110 LBS./CU.FT.)

2. CONCRETE PROTECTION FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOOTINGS	3" CLEAR, BOTTOM AND SIDES
FOUNDATION WALLS	2" CLEAR
PIERS, COLUMNS	1 1/2" CLEAR TO TIES

3. FOR ADMIXTURES SEE SPECIFICATION SECTION 03 3000.
4. FOR ARCHITECTURAL EXPOSED CONCRETE SEE SPECIFICATION SECTION 03 3000.
5. THE CONTRACTOR SHALL INCLUDE THE QUANTITIES OF ADDED CONCRETE DUE TO DECK DEFLECTION.

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

REINFORCING STEEL	ASTM A 615, GRADE 60, DEFORMED
WELDED WIRE FABRIC	ASTM A 1064

2. EPOXY COATED REBAR SHALL BE INSTALLED AT LOCATIONS INDICATED ON THE PLAN OR IN THE SPECIFICATIONS. EPOXY COATING SHALL CONFORM TO ASTM A 775 OR ASTM A 934.
3. REINFORCING DETAILS SHALL CONFORM TO THE REQUIREMENTS OF THE A.C.I. 318 BUILDING CODE, LATEST EDITION AND A.C.I. 315, LATEST EDITION UNLESS OTHERWISE SHOWN OR NOTED.
4. LAP ALL BARS 36 DIAMETERS BUT NOT LESS THAN 24" AT SPLICES UNLESS OTHERWISE SHOWN. WELDED WIRE FABRIC SHALL BE LAPPED ONE (1) SPACE TRANSVERSELY AND TWO (2) SPACES LONGITUDINALLY.
5. UNLESS OTHERWISE SHOWN PROVIDE 2-#5 ADDITIONAL BARS TOP AND BOTTOM AND AT THE SIDE OF OPENINGS 8" SQUARE AND LARGER IN WALLS AND SLABS AND EXTEND 2'-6" BEYOND OPENING.
6. PROVIDE ADEQUATE BOLSTERS, HIGH CHAIRS, SUPPORT BARS, ETC., TO MAINTAIN SPECIFIED CLEARANCES FOR THE ENTIRE LENGTH OF ALL REINFORCING BARS AND WELDED WIRE FABRIC.
7. SHOP DRAWINGS CHECKED BY THE GENERAL CONTRACTOR SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING, PLACEMENT, AND SUPPORT SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PRIOR TO FABRICATION.
8. TYPICAL REINFORCEMENT FOR CONCRETE OVER METAL DECK: PROVIDE STEEL FIBERS AT RATE OF 25 LBS PER CUBIC YARD OR, AT CONTRACTOR'S OPTION, PROVIDE SYNTHETIC MACRO-FIBERS AT RATE OF 4 LBS PER CUBIC YARD. SEE SPECIFICATIONS SECTION 03 3000.

STRUCTURAL STEEL

1. ALL STEEL SECTIONS AND PLATES (INCLUDING COLUMN BASE PLATES) SHOWN ON STRUCTURAL DRAWINGS ARE TO BE INCLUDED IN THE STRUCTURAL STEEL CONTRACT UNLESS OTHERWISE NOTED.
2. ALL STEEL SHALL BE NEW STEEL MANUFACTURED IN THE U.S.A., SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH CURRENT A.I.S.C. STANDARDS AND APPLICABLE CODES, AND SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS UNLESS OTHERWISE NOTED:

WIDE FLANGES AND STRUCTURAL TEES (WT):	ASTM A992
CHANNELS, ANGLES, PLATES, CONN. MAT'L:	ASTM A36
HOLLOW STRUCTURAL SECTIONS (HSS):	ASTM A500, GRADE C
STEEL PIPE:	ASTM A53, GRADE B

3. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" AND THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (LATEST EDITIONS).
4. ALL STRUCTURAL STEEL SHALL BE OF SIZE SHOWN ON DRAWINGS AND SHALL BE STRAIGHT AND FREE OF TWIST. SUBSTITUTIONS WILL NOT BE PERMITTED WITHOUT APPROVAL OF THE ARCHITECT.
5. ALL COLUMN BEARING ENDS TO BE TRUE AND SQUARE. ALL COLUMNS TO BE PLUMB AND LEVEL BEARING.
6. THE FABRICATOR/ERECTOR SHALL SUBMIT TO THE ARCHITECT FOR REVIEW, ENGINEERED AND CHECKED DRAWINGS SHOWING SHOP FABRICATION, DETAILS, FIELD ASSEMBLY DETAILS, AND ERECTION DIAGRAMS FOR ALL STRUCTURAL STEEL. ALL SHOP DRAWINGS MUST BE COMPLETE FOR ALL STRUCTURAL STEEL WITH BEAM SIZES, MARKS, ETC. SHOWN ON ERECTION PLANS. ALL SHOP DRAWINGS SHALL BE PREPARED UNDER THE DIRECTION OF A LICENSED STRUCTURAL ENGINEER IN THE STATE OF ILLINOIS
7. ALL CONNECTIONS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR/ERECTOR, UNLESS OTHERWISE NOTED. DESIGN AND DETAILING SHALL BE PERFORMED USING RATIONAL ENGINEERING PROCEDURES SUCH AS THOSE DESCRIBED IN "AISC MANUAL OF STEEL CONSTRUCTION." THE GENERAL DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL ONLY AND, UNLESS SPECIFICALLY NOTED, DO NOT INDICATE THE REQUIRED NUMBER OF BOLTS OR WELD SIZES. THE FABRICATOR/ERECTOR SHALL SUBMIT TO THE ARCHITECT FOR REVIEW ENGINEERING CALCULATIONS, WITH CONNECTION DETAIL DRAWINGS, FOR EACH CONNECTION TYPE, MEMBER SIZE, AND FORCE INDICATED ON THE STRUCTURAL DRAWINGS. CALCULATIONS SHALL BE SUBMITTED PRIOR TO THE SUBMITTAL OF STRUCTURAL STEEL SHOP DRAWINGS. THE CALCULATIONS SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF, AND SEALED BY, A LICENSED STRUCTURAL ENGINEER IN THE STATE OF ILLINOIS.
8. ALL BEAMS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP AND WITH CAMBER INDICATED CLEARLY ON THE STEEL WITH INDELIBLE IDENTIFICATION.
9. SEE SPECIFICATIONS FOR METHOD OF SURFACE PREPARATION AND FOR SHOP AND FIELD PAINT.
10. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ARCHITECT.
11. SEE SPECIFICATIONS FOR SHOP & FIELD INSPECTION AND TESTING OF STRUCTURAL STEEL.
12. TYPICAL CONNECTION CONFIGURATIONS AND CAPACITIES ARE SHOWN ON THE STRUCTURAL DRAWINGS - SEE "TYPICAL STEEL DETAILS" SHEETS.
13. BOLTED CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE (A325-N) UTILIZING 7/8" DIAMETER BOLTS TIGHTENED TO AISC SNUG-TIGHT CONDITIONS UNLESS OTHERWISE SHOWN OR NOTED. ALL BOLTS SHALL BE MANUFACTURED IN THE U.S.A.
14. THE FACTORED LOADS TO BE RESISTED BY THE INDIVIDUAL MEMBERS AND THEIR CONNECTIONS ARE SHOWN IN THE STRUCTURAL DRAWINGS.
15. WELDED CONNECTIONS SHALL BE AS SHOWN ON DETAILS. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS AND IN ACCORDANCE WITH THE PUBLISHED RECOMMENDATIONS OF THE AMERICAN WELDING SOCIETY AND AS NOTED IN THE AISC SPECIFICATIONS, UNLESS OTHERWISE SHOWN. MINIMUM TENSILE STRENGTH OF ELECTRODES SHALL BE 70 KSI.
16. SHOP CONNECTIONS SHALL BE WELDED OR BOLTED. WELDS SHALL BE DESIGNED TO BE FULLY EQUIVALENT IN STRENGTH TO BOLTED CONNECTIONS.
17. ALL STEEL MEMBERS EXTENDING BELOW GROUND FLOOR SLAB SHALL BE ENCASED IN A MINIMUM OF 3" OF CONCRETE.
18. ALL STEEL MEMBERS AND FASTENERS EXPOSED TO WEATHER IN THE COMPLETED BUILDING OR WITHIN EXTERIOR WALLS (SUCH AS GRILLAGE STEEL, LINTELS, AND SHELF ANGLES) SHALL BE HOT-DIP GALVANIZED.

FIREPROOFING

1. FOR FIREPROOFING OF STRUCTURAL STEEL FRAMING MEMBERS SEE ARCHITECTURAL DRAWINGS.

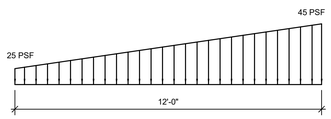
METAL DECK

1. DECKS SHALL BE AS CALLED FOR ON DRAWINGS AND IN THE SPECIFICATIONS AND SHALL BE SECURELY FASTENED TO THE STEEL FRAMEWORK BY WELDS NO LESS THAN 5/8" DIAMETER AT 12" CENTERS MAXIMUM. SIDE LAPS SHALL BE FASTENED 36" MAXIMUM ON CENTER (MINIMUM 3 PER SPAN) UNLESS NOTED OTHERWISE.
2. ALL DECKING SHALL BE WELDED TO STRUCTURAL STEEL BY QUALIFIED WELDERS USING PRE-QUALIFIED PROCEDURES, OR PROCEDURES QUALIFIED THROUGH AWS D1.3 WHERE NO PRE-QUALIFIED PROCEDURES EXIST. THE ERECTOR SHALL ESTABLISH A WELDING PROCEDURE FOR THE PLUG WELD OF THE STEEL DECKING TO THE STRUCTURAL STEEL FOR THE PARTICULAR GAUGE OF DECK USED. PRIOR TO THE START OF ERECTION OF THE STEEL DECK, EACH WELDER SHALL BE QUALIFIED USING THIS PROCEDURE AS WITNESSED BY THE PROJECT STRUCTURAL STEEL TESTING LABORATORY.
3. ALL METAL DECKS SHALL BE DESIGNED FOR AT LEAST THE CONDITIONS SHOWN ON THE DRAWINGS. METAL DECK SHALL BE MANUFACTURER'S STANDARD OF TYPE, MINIMUM GAUGE, AND SECTION INDICATED ON THE DRAWINGS. SECTION PROPERTIES SHALL BE COMPUTED IN ACCORDANCE WITH A.I.S.I. "SPECIFICATION FOR THE DESIGN OF LIGHT GAUGE COLD FORMED STEEL STRUCTURAL MEMBERS" (LATEST EDITION). THE METAL DECK SHALL BE DESIGNED TO BE CONTINUOUS OVER THREE (3) SPANS AND SHALL SATISFY LOAD AND DEFLECTION REQUIREMENTS. SINGLE AND DOUBLE SPANS, IF REQUIRED, SHALL ALSO SATISFY LOAD AND DEFLECTION REQUIREMENTS.
4. CONFORM TO MANUFACTURER'S RECOMMENDED MAXIMUM UNSHORED SPAN FOR COMPOSITE METAL DECK. WHERE SPANS EXCEED THESE VALUES PROVIDE SHORING OR INCREASED DECK GAUGE TO ACCOMMODATE UNSHORED SPANS.
5. DECK CONFIGURATION AND STUD ARRANGEMENT WHERE REQUIRED SHALL BE SUCH AS TO PROPERLY ACCOMMODATE SHEAR STUDS TO DEVELOP THEIR FULL SOLID SLAB CAPACITY PER AISC. VERIFICATION BY TEST IS REQUIRED. ADDITIONAL STUDS WILL BE REQUIRED IF AISC FULL SOLID SLAB VALUES ARE NOT ATTAINED WITH THE DECK PROFILE PROVIDED.
6. THE FABRICATOR/ERECTOR SHALL PROVIDE ENGINEERING CALCULATIONS OR PUBLISHED MANUFACTURER'S DATA TO THE ARCHITECT FOR REVIEW. PROVIDE ENGINEERED SHOP DRAWINGS CHECKED BY THE GENERAL CONTRACTOR INDICATING LOCATION, GAUGE, AND SIZE OF EACH PIECE OF DECKING. THE DRAWINGS SHALL CLEARLY SHOW WELDING DETAILS TO STRUCTURAL FRAMING AND SIDE LAP CONNECTION DETAILS. THE SHOP DRAWINGS SHALL CLEARLY SHOW SHEAR STUD PLACEMENT AND ALL EDGE CLOSURES.
7. NO LOADS SHALL BE PERMITTED TO BE HUNG DIRECTLY FROM METAL ROOF DECKING (FOR EXAMPLE; SUSPENDED MECHANICAL EQUIPMENT, DUCTWORK, CONDUIT, PIPING, LIGHTING, CEILINGS) WITHOUT PRIOR APPROVAL OF THE ARCHITECT. PROPOSED HANGING LOADS, DETAILS, AND FASTENERS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. MAXIMUM HANGING LOAD PER FASTENER IS NOT TO EXCEED 50 LBS AT METAL ROOF DECKING.
8. METAL DECK MANUFACTURER SHALL SUBMIT CERTIFICATION THAT THE STRUCTURAL FLOOR ASSEMBLY MEETS THE SPECIFIED FIRE RATING.

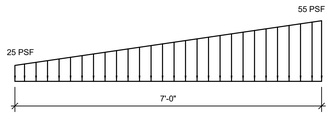
CONSTRUCTION DETAILS

1. ALL ELEVATIONS SHOWN ARE WITH RESPECT TO EXISTING FIRST FLOOR T/SLAB ELEVATION: +0'-0".
2. GENERAL CONTRACTOR MUST CHECK WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND VERIFY THE SIZE AND LOCATION OF OPENINGS, SLEEVES, CHASES, CONDUIT, DEPRESSED AREAS, FLOOR FINISHES, FILLS, ANCHORS, PRECAST, STONE AND MASONRY DETAILS, HANGERS, CURBS, AND OTHER MISCELLANEOUS ITEMS CONNECTED WITH CONCRETE CONSTRUCTION BEFORE PLACING CONCRETE. SUBMIT SLEEVE AND EMBEDDED ITEM SHOP DRAWINGS FOR REVIEW BEFORE PLACING CONCRETE.
3. WHERE MONOLITHIC OR INTEGRAL FINISH IS CALLED FOR ON THE DRAWINGS, DEPTH MUST BE MEASURED FROM FINISHED FLOOR.
4. WHERE FLOOR IS DEPRESSED FOR FINISHES AS SHOWN ON THE DRAWINGS, THE DEPTH OF THE SLABS AND BEAMS MUST BE MEASURED FROM THE DEPRESSED AREA.
5. THE SIZE AND LOCATION OF OPENINGS THROUGH SLABS AND WALLS AS SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE CHANGED WITHOUT THE APPROVAL OF THE ARCHITECT. ALL OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS INCLUDING PIPE SLEEVES AND CORED HOLES MUST BE SUBMITTED TO AND APPROVED BY THE ARCHITECT BEFORE PROCEEDING WITH WORK.
6. FOR LINTELS OVER EXTERIOR AND INTERIOR OPENINGS SEE ARCHITECTURAL DRAWINGS. LOOSE LINTELS TO HAVE A MINIMUM END BEARING OF 8".
7. LOCATION OF CONSTRUCTION JOINTS IS TO BE APPROVED BY THE ARCHITECT.
8. NO HORIZONTAL CONSTRUCTION JOINTS WILL BE ALLOWED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
9. ALL DESIGN AND CONSTRUCTION MUST CONFORM TO THE CHICAGO BUILDING CODE, 2019 EDITION.
10. NO CONDUIT OF ANY KIND SHALL BE EMBEDDED IN CONCRETE CONSTRUCTION OTHER THAN SLAB ON GRADE CONSTRUCTION.

SNOW DRIFT DIAGRAMS



DRIFT AT PARAPET



DRIFT AT SCREENWALL

DESIGN DETAILS

1. GRAVITY LOADS

SECOND FLOOR

DEAD LOADS:	
3" METAL DECK w/ 3 1/4" L.W. CONC. (115 PCF, MAX)	
(+ STEEL FRAMING SELF WEIGHT)	48 PSF
SUPERIMPOSED DEAD LOADS:	
FLOORING AND LEVELING ALLOWANCE	5 PSF
LIGHTS, DUCTS, AND SPRINKLERS	5 PSF
CEILING, FIREPROOFING, MISC	5 PSF
SUSPENDED MEDICAL EQUIPMENT	20 PSF
PARTITION LOAD:	
LIVE LOADS:	
MEDICAL OFFICE (REDUCIBLE)	50 PSF
LIGHT STORAGE AREAS (NOT REDUCIBLE)	125 PSF
STAIRS (NOT REDUCIBLE)	100 PSF

ROOF

DEAD LOADS:	
3" METAL DECK	3 PSF
(+ STEEL FRAMING SELF WEIGHT)	
SUPERIMPOSED DEAD LOADS:	
ROOFING AND INSULATION	10 PSF
LIGHTS, DUCTS, AND SPRINKLERS	5 PSF
CEILING, FIREPROOFING, MISC	5 PSF
SUSPENDED MEDICAL EQUIPMENT	5 PSF
SOFFIT (AT EXTERIOR CANOPY ONLY)	10 PSF
(+ ROOFTOP MECHANICAL UNIT WEIGHT)	
LIVE LOADS:	
MINIMUM ROOF LIVE LOAD	15 PSF
SNOW LOADS:	
FLAT ROOF SNOW LOAD	25 PSF
DRIFT	SEE DIAGRAMS

2. WIND LOADS:

ON MAIN WIND FORCE RESISTING SYSTEM:	20 PSF
ON COMPONENTS / CLADDING:	
1. OTHER THAN CORNER	25 PSF
2. WITHIN 10 FEET OF BUILDING CORNER	30 PSF
SIGNAGE ATTACHED TO BUILDING	30 PSF
ROOFTOP SCREENWALL	40 PSF

3. HANDRAILS AND GUARDS:

SIMULTANEOUS VERTICAL AND HORIZONTAL THRUST OF 50 PLF APPLIED AT THE TOP OF THE RAILING, OR CONCENTRATED LOAD OF 200 PLF IN ANY DIRECTION, WHICHEVER PRODUCES THE GREATEST STRESS

4. STEEL STAIRS AND LANDINGS

DEAD LOAD	60 PSF
LIVE LOAD	100 PSF
CONCENTRATED LOAD OF 300 POUNDS ON AREA OF 4 SQ IN AT CENTER OF TREAD	

5. FLOORS SHALL BE DESIGNED TO SUPPORT A CONCENTRATED LOAD OF 2000 POUNDS APPLIED TO AN AREA 2'-6" x 2'-6".
6. DESIGN LIVE LOAD REDUCTIONS SHALL BE IN ACCORDANCE WITH THE CHICAGO BUILDING CODE, 2019 EDITION.

ABBREVIATIONS

AB	ANCHOR BOLT	M	MOMENT
ADD	ADDENDUM	MAS	MASONRY
ADD'L	ADDITIONAL	MAX	MAXIMUM
AGG	AGGREGATE	MC	MOMENT CONN
ALT	ALTERNATE	MECH	MECHANICAL
ANCH	ANCHOR(AGE)	MIN	MINIMUM
APPROX	APPROXIMATE	MISC	MISCELLANEOUS
ARCH	ARCHITECT(URAL)	MTL	METAL
AVG	AVERAGE		
		N	NORTH
BLDG	BUILDING	NO	NUMBER
BM	BEAM	NOM	NOMINAL
BOTT	BOTTOM	NS	NEAR SIDE
BRG	BEARING	NTS	NOT TO SCALE
BS	BOTH SIDES	NWC	NORMAL WEIGHT CONCRETE
BSMT	BASEMENT		
		OC	ON CENTER
CEM	CEMENT	OD	OUTSIDE DIAMETER
CF	CUBIC FOOT	OH	OPPOSITE HAND
CL	CENTER LINE	OPG	OPENING
CLR	CLEAR (COVER)	OPP	OPPOSITE
CMU	CONC MAS UNIT		
COL	COLUMN		
COMP	COMPOSITE	PAR	PARALLEL
CONC	CONCRETE	PC	PRECAST CONCRETE
CONN	CONNECTION	PCF	POUNDS PER CUBIC FOOT
CONST	CONSTRUCTION	PEN	PENETRATION
CONT	CONTINUE, CONTINUOUS	PERP	PERPENDICULAR
CONTR	CONTRACT(OR)	PL	PLATE
CU	CUBIC	PLF	PROPERTY LINE
CY	CUBIC YARD	PLBG	PLUMBING
		PLF	POUNDS PER LINEAR FOOT
		PNT	PAINT(ED)
		PSF	POUNDS PER SQUARE FOOT
DBL	DOUBLE	PSI	POUNDS PER SQUARE INCH
DEG	DEGREE	PT	POINT
DIA	DIAMETER	PRES	PRESSURE
DIAG	DIAGONAL		
DIM	DIMENSION	QTY	QUANTITY
DL	DEAD LOAD		
DTL	DETAIL		
DWG	DRAWING		
DWL	DOWEL	RAD	RADIUS
		REF	REFERENCE
		REINF	REINFORCE(D)(ING)(MENT)
E	EAST	REQ'D	REQUIRED
EA	EACH	RET	RETURN
EF	EACH FACE	RND	ROUND
EL	ELEVATION		
EQ	EQUAL	S	SOUTH
EW	EACH WAY	SC	SLIP CRITICAL
EXG	EXISTING	SCHED	SCHEDULE
EXP	EXPANSION	SECT	SECTION
EXT	EXTERIOR	SHT	SHEET
		SIM	SIMILAR
		SP	SPECIAL
FIN	FINISH(ED)	SPEC	SPECIFICATION(S)
FLR	FLOOR(ING)	SQ	SQUARE
FND	FOUNDATION	STD	STANDARD
FP	FIREPROOF(ING)	STIFF	STIFFENER
FS	FAR SIDE	STL	STEEL
FT	FEET	STRUC	STRUCTURE(AL)
FTG	FOOTING	SYM	SYMMETRY(ICAL)
GA	GAGE		
GC	GENERAL CONTRACTOR	T&B	TOP AND BOTTOM
		T/CONC	TOP OF CONCRETE
HORIZ	HORIZONTAL	T/SL	TOP OF SLAB
HP	HIGH POINT	T/STL	TOP OF STEEL
HT	HEIGHT	TEMP	TEMPERATURE
		TFE	TOP OF FOOTING ELEVATION
ID	INSIDE DIAMETER	THK	THICKNESS
IN	INCH	THRU	THROUGH
INCL	INCLUDE(D)(ING)	TOL	TOLERANCE
INFO	INFORMATION	TYP	TYPICAL
INT	INTERIOR		
		UL	UNDERWRITER'S LABORATORY
JT	JOINT		
K	KIPS	V	SHEAR FORCE
KSF	KIPS PER SQ. FT	VERT	VERTICAL
KSI	KIPS PER SQ. IN	VOL	VOLUME
L	LENGTH	W	WEST
LAT	LATERAL	W	WIDTH, WIDE
LB	POUND	W/	WITH
LIN	LINEAR	W/O	WITH OUT
LL	LIVE LOAD	WP	WORK POINT
LLH	LONG LEG HORIZ	WT	WEIGHT
LLV	LONG LEG VERT	WWF	WELDED WIRE FABRIC
LW	LIGHTWEIGHT		
LWC	LIGHTWEIGHT CONCRETE		

THOMAS L HARRISON 081-005889 LICENSED STRUCTURAL ENGINEER STATE OF ILLINOIS

signature

6 - 25 - 2019
date

license expires 11-30-2020

1" = 1'-0"
3/4" = 1'-0"
1/2" = 1'-0"
3/8" = 1'-0"
1/4" = 1'-0"
1/8" = 1'-0"
1/16" = 1'-0"
1" = 30'-0"

Department of Capital Planning & Policy
Bureau of Asset Management

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www.holabird.com

Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

Project Name & Address: HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Sheet Name: GENERAL NOTES

Drawing No. **S1-1**

3/4" = 1'-0"

1" = 1'-0"

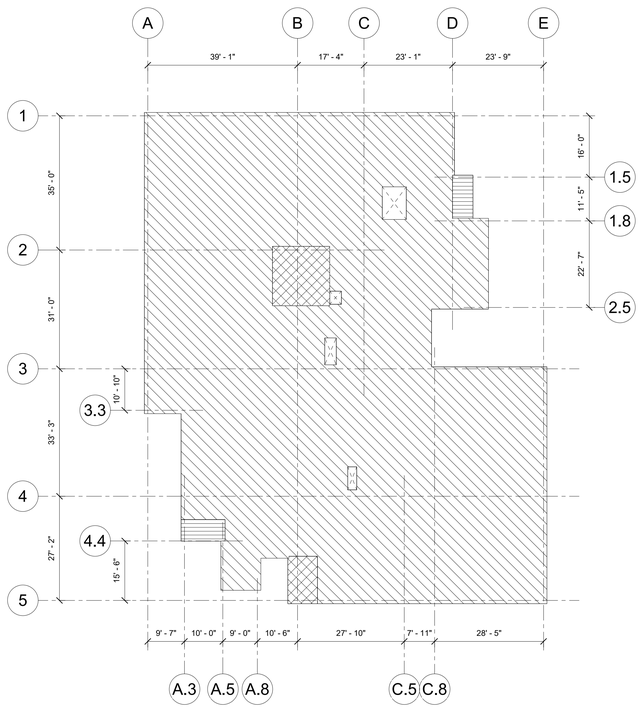
1/2" = 1'-0"

1/4" = 1'-0"

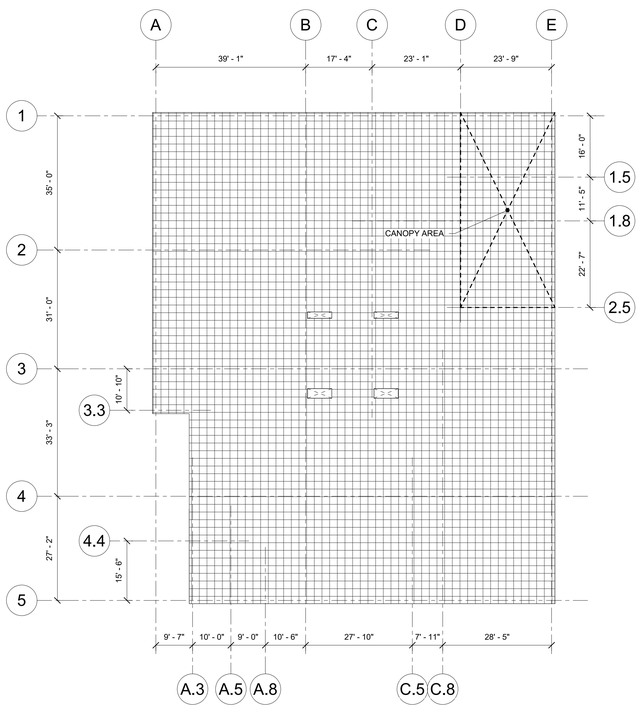
1/8" = 1'-0"

1/16" = 1'-0"

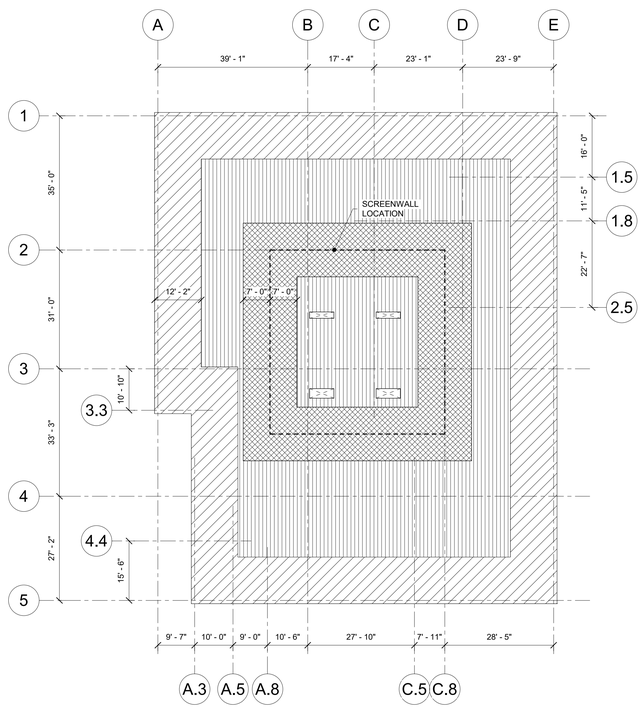
1" = 30'-0"



1 200 LEVEL LIVE LOAD DIAGRAM
S1-2 1/16" = 1'-0"



2 ROOF LEVEL LIVE LOAD DIAGRAM
S1-2 1/16" = 1'-0"



3 ROOF LEVEL SNOW LOAD DIAGRAM
S1-2 1/16" = 1'-0"

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Bureau of Asset Management

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THOMAS L HARRISON 061-005899 LICENSED STRUCTURAL ENGINEER STATE OF ILLINOIS

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Project Number	15849
Drawn	N. PALL
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Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

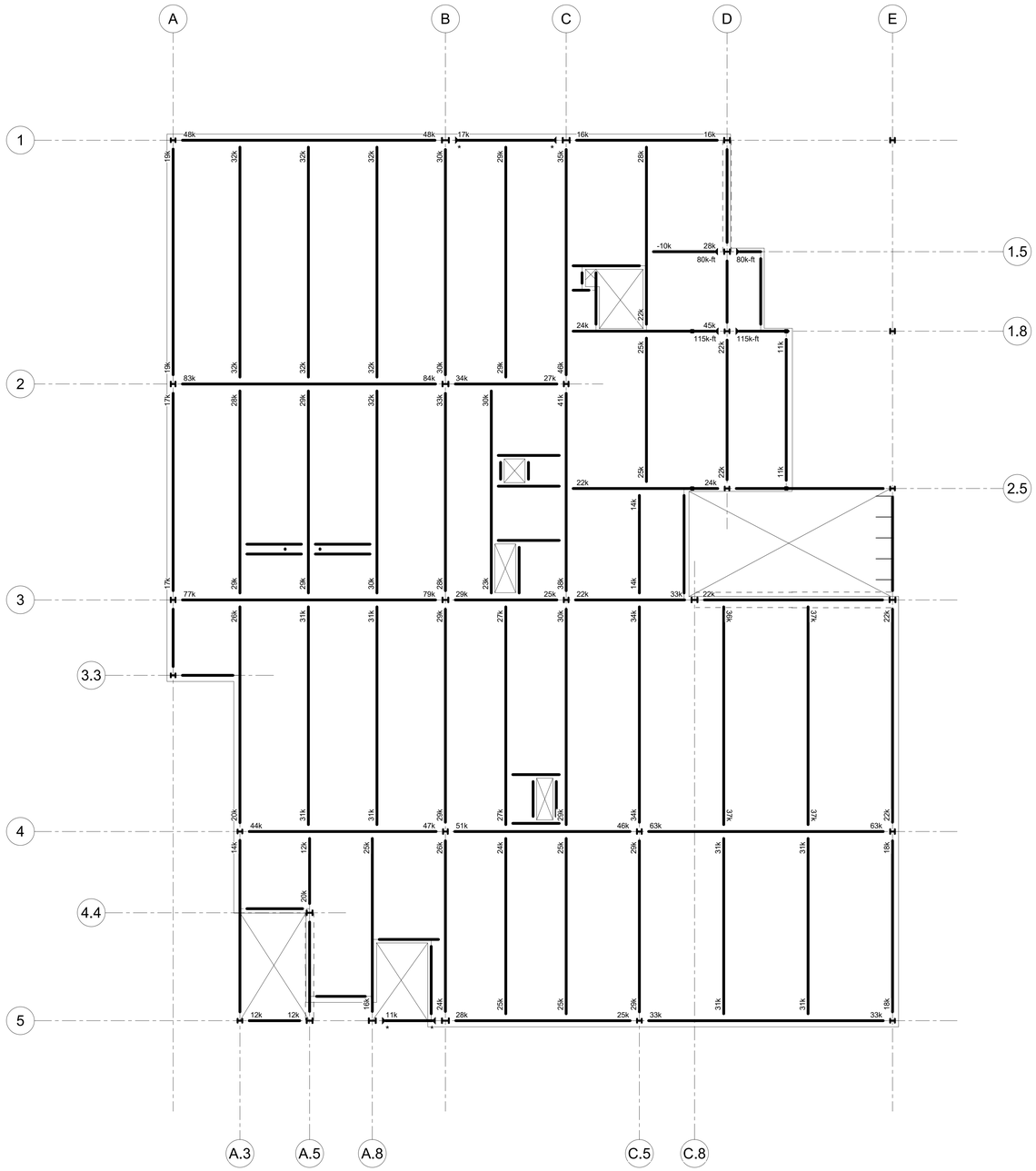
HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

LOAD DIAGRAMS

Sheet Name

Drawing No. **S1-2**



1 200 FRAMING PLAN - CONNECTION DESIGN LOADS

S1-3 1/8" = 1'-0"

NOTES:
1. FOR DESIGN LOADS NOT SHOWN, USE MINIMUM CONNECTION CAPACITY OF 10 KIPS.
2. * FOR MOMENT CONNECTION DESIGN LOADS, SEE ELEVATION DETAILS 5&6/S3-1.

FACTORED LOADS SHOWN

1" = 30'-0" | 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 1/2" = 1'-0" | 3/4" = 1'-0" | 1" = 1'-0" | 1 1/2" = 1'-0" | 3" = 1'-0"

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COOK COUNTY HEALTH

HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
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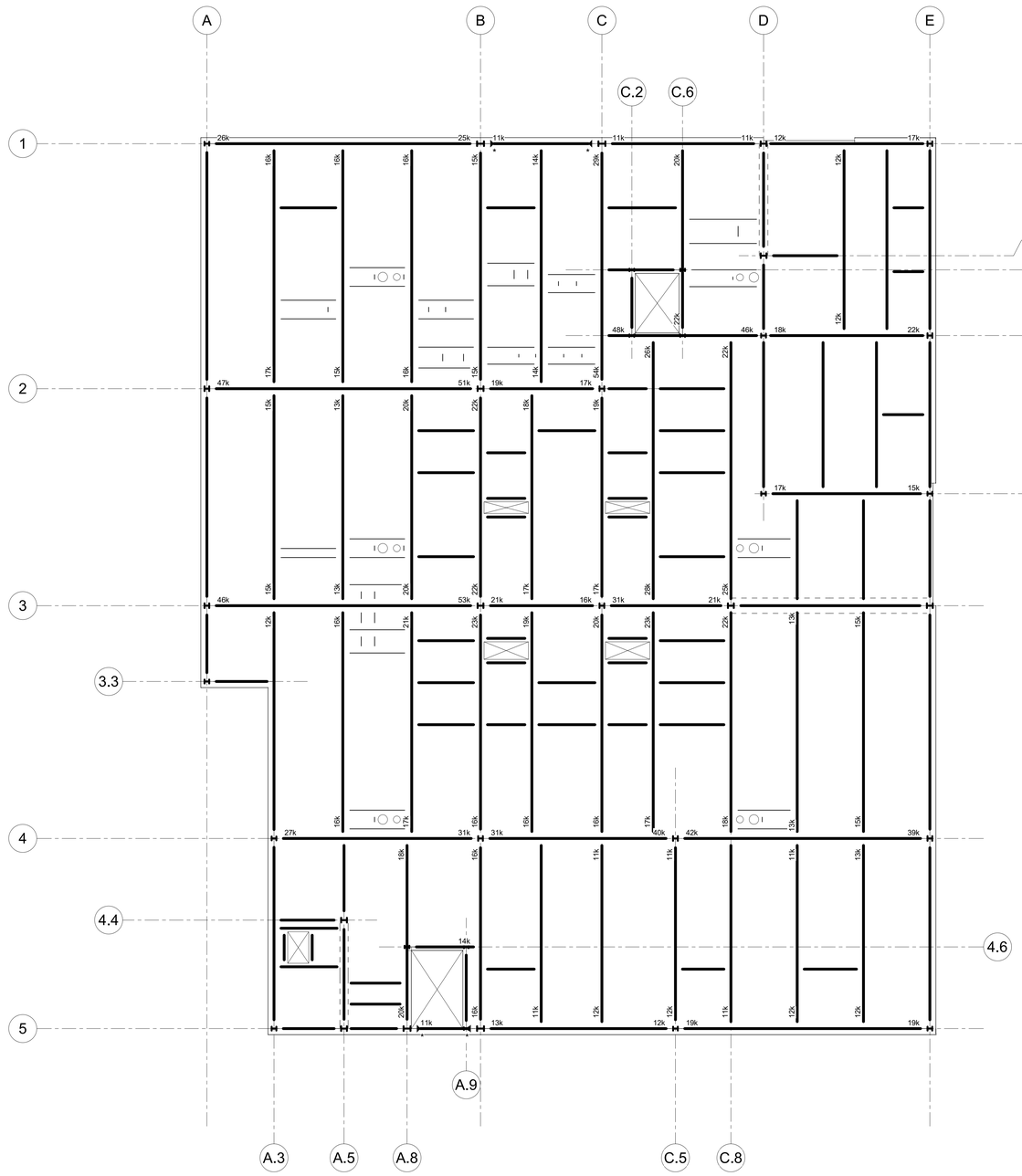
Project Name & Address

200 STEEL CONNECTION DESIGN LOADS

Sheet Name

Drawing No. **S1-3**



1 ROOF FRAMING PLAN - CONNECTION DESIGN LOADS

S1-4 1/8" = 1'-0"

NOTES:
1. FOR DESIGN LOADS NOT SHOWN, USE MINIMUM CONNECTION CAPACITY OF 10 KIPS.
2. * FOR MOMENT CONNECTION DESIGN LOADS, SEE ELEVATION DETAILS 5&6/S3-1.

FACTORED LOADS SHOWN

3" = 1'-0" | 1" = 1'-0" | 1/2" = 1'-0" | 1/4" = 1'-0" | 1/8" = 1'-0" | 1/16" = 1'-0" | 1" = 30'-0"

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LICENSED STRUCTURAL ENGINEER — THOMAS L. HARRISON — 081-005899 — STATE OF ILLINOIS

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Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

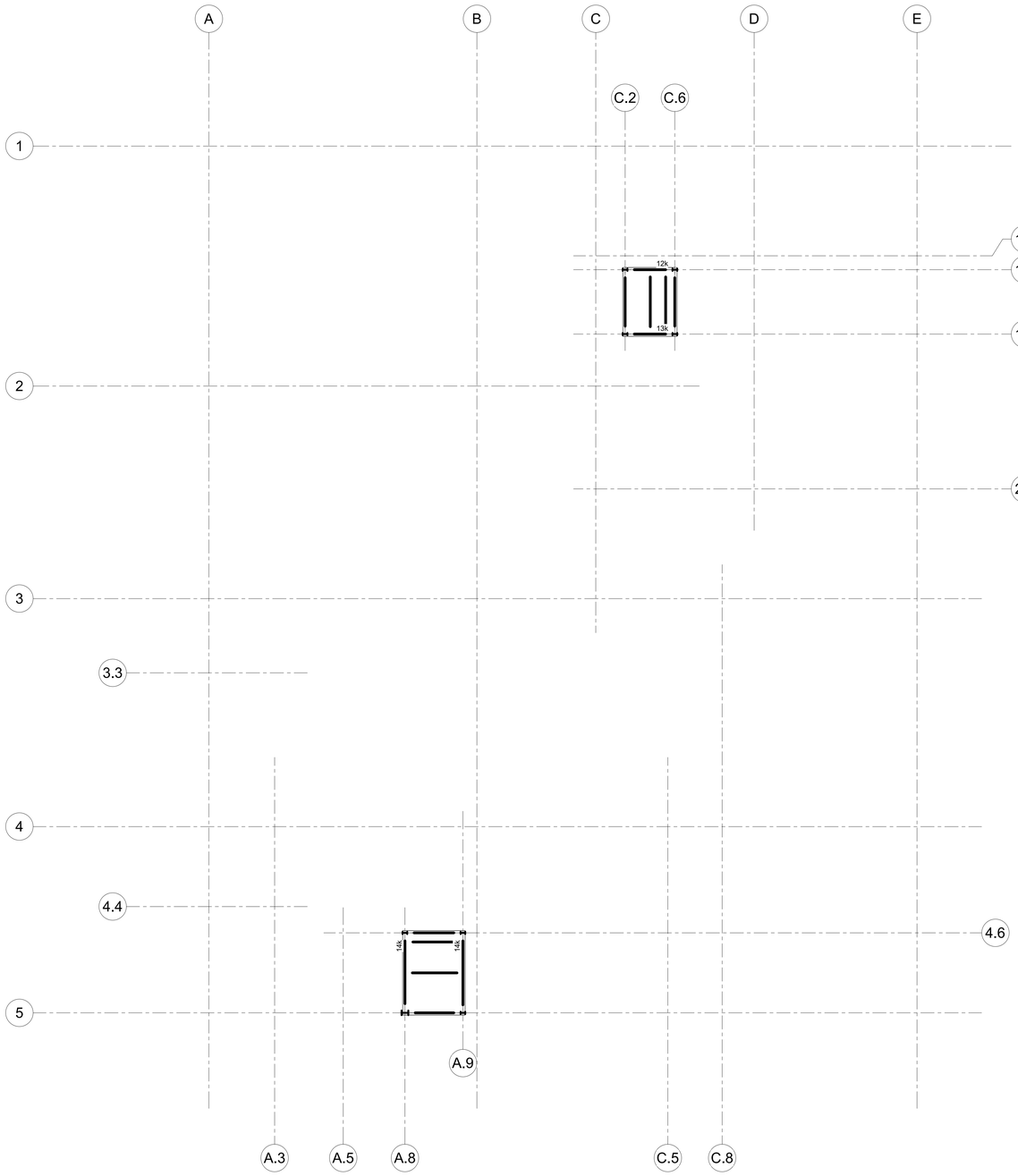
HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

ROOF STEEL CONNECTION DESIGN LOADS

Sheet Name

Drawing No. **S1-4**



1 ELEVATOR ROOF FRAMING PLAN - CONNECTION DESIGN LOADS

S1-5 1/8" = 1'-0"

NOTES:
1. FOR DESIGN LOADS NOT SHOWN, USE MINIMUM CONNECTION CAPACITY OF 10 KIPS.

FACTORED LOADS SHOWN

3" = 1'-0" 1" = 1'-0" 1/2" = 1'-0" 1/4" = 1'-0" 1/8" = 1'-0" 1/16" = 1'-0" 1" = 30'-0"

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THOMAS L. HARRISON 081-005889 LICENSED STRUCTURAL ENGINEER STATE OF ILLINOIS

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Project Number	15849
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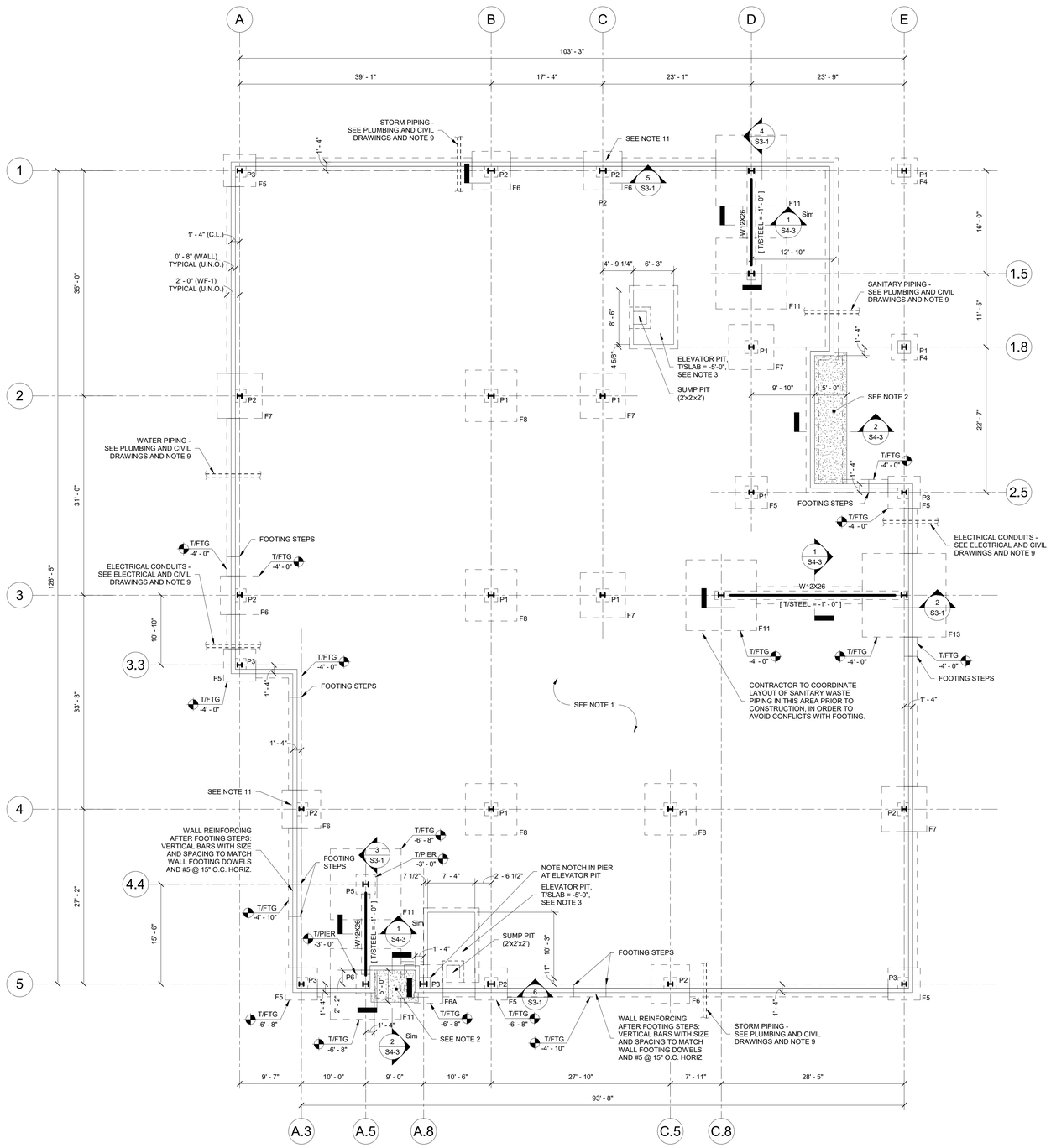
COOK COUNTY HEALTH

Project Name & Address

HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Sheet Name: ELEVATOR ROOF STEEL CONNECTION DESIGN LOADS

Drawing No. **S1-5**



1 100 FOUNDATION PLAN

S2-1 1/8" = 1'-0"

NOTES:

1. PROVIDE 5" SLAB ON GRADE WITH #3 @ 24" O.C. E.W.
   T/SLAB = +0' - 0" TYPICAL, UNLESS NOTED OTHERWISE.
   DISTANCE FROM TOP OF SLAB TO CENTERLINE OF REINFORCING = t/3, WHERE t = SLAB THICKNESS.
2. PROVIDE 5" EXTERIOR SLAB ON GRADE WITH #4 @ 12" O.C. E.W. (EPOXY COATED). DOWEL REINFORCEMENT INTO ADJACENT FOUNDATION WALLS.
   T/SLAB = -0' - 5" U.N.O., SLOPE TO DRAIN - SEE CIVIL FOR GRADING.
3. PROVIDE HSS VERTICAL FOR ELEVATOR GUIDERAIL SUPPORT AT EACH LOCATION. HSS SPANS BETWEEN LEVEL 100 AND LEVEL 200. THREE LOCATIONS AT EACH ELEVATOR. SEE ARCH DETAIL 10/A6-4.
4. FX DENOTES SPREAD FOOTING.
   SEE 6 / S4-1 FOR FOOTING SCHEDULE.
   TOP OF FOOTING ELEVATION = -3' - 0" U.N.O.
5. PX DENOTES CONCRETE PIER.
   SEE 8 / S4-1 FOR PIER SCHEDULE.
   TOP OF PIER ELEVATION = -1' - 0" U.N.O.
6. FOR WALL FOOTING REINFORCING - SEE 5 / S4-1.
7. FOR TYPICAL WALL REINFORCING - SEE 5 / S4-1 U.N.O. ON PLAN.
8. PROVIDE TEMPORARY BLOCKOUT IN CONCRETE WALL AS REQUIRED FOR INSTALLATION OF STEEL COLUMN WITH BASE PLATE. INFILL BLOCKOUT WITH CONCRETE AFTER STEEL COLUMN IS ERECTED.
9. PROVIDE CAST IN SLEEVES FOR UNDERGROUND UTILITIES - SEE CIVIL AND MEP DRAWINGS FOR SIZES AND LOCATIONS, AND SEE DETAIL 11 / S4-1.
10. PROVIDE PROPER PITCH OF SLAB ON GRADE TOWARDS FLOOR DRAIN LOCATIONS. SEE PLUMBING DRAWINGS TO COORDINATE LOCATIONS.
11. CONTRACTOR TO COORDINATE LAYOUT OF GROUND HYDRANT SUPPLY PIPING IN THIS AREA PRIOR TO CONSTRUCTION, IN ORDER TO AVOID CONFLICTS WITH FOOTINGS.

3" = 1'-0" | 1" = 1'-0" | 1/2" = 1'-0" | 1/4" = 1'-0" | 1/8" = 1'-0" | 1/16" = 1'-0" | 1" = 30'-0"

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LICENSED STRUCTURAL ENGINEER — THOMAS L. HARRISON — 081-005809 — STATE OF ILLINOIS

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Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

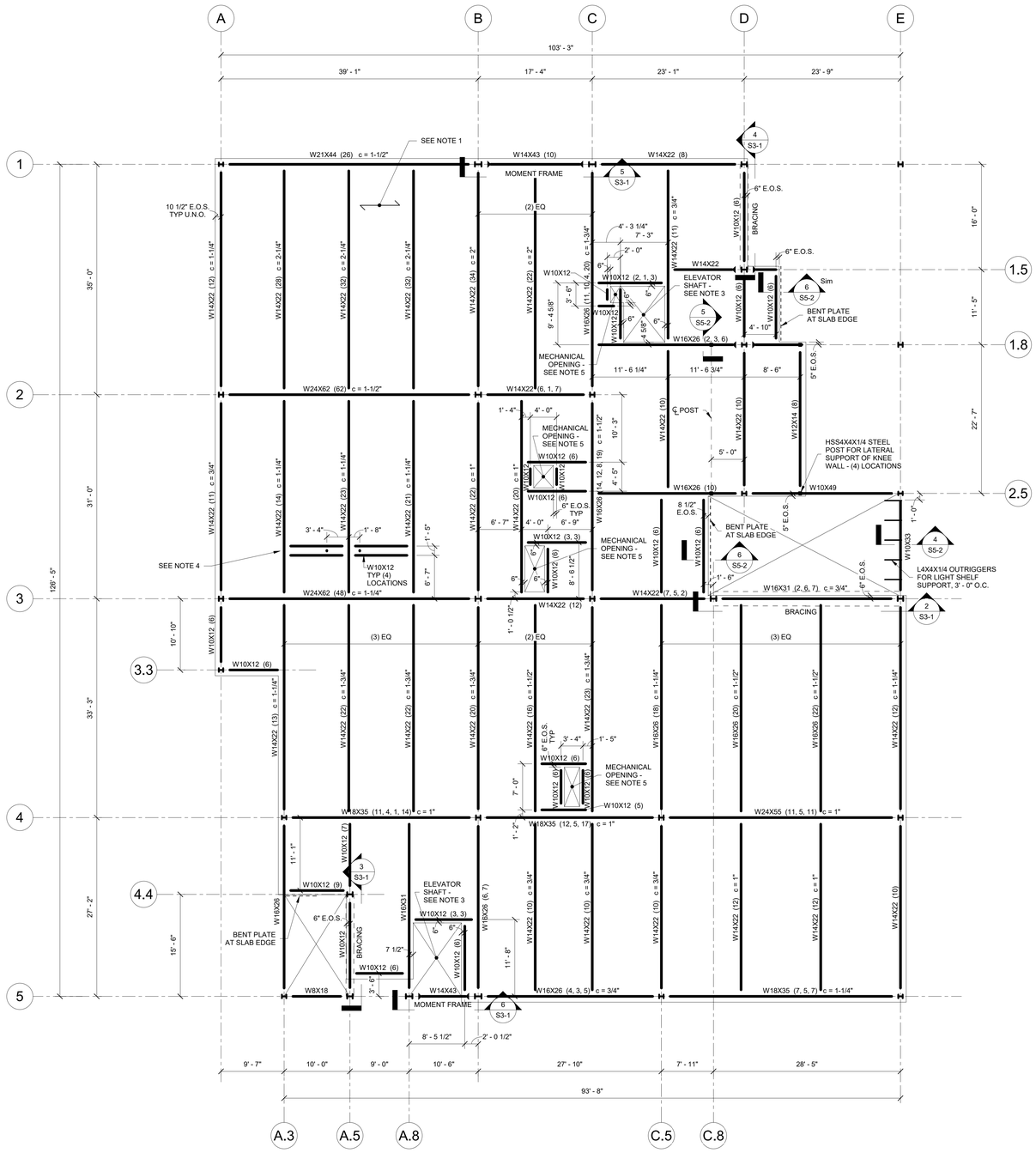
HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

100 FOUNDATION PLAN

Sheet Name

Drawing No. **S2-1**



1 200 FRAMING PLAN

S2-2 1/8" = 1'-0"

NOTES:

1. PROVIDE 3" COMPOSITE GALVANIZED STEEL DECK (18 GA. MIN.) + 3-1/4" L.W. CONC. CONT. OVER 3 SPANS MIN. T/CONC. EL. +14' - 0"
2. T/STEEL = +13' - 5 3/4" TYPICAL, UNLESS NOTED OTHERWISE.
3. PROVIDE HSS VERTICAL FOR ELEVATOR GUIDERAIL SUPPORT AT EACH LOCATION. HSS SPANS BETWEEN LEVEL 200 AND ROOF. THREE LOCATIONS AT EACH ELEVATOR. SEE ARCH DETAIL 10/A6-4.
4. CONTRACTOR TO COORDINATE LOCATIONS OF BEAMS PRIOR TO CONSTRUCTION FOR FRAMING AROUND BOILER FLUES AND WATER HEATER FLUES.
5. CONTRACTOR TO VERIFY SIZES AND LOCATIONS OF MECHANICAL OPENINGS PRIOR TO CONSTRUCTION.

1/16" = 1'-0" 1/8" = 1'-0" 1/4" = 1'-0" 3/16" = 1'-0" 1/2" = 1'-0" 3/8" = 1'-0" 1" = 30'-0"

Department of Capital Planning & Bureau of Asset Management

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COOK COUNTY HEALTH

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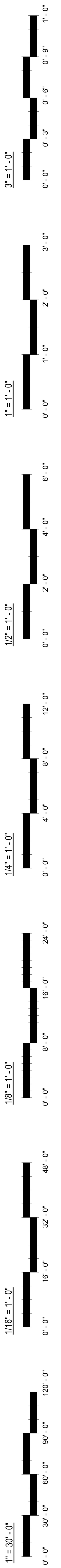
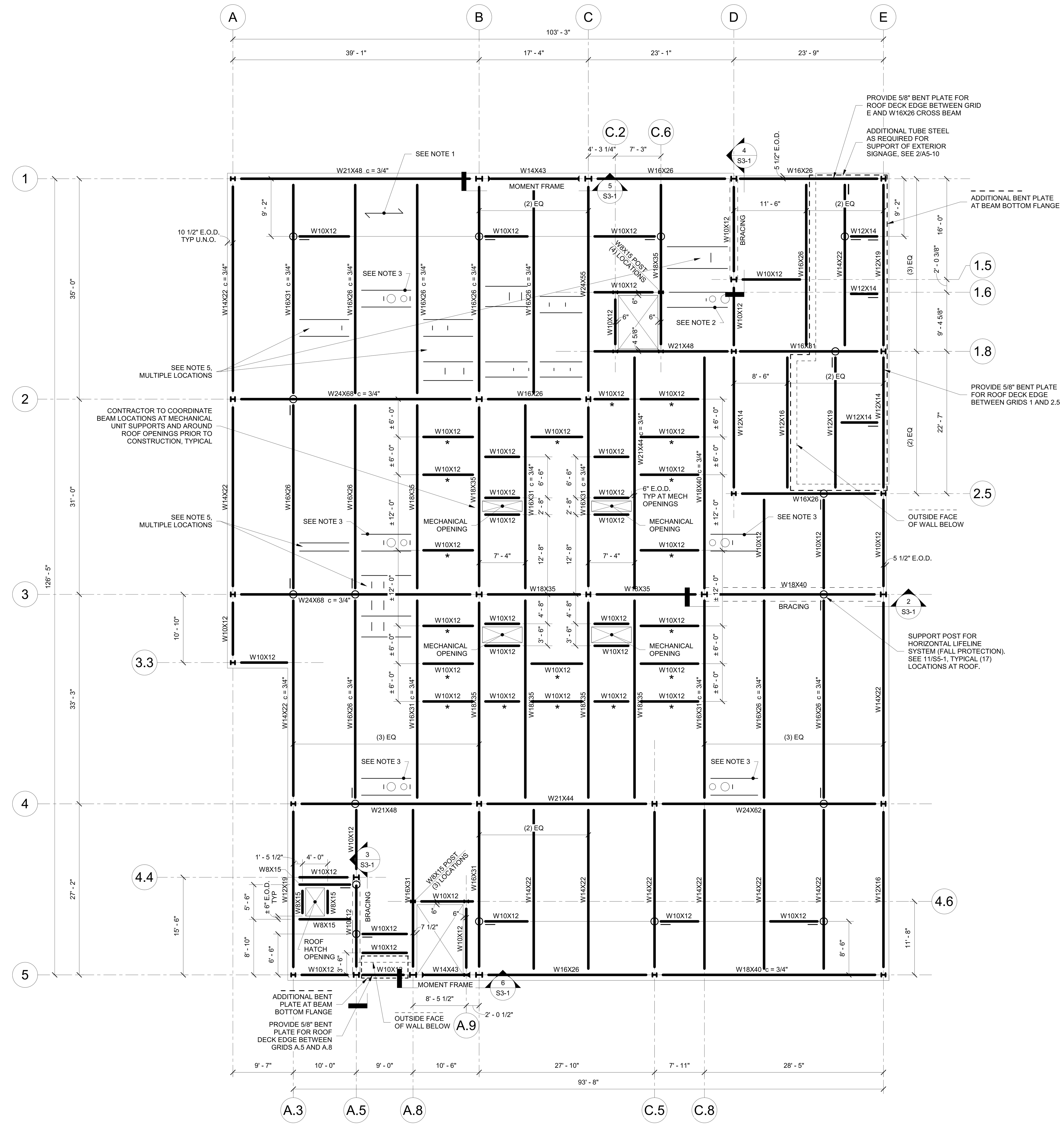
Project Name & Address

200 FRAMING PLAN

Sheet Name

Drawing No. **S2-2**





1 ROOF FRAMING PLAN

S2-3 1/8" = 1'-0"

NOTES:

1. PROVIDE 3" TYPE N GALVANIZED STEEL ROOF DECK (20 GA. MIN.) CONT. OVER 3 SPANS MIN. T/DECK EL. +28' - 0"
2. T/STEEL = +27' - 9" TYPICAL, UNLESS NOTED OTHERWISE.
3. ROOF DRAIN OPENING. COORDINATE SIZE AND LOCATION WITH PLUMBING DRAWINGS. OPENING FRAMING MEMBER SIZES SHALL BE L6x6x3/8.
4. LOCATION OF BEAMS MARKED WITH AN ASTERISK * TO BE COORDINATED BY CONTRACTOR FOR SUPPORT OF BIDDER DESIGNED SCREENWALL (SEE S2-4).
5. L6x6x3/8 FRAMING FOR MECHANICAL -
   (7) EXHAUST FANS
   (2) BOILER FLUES
   (2) WATER HEATER FLUES
   (5) AIR COOLED CONDENSING UNITS
   CONTRACTOR TO COORDINATE OPENING SIZES AND FRAMING LOCATIONS PRIOR TO CONSTRUCTION.

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COOK COUNTY HEALTH

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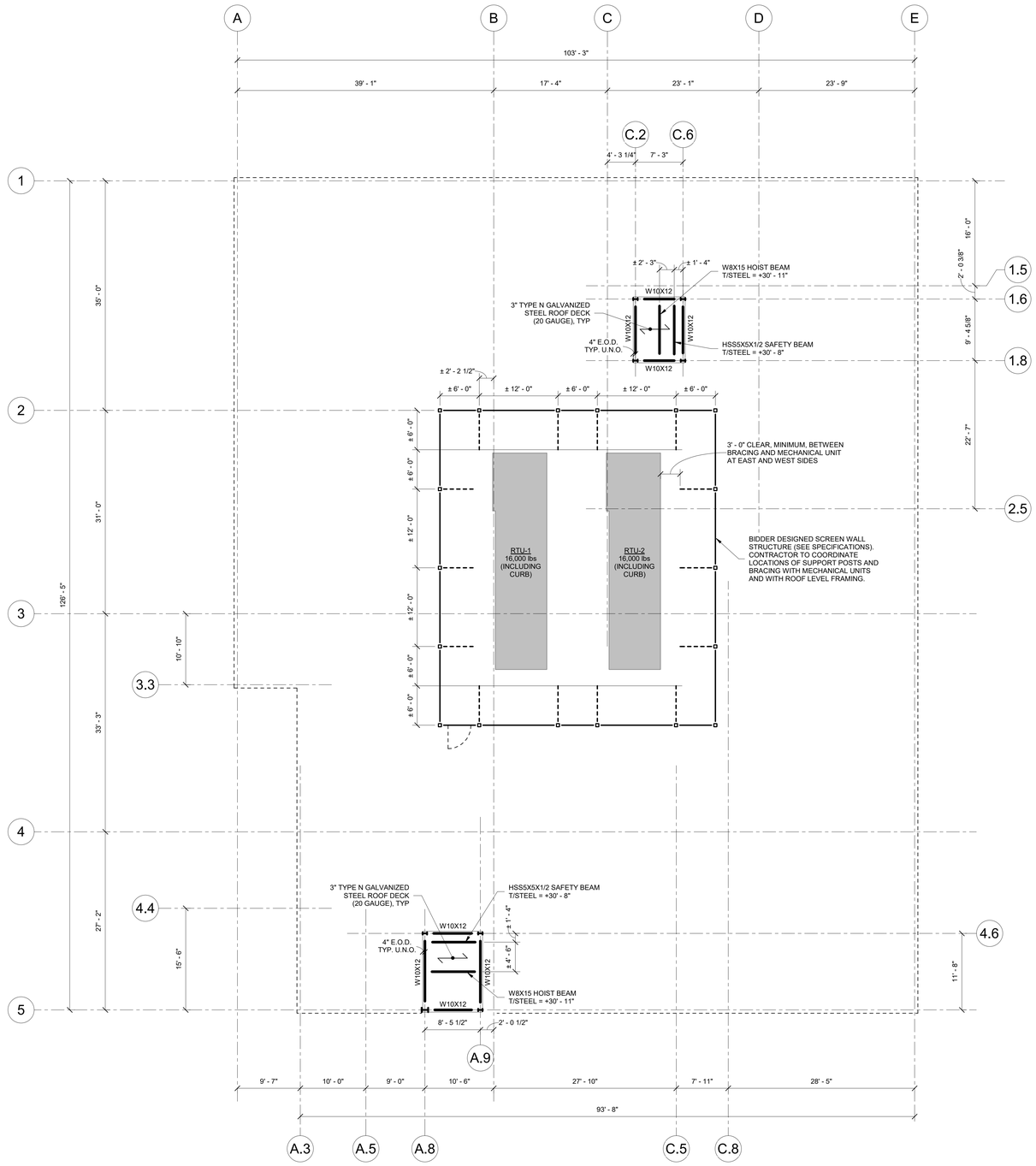
Project Name & Address

ROOF FRAMING PLAN
Sheet Name

Drawing No. **S2-3**



1 ELEVATOR ROOF FRAMING PLAN

S2-4 1/8" = 1'-0"

NOTES:
1. T/STEEL = +31' - 0" TYPICAL, UNLESS NOTED OTHERWISE.
2. VERIFY LOCATION OF HOIST BEAMS AND SAFETY BEAMS WITH ELEVATOR SUPPLIER PRIOR TO STEEL FABRICATION.

3" = 1'-0" | 1" = 1'-0" | 1/2" = 1'-0" | 1/4" = 1'-0" | 1/8" = 1'-0" | 1/16" = 1'-0" | 1" = 30'-0"

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COOK COUNTY HEALTH

Project Name & Address

HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Sheet Name: ELEVATOR ROOF FRAMING PLAN

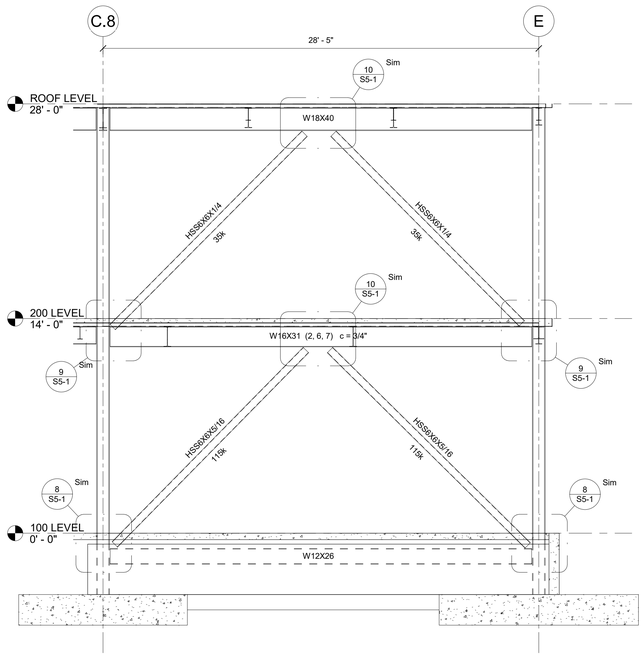
Drawing No. **S2-4**

PENTHOUSE LEVEL													PENTHOUSE LEVEL
38' - 0" ROOF LEVEL				W8X15 BASE PLATE 1/2" x 8" x 10" Type = BP-3		W8X15 BASE PLATE 1/2" x 6" x 15" Type = BP-2	W8X15 BASE PLATE 1/2" x 9 1/2" x 15" Type = BP-2						38' - 0" ROOF LEVEL
28' - 0" 200 LEVEL	W8X24	W8X31	W10X39		W12X40			W12X40	W10X45	W10X39	W8X35	W8X28	W10X45	28' - 0" 200 LEVEL
14' - 0" 100 LEVEL														14' - 0" 100 LEVEL
0' - 0" BASE PLATE t" x B" x N" Type = BP-?	BASE PLATE 1" x 16" x 16" Type = BP-1	BASE PLATE 1 1/4" x 16" x 16" Type = BP-1	BASE PLATE 1" x 18" x 18" Type = BP-1		BASE PLATE 1" x 18" x 18" Type = BP-1			BASE PLATE 1" x 18" x 18" Type = BP-1	BASE PLATE 1 1/2" x 18" x 18" Type = BP-1	BASE PLATE 1 1/4" x 18" x 18" Type = BP-1	BASE PLATE 1 1/4" x 16" x 16" Type = BP-1	BASE PLATE 1" x 16" x 16" Type = BP-1	BASE PLATE 1 1/4" x 18" x 18" Type = BP-1	0' - 0" BASE PLATE t" x B" x N" Type = BP-?
Column Locations	A-1, A-3.3, A.3-4, A.3-5, D-2.5, E-2.5, E-5	A-2, A-3, B-4, C-2, C-3, E-1, E-1.8, E-4	A.5-4.4, A.5-5, D-1, D-1.5	A.8-4.6, C.6-1.6	A.8-5	A.9-4.6, C.2-1.6	A.9-5, C.2-1.8, C.6-1.8	B-1, B-5, C-1	B-2	B-3	C.5-4	C.5-5, D-1.8	C.8-3, E-3	

1 STEEL COLUMN SCHEDULE

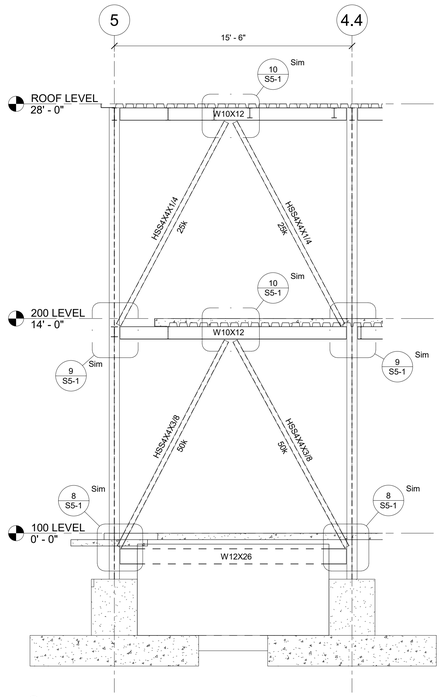
N.T.S.

FACTORED LOADS SHOWN AT BRACED FRAMES



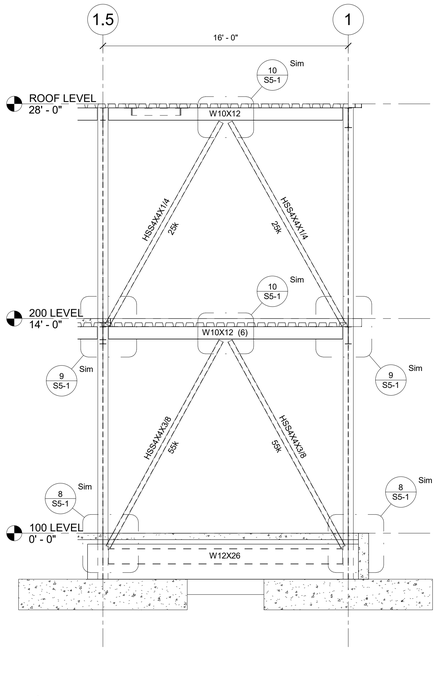
2 BRACED FRAME AT LINE 3

S3-1 1/4" = 1'-0"



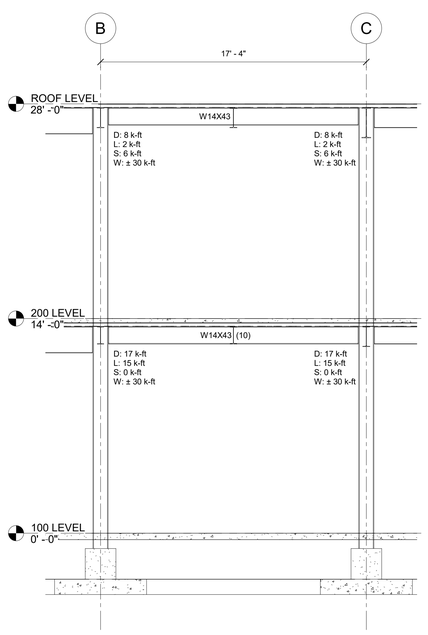
3 BRACED FRAME AT LINE A.5

S3-1 1/4" = 1'-0"



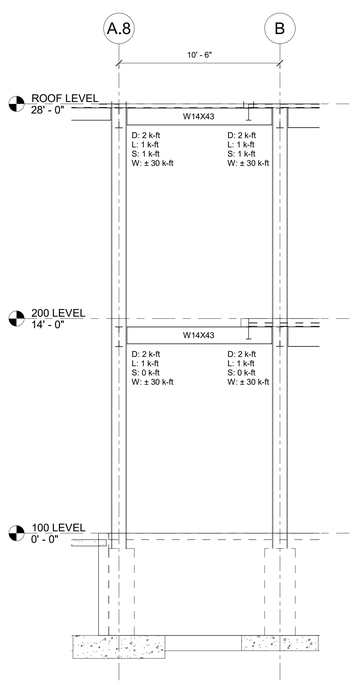
4 BRACED FRAME AT LINE D

S3-1 1/4" = 1'-0"



5 MOMENT FRAME AT LINE 1

S3-1 1/4" = 1'-0"



6 MOMENT FRAME AT LINE 5

S3-1 1/4" = 1'-0"

Department of Capital Planning & Policy
Bureau of Asset Management

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THOMAS L HARRISON 081-005839 LICENSED STRUCTURAL ENGINEER STATE OF ILLINOIS

No.	Date	Issue
1	06/25/2019	ISSUE FOR BID

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Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

Project Name & Address

HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

STEEL COLUMN SCHEDULE, LATERAL FRAME ELEVATIONS

Sheet Name

Drawing No. **S3-1**

db = BAR DIAMETER

Ld = TENSION DEVELOPMENT LENGTH

Ldt = TENSION DEVELOPMENT LENGTH FOR TOP BAR

La = CLASS A LAP SPLICE LENGTH, 1.0 Ld

Lat = CLASS A LAP SPLICE LENGTH FOR A TOP BAR, 1.0 Ld

Lb = CLASS B LAP SPLICE LENGTH, 1.3 Ld

Lbt = CLASS B LAP SPLICE LENGTH FOR A TOP BAR, 1.3 Lbt

Ldh = TENSION DEVELOPMENT LENGTH FOR A STANDARD HOOK

Ldc = COMPRESSION DEVELOPMENT LENGTH

Lcl = COMPRESSION LAP SPLICE LENGTH

1 DEVELOPMENT AND SPLICE LENGTH ABBREVIATIONS

S4-1 N.T.S.

f'c = 4,000 psi
fy = 60,000 psi

SIZE	Ld	Ldt	La	Lat	Lb	Lbt	Ldh	Ldc	Lcl
#4	19 (28)	25 (37)	19 (28)	25 (37)	25 (37)	32 (48)	10	9	15
#5	24 (36)	31 (46)	24 (36)	31 (46)	31 (46)	40 (60)	12	12	19
#6	28 (43)	37 (55)	28 (43)	37 (55)	37 (55)	48 (72)	14	14	23
#7	41 (62)	54 (81)	41 (62)	54 (81)	54 (81)	70 (105)	17	17	26
#8	47 (71)	62 (92)	47 (71)	62 (92)	62 (92)	80 (120)	19	19	30
#9	53 (80)	70 (104)	53 (80)	70 (104)	70 (104)	90 (136)	21	21	34
#10	60 (90)	78 (117)	60 (90)	78 (117)	78 (117)	102 (153)	24	24	38
#11	67 (100)	87 (130)	67 (100)	87 (130)	87 (130)	113 (169)	27	27	42

NOTES:
1. USE THE LENGTHS IN THIS SCHEDULE, UNLESS NOTED OTHERWISE.
2. USE LENGTH IN PARENTHESIS ( ) WHEN BAR COVER IS db OR LESS OR WHEN BAR CLEAR SPACING IS 2db OR LESS.
3. A TOP BAR IS A HORIZONTAL BAR WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW IT.

2 DEVELOPMENT AND SPLICE LENGTH SCHEDULE - f'c = 4,000 psi

S4-1 N.T.S.

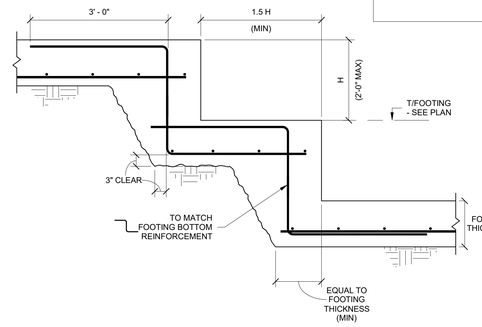
f'c = 5,000 psi
fy = 60,000 psi

SIZE	Ld	Ldt	La	Lat	Lb	Lbt	Ldh	Ldc	Lcl
#4	17 (25)	22 (33)	17 (25)	22 (33)	22 (33)	29 (43)	9	9	15
#5	21 (32)	28 (41)	21 (32)	28 (41)	28 (41)	36 (54)	11	11	19
#6	25 (38)	33 (50)	25 (38)	33 (50)	33 (50)	43 (64)	13	14	23
#7	37 (56)	48 (72)	37 (56)	48 (72)	48 (72)	63 (94)	15	16	26
#8	42 (64)	55 (83)	42 (64)	55 (83)	55 (83)	72 (107)	17	18	30
#9	48 (72)	62 (93)	48 (72)	62 (93)	62 (93)	81 (121)	19	20	34
#10	54 (81)	70 (105)	54 (81)	70 (105)	70 (105)	91 (137)	22	23	38
#11	60 (90)	78 (117)	60 (90)	78 (117)	78 (117)	101 (152)	24	25	42

NOTES:
1. USE THE LENGTHS IN THIS SCHEDULE, UNLESS NOTED OTHERWISE.
2. USE LENGTH IN PARENTHESIS ( ) WHEN BAR COVER IS db OR LESS OR WHEN BAR CLEAR SPACING IS 2db OR LESS.
3. A TOP BAR IS A HORIZONTAL BAR WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW IT.

3 DEVELOPMENT AND SPLICE LENGTH SCHEDULE - f'c = 5,000 psi

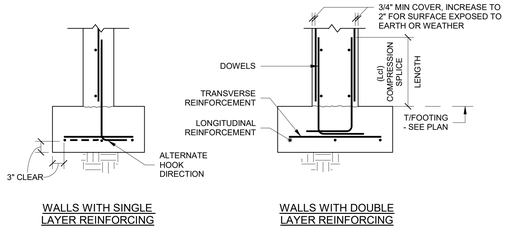
S4-1 N.T.S.



4 STEPPED FOOTING

S4-1 N.T.S.

MARK	WIDTH	THICKNESS	LONG.	TRANS.	DOWELS	SPLICE	REMARKS
WF-1	2' - 0"	1' - 0"	(3) #5	#5 @ 15"	#5 @ 15"	——	EXTEND DOWELS TO TOP OF WALL, PROVIDE (3) #5 LONG. IN WALL
WF-2	2' - 8"	1' - 0"	(4) #5	#5 @ 15"	#4 @ 12"	15"	



5 WALL FOOTING SCHEDULE

S4-1 N.T.S.

MARK	DIMENSIONS A	DIMENSIONS B	DIMENSIONS THICKNESS	REINFORCING LONGITUDINAL	REINFORCING TRANSVERSE	REMARKS
F4	4' - 0"	4' - 0"	1' - 0"	(7) #5	(7) #5	
F5	5' - 0"	5' - 0"	1' - 0"	(7) #5	(7) #5	
F6	6' - 0"	6' - 0"	1' - 0"	(7) #5	(7) #5	
F6A	6' - 0"	6' - 0"	1' - 6"	(8) #5 - T&B	(8) #5 - T&B	T&B = TOP & BOTTOM
F7	7' - 0"	7' - 0"	1' - 6"	(9) #5	(9) #5	
F8	8' - 0"	8' - 0"	1' - 6"	(11) #5	(11) #5	
F11	11' - 0"	11' - 0"	2' - 0"	(19) #5 - T&B	(19) #5 - T&B	T&B = TOP & BOTTOM
F13	13' - 0"	13' - 0"	2' - 0"	(22) #5 - T&B	(22) #5 - T&B	T&B = TOP & BOTTOM

6 SPREAD FOOTING SCHEDULE

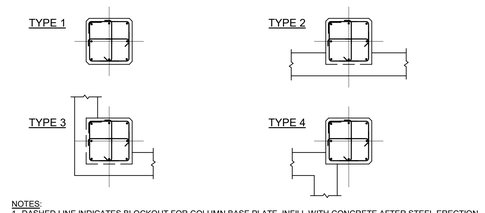
S4-1 N.T.S.

NOTE:
UNDERSLAB VAPOR RETARDER TO BE SEALED TO STEEL COLUMN

7 INTERIOR STEEL COLUMN ON PIER AND SPREAD FOOTING

S4-1 N.T.S.

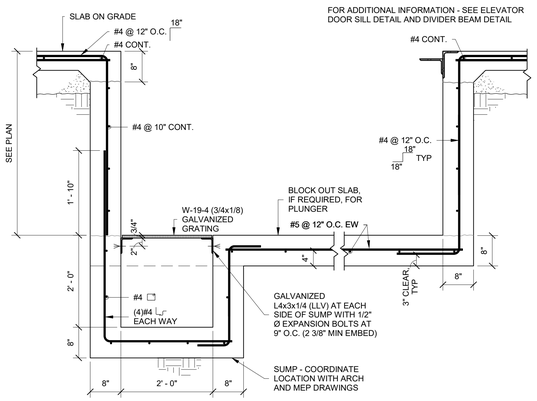
MARK	TYPE	SIZE	REINFORCING VERT.	REINFORCING TIES	REINFORCING DOWELS	REINFORCING SPLICE	REMARKS
P1	1	2' - 0" x 2' - 0"	——	(3) #4	(8) #6	——	EXTEND DOWELS TO TOP OF PIER
P2	2	2' - 0" x 2' - 0"	——	(3) #4	(8) #6	——	EXTEND DOWELS TO TOP OF PIER
P3	3	2' - 0" x 2' - 0"	——	(3) #4	(8) #6	——	EXTEND DOWELS TO TOP OF PIER
P4	4	2' - 0" x 2' - 0"	——	(3) #4	(8) #6	——	EXTEND DOWELS TO TOP OF PIER
P5	1	3' - 0" x 3' - 0"	——	(7) #4	(8) #9	——	EXTEND DOWELS TO TOP OF PIER
P6	3	3' - 0" x 3' - 0"	——	(7) #4	(8) #9	——	EXTEND DOWELS TO TOP OF PIER



NOTES:
1. DASHED LINE INDICATES BLOCKOUT FOR COLUMN BASE PLATE. INFILL WITH CONCRETE AFTER STEEL ERECTION.
2. COORDINATE TIE LAYOUT TO AVOID CONFLICTS WITH ANCHOR BOLTS.
3. CONTINUE WALL REINFORCING THROUGH PIER

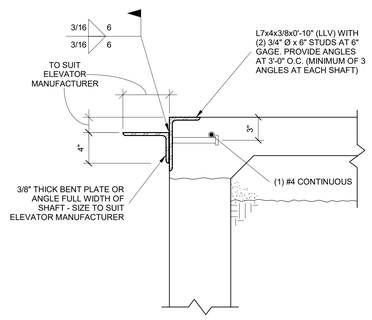
8 CONCRETE PIER SCHEDULE

S4-1 N.T.S.



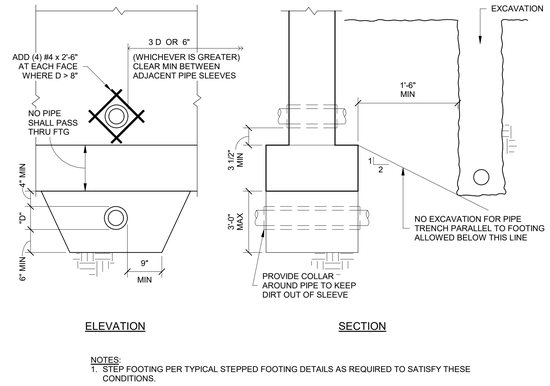
9 ELEVATOR PIT SECTION

S4-1 N.T.S.



10 SLAB EDGE AT ELEVATOR DOOR SILL AT ELEVATOR PIT

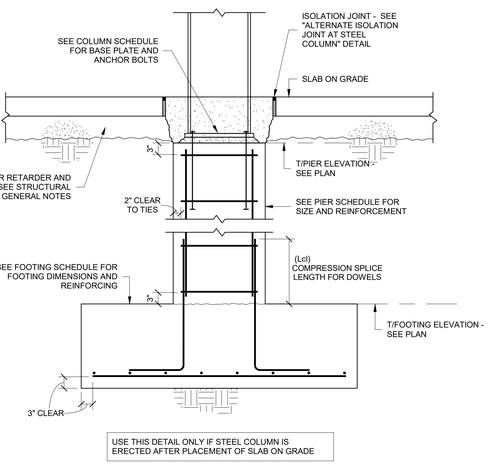
S4-1 N.T.S.



NOTES:
1. STEP FOOTING PER TYPICAL STEPPED FOOTING DETAILS AS REQUIRED TO SATISFY THESE CONDITIONS.
2. GENERAL CONTRACTOR TO COORDINATE EXACT DEPTH AND LOCATION OF PIPE.

11 PIPE AT WALL FOOTING

S4-1 N.T.S.



12 ALTERNATE INTERIOR STEEL COLUMN ON PIER AND SPREAD FOOTING

S4-1 N.T.S.

Department of Capital Planning & Policy
Bureau of Asset Management

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LICENSED STRUCTURAL ENGINEER — THOMAS L. HARRISON — 081-005899 — STATE OF ILLINOIS

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Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

Project Name & Address

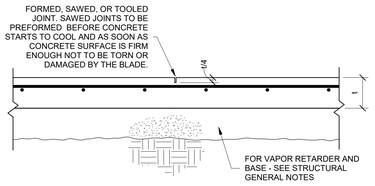
HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

TYPICAL CONCRETE DETAILS

Sheet Name

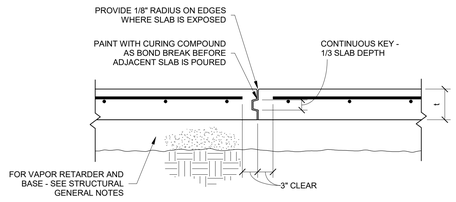
Drawing No. **S4-1**

1" = 1' - 0"
3/4" = 1' - 0"
1/2" = 1' - 0"
1/4" = 1' - 0"
1/8" = 1' - 0"
1/16" = 1' - 0"
1" = 30' - 0"



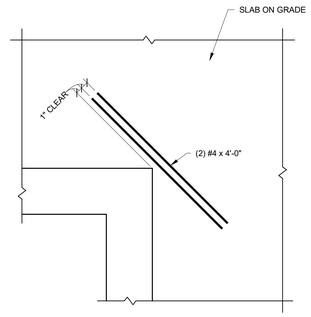
NOTES:
1. REFER TO PLAN FOR SLAB THICKNESS AND REINFORCING.
2. CONTROL JOINTS TO BE SPACED AT APPROXIMATELY 24 TO 36 TIMES THE SLAB THICKNESS, UP TO 18'-0" MAXIMUM.
3. RATIO OF DISTANCE BETWEEN CONTROL JOINTS IN EACH DIRECTION FOR A SLAB PANEL SHALL NOT EXCEED 1.5.
4. SEE ARCHITECTURAL DOCUMENTS FOR SEALANT REQUIREMENTS AT JOINTS

1 SLAB ON GRADE CONTROL JOINT
S4-2 N.T.S.



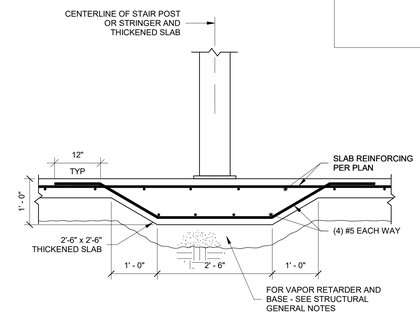
NOTES:
1. REFER TO PLAN FOR SLAB THICKNESS AND REINFORCING.
2. CONSTRUCTION JOINTS PER THIS DETAIL SHALL BE CONSIDERED AS CONTROL JOINTS FOR CONTROL JOINT SPACING REQUIREMENTS.
3. SEE ARCHITECTURAL DOCUMENTS FOR SEALANT REQUIREMENTS AT JOINTS.

2 SLAB ON GRADE CONSTRUCTION JOINT
S4-2 N.T.S.

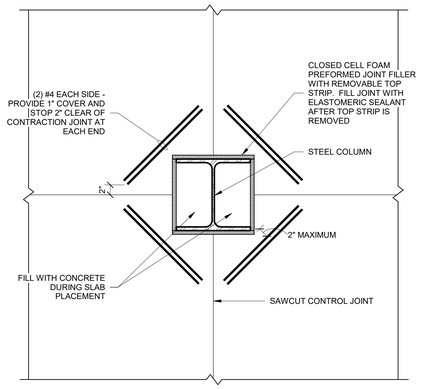


NOTE: FOR SLABS 6" THICK OR GREATER, PROVIDE (2) #4 TOP AND BOTTOM

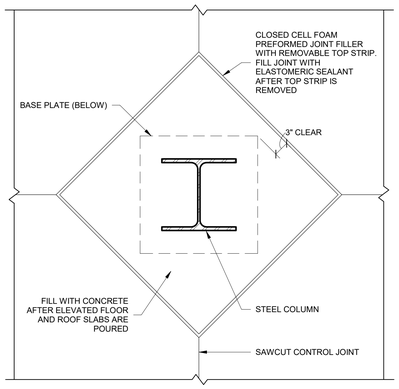
3 SLAB ON GRADE REINFORCEMENT AT RE-ENTRANT CORNER
S4-2 N.T.S.



12 THICKENED SLAB AT STAIR POST OR STRINGER
S4-2 N.T.S.

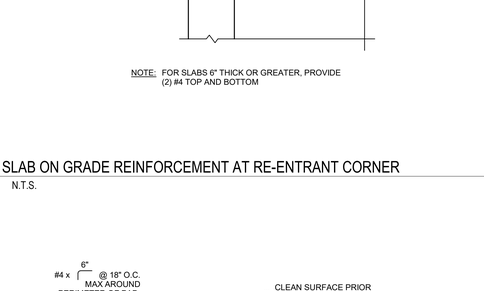


4 ISOLATION JOINT AT STEEL COLUMN
S4-2 N.T.S.



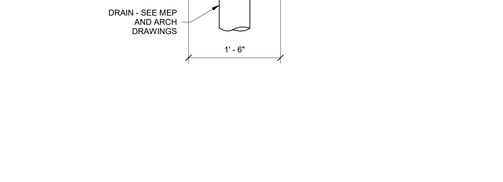
USE THIS DETAIL ONLY IF STEEL COLUMN IS ERECTED AFTER PLACEMENT OF SLAB ON GRADE

5 ALTERNATE ISOLATION JOINT AT STEEL COLUMN
S4-2 N.T.S.

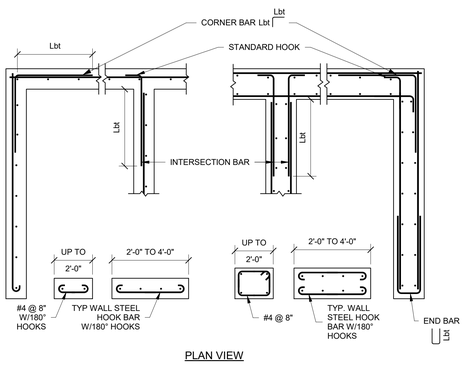


NOTE:
1. EQUIPMENT PAD SIZE TO BE 6" LARGER THAN EQUIPMENT IN EACH DIRECTION, UNO.
2. COORDINATE EXACT SIZE AND LOCATION OF CURB AND PADS WITH EQUIPMENT PROVIDED.

6 EQUIPMENT CURBS AND PADS ON CONCRETE SLABS
S4-2 N.T.S.

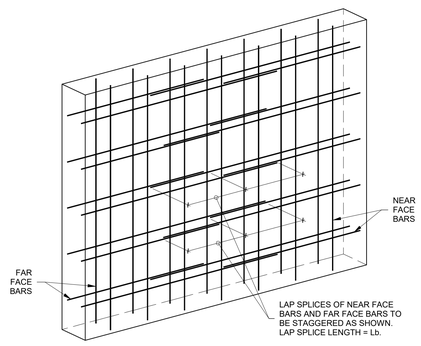


7 FLOOR DRAIN AT SLAB ON GRADE
S4-2 N.T.S.

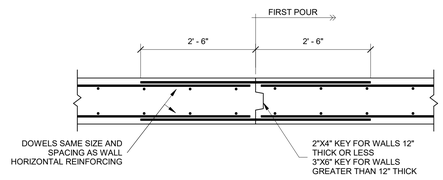


PLAN VIEW

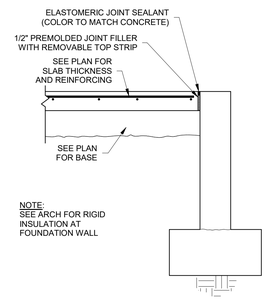
8 CONCRETE WALL DETAILS
S4-2 N.T.S.



9 CONCRETE WALL HORIZONTAL REINFORCING SPLICE
S4-2 N.T.S.



10 CONSTRUCTION JOINT AT WALL
S4-2 N.T.S.



NOTE:
SEE ARCH FOR RIGID INSULATION AT FOUNDATION WALL

11 SLAB ON GRADE AT FOUNDATION WALL
S4-2 N.T.S.

Department of Capital Planning & Policy
Bureau of Asset Management

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COOK COUNTY HEALTH

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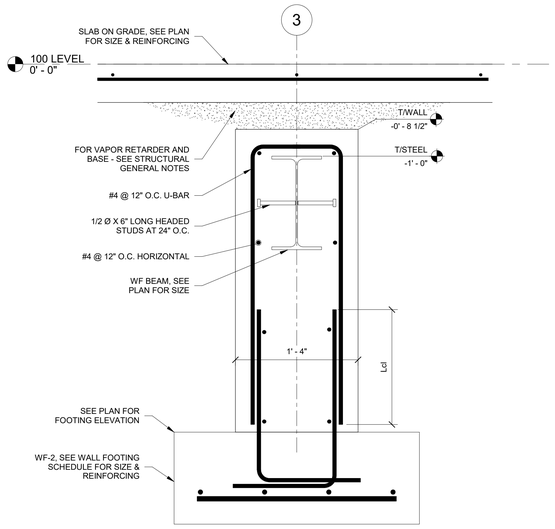
5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

TYPICAL SLAB-ON-GRADE AND CONCRETE WALL DETAILS

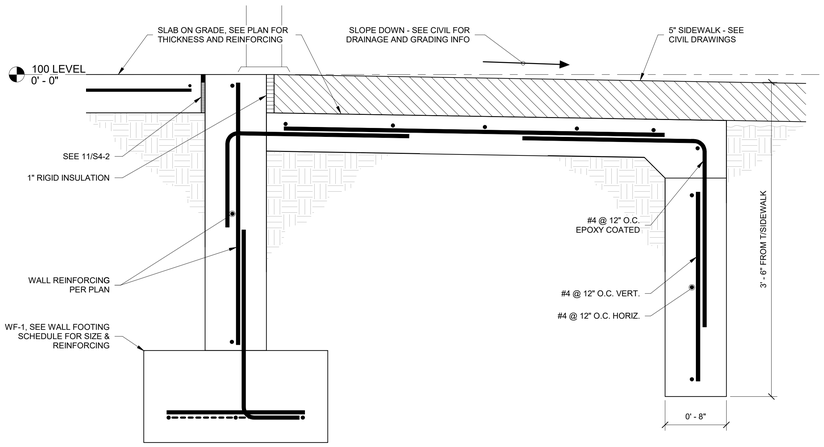
Sheet Name

Drawing No. **S4-2**



1 SECTION AT BRACED FRAME EMBEDDED BEAM

S4-3 1 1/2" = 1'-0"



2 FOUNDATION DETAIL AT ENTRY STOOP

S4-3 1 1/2" = 1'-0"

3/4" = 1'-0" | 1" = 1'-0" | 1/2" = 1'-0" | 1/4" = 1'-0" | 1/8" = 1'-0" | 1/16" = 1'-0" | 1" = 30'-0"

Department of Capital Planning & Policy
Bureau of Asset Management

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LICENSED STRUCTURAL ENGINEER — THOMAS L HARRISON 081-005889 — STATE OF ILLINOIS

No.	Date	Issue
1	06/25/2019	ISSUE FOR BID

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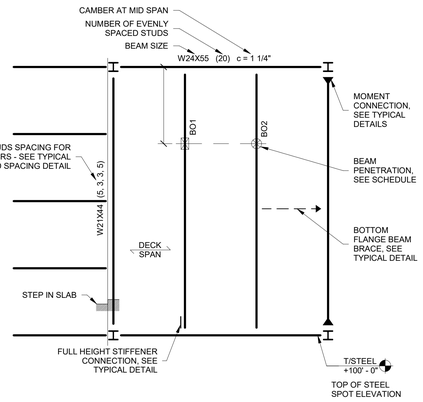
Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

Project Name & Address: HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Sheet Name: CONCRETE DETAILS

Drawing No. **S4-3**



1 STEEL FRAMING SYMBOLS

S5-1 N.T.S.

NOTES

1. THE FACTORED LOADS TO BE RESISTED BY THE INDIVIDUAL MEMBERS AND THEIR CONNECTIONS ARE SHOWN IN THE STRUCTURAL DESIGN DRAWINGS.
2. STEEL CONNECTION DETAILS SHOW GENERAL CRITERIA FOR DESIGN AND DETAILING, AND ARE NOT INTENDED TO SHOW COMPLETE CONNECTION CONFIGURATIONS OR OTHER SPECIFIC INFORMATION THAT IS THE RESPONSIBILITY OF THE CONNECTION DESIGN ENGINEER. ALTERNATE CONNECTION CONFIGURATIONS MAY BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL.
3. TYPICAL STEEL CONNECTIONS USE 7/8" Ø A325-N BOLTS PER AISC STANDARDS, UNLESS NOTED OTHERWISE.
4. BOLTS TO BE TIGHTENED TO AISC SNUG-TIGHT CONDITION UNLESS NOTED OTHERWISE. PRETENSIONED BOLTS ARE REQUIRED IN LOCATIONS SPECIFIED BY AISC 360-10, SECTION J1.10.
5. CONNECTIONS TO HAVE AISC STANDARD ROUND HOLES UNLESS NOTED OTHERWISE.
6. ALL CONNECTION PLATE MATERIALS TO BE A36 UNLESS NOTED OTHERWISE.

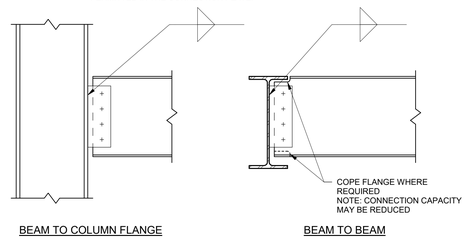
2 CONNECTION NOTES

S5-1 N.T.S.

BEAM SIZE	NO. OF BOLTS	AISC CONNECTION CAPACITY (LRFD)
W8	2	26.1 K
W10	2	26.1 K
W12	3	39.2 K
W14	3	39.2 K
W16	4	65.3 K
W18	4	65.3 K

BEAM SIZE	NO. OF BOLTS	AISC CONNECTION CAPACITY (LRFD)
W21	5	81.6 K
W24	6	117 K
W27	7	137 K
W30	8	181 K
W33	9	203 K
W36	9	203 K

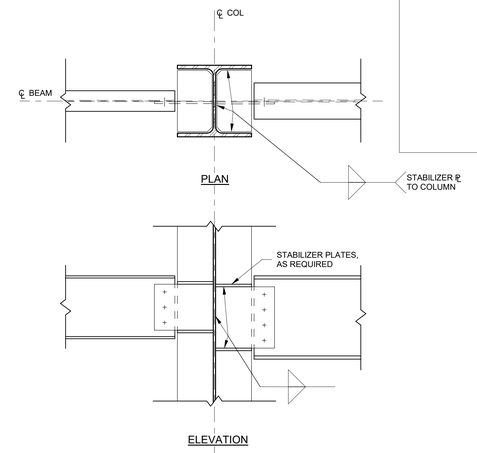
NOTES:
1. REFER TO AISC MANUAL OF STEEL CONSTRUCTION (14TH EDITION) FOR PLATE DIMENSIONS AND WELDS (TABLE 10-10a)
2. SHORT SLOTTED HOLES TRANSVERSE TO DIRECTION OF LOAD ARE PERMITTED IN THE CONNECTION PLATE.



BEAM TO COLUMN FLANGE BEAM TO BEAM

3 SINGLE-PLATE SHEAR CONNECTION

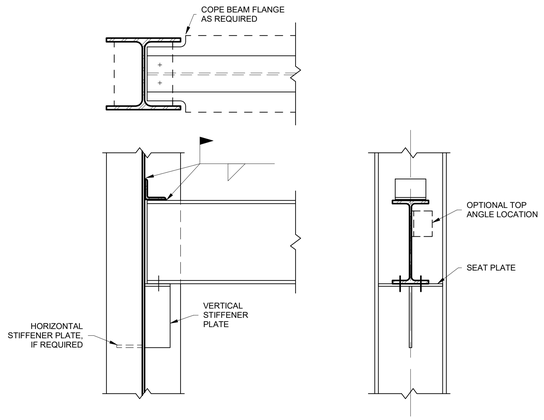
S5-1 N.T.S.



4 SINGLE PLATE SHEAR CONNECTION - EXTENDED CONFIGURATION

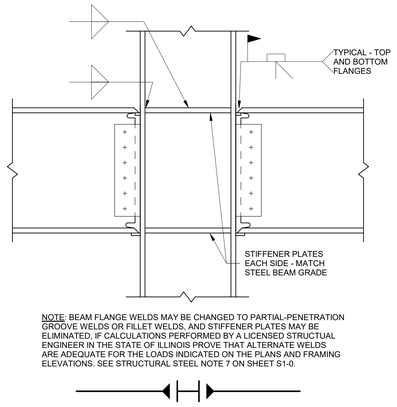
S5-1 N.T.S.

FOR W14 COLUMNS AND SMALLER



5 ALTERNATE BEAM/COLUMN WEB STIFFENED SEAT CONNECTION

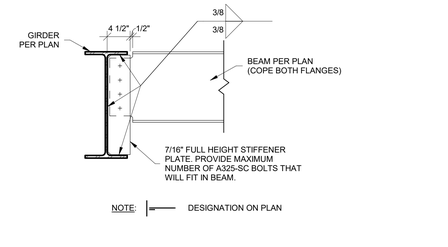
S5-1 N.T.S.



NOTE: BEAM FLANGE WELDS MAY BE CHANGED TO PARTIAL-PENETRATION GROOVE WELDS OR FILLET WELDS, AND STIFFENER PLATES MAY BE ELIMINATED, IF CALCULATIONS PERFORMED BY A LICENSED STRUCTUAL ENGINEER IN THE STATE OF ILLINOIS PROVE THAT ALTERNATE WELDS ARE ADEQUATE FOR THE LOADS INDICATED ON THE PLANS AND FRAMING ELEVATIONS. SEE STRUCTURAL STEEL NOTE 7 ON SHEET S1-0.

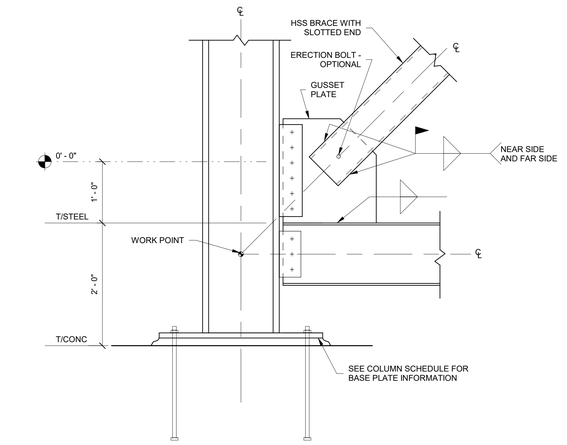
6 MOMENT CONNECTION - BEAM TO COLUMN FLANGE

S5-1 N.T.S.



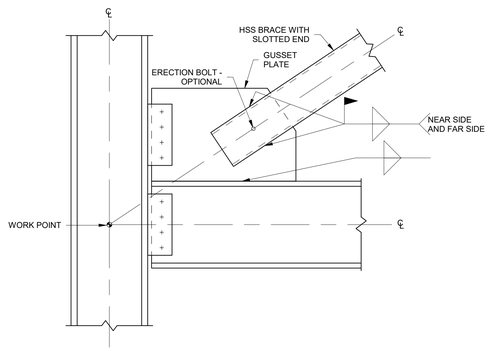
7 BEAM-TO-GIRDER FULL HEIGHT PLATE CONNECTION

S5-1 N.T.S.



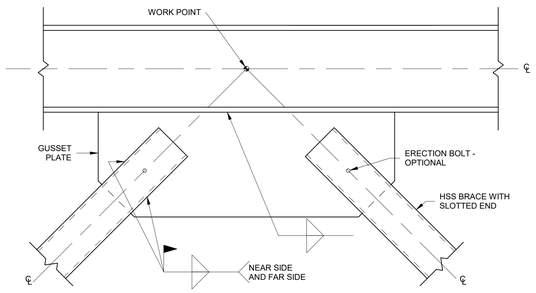
8 HSS BRACE CONNECTION - BASE TYPE

S5-1 N.T.S.



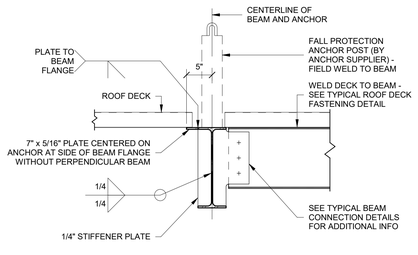
9 HSS BRACE CONNECTION - CORNER TYPE

S5-1 N.T.S.



10 HSS BRACE CONNECTION - CENTER TYPE

S5-1 N.T.S.



NOTE: OSHA REQUIRES A LOAD OF 5000 lbs (ULTIMATE) IN ANY DIRECTION FOR FALL PROTECTION ANCHORS. ANCHORS NEED TO BE DESIGNED BY AN LICENSED STRUCTURAL ENGINEER IN THE STATE OF ILLINOIS, AND CALCULATIONS SHALL BE SUBMITTED FOR REVIEW.

11 SAFETY ANCHOR DETAIL AT STEEL BEAM

S5-1 N.T.S.

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Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

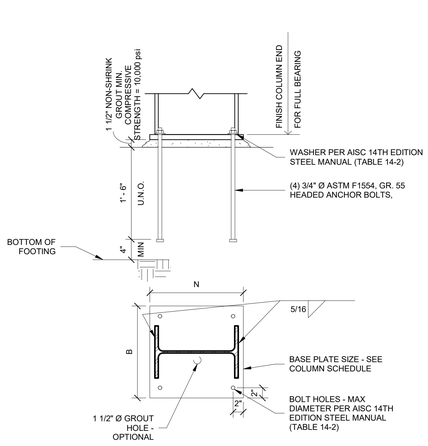
HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

TYPICAL STEEL DETAILS

Sheet Name

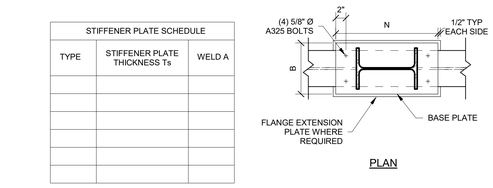
Drawing No. **S5-1**



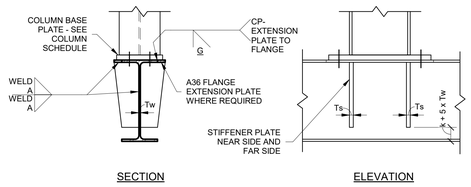
1 BASE PLATE TYPE BP-1

S5-2 N.T.S.

STIFFENER PLATE SCHEDULE		
TYPE	STIFFENER PLATE THICKNESS Ts	WELD A



PLAN



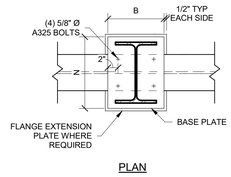
SECTION ELEVATION

COLUMN PARALLEL TO BEAM

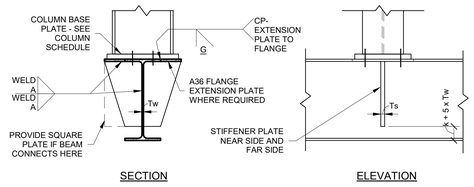
2 BASE PLATE TYPE BP-2

S5-2 N.T.S.

STIFFENER PLATE SCHEDULE		
TYPE	STIFFENER PLATE THICKNESS Ts	WELD A



PLAN

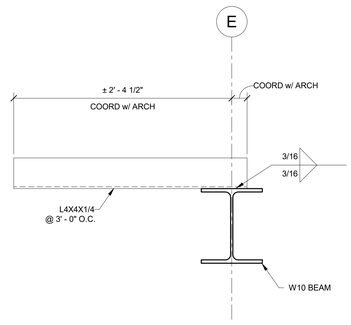


SECTION ELEVATION

COLUMN PERPENDICULAR TO BEAM

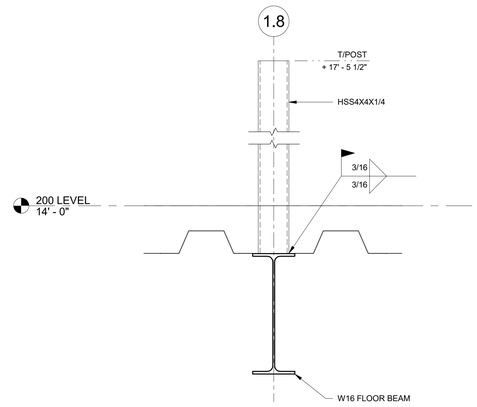
3 BASE PLATE TYPE BP-3

S5-2 N.T.S.



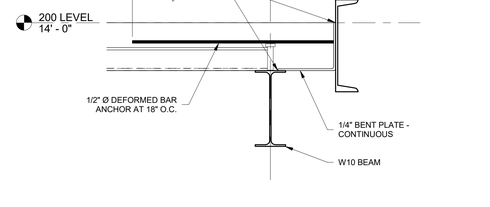
4 DETAIL AT OUTRIGGER

S5-2 1 1/2" = 1'-0"



5 DETAIL AT POST

S5-2 1 1/2" = 1'-0"



6 DETAIL AT SLAB EDGE

S5-2 1 1/2" = 1'-0"

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Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

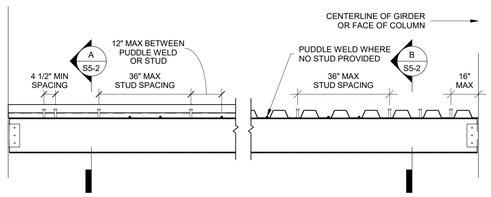
HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

TYPICAL STEEL DETAILS

Sheet Name

Drawing No. **S5-2**

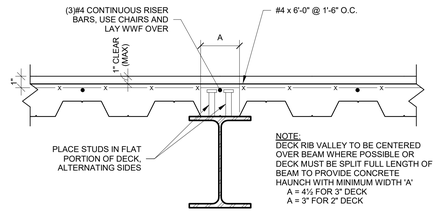


DECK PARALLEL TO BEAM

DECK PERPENDICULAR OR SKEWED TO BEAM

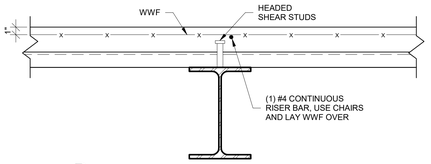
NOTES:
1. HEADED SHEAR STUDS TO BE 3/4" Ø 4 1/2" LONG AFTER WELDING.
2. THE MINIMUM NUMBER OF STUDS REQUIRED IS SHOWN AS (x) ON FRAMING PLANS. ADDITIONAL STUDS MAY BE REQUIRED TO MEET THE ABOVE MAXIMUM SPACING REQUIREMENTS.
3. NO STUDS ARE REQUIRED WHERE NO DESIGNATION IS GIVEN.
4. IF TWO STUDS ARE REQUIRED IN ONE FLUTE, THE TRANSVERSE SPACING SHALL BE 3" MINIMUM.

1 COMPOSITE BEAM DETAIL
S5-3 N.T.S.



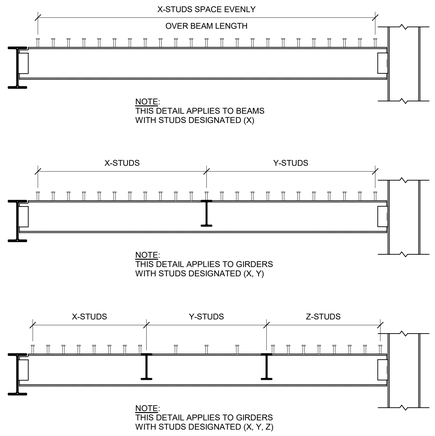
NOTE:
DECK RIB VALLEY TO BE CENTERED OVER BEAM WHERE POSSIBLE OR DECK MUST BE SPLIT FULL LENGTH OF BEAM TO PROVIDE CONCRETE HAUNCH WITH MINIMUM WIDTH 'A'
A = 4½ FOR 3" DECK
A = 3" FOR 2" DECK

A BEAM OR GIRDER PARALLEL TO DECKING SPAN

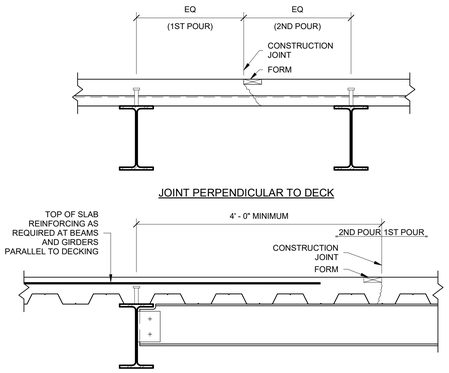


B BEAM PERPENDICULAR TO DECKING SPAN

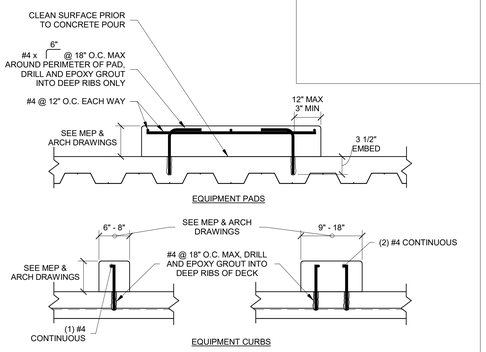
2 COMPOSITE BEAM TO COMPOSITE SLAB
S5-3 N.T.S.



3 STUD SPACING
S5-3 N.T.S.

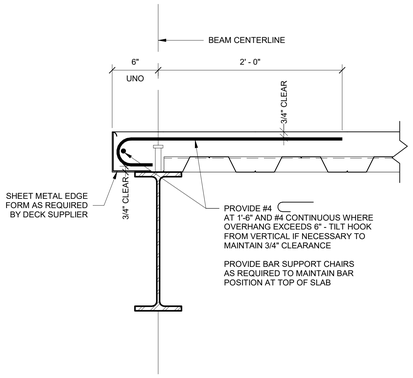


4 CONSTRUCTION JOINT FOR SLAB ON METAL DECK WITH COMPOSITE BEAMS
S5-3 N.T.S.

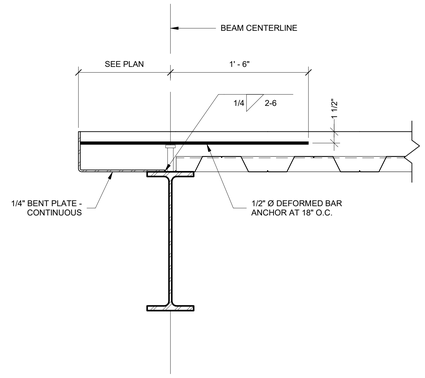


NOTE: EQUIPMENT PAD SIZE TO BE 6" LARGER THAN EQUIPMENT IN EACH DIRECTION, UNO. COORDINATE EXACT SIZE AND LOCATION OF CURB AND PADS WITH EQUIPMENT PROVIDED

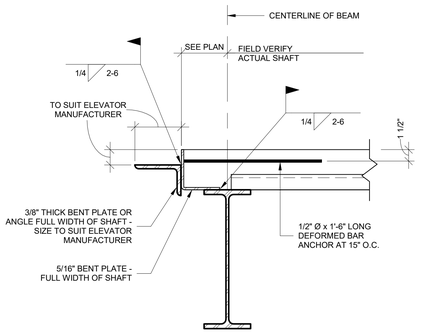
5 EQUIPMENT CURBS AND PADS ON SLABS ON METAL DECK
S5-3 N.T.S.



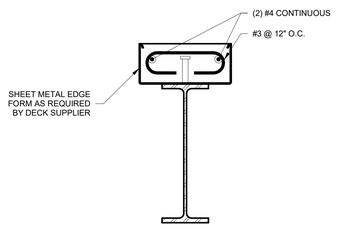
6 SLAB EDGE AT INTERIOR
S5-3 N.T.S. (UNLESS NOTED OTHERWISE)



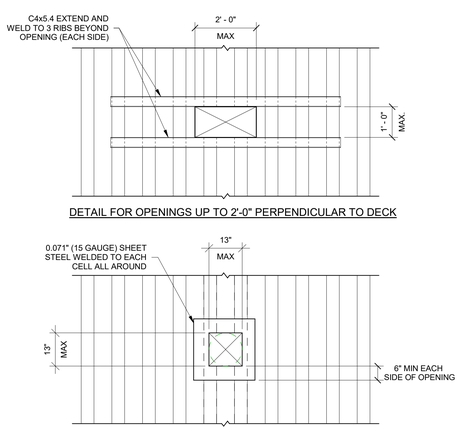
7 SLAB EDGE AT EXTERIOR
S5-3 N.T.S.



8 SLAB EDGE AT ELEVATOR DOOR SILLS
S5-3 N.T.S.



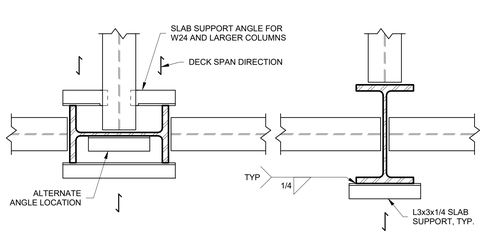
9 SLAB EDGE AT ADJACENT OPENINGS
S5-3 N.T.S.



NOTE: NO DECK SUPPORT IS REQUIRED WHERE OPENING IS 6" OR LESS, IN DIRECTION PERPENDICULAR TO DECK

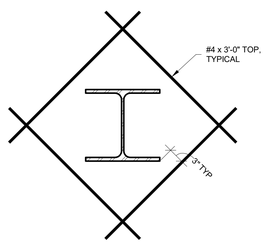
DETAIL FOR OPENINGS UP TO 13" PERPENDICULAR TO DECK

10 DECK SUPPORT AT SMALL FLOOR OPENINGS
S5-3 N.T.S.

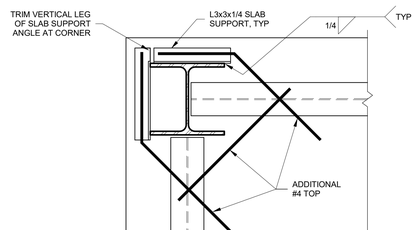


NOTES:
1. SLAB SUPPORT ANGLES ARE REQUIRED AT ALL COLUMN LOCATIONS WHERE THERE IS NO BEAM OR OTHER SUPPORT FOR SLAB AT COLUMN PENETRATION.
2. IN ADDITION TO PERMANENT SLAB SUPPORT ANGLES, THE CONTRACTOR SHALL PROVIDE END CLOSURES AND MISC. DECK SUPPORTS AT OTHER LOCATIONS REQUIRED TO MAINTAIN DECK LEVEL UNTIL CONCRETE CURES.

11 SLAB SUPPORT AT INTERIOR COLUMN
S5-3 N.T.S.

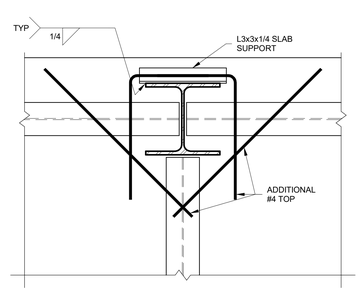


12 SLAB REINFORCING AT INTERIOR COLUMN
S5-3 N.T.S.



NOTE: FOR HOOK BARS AND CONTINUOUS LONGITUDINAL BARS AT SLAB EDGE, SEE "SLAB EDGE AT PERIMETER" DETAIL.

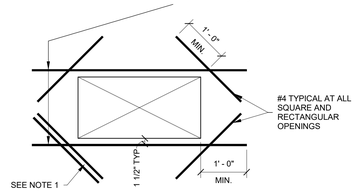
13 SLAB SUPPORT AT CORNER COLUMN
S5-3 N.T.S.



NOTE: FOR HOOK BARS AND CONTINUOUS LONGITUDINAL BARS AT SLAB EDGE, SEE "SLAB EDGE AT PERIMETER" DETAIL.

14 SLAB SUPPORT AT PERIMETER COLUMN
S5-3 N.T.S.

AS AN ALTERNATE TO THE "DECK SUPPORT AT SMALL FLOOR OPENING" DETAIL, THE CONTRACTOR MAY ELECT TO BLOCK OUT CONCRETE WHERE A FLOOR OPENING WILL OCCUR. AFTER THE CONCRETE CURES, THE CONTRACTOR CAN REMOVE THE DECK. IN THIS CASE, PROVIDE #4 ADDITIONAL REINFORCING PERPENDICULAR TO THE DECK FLUTES. (2'-0" OPENING MAX)



NOTES:
1. PROVIDE (2) #4 x 5'-0" AT ALL OPENINGS GREATER THAN 6'-0" SUCH AS ELEVATOR, STAIR, AND LARGE SHAFT OPENINGS.
2. ALL OPENINGS NOT SHOWN ON THE DRAWINGS MAY REQUIRE PERIMETER SUPPORT AND SHALL BE APPROVED BY THE ENGINEER.

15 SLAB REINFORCING FOR OPENINGS IN SLAB ON METAL DECK
S5-3 N.T.S.

Department of Capital Planning & Bureau of Asset Management

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LICENSED STRUCTURAL ENGINEER — THOMAS L. HARRISON — 081-005809 — STATE OF ILLINOIS

No.	Date	Issue
1	06/25/2019	ISSUE FOR BID

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Project Number	15849
Drawn	N. PALL
Checked	T. HARRISON
Proj. Arch./Eng.	T. HARRISON

COOK COUNTY HEALTH

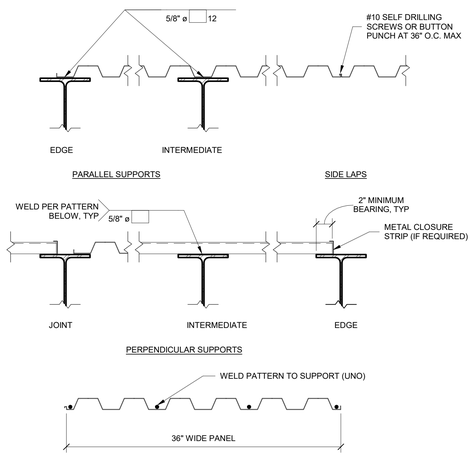
HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

TYPICAL SLAB ON METAL DECK DETAILS

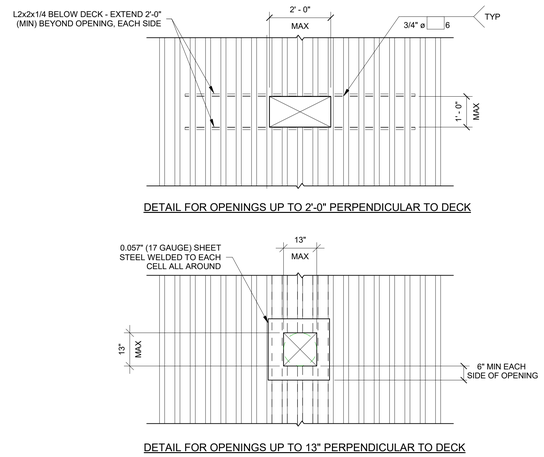
Sheet Name

Drawing No. **S5-3**



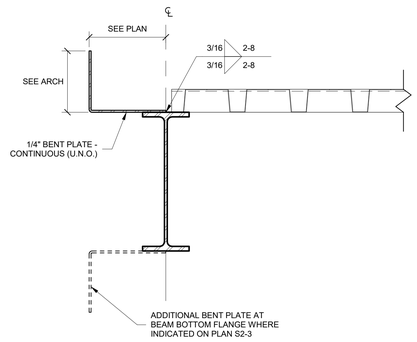
1 ROOF DECK FASTENING

S5-4 N.T.S.



2 DECK SUPPORT AT SMALL ROOF OPENINGS

S5-4 N.T.S.



3 ROOF DECK EDGE AT PERIMETER AND AT OPENINGS

S5-4 N.T.S.

3" = 1'- 0" 1" = 1'- 0" 1/2" = 1'- 0" 1/4" = 1'- 0" 1/8" = 1'- 0" 1/16" = 1'- 0" 1" = 30'- 0"

Department of Capital Planning & Policy
Bureau of Asset Management

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LICENSED STRUCTURAL ENGINEER THOMAS L HARRISON 081-005889 STATE OF ILLINOIS

No.	Date	Issue
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COOK COUNTY HEALTH

Project Name & Address

HANSON PARK HEALTH CENTER / LOGAN SQUARE CLINIC REPLACEMENT
5501 W FULLERTON AVE
CHICAGO, IL 60639

TYPICAL ROOF DECK DETAILS

Sheet Name

Drawing No. **S5-4**

3" = 1'- 0"
1" = 1'- 0"
1/2" = 1'- 0"
1/4" = 1'- 0"
1/8" = 1'- 0"
1/16" = 1'- 0"
1" = 30'- 0"

GENERAL MECHANICAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- Room 1 — ROOM NAME AND NUMBER
- RETURN AIR PLENUM
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -10' - 1" — PIPE INVERT ELEVATION TAG
- (E) — EXISTING PIPE TAG
- PIPING BEING DEMOLISHED

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FD	FIRE DAMPER	RH	RELATIVE HUMIDITY
FDV	FIRE DEPARTMENT VALVE	RL/A	RELIEF AIR
FL	FLOOR	RM	ROOM
FO	FUEL OIL	RPM	REVOLUTIONS PER MINUTE
FOV	FUEL OIL VENT	RW	RAIN WATER
FOR	FUEL OIL RETURN	SF	SQUARE FOOT
FOS	FUEL OIL SUPPLY	S/A	SUPPLY AIR
FPM	FEET PER MINUTE	SAN	SANITARY
FS	FLOOR SINK	SF	SQUARE FOOT
FT	FOOT/FEET	SD	SMOKE DAMPER
FTR	FIN TUBE RADIATION	SM	SURFACE MOUNT
GAL	GALLON	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

PIPING SYMBOLS

CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CD	CONDENSATE DRAINAGE
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
G	NATURAL GAS
PG	PROPANE GAS
REF-L	REFRIGERANT-LIQUID
REF-S	REFRIGERANT-SUCTION
REF-HG	REFRIGERANT-HOT GAS
STM	STEAM
CDR	CONDENSATE RETURN
CWV	COMBINATION WASTE & VENT
CA	COMPRESSED AIR
CW	DOMESTIC COLD WATER
H-CW	HARD COLD WATER
S-CW	SOFT COLD WATER
F-CW	FILTERED COLD WATER
RO	REVERSE OSMOSIS WATER
HW	HOT WATER
HW 140°	HOT WATER 140°
HW-R	HOT WATER RECIRCULATION
HW-R 140°	HOT WATER RECIRCULATION 140°
GV	GREASE VENT
GW	GREASE WASTE
IW	INDIRECT WASTE
OV	OIL VENT
OW	OIL WASTE
PD	PUMP DISCHARGE
V	SANITARY VENT
SS	SANITARY SEWER
SHWR	SOLAR HOT WATER RETURN
SHWS	SOLAR HOT WATER SUPPLY
SD	STORM DRAINAGE
OSD	OVERFLOW STORM DRAINAGE

PIPE DROP, PIPE RISE, PIPE TEE, CAP; 4", 4", 2", 4"; PLUG, REDUCING 45 DEGREE TEE, 45 DEGREE TEE

PIPE ACCESSORY TAGS

- 2" DOM. WM — DOMESTIC WATER METER
- 2" BALANCING — BALANCING VALVE
- 2" SHUTOFF — 1/4 TURN BALL VALVE
- 2" CHECK — CHECK VALVE
- 2" TMV — 3-WAY MIXING VALVE
- 2" M-CNTRL — MOTORIZED CONTROL VALVE
- 2" 3-WAY CNTRL — 3 WAY MOTORIZED CONTROL VALVE
- 2" PRV — PRESSURE REDUCING VALVE
- 3/8" SOLENOID — REFRIGERANT SOLENOID VALVE
- 2" BUTTERFLY — BUTTERFLY VALVE

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	EWH	ELECTRIC WATER HEATER
ACC	AIR COOLED CONDENSER	FCU	FAN COIL UNIT
ACCU	AIR COOLING CONDENSING UNIT	FP	FIRE PUMP
AHU	AIR HANDLING UNIT	GI	GREASE INTERCEPTOR
AS	AIR SEPARATOR	GRV	GRAVITY ROOF VENTILATOR
B	BOILER	HWP	HEATING WATER PUMP
CH	CHILLER	HX	HEAT EXCHANGER
CT	COOLING TOWER	HRU	HEAT RECOVERY UNIT
CUH	CABINET UNIT HEATER	PRV	POWER ROOF VENTILATOR
CWP	CONDENSER WATER PUMP	RE	RETURN/EXHAUST FAN
CHWP	CHILLED WATER PUMP	RTU	ROOFTOP UNIT
DBP	DOMESTIC WATER BOOSTER PUMP	SEP	SEWAGE EJECTOR PUMP
DC	DUCT MOUNTED COIL	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER
ET	EXPANSION TANK		

HVAC SYMBOLS

- 16"x8" — SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
- 16"/8" — OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
- 16"Ø — ROUND DUCT SIZE TAG (DIAMETER)
- (E) — EXISTING DUCT TAG
- DUCT BEING DEMOLISHED
- S/A — SUPPLY AIR
- S-O/A — CONDITIONED OUTSIDE AIR
- O/A — OUTSIDE AIR
- R/A — RETURN AIR
- T/A — TRANSFER AIR
- E/A — EXHAUST AIR
- L/A — RELIEF AIR
- GE/A — GREASE EXHAUST AIR
- SE/A — SMOKE EXHAUST AIR
- FLUE — EXHAUST GAS FLUE
- C/A — COMBUSTION AIR
- DROP — RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — ROUND SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
- DROP — ROUND RETURN/TRANSFER AIR DUCT RISE
- DROP — RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
- DROP — ROUND EXHAUST/RELIEF AIR DUCT RISE

GRILLES, REGISTERS & DIFFUSERS TAG

- SQUARE DIFFUSER — SD1 — TYPE (SEE SCHEDULE), CFM
- LINEAR DIFFUSER

MECHANICAL EQUIPMENT TAGS

- VAV-XX — Htg: 3.7 GPM — HEATING COIL FLOW
- VAV-XX — VAV BOX
- 10' - 0" — BOTTOM OF EQUIPMENT ELEVATION
- (E)VAV-XX — EXISTING EQUIPMENT TO REMAIN
- VAV-XX — EQUIPMENT BY OTHERS (REFER TO OTHER DISCIPLINE FOR ADDITIONAL INFORMATION)
- RTU-XX — OPERATING WEIGHT NOT INCLUDING CURB — 590 lb
- RTU-XX — 4.0 ton — NOMINAL COOLING CAPACITY — ROOFTOP UNIT
- RTU-XX — FUEL INPUT GAS PIPE FLOW — 115000 Btu/h, 115 CFH

DATA DEVICE TAGS

SYMBOL / EQUIPMENT ID

CARBON DIOXIDE SENSOR	CO2+T+H	RTU-XX	TEMPERATURE & HUMIDITY SENSOR
CARBON MONOXIDE SENSOR	CO+T+S	VAV-XX	TEMPERATURE SENSOR
NITROGEN DIOXIDE SENSOR	NO2+T		THERMOSTAT
HUMIDITY SENSOR	HS+MS		MANUAL SWITCH
HUMIDISTAT	H+S		SENSOR

DAMPER TAGS

- FIRE DAMPER — FD — B — MANUAL BALANCING DAMPER
- SMOKE DAMPER — S — D — BACKDRAFT DAMPER
- MOTORIZED DAMPER — M — C — COMBINATION FIRE/SMOKE DAMPER

PROJECT GENERAL NOTES

1. ALL WORK PERFORMED SHALL COMFORM TO ALL APPLICABLE CITY OF CHICAGO CODES.
2. ALL WORK SHALL BE IN ACCORDANCE WITH DIVISION 23 SPECIFICATIONS.
3. REFER TO ARCHITECTURAL DRAWINGS FOR OUTSIDE AIR INTAKE LOUVER AND EXHAUST AIR LOUVER SPECIFICATIONS.
4. IN THE EVENT THAT ANY PART OF THE DRAWINGS, SPECIFICATOINS, OR NOTES CONFLICT WITH ANY OTHER, THE MOST STRINGENT REQUIREMENT SHALL APPLY, PROVIDING THE GREATEST SAFETY AND/OR AT THE HIGHEST COST OF THE CONFLICTING OPTIONS.
5. STRAINERS AND ISOLATION VALVES SHALL BE LINE SIZE UNLESS NOTED OTHERWISE. CALIBRATED BALANCE VALVES SHALL BE SIZED FOR ACTUAL FLOW PROVIDING SUFFICIENT PRESSURE DROP FOR ACCURATE READING.
6. PROVIDE MANUAL AIR VENTS TO ALL HIGH POINTS IN PIPING. PROVIDE DRAIN LINES AT ALL LOW POINTS IN PIPING.
7. ALL PIPE SIES NOT SHOWN SHALL BE SIZED FOR A MAXIMUM FRICTION PRESSURE DROP OF 4 FT OF WATER COLUMN PER 100 LENEAR FEET OF EQUIVALENT PIPE LENGTH (60F WATER), MINIMUM PIPE SIZE ALLOWED SHALL BE 3/4".
8. DUCT SIZES ON PLANS ARE CLEAR INSIDE DIMENSIONS. DUCT SIZES NOT SHOWN SHALL BE SIZED TO VELOCITIES NO GREATER THAN UPSTREAM SECTION USING SIMILAR ASPECT RATIOS, AND MAXIMUM FRICTION LOSS SHALL BE 0.08"/100LF OF DUCTWORK.
9. PROVIDE MANUAL BALANCING DAMPER AT EACH TAKE-OFF FOR GRILLES AND DIFFUSERS.
10. SUPPLY AIR TAKE-OFFS FROM MAIN DUCTWORK ARE TO BE INSTALLED WITH BELL MOUTH FITTINGS OF 45 DEGREE ENTRY.
11. SIZE OF BRANCH DUCT FEEDING INDIVIDUAL DIFFUSER TO MATCH DIFFUSER NECK SIZE. INCREASE BRANCH 2" GREATER THAN NECK SIZE IF DISTANCE EXCEEDS 5'-0".
12. INLET DUCT SIZES TO ALL VAV BOXES SHALL BE AS SCHEDULED AND IN NO CASE SHALL BE SMALLER THAN THE TERMINAL INLET SIZE.
13. ALL FLOOR MOUNTED EQUIPMENT SHALL BE PROVIDED WITH A CONCRETE EQUIPMENT PAD. PAD SHALL BE A MINIMUM OF 4 INCHES LARGER IN EACH DIMENSION THAN THE EQUIPMENT SUPPORTED AND A MINIMUM OF 4 INCHES TALL.
14. PROVIDE ACCESS PANEL FOR ALL FIRE DAMPERS.
15. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR PLUMBING AND MECHANICAL SYSTEMS WITHIN TENANT SPACE AND WITHIN CLOSE PROXIMITY OF TENANT SPACE.
16. WHERE FLOOR DRAINS OCCUR WITHIN THE LIMITS OF CONSTRUCTION, PREVENT CONSTRUCTION DEBRIS FROM ENTERING DRAIN BODY BY SEALING DRAIN OPENING PRIOR TO START OF WORK. UNSEAL DRAINS AT COMPLETION OF CONSTRUCTION.
17. COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
18. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AS WELL AS THOSE WHICH CAN BE REASONABLY ANTICIPATED INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
19. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
20. LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.
21. ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.
22. LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS. TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT.
23. FIRE SEAL AROUND DUCT AND PIPING PENETRATIONS OF FIRE RATED WALLS. REFER TO SPECIFICATION.
24. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
25. ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.
26. PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
27. FOR DETAILS, EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE SEGMENTS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
28. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
29. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
30. INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
31. THERMOSTATS AND OTHER SENSOR LOCATIONS AND MOUNTING HEIGHT TO BE VERIFIED BY ARCHITECT
32. ALL "SMART TEMPS" TEMPERATURE MONITORS SERVING MEDICATION REFRIGERATORS AND OTHER DEVICES SHALL BE CONNECTED TO BAS FOR SYSTEM TRACKING AND ALARMS.
33. CO2 BASED DEMAND CONTROL VENTILATION (DCV) FOR ROOMS AS SHOWN ON PLANS.
34. OCCUPANCY SENSORS AS SHOWN ON PLANS TO RESET THE VAV TERMINAL UNIT CONTROL SEQUENCE FOR THE ZONE.
35. PROVIDE BAS WORKSTATION WITH GRAPHICAL INTERFACE.
36. ALL SYSTEMS SHALL UTILIZE DIRECT DIGITAL CONTROLS (DDC) AND RESIDE ON THE BACNET NETWORK.
37. ALL MEDIUM PRESSURE DUCTWORK (DUCTWORK DOWNSTREAM OF SUPPLY FAN AND BEFORE AIR TERMINAL UNITS) ON THIS PROJECT SHALL BE LEAK TESTED IN ACCORDANCE WITH THE SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL.
38. CONTRACTOR SHALL BE AN ICC CERTIFIED INSTALLER FOR ANY EMC THAT REQUIRES AN ELECTRICAL CONNECTION (120V OR HIGHER).

CITY OF CHICAGO NOTES NOTES

1. ALL SYSTEMS MUSH COMPLY WITH THE CURRENT CITY OF CHICAGO ENERGY CONSERVATION CODE. INCLUDING CONTROLS, TEMPERATURE/HUMIDITY SENSORS, AND EQUIPMENT.
2. NOISE LEVEL AT LOT LINE SHALL NOT EXCEED 55dBa.
3. ALL FLEXIBLE LOW-PRESSURE DUCTWORK SHALL BE INSULATED, CITY OF CHICAGO APPROVED AND NOT TO EXCEED 5'-0" IN LENGTH.
4. ALL DIRECT EXPANSION DEVICES, VALVES AND ETC., SHALL BE REMOVED FROM EQUIPMENT AND DUCTWORK AIR STREAMS.
5. TRANSFER AIR DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH.
6. ALL FLUES TO EXTEND 6'-0" ABOVE THE ROOF AND 2'-0" ABOVE ANY PARAPIT WITHIN A 10 FOOT RADIUS.
7. ALL OUTSIDE AIR INTAKE OPENINGS SHALL BE LOCATED A MINIMUM OF 15'-0" AWAY FROM ANY EXHAUST, FLUE, VENT, ETC AND A MINIMUM OF 10'-0" ABOVE PUBLIC WAY.
8. ALL DUCTWORK SYSTEMS TO BE CONSTRUCTED OF SHEET METAL CONFORMING TO SMACNA CONSTRUCTION STANDARDS.
9. GAS PRESSURE WITHIN BUILDING SHALL NOT EXCEED 5 PSIG.
10. ROOF PENETRATIONS SHALL BE FLASHED TO PREVENT ENTRY OF WATER THROUGH THE ROOF.
11. ALL PIPING SERVING AS PART OF A HEATING OR COOLING SYSTEM SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH 2015-IECC.
12. COMBUSTION AIR, GAS PIPING AND FLUES SHALL BE IN FULL COMPLIANCE WITH ARTICLES 7, 8 & 14 OF THE CITY OF CHICAGO MECHANICAL CODE AND THE LATEST VERSION OF THE INTERNATIONAL FUEL GAS CODE (IFGC) AS REFERENCED BY THE CITY CODE.
13. ALL DAMPERS TO BE LOCK TYPE.
14. FIRE DMAPERS MAY NOT BE SHOWN IN ALL LOCATIONS. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL AND LIFE SAFETY DRAWINGS TO DETERMINE ALL FIRE RATINGS. PROVIDE FIRE DAMPERS AT ALL DUCTWORK PENETRATING WALL, SHAFTS, SOFFITS, AND FLOORS WITH A FIRE RATING OF 1-1/2 HOURS OR GREATER AND AT WALLS, SHAFTS, SOFFITS AND FLOORS HAVING A 1 HOUR RATING IN WHICH THE DUCT PENETRATION EXCEEDS 100 SQUARE INCHES OR THE DUCTWORK OPENINGS COMMUNICATE BETWEEN A CORRIDOR AND ADJACENT SPACES OR ROOMS. DUCTWORK 100 SQUARE INCHES OF LESS SHALL HAVE AT A MINIMUM A 12 INCH LONG BY 0.06 INCH THICK STEEL SLEEVE CENTERED IN EACH DUCT OPENING. THE SLEEVE SHALL BE SECURED TO BOTH SIDES OF THE WALL AND ALL FOUR SIDES OF THE SLEEVE WITH MINIMUM 1-1/2 INCH BY 1-1/2 INCH BY 0.06 INCH STEEL RETAINING ANGLES. THE RETAINING ANGLES SHALL BE SECURED TO THE SLEEVE WITH WALL NO. 10 SCREWS. THE ANNULAR SPACE BETWEEN THE STEEL SLEEVE AND WALL OPENING SHALL BE FILLED WITH ROCK (MINERAL) WOOL BATTING ON ALL SIDES.
15. ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM R-6 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND WITH A MINIMUM R-12 INSULATION WHEN LOCATED OUTSIDE THE BUILDING ENVELOPE.
16. ALL REFRIGERANT PIPING SHALL BE TYPE ACR OR TYPE K COPPER WITH BRAZED CONNECTIONS.

* NOTE *

ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

Department of Capital Planning & Policy
Bureau of Asset Management

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www.holabird.com

Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

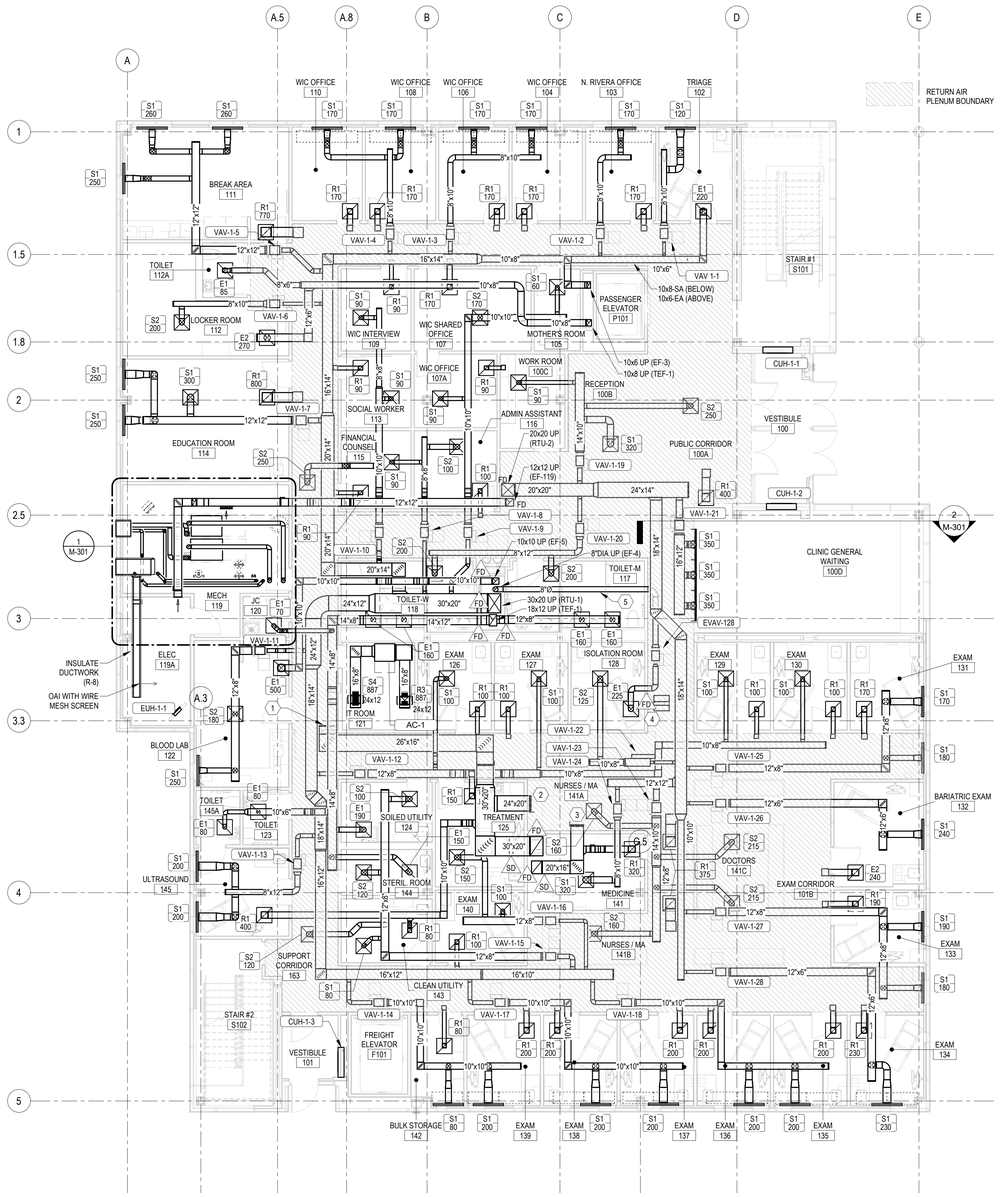
COOK COUNTY HEALTH

Project Name & Address: HANSON PARK HEALTH CENTER, 5501 W FULLERTON AVE, CHICAGO, IL 60639

MECHANICAL TITLE SHEET

Sheet Name

Drawing No. **M-000**



1 100 LEVEL HVAC PLAN

M-101 1/8" = 1'-0"

GENERAL NOTES

1. REFER TO M-000 FOR GENERAL PROJECT NOTES, SYMBOLS, AND ABBREVIATIONS.
2. HVAC CONTRACTOR SHALL ADJUST LINEAR DIFFUSERS TO THROW AIR ALONG THE CEILING AND TOWARD THE WINDOWS PER MANUFACTURERS RECOMMENDATIONS.
3. THE SPACE ABOVE THE CEILING SHALL BE USED AS A RETURN AIR PLENUM.

KEYNOTES

(X)

1. 24x20 PLENUM RETURN OPEN ENDED DUCT WITH WIRE MESH SCREEN AND MANUAL BALANCING DAMPER (TYPICAL). BALANCE TO 2900 CFM.
2. 24x20 PLENUM RETURN OPEN ENDED DUCT WITH WIRE MESH SCREEN AND MANUAL BALANCING DAMPER (TYPICAL). BALANCE TO 1500 CFM.
3. 24x20 PLENUM RETURN OPEN ENDED DUCT WITH WIRE MESH SCREEN AND MANUAL BALANCING DAMPER (TYPICAL). BALANCE TO 2300 CFM.
4. 24x14 TRANSFER ABOVE CEILING (WITH FIRE DAMPER).
5. ISOLATION ROOM EXHAUST DUCTWORK. LABEL DUCTWORK "CAUTION - NEGATIVE PRESSURE ISOLATION ROOM EXHAUST" EVERY 20FT AND AT ALL PENETRATION POINTS.

3" = 1'- 0" 1" = 1'- 0" 1/2" = 1'- 0" 1/4" = 1'- 0" 1/8" = 1'- 0" 1/16" = 1'- 0" 1" = 30'- 0"

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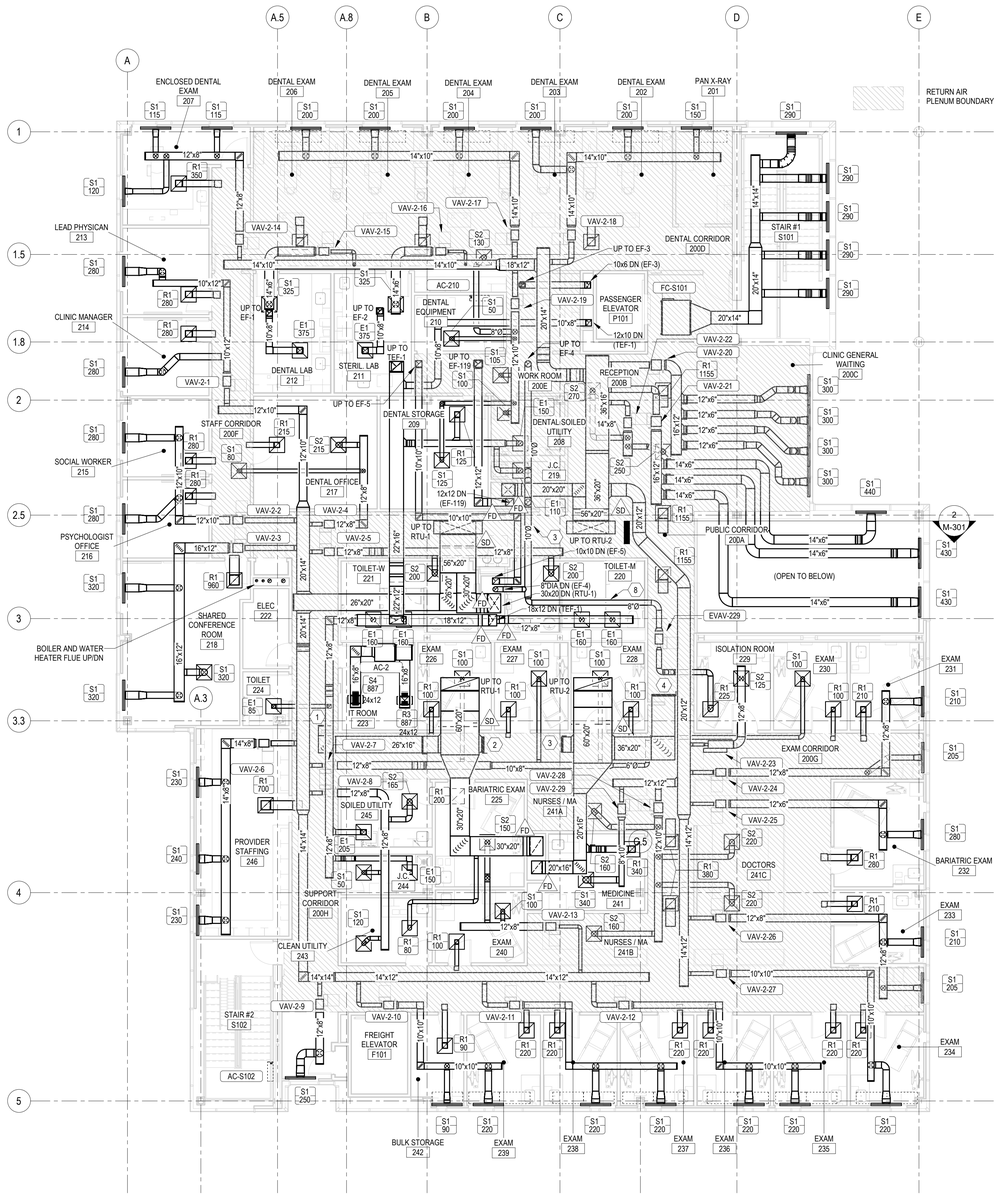
COOK COUNTY HEALTH

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639
Project Name & Address

100 LEVEL VENTILATION PLAN
Sheet Name

Drawing No. **M-101**



GENERAL NOTES

1. REFER TO M-000 FOR GENERAL PROJECT NOTES, SYMBOLS, AND ABBREVIATIONS.
2. HVAC CONTRACTOR SHALL ADJUST LINEAR DIFFUSERS TO THROW AIR ALONG THE CEILING AND TOWARD THE WINDOWS PER MANUFACTURERS RECOMMENDATIONS.
3. THE SPACE ABOVE THE CEILING SHALL BE USED AS A RETURN AIR PLENUM.

KEYNOTES

(X)

1. 24x20 PLENUM RETURN OPEN ENDED DUCT WITH WIRE MESH SCREEN AND MANUAL BALANCING DAMPER (TYPICAL). BALANCE TO 2000 CFM.
2. 24x20 PLENUM RETURN OPEN ENDED DUCT WITH WIRE MESH SCREEN AND MANUAL BALANCING DAMPER (TYPICAL). BALANCE TO 2600 CFM.
3. 24x20 PLENUM RETURN OPEN ENDED DUCT WITH WIRE MESH SCREEN AND MANUAL BALANCING DAMPER (TYPICAL). BALANCE TO 1860 CFM.
4. 50x20 PLENUM RETURN OPEN ENDED DUCT WITH WIRE MESH SCREEN AND MANUAL BALANCING DAMPER (TYPICAL). BALANCE TO 4100 CFM.
8. ISOLATION ROOM EXHAUST DUCTWORK. LABEL DUCTWORK "CAUTION - NEGATIVE PRESSURE ISOLATION ROOM EXHAUST" EVERY 20FT AND AT ALL PENETRATION POINTS.

1 200 LEVEL HVAC PLAN

M-102 1/8" = 1'-0"

3" = 1'-0" | 1" = 1'-0" | 1/2" = 1'-0" | 1/4" = 1'-0" | 1/8" = 1'-0" | 1/16" = 1'-0" | 1" = 30'-0"

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COOK COUNTY HEALTH

Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
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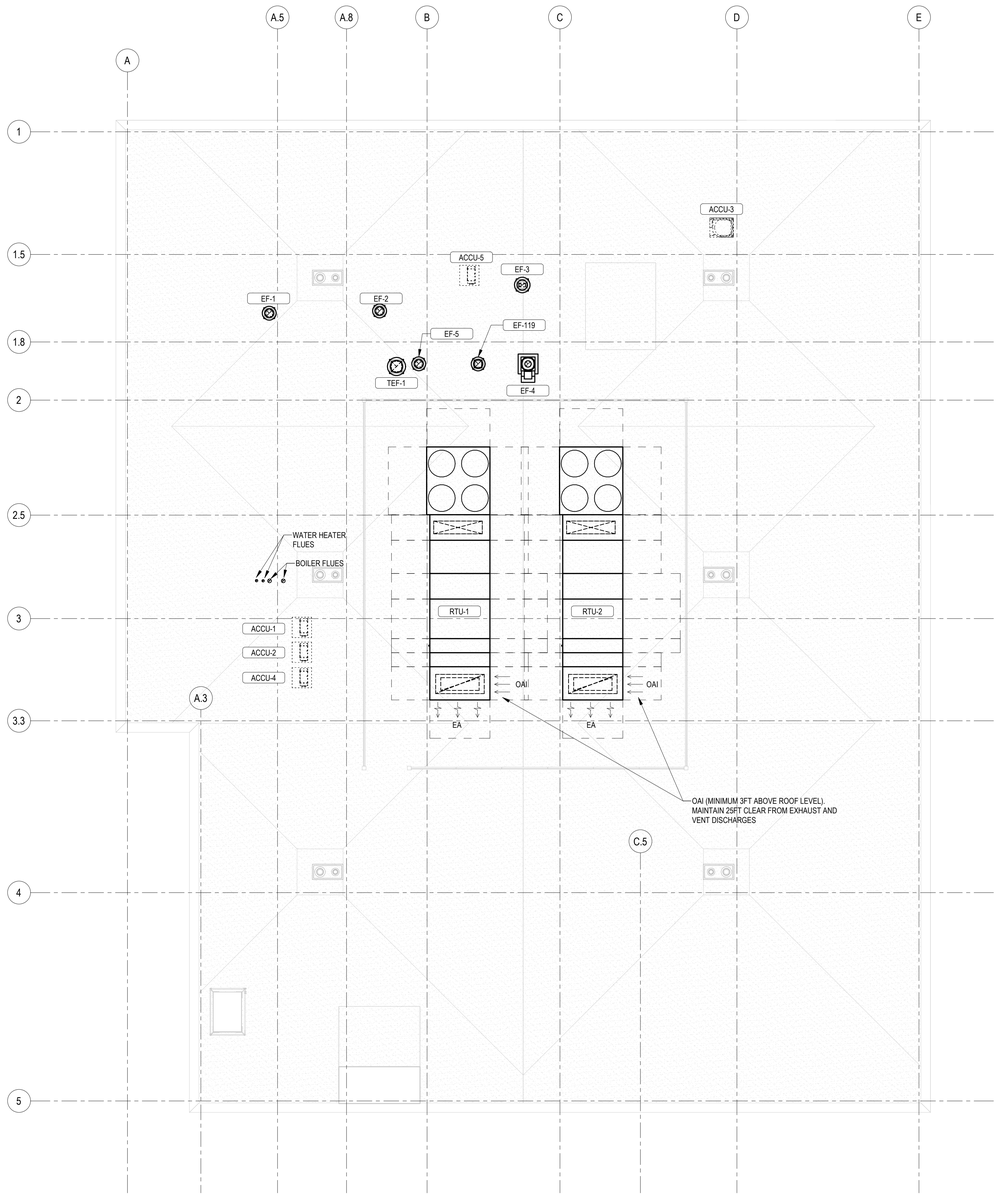
200 LEVEL VENTILATION PLAN

Sheet Name

Drawing No. **M-102**



1 ROOF HVAC PLAN
M-103 1/8" = 1'-0"

GENERAL NOTES

1. REFER TO M-000 FOR GENERAL PROJECT NOTES, SYMBOLS, AND ABBREVIATIONS.
2. HVAC CONTRACTOR SHALL ADJUST LINEAR DIFFUSERS TO THROW AIR ALONG THE CEILING AND TOWARD THE WINDOWS PER MANUFACTURERS RECOMMENDATIONS.
3. THE SPACE ABOVE THE CEILING SHALL BE USED AS A RETURN AIR PLENUM.

3" = 1'- 0" | 1'- 0" | 0'- 6" | 0'- 4" | 0'- 3" | 0'- 0"
1" = 1'- 0" | 3'- 0" | 2'- 0" | 1'- 0" | 0'- 0"
1/2" = 1'- 0" | 6'- 0" | 4'- 0" | 2'- 0" | 0'- 0"
1/4" = 1'- 0" | 12'- 0" | 8'- 0" | 4'- 0" | 0'- 0"
1/8" = 1'- 0" | 24'- 0" | 16'- 0" | 8'- 0" | 0'- 0"
1/16" = 1'- 0" | 48'- 0" | 32'- 0" | 16'- 0" | 0'- 0"
1" = 30'- 0" | 120'- 0" | 90'- 0" | 60'- 0" | 30'- 0" | 0'- 0"

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COOK COUNTY HEALTH

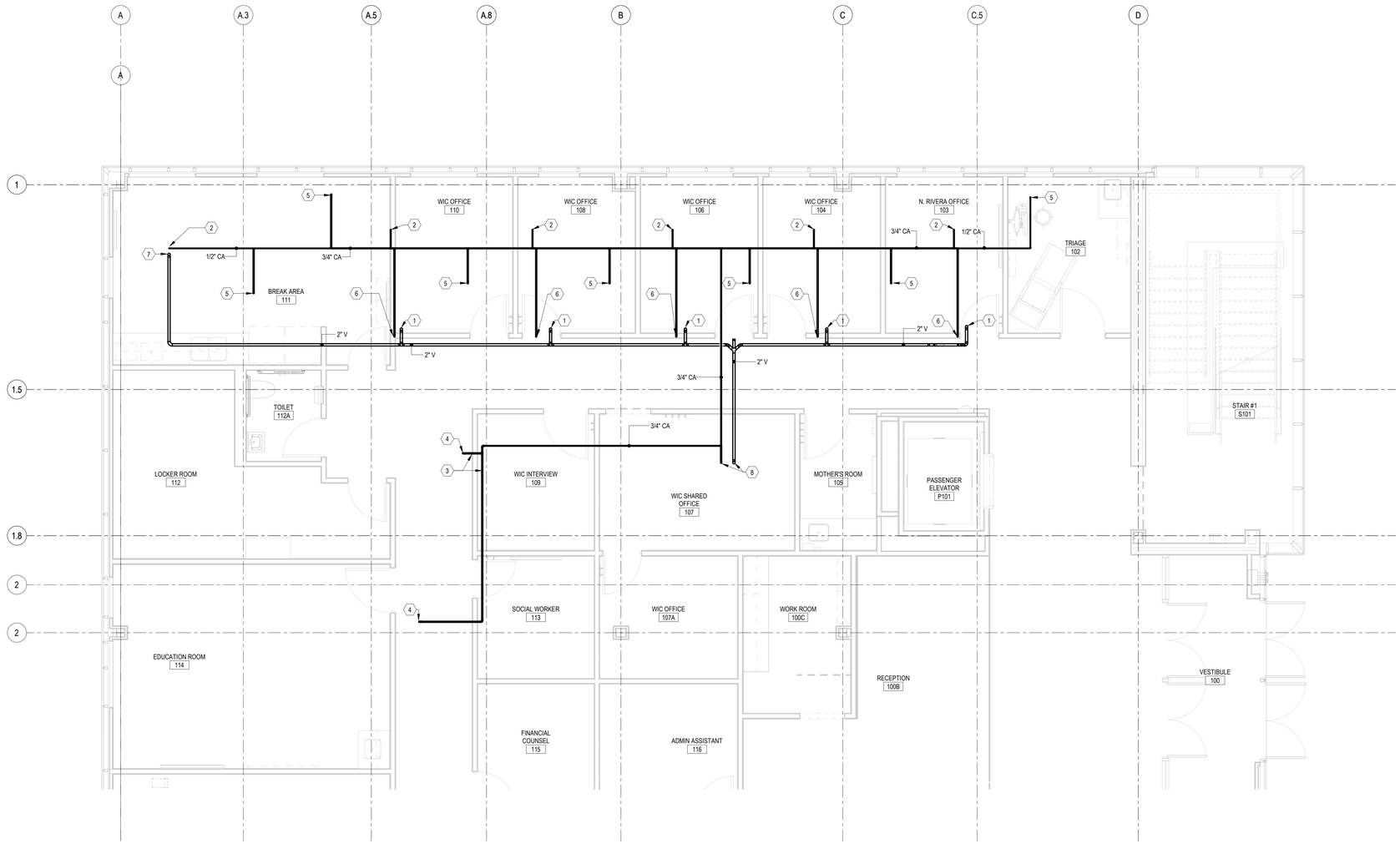
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

ROOF VENTILATION PLAN

Sheet Name

Drawing No. **M-103**



1 100 LEVEL MEDICAL GAS PIPING PLAN
M-121 1/4" = 1'-0"

GENERAL NOTES

1. PIPING MATERIAL:
   COMPRESSED AIR PIPING: TYPE L COPPER WITH BRAISED JOINTS, AND COPPER FOR AIR INTAKE
   VACUUM PIPING: FACILITY PIPING - TYPE L COPPER WITH COPPER FITTINGS; VACUUM EXHAUST COPPER
2. ALL VACUUM PIPING SHALL UTILIZE COPPER FITTINGS, BRAZED OR SOLDERED JOINTS AND SLOPE 1/4" PER 10 FEET TOWARDS THE VACUUM PUMP.
3. IF AN IN-LINE LOW SPOT IS UNAVOIDABLE FOR VACUUM PIPING, PLACE IT IN A KNOWN LOCATION AND INCORPORATE A CLEAN-OUT.
4. VACUUM CONNECTION TO DENTAL CHAIR/REAR CABINETS: VACUUM LINE IS REDUCED DOWN TO 5/8" GOING INTO DENTAL JUNCTION BOX. TERMINATE WITH A 90 DEGREE FEMALE THREADED ELBOW CONNECTION. CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
5. COMPRESSED AIR CONNECTIONS TO DENTAL CHAIRS/REAR CABINETS/SINKS SHALL TERMINATE WITH A 3/8" 90° COMPRESSION ANGLE VALVE. CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
6. FOR MORE DETAILS, REFER TO SPEC. SECTIONS 226113 AND 226213 ON SHEET M-000.

KEYNOTES

1. 2" DENTAL VACUUM UP THRU SLAB AND REDUCED DOWN TO 5/8" IN DENTAL REAR CABINET. TERMINATE WITH 90 DEGREE FEMALE THREADED ELBOW. PROVIDE ALL NECESSARY FITTINGS FOR CONNECTION TO DENTAL EQUIPMENT (REFER TO GENERAL NOTES). CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
2. 1/2" COMPRESSED AIR UP THRU SLAB TO DENTAL CHAIR CONNECTION BOX. PROVIDE ALL NECESSARY FITTINGS FOR CONNECTION TO DENTAL EQUIPMENT (REFER TO GENERAL NOTES). CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
3. PROVIDE SHUT-OFF VALVES FOR TAKE-OFFS TO COMPRESSED AIR OUTLETS.
4. 1/2" COMPRESSED AIR UP TO SECOND FLOOR COMPRESSED AIR OUTLET.
5. 1/2" COMPRESSED AIR SERVING NEW DENTAL SINK UP THRU SLAB. PROVIDE ALL NECESSARY FITTINGS FOR CONNECTIONS TO DENTAL SINK (REFER TO GENERAL NOTES). CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
6. 1/2" COMPRESSED AIR UP THRU SLAB TO DENTAL REAR CABINET. PROVIDE ALL NECESSARY FITTINGS FOR CONNECTION TO DENTAL EQUIPMENT (REFER TO GENERAL NOTES). CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
7. 2" VACUUM UP THRU SLAB TO DENTAL CHAIR CONNECTION BOX. PROVIDE ALL NECESSARY FITTINGS FOR CONNECTION TO DENTAL EQUIPMENT (REFER TO GENERAL NOTES). CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
8. 2" VACUUM AND 3/4" COMPRESSED AIR UP THRU SLAB TO DENTAL EQUIPMENT ROOM.

	CA	VAC
DENTAL EXAMINATION CHAIR	X	
PRIVATE DENTAL EXAMINATION CHAIR	X	X
DENTAL SINK	X	
REAR CABINET	X	X

2 M-121 GAS PIPING MATRIX
NOT TO SCALE

1/2" = 1'-0" 0' - 0" 1' - 0" 2' - 0" 4' - 0" 6' - 0"
1" = 30'-0" 0' - 0" 30' - 0" 60' - 0" 90' - 0" 120' - 0"
1/16" = 1'-0" 0' - 0" 16' - 0" 32' - 0" 48' - 0"
1/8" = 1'-0" 0' - 0" 8' - 0" 16' - 0" 24' - 0"
1/4" = 1'-0" 0' - 0" 4' - 0" 8' - 0" 12' - 0"
1" = 1'-0" 0' - 0" 1' - 0" 2' - 0" 3' - 0"
3/4" = 1'-0" 0' - 0" 0' - 3" 0' - 6" 0' - 9" 1' - 0"

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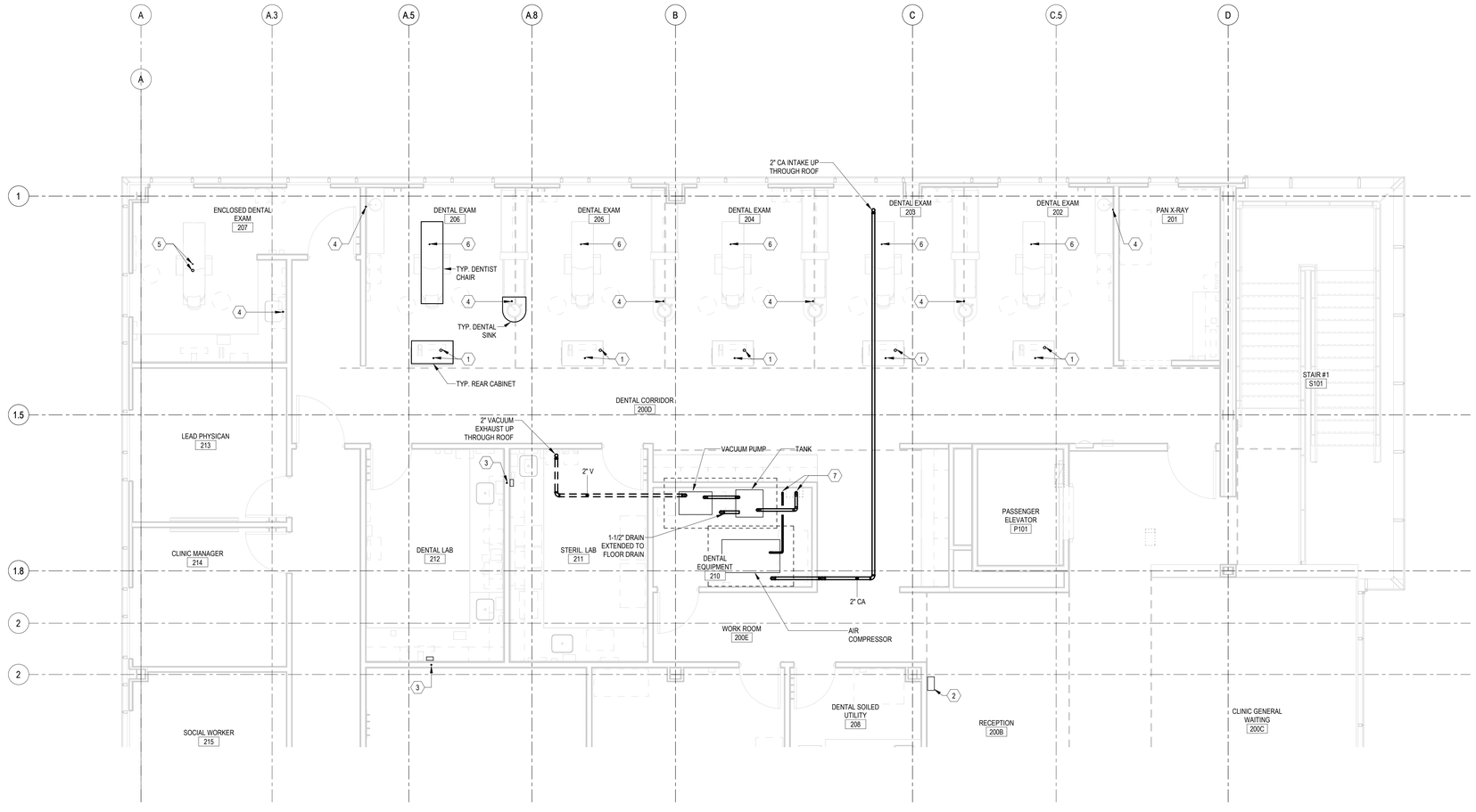
COOK COUNTY HEALTH
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

100 LEVEL GAS PIPING PLAN
Sheet Name
Drawing No. **M-121**



1 200 LEVEL MEDICAL GAS PIPING PLAN
M-122 1/4" = 1'-0"

GENERAL NOTES

1. PIPING MATERIAL:
   COMPRESSED AIR PIPING: TYPE L COPPER WITH BRAISED JOINTS, AND COPPER FOR AIR INTAKE
   VACUUM PIPING: FACILITY PIPING - TYPE L COPPER WITH COPPER FITTINGS; VACUUM EXHAUST COPPER
2. ALL VACUUM PIPING SHALL UTILIZE COPPER FITTINGS, BRAZED OR SOLDERED JOINTS AND SLOPE 1/4" PER 10 FEET TOWARDS THE VACUUM PUMP.
3. IF AN IN-LINE LOW SPOT IS UNAVOIDABLE FOR VACUUM PIPING, PLACE IT IN A KNOWN LOCATION AND INCORPORATE A CLEAN-OUT.
4. VACUUM CONNECTION TO DENTAL CHAIR/REAR CABINETS: VACUUM LINE IS REDUCED DOWN TO 5/8" GOING INTO DENTAL JUNCTION BOX. TERMINATE WITH A 90 DEGREE FEMALE THREADED ELBOW CONNECTION. CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
5. COMPRESSED AIR CONNECTIONS TO DENTAL CHAIRS/REAR CABINETS/SINKS SHALL TERMINATE WITH A 3/8" 90° COMPRESSION ANGLE VALVE. CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
6. FOR MORE DETAILS, REFER TO SPEC. SECTIONS 226113 AND 226213 ON SHEET M-000.

KEYNOTES

1. 5/8" FEMALE TREADED CONNECTION FOR VACUUM AND 3/8" 90 DEGREE ANGLE SHUT-OFF VALVE FOR COMPRESSED AIR IN THE DENTAL REAR CABINET (REFER TO GENERAL NOTES). COORDINATE EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
2. DENTAL CONTROL PANEL FOR DENTAL VACUUM AND COMPRESSION AIR SYSTEM.
3. CONTRACTOR SHALL INSTALL COMPRESSED AIR OUTLET/VALVE WITH 1/2" MALE TREADED CONNECTION. CONTRACTOR TO RIGIDLY SECURE OUTLET TO FINISHED WALL. CONFIRM FINAL LOCATION AND OUTLET TYPE WITH DENTAL EQUIPMENT SUPPLIER.
4. 3/8" ANGLE STOP VALVE FOR COMPRESSED AIR SERVING NEW SINK, LOCATED BY COLD AND HOT WATER LINES COMING OUT OF WALL/FLOOR. CONFIRM EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
5. 5/8" FEMALE TREADED ELBOW CONNECTION FOR VACUUM AND 3/8" 90 DEGREE ANGLE SHUT-OFF VALVE FOR COMPRESSED AIR IN THE DENTAL CHAIR CONNECTION BOX. COORDINATE EXACT LOCATION AND CONNECTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
6. 3/8" 90 DEGREE ANGLE SHUT-OFF VALVE FOR COMPRESSED AIR IN DENTAL CHAIR CONNECTION BOX. COORDINATE EXACT LOCATION AND CONENCTION TYPE WITH DENTAL EQUIPMENT SUPPLIER.
7. 2" VACUUM AND 3/4" COMPRESSED AIR DOWN TO FIRST FLOOR CEILING.

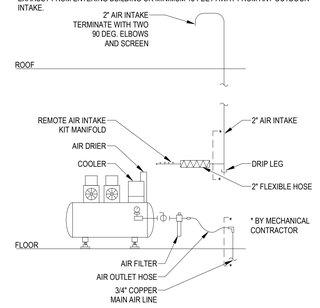
OWNER FURNISHED EQUIPMENT:

DENTAL AIR COMPRESSOR (DAC-1) SELECTED AND FURNISHED BY OWNER, INSTALLED BY CONTRACTOR
BASIS OF DESIGN:
MANUFACTURER: AIR TECHNIQUES, AIR STAR
MODEL NUMBER: AS70
MOTOR HP: 4.5 HP
TANK SIZE: 30 US GAL
CFM @ 80 PSIG: 15.0 CFM

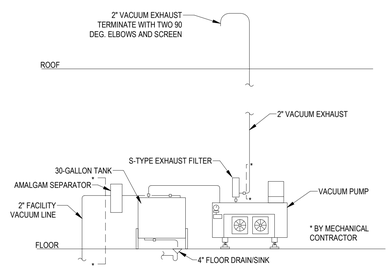
INSTALLATION NOTES:
1. PROVIDE WITH MANUFACTURER'S REMOTE AIR INTAKE KIT. PROVIDE WITH DRIP LEG AND DRAIN VALVE AT THE LOWEST POINT OF AIR INTAKE PIPING. ATTACH A DRAIN TUBE TO DRIP LEG VALVE TO ALLOW DRAINAGE INTO FLOOR DRAIN/SINK.
2. REMOTE AIR INTAKE SHALL BE PROTECTED WITH A SHROUD AND SCREEN AND MINIMUM 15 FEET AWAY FROM ANY EXHAUST OR PLUMBING VENT.
3. PROVIDE WITH MANUFACTURER'S SOUND COVER.
4. PROVIDE WITH PRESSURE REGULATOR BETWEEN MAIN TANK AND DISTRIBUTION PIPING. REGULATOR SHALL BE SET TO 80 PSIG.
5. CONTRACTOR SHALL FOLLOW MANUFACTURER'S MINIMUM SERVICE CLEARANCES. IN ADDITION, A MINIMUM OF 2 FEET CLEAR SPACE SHALL BE PROVIDED IN FRONT OF THE AIR COMPRESSOR.
6. CONTRACTOR SHALL ROUTE THE MEMBRANE DRYER DRAIN VALVE TO NEAREST FLOOR DRAIN.
7. PROVIDE WITH DISCONNECT AND MOTOR STARTER.
8. PROVIDE WITH REMOTE CONTROL UNIT.

DENTAL VACUUM PUMP (DVP-1) SELECTED AND FURNISHED BY OWNER, INSTALLED BY CONTRACTOR
BASIS OF DESIGN:
MANUFACTURER: RAMVAC CORP.
MODEL NUMBER: BISON COMBO 9
MOTOR HP: 5 HP
TANK SIZE: 30 US GAL OTTER TANK

INSTALLATION NOTES:
1. PROVIDE WITH S-TYPE EXHAUST FILTER AND MANUFACTURER'S DRAIN CHECK VALVE.
2. DRAIN TRAP SEAL FROM SEPARATING TANK SHALL BE A MINIMUM OF 4" DEEP. VENT PIPE MUST EXTEND AT LEAST 6" VERTICALLY ABOVE THE SEPARATING TANK BEFORE ANY HORIZONTAL RUN.
3. ALL HORIZONTAL EXHAUST LINES MUST SLOPE BACK TOWARD THE VACUUM UNIT A MINIMUM 1/8" PER FOOT SLOPE. EXHAUST LINE SHALL BE MINIMUM 15 FEET LONG.
4. CONTRACTOR SHALL FOLLOW MANUFACTURER'S MINIMUM SERVICE CLEARANCES. IN ADDITION, A MINIMUM OF 3 FEET CLEAR SPACE SHALL BE PROVIDED IN FRONT OF THE VACUUM PUMP AND SEPARATING TANK.
5. PROVIDE WITH DISCONNECT AND MOTOR STARTER.
6. PROVIDE WITH REMOTE CONTROL UNIT.
7. PROVIDE SHROUD AND SCREEN AT OUTSIDE EXHAUST END. LOCATE TO PREVENT EXHAUST FROM ENTERING BUILDING OR MINIMUM 15 FEET AWAY FROM ANY OUTDOOR INTAKE.



2 M-122 DENTAL AIR COMPRESSOR INSTALLATION DETAIL (INSTALL PER MANUFACTURER'S RECOMMENDATION)
NO SCALE



3 M-122 DENTAL VACUUM PUMP INSTALLATION DETAIL (INSTALL PER MANUFACTURER'S RECOMMENDATION)
NO SCALE

1/4" = 1'-0" 1/8" = 1'-0" 1/16" = 1'-0" 1" = 30'-0"

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Bureau of Asset Management

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HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
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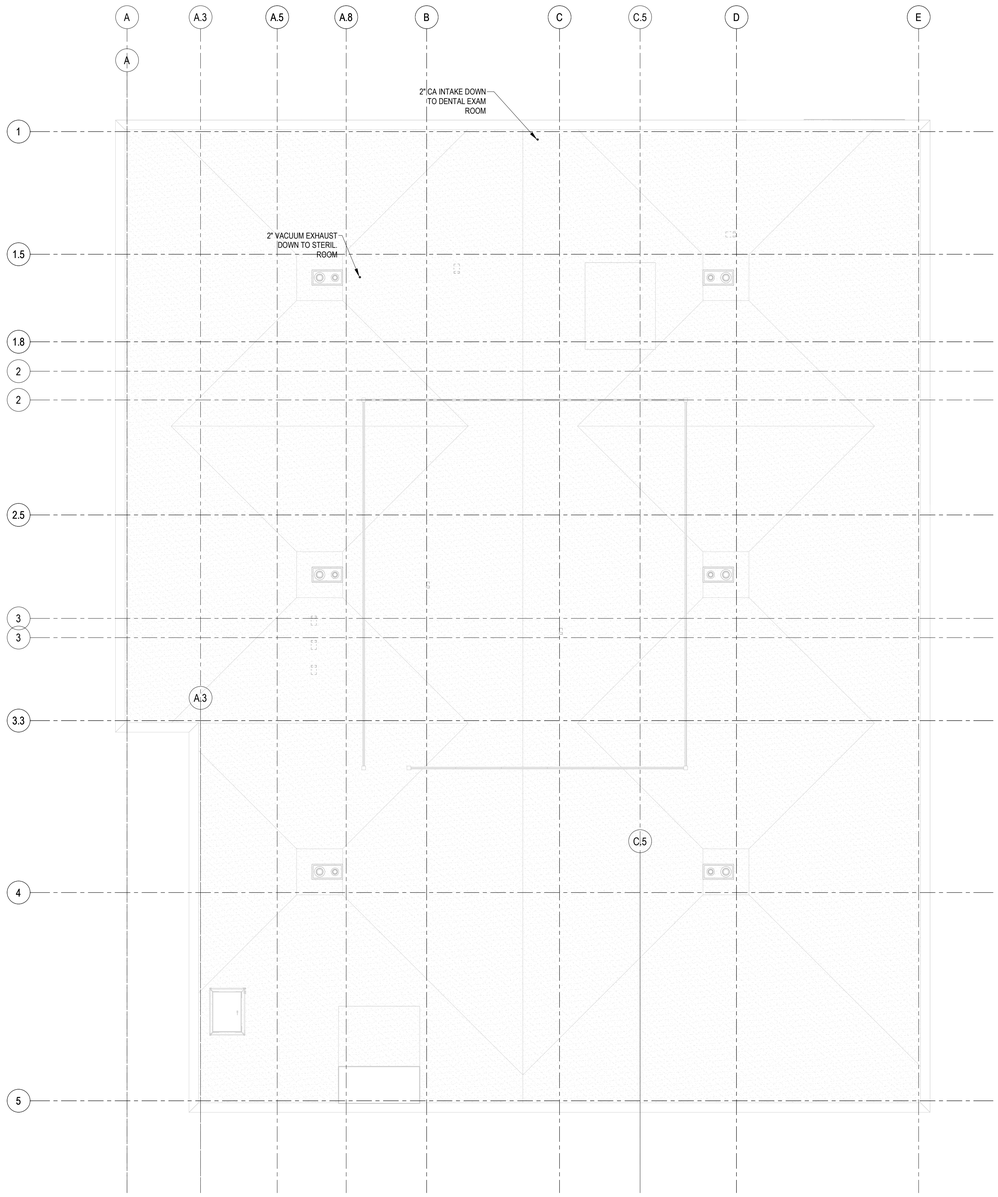
Project Name & Address

200 LEVEL GAS PIPING PLAN

Sheet Name

Drawing No. **M-122**



1 ROOF GAS PIPING PLAN
M-123 1/8" = 1'-0"

3" = 1'-0" 1" = 1'-0" 1/2" = 1'-0" 1/4" = 1'-0" 1/8" = 1'-0" 1/16" = 1'-0" 1" = 30'-0"

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Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH

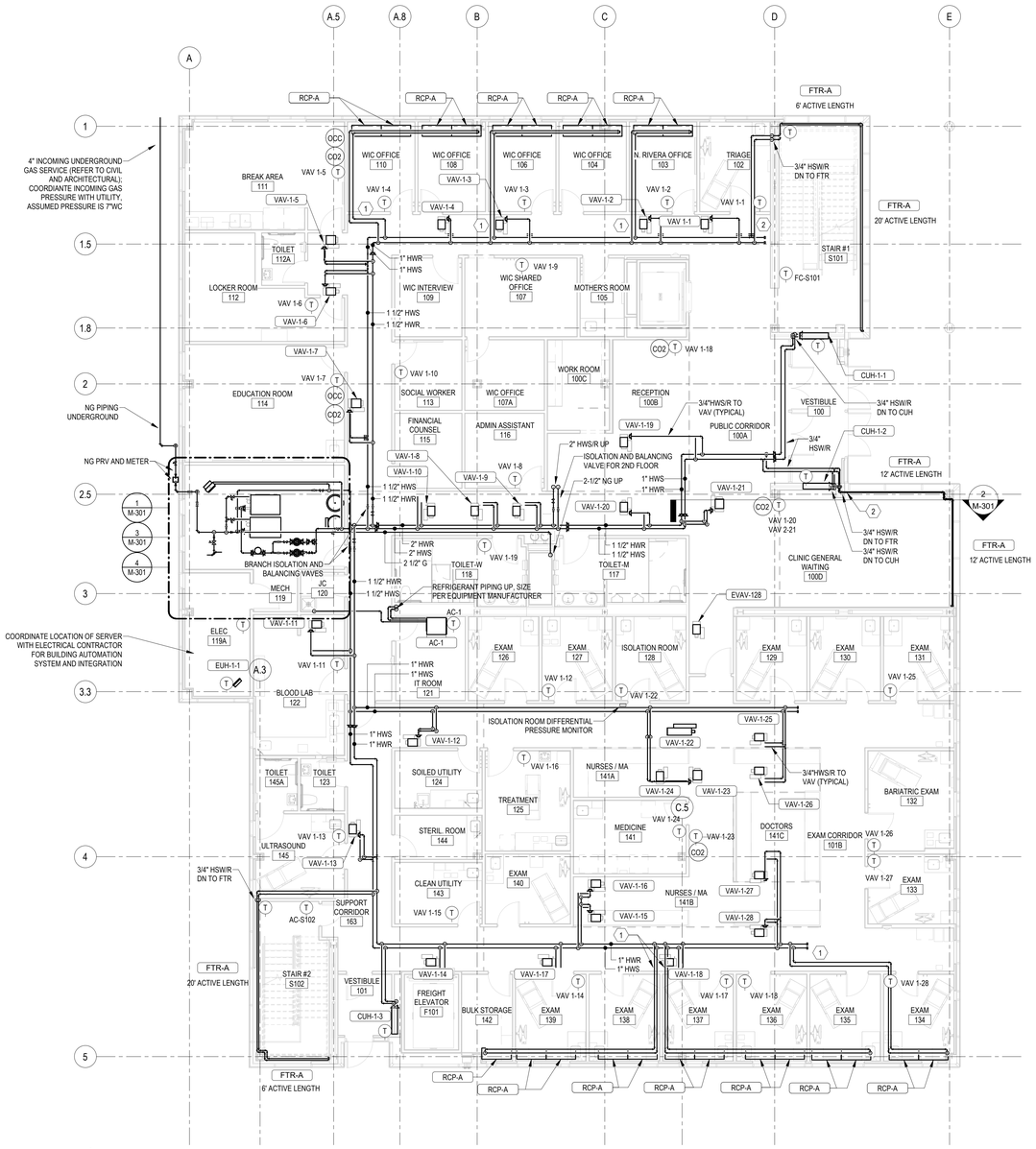
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

ROOF GAS PIPING PLAN

Sheet Name

Drawing No. **M-123**



1 100 LEVEL HVAC PLAN
M-201 1/8" = 1'-0"

KEYNOTES

1 RCP ISOLATION AND CONTROL VALVE.
2 FTR ISOLATION AND CONTROL VALVE.

1" = 30'-0" | 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 3/16" = 1'-0" | 1/2" = 1'-0" | 1" = 1'-0" | 3" = 1'-0"

Department of Capital Planning & Policy
Bureau of Asset Management

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No.	Date	Issue
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3	03/22/2019	ISSUE FOR 25% CD
2	01/30/2019	ISSUE FOR DD - REV 01
1	01/16/2019	ISSUE FOR DD

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COOK COUNTY HEALTH

Project Name & Address

HANSON PARK HEALTH CENTER
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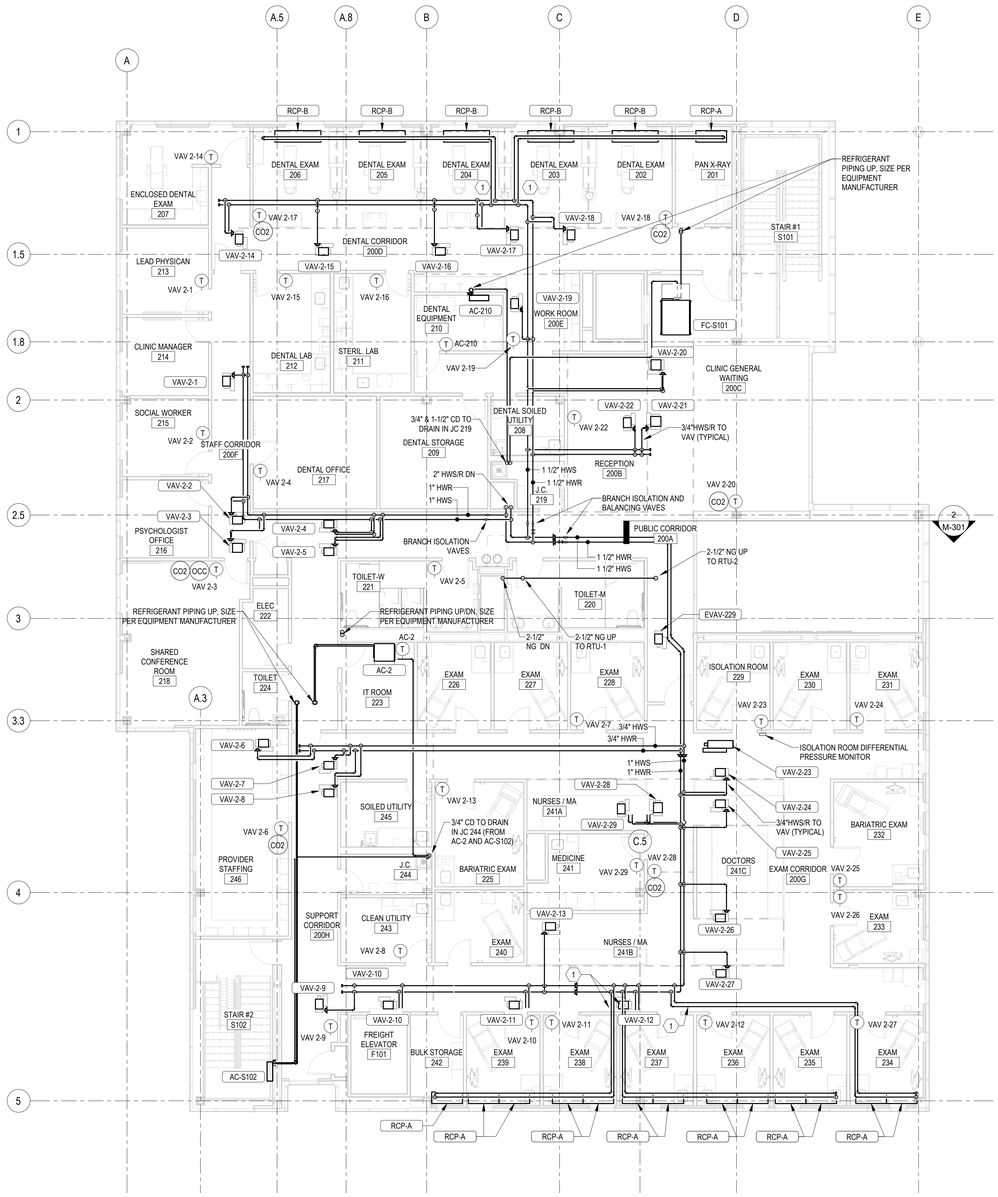
100 LEVEL HYDRONIC PLAN

Sheet Name

Drawing No. **M-201**



1 200 LEVEL HVAC PLAN
M-202 1/8" = 1'-0"

KEYNOTES

1 RCP ISOLATION AND CONTROL VALVE.

1" = 30'-0" 0'-0" 30'-0" 60'-0" 90'-0" 120'-0"
1/16" = 1'-0" 0'-0" 16'-0" 32'-0" 48'-0"
1/8" = 1'-0" 0'-0" 8'-0" 16'-0" 24'-0"
1/4" = 1'-0" 0'-0" 4'-0" 8'-0" 12'-0"
1/2" = 1'-0" 0'-0" 2'-0" 4'-0" 6'-0"
1" = 1'-0" 0'-0" 1'-0" 2'-0" 3'-0"
3" = 1'-0" 0'-0" 0'-3" 0'-6" 0'-9" 1'-0"

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COOK COUNTY HEALTH

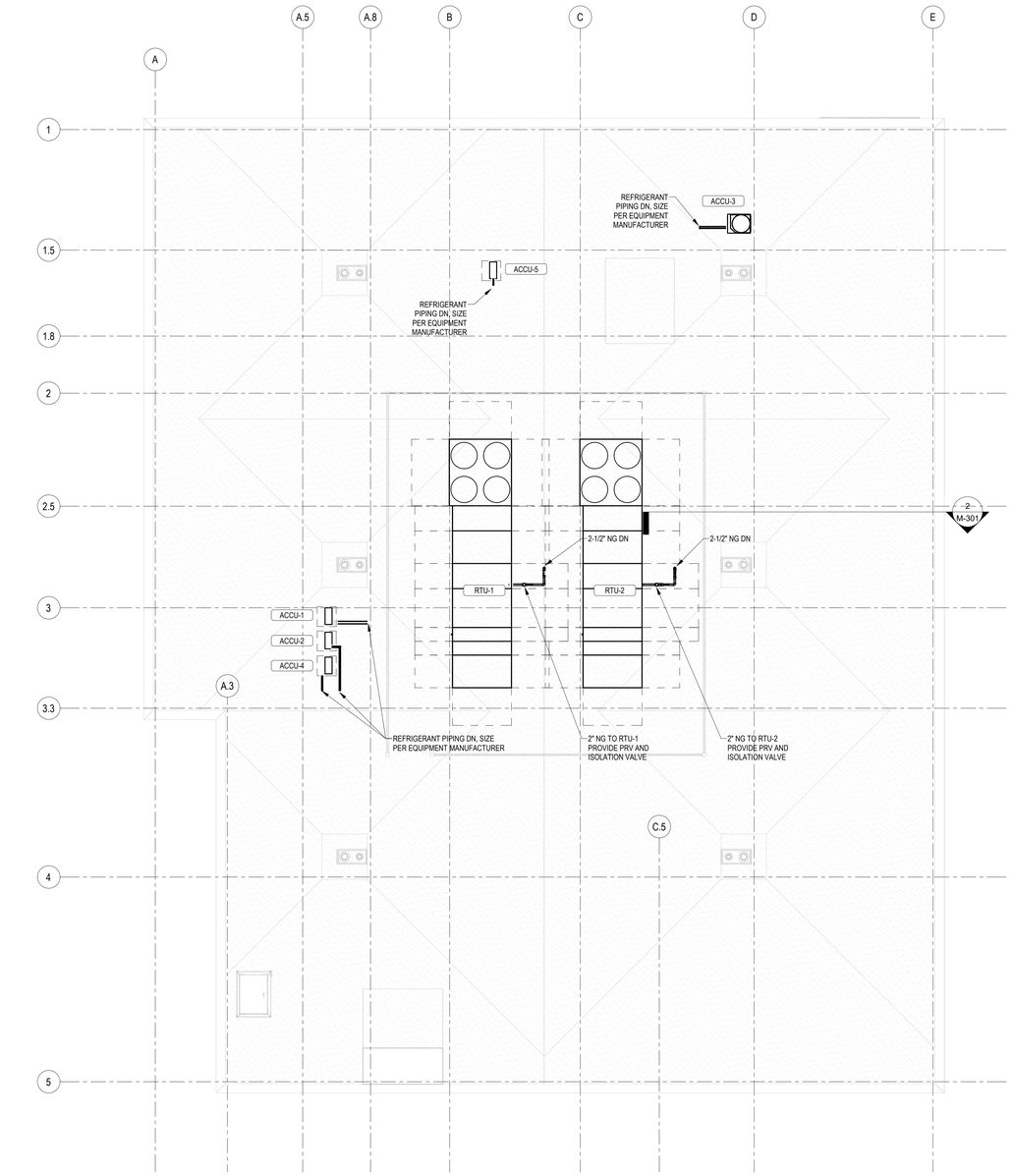
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

200 LEVEL HYDRONIC PLAN

Sheet Name

Drawing No. **M-202**



1 ROOF HVAC PLAN
M-203 1/8" = 1'-0"

3" = 1'-0" 1" = 1'-0" 1/2" = 1'-0" 1/4" = 1'-0" 1/8" = 1'-0" 1/16" = 1'-0" 1" = 30'-0"

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COOK COUNTY HEALTH

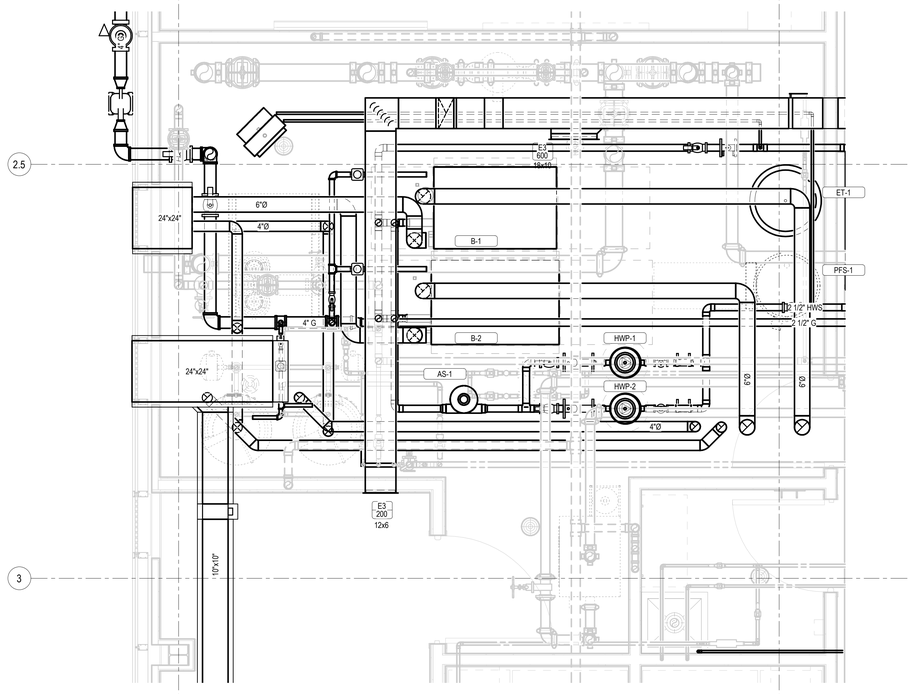
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

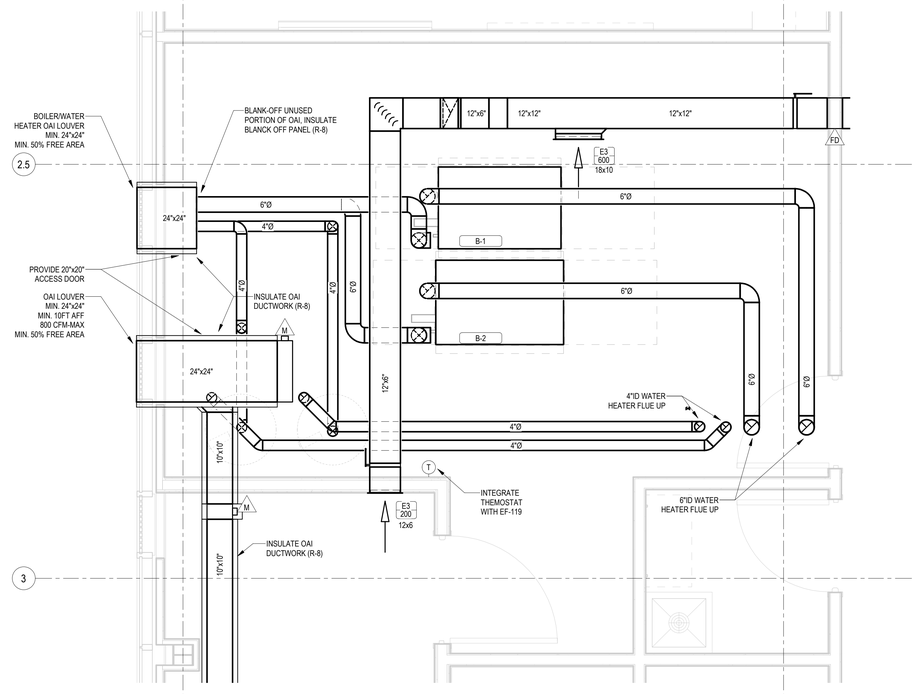
ROOF HYDRONIC PLAN

Sheet Name

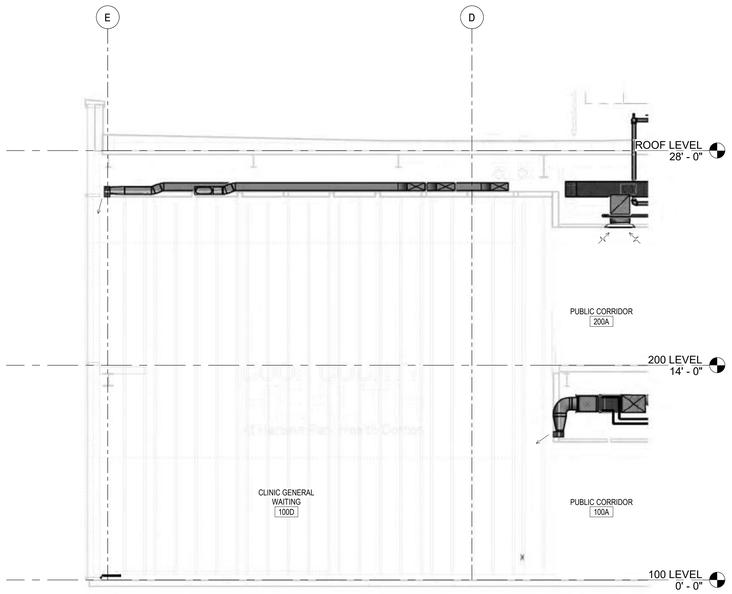
Drawing No. **M-203**



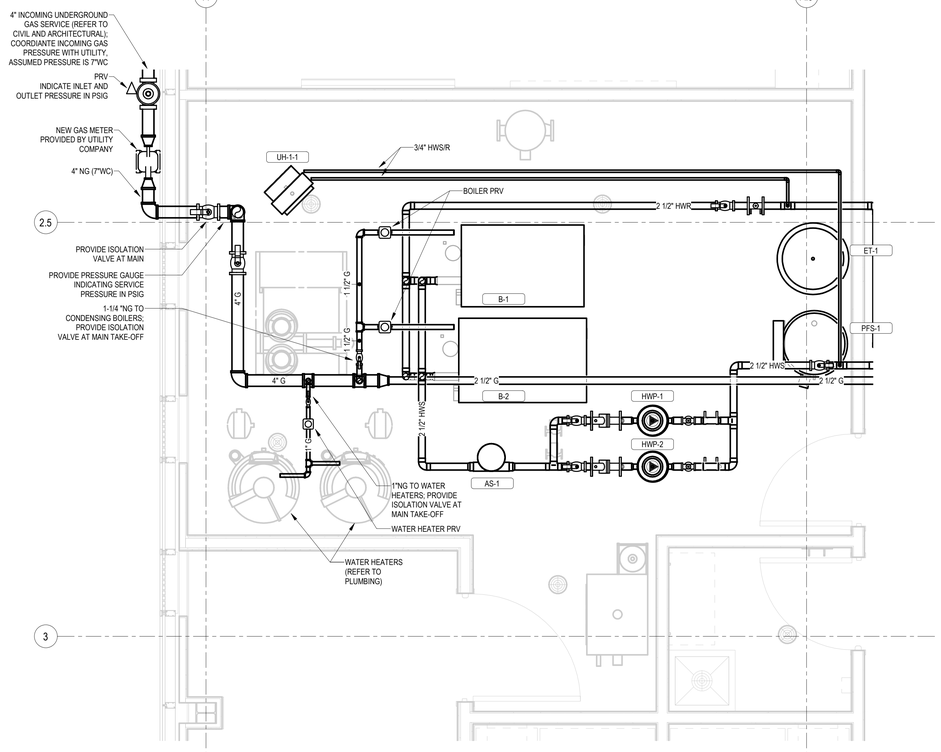
4 M-301 ENLARGED MECHANICAL ROOM MEP PLAN
1/2" = 1'-0"



3 M-301 ENLARGED MECHANICAL ROOM DUCTWORK PLAN
1/2" = 1'-0"



2 M-301 ELEVATION AT CLINIC GENERAL WAITING
1/4" = 1'-0"



1 M-301 ENLARGED MECHANICAL ROOM PIPING PLAN
1/2" = 1'-0"

1" = 30'-0"
1/16" = 1'-0"
1/8" = 1'-0"
1/4" = 1'-0"
1/2" = 1'-0"
3/4" = 1'-0"
1" = 1'-0"

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CHICAGO, IL 60639

ENLARGED HVAC PLANS

Sheet Name

Drawing No. **M-301**

VENTILATION SCHEDULE

ROOM NUMBER	ROOM NAME	ASHRAE 170 ROOM TYPE	FLOOR AREA (SQ. FT.)	ASHRAE 170										ASHRAE 62.1 REQUIREMENTS						ACTUAL			EQUIPMENT	
				ROOM VOLUME FT3	PRESSURE RELATIONSHIP	MINIMUM TOTAL ACH	MINIMUM OA ACH	ALL ROOM AIR EXHAUSTED DIRECTLY TO OUTDOORS	ROOM AIR RECIRCULATED	MINIMUM SA CFM	MINIMUM OA CFM	MINIMUM EA CFM	DEFAULT OCCUPANCY (#/1000 SF)	# OF PEOPLE	OA CFM/PERSON	OA CFM/SF	OA CFM	EA CFM	SA CFM	OA CFM	EA CFM	SUPPLY SYSTEM	ROOM EXHAUST SYSTEM
100	VESTIBULE	N/R	143	1287	-	-	-	-	-	-	-	-	0	0.0	0	0	0	0	0	0	0	CUH 1-1 / CUH 1-2	CUH 1-1 / CUH 1-2
100A	PUBLIC CORRIDOR	CORRIDOR	1631	14679	N/R	2	N/R	-	YES	490	0	0	0	0.0	0	0.06	100	0	500	100	0	RTU-1 / RTU-2	RTU-1 / RTU-2
100B	RECEPTION	RECEPTION AREAS	283	2547	-	-	-	-	-	-	-	-	30	9.0	5	0.06	65	0	320	100	320	RTU-2	RTU-2
100C	WORK ROOM	OFFICE SPACES	103	927	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	90	50	90	RTU-2	RTU-2
100D	CLINIC GENERAL WAITING	CORRIDOR	398	9950	N/R	2	N/R	N/R	YES	335	0	0	30	12.0	5	0.06	85	0	2,350	150	1,900	RTU-2	RTU-2
101	VESTIBULE	N/R	63	567	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	0	0	0	CUH 1-3	CUH 1-3
101B	EXAM CORRIDOR	CORRIDOR	938	8442	N/R	2	N/R	N/R	YES	285	0	0	0	0.0	0	0.06	60	0	360	100	0	RTU-2	RTU-2
102	TRIAGE	TRIAGE	117	1053	NEGATIVE	12	2	YES	NO	0	40	215	0	0.0	0	0	0	0	120	50	220	RTU-1	EF-3
103	N. RIVERA OFFICE	OFFICE SPACES	112	1008	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	170	40	170	RTU-1	RTU-1
104	WIC OFFICE	OFFICE SPACES	110	990	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	170	40	170	RTU-1	RTU-1
105	MOTHER'S ROOM	OFFICE SPACES	64	576	-	-	-	-	-	-	-	-	5	1.0	5	0.06	10	0	60	30	60	RTU-1	RTU-1
106	WIC OFFICE	OFFICE SPACES	112	1008	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	170	40	170	RTU-1	RTU-1
107	WIC SHARED OFFICE	OFFICE SPACES	163	1467	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	170	40	170	RTU-1	RTU-1
107A	WIC OFFICE	OFFICE SPACES	102	918	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	90	30	90	RTU-1	RTU-1
108	WIC OFFICE	OFFICE SPACES	110	990	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	170	30	170	RTU-1	RTU-1
109	WIC INTERVIEW	OFFICE SPACES	98	882	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	90	30	90	RTU-1	RTU-1
110	WIC OFFICE	OFFICE SPACES	112	1008	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	170	30	170	RTU-1	RTU-1
111	BREAK AREA	OFFICE SPACES	316	2844	-	-	-	-	-	-	-	-	5	2.0	5	0.06	30	0	770	200	770	RTU-1	RTU-1
112	LOCKER ROOM	LOCKERS/DRESSING ROOMS	225	2025	-	-	-	-	-	-	-	-	0	0.0	0	0	0	115	200	30	270	RTU-1	TEF-1
112A	TOILET	TOILET ROOM	41	369	NEGATIVE	10	0	YES	NO	0	0	65	0	0.0	0	0	0	70	0	0	85	RTU-1	TEF-1
113	SOCIAL WORKER	OFFICE SPACES	88	792	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	90	30	90	RTU-1	RTU-1
114	EDUCATION ROOM	OFFICE SPACES	346	3114	-	-	-	-	-	-	-	-	100	35.0	7.5	0.06	285	0	800	320	800	RTU-1	RTU-1
115	FINANCIAL COUNSEL	OFFICE SPACES	93	837	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	90	30	90	RTU-1	RTU-1
116	ADMIN ASSISTANTS	OFFICE SPACES	110	990	-	-	-	-	-	-	-	-	5	1.0	5	0.06	15	0	100	30	100	RTU-1	RTU-1
117	TOILET-M	TOILET ROOM	156	1404	NEGATIVE	10	0	YES	NO	0	0	235	0	0.0	0	0	0	210	200	0	320	RTU-2	TEF-1
118	TOILET-W	TOILET ROOM	156	1404	NEGATIVE	10	0	YES	NO	0	0	235	0	0.0	0	0	0	210	200	0	320	RTU-2	TEF-1
119	MECH	N/R	343	4802	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	600	0	600	EF-119	EF-119
119A	ELEC	N/R	145	2030	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	200	0	200	EF-119	EF-119
120	JC	N/R	33	462	-	-	-	YES	-	-	-	-	0	0.0	0	0	0	0	0	0	70	RTU-1	TEF-1
121	IT ROOM	N/R	110	1540	-	-	-	YES	-	-	-	-	0	0.0	0	0	0	0	0	0	0	-	-
122	BLOOD LAB	LABORATORY, STERILIZING	236	2124	NEGATIVE	10	2	YES	NO	0	75	355	25	6.0	10	0.18	105	240	430	150	500	RTU-1	EF-5
123	TOILET	TOILET ROOM	39	351	NEGATIVE	10	0	YES	NO	0	0	60	0	0.0	0	0	0	70	0	0	80	RTU-1	TEF-1
124	SOILED UTILITY	SOILED HOLDING	93	837	NEGATIVE	10	2	YES	NO	0	30	140	5	1.0	0.06	0.12	15	95	100	40	190	RTU-1	TEF-1
125	TREATMENT	TREATMENT ROOM	158	1422	N/R	6	2	N/R	YES	145	50	0	0	0.0	0	0	0	0	150	60	150	RTU-1	RTU-1
126	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
127	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
128	ISOLATION ROOM	AII ROOM	110	990	NEGATIVE	12	2	YES	NO	0	35	200	0	0.0	0	0	0	0	125	50	225	RTU-2	EF-4
129	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
130	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
131	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	170	40	170	RTU-2	RTU-2
132	BARIATRIC EXAM	EXAMINATION ROOM	158	1422	N/R	6	2	N/R	YES	145	50	0	0	0.0	0	0	0	0	240	55	240	RTU-2	RTU-2
133	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	190	40	190	RTU-2	RTU-2
134	EXAM	EXAMINATION ROOM	112	1008	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	230	40	230	RTU-2	RTU-2
135	EXAM	EXAMINATION ROOM	113	1017	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	200	40	200	RTU-1	RTU-1
136	EXAM	EXAMINATION ROOM	113	1017	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	200	40	200	RTU-1	RTU-1
137	EXAM	EXAMINATION ROOM	112	1008	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	200	40	200	RTU-1	RTU-1
138	EXAM	EXAMINATION ROOM	113	1017	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	200	40	200	RTU-1	RTU-1
139	EXAM	EXAMINATION ROOM	113	1017	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	200	40	200	RTU-1	RTU-1
140	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
141	MEDICINE	MEDICINE ROOM	152	1368	POSITIVE	4	2	N/R	YES	95	50	0	10	2.0	5	0.18	40	0	320	55	320	RTU-2	RTU-2
141A	NURSES / MA	RECEPTION AREAS	253	2277	-	-	-	N/R	-	-	-	-	30	8.0	5	0.06	60	0	160	50	160	RTU-2	RTU-2
141B	NURSES / MA	RECEPTION AREAS	253	2277	-	-	-	N/R	-	-	-	-	30	8.0	5	0.06	60	0	160	50	160	RTU-2	RTU-2
141C	DOCTORS	RECEPTION AREAS	140	1260	-	-	-	N/R	-	-	-	-	30	5.0	5	0.06	35	0	430	40	430	RTU-2	RTU-2
142	BULK STORAGE	UNOCCUPIED SPACE	78	702	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	80	30	80	RTU-1	RTU-1
143	CLEAN UTILITY	CLEAN HOLDING	99	891	POSITIVE	4	2	N/R	YES	60	30	0	2	1.0	5	0.06	15	0	80	30	80	RTU-1	RTU-1
144	STERIL. ROOM	LABORATORY, STERILIZING	70	630	NEGATIVE	10	2	YES	NO	0	25	105	25	2.0	10	0.18	35	70	120	40	150	RTU-1	TEF-1
145	ULTRASOUND	TREATMENT ROOM	138	1242	N/R	6	2	N/R	YES	125	45	0	0	0.0	0	0	0	0	400	50	400	RTU-1	RTU-1
145A	TOILET	TOILET ROOM	38	342	NEGATIVE	10	0	YES	NO	0	0	60	0	0.0	0	0	0	70	0	0	80	RTU-1	TEF-1
163	SUPPORT CORRIDOR	CORRIDOR	391	3519	N/R	2	N/R	N/R	YES	120	0	0	0	0.0	0	0.06	25	0	120	30	0	RTU-1	RTU-1
S101	STAIR #1	N/R	364	5096	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	0	0	0	FC-S101	FC-S101
S102	STAIR #2	N/R	209	2926	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	0	0	0	AC-S102	AC-S102
200A	PUBLIC CORRIDOR	CORRIDOR	831	7479	N/R	2	N/R	N/R	YES	250	0	0	0	0.0	0	0.06	50	0	250	60	0	RTU-2	-
200B	RECEPTION	RECEPTION AREAS	215	1935	-	-	-	N/R	-	-	-	-	30	7.0	5	0.06	50	0	270	85	270	RTU-2	RTU-2
200C	CLINIC GENERAL WAITING	RECEPTION AREAS	333	2997	-	-	-	N/R	-	-	-	-	30	10.0	5	0.06	70	0	1,200	130	1,200	RTU-2	RTU-2
200D	DENTAL CORRIDOR	CORRIDOR	422	3798	N/R	2	N/R	N/R	YES	130	0	0	0	0.0	0	0.06	30	0	130	35	130	RTU-2	RTU-2
200E	WORK ROOM	OFFICE SPACES	228	2052	-	-	-	N/R	-	-	-	-	5	2.0	5	0.06	25	0	105	30	105	RTU-2	RTU-2
200F	STAFF CORRIDOR	CORRIDOR	185	1665	N/R	2	N/R	N/R	YES	60	0	0	0	0.0	0	0.06	15	0	80	30	0	RTU-1	-
200G	EXAM CORRIDOR	CORRIDOR	942	8478	N/R	2	N/R	N/R	YES	285	0	0	0	0.0	0	0.06	60	0	410	100	0	RTU-2	RTU-2
200H	SUPPORT CORRIDOR	CORRIDOR	444	3996	N/R	2	N/R	N/R	YES	135	0	0	0	0.0	0	0.06	30	0	250	40	0	RTU-1	RTU-1
201	PAN X-RAY	TREATMENT ROOM	95	902.5	N/R	6	2	N/R	YES	95	35	0	0	0.0	0	0	0	0	150	75	150	RTU-2	RTU-2
202	DENTAL EXAM	TREATMENT ROOM	149	1415.5	N/R	6	2	N/R	YES	145	50	0	0	0.0	0	0	0	0	200	75	200	RTU-2	RTU-2
203	DENTAL EXAM	TREATMENT ROOM	147	1396.5	N/R	6	2	N/R	YES	140	50	0	0	0.0	0	0	0	0	200	75	200	RTU-2	RTU-2
204	DENTAL EXAM	TREATMENT ROOM	147	1396.5	N/R	6	2	N/R	YES	140	50	0	0	0.0	0	0	0	0	200	75	200	RTU-2	RTU-2
205	DENTAL EXAM	TREATMENT ROOM	148	1406	N/R	6	2	N/R	YES	145	50	0	0	0.0	0	0	0	0	200	75	200	RTU-2	RTU-2
206	DENTAL EXAM	TREATMENT ROOM	148	1406	N/R	6	2	N/R	YES	145	50	0	0	0.0	0	0	0	0	200	75	200	RTU-2	RTU-2
207	ENCLOSED DENTAL EXAM	TREATMENT ROOM	176	1672	N/R	6	2	N/R	YES	170	60	0	0	0.0	0	0	0	0	350	80	350	RTU-2	RTU-2
208	DENTAL SOILED UTILITY	SOILED HOLDING	73	657	NEGATIVE	10	2	YES	NO	0	25	110	5	1.0	0.06	0.12	10	75	100	50	150	RTU-2	TEF-1
209	DENTAL STORAGE	CLEAN HOLDING	205	1845	POSITIVE	4	2	N/R	YES	125	65	0	2	1.0	5	0.06	20	0	125	75	125	RTU-2	TEF-1
210	DENTAL EQUIPMENT	UNOCCUPIED SPACE	84	756	-	-	-	YES	-	-	-	-	0	0.0	0	0	0	0	50	50	0	AC-210 / RTU-2	AC-210
211	STERIL. LAB	LABORATORY, GENERAL	157	1413	NEGATIVE	6	2	YES	NO	0	50	145	25	4.0	10	0.18	70	160	325	125	375	RTU-2	EF-1
212	DENTAL LAB	LABORATORY, GENERAL	157	1413	NEGATIVE	6	2	YES	NO	0	50	145	25	4.0	10	0.18	70	160	325	125	375	RTU-2	EF-2
213	LEAD PHYSICAN	OFFICE SPACES	131	1179	-	-	-	N/R	-	-	-	-	5	1.0	5	0.06	15	0	280	50	280	RTU-1	RTU-1
214	CLINIC MANAGER	OFFICE SPACES	118	1062	-	-	-	N/R	-	-	-	-	5	1.0	5	0.06	15	0	280	50	280	RTU-1	RTU-1
215	SOCIAL WORKER	OFFICE SPACES	118	1062	-	-	-	N/R	-	-	-	-	5	1.0	5	0.06	15	0	280	50	280	RTU-1	RTU-1
216	PSYCHOLOGIST OFFICE	OFFICE SPACES	118	1062	-	-	-	N/R	-	-	-	-	5	1.0	5	0.06	15	0	280	50	280	RTU-1	RTU-1
217	DENTAL OFFICE	OFFICE SPACES	237	2133	-	-	-	N/R	-	-	-	-	5	2.0	5	0.06	25	0	215	60	215	RTU-1	RTU-1
218	SHARED CONFERENCE ROOM	CONFERENCE ROOM	346	3114	-	-	-	N/R	-	-	-	-	50	18.0	5	0.06	115	0	960	140	960	RTU-1	RTU-1
219	JC	JANITOR'S CLOSET	46	644	NEGATIVE	10	0	YES	NO	0	0	110	0	0.0	0	0	0	50	0	0	110	RTU-2	TEF-1
220	TOILET-M	TOILET ROOM	156	1404	NEGATIVE	10	0	YES	NO	0	0	235	0	0.0	0	0	0	210	200	0	320	RTU-1	TEF-1
221	TOILET-W	TOILET ROOM	156	1404	NEGATIVE	10	0	YES	NO	0	0	235	0	0.0	0	0	0	210	200	0	320	RTU-1	TEF-1
222	ELEC	N/R	62	868	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	0	0	0	-	-
223	IT ROOM	N/R	110	1540	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	0	0	0	-	-
224	TOILET	TOILET ROOM	41	369	NEGATIVE	10	0	YES	NO	0	0	65	0	0.0	0	0	0	70	0	0	85	RTU-1	TEF-1
225	BARIATRIC EXAM	EXAMINATION ROOM	158	1422	N/R	6	2	N/R	YES	145	50	0	0	0.0	0	0	0	0	150	60	150	RTU-1	RTU-1
226	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
227	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
228	EXAM	EXAMINATION ROOM	109	981	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
229	ISOLATION ROOM	AII ROOM	110	990	NEGATIVE	12	2	YES	NO	0	35	200	0	0.0	0	0	0	0	125	50	225	RTU-2	EF-4
230	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
231	EXAM	EXAMINATION ROOM	111	999	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	210	40	210	RTU-2	RTU-2
232	BARIATRIC EXAM	EXAMINATION ROOM	161	1449	N/R	6	2	N/R	YES	145	50	0	0	0.0	0	0	0	0	280	55	280	RTU-2	RTU-2
233	EXAM	EXAMINATION ROOM	114	1026	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	210	40	210	RTU-2	RTU-2
234	EXAM	EXAMINATION ROOM	115	1035	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	220	40	220	RTU-2	RTU-2
235	EXAM	EXAMINATION ROOM	116	1044	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	220	40	220	RTU-1	RTU-1
236	EXAM	EXAMINATION ROOM	116	1044	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	220	40	220	RTU-1	RTU-1
237	EXAM	EXAMINATION ROOM	114	1026	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	220	40	220	RTU-1	RTU-1
238	EXAM	EXAMINATION ROOM	116	1044	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	220	40	220	RTU-1	RTU-1
239	EXAM	EXAMINATION ROOM	116	1044	N/R	6	2	N/R	YES	105	35	0	0	0.0	0	0	0	0	220	40	220	RTU-1	RTU-1
240	EXAM	EXAMINATION ROOM	110	990	N/R	6	2	N/R	YES	100	35	0	0	0.0	0	0	0	0	100	40	100	RTU-1	RTU-1
241	MEDICINE	MEDICINE ROOM	134	1206	POSITIVE	4	2	N/R	YES	85	45	0	10	2.0	5	0.18	35	0	340	50	340	RTU-2	RTU-2
241A	NURSES / MA	RECEPTION AREAS	253	2277	-	-	-	N/R	-	-	-	-	30	8.0	5	0.06	60	0	160	50	160	RTU-2	RTU-2
241B	NURSES / MA	RECEPTION AREAS	253	2277	-	-	-	N/R	-	-	-	-	30	8.0	5	0.06	60	0	160	50	160	RTU-2	RTU-2
241C	DOCTORS	RECEPTION AREAS	140	1260	-	-	-	N/R	-	-	-	-	30	5.0	5	0.06	35	0	440	40	440	RTU-2	RTU-2
242	BULK STORAGE	UNOCCUPIED SPACE	79	711	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	90	30	90	RTU-1	RTU-1
243	CLEAN UTILITY	CLEAN HOLDING	101	909	POSITIVE	4	2	N/R	YES	65	35	0	2	1.0	5	0.06	15	0	120	40	80	RTU-1	RTU-1
244	JC	JANITOR'S CLOSET	62	868	NEGATIVE	10	0	YES	NO	0	0	145	0	0.0	0	0	0	65	50	0	150	RTU-1	TEF-1
245	SOILED UTILITY	SOILED HOLDING	101	909	NEGATIVE	10	2	YES	NO	0	35	155	5	1.0	0.06	0.12	15	105	165	40	205	RTU-1	TEF-1
246	PROVIDER STAFFING	OFFICE SPACES	327	2943	-	-	-	N/R	-	-	-	-	5	2.0	5	0.06	30	0	700	80	700	RTU-1	RTU-1
S101	STAIR #1	N/R	347	4858	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	0	0	0	FC-S101	FC-S101
S102	STAIR #2	N/R	230	3220	-	-	-	N/R	-	-	-	-	0	0.0	0	0	0	0	0	0	0	AC-S102	AC-S102
		TOTALS	22094																26090	5680	25420		

1" = 30' - 0"
1/16" = 1' - 0"
1/8" = 1' - 0"
1/4" = 1' - 0"
3/8" = 1' - 0"
1/2" = 1' - 0"
1" = 1' - 0"

Department of Capital Planning & Policy
Bureau of Asset Management

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No.	Date	Issue
4	06/25/2019	ISSUE FOR BID
3	03/22/2019	ISSUE FOR 25% CD
2	01/30/2019	ISSUE FOR DD - REV 01
1	01/16/2019	ISSUE FOR DD

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Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH

HANSON PARK HEALTH CENTER

5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

MECHANICAL CODE COMPLIANCE SCHEDULE

Sheet Name

Drawing No. **M-400**

1" = 1' - 0"
3/4" = 1' - 0"
1/2" = 1' - 0"
3" = 1' - 0"
1" = 1' - 0"
1/4" = 1' - 0"
1/8" = 1' - 0"
1/16" = 1' - 0"
1" = 30' - 0"

REFRIGERATION SCHEDULE

UNIT	DESCRIPTION OF UNIT	QUANTITY	LOCATION	COMPRESSOR TYPE	REFRIG. TYPE	NO. OF COMPS.	TONS PER COMP.	HP RATING	REFRIG. PER COMP. (LBS.)	TOTAL REFRIG LBS	AIR/WATER COOLED	COMPRESSOR MANUFACTURER	MODEL NUMBER	REMARKS
RTU-1	PACKAGED DX UNIT	1	ROOF	SCROLL	R410A	4	9.8	-	22.2	88.6	AIR	DAIKIN	RPS042D	ALL
RTU-2	PACKAGED DX UNIT	1	ROOF	SCROLL	R410A	4	9.8	-	22.2	88.6	AIR	DAIKIN	RPS042D	ALL
AC-1/ACCU-1	SPLIT DX UNIT	1	ROOF	SCROLL	R410A	1	2	-	7	7	AIR	DAIKIN	FTX30NVJU / RK30NMVJU	ALL
AC-2/ACCU-2	SPLIT DX UNIT	1	ROOF	SCROLL	R410A	1	2	-	7	7	AIR	DAIKIN	FTX30NVJU / RK30NMVJU	ALL
FC-S101/ACCU-3	SPLIT DX UNIT	1	ROOF	SCROLL	R410A	1	5	-	8	8	AIR	DAIKIN	FTMQ54MVJU / RXYQ72TATJU	ALL
AC-S102/ACCU-4	SPLIT DX UNIT	1	ROOF	SCROLL	R410A	1	3	-	20	20	AIR	DAIKIN	FTX36NVJU / RK30NMVJU	ALL
AC-210/ACCU-5	SPLIT DX UNIT	1	ROOF	SCROLL	R410A	1	2	-	7	7	AIR	DAIKIN	FTX30NVJU / RK30NMVJU	ALL

NOTES:
1. UNIT SHALL BE INSTALLED BY A LICENSED REFRIGERATION CONTRACTOR AND IN FULL COMPLIANCE TO MEET OR EXCEED ALL THE REQUIREMENTS PER THE CURRENT CITY OF CHICAGO MECHANICAL CODE IN ITS ENTIRETY AS WELL AS ANY OR ALL OTHER GOVERNING AUTHORITIES.
2. INSTALL PRESSURE RELIEF VALVE ON THE HIGH PRESSURE SIDE OF THE SYSTEM, UPSTREAM OF ANY INTERVENING VALVES
3. REMOVE EXPANSION VALVES, DEVICES AND CONNECTIONS FROM THE AIR STREAM
4. REFRIGERANT PIPING MUST BE TYPE K OR TYPE ACR
5. ALL CONNECTIONS AND DEVICES MUST BE BRAZED

BUILDING PRESSURIZATION TABLE

	TOTAL
TOTAL ORDINANCE REQUIRED OUTSIDE AIR (CFM)	6,000
TOTAL ACTUAL CONTINUOUS EXHAUST (CFM)	5,725
NOTE: THIS TABLE IS TO SHOW CONFORMITY TO SECTION 18-28-501.4.	

HEATING TABLE

BUILDING LOAD (MBH)	290.73
VENTILATION LOAD (MBH)	466.6
TOTAL HEATING LOAD (MBH)	757.29
HEATING SYSTEM OUTPUT CAPACITY (MBH)	1417.1
HEATING SYSTEM EQUIPMENT INCLUDED IN THIS TABLE	
BOILERS: B-1, B-2	900
RTU-1 & RTU-2	500
ELECTRIC UNIT HEATER	17.1

HEATING CERTIFICATION STATEMENT

I hereby certify that the heating system will heat all rooms regularly occupied by humans to an inside temperature of 68° when the outside temperature is minus 10° F (As required by the Sections 34(13-196-410) and 13(13-196-170) of the 2018 Chicago Building Code and by Paragraph 1204.1 of Chapter 18-12 (Interior Environment) of the proposed Building Planning and Life Safety portion of the Code).

Signed: _____

Owner, Contractor or Owner's licensed engineer representative.

CITY OF CHICAGO VENTILATION SCHEDULE

ROOM NUMBER	ROOM NAME	CMC OCCUPANCY CATEGORY	FLOOR AREA (SQ. FT.)	CITY OF CHICAGO ORDINANCE REQUIREMENTS MECHANICAL VENTILATION CFM AIR SUPPLY	CITY OF CHICAGO ORDINANCE REQUIREMENTS MECHANICAL VENTILATION CFM AIR EXHAUST	ACTUAL REQUIREMENTS MECHANICAL VENTILATION CFM AIR SUPPLY	ACTUAL REQUIREMENTS MECHANICAL VENTILATION CFM ROOM EXHAUST	SUPPLY SYSTEM	ROOM EXHAUST SYSTEM
100	VESTIBULE	NA	143	0	0	0	0	CUH 1-1 / CUH 1-2	CUH 1-1 / CUH 1-2
100A	PUBLIC CORRIDOR	CORRIDOR	1631	0	0	500	0	RTU-1 / RTU-2	RTU-1 / RTU-2
100B	RECEPTION	OFFICE	283	170	85	320	320	RTU-2	RTU-2
100C	WORK ROOM	OFFICE	103	65	50	90	90	RTU-2	RTU-2
100D	CLINIC GENERAL WAITING	WAITING ROOM	398	400	400	2350	1900	RTU-2	RTU-2
101	VESTIBULE	NA	63	0	0	0	0	CUH 1-3	CUH 1-3
101B	EXAM CORRIDOR	CORRIDOR	938	0	0	360	0	RTU-2	RTU-2
102	TRIAGE	DOCTOR EXAM ROOM	117	75	50	120	220	RTU-1	EF-3
103	N. RIVERA OFFICE	OFFICE	112	70	50	170	170	RTU-1	RTU-1
104	WIC OFFICE	OFFICE	110	70	50	170	170	RTU-1	RTU-1
105	MOTHER'S ROOM	OFFICE	64	50	50	60	60	RTU-1	RTU-1
106	WIC OFFICE	OFFICE	112	70	50	170	170	RTU-1	RTU-1
107	WIC SHARED OFFICE	OFFICE	163	100	50	170	170	RTU-1	RTU-1
107A	WIC OFFICE	OFFICE	102	65	50	90	90	RTU-1	RTU-1
108	WIC OFFICE	OFFICE	110	70	50	170	170	RTU-1	RTU-1
109	WIC INTERVIEW	OFFICE	98	60	50	90	90	RTU-1	RTU-1
110	WIC OFFICE	OFFICE	112	70	50	170	170	RTU-1	RTU-1
111	BREAK AREA	PUBLIC DINING ROOM - NO COOKING EQUIPMENT	316	475	475	770	770	RTU-1	RTU-1
112	LOCKER ROOM	LOCKER ROOM	225	70	270	200	270	RTU-1	TEF-1
112A	TOILET	TOILET ROOM	41	0	85	0	85	RTU-1	TEF-1
113	SOCIAL WORKER	OFFICE	88	55	50	90	90	RTU-1	RTU-1
114	EDUCATION ROOM	CLASSROOM	346	520	260	800	800	RTU-1	RTU-1
115	FINANCIAL COUNSEL	OFFICE	93	60	50	90	90	RTU-1	RTU-1
116	ADMIN ASSISTANTS	OFFICE	110	70	50	100	100	RTU-1	RTU-1
117	TOILET-M	TOILET ROOM	156	0	315	200	320	RTU-2	TEF-1
118	TOILET-W	TOILET ROOM	156	0	315	200	320	RTU-2	TEF-1
119	MECH	NA	343	0	0	600	600	EF-119	EF-119
119A	ELEC	NA	145	0	0	200	200	EF-119	EF-119
120	JC	JANITOR'S CLOSET	33	0	70	0	70	RTU-1	TEF-1
121	IT ROOM	NA	110	0	0	0	0	-	-
122	BLOOD LAB	LABORATORY	236	285	285	430	500	RTU-1	EF-5
123	TOILET	TOILET ROOM	39	0	80	0	80	RTU-1	TEF-1
124	SOILED UTILITY	JANITOR'S CLOSET	93	0	190	100	190	RTU-1	TEF-1
125	TREATMENT	DOCTOR EXAM ROOM	158	95	50	150	150	RTU-1	RTU-1
126	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
127	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
128	ISOLATION ROOM	DOCTOR EXAM ROOM	110	70	50	125	225	RTU-2	EF-4
129	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
130	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
131	EXAM	DOCTOR EXAM ROOM	110	70	50	170	170	RTU-2	RTU-2
132	BARIATRIC EXAM	DOCTOR EXAM ROOM	158	95	50	240	240	RTU-2	RTU-2
133	EXAM	DOCTOR EXAM ROOM	110	70	50	190	190	RTU-2	RTU-2
134	EXAM	DOCTOR EXAM ROOM	112	70	50	230	230	RTU-2	RTU-2
135	EXAM	DOCTOR EXAM ROOM	113	70	50	200	200	RTU-1	RTU-1
136	EXAM	DOCTOR EXAM ROOM	113	70	50	200	200	RTU-1	RTU-1
137	EXAM	DOCTOR EXAM ROOM	112	70	50	200	200	RTU-1	RTU-1
138	EXAM	DOCTOR EXAM ROOM	113	70	50	200	200	RTU-1	RTU-1
139	EXAM	DOCTOR EXAM ROOM	113	70	50	200	200	RTU-1	RTU-1
140	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
141	MEDICINE	STORAGE ACTIVE	152	80	80	320	320	RTU-2	RTU-2
141A	NURSES / MA	OFFICE	253	155	80	160	160	RTU-2	RTU-2
141B	NURSES / MA	OFFICE	253	155	80	160	160	RTU-2	RTU-2
141C	DOCTORS	OFFICE	140	85	50	430	430	RTU-2	RTU-2
142	BULK STORAGE	STORAGE ACTIVE	78	50	50	80	80	RTU-1	RTU-1
143	CLEAN UTILITY	STORAGE ACTIVE	99	50	50	80	80	RTU-1	RTU-1
144	STERIL. ROOM	STERILIZING EQUIPMENT ROOM	70	115	115	120	150	RTU-1	TEF-1
145	ULTRASOUND	DOCTOR EXAM ROOM	138	85	50	400	400	RTU-1	RTU-1
145A	TOILET	TOILET ROOM	38	0	80	0	80	RTU-1	TEF-1
163	SUPPORT CORRIDOR	CORRIDOR	391	0	0	120	0	RTU-1	RTU-1
S101	STAIR #1	NA	364	0	0	0	0	FC-S101	FC-S101
S102	STAIR #2	NA	209	0	0	0	0	AC-S102	AC-S102
200A	PUBLIC CORRIDOR	CORRIDOR	831	0	0	250	0	RTU-2	-
200B	RECEPTION	WAITING ROOM	215	215	215	270	270	RTU-2	RTU-2
200C	CLINIC GENERAL WAITING	WAITING ROOM	333	335	335	1200	1200	RTU-2	RTU-2
200D	DENTAL CORRIDOR	CORRIDOR	422	0	0	130	130	RTU-2	RTU-2
200E	WORK ROOM	CORRIDOR	228	0	0	105	105	RTU-2	RTU-2
200F	STAFF CORRIDOR	CORRIDOR	185	0	0	80	0	RTU-1	-
200G	EXAM CORRIDOR	CORRIDOR	942	0	0	410	0	RTU-2	RTU-2
200H	SUPPORT CORRIDOR	CORRIDOR	444	0	0	250	0	RTU-1	RTU-1
201	PAN X-RAY	X-RAY OPERATOR'S ROOM	95	60	50	150	150	RTU-2	RTU-2
202	DENTAL EXAM	DENTIST EXAM ROOM	149	90	50	200	200	RTU-2	RTU-2
203	DENTAL EXAM	DENTIST EXAM ROOM	147	90	50	200	200	RTU-2	RTU-2
204	DENTAL EXAM	DENTIST EXAM ROOM	147	90	50	200	200	RTU-2	RTU-2
205	DENTAL EXAM	DENTIST EXAM ROOM	148	90	50	200	200	RTU-2	RTU-2
206	DENTAL EXAM	DENTIST EXAM ROOM	148	90	50	200	200	RTU-2	RTU-2
207	ENCLOSED DENTAL EXAM	DENTIST EXAM ROOM	176	110	55	350	350	RTU-2	RTU-2
208	DENTAL SOILED UTILITY	JANITOR'S CLOSET	73	0	150	100	150	RTU-2	TEF-1
209	DENTAL STORAGE	STORAGE ACTIVE	205	105	105	125	125	RTU-2	TEF-1
210	DENTAL EQUIPMENT	STORAGE INACTIVE	84	0	0	50	0	AC-210 / RTU-2	AC-210
211	STERIL. LAB	LABORATORY	157	190	190	325	375	RTU-2	EF-1
212	DENTAL LAB	LABORATORY	157	190	190	325	375	RTU-2	EF-2
213	LEAD PHYSICAN	OFFICE	131	80	50	280	280	RTU-1	RTU-1
214	CLINIC MANAGER	OFFICE	118	75	50	280	280	RTU-1	RTU-1
215	SOCIAL WORKER	OFFICE	118	75	50	280	280	RTU-1	RTU-1
216	PSYCHOLOGIST OFFICE	OFFICE	118	75	50	280	280	RTU-1	RTU-1
217	DENTAL OFFICE	OFFICE	237	145	75	215	215	RTU-1	RTU-1
218	SHARED CONFERENCE ROOM	OFFICE	346	210	105	960	960	RTU-1	RTU-1
219	JC	JANITOR'S CLOSET	46	0	95	0	110	RTU-2	TEF-1
220	TOILET-M	TOILET ROOM	156	0	315	200	320	RTU-1	TEF-1
221	TOILET-W	TOILET ROOM	156	0	315	200	320	RTU-1	TEF-1
222	ELEC	NA	62	0	0	0	0	-	-
223	IT ROOM	NA	110	0	0	0	0	-	-
224	TOILET	TOILET ROOM	41	0	85	0	85	RTU-1	TEF-1
225	BARIATRIC EXAM	DOCTOR EXAM ROOM	158	95	50	150	150	RTU-1	RTU-1
226	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
227	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
228	EXAM	DOCTOR EXAM ROOM	109	70	50	100	100	RTU-1	RTU-1
229	ISOLATION ROOM	DOCTOR EXAM ROOM	110	70	50	125	225	RTU-2	EF-4
230	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
231	EXAM	DOCTOR EXAM ROOM	111	70	50	210	210	RTU-2	RTU-2
232	BARIATRIC EXAM	DOCTOR EXAM ROOM	161	100	50	280	280	RTU-2	RTU-2
233	EXAM	DOCTOR EXAM ROOM	114	70	50	210	210	RTU-2	RTU-2
234	EXAM	DOCTOR EXAM ROOM	115	70	50	220	220	RTU-2	RTU-2
235	EXAM	DOCTOR EXAM ROOM	116	70	50	220	220	RTU-1	RTU-1
236	EXAM	DOCTOR EXAM ROOM	116	70	50	220	220	RTU-1	RTU-1
237	EXAM	DOCTOR EXAM ROOM	114	70	50	220	220	RTU-1	RTU-1
238	EXAM	DOCTOR EXAM ROOM	116	70	50	220	220	RTU-1	RTU-1
239	EXAM	DOCTOR EXAM ROOM	116	70	50	220	220	RTU-1	RTU-1
240	EXAM	DOCTOR EXAM ROOM	110	70	50	100	100	RTU-1	RTU-1
241	MEDICINE	STORAGE ACTIVE	134	70	70	340	340	RTU-2	RTU-2
241A	NURSES / MA	OFFICE	253	155	80	160	160	RTU-2	RTU-2
241B	NURSES / MA	OFFICE	253	155	80	160	160	RTU-2	RTU-2
241C	DOCTORS	OFFICE	140	85	50	440	440	RTU-2	RTU-2
242	BULK STORAGE	STORAGE ACTIVE	79	50	50	90	90	RTU-1	RTU-1
243	CLEAN UTILITY	STORAGE ACTIVE	101	55	55	120	80	RTU-1	RTU-1
244	JC	JANITOR'S CLOSET	62	0	125	50	150	RTU-1	TEF-1
245	SOILED UTILITY	JANITOR'S CLOSET	101	0	205	165	205	RTU-1	TEF-1
246	PROVIDER STAFFING	OFFICE	327	200	100	700	700	RTU-1	RTU-1
S101	STAIR #1	NA	347	0	0	0	0	FC-S101	FC-S101
S102	STAIR #2	NA	230	0	0	0	0	AC-S102	AC-S102
		TOTALS	22094	9075	9310	26090	25420		

Department of Capital Planning & Bureau of Asset Management

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No.	Date	Issue
4	06/25/2019	ISSUE FOR BID
3	03/22/2019	ISSUE FOR 25% CD
2	01/30/2019	ISSUE FOR DD - REV 01
1	01/16/2019	ISSUE FOR DD

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Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH

HANSON PARK HEALTH CENTER

5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

MECHANICAL CITY OF CHICAGO CODE COMPLIANCE SCHEDULES

Sheet Name

Drawing No. **M-401**

GAS FIRED ROOFTOP UNIT SCHEDULE

TAG	LOCATION	AREA SERVED	FAN CAPACITY CFM	MIN. OA	RETURN FAN: FAN CFM	E.S.P. IN. WC.	BHP	HP	RPM	RETURN FAN SOUND POWER LEVEL (dB) OCTAVE BAND (FREQUENCY, HZ): 63	125	250	500	1000	2000	4000	8000
RTU-1	ROOF	SEE PLANS	13,000	3,000	11,000	1.1	3.95	7.5	935	86	88	83	81	80	75	67	60
RTU-2	ROOF	SEE PLANS	13,000	3,000	11,000	1.1	3.95	7.5	935	86	88	83	81	80	75	67	60

TAG	DX COOLING COIL: CFM	FPM	SP IN. WC.	E.A.T. DB °F	E.A.T. WB °F	L.A.T. DB °F	L.A.T. WB °F	REFRIG. TYPE	REFRIGERANT CHARGE (LBS)	TC MBH	SC MBH	SUPPLY FAN: E.S.P. IN. WC.	T.S.P. IN. WC.	BHP	HP	RPM
RTU-1	13,000	482	1.21	78.9	65.5	55.9	55.3	R-410A	88.6	471	335	2.0	5.15	13.88	20	1658
RTU-2	13,000	482	1.21	78.9	65.5	55.9	55.3	R-410A	88.6	471	335	2.0	5.15	13.88	20	1658

TAG	SUPPLY FAN POWER LEVEL (dB) OCTAVE BAND (FREQUENCY, HZ): 63	125	250	500	1000	2000	4000	8000	HEATING: CFM	SP IN. WC.	FUEL	INPUT MBH	OUTPUT MBH	MIN. THERMAL EFFICIENCY %	EDB °F	LDB °F
RTU-1	86	88	83	81	80	75	67	60	13,000	0.22	NG	312.5	250	80%	45	63.2
RTU-2	86	88	83	81	80	75	67	60	13,000	0.22	NG	312.5	250	80%	45	63.2

TAG	ELECTRICAL: COND. FAN QTY	FLA EA.	COMPRESSOR QTY	RLA EA.	MCA	V/PH/Hz	OPERATING WEIGHT LBS.	BASED ON	REMARKS
RTU-1	4	2.1	4	15.8	105.6	460/3/60	15,000	DAIKIN RPS042D	ALL
RTU-2	4	2.1	4	15.8	105.6	460/3/60	15,000	DAIKIN RPS042D	ALL

NOTES:
1. FACTORY INSTALLED DUAL INPUT ECONOMIZER.
2. 0-100% FULLY MODULATING ECONOMIZER DAMPER WITH SPRING RETURN.
3. SINGLE POINT POWER ELECTRIC CONNECTION.
4. FIELD INSTALLED VIBRATION TYPE ROOF CURB. ROOF CURB TO BE AS HIGH AS REQUIRED TO MAINTAIN BOTTOM OAI 3FT ABOVE ROOF LEVEL (ASSUME 30" TALL ROOF CURB).
5. PROVIDE OAI WITH BIRDSCREEN (MESH NO SMALLER THAN 0.5 INCH).
6. HOT GAS BYPASS.
7. GAS PRESSURE REGULATOR.
8. PROVIDE WITH MERV 8 PRE-FILTER.
9. PROVIDE WITH FINAL FILTER (MERV-14) TO BE LOCATED DOWNSTREAM OF THE COOLING COIL AND SUPPLY FAN. FILTER SHALL BE HIGHT AIRFLOW.
10. PROVIDE SUPPLY AND RETURN FAN VFD.
11. BOTTOM INLET AND DISCHARGE ARRANGEMENT.
12. MINIMUM 4-STAGE COOLING.
13. PROVIDE MARINE LIGHTS AND POWERED GFI OUTLET.
13. DESIGN UNIT DIMENSIONS: 396" LONG x 94" WIDE x 56" TALL. CONTRACTOR SHALL COORDINATE APPROVED UNIT LOCATIONS AND ROOF OPENINGS WITH ALL TRADES. UNIT WEIGHT (INCLUDING CURB) GREATER THAN SPECIFIED WILL REQUIRE COORDINATION WITH STRUCTURAL ENGINEER.
14. PROVIDE WITH MFR OUTSIDE AIRFLOW MEASURING STATION.
15. PROVIDE FLUE EXTENSION KIT.

FAN SCHEDULE

TAG	LOCATION	AREA SERVED	CFM	TYPE	S.P. IN. WC.	MOTOR: BHP	HP	V/HZ/PH	MAX. DISCHARGE FAN SOUND POWER LEVEL OCTAVE BAND (FREQUENCY, HZ): 63	125	250	500	1000	2000	4000	8000	FAN DATA: RPM	DRIVE	UNIT WEIGHT LBS.	WALL/ROOF OPENING INCHES	BASED ON	REMARKS
TEF-1	ROOF	SEE PLANS	3,100	DOWNBLAST	0.7	0.64	1	460/3/60	76	78	82	73	69	66	62	56	1,178	BELT	100	18.5x18.5	GREENHECK GB-240	1,3,5,10
EF-1	ROOF	211 STERIL. LAB	375	UPBLAST	0.3	0.06	1/25	120/1/60	76	68	62	54	49	49	42	35	1,300	DIRECT	50	12.5x12.5	GREENHECK CUE-095-G	2,3,4,5,10
EF-2	ROOF	212 DENTAL LAB	375	UPBLAST	0.3	0.06	1/25	120/1/60	76	68	62	54	49	49	42	35	1,300	DIRECT	50	12.5x12.5	GREENHECK CUE-095-G	2,3,4,5,10
EF-3	ROOF	102	220	DOWNBLAST	0.6	0.13	1/4	120/1/60	82	80	71	65	63	58	47	48	1,619	DIRECT	50	12.5x12.5	GREENHECK G-097-VG	1,3,4,5,10
EF-4	ROOF	128, 229	450	UPBLAST	1.1	0.58	3/4	460/3/60	86	83	81	76	73	69	67	62	2,664	BELT	300	16x16	GREENHECK VK-H-10-5	3,5,7,8,9,10
EF-5	ROOF	122	500	UPBLAST	0.7	0.14	1/6	120/1/60	80	76	70	64	60	56	52	45	1,655	DIRECT	50	12.5x12.5	GREENHECK CUE-095-VG	2,3,4,5,10
EF-119	ROOF	119, 119A	800	DOWNBLAST	0.6	0.25	1/3	120/1/60	74	78	78	70	65	65	60	54	1,725	DIRECT	75	14.5x14.5	GREENHECK G-099-A	1,3,4,6,10

NOTES:
1. PROVIDE 24" HIGH ROOF CURB WITH HINGED BASE, DISCONNECT SWITCH AND BIRD SCREEN.
2. PROVIDE 42" HIGH ROOF CURB WITH HINGED BASE, DISCONNECT SWITCH AND BIRD SCREEN.
3. MOTORIZED DAMPER AND ACTUATOR (SPRING RETURN CLOSED) AND BIRD SCREEN.
4. PROVIDE WITH DIRECT DRIVE SPEED CONTROLLER.
5. CONTINUOUS OPERATION
6. INTERLOCK WITH ROOM THERMOSTAT
7. PROVIDE HIGH VELOCITY EXHAUST CONE. DISCHARGE SHALL BE MINIMUM 10FT ABOVE ROOF.
8. PROVIDE PERMANENT WARNING SIGN ON FAN STATING "NEGATIVE PRESSURE ISOLATION ROOM EXHAUST FAN - CONTACT INFECTION CONTROL BEFORE TURNING FAN OFF."
9. ALL DUCTWORK ASSOCIATED WITH FAN SHALL BE LABELED "CAUTION - NEGATIVE PRESSURE ISOLATION ROOM EXHAUST" EVERY 20 FT AND AT ALL PENETRATION POINTS.
10. MECHANICAL CONTRACTOR TO PROVIDE STARTER. TO BE WIRED BY ELECTRICAL CONTRACTOR.

AIR CONDITIONING UNIT SCHEDULE

TAG	LOCATION / AREA SERVED	ASSOCIATED EQUIPMENT	EVAPORATOR COOLING CAPACITY (MBH)	MIN. EFFICIENCY SEER (BTUH/W)	FAN SECTION CFM HI/LOW SPEED	DRIVE	REFRIG.	WEIGHT LBS	POWER SUPPLY FLA	MCA	MOP	V/PH/Hz	BASED ON	REMARKS
AC-1	120 IT ROOM	ACCU-1	24	19.6	741 / 512	DIRECT	R-410A	50	2.10	2.63	-	208/1/60	MITSUBISHI PEAD-A24AA7	1,2,3,4,7
AC-2	223 IT ROOM	ACCU-2	24	19.6	741 / 512	DIRECT	R-410A	50	2.10	2.63	-	208/1/60	MITSUBISHI PEAD-A24AA7	1,2,3,4,7
FC-S101	STAIR #1	ACCU-3	54	-	1483 / 1042	DIRECT	R-410A	100	-	3.31	15.0	208/1/60	MITSUBISHI PEFY-P54NMAU	2,3,4,5,6
AC-S102	STAIR #2	ACCU-4	34.6	15.1	887 / 389	DIRECT	R-410A	50	0.76	1.00	-	208/1/60	MITSUBISHI MSY-D36NA	1,2,3,4
AC-210	DENTAL EQPM 210	ACCU-5	24	19.6	741 / 512	DIRECT	R-410A	50	2.10	2.63	-	208/1/60	MITSUBISHI MSY-GL24NA	1,2,3,4

NOTES:
1. PROVIDE SINGLE POINT POWER CONNECTION, OUTDOOR UNIT SHALL POWER INDOOR UNIT.
2. PROVIDE MICROPROCESSOR CONTROLS WITH WALL MOUNTED DISPLAYS.
3. WASHABLE FILTER.
4. NORMAL OPERATION LOW SPEED.
5. DUCTED UNIT; MAX. EPS OF 0.95".
6. HEAT PUMP UNIT WITH 24,000 BTU/H MINIMUM HEATING CAPACITY AT -10F.
7. DUCTED UNIT; MAX. EPS OF 0.3".

VARIABLE AIR VOLUME SCHEDULE

TAG	ASSOCIATED RTU	AREA SERVED	MAXIMUM CFM	MINIMUM CFM	HEATING CFM	INLET PRESSURE IN W.G.	INLET SIZE (DIA.) INCHES	OUTLET SIZE (WxH) INCHES	REHEAT COIL: COIL BTU/H	FLUID	EAT °F	LAT °F	EWT °F	LWT °F	GPM	MAX WPD FT	MAX. SOUND POWER (NC) AT 100% PRI. AIR & 1.0" INLET S.P.: NC	NC	BASED ON	REMARKS
VAV 1-1	RTU-1	102	120	50	120	1.0	6	12x8	3,691	WATER	55	83.5	150	120	0.2	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-2	RTU-1	103	170	100	170	1.0	6	12x8	5,306	WATER	55	83.9	150	120	0.4	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-3	RTU-1	104, 106	340	150	300	1.0	6	12x8	9,380	WATER	55	84.0	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-4	RTU-1	108, 110	340	150	300	1.0	6	12x8	9,380	WATER	55	84.0	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-5	RTU-1	111	770	250	520	1.0	10	14x12.5	16,181	WATER	55	83.8	150	120	1.1	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-6	RTU-1	112	200	100	150	1.0	6	12x8	4,686	WATER	55	83.9	150	120	0.3	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-7	RTU-1	114	800	250	340	1.0	10	14x12.5	10,588	WATER	55	83.8	150	120	0.7	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-8	RTU-1	115, 116	190	100	150	1.0	6	12x8	3,066	WATER	55	73.9	150	120	0.2	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-9	RTU-1	105, 107, 107A	320	100	160	1.0	6	12x8	3,546	WATER	55	75.5	150	120	0.2	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-10	RTU-1	100A, 109, 113	430	150	220	1.0	8	12x10	6,846	WATER	55	83.8	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-11	RTU-1	122	430	150	215	1.0	8	12x10	5,874	WATER	55	80.3	150	120	0.4	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-12	RTU-1	126, 127, 129, 130	400	150	400	1.0	8	12x10	7,906	WATER	55	73.3	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-13	RTU-1	145	400	150	225	1.0	8	12x10	6,992	WATER	55	83.8	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-14	RTU-1	139, 142	280	100	280	1.0	6	12x8	7,787	WATER	55	80.7	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-15	RTU-1	124, 143, 144, 163	420	150	420	1.0	8	12x10	8,191	WATER	55	73.1	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-16	RTU-1	125, 140	250	100	250	1.0	6	12x8	4,763	WATER	55	72.6	150	120	0.3	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-17	RTU-1	137, 138	400	150	400	1.0	8	12x10	10,640	WATER	55	79.6	150	120	0.7	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-18	RTU-1	135, 136	400	150	400	1.0	8	12x10	10,640	WATER	55	79.6	150	120	0.7	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-19	RTU-2	100A, 100B, 100C	660	200	330	1.0	8	12x10	9,246	WATER	55	80.9	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-20	RTU-2	117, 118	400	400	400	1.0	8	12x10	7,499	WATER	55	72.4	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-21	RTU-2	100D	1,050	350	900	1.0	12	16x15	28,027	WATER	55	83.8	150	120	1.9	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-22	RTU-2	128	125	125	125	1.0	6	12x8	1.0 kW	ELECTRIC	55	80.4	-	-	-	-	35	35	TITUS DESV	1,2,3,4,5
VAV 1-23	RTU-2	141A, 141B, 141C	750	250	370	1.0	10	14x12.5	7,063	WATER	55	72.7	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-24	RTU-2	141	320	100	160	1.0	6	12x8	2,948	WATER	55	72.1	150	120	0.2	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-25	RTU-2	101B, 131	350	150	300	1.0	6	12x8	9,341	WATER	55	83.8	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-26	RTU-2	132	240	100	240	1.0	6	12x8	7,220	WATER	55	82.9	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-27	RTU-2	101B, 133	370	150	300	1.0	6	12x8	9,138	WATER	55	83.2	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 1-28	RTU-2	134	230	100	230	1.0	6	12x8	7,209	WATER	55	84.0	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-1	RTU-1	213, 214	560	200	400	1.0	8	12x10	12,376	WATER	55	83.6	150	120	0.8	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-2	RTU-1	215, 216	560	200	400	1.0	8	12x10	12,222	WATER	55	83.3	150	120	0.8	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-3	RTU-1	218	960	300	670	1.0	10	14x12.5	20,964	WATER	55	84.0	150	120	1.4	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-4	RTU-1	200F, 217	295	100	150	1.0	6	12x8	3,451	WATER	55	76.3	150	120	0.2	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-5	RTU-1	220, 221	400	400	400	1.0	8	12x10	7,239	WATER	55	71.8	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-6	RTU-1	246	700	250	350	1.0	10	14x12.5	10,859	WATER	55	83.7	150	120	0.7	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-7	RTU-1	226, 227, 228, 230	400	150	400	1.0	8	12x10	7,545	WATER	55	72.5	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-8	RTU-1	243, 244, 245	335	150	170	1.0	6	12x8	3,614	WATER	55	74.7	150	120	0.2	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-9	RTU-1	200H	250	100	250	1.0	6	12x8	8,590	WATER	55	86.8	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-10	RTU-1	239, 242	310	100	310	1.0	6	12x8	8,649	WATER	55	80.8	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-11	RTU-1	237, 238	440	150	310	1.0	8	12x10	9,624	WATER	55	83.7	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-12	RTU-1	235, 236	440	150	310	1.0	8	12x10	9,624	WATER	55	83.7	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-13	RTU-1	225, 240	250	100	250	1.0	6	12x8	5,412	WATER	55	75.0	150	120	0.4	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-14	RTU-2	207	350	150	250	1.0	6	12x8	7,825	WATER	55	84.0	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-15	RTU-2	212	325	100	325	1.0	6	12x8	5,647	WATER	55	71.1	150	120	0.4	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-16	RTU-2	211	325	100	325	1.0	6	12x8	5,647	WATER	55	71.1	150	120	0.4	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-17	RTU-2	204, 205, 206	600	200	440	1.0	8	12x10	13,769	WATER	55	84.0	150	120	0.9	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-18	RTU-2	201, 202, 203	550	200	400	1.0	8	12x10	12,151	WATER	55	83.1	150	120	0.8	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-19	RTU-2	200D, 200E, 208, 209	460	150	230	1.0	8	12x10	5,959	WATER	55	79.0	150	120	0.4	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-20	RTU-2	200C	1,200	400	640	1.0	12	16x15	19,959	WATER	55	83.9	150	120	1.3	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-21	RTU-2	100D	1,300	400	1,100	1.0	12	16x15	34,468	WATER	55	84.0	150	120	2.3	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-22	RTU-2	200A, 200B	520	200	260	1.0	8	12x10	6,756	WATER	55	79.1	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-23	RTU-2	229	125	125	125	1.0	6	12x8	1.0 kW	ELECTRIC	55	80.4	-	-	-	-	35	35	TITUS DESV	1,2,3,4
VAV 2-24	RTU-2	200G, 231	415	150	280	1.0	8	12x10	8,635	WATER	55	83.6	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-25	RTU-2	232	280	100	280	1.0	6	12x8	8,635	WATER	55	83.6	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-26	RTU-2	200G, 233	415	150	300	1.0	8	12x10	9,208	WATER	55	83.4	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-27	RTU-2	234	220	100	350	1.0	6	12x8	8,482	WATER	55	77.4	150	120	0.6	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-28	RTU-2	241A, 241B, 241C	760	250	400	1.0	10	14x12.5	7,413	WATER	55	72.2	150	120	0.5	5.0	35	35	TITUS DESV	1,2,3,4
VAV 2-29	RTU-2	241	340	150	340	1.0	6	12x8	5,834	WATER	55	70.9	150	120	0.4	5.0	35	35	TITUS DESV	1,2,3,4
EVAV-128	EF-4	128	225	140	-	1.0	6	12x8	-	-	-	-	-	-	-	5.0	35	35	TITUS DECV	2,3,4
EVAV-229	EF-4	229	225	140	-	1.0	6	12x8	-	-	-	-	-	-	-	5.0	35	35	TITUS DECV	2,3,4

NOTES:
1. PROVIDE MANUFACTURER ACCESS DOOR OPTION UPSTREAM OF REHEAT COIL.
2. FACTORY INSTALLATION OF CONTROLLER AND ACTUATOR.
3. PRESSURE INDEPENDENT.
4. UNIT SHALL BE GASKETED FOR CITY OF CHICAGO AIR PLENUM INSTALLATION.
5. PROVIDE WITH ELECTRIC HEATING COIL WITH SCR CONTOL (120V-1PH).

RADIANT CEILING PANEL SCHEDULE

TAG	WIDTH IN	LENGTH IN	No. OF PASSES	FLUID TYPE	EWT °F	LWT °F	OUTPUT BTUH/FT	OUTPUT BTU/H	BASED ON	REMARKS
RCP-A	18	48	3	WATER	150	130	186	744	VULCAN VRPS	ALL
RCP-B	18	60	3	WATER	150	130	186	930	VULCAN VRPS	ALL

NOTES:
1. PROVIDE 4" BATT INSULATION OVER THE TOP OF ENTIRE PANEL.
2. COORDINATE INSTALLTION OF RCP AND INSULATION WITH PERIMETER SLOT DIFFUSERS.

AIR COOLED CONDENSING UNIT SCHEDULE

TAG	LOCATION	ASSOCIATED EQUIPMENT	CONDENSER E.A.T. °F	FAN NO.OF FANS	REFRIGERANT TYPE	REFRIGERANT CHARGE (LBS)	MIN. EFFICIENCY EER (BTUH/W)	POWER SUPPLY MCA	V/PH/Hz	MOTOR CONTROL	EMERGENCY POWER (Y OR N)	UNIT WEIGHT	BASED ON	REMARKS
ACCU-1	ROOF	AC-1	95	1	R-410A	6.6	11.7	19	208/1/60	None	N	170	MITSUBISHI PUY-A24NHA7	1,2
ACCU-2	ROOF	AC-2	95	1	R-410A	6.6	11.7	19	208/1/60	None	N	170	MITSUBISHI PUY-A24NHA7	1,2
ACCU-3	ROOF	FC-S101	95	1	R-410A	8.3	13.7	24	208/1/60	None	N	500	MITSUBISHI PUHY-P72	1,2,3
ACCU-4	ROOF	AC-S102	95	1	R-410A	19.8	8.2	21	208/1/60	None	N	170	MITSUBISHI MUY-D36NA	2
ACCU-5	ROOF	AC-210	95	1	R-410A	6.6	11.7	19	208/1/60	None	N	170	MITSUBISHI MUY-GL24NA	1,2

NOTES:
1. LOW AMBIENT CONTROL DOWN TO -20°F.
2. PROVIDE ROOF EQUIPMENT SUPPORT RAILS.
3. HEAT PUMP UNIT WITH 24,000 BTU/H MINIMUM HEATING CAPACITY AT -10F.

ELECTRIC UNIT HEATER SCHEDULE

TAG	LOCATION	CAPACITY kW	CFM	FAN HP OR (WATT)	FAN RPM	POWER SUPPLY V/PH/HZ	AMPS	BASED ON	REMARKS
EUH 1-1	119A	5	350	-	-	480/3/60	6.0	BERKO MUH0541	ALL

NOTES:
1. TWO-STAGE ELECTRIC HEATING
2. PROVIDE WALL THERMOSTAT.

BOILER SCHEDULE

TAG	LOCATION	FUEL TYPE	FUEL PRESSURE PSIG	RATING MBH INPUT	RATING MBH OUTPUT	MINIMUM THERMAL EFFICIENCY	WATER CONTENT GAL	FLUID	FLOW RATE GPM	WATER TEMP. LEAVING °F	WATER TEMP. ENTERING °F	MAX WORKING PRESSURE @ TEMP PSI / °F	PRESSURE DROP PSIG	ELECTRICAL DATA POWER V/PH/Hz	FAN MOTOR AMP	OPERATING WEIGHT (LBS)	BASED ON	REMARKS
B-1	MECHANICAL ROOM	NG	7" WC	500	450	90%	51	WATER	30	150	120	60 / 194	4	120/1/60	4	1600	CLEAVER BROOKS CFC-500	ALL
B-2	MECHANICAL ROOM	NG	7" WC	500	450	90%	51	WATER	30	150	120	60 / 194	4	120/1/60	4	1600	CLEAVER BROOKS CFC-500	ALL

NOTES:
1. LOCAL HIGH TEMPERATURE BOILER CONTROLS.
2. MODULATING OVER DRAFT CONTROL SYSTEM.
3. 125 PSIG DUAL RELIEF VALVES.
4. PROVIDE FLUE GAS TRAP AND CONDENSATE NEUTRALIZATION BASIN, PIPE TO FLOOR DRAIN.
5. PROVIDE WITH BAS COMMUNICATOIN INTERFACE.
6. FLUE AND COMBUSTION AIR LAYOUTS AND ROUTING TO BE APPROVED BY BOILER MANUFACTURER.
7. 60 PSIG DUAL RELIEF VALVES.

PUMP SCHEDULE

TAG	LOCATION	SYSTEM SERVED	FLUID	TYPE	FLOW GPM	HEAD FT	MOTOR BHP	HP	RPM	V/PH/Hz	BASED ON	REMARKS
HWP-1	MECHANICAL ROOM	HOT WATER PLANT	WATER	INLINE	50	53	1.35	2	1725	460/3/60	B&G E-80	1
HWP-2	MECHANICAL ROOM	HOT WATER PLANT	WATER	INLINE	50	53	1.35	2	1725	460/3/60	B&G E-80	1,2

NOTES:
1. PROVIDE WITH VFD.
2. 100% BACKUP.

AIR SEPARATOR SCHEDULE

TAG	LOCATION	SYSTEM SERVED	FLUID	FLOW GPM	PRESSURE DROP (FT)	INLET SIZE (IN)	BASED ON	REMARKS
AS-1	MECHANICAL ROOM	HOT WATER PLANT	WATER	50	3	3	B&G RL	ALL

NOTES:
1. PROVIDE WITHOUT STRAINER

EXPANSION TANK SCHEDULE

TAG	LOCATION	SYSTEM SERVED	SYSTEM TEMP. RANGE (°F) FLUID	MIN.	MAX.	WORKING PRESSURE PSIG	RELIEF VALVE PRESSURE PSIG	CAPACITY GAL.	ACCEPTANCE VOLUME GAL.	MAX FLOODED LGS	BASED ON	REMARKS
ET-1	MECHANICAL ROOM	HOT WATER PLANT	WATER	45	200	54	60	53	24	630	B&G B-200	ALL

NOTES:
1. REPLACEABLE BLADDER.
2. 240 degF CONTINUOUS OPERATING TEMPERATURE.
3. 26 PSIG FILL PRESSURE, PRESSURE RELIEF VALVE SETTING AT 60 PSIG.
4. 125 PSIG WORKING PRESSURE ASME STAMPED.
5. PROVIDE HOUSEKEEPING BAG.

PRESSURE FILL SYSTEM SCHEDULE

TAG	LOCATION	SYSTEM SERVED	FLUID	SYSTEM FILL PRV SETPOINT PSI	SURGE TANK VOLUME, GAL	PUMP DISCH. PRESS. PSI	FLOW RATE GPM	HP	V/PH/Hz	BASED ON	REMARKS
PFS-1	MECHANICAL ROOM	HOT WATER PLANT	WATER	15	55	30	10	1/2	120/1/60	B&G GMU-30	ALL

NOTES:
1. BALL FLOAT SURGE TANK AUTO FILL VALVE (WATER SYSTEM).
2. LOW LEVEL HORN & LIGHT ALARM WITH DRY CONTACTS FOR EMS MONITORING.

REGISTER AND DIFFUSER SCHEDULE

TAG	SERVICE	TYPE	LENGTH OR FACE AREA	OPPOSED BLADE DAMPER	MATERIAL/ FINISH	TYPE	BASED ON	REMARKS
S1	SUPPLY	LINEAR	48"	NO	STEEL	PLENUM SLOT DIFFUSER - 1 1/2" SLOT, 2 SLOTS, 25 NC MAX	TITUS MODEL TBDI-80	1,2
S2	SUPPLY	SQUARE	24" x 24"	NO	STEEL	ARCHITECTURAL CEILING DIFFUSER, 24"x24" SQUARE FACE, ROUND NECK, 25 NC MAX	TITUS MODEL OMNI	1,2
S3	SUPPLY	SQUARE	24" x 24"	NO	ALUMINUM	ARCHITECTURAL CEILING DIFFUSER, 24"x24" SQUARE FACE, ROUND NECK, 25 NC MAX	TITUS MODEL OMNI-AA	1,2
S4	SUPPLY	REGISTER	SEE PLAN	NO	STEEL	RECTANGULAR REGISTER, DOUBLE ADJUSTABLE DEFLECTION BLADES, 3/4" SPACING, 25 NC MAX	TITUS MODEL 300RS	1,2
S5	SUPPLY	REGISTER	24"x24"	YES	ALUMINUM	RECTANGULAR REGISTER, DOUBLE ADJUSTABLE DEFLECTION BLADES, 3/4" SPACING, 25 NC MAX	TITUS MODEL 300FS	1,2
R1 / E1	RETURN / EXHAUST	SQUARE	24" x 24"	NO	STEEL	ARCHITECTURAL CEILING DIFFUSER, 24"x24" SQUARE FACE, ROUND NECK, 25 NC MAX	TITUS MODEL OMNI	1,2
R2 / E2	RETURN / EXHAUST	SQUARE	24" x 24"	NO	ALUMINUM	ARCHITECTURAL CEILING DIFFUSER, 24"x24" SQUARE FACE, ROUND NECK, 25 NC MAX	TITUS MODEL OMNI-AA	1,2
R3 / E3	RETURN / EXHAUST	GRILLE	SEE PLAN	SEE NOTE 5	STEEL	RECTANGULAR REGISTER, 35 DEG. FIXED SINGLE DEFLECTION BLADES, 3/4" SPACING, 25 NC MAX	TITUS MODEL 350RS	1,2,3
R4 / E4	RETURN / EXHAUST	GRILLE	SEE PLAN	NO	ALUMINUM	RECTANGULAR REGISTER, 0 DEG. FIXED SINGLE DEFLECTION BLADES, 3/4" SPACING, 25 NC MAX	TITUS MODEL 350ZFL	1,2

NOTES:
1. REFER TO DRAWINGS FOR AIRFLOW REQUIREMENTS.
2. COORDINATE BORDER TYPE WITH ARCHITECTURAL.
3. EXPOSED DUCT INSTALLATION.

TAG" S1"
200 TO 350 CFM - 10" NK
351 TO 500 CFM - 12" NK

TAG" S2" & "S3"
50 TO 100 CFM - 6" NK
101 TO 250 CFM - 8" NK
251 TO 400 CFM - 10" NK
401 TO 550 CFM - 12" NK
551 TO 750 CFM - 14" NK

TAG "S5"
50 TO 150 CFM - 6"x6" NK
151 TO 250 CFM - 8"x8" NK
251 TO 350 CFM - 10"x10" NK
351 TO 550 CFM - 12"x12" NK
551 TO 800 CFM - 16"x16" NK

TAG" R1", "R2", "E1", & "E2"
50 TO 100 CFM - 6" NK
101 TO 250 CFM - 8" NK
251 TO 400 CFM - 10" NK
401 TO 550 CFM - 12" NK
551 TO 700 CFM - 14" NK
701 TO 850 CFM - 15" NK

TAG "S4", "R3", "E3", "R4" & "E4"
SEE PLANS

FIN TUBE RADIATOR SCHEDULE

TAG	LOCATION	HEATING CAPACITY BTUH/FT	AVERAGE WATER TEMP. °F	FIN/FT	FIN THICK. IN.	FIN SIZE (WxH) INCH	TUBE IN.	TUBE MAT'L	NO. OF ROWS	BASED ON	REMARKS
FTR-A	SEE PLANS	440	140	40	0.02	3-1/4 SQ.	1	COPPER	1	VULCAN JDVP31-VC34	ALL

NOTES:
1. PROVIDE WALL TO WALL ENCLOSURE, BRACKETS AND BACK PLATES
2. ALL HANGERS AND SUPPORTS SHALL BE HOT DIPPED GALVANIZED.
3. ENCLOSURE (14 GA.) AND ACCESSORIES SHALL BE ZINC COATED BONDERIZED STEEL WITH A TWO PART EPOXY PAINT ON ALL SURFACES (FRONT AND BACK).
4. CUSTOM COLOR SELECTED BY ARCHITECT.
5. PROVIDE PEDISTAL MOUNT.
6. PROVIDE 2-ROW STYLE; COORDIANTE INSTALLATION TO UTILIZE 2ND ROW FOR RETURN WATER PIPING, 1-ROW SHALL BE ACTIVE ELEMENT.

UNIT / CABINET UNIT HEATER SCHEDULE

TAG	LOCATION	UNIT SIZE	MBH	LOW SPEED CFM	FLUID	GPM	MOTOR V/PH/Hz	HP	AMPS	MOUNTING	BASED ON	REMARKS
CUH 1-1	VESTIBULE 100	04	19.2	430	WATER	1.9	115/1/60	1/15	0.8	WALL RECESSED	VULCAN RWI-1130	1,2,3,5,6,7
CUH 1-2	VESTIBULE 100	04	29.8	345	WATER	3.0	115/1/60	1/15	0.8	WALL RECESSED	VULCAN RWI-1130	1,2,4,5,6,7
CUH 1-3	VESTIBULE 101	04	29.8	345	WATER	3.0	115/1/60	1/15	0.8	WALL RECESSED	VULCAN RWI-1130	1,2,4,5,6,7
UH 1-1	MECH 119	-	22.4	750	WATER	2.2	115/1/60	1/20	1.4	HANGING	VULCAN HV-048B	1,2,3

NOTES:
1. PROVIDE UNIT MOUNTED THERMOSTAT.
2. COLOR SELECTED BY ARCHITECT.
3. 1 ROW COIL.
4. 2 ROW COIL.
5. PROVIDE ARCHITECTURAL BAR GRILLE.
6. PROVIDE TAMPER RESISTAND FASTENER FOR ACCESS DOOR.
7. PROVIDE WITH WALL SEAL ASSEMBLY.

SEAL OF COOK COUNTY ILLINOIS — JANUARY 1831

Department of Capital Planning & Policy
Bureau of Asset Management

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No.	Date	Issue
4	06/25/2019	ISSUE FOR BID
3	03/22/2019	ISSUE FOR 25% CD
2	01/30/2019	ISSUE FOR DD - REV 01
1	01/16/2019	ISSUE FOR DD

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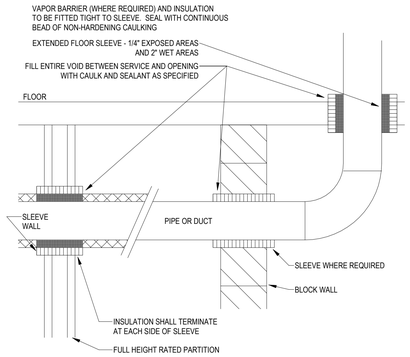
Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH

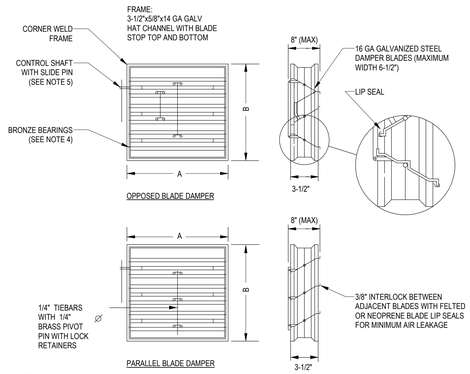
HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639
Project Name & Address

MECHANICAL SCHEDULES
Sheet Name

Drawing No. **M-402**

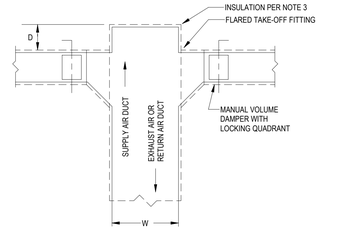


1 / M-500 DUCT OR PIPE WALL AND FLOOR PENETRATION DETAIL
NO SCALE



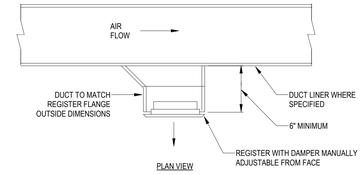
NOTES:
1. MAXIMUM WIDTH, A, 48" PER SECTION.
2. MAXIMUM HEIGHT, B, 72" PER SECTION.
3. S.S. JAMB TO BLADE WINDSTOP NOT SHOWN.
4. SELF LUBRICATING BRONZE BEARINGS WITH 1/2" SLIDE PINS ON END OF BLADES.
5. CADMIUM PLATED CONTROL SHAFT 1/2" OR 3/8" SQUARE EXTENDED 6" BEYOND FRAME WITH SLIDE PIN CONTROL.
6. PROVIDE OPPOSED BLADE DAMPERS FOR ALL AIR HANDLING UNIT OUTSIDE AIR, RELIEF AIR, AND RETURN DAMPERS.

2 / M-500 LOW LEAKAGE RECTANGULAR DAMPERS
NOT TO SCALE

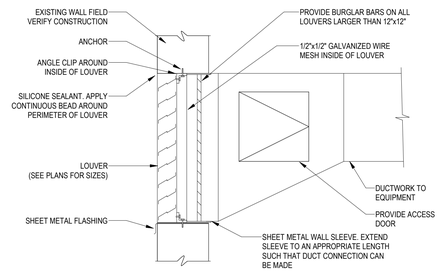


NOTES:
1. AIR CUSHION REQUIRED AT END OF RUN FOR BRANCH TAKE OFFS ILLUSTRATED
2. CUSHION DEPTH, D, EQUAL TO 1/2 THE GREATER OF H OR W, SUBJECT TO 6" MINIMUM, WHERE H = HEIGHT OF DUCT
3. EXTERNALLY INSULATED DUCTWORK ONLY (PER SPECIFICATIONS)

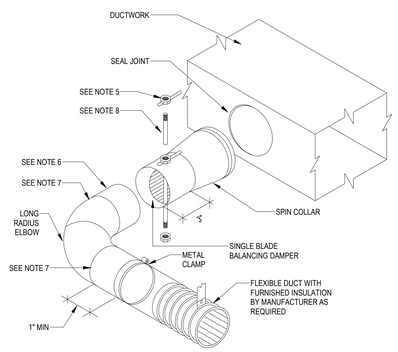
3 / M-500 EXTERNALLY INSULATED DUCTWORK TEE
NOT TO SCALE



4 / M-500 TYPICAL DUCT MOUNTED REGISTER (RECTANGULAR DUCT)
NOT TO SCALE

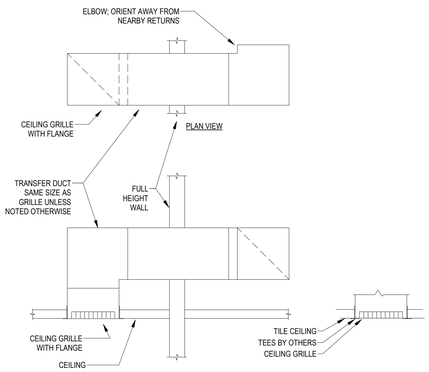


5 / M-500 LOUVER ASSEMBLY DETAIL
NOT TO SCALE

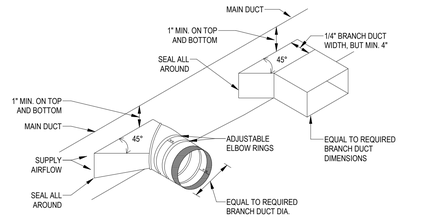


NOTES:
1. SUPPORT DUCTWORK AS REQUIRED.
2. BAND FLEX TO COLLAR 1/2" MINIMUM FROM OUTBOARD END OF COLLAR.
3. INSTALL SPIN COLLAR DAMPER IN OPEN POSITION; FINAL ADJUSTMENT BY TAB CONTRACTOR.
4. PULL FLEXIBLE DUCT INSULATION UP TO END OF SPIN COLLAR AT EDGE OF RECTANGULAR DUCTWORK; SEAL VAPOR BARRIER WITH GRAY TAPE TO PREVENT MOISTURE MIGRATION.
5. PROVIDE EXTENSION RODS TO ACCOMMODATE INSULATION, PULL TO EDGE OF DUCTWORK AS REQUIRED AND SEAL TO EFFECT VAPOR BARRIER.
6. POP RIVET OR SHEET METAL SCREWS, MINIMUM 3 EACH AT 120 INTERVALS, CONNECTING STOVEPIPE TO COLLAR. ENSURE RIVETS OR SCREWS DO NOT INTERFERE WITH DAMPER.
7. TAPE AND SEAL ALL JOINTS TO PREVENT LEAKAGE.
8. INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASY SERVICE (SHOWN ON TOP FOR EASE OF ILLUSTRATION ONLY).

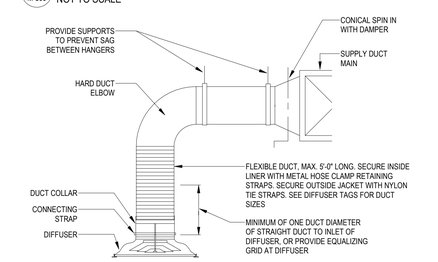
6 / M-500 SPIN COLLAR FLEXIBLE DUCT CONNECTOR WITH DAMPER AND WITH LONG RADIUS ELBOW
NOT TO SCALE



7 / M-500 TRANSFER DUCT DETAIL II
NO SCALE

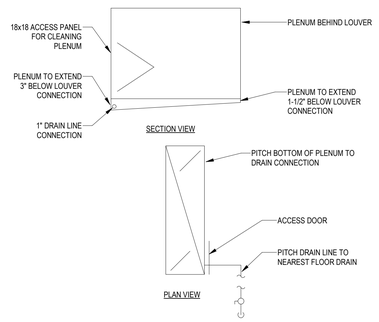


8 / M-500 TYPICAL BRANCH TAKEOFF FITTING DETAIL
NOT TO SCALE

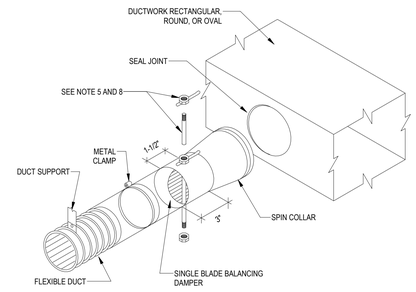


9 / M-500 DIFFUSER FLEXIBLE DUCT CONNECTION
NOT TO SCALE

NOTES:
1. REFER TO HVAC FLOOR PLANS FOR DUCT SIZES.
2. REFER TO SCHEDULES FOR GRILLES, REGISTERS, DIFFUSERS AND TERMINAL SIZES AND TYPES.
3. PROVIDE A MANUAL TYPE BALANCING DAMPER FOR EACH SUPPLY OUTLET AND RETURN INLET.
4. ALL DUCT RUNOUTS TO DIFFUSERS SHALL BE THE SAME SIZE AS DIFFUSER NECK SIZE, UNLESS OTHERWISE NOTED.
5. FLEX DUCT WILL NOT BE ALLOWED ON RETURN OR EXHAUST DUCTWORK SYSTEMS.
6. PROVIDE 12" AIR CUSHION AT THE END OF EACH SUPPLY MAIN AND BRANCH DUCT.
7. INDIVIDUAL BRANCH BALANCING DAMPERS NOT REQUIRED FOR SUPPLY OR EXHAUST REGISTERS.
8. FLEXIBLE DUCTWORK SHALL NOT BE INSTALLED IN PLACE OF 90DEG ELBOW.

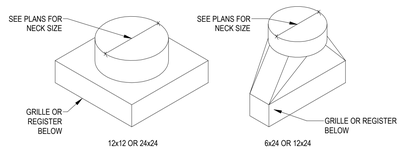


10 / M-500 LOUVER PLENUM DRAIN DETAIL
NOT TO SCALE

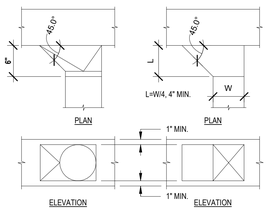


NOTES:
1. SUPPORT DUCTWORK AS REQUIRED.
2. BAND FLEX TO COLLAR 1/2" MINIMUM FROM OUTBOARD END OF COLLAR.
3. INSTALL SPIN COLLAR DAMPER IN OPEN POSITION; FINAL ADJUSTMENT BY TAB CONTRACTOR.
4. PULL FLEXIBLE DUCT INSULATION UP TO END OF SPIN COLLAR AT EDGE OF RECTANGULAR DUCTWORK; SEAL VAPOR BARRIER WITH GRAY TAPE TO PREVENT MOISTURE MIGRATION.
5. PROVIDE EXTENSION RODS TO ACCOMMODATE INSULATION, PULL TO EDGE OF DUCTWORK AS REQUIRED AND SEAL TO AFFECT VAPOR BARRIER.
6. POP RIVET OR SHEET METAL SCREWS, MINIMUM 3 EACH AT 120 INTERVALS, CONNECTING STOVEPIPE TO COLLAR. ENSURE RIVETS OR SCREWS DO NOT INTERFERE WITH DAMPER.
7. TAPE AND SEAL ALL JOINTS TO PREVENT LEAKAGE.
8. INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASY SERVICE (SHOWN ON TOP FOR EASE OF ILLUSTRATION ONLY).

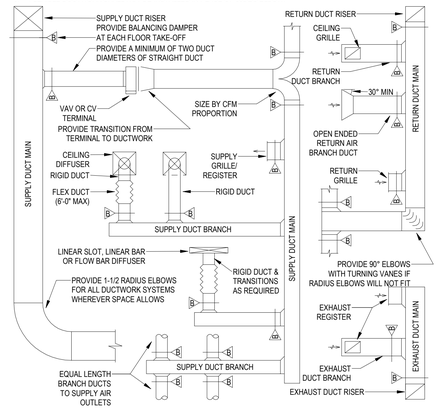
11 / M-500 SPIN COLLAR FLEXIBLE DUCT CONNECTOR WITH DAMPER
NOT TO SCALE



12 / M-500 GRILLE & REGISTER BOOT DETAIL
NOT TO SCALE



13 / M-500 DUCT TAKE-OFF DETAIL
NOT TO SCALE



14 / M-500 DUCTWORK INSTALLATION DIAGRAM
NOT TO SCALE

1/2" = 1'- 0"
1" = 50'- 0"
1/16" = 1'- 0"
1/8" = 1'- 0"
1/4" = 1'- 0"
3/16" = 1'- 0"
3" = 1'- 0"
1" = 1'- 0"

SEAL OF COOK COUNTY ILLINOIS JANUARY 1831

Department of Capital Planning & Policy
Bureau of Asset Management

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No.	Date	Issue
4	06/25/2019	ISSUE FOR BID
3	03/22/2019	ISSUE FOR 25% CD
2	01/30/2019	ISSUE FOR DD - REV 01
1	01/16/2019	ISSUE FOR DD

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Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH

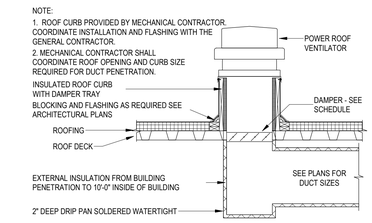
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

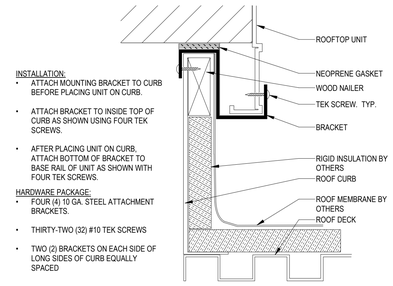
MECHANICAL DETAILS

Sheet Name

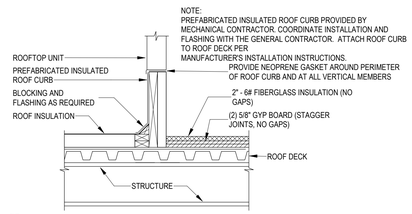
Drawing No. **M-500**



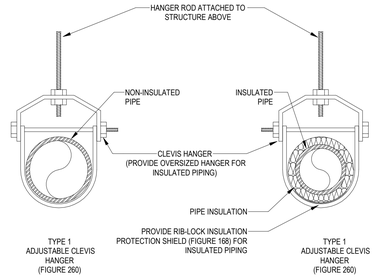
1 M-501 POWER ROOF VENTILATOR DETAIL
NOT TO SCALE



2 M-501 RTU HOLD-DOWN BRACKET INSTALLATION DETAIL
NOT TO SCALE

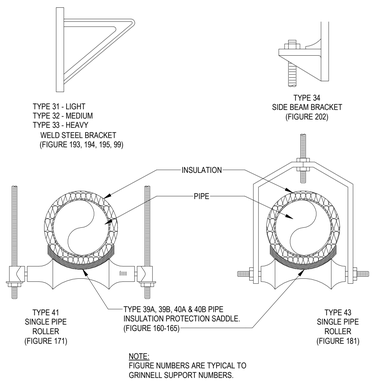


3 M-501 ROOFTOP UNIT CURB INSTALLATION DETAIL
NOT TO SCALE



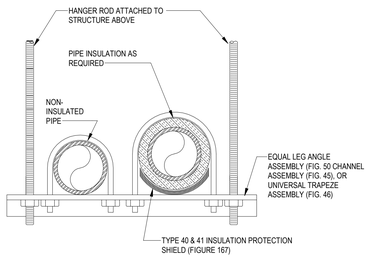
NOTE:
1. FIGURE NUMBERS ARE TYPICAL TO GRINNELL SUPPORT NUMBERS.

4 M-501 SINGLE PIPE CLEVIS HANGER
NOT TO SCALE



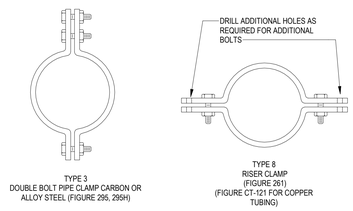
NOTE:
FIGURE NUMBERS ARE TYPICAL TO GRINNELL SUPPORT NUMBERS.

5 M-501 PIPE BRACKETS AND ROLLERS
NOT TO SCALE



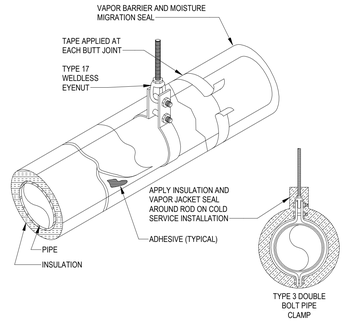
NOTES:
1. SIZE RODS, SPRING CUSHION, AND HORIZONTAL MEMBER APPROVED TO SATISFY LOAD REQUIREMENT WITH SAFETY FACTOR OF 5.
2. FIGURE NUMBERS ARE TYPICAL TO GRINNELL SUPPORT NUMBERS.

6 M-501 TRAPEZE TYPE PIPE SUPPORT
NOT TO SCALE

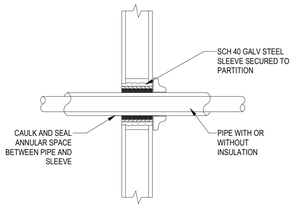


NOTE:
FIGURE NUMBERS ARE TYPICAL TO GRINNELL SUPPORT NUMBERS.

7 M-501 PIPE CLAMPS
NOT TO SCALE

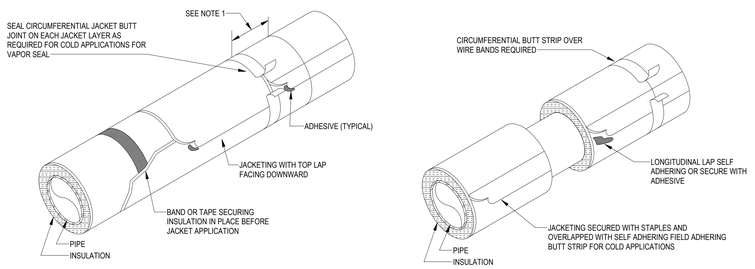


8 M-501 PIPE HANGER, INSULATION AND VAPOR JACKET
NOT TO SCALE



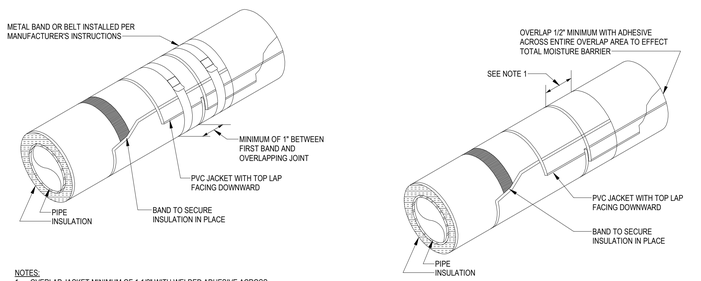
NOTES:
1. TYPICAL FOR NON-INSULATED PIPING AND CONDUIT.
2. ALL CAULKING AND SEALANT SHALL BE FIRE RATED (SEE SPECIFICATIONS).
3. WHERE PIPING IS EXPOSED AT FINISHED WALL, FLUSH MOUNT SLEEVE AND PROVIDE AN ESCUTCHEON PLATE.

9 M-501 PIPE PENETRATION THRU INTERIOR WALLS
NOT TO SCALE



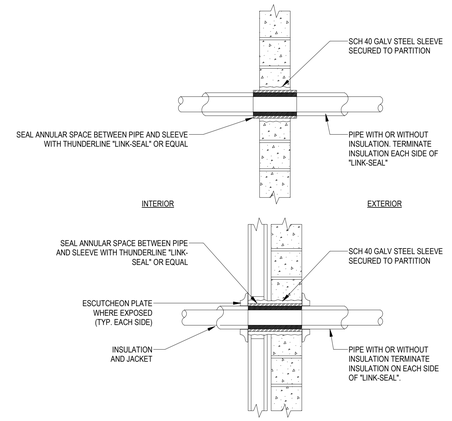
NOTES:
1. OVERLAP JACKET MINIMUM OF 1-1/2".
2. LONGITUDINAL JACKETING SEAMS SHALL BE POSITIONED AT 3 O'CLOCK OR 9 O'CLOCK ONLY WITH TOP LAP FACING DOWNWARD FOR WEATHER PROTECTION.

10 M-501 FACTORY AND FIELD APPLIED PIPE JACKETING OVER PIPE INSULATION
NOT TO SCALE



NOTES:
1. OVERLAP JACKET MINIMUM OF 1-1/2" WITH WELDED ADHESIVE ACROSS ENTIRE JOINT OVERLAP TO EFFECT TOTAL MOISTURE BARRIER.
2. LONGITUDINAL JACKETING SEAMS SHALL BE POSITIONED AT 3 O'CLOCK OR 9 O'CLOCK ONLY WITH TOP LAP FACING DOWNWARD FOR WEATHER PROTECTION.

11 M-501 FIELD APPLIED PVC PIPE JACKETING OVER PIPE INSULATION
NOT TO SCALE



NOTES:
1. TYPICAL FOR NON-INSULATED PIPING AND CONDUIT.
2. TYPICAL FOR MASONRY OR CONCRETE WALL.
3. FOR WALL PENETRATION WITH FIRE RATINGS GREATER THAN (1) HOUR, USE THUNDERLINE "PYRO-PAC" SEALS OR EQUAL.
4. WHERE PIPING EXPOSED AT FINISHED WALL, FLUSH MOUNT SLEEVE, AND PROVIDE AN ESCUTCHEON PLATE.

12 M-501 PIPE PENETRATION THRU EXTERIOR WALLS
NOT TO SCALE

3/4" = 1'- 0" 1'- 0" 0' - 9" 0' - 6" 0' - 3" 0' - 0"
1" = 1'- 0" 3' - 0" 2' - 0" 1' - 0" 0' - 0"
1/2" = 1'- 0" 6' - 0" 4' - 0" 2' - 0" 0' - 0"
1/4" = 1'- 0" 12' - 0" 8' - 0" 4' - 0" 0' - 0"
1/8" = 1'- 0" 24' - 0" 16' - 0" 8' - 0" 0' - 0"
1/16" = 1'- 0" 48' - 0" 32' - 0" 16' - 0" 0' - 0"
1" = 30'- 0" 120' - 0" 90' - 0" 60' - 0" 30' - 0" 0' - 0"

Department of Capital Planning & Policy
Bureau of Asset Management

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2	01/30/2019	ISSUE FOR DD - REV 01
1	01/16/2019	ISSUE FOR DD

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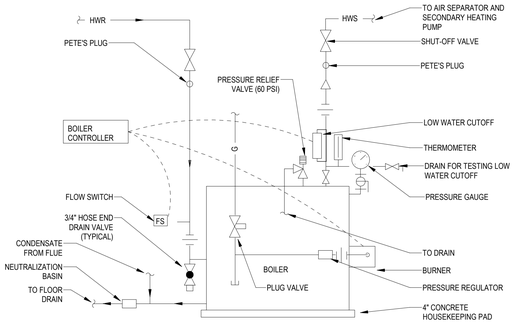
Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

MECHANICAL DETAILS
Sheet Name

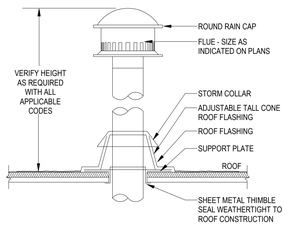
Drawing No. **M-501**



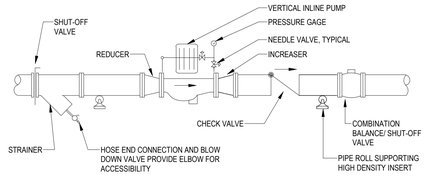
1 M-502 BOILER PIPING DIAGRAM
NOT TO SCALE

NOTES:

1. CONDENSING BOILER AND WATER HEATERS.
2. PROVIDE COMPUTER CALCULATIONS FOR FLUE SIZING BASED ON ACTUAL INSTALLED EQUIPMENT AT OPERATING TEMPERATURE AND ROUTING FOR EACH FLUE.
3. ACCEPTABLE MANUFACTURERS: METAL-FAB, SELKIRK CORPORATION, HEAT-FAB, SCHEBLER, VAN-PACKER COMPANY, JEREMIAS.
4. DOUBLE WALL METAL VENT TESTED ACCORDING TO UL 1738 AND RATED FOR 480degF CONTINUOUSLY, WITH POSITIVE OR NEGATIVE FLUE PRESSURE COMPLYING WITH NFPA 211.
5. INNER SHELL AND OUTER JACKET SEPARATED BY AT LEAST 1/2-INCH AIRSPACE.
6. INNER SHEEL ASTM A569, TYPE AL 29-4C STAINLESS STEEL.
7. OUTER JACKET STAINLESS STEEL.

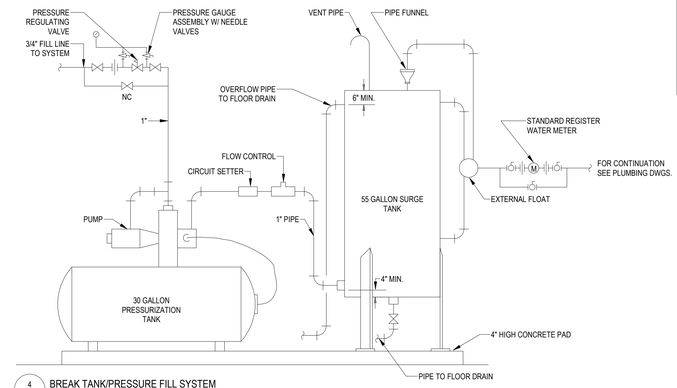


2 M-502 FLUE VENT AND FLASHING DETAIL
NOT TO SCALE

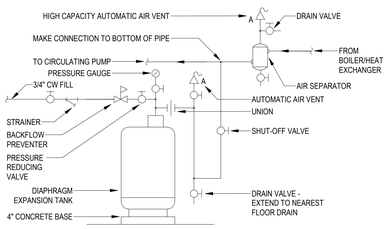


NOTES:
1. INSULATION AND VAPOR BARRIER JACKET NOT SHOWN.

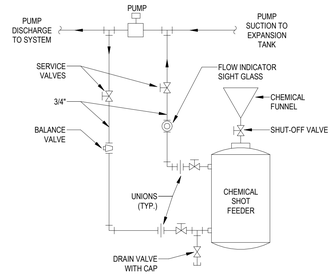
3 M-502 INLINE PUMP PIPING
NOT TO SCALE



4 M-502 BREAK TANK/PRESSURE FILL SYSTEM
NOT TO SCALE

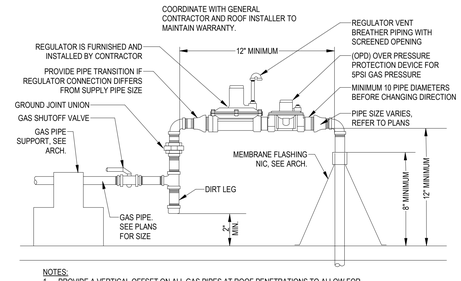


5 M-502 EXPANSION TANK PIPING DETAIL
NOT TO SCALE



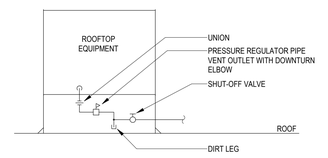
NOTES:
1. PROVIDE 2 GALLON CHEMICAL SHOT FEEDER.

6 M-502 CHEMICAL SHOT FEEDER DIAGRAM
NOT TO SCALE

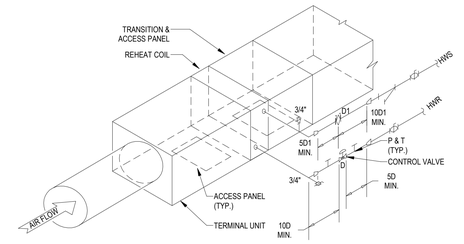


NOTES:
1. PROVIDE A VERTICAL OFFSET ON ALL GAS PIPES AT ROOF PENETRATIONS TO ALLOW FOR PROPER FLASHING BY OTHERS. SUPPORT PIPING OFFSETS AS REQUIRED.

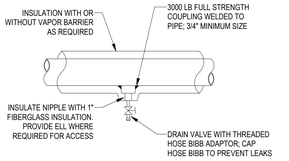
7 M-502 GAS PIPE ROOF PENETRATION DETAIL
NOT TO SCALE



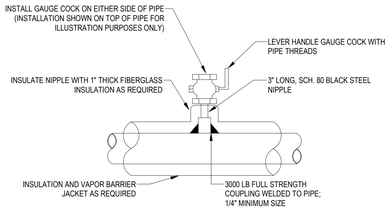
8 M-502 GAS PIPING CONNECTION FOR ROOFTOP EQUIPMENT DETAIL
NOT TO SCALE



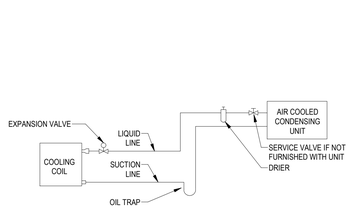
9 M-502 HOT WATER UNIT HEATER PIPING DETAIL W/2-WAY VALVE I
NOT TO SCALE



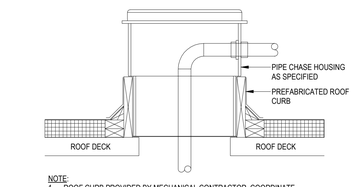
10 M-502 DRAIN VALVE INSTALLATION
NOT TO SCALE



11 M-502 GAUGE COCK INSTALLATION
NOT TO SCALE

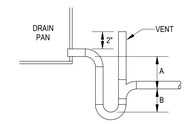


12 M-502 SPLIT SYSTEM FAN COIL UNIT PIPING SCHEMATIC
NOT TO SCALE



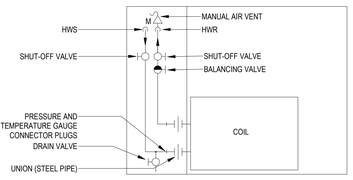
NOTE:
1. ROOF CURB PROVIDED BY MECHANICAL CONTRACTOR. COORDINATE INSTALLATION AND FLASHING WITH THE GENERAL CONTRACTOR.
2. MECHANICAL CONTRACTOR SHALL COORDINATE ROOF OPENING, CURB SIZE AND HEIGHT REQUIRED FOR PIPING PENETRATION.

13 M-502 PIPING ROOF PENETRATION DETAIL
NOT TO SCALE

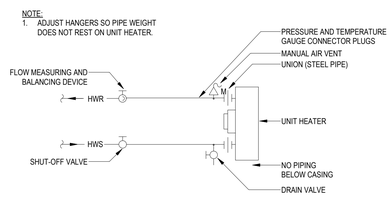


A= SCHEDULED FAN STATIC PLUS ONE INCH
B= 1/2 OF SCHEDULED FAN STATIC

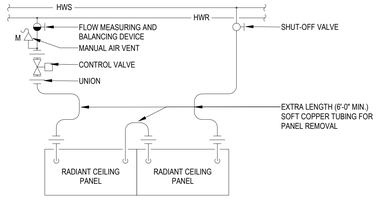
14 M-502 COOLING COIL CONDENSATE DRAIN DETAIL
NOT TO SCALE



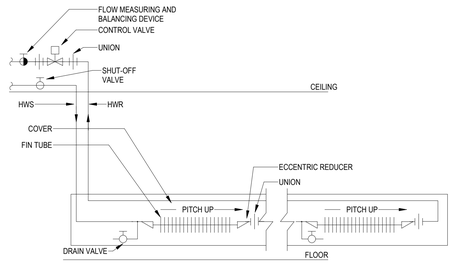
15 M-502 HOT WATER CABINET UNIT HEATER PIPING DETAIL W/2-WAY VALVE
NOT TO SCALE



16 M-502 HOT WATER UNIT HEATER PIPING DETAIL W/2-WAY VALVE I
NOT TO SCALE



17 M-502 HOT WATER RADIANT CEILING PANEL PIPING DETAIL
NOT TO SCALE



18 M-502 HOT WATER BASEBOARD RADIATION PIPING DETAIL II
NOT TO SCALE

Department of Capital Planning & Policy
Bureau of Asset Management

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No.	Date	Issue
4	06/25/2019	ISSUE FOR BID
3	03/22/2019	ISSUE FOR 25% CD
2	01/30/2019	ISSUE FOR DD - REV 01
1	01/16/2019	ISSUE FOR DD

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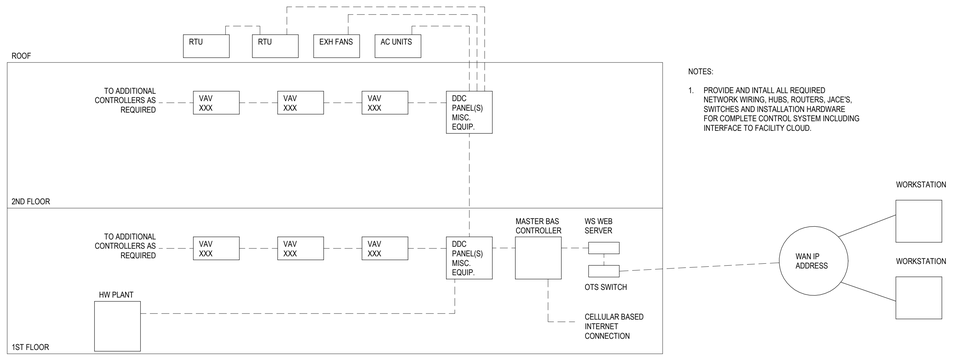
Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

MECHANICAL DETAILS
Sheet Name
Drawing No. M-502



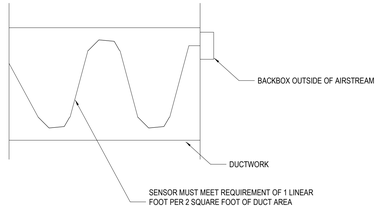
NOTES:

1. PROVIDE AND INTALL ALL REQUIRED NETWORK WIRING, HUBS, ROUTERS, JACE'S, SWITCHES AND INSTALLATION HARDWARE FOR COMPLETE CONTROL SYSTEM INCLUDING INTERFACE TO FACILITY CLOUD.

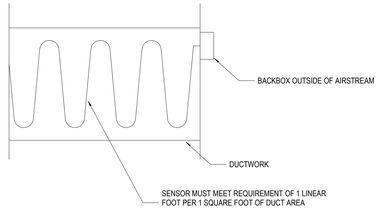
NOTE:
THE ABOVE DDC SYSTEM ARCHITECTURE RISER IS FOR REFERENCE ONLY AND IS NOT INTENDED TO REPRESENT A SPECIFIC WIRING REQUIREMENT. IT IS ONLY INTENDED TO PROVIDE A GENERAL OVERVIEW.

NOT ALL EQUIPMENT, POINTS, DEVICES, ETC. ARE SHOWN ON THIS RISER DIAGRAM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ALL BUILDING EQUIPMENT INTO THE DDC SYSTEM AS CALLED FOR ON THESE DRAWINGS AND IN THE SPECIFICATIONS.

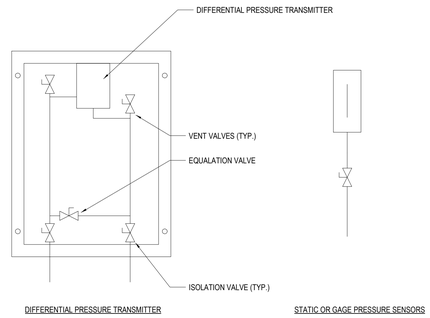
1 / M-600 DDC SYSTEM ARCHITECTURE
NOT TO SCALE



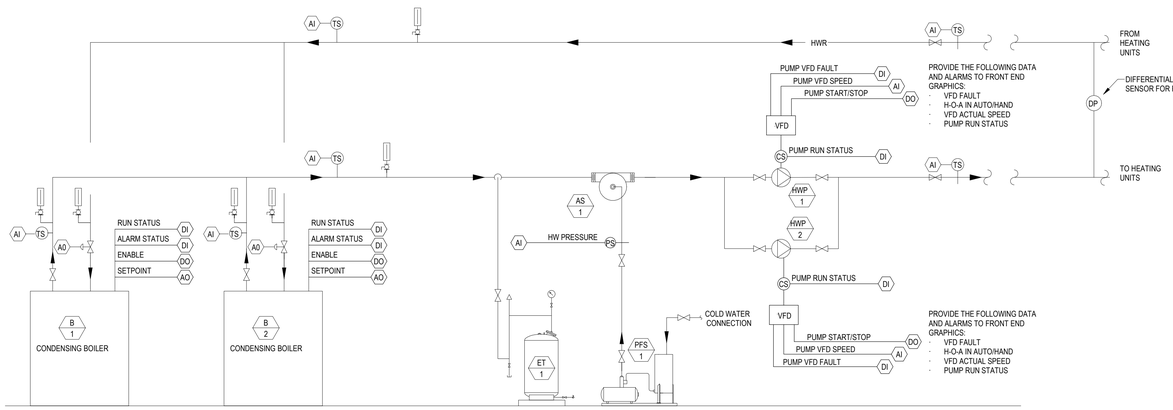
2 / M-600 AVERAGING AIR TEMPERATURE SENSOR
NOT TO SCALE



3 / M-600 FREEZE PROTECTION THERMOSTAT
NOT TO SCALE



4 / M-600 DIFFERENTIAL PRESSURE AND PRESSURE SENSOR
NOT TO SCALE



HEATING HOT WATER SYSTEM

HEATING UNITS HOT WATER WILL BE PROVIDED BY TWO CONDENSING BOILERS. THE HOT WATER SYSTEM SERVING THE BUILDING IS A VARIABLE PRIMARY SYSTEM WITH 2-WAY CONTROL VALVES. CUH/UH SHALL BE "WILD FLOW" FOR LOW LOAD SYSTEM CONDITIONS. THE FOLLOWING SEQUENCES SHALL BE DEVELOPED FOR THIS SYSTEM.

THE SYSTEM SHALL BE ENABLED WHEN ANY OF THE CONDITIONS BELOW EXIST:
- A NEED FOR HEAT FROM ANY 5 ZONES (ADJ.)
- THE OUTSIDE AIR TEMPERATURE IS BELOW 30°F (ADJ.)
- IN THE UNOCCUPIED MODE WHEN THE TEMPERATURE OF ANY MONITORED SPACE IS BELOW 50°F (ADJ.)
- WHEN MANUALLY ENABLED FROM FROM THE FRONT END BAS

ONCE ENABLED, THE SYSTEM SHALL RUN CONTINUOUSLY.

THE SYSTEM SHALL BE DISABLED WHEN ALL OF THE CONDITIONS BELOW EXIST:
- A NEED FOR HEAT NO LONGER EXISTS
- THE OUTSIDE AIR TEMPERATURE IS ABOVE 5°F (ADJ.) OF THE ENABLE SETPOINT
- IN THE UNOCCUPIED MODE WHEN THE TEMPERATURE OF ALL MONITORED SPACES ARE 5°F ABOVE 50°F
- THE SYSTEM HAS BEEN ENABLED FOR 30 MINUTES
- WHEN MANUALLY DISABLED FROM FROM THE FRONT END BAS

WATER TEMPERATURE CONTROL

THE CONTROLLER SHALL MONITOR THE SUPPLY AND RETURN WATER TEMPERATURES AND SHALL MAINTAIN AS FOLLOWS:
- LEAVING WATER TEMPERATURE SETPOINT SHALL BE 150°F

RESET THE LEAVING WATER TEMPERATURE BASED ON OUTSIDE AIR TEMPERATURE (OAT) AS FOLLOWS:
- WHEN OAT IS 10°F OR LOWER, LWT SHALL BE 150°F
- WHEN OAT IS BETWEEN 60°F AND 10°F, LWT SHALL BE RESET LINEARLY BETWEEN 150°F AND 120°F
- WHEN OAT IS GREATER THAN 60°F, LWT SHALL BE 120°F

BOILERS SHALL BE CONTROLLED AND STAGED BY THE BAS

WHEN THE SYSTEM HAS BEEN ENABLED AND FLOW HAS BEEN PROVEN, THE BAS SHALL CONTROL STAGING OF THE BOILERS.

UPON A DROP IN HOT WATER SUPPLY TEMPERATURE, THE LEAD BOILER SHALL OPERATE AT LOW FIRE.

UPON AN INCREASE IN HOT WATER DEMAND, IF THE LEAD BOILER CONNOT SATISFY THE LOAD, THE LAG BOILER SHALL BE STAGED ON AT LOW FIRE UNTIL THE HOT WATER TEMPERATURE SETPOINT IS MAINTAINED. BOILERS SHALL MODULATE ACCORDING THE THE MANUFACTURER'S RECOMMENDATIONS TO MAINTAIN MAXIMUM OPERATING EFFICIENCY.

THE BAS SHALL ROTATE BETWEEN LEAD AND LAG BOIER TO EQUALIZE BOILER RUN TIME AS TRACKED AND MONITORED BY THE BAS.

HOT WATER PUMP CONTROL

ONE HOT WATER PUMP SHALL RUN WHENEVER THE HEATING SYSTEM IS ENABLED AFTER 2 MINUTES (ADJ.) OF START-UP. RELEASE THE HOT WATER PUMP SPEED AND ALLOW PUMP TO MODULATE TO MAINTAIN SYSTEM DIFFERENTIAL PRESSURE SETPOINT 15 PSI (ADJ. AS DETERMINED BY THE BALANCING CONTRACTOR).

BAS SHALL MONITOR PUMP OPERATION. UPON FAILURE OF PUMP (AS SENSED BY CURRENT SWITCH), THE STANDBY PUMP SHALL BE ENABLED. IF BOTH LEAD AND LAG PUMPS FAIN TO ENABLE, DIABLE THE HOT WATER SYSTEM.

THE BAS SHALL ROTATE BETWEEN LEAD AND LAG PUMP TO EQUALIZE PUMP RUN TIME AS TRACKED AND MONITORED BY THE BAS.

AS THE BUILDING SYSTEM OPERATING PRESSURE BEGINS TO INCREASE DUE TO LOW LOAD CONDITIONS, THE PUMP SHALL SLOW DOWN TO A MINIMUM SPEED OF APPROXIMATELY 12HZ.

AS BUILDING SYSTEM PRESSURE DECREASES DUE TO HIGHER SYSTEM DEMAND FOR 5 MINUTES (ADJ.) AND THE SYSTEM PRESSURE CONTINUES TO DROP. THE PUMP SHALL BEGIN TO INCREASE SPEED TO ACHIEVE SETPOINT.

CONTROL CONTRACTOR SHALL WORK WITH BALANCING CONTRACTOR TO DETERMINE ACTUAL SYSTEM DIFFERENTIAL PRESSURE SETPOINTS REQUIRED FOR OPTIMUM OPERATION.

WHEN THE PUMP IS RUN IN HAND MODE, AN ALARM SHALL BE SENT TO THE BAS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- IF THE SYSTEM PRESSURE IS 10% ABOVE OR 10% BELOW SETPOINT (ADJ.) FOR 15 CONSECUTIVE MINUTES.
- WHEN A PUMP IS OPERATING IN HAND OR OFF MODE
- WHEN A PUMP IS COMMANDED ON BUT NO CURRENT IS SENSED.
- UPON A BOILER FAILURE.

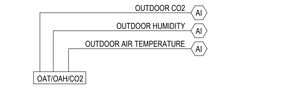
PROVIDE AN EMERGENCY FUEL BURNER SWITCH ADJANCENT TO THE PRIMARY ENTRANCE DOOR (6-7FT AFF).
LABEL SWITCH "EMERGENCY FUEL BURNER SWITCH" AND HARDWIRE TO EACH BOILER SAFETY CIRCUIT WHICH REQUIRES MANUAL RESET. SWITCH SHALL HAVE TWO CONTACTS (ONE FOR BOILER AND ONE FOR BAS).

BAS SHALL MONITOR AND DISPLAY CO LEVEL IN BOILER ROOM. THE BAS CONTRACTOR SHALL PROVIDE AND HARDWIRE CO ALARM PANEL WITH ALARM HORN. CO ALARM AND HORN SHALL NOT BE DEPENDENT ON BAS TO BE ACTIVATED. CO SHALL ALARM AT 50 PPM (ADJ.)

PRESSURE FILL PUMP SHALL BE CONTROLLED BY ITS OWN PACKAGED SYSTEM.
PROVIDE SEPARATE BALL FLOAT TO MONITOR THE LOW LEVEL OF THE TANK THROUGH THE BAS. LOW LEVEL MONITORED BY THE BAS IS TO BE ABOVE THE LOW LEVEL PERMISSIVE FOR THE PUMP.

PROVIDE A HOT WATER MAKE-UP PRESSURE SENSOR AND INDICATE OPERATING PRESSURE ON FRONT END BAS GRAPHICS. IN THE EVENT THAT THE OPERATING PRESSURE DROPS 5 PSI (ADJ.) BELOW SETPOINT, SEND AN ALARM TO THE BAS.

5 / M-600 HOT WATER HEATING SYSTEM
NOT TO SCALE



THE BAS CONTRACTOR SHALL FURNISH AND INSTALL AN OUTDOOR AIR TEMPERATURE, HUMIDITY SENSOR, AND CO2 SENSORS. INTEGRATE INTO DDC SYSTEM AND USE FOR OPERATION OF ASSOCIATED SEQUENCES.

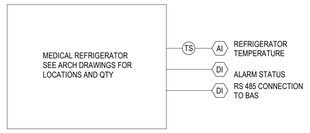
INSTALL IN PROTECTED SHADED AREA ON NORTH WALL; LOCATION TO BE APPROVED BY ARCHITECT/ENGINEER

6 / M-600 GLOBAL TEMPERATURE AND HUMIDITY SENSOR
NOT TO SCALE

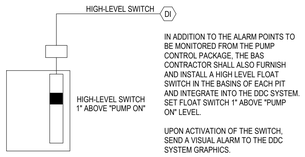
MEDICAL REFRIGERATOR - BAS INTEGRATION

SEQUENCE OF OPERATIONS:
1. REFRIGERATOR TEMPERATURE SHALL BE REPORTED TO THE BAS.
2. THE BAS SHALL TREND THE TEMPERATURE AT 5 MINUTE INTERVALS.
3. THE BAS CONTRACTOR SHALL PROVIDE A CUSTOM REPORT TO ALLOW THE TEMPERATURE TREND LOG FOR EACH REFRIGERATOR TO BE GENERATED.
4. THE TREND DATA SHALL BE ARCHIVED ON THE BAS SERVER FOR A MINIMUM OF 18 MONTHS.

ALARMS
1. IF THE REFRIGERATOR TEMPERATURE EXCEEDS SEPOINT (ADJ.) OR REFRIGERATOR ENTERS ALARM MODE, BAS SHALL ANNUNCIATE AN ALARM AT THE USER WORKSTATION AND SEND ALERT TO MONITORING FACILITY.



7 / M-600 MEDICAL REFRIGERATOR CONTROL DIAGRAM
NOT TO SCALE



8 / M-600 SUMP, ELEVATOR, AND EJECTOR HIGH LEVEL
NOT TO SCALE

TEMPERATURE CONTROL SYMBOLS

AFMS	AIR FLOW MEASURING STATION
BDP	BUILDING DIFFERENTIAL PRESSURE SENSOR
BTU	BRITISH THERMAL UNIT METER
C	CHLORINE SENSOR
CO2	CARBON DIOXIDE SENSOR
CO	CARBON MONOXIDE SENSOR
CS	CURRENT SENSOR
DP	DIFFERENTIAL PRESSURE TRANSMITTER
ES	END SWITCH
OS	OCCUPANCY SENSOR
DPT	DIFFERENTIAL PRESSURE TRANSDUCER
FM	FLOW METER
HS	HUMIDITY SENSOR / HUMIDISTAT
HS	DUCT HUMIDITY SENSOR
OAT/OAH	OUTSIDE AIR TEMPERATURE / OUTSIDE AIR HUMIDITY
PS	PRESSURE SENSOR
R	REFRIGERANT SENSOR
S	SENSOR / SWITCH
SD	SMOKE DETECTOR
SD	DUCT SMOKE DETECTOR
SS	STATIC PRESSURE SENSOR
T	DUCT THERMOSTAT
T	THERMOSTAT OR TEMPERATURE SENSOR
TH	TEMPERATURE AND HUMIDITY SENSOR
TS	TEMPERATURE SENSOR
TSP	TOTAL STATIC PRESSURE MONITOR / ALARM
THS	COMBINED TEMPERATURE / HUMIDITY SENSOR
HS	HUMIDITY SENSOR
WS	WATER SENSOR
AO	ANALOG OUTPUT
AI	ANALOG INPUT
DO	DIGITAL OUTPUT
DI	DIGITAL INPUT

BUILDING DDC BAS SYSTEM

1. THIS PROJECT SHALL BE PROVIDED WITH A FULLY FUNCTIONAL DIRECT DIGITAL CONTROL BAS SYSTEM CAPABLE OF HANDLING ALL CONTROL FUNCTIONS OF THE BUILDING AS INDICATED IN THESE PLANS. THE NEW BUILDING DDC SYSTEM SHALL COMPLY WITH ALL FACILITY STANDARDS AND REQUIREMENTS.

2. THE BAS CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL NAMING CONVENTIONS, GRAPHIC SCREENS, AND SYSTEM INTEGRATION PER FACILITY STANDARDS.

3. THE DDC SYSTEM SHALL BE FULLY CAPABLE OF IMPLEMENTING ALL CONTROL STRATEGIES AND CONTROL FUNCTIONS USING STAND-ALONE DDC CONTROLLERS INTEGRATED INTO AN OVERALL BAS SYSTEM. LOSS OF COMMUNICATION BETWEEN CONTROLLERS SHALL NOT PREVENT THE EQUIPMENT FROM OPERATING.

3. THE DDC SYSTEM SHALL CONTAIN USER INTERACTIVE GRAPHICS CONTAINING ALL EQUIPMENT INDICATED ON THE PLANS. SETPOINTS, OPERATING CONDITIONS, ALARMS, ETC. SHALL BE DISPLAYED ON THE FRONT END GRAPHICS.

4. THE DDC SYSTEM SHALL BE CAPABLE OF STORING TREND DATA OF ALL POINTS. THE CONTROL CONTRACTOR SHALL SET-UP AND TREND POINTS AS REQUESTED BY THE A/E AND FACILITIES.

5. REMOTE COMMUNICATION TO/FROM THE SYSTEM SHALL BE IMPLEMENTED USING WEB COMMUNICATION INTERFACES. THE SYSTEM SHALL BE CAPABLE OF SENDING-OUT PRIORITY LEVEL ALARMS TO THE OPERATING ENGINEER. PRIORITY 1 ALARMS SHALL BE SENT TO THE OPERATING ENGINEER VIA TEXT FORMAT AND WILL BE SET-UP AND PROGRAMMED BY THE CONTROL CONTRACTOR.

6. ALL CONDUIT AND LOW-VOLTAGE WIRING SHALL BE THE RESPONSIBILITY OF THE CONTROL CONTRACTOR. ANY LINE VOLTAGE CONTROL DEVICES SUCH AS TIMER SWITCHES, SPEED CONTROLLERS, T-STATS, ETC. SHALL BE INSTALLED BY THE TEMPERATURE CONTROL CONTRACTOR USING APPROPRIATE TRADE LABOR OR SHALL BE SUB-CONTRACTED OUT BY THE CONTROL CONTRACTOR. ALL COSTS FOR THIS SCOPE MUST BE INCLUDED IN THIS CONTROL CONTRACT.

7. THE BAS CONTRACTOR SHALL PARTICIPATE AND TAKE AN ACTIVE ROLE IN ALL COMMISSIONING ACTIVITIES CONDUCTED BY THE OWNERS COMMISSIONING PROFESSIONALS.

8. ALL CONTROL WIRING SHALL BE IN METAL CONDUIT. REFER TO DIV. 26 SPECICATIONS.

1" = 30'-0" 1/16" = 1'-0" 1/4" = 1'-0" 1/8" = 1'-0" 1/2" = 1'-0" 1" = 1'-0" 3" = 1'-0"

Department of Capital Planning & Policy
Bureau of Asset Management

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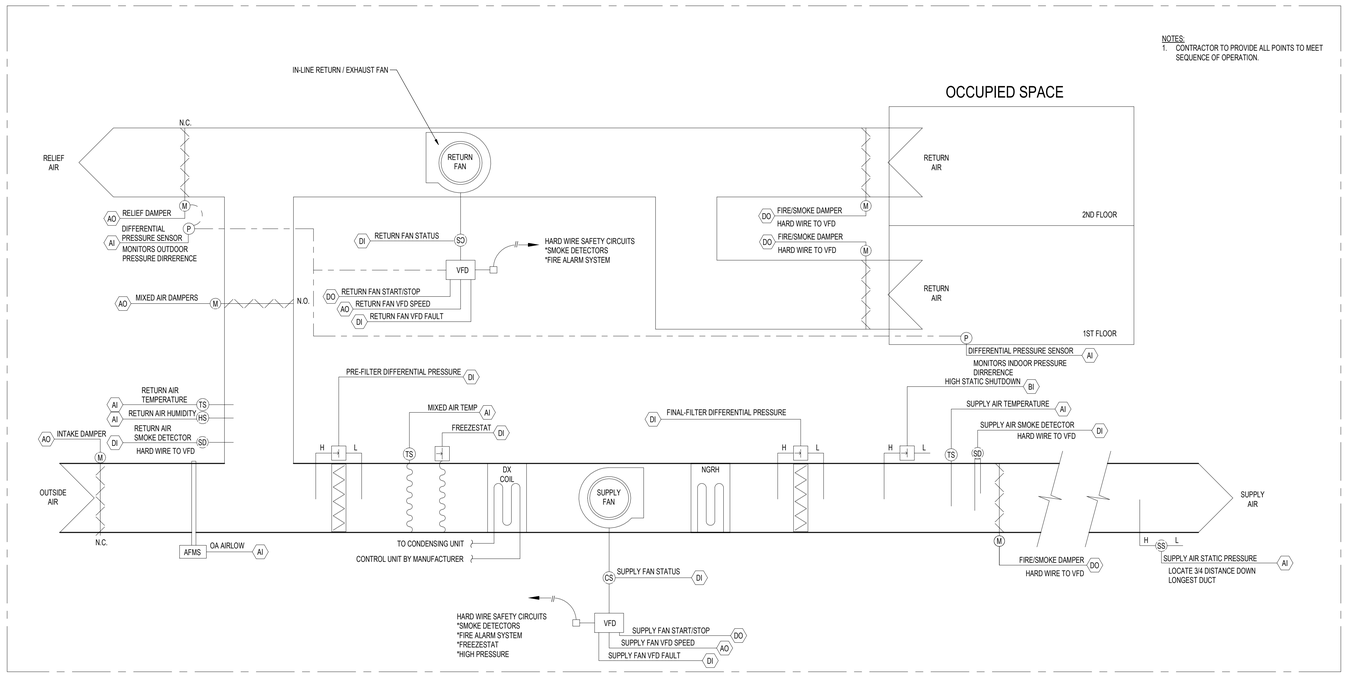
COOK COUNTY HEALTH

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639
Project Name & Address

CONTROLS DIAGRAM
Sheet Name

Drawing No. **M-600**



VAV ROOFTOP UNIT W/ GAS HEATING & DX COOLING

VARIABLE AIR VOLUME RTU-1 & RTU-2

RTU MICROPROCESSOR CONTROLS

A. GENERAL - UNIT SHALL BE PROVIDED WITH A FACTORY-INSTALLED, PROGRAMMED AND RUN-TESTED, STAND-ALONE,MICROPROCESSOR CONTROL SYSTEM SUITABLE FOR VAV CONTROL. THIS SYSTEM SHALL CONSIST OF TEMPERATURE AND PRESSURE (THERMISTOR AND TRANSDUCER) SENSORS, PRINTED CIRCUIT BOARDS, AND A UNIT-MOUNTED HUMAN INTERFACE PANEL.

B. HUMAN INTERFACE (HI) PANEL - SHALL ENABLE THE BUILDING ENGINEER TO OPERATE THE RTU LOCALLY FROM THE EQUIPMENT. ALL CONTROL FEATURES AND SEQUENCES SHALL BE ADJUSTABLE FROM THE HI PANEL.

C. BACNET MODULE - SHALL ALLOW INTERFACE WITH THE BUILDING BAS SYSTEM.

BUILDING MANAGEMENT SYSTEM

A. THE RTU CONSISTS OF A FACTORY MOUNTED CONTROLLER WITH BACNET INTERFACE FOR INTEGRATION TO THE BUILDING AUTOMATION SYSTEM.

B. BAS CONTROL FUNCTIONS: INCLUDES UNIT TIME SCHEDULING, OCCUPIED/UNOCCUPIED MODE, OPTIMAL START/STOP, TWO-STEP DEMAND LIMITING, MORNING WARMUP, DISCHARGE AIR SET POINT ADJUSTMENT, BUILDING PRESSURIZATION, TIMED OVERRIDE AND ALARM SHUTDOWN.

C. PROVIDE CAPABILITIES FOR BOOLEAN PROCESSING AND TREND LOGS AS WELL AS "TEMPLATED" REPORTS AND LOGS.

D. BUILDING AUTOMATION SYSTEM (BAS) CONTROL SHALL PROVIDE THE CAPABILITY TO "READ" AND SUM AIR FLOWS, IN CFM, FOR USER SELECTED FAN POWERED BOXES.

E. RTU SHALL HAVE A MICROPROCESSOR- BASED CONTROLLER WHICH SHALL MONITOR AND CONTROL THE COMMERCIAL RTU IN A STAND-ALONE MODE OR AS DIRECTED BY THE BUILDING AUTOMATION SYSTEM. THE RTU CONTROL PANEL SHALL HAVE A HUMAN INTERFACE PANEL WITH A 2-LINE BY 40-CHARACTER CLEAR ENGLISH LCD DISPLAY AND A 16 BUTTON KEYPAD FOR MONITORING, SETTING, EDITING AND CONTROLLING.

CONTROL SEQUENCES

THE BUILDING AUTOMATION SYSTEM (BAS) SHALL PERFORM THE FOLLOWING RTU STRATEGIES, PROVIDE THE POINTS LISTED ON THE BUTTON KEYPAD FOR MONITORING, SETTING, EDITING AND CONTROLLING. POINT LIST AND PROVIDE THE SPECIFIED MONITORING AND DIAGNOSTICS.

1. UNOCCUPIED MODE - WHEN THE BAS INITIATES THE UNOCCUPIED MODE, THE RTU SHALL ASSUME THE UNOCCUPIED HEATING AND COOLING SETPOINTS. IF THE UNOCCUPIED SETPOINTS ARE EXCEEDED BY +/-5F THE UNIT SHALL BE ENABLED AND HEAT OR COOL UNTIL ALL ZONE TEMPERATURES ARE WITHIN THE UNOCCUPIED SETPOINTS. MIN OA DAMPER IS CLOSED UNLESS IN ECONOMIZER MODE.
   A. UNOCCUPIED HEATING SETPOINT 65F (ADJ.)
   B. UNOCCUPIED COOLING SETPOINT 80F (ADJ.)
2. TRANSITION FROM UNOCCUPIED TO OCCUPIED - WHEN THE UNIT TRANSITIONS FROM THE UNOCCUPIED OPERATION TO OCCUPIED OPERATION, COOLING START-UP OR MORNING WARM-UP MODE SHALL BE ACTIVATED.
3. OCCUPIED OPERATION - WHEN THE RTU IS CONTROLLED TO THE OCCUPIED MODE, ALL RTU FUNCTIONS SHALL BE ENABLED. THE RTU SHALL OPERATE IN SUPPLY AIR TEMPERATURE CONTROL MODE. THE RTU SHALL DEFAULT TO CONSTANT VOLUME MODE IN THE EVENT THAT COMMUNICATIONS WITH THE BAS ARE LOST.

SUPPLY FAN

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

ALARMS SHALL BE PROVIDED AS :
- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- SUPPLY FAN VFD FAULT

RETURN FAN:
THE RETURN FAN SHALL RUN WHENEVER THE SUPPLY FAN RUNS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- RETURN FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- RETURN FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- RETURN FAN VFD FAULT.

4. DAYTIME WARMUP - WHEN THE ZONE TEMPERATURE DROPS BELOW AN OPERATOR-SPECIFIED DAYTIME WARMUP SETPOINT OF 72F (ADJ.), THE RTU SHALL ENTER THE DAYTIME WARMUP MODE. IN THIS MODE, THE RTU SHALL SUPPLY HEAT TO THE TERMINAL UNIT BY DRIVING THE VAV BOXES FULLY OPEN. AFTER THE ZONES REACH OCCUPIED SET-POINT, THE UNIT SHALL RESUME NORMAL TEMPERATURE SETPOINT OPERATION. THE BAS SHALL COMMUNICATE THE DAYTIME WARMUP TEMPERATURE VALUE FOR THE RTU TO USE TO INITIATE THE NECESSARY HEATING FOR THIS MODE.
5. SUPPLY AIR TEMPERATURE SETPOINT - OPTIMIZED:
   THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A SUPPLY AIR TEMPERATURE SETPOINT RESET BASED ON ZONE COOLING AND HEATING REQUIREMENTS. MODULATE THE REFRIGERANT COMPRESSORS, NATURAL GAS REGULATOR AND/OR ECONOMIZER DAMPERS IN ORDER TO PROVIDE THE FOLLOWING:

   THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET BASED ON ZONE REQUIREMENTS AS FOLLOWS:
   - THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F (ADJ.).
   - AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 53°F (ADJ.).
   - AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 58°F (ADJ.) .

   IF MORE ZONES NEED HEATING THAN COOLING, THEN THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET AS FOLLOWS:
   - THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F (ADJ.).
   - AS HEATING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 65°F (ADJ.).
   - AS HEATING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 55°F (ADJ.).

   ALARMS SHALL BE PROVIDED AS FOLLOWS:
   - HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
   - LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F (ADJ).

   FREEZE PROTECTION:
   - UPON OPERATION OF A FREEZESTAT, UNIT SHALL BE DEENERGIZED. SUPPLY AND RETURN FANS SHALL BE DEENERGIZED VIA A HARDWIRED INTERLOCK AND AN INDICATION OF THE OPERATION SHALL BE SENSED BY THE BAS. BAS SHALL ENUNCIATE APPROPRIATE ALARM AND REMOVE AND LOCK OUT THE START COMMAND, WHICH SHALL INITIATE "FAN FAILURE" ALARMS. OA DAMPERS SHALL CLOSE.
6. SUPPLY AIR PRESSURE CONTROL - THE BAS SHALL SEND SUPPLY AIR PRESSURE SETPOINTS TO THE RTU TO MODULATE THE VARIABLE FREQUENCY DRIVE(S) BASED ON THE STATIC PRESSURE SENSOR LOCATED IN THE SUPPLY AIR DUCT (LOCATED 3/4 DISTANCE DOWN LONGEST DUCT). THE BAS SHALL ALSO READ THE STATUS ON THE SUPPLY AIR SENSOR AND DISPLAY THE PRESSURE READING ON THE STATUS SCREEN.

   THE CONTROLLER SHALL MEASURE DUCT STATIC PRESSURE AND SHALL MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN A DUCT STATIC PRESSURE SETPOINT OF 1.5IN H2O (ADJ.) AS DETERMINED DURING BALANCING. THE SUPPLY FAN VFD SPEED SHALL NOT DROP BELOW 30% (ADJ.).

   ALARMS SHALL BE PROVIDED AS FOLLOWS:
   - HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT.
   - LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT.
   - SUPPLY FAN VFD FAULT.

   HIGH STATIC SHUTDOWN:
   THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING AN HIGH STATIC SHUTDOWN SIGNAL.
7. ECONOMIZER CONTROL - THE BAS SHALL OVERRIDE THE ECONOMIZER CONTROLLER ON THE RTU TO PROVIDE FREE COOLING. IF POOR OUTDOOR AIR CONDITIONS EXIST, THE BAS SHALL LOCKOUT ALL ECONOMIZERS. AS THE SUPPLY FAN MODULATES DOWN, THE MINIMUM ECONOMIZER POSITION SHALL ALSO BE RESET TO COMPENSATE FOR THE REDUCTION IN TOTAL AIRFLOW.
   ECONOMIZER:
   THE CONTROLLER SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F (ADJ.) LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN THE MINIMUM OUTSIDE AIR CFM AT ALL TIMES.

   THE ECONOMIZER SHALL BE ENABLED WHENEVER:
   - OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
   - AND THE OUTSIDE AIR ENTHALPY IS LESS THAN 22 BTU/LB (ADJ.)
   - AND THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
   - AND THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY.
   - AND THE SUPPLY FAN STATUS IS ON.

   THE ECONOMIZER SHALL CLOSE WHENEVER:
   - MIXED AIR TEMPERATURE DROPS FROM 40°F TO 35°F (ADJ.)
   - OR THE FREEZESTAT IS ON.
   - OR ON LOSS OF SUPPLY FAN STATUS.
8. MIXED AIR TEMPERATURE:
   THE CONTROLLER SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL.

   ALARMS SHALL BE PROVIDED AS FOLLOWS:
   - HIGH MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
   - LOW MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).
9. RETURN AIR TEMPERATURE:
   THE CONTROLLER SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL OR ECONOMIZER CONTROL.

   ALARMS SHALL BE PROVIDED AS FOLLOWS:
   - HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
   - LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).
10. RETURN FAN FOR RTU TRACKING:
    THE RETURN FAN VFD SHALL MODULATE IN UNISON WITH THE SUPPLY FAN VFD. THE RETURN FAN SHALL RUN TO MAINTAIN A RETURN AFLOW SETPOINT OF THE SUPPLY AIR LESS THE BUILDING EXHAUST MINUS AND OFFSET VALUE (ADJ.). THE OFFSET VALUE SHALL BE DETERMINED THROUGH T&B TO PROVIDE A POSITIVE BUILDING PRESSURE (+0.05") DURING THE OCCUPIED PERIOD. DURING UNOCCUPIED THE OFFSET VALUE SHALL BE 0 CFM.
11. COASTDOWN MODE - BEFORE THE RTU IS CONTROLLED TO THE UNOCCUPIED MODE, THE BAS SHALL INITIATE THE COASTDOWN OR OPTIMAL STOP MODE. DURING THE OPTIMAL STOP MODE, THE SUPPLY FAN SHALL REMAIN ON, THE OUTDOOR AIR DAMPER SHALL REMAIN OPEN FOR VENTILATION, AND THE MECHANICAL COOLING AND HEATING SHALL BE DISABLED. THE UNIT SHALL REMAIN IN THE COASTDOWN MODE UNTIL THE SCHEDULED UNOCCUPIED TIME. THE BAS SHALL TURN EQUIPMENT OFF AS EARLY AS POSSIBLE BEFORE THE UNOCCUPIED TIME TO REDUCE ENERGY CONSUMPTION. WHILE STILL MAINTAINING COMFORT IN THE ZONE.
12. MINIMUM OUTDOOR AIR CONTROL - THE VENTILATION CONTROL MODULE SHALL BE LINKED TO THE RTU MICROPROCESSOR-BASED UNIT CONTROLLER. USING A VELOCITY PRESSURE SENSING RING, THE VENTILATION CONTROL MODULE SHALL MONITOR AND CONTROL THE QUANTITY OF FRESH AIR ENTERING THE UNIT. THE BUILDING AUTOMATION SYSTEM SHALL SEND THE OUTSIDE AIR CFM SETPOINT TO THE UNIT AND SHALL THEN MONITOR THAT SETPOINT TO ENSURE THAT IT IS MAINTAINED.
13. THE FRESH OUTDOOR AIR SHALL ENTER THE RTU UNIT THROUGH THE AIR FLOW MONITORING STATION/DAMPER SENSOR ASSEMBLY AND SHALL BE MEASURED BY VELOCITY PRESSURE FLOW RINGS. THE VELOCITY PRESSURE FLOW RINGS SHALL BE CONNECTED TO A PRESSURE TRANSDUCER/SOLENOID ASSEMBLY. THE VENTILATION CONTROL MODULE SHALL UTILIZE THE VELOCITY PRESSURE INPUT, THE OUTDOOR AIR TEMPERATURE INPUT, AND THE MINIMUM OUTDOOR AIR CFM SETPOINT TO MODIFY THE VOLUME (CFM) OF FRESH AIR ENTERING THE UNIT AS THE MEASURED AIRFLOW DEVIATES FROM SETPOINT.
14. FILTER DIFFERENTIAL PRESSURE MONITOR:
    THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER

    ALARMS SHALL BE PROVIDED AS FOLLOWS:
    - FILTER CHANGE REQUIRED: FINAL FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
15. THE RTUS SHALL BE HARD-WIRED DIRECTLY TO THE DUCT SMOKE DETECTORS IN BOTH THE SUPPLY AND RETURN DUCTWORK. UPON DETECTION OF SMOKE THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM IN THE BAS.

1 / M-601 VAV RTU W/ GAS HEATING & DX COOLING (RTU-1 & RTU-2)
NOT TO SCALE

1" = 30'-0" | 1/16" = 1'-0" | 1/8" = 1'-0" | 1/4" = 1'-0" | 3/16" = 1'-0" | 1/2" = 1'-0"

SEAL OF COOK COUNTY ILLINOIS JANUARY 1831

Department of Capital Planning & Policy
Bureau of Asset Management

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1	01/16/2019	ISSUE FOR DD

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Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH

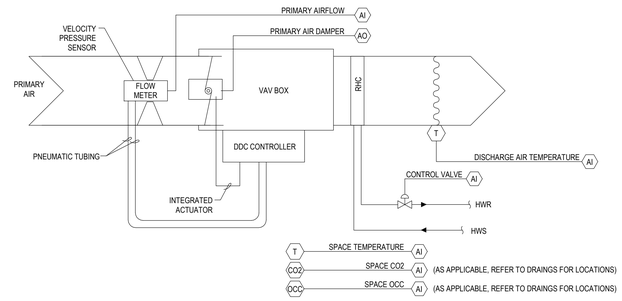
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

CONTROLS DIAGRAM

Sheet Name

Drawing No. **M-601**



THE BAS CONTRACTOR SHALL MOUNT AND WIRE DDC CONTROLS AND SPACE T-STATS TO ALL VAV BOX. THE FOLLOWING SEQUENCE SHALL BE IMPLEMENTED:

SCHEDULED OCCUPANCY SHALL BE THE SAME AS THE ASSOCIATED RTU. THE DDC CONTROLLER SHALL MODULATE THE VAV BOX DAMPER TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 72°F (ADJ.) BASED ON A SIGNAL FROM THE WALL T-STAT. THE DAMPER SHALL MODULATE BETWEEN MAXIMUM AND MINIMUM SETPOINTS AS INDICATED IN THE SCHEDULE.

WHEN THE DAMPER IS AT MINIMUM SETPOINT AND THE SPACE TEMPERATURE CONTINUES TO DROP, THE CONTROLLER SHALL MODULATE THE CONTROL VALVE OPEN IN UNISON WITH THE VAV BOX DAMPER UNTIL THE SPACE TEMPERATURE IS MAINTAINED OR THE BOX REACHES ITS MAXIMUM HEATING DAMPER POSITION. UPON AN INCREASE IN SPACE TEMPERATURE, MODULATE SEQUENCE IN REVERSE.

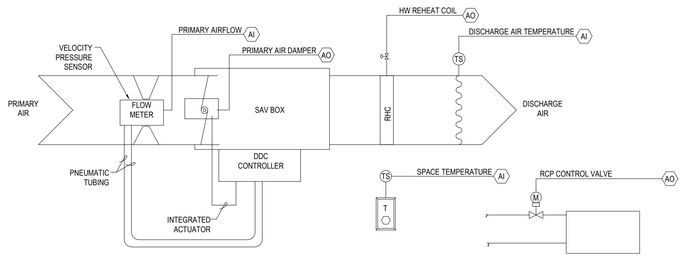
IN UN-OCCUPIED MODE, THE DAMPER AND REHEAT COIL SHALL MODULATE TO MAINTAIN A SPACE TEMPERATURE SETPOINT OF 65°F (ADJ.) WHEN THE OUTDOOR TEMPERATURE IS 55°F (ADJ.) OR BELOW AND 80°F (ADJ.) WHEN THE OUTDOOR TEMPERATURE IS 56°F (ADJ.) OR ABOVE.

ALARMS
IF THE SPACE TEMPERATURE FALLS +/- 5°F FROM SETPOINT (ADJ.)
IF VAV BOX ACTUAL AIRFLOW EXCEEDS SETPOINT BY 10% (ADJ.)
IF CO2 LEVELS EXCEED THE SETPOINT

WHERE SHOWN ON DRAWINGS, PROVIDE WITH CO2 RESET (COMBINATION SPACE TEMPERATURE AND CO2 SENSOR):
THE AIRFLOW SHALL BE RESET FROM MINIMUM TO MAXIMUM DURING OCCUPIED MODE TO MAINTAIN A CO2 LEVEL OF 1000ppm (ADJ.). THE REHEAT VALVE SHALL OPEN TO MAINTAIN ZONE TEMPERATURE AS NECESSARY. IF THE ZONE TEMPERATURE DROPS 2°F (ADJ.) BELOW THE COOLING SETPOINT, THE BOX SHALL MODULATE DOWN UNTIL THE ZONE TEMPERATURE IS MAINTAINED.

ZONE CONTROLLED VIA OCCUPANCY SENSOR (WHERE SHOWN ON DRAWINGS):
INTEGRATE TO LIGHTING OCCUPANCY SENSOR.
ZONE SHALL ASSUME UN-OCCUPIED MODE UNLESS OCCUPANCY SENSOR DETECTS MOTION, WHICH THE ZONE WILL THEN ASSUME OCCUPIED MODE.

1 M-602 VAV BOX W/ HW REHEAT COIL
NOT TO SCALE



THE BAS CONTRACTOR SHALL MOUNT AND WIRE DDC CONTROLS AND SPACE T-STATS TO ALL VAV BOX AND RADIANT CEILING PANELS. THE FOLLOWING SEQUENCE SHALL BE IMPLEMENTED:

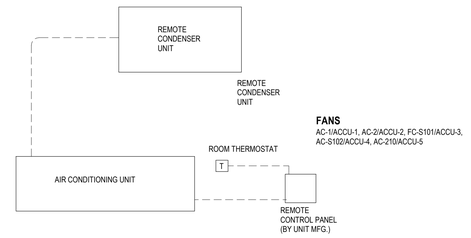
SCHEDULED OCCUPANCY SHALL BE THE SAME AS THE ASSOCIATED RTU. THE DDC CONTROLLER SHALL MODULATE THE VAV BOX DAMPER TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 72°F (ADJ.) BASED ON A SIGNAL FROM THE WALL T-STAT. THE DAMPER SHALL MODULATE BETWEEN MAXIMUM AND MINIMUM SETPOINTS AS INDICATED IN THE SCHEDULE.

WHEN THE DAMPER IS AT MINIMUM POSITION AND THE SPACE TEMPERATURE CONTINUES TO DROP, THE DDC CONTROLLER SHALL BEGIN TO MODULATE THE RADIANT CEILING PANEL HOT WATER VALVE IN UNISON WITH THE VAV BOX DAMPER UNTIL THE SPACE TEMPERATURE IS MAINTAINED OR THE BOX REACHES IT'S MAXIMUM HEATING DAMPER POSITION. UPON A FURTHER FALL IN TEMPERATURE, WITH THE RADIANT CEILING PANEL CONTROL VALVE AT 90% OPEN, BEGIN TO MODULATE THE REHEAT CONTROL VALVE TO MAINTAIN SPACE SETPOINT. UPON AN INCREASE IN SPACE TEMPERATURE, MODULATE SEQUENCE IN REVERSE.

IN UN-OCCUPIED MODE, THE DAMPER SHALL MODULATE TO MAINTAIN A SPACE TEMPERATURE SETPOINT OF 65°F (ADJ.) WHEN THE OUTDOOR TEMPERATURE IS 55°F (ADJ.) OR BELOW AND 80°F (ADJ.) WHEN THE OUTDOOR TEMPERATURE IS 56°F (ADJ.) OR ABOVE. UPON A DROP OF SPACE TEMPERATURE BELOW 65°F (ADJ.), THE RADIANT CEILING PANEL HOT WATER VALVE SHALL OPEN TO MAXIMUM BEFORE THE REHEAT COIL VALVE.

SEND AN ALARM TO THE FRONT-END GRAPHICS IN THE EVENT THAT THE SPACE TEMPERATURE IS +/- 5°F FROM SETPOINT

2 M-602 VAV BOX W/ HW REHEAT COIL AND RADIANT CEILING PANEL
NOT TO SCALE



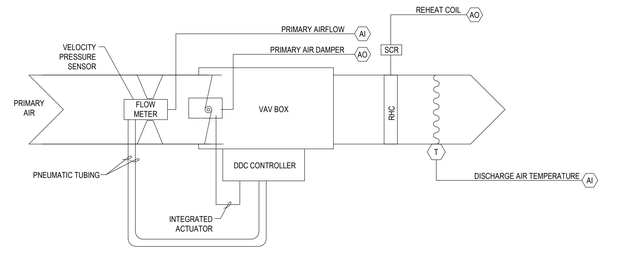
THE BAS CONTRACTOR SHALL BE RESPONSIBLE FOR WIRING TO THE BAS.

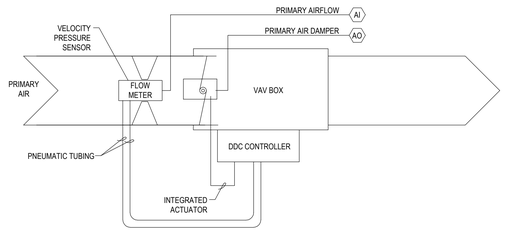
PROVIDE INTERLOCK WIRING FOR AC AND ACCU DX SPLIT SYSTEM FACTORY FURNISHED CONTROLS.

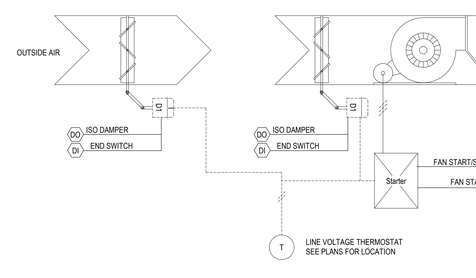
CONTROL SPLIT SYSTEM TO MAINTAIN 75°F (ADJ.) SPACE TEMPERATURE SETPOINT.

ALARMS
SPACE TEMPERATURE +/- 10°F (ADJ.) OFF OF SETPOINT

3 M-602 AIR CONDITIONING UNIT CONTROL DIAGRAM
NOT TO SCALE







FANS
TEF-1, EF-1, EF-2, EF-3, EF-4, EF-5

THE BAS CONTRACTOR SHALL INTEGRATE EXHAUST FANS INTO THE DDC SYSTEM. FANS SHALL BE PROGRAMMED TO OPERATE BASED ON AN OCCUPIED/UNOCCUPIED SCHEDULE AS DEFINED BY THE FACILITIES ENGINEER AND WHEN THE RTUs ARE IN OCCUPIED MODE.

AT COMMENCEMENT OF OCCUPIED MODE, THE DDC SYSTEM SHALL COMMAND THE ISOLATION DAMPER OPEN. AFTER 5 MINUTES (ADJ.) THE DDC SYSTEM SHALL COMMAND THE FAN ON.

IN UN-OCCUPIED MODE, THE FAN SHALL BE COMMANDED OFF. AFTER 5 MINUTES (ADJ.) THE DDC SYSTEM SHALL COMMAND THE ISOLATION DAMPER SHUT.

ALARM:
PROVIDE ALARM TO DDC SYSTEM IF THE FAN IS COMMANDED ON BUT NO FAN STATUS IS INDICATED.

PROVIDE ALARM IF DAMPER DOES NOT PROVE OPEN AFTER COMMANDED OPEN.

5 M-602 EXHAUST FAN CONTROL DIAGRAM
NOT TO SCALE

FANS
EF-119

THE BAS CONTRACTOR SHALL INTEGRATE EXHAUST FANS INTO THE DDC SYSTEM.

LINE VOLTAGE THERMOSTAT, SEE PLANS FOR LOCATION. PROVIDE MANUAL OVERRIDE SWITCH ON THERMOSTAT IN MECHANICAL ROOMS.

THE BAS CONTRACTOR SHALL INTEGRATE EXHAUST FAN INTO THE DDC SYSTEM. FAN SHALL BE PROGRAMMED TO OPERATE BASED ON A SPACE TEMPERATURE SENSOR.

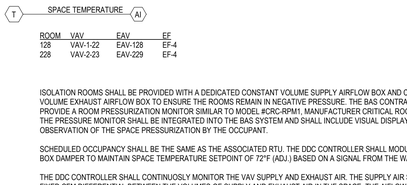
UPON AN INCREASE IN SPACE TEMPERATURE OF 82°F (ADJ.) OPEN THE OUTSIDE AIR AND EXHAUST AIR DAMPERS. AFTER 5 MINUTES (ADJ.) THE DDC SYSTEM SHALL COMMAND THE FAN ON.

UPON A DECREASE IN SPACE TEMPERATURE BELOW 80°F (ADJ.), THE FAN SHALL BE COMMANDED OFF. AFTER 5 MINUTES (ADJ.) THE DDC SYSTEM SHALL COMMAND THE ISOLATION DAMPERS SHUT.

ALARMS:
PROVIDE ALARM TO DDC SYSTEM IF THE FAN IS COMMANDED ON BUT NO FAN STATUS IS INDICATED.

PROVIDE ALARM IF DAMPERS DO NOT PROVE OPEN AFTER COMMANDED OPEN.

6 M-602 EXHAUST FAN CONTROL DIAGRAM
NOT TO SCALE



ROOM	VAV	EAV	EF
128	VAV-1-22	EAV-128	EF-4
228	VAV-2-23	EAV-229	EF-4

ISOLATION ROOMS SHALL BE PROVIDED WITH A DEDICATED CONSTANT VOLUME SUPPLY AIRFLOW BOX AND CONSTANT VOLUME EXHAUST AIRFLOW BOX TO ENSURE THE ROOMS REMAIN IN NEGATIVE PRESSURE. THE BAS CONTRACTOR SHALL PROVIDE A ROOM PRESSURIZATION MONITOR SIMILAR TO MODEL #CRC-RPM1, MANUFACTURER CRITICAL ROOM CONTROL. THE PRESSURE MONITOR SHALL BE INTEGRATED INTO THE BAS SYSTEM AND SHALL INCLUDE VISUAL DISPLAY FOR OBSERVATION OF THE SPACE PRESSURIZATION BY THE OCCUPANT.

SCHEDULED OCCUPANCY SHALL BE THE SAME AS THE ASSOCIATED RTU. THE DDC CONTROLLER SHALL MODULATE THE VAV BOX DAMPER TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 72°F (ADJ.) BASED ON A SIGNAL FROM THE WALL T-STAT.

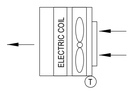
THE DDC CONTROLLER SHALL CONTINUOSLY MONITOR THE VAV SUPPLY AND EXHAUST AIR. THE SUPPLY AIR SHALL BE AT A FIXED CFM DIFFERENTIAL BETWEEN THE VOLUMES OF SUPPLY AND EXHAUST AIR IN THE SPACE. THE AIFLOW SHALL BE DETERMINED BY THE BALANCING CONTRACTOR AND SHALL BE BALANCED AGAINST THE CONSTANT VOLUME EXHAUST IN THE FAN.

MAINTAIN SPACE TEMPERATURE SETPOINT OF 72°F (ADJ.) BASED ON A SIGNAL FROM THE WALL TEMPERATURE SENSOR SHALL BE MAINTAINED BY THE DDC CONTROLLER MODULATING THE ELECTRIC REHEAT COIL.

ASSOCIATED EXHAUST FAN STATUS SHALL BE DETERMINED BY THE DDC SYSTEM. WHEN THE EXHAUST FAN IS NOT OPERATIONAL, THE ISOLATION ROOM BOX SHALL CLOSE. UPON RECEIVING AN EXHAUST FAN ON SIGNAL, THE BOX SHALL BE MODULATED TO AIRFLOW SETPOINT.

ALARMS
IF THE SPACE TEMPERATURE FALLS +/- 5°F FROM SETPOINT (ADJ.)
IF VAV BOX ACTUAL AIRFLOW EXCEEDS SETPOINT BY 10% (ADJ.)

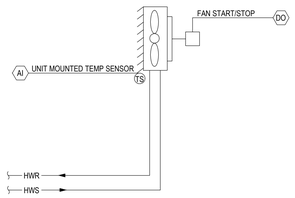
4 M-602 VAV BOX W/ELECTRIC REHEAT COIL (ISOLATION ROOMS)
NOT TO SCALE



ELECTRIC WALL HEATER CONTROL:

ELECTRIC WALL HEATERS ARE PROVIDED WITH INTEGRAL T-STAT AND DO NOT REQUIRE INTEGRATION INTO THE DDC SYSTEM.

7 M-602 WALL MOUNTED ELECTRIC UNIT HEATER
NOT TO SCALE



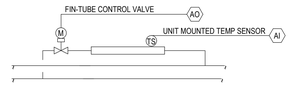
THE BAS CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND WIRING A DIGITAL TEMPERATURE SENSOR FROM THE SPACE TO THE LOCAL DDC PANEL. WIRE CONTACT POINTS TO UNIT/CABINET HEATER CONTROL VALVE AND FAN.

WALL MOUNTED THERMOSTAT SHALL CYCLE FAN TO MAINTAIN SPACE TEMPERATURE OF 65°F (ADJ.) ENERGIZE FAN AND ALLOW UNIT TO RUN UNTIL SPACE TEMPERATURE IS +5°F ABOVE SETPOINT.

FLOW RATE THROUGH UNIT SHALL BE "WILD" AS ALLOWED TO MAINTAIN MINIMUM FLOW RATE THROUGH BOILER(S).

SEND ALARM TO BAS WHEN SPACE TEMPERATURE FALLS BELOW 55°F (ADJ.)

8 M-602 HOT WATER UNIT/CABINET HEATER
NOT TO SCALE

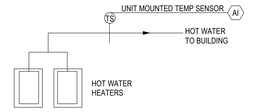


WHERE FIN TUBE RADIATORS EXIST, THE BAS CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A REMOTE TEMPERATURE SENSOR AND WIRING TO THE BAS. A MODULATING CONTROL VALVE SHALL BE INSTALLED IN THE HWR PIPING AND WIRED TO THE BAS.

UPON A DROP IN SPACE TEMPERATURE OF 68°F (ADJ.) OPEN HEATING VALVE AND MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT.

SEND ALARM TO BAS WHEN SPACE TEMPERATURE FALLS BELOW 55°F (ADJ.)

9 M-602 FIN TUBE RADIATOR CONTROL DIAGRAM
NOT TO SCALE



THE BAS CONTRACTOR SHALL FURNISH A THERMOWELL TO THE PLUMBING CONTRACTOR FOR A HOT WTER TEMPERATURE SENSOR. PLUMBING CONTRACTOR SHALL INSTALL THERMOWELL DOWNSTREAM OF THE MIXING VALVE ASSEMBLIES. THE BAS CONTRACTOR SHALL INSTALL THE TEMPERATURE SENSOR AND WIRE INTO THE DDC SYSTEM. SENSOR SHALL INDICATE ACTUAL SUPPLY TEMPERATURE.

ALARMS:
IF THE HOT WATER SUPPLY TEMPERATURE IS +/-5°F (AFJ.) FROM SYSTEM SETPOINT, SEND AN ALARM TO THE BAS GRAPHICS.

10 M-602 DOMESTIC HOT WATER
NOT TO SCALE

1/4" = 1'- 0"
3" = 1'- 0"
1" = 1'- 0"
1/2" = 1'- 0"
1/4" = 1'- 0"
1/8" = 1'- 0"
1/16" = 1'- 0"
1" = 30'- 0"

Department of Capital Planning & Policy
Bureau of Asset Management

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Project Number	15849
Drawn	GZ
Checked	AS
Proj. Arch./Eng.	GZ

COOK COUNTY HEALTH

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

Project Name & Address

CONTROLS DIAGRAM

Sheet Name

Drawing No. **M-602**

3/4" = 1' - 0"
1" = 1' - 0"
1/2" = 1' - 0"
1/4" = 1' - 0"
1/8" = 1' - 0"
1/16" = 1' - 0"
1" = 50' - 0"

FIRE PROTECTION HYDRAULIC DESIGN CRITERIA SCHEDULE - CBC

HAZARD DESCRIPTION	CLASSIFICATION	MINIMUM HYD. DENSITY (GPM/SQ.FT.)	MINIMUM SQ.FT. AREA OF APPLICATION	MAX. COVERAGE PER SPRINKLER (SQ.FT.)	REMARKS
ASSEMBLY UNITS BUSINESS UNITS	CLASS C/E LIGHT HAZARD	0.12	1500	225	
MECHANICAL ROOMS	ORDINARY HAZARD	0.15	1500	130	

FIRE PUMP SCHEDULE

TAG	MANUFACTURER	MODEL NO.	TYPE	PUMP			ELECTRICAL		REMARKS
				FLOW	DISCHARGE PRESSURE	MOTOR HP	MOTOR RPM	VOLTAGE	PHASE	
FP-1	AC-FIRE	1580	VERTICAL IN-LINE	500 GPM	100 PSI	50 HP	3550	480 V	3	APPROX. SIZING BASED ON LIMITED INFORMATION. HYDRAULIC FLOW TEST TO BE PERFORMED BY CONTRACTOR. PROVIDE EATON CUTLER HAMMER CONTROLLER MODEL F90. CONTROLLER SHALL BE SOFT START. PROVIDE JOCKEY PUMP AND CONTROLLER. JOCKEY PUMP: AC-FIRE MODEL GB5, 6GPM, 3/4 HP, 120V., 1 PHASE. PROVIDE EATON CUTLER HAMMER JOCKEY PUMP CONTROLLER MODEL XTJP.
Grand total: 1										

FIRE PUMP NOTES:
1. FIRE PUMP SIZES, CAPACITIES AND HORSE POWERS LISTED SHALL BE CONSIDERED AS MINIMUMS AND ARE LISTED FOR REFERENCE ONLY. THE FIRE PROTECTION CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR A COMPLETE PUMPING SYSTEM COMPLYING WITH THE BUILDING DESIGN REQUIREMENTS, AND THE REQUIREMENTS OF THE CHICAGO BUILDING CODE AND NFPA IN ALL RESPECTS.

FIRE PROTECTION BACKFLOW PREVENTER SCHEDULE

ABBREV.	QTY.	SIZE	MANUFACTURER	MODEL NO.	DESCRIPTION
FPBFP-1	1	6"	ZURN WILKINS	350 ADA-OSY40	DOUBLE CHECK DETECTOR ASSEMBLY, FLANGED END OS&Y GATE VALVES WITH TAMPER SWITCH. BACKFLOW PREVENTER IS INSTALLED IN "HOT BOX" PROVIDED AND INSTALLED BY CIVIL. REFER TO CIVIL DRAWINGS.

FIRE PROTECTION SHEET INDEX

Sheet No.	Sheet Name
F-000	FIRE PROTECTION TITLE SHEET
F-101	100 LEVEL FIRE PROTECTION PLAN
F-102	200 LEVEL FIRE PROTECTION PLAN
F-501	FIRE PROTECTION DETAILS
F-502	FIRE PROTECTION DETAILS

PRE-ACTION SYSTEM

(DOUBLE INTERLOCKED) ELECTRIC RELEASE - SELF-CONTAINED UNIT (WITH INTEGRATED CONTROL PANEL)

1.1 PRE-ACTION CABINET

A) SUPPLY AND INSTALL A PRE-ACTION CABINET CONTAINING ALL HYDRAULIC AND ELECTRICAL COMPONENTS REQUIRED FOR THE CONTROL OF A PRE-ACTION SYSTEM. THE CABINET SHALL INCLUDE A STURDY 14 GAUGE STEEL CABINET, MEASURING WITH CONTROL PANEL 71"X36"X20" (180X91X51CM) FOR 1½", 2" & 3" SYSTEMS. THE CABINET SHALL HAVE A TEXTURED RUST PROOF COATING, INSIDE AND OUTSIDE, FIRE RED, OVEN BAKED POLYESTER POWDER ON PHOSPHATE BASE. THE CABINET SHALL HAVE INDIVIDUAL ACCESS DOORS FOR THE HYDRAULIC AND ELECTRICAL SECTIONS AND THE EMERGENCY RELEASE WITH A NEOPRENE GASKET TO AVOID VIBRATIONS. THE PRE-ACTION SYSTEM COMPONENTS SHALL INCLUDE THE VIKING DELUGE VALVE MODEL E, COMPLETE WITH SCHEDULE 40 GALVANIZED STEEL TRIM PIPING RATED AT 250 PSI, THE VIKING PAR-3 MODEL B-2 INTEGRATED CONTROL PANEL WITH EMERGENCY BATTERY BACKUP, THE FIELD WIRING TERMINAL STRIPS INTEGRATED WITH THE CABINET FOR CONNECTION OF FIELD WIRING FOR DETECTION SYSTEM, AUDIBLE DEVICES, AUXILIARY CONTACTS AND POWER SUPPLY FOR CONTROL PANEL AND AIR COMPRESSOR, THE PRESSURE GAUGES TO INDICATE WATER SUPPLY PRESSURE, PRIMING WATER PRESSURE AND AIR PRESSURE OF THE SYSTEM, EACH ACTUATION AND SUPERVISORY DEVICE REQUIRED, A SCHEDULE 40 STEEL PIPE HEADER WITH GROOVED ENDS TO BE CONNECTED TO SUPPLY WATER AND A SCHEDULE 40 STEEL PIPE DRAIN MANIFOLD OF 2" DIAMETER FOR DRAIN CONNECTIONS. OPEN DRAIN CUPS IN THE CABINET AND MULTIPLE DRAIN MANIFOLDS WILL NOT BE ACCEPTED.

B) OPTIONS:
1. AUTOMATIC & SUPERVISED AIR SUPPLY OF SUFFICIENT CAPACITY TO FILL THE SYSTEM IN THE PRESCRIBED TIME WITH AIR COMPRESSOR ISOLATION SWITCH AND CONTROL PRESSURE SWITCH.
2. LISTED AND APPROVED INTEGRATED SUPERVISED DISCHARGE BY-PASS VALVE INSTALLED IN THE CABINET, WITH SIGHT GLASS ASSEMBLY ON DRAIN TO VISUALLY CONFIRM DISCHARGE.
3. SIZE AND PROVIDE NITROGEN TANK OPTION FOR PRE-ACTION SYSTEM IN BASE BID.

C) THE CABINET ASSEMBLY MUST BE PRE-ASSEMBLED, PRE-WIRED AND FACTORY TESTED UNDER ISO-9001 CONDITIONS. IT SHALL ALSO BE UL LISTED AND FM APPROVED AS AN ASSEMBLED UNIT.

1.2 DETECTION & SIGNALING SYSTEM

A) SUPPLY AND INSTALL A COMPLETE ELECTRICAL DETECTION SYSTEM INCLUDING THE SYSTEM TUBING, WIRING, SMOKE DETECTORS, SIGNALING DEVICES AND CONNECTIONS TO AUXILIARY FUNCTIONS. THE HEAT AND/OR SMOKE DETECTORS CAN BE WIRED ON EITHER ONE OR TWO ZONES FOR OPERATION IN SINGLE OR CROSSED ZONES MODE. EACH ZONE SHALL CONSIST OF A COMBINATION OF PHOTOELECTRIC AND IONIZATION DETECTORS ON A 1:1 RATIO. THE HEAT AND/OR SMOKE DETECTORS AND THE ALARM INDICATING DEVICES (24 VDC BELL, HORN OR STROBE) MUST BE COMPATIBLE WITH THE INTEGRATED VIKING PAR-3 MODEL B-2 RELEASE CONTROL PANEL. IONIZATION AND PHOTOELECTRIC DETECTORS SHALL BE SYSTEM SENSOR, MODEL 1451 AND 2451, WITH BASE NO. B401B (MAXIMUM OF 15 DETECTORS PER ZONE). WHERE MORE THAN 15 DETECTORS ARE REQUIRED ON A ZONE, USE THE 4-WIRE TYPE DETECTOR BASE NO. B402B. A BELL OR A HORN SHOULD BE INSTALLED NEAR THE CABINET.

1.3 SYSTEM OPERATION

A) THE ACTIVATION OF BOTH A SPRINKLER AND A DETECTOR (OR RELEASE) IS REQUIRED BEFORE THE VALVE WILL OPEN, ALLOWING WATER TO ENTER THE SYSTEM PIPING. ACTIVATION OF A RELEASING DEVICE ALONE OR OPERATION OF A SPRINKLER ALONE WILL SOUND AN ALARM BUT WILL NOT CAUSE THE SYSTEM TO FILL WITH WATER.

B) CROSS ZONE OPERATION: ELECTRIC/PNEU-LECTRIC CONTROLLED PRE-ACTION SYSTEMS USE PNEUMATIC SUPERVISION OF THE AUTOMATIC SPRINKLER SYSTEM, AND AN ELECTRIC DETECTION SYSTEM. THE DELUGE VALVE RELEASE TRIM USES A NORMALLY CLOSED ELECTRIC SOLENOID VALVE CONTROLLED BY AN APPROVED SYSTEM CONTROL PANEL WITH TWO INITIATING CIRCUITS CONFIGURED FOR "CROSS ZONED" OPERATION. ONE INITIATING CIRCUIT IS CONNECTED TO THE ELECTRIC DETECTION SYSTEM; THE OTHER TO A "LOW AIR" ALARM SWITCH. BOTH THE ELECTRIC DETECTION SYSTEM AND SUPERVISORY PRESSURE MUST BE RELIEVED FROM THE SPRINKLER SYSTEM BEFORE THE DELUGE VALVE WILL OPEN AND FILL THE SPRINKLER SYSTEM WITH WATER.

C) MANUAL OPERATION: ANYTIME THE HANDLE OF THE EMERGENCY RELEASE VALVE IS PULLED, PRESSURE IS RELEASED FROM THE PRIMING CHAMBER; DELUGE VALVE WILL OPEN. WATER WILL FLOW INTO THE SYSTEM PIPING, AND ALARM DEVICES WILL OPERATE. IF A SPRINKLER ACTIVATES, WATER WILL FLOW FROM THE SYSTEM.

1.4 AIR SUPPLY

A) THE AUTOMATIC SPRINKLER PIPING IS SUPERVISED BY AIR FROM A COMPRESSED AIR SOURCE INSTALLED INSIDE THE PRE-ACTION CABINET. THE AIR SUPPLY MUST BE REGULATED AND OF THE PROPER SIZE IN ORDER TO BE ABLE TO RESTORE NORMAL SYSTEM AIR PRESSURE WITHIN 30 MINUTES.

1. AIR COMPRESSOR AND SUPERVISORY TRIM SHALL BE FACTORY INSTALLED INSIDE THE CABINET AND ADJUSTED FOR THE SELECTED CONFIGURATION.
2. FOR HIGH HUMIDITY ENVIRONMENTS, A DEHYDRATOR ASSEMBLY MUST BE FACTORY INSTALLED IN THE AIR TRIM, WITH BOWL GUARD, SUPPLY CONTROL AND DRAIN VALVES. DEHYDRATOR SHALL BE MANUALLY GENERATED DESICCANT-TYPE AIR DRYER, THE DESICCANT ACTING AS A MOISTURE INDICATOR BY CHANGING COLOR.

1.5 BY-PASS VALVE AND SIGHT-GLASS ASSEMBLY

A) THE SYSTEM SHALL BE PROVIDED WITH A UL LISTED AND FM APPROVED INTEGRATED BY-PASS BUTTERFLY VALVE INSTALLED IN THE SYSTEM RISER INSIDE THE CABINET FOR FULL FLOW TEST PURPOSES. THE VALVE SHALL ALSO BE SUPERVISED. AN INTEGRATED SIGHT GLASS SHALL BE PART OF THIS ARRANGEMENT TO VISUALLY CONFIRM WATER FLOW UPON SYSTEM ACTUATION. DETAILED INSTRUCTIONS PLACARD MUST BE PROVIDED INSIDE THE CABINET.

1.6 SYSTEM DRAIN

A. THE SINGLE DRAIN COLLECTOR OF THE SYSTEM SHALL BE CONNECTED TO AN OPEN DRAIN. THE DRAIN PIPING SHALL NOT BE RESTRICTED OR REDUCED AND SHALL BE OF THE SAME DIAMETER AS THE DRAIN COLLECTOR. MULTIPLE DRAIN COLLECTORS AND OPEN DRAIN CUPS INSIDE THE CABINET INSIDE THE CABINET WILL NOT BE ACCEPTED. MANIFOLD MULTIPLE UNITS IS PERMITTED PROVIDED THE MANUFACTURER'S RECOMMENDATIONS ARE CAREFULLY FOLLOWED AND COMPLIED WITH.

FIRE PROTECTION GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH NFPA 13, CITY OF CHICAGO BUILDING CODES, AND ALL BUILDING STANDARDS.
2. SYSTEM SHALL BE TESTED AND FLUSHED IN ACCORDANCE WITH NFPA, THE FIRE INSURANCE CARRIER, AND THE LOCAL BUILDING DEPARTMENT.
3. FIRE PROTECTION CONTRACTOR SHALL OBTAIN THE RESULTS FOR A FLOW TEST PERFORMED WITHIN THE LAST 6 MONTHS, OR SHALL PERFORM A NEW FLOW TEST.
4. ALL NEW SYSTEMS SHALL BE TESTED HYDROSTATICALLY AT NOT LESS THAN 200 POUNDS PER SQUARE INCH FOR TWO HOURS, OR AT 50 POUNDS PER SQUARE INCH IN EXCESS OF THE MAXIMUM STATIC PRESSURE WHEN THE MAXIMUM STATIC PRESSURE IS IN EXCESS OF 150 POUNDS. TESTS SHALL BE WITNESSED BY OWNER'S REPRESENTATIVE AND THE AUTHORITY HAVING JURISDICTION.
5. PROVIDE SYSTEM LOW POINT DRAINS AND AUXILIARY DRAINS AS NECESSARY.
6. THE OWNER SHALL PROVIDE A MINIMUM 40 DEGREES F TEMPERATURE THROUGHOUT ALL AREAS OF THE BUILDING WHERE WET PIPE SPRINKLER SYSTEMS ARE PROVIDED.
7. DELIVER MATERIAL TO THE JOB SITE, UNLOAD AND STORE IT IN A LOCATION AS DETERMINED BY THE OWNER'S REPRESENTATIVE.
8. THE SPRINKLER CONTRACTOR SHALL PROVIDE SPRINKLER PROTECTION UNDER ALL MECHANICAL DUCTWORK OR OBSTRUCTIONS IN EXCESS OF 4'-0" IN WIDTH, IN EXPOSED STRUCTURE AREAS, IN ACCORDANCE WITH NFPA #13 REQUIREMENTS.
9. SPRINKLER GUARDS SHALL BE PROVIDED FOR ALL SPRINKLERS WITHIN 7'-0" ABOVE FINISHED FLOOR AND/OR IN AREAS SUBJECT TO MECHANICAL DAMAGE.
10. FIRE PROTECTION CONTRACTOR SHALL VERIFY SPRINKLER DESIGN CRITERIA WITH THE FIRE DEPARTMENT & THE INSURANCE CARRIER. AT A MINIMUM, MATCH THE DESIGN CRITERIA: STORAGE 0.15 GPM/1500 SQ.FT., 130 SQ.FT./HEAD
OFFICE 0.10 GPM/1500 SQ.FT., 225 SQ.FT./HEAD
11. FIRE PROTECTION CONTRACTOR SHALL PREPARE HYDRAULIC CALCULATIONS AND SHOP DRAWINGS ("WORKING DRAWINGS") IN ACCORDANCE WITH NFPA 13 AND SUBMIT (4) FOUR COMPLETE SETS TO THE VILLAGE FIRE PREVENTION BUREAU, TO THE FIRE INSURANCE CARRIER FOR REVIEW AND/OR PRIOR TO FABRICATION OR INSTALLATION OF SYSTEM. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING INFORMATION AS APPLICABLE TO THE WORK SPACE:
    A. FLOW TEST RESULTS AT SUPPLY CONNECTION.
    B. FLOW AND PRESSURE REQUIRED AND AVAILABLE AT BASE OF RISERS.
    C. TYPE OF PIPE, FITTINGS, TYPE OF JOINTS, DIMENSIONS AND LENGTHS OF PIPE.
    D. AREA OF COVERAGE FOR EACH SPRINKLER.
    E. NUMBER, TYPE, AND TEMPERATURE RATING FOR ALL SPRINKLER HEADS.
    F. BUILDING OCCUPANCY INCLUDING BUILDING USE AND/OR COMMODITY STORED.
    G. DESCRIPTION OF SPECIAL SYSTEMS, INCLUDING VALVES AND TRIM.
    H. LOCATION OF GAUGES, MAIN DRAINS, AUXILIARY DRAINS, AND TEST VALVES.
    I. ARRANGEMENT OF FIRE DEPARTMENT CONNECTION INCLUDING DRAINAGE, THREADS, AND MOUNTING HEIGHT.
    J. STATEMENT INDICATING THAT TESTS AND FLUSHING WILL BE COMPLETED.
    K. DETAIL AND LOCATION OF PIPE HANGARS.
    L. INDICATE WHICH VALVES WILL HAVE TAMPER SWITCHES.
    M. FLOW SWITCHES.
    N. PORTABLE FIRE EXTINGUISHER LAYOUT (EXTINGUISHERS BY GENERAL CONTRACTOR)
12. SUBMIT (4) FOUR SETS OF COMPLETE SHOP DRAWINGS TO THE ENGINEER OF RECORD (INCLUDING CATALOG CUTS AND HYDRAULIC CALCULATIONS) FOR REVIEW PRIOR TO FABRICATION AND/OR INSTALLATION OF THE WORK.
13. CONTRACTOR SHALL VISIT THE CONSTRUCTION SITE AND FAMILIARIZE HIMSELF WITH THE LOCAL CONDITIONS OF THE PROJECT AREA AND IDENTIFY CONDITIONS HE BELIEVES MAY IMPEDE THE EFFICIENT PERFORMANCE OF HIS CONTRACT REQUIREMENTS. SUBMISSION OF BID SHALL REPRESENT EVIDENCE THAT SUCH AN INSPECTION HAS BEEN MADE AND THAT CONDITIONS UNDER WHICH THE WORK IS TO BE INSTALLED, ARE SATISFACTORY TO THE CONTRACTOR. ADDITIONAL COMPENSATION FOR PREVIOUSLY EXISTING FIELD CONDITIONS, ARISING AFTER START OF WORK, THAT WERE NOT IDENTIFIED IN THE BID SUBMISSION, WILL BE DENIED.
14. THE MUNICIPAL WATER MAIN SHALL BE PROTECTED FROM BACKFLOW AND BACK SIPHONAGE CONDITIONS BY AN APPROVED BACKFLOW ASSEMBLY IN THE SERVICE ENTRANCE; MEETING ALL THE REQUIREMENTS OF THE LOCAL WATER DEPARTMENT.
15. DESIGN WET SPRINKLER SYSTEMS HYDRAULICALLY FOR LIGHT AND ORDINARY HAZARD OCCUPANCIES, IN ACCORDANCE WITH BOTH THE REQUIRED AND ADVISORY PROVISIONS OF NFPA 13, AS MODIFIED BY THE LOCAL CODE AMENDMENTS, FROM THE EDITION YEAR REFERENCED IN THE BUILDING CODE THAT IS RECOGNIZED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
16. THE DRAWINGS ARE DIAGRAMMATIC AND PROVIDED TO SUGGEST THE DESIRED ZONE DIVISIONS AND SYSTEM SEPARATIONS, THE ARRANGEMENT AND LOCATION OF MAINS, VALVES, EQUIPMENT, ALARMS, PANELS, DEVICES AND SYSTEM ATTACHMENTS, AND MAY NOT INDICATE ALL REQUIRED COMPONENTS NECESSARY FOR FINAL APPROVAL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE EACH SYSTEM INSTALLATION TO INCLUDE ALL REQUIRED MATERIALS, ACCESSORIES AND EQUIPMENT INSIDE AND OUTSIDE OF THE BUILDING, NECESSARY TO PROVIDE EACH SYSTEM COMPLETE, TESTED AND IN WORKING ORDER, APPROVED BY THE AHJ AND READY FOR USE.
17. EACH FLOOR SHALL BE A SEPARATE SPRINKLER ZONE, ISOLATED FROM OTHER SYSTEMS BY A SUPERVISED CONTROL VALVE, ALARMED BY A WATER FLOW SWITCH AND ATTENDED BY AN INSPECTOR'S TEST AND DRAIN ASSEMBLY THAT IS PIPED TO A DRAIN INSIDE OR OUTSIDE OF THE BUILDING (SEE PLANS FOR LOCATIONS).
18. WATER DISCHARGE FROM INDIVIDUAL SPRINKLERS IN THE HYDRAULICALLY MOST REMOTE AREAS SHALL BE BETWEEN 100% MINIMUM AND 125% MAXIMUM, OF THE CODE REQUIRED MINIMUM APPLICATION DENSITIES OR AS THE DRAWINGS SPECIFY, WHICHEVER IS GREATER, WITH A MAXIMUM PIPING VELOCITY THAT SHALL NOT EXCEED 20 FEET PER SECOND IN ANY PIPE SECTION. CALCULATIONS SHALL INCLUDE 250 GPM HOSE STREAM ALLOWANCE FIGURED AT THE INCOMING WATER SERVICE ENTRANCE POINT.
19. DESIGN AND PROVIDE EACH SYSTEM GIVING FULL CONSIDERATION TO SPRINKLER SPRAY PATTERN, OBSTRUCTIONS OF STRUCTURAL CONDITIONS AND FRAMING.
20. DESIGN AND PROVIDE EACH SYSTEM GIVING FULL CONSIDERATION TO AVOIDING CONFLICTS WITH THE INSTALLATION WORK OF ALL OTHER TRADES, INCLUDING DUCTS, ELECTRICAL CONDUIT RUNS, ELECTRICAL AND HVAC EQUIPMENT AND PIPING; ARRANGE COMPONENTS AND EQUIPMENT AND ESTABLISH POSITIONS OF SECTIONALIZING VALVES, FLOW ALARMS AND TEST/DRAIN ASSEMBLIES TO MINIMIZE ACCESS PANELS AND PROVIDE ADEQUATE ACCESS SPACE FOR EQUIPMENT OPERATION, INSPECTION, TESTING AND NORMAL MAINTENANCE. SPRINKLER PIPING MUST BE ROUTED TO ALLOW CLEAR ACCESS TO EQUIPMENT ABOVE.
21. FIRE STOP ALL PENETRATIONS OF FIRE RATED WALLS, PARTITIONS AND FLOORS WITH A 2 PART MINIMUM, PRIOR TESTED AND U.L. LISTED DETAIL, EQUAL TO THE RATING OF THE WALL OR FLOOR PENETRATED.
22. PREPARE HYDRAULIC CALCULATIONS WITH A MINIMUM SAFETY FACTOR OF 10% OF THE STATIC PRESSURE OR 5 PSI MINIMUM, WITH DETAILED WORKING DRAWINGS, ACCORDING TO THE REQUIREMENTS OF NFPA 13 AND AHJ, COORDINATED WITH THE INSTALLATION WORK OF ALL OTHER TRADES, ON SCALED PLANS SHOWING THE SERVICE ENTRANCE AND BACKFLOW PREVENTION ASSEMBLY, SPRINKLER POSITIONS AND PIPING LAYOUTS, HANGAR LOCATIONS AND ATTACHMENT DETAILS, ELEVATIONS AND SECTIONS OF THE SYSTEMS PIPING LAYOUT, THAT INDICATE ALL DATA ESSENTIAL FOR THEIR PROPER INSTALLATION. SHOW SCHEMATIC PIPING ARRANGEMENTS OF SPECIALTY VALVES, PIPE AND FITTINGS, ALARM DEVICES AND SWITCHES, INCLUDING ELECTRICAL AND WIRING DIAGRAMS.

SPRINKLER SYSTEM HANGER NOTES:

1. SPRINKLER SYSTEMS SHALL BE INSTALLED WITH HANGARS AND BRACING ACCORDING TO NFPA 13 REQUIREMENTS, FROM THE EDITION YEAR REFERENCED IN THE CODE THAT IS RECOGNIZED BY THE AUTHORITY HAVING JURISDICTION.
2. THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER AND THE LAST HANGAR SHALL NOT EXCEED 36" FOR 1" DIAMETER (DIA.) PIPES, 48" FOR 1-1/4" DIA. PIPES AND 60" FOR 1-1/2" DIA. PIPES.
3. MAXIMUM DISTANCES BETWEEN HANGARS SHALL NOT EXCEED 12'-0" FOR 1" AND 1-1/4" DIA. PIPES AND 15'-0" FOR 1-1/2" THROUGH 8" DIA. PIPES.
4. SPRINKLER PIPES 1" TO 4" DIA. SHALL BE SUPPORTED BY 3/8" ALL THREAD RODS AND 3/8" HANGER ASSEMBLIES.
5. SPRINKLER PIPES 5" THOUGH 8" DIA. SHALL BE SUPPORTED BY 1/2" ALL THREAD RODS AND 1/2" HANGER ASSEMBLIES.
6. THERE SHALL NOT BE LESS THAN 1 HANGER PER PIPE SECTION.
7. WHEN THE MAXIMUM PRESSURE AT THE SPRINKLER EXCEEDS 100 PSI AND A BRANCH LINE ABOVE THE CEILING SUPPLIES SPRINKLERS IN A PENDENT POSITION BELOW THE CEILING, THE HANGER ASSEMBLY SUPPORTING THE PIPE SUPPLYING AN END SPRINKLER IN A PENDENT POSITION SHALL BE OF A TYPE THAT PREVENTS UPWARD MOVEMENT OF THE PIPE.
8. ALL ARM OVERS GREATER THAN 24" TO SPRINKLER DROP NIPPLES SHALL BE SUPPORTED BY A HANGER. WHEN THE MAXIMUM PRESSURE AT THE SPRINKLER EXCEEDS 100 PSI, THE HANGER ASSEMBLY SUPPORTING THE ARM OVER TO THE SPRINKLER IN A PENDENT POSITION SHALL BE OF A TYPE THAT PREVENTS UPWARD MOVEMENT OF THE PIPE.

GENERAL MECHANICAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- 1 — KEYNOTE
- Room / 1 — CONTINUATION SYMBOL / ROOM NAME AND NUMBER
- ITEM TO BE DEMOLISHED
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -10' - 1" — PIPE INVERT ELEVATION TAG
- (E) — EXISTING PIPE TAG
- PIPING BEING DEMOLISHED

FIRE PROTECTION SYMBOLS

- FP-D — FIRE PROTECTION DRY
- FP-O — FIRE PROTECTION OTHER
- FP-PA — FIRE PROTECTION PRE-ACTION
- FP-W — FIRE PROTECTION WET
- FP-DOM-W — COMBINATION FIRE & DOMESTIC
- UPRIGHT SPRINKLER HEAD
- PENDENT SPRINKLER HEAD
- RECESSED SPRINKLER HEAD
- CONCEALED SPRINKLER HEAD
- D — 'D' REPRESENTS DRY SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD
- EXTENDED COVERAGE SIDEWALL SPRINKLER HEAD
- 48"x18" S/A — OBSTRUCTION FROM DUCTWORK 48" AND GREATER

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FD	FIRE DAMPER	RH	RELATIVE HUMIDITY
FDV	FIRE DEPARTMENT VALVE	RL/A	RELIEF AIR
FL	FLOOR	RM	ROOM
FO	FUEL OIL	RPM	REVOLUTIONS PER MINUTE
FOV	FUEL OIL VENT	RW	RAIN WATER
FOR	FUEL OIL RETURN	SF	SQUARE FOOT
FOS	FUEL OIL SUPPLY	S/A	SUPPLY AIR
FPM	FEET PER MINUTE	SAN	SANITARY
FS	FLOOR SINK	SF	SQUARE FOOT
FT	FOOT/FEET	SD	SMOKE DAMPER
FTR	FIN TUBE RADIATION	SM	SURFACE MOUNT
GAL	GALLON	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

* NOTE *

ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

Department of Capital Planning & Policy
Bureau of Asset Management

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No.	Date	Issue
4	06/25/2019	ISSUE FOR BID
3	03/22/2019	ISSUE FOR 25% CD
2	01/30/2019	ISSUE FOR DD - REV 01
1	01/16/2019	ISSUE FOR DD

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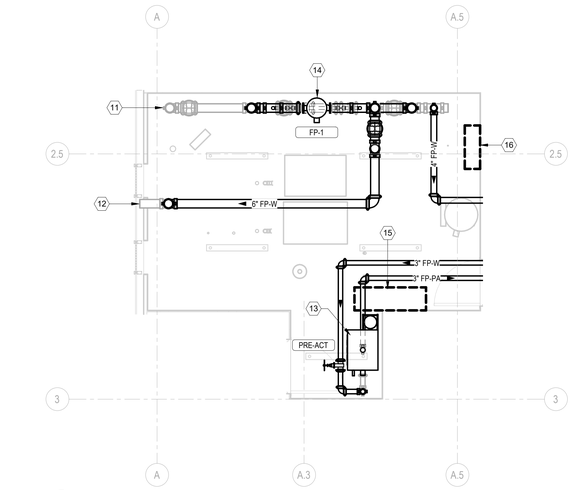
Project Number	15849
Drawn	FA
Checked	FA
Proj. Arch./Eng.	AS

COOK COUNTY HEALTH

Project Name & Address: HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

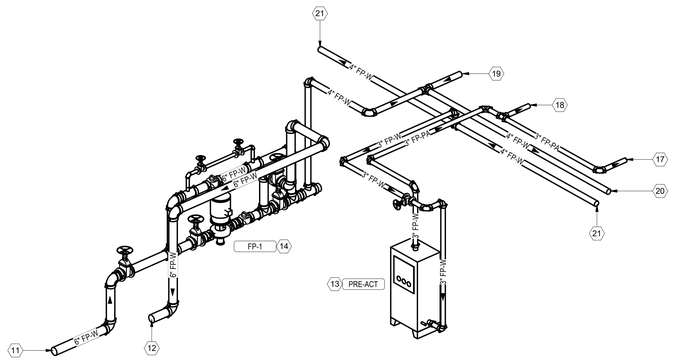
Sheet Name: FIRE PROTECTION TITLE SHEET

Drawing No. **F-000**



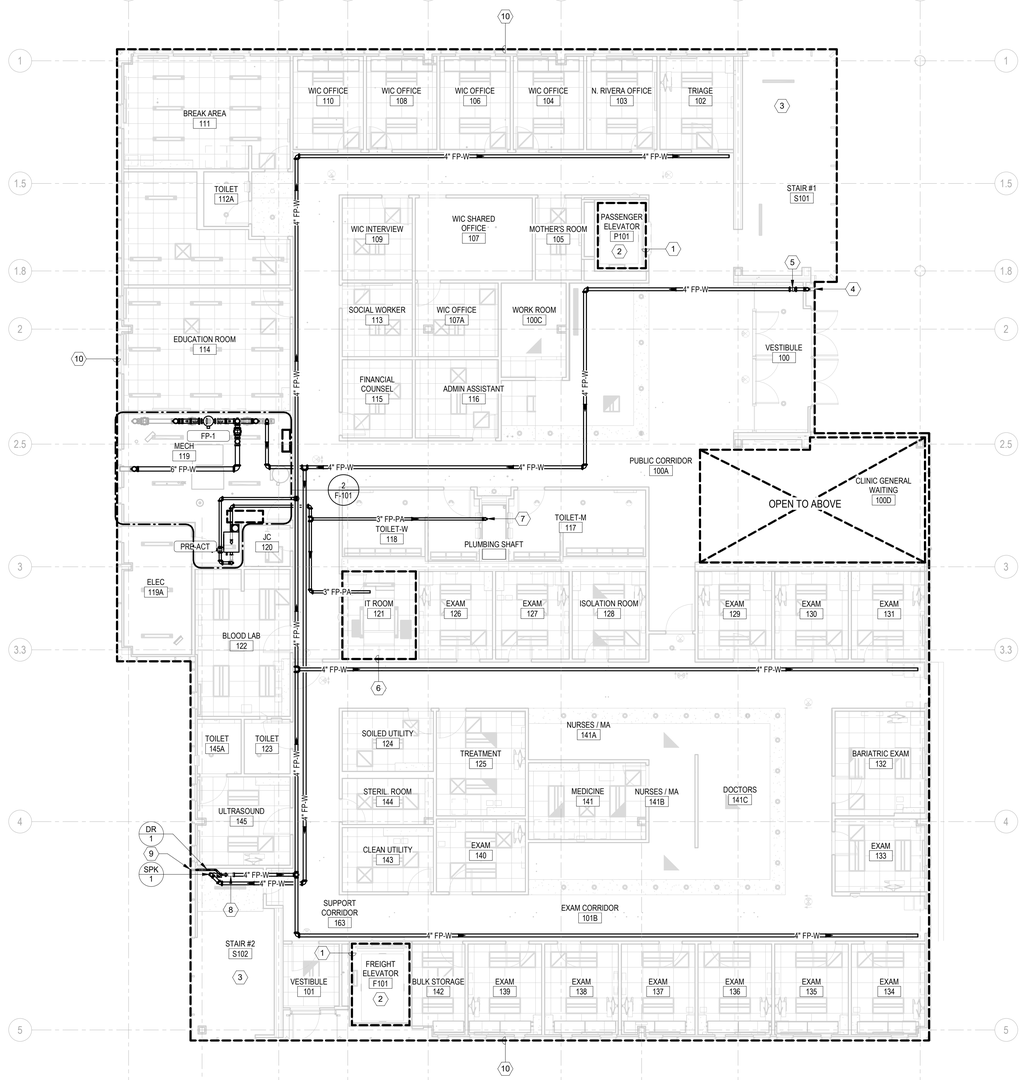
2 MECHANICAL ROOM ENLARGEMENT

F-101 1/4" = 1'-0"



3 DETAIL FIRE PROTECTION - MECHANICAL ROOM

N.T.S.



1 100 LEVEL FIRE PROTECTION PLAN

F-101 1/8" = 1'-0"

FIRE PROTECTION KEYNOTES

KEY VALUE	KEYNOTE TEXT
1	FIRE PROTECTION CONTRACTOR SHALL PROVIDE ELEVATOR SUPERVISED VALVE AND WATER FLOW SWITCH. PROVIDE INSPECTOR'S TEST CONNECTION AND ROUTE DRAIN LINE TO NEAREST FLOOR RECEPTOR. PROVIDE AIR GAP.
2	THE FIRE PROTECTION CONTACTOR SHALL PROVIDE A 212°F SIDEWALL SPRINKLER (WITH SUPERVISED CONTROL VALVE AND WATERFLOW SWITCH) IN ELEVATOR PIT. SIDEWALL SPRINKLER SHALL BE INSTALLED NO MORE THAN 2'-0" ABOVE THE FLOOR OF THE PIT. PROVIDE A 6"X6" SHEET METAL HEAT COLLECTOR ABOVE THE SPRINKLER. REFER TO SCHEMATIC RISER DIAGRAM ON SHEET F-501.
3	THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE SPRINKLER COVERAGE UNDERNEATH STAIRS, INCLUDING INTERMEDIATE LANDINGS.
4	4" SIAMESE FIRE DEPARTMENT CONNECTION PER CITY OF CHICAGO REQUIREMENTS. COORDINATE FINAL LOCATION AND HEIGHT WITH ARCHITECT. PROVIDE AUTO BALL DRIP AT PIPE DROP AND PIPE TO OUTSIDE WITH A DOWNTURNED ELBOW. COORDINATE ELECTRIC BELL WITH ELECTRICAL CONTRACTOR. REFER TO FIRE PROTECTION SCHEMATIC RISER DIAGRAM.
5	CHECK VALVE WITH AUTO BALL DRIP.
6	THE ENCLOSED IT ROOM TO BE FULLY SPRINKLERED AND SERVED BY THE PRE-ACTION FIRE PROTECTION SYSTEM. PROVIDE ALL REQUIRED SPRINKLERS AND BRANCH PIPING TO OBTAIN PROPER COVERAGE.
7	PRE-ACTION PIPE UP.
8	FLOOR CONTROL VALVE ASSEMBLY. SHALL INCLUDE SHUT-OFF VALVE WITH SUPERVISORY TAMPER SWITCH, WATERFLOW ALARM WITH A COVER TAMPER SWITCH, PRESSURE GAUGE, ALARM TEST ORIFICE, DRAIN AND SIGHT GLASS. ROUTE ASSEMBLY DISCHARGE TO ADJACENT DRAIN RISER. FIELD VERIFY AND COORDINATE EXACT LOCATION.
9	2" DRAIN RISER TO SPLASH TO DAYLIGHT. FIELD VERIFY AND COORDINATE EXACT POINT OF PENETRATION TO THE EXTERIOR. PROVIDE CONCRETE SPLASH BLOCK. COORDINATE WITH ARCHITECT.
10	THE ENCLOSED AREA TO BE SPRINKLERED VIA THE NEW SPRINKLER RISER (SPK) LOCATED IN STAIRWELL S102. PROVIDE ALL REQUIRED QUANTITY OF SPRINKLER HEADS TO OBTAIN REQUIRED COVERAGE. PROVIDE CONCEALED TYPE PENDENT HEADS IN ROOMS WITH FINISHED CEILINGS AND UPRIGHT TYPE HEADS IN MECHANICAL/ELECTRICAL ROOMS WITH NO CEILINGS. HEADS TO BE CENTERED IN ACOUSTICAL TILES. REFER TO MECHANICAL PLANS AND ELECTRICAL PLANS FOR CEILING MOUNTED DEVICES. REFER TO ARCHITECTURAL PLANS FOR REFLECTED CEILING PLAN.
11	INCOMING 6" FIRE PROTECTION SERVICE ENTRY. 6" FIRE PROTECTION BACKFLOW PREVENTER (FPBFP-1) IS INSTALLED UPSTREAM IN CIVIL "HOT BOX" HEATED ENCLOSURE. "HOT BOX" IS PROVIDED AND INSTALLED BY CIVIL CONTRACTOR. REFER AND COORDINATE WITH CIVIL DRAWINGS.
12	FIRE PUMP TEST HEADER. (2) 2-1/2" HOSE CONNECTIONS.
13	DOUBLE INTERLOCK PRE-ACTION CABINET ASSEMBLY. MOUNT ON 4" HIGH CONCRETE HOUSEKEEPING PAD. DRAIN INDIRECTLY TO FLOOR DRAIN. PROVIDE AIR GAP. REFER TO PRE-ACTION SYSTEM NOTES ON SHEET F-000. ASSEMBLY SHALL INCLUDE SUPERVISED VALVE AND WATER FLOW SWITCH.
14	FIRE PUMP. REFER TO SCHEMATIC FIRE PROTECTION RISER DIAGRAM ON SHEET F-501.
15	FIRE PUMP CONTROL PANEL.
16	JOCKEY PUMP CONTROL PANEL.
17	PRE-ACTION PIPING TO FIRST FLOOR IT ROOM COVERAGE.
18	PRE-ACTION PIPING TO 2ND FLOOR IT ROOM COVERAGE.
19	4" FIRE PROTECTION PIPING FROM FIRE DEPARTMENT CONNECTION.
20	4" FIRE PROTECTION SUPPLY TO FLOOR CONTROL VALVE ASSEMBLY LOCATED IN STAIRWELL S102.
21	FIRST FLOOR SPRINKLER ZONE SPRINKLER MAIN TO SPRINKLER COVERAGE.

1/4" = 1'-0" 3" = 1'-0" 1" = 1'-0" 1/2" = 1'-0" 1/4" = 1'-0" 1/8" = 1'-0" 1/16" = 1'-0" 1" = 30'-0"

Department of Capital Planning & Policy
Bureau of Asset Management

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Project Number	15849
Drawn	FA
Checked	FA
Proj. Arch./Eng.	AS

COOK COUNTY HEALTH

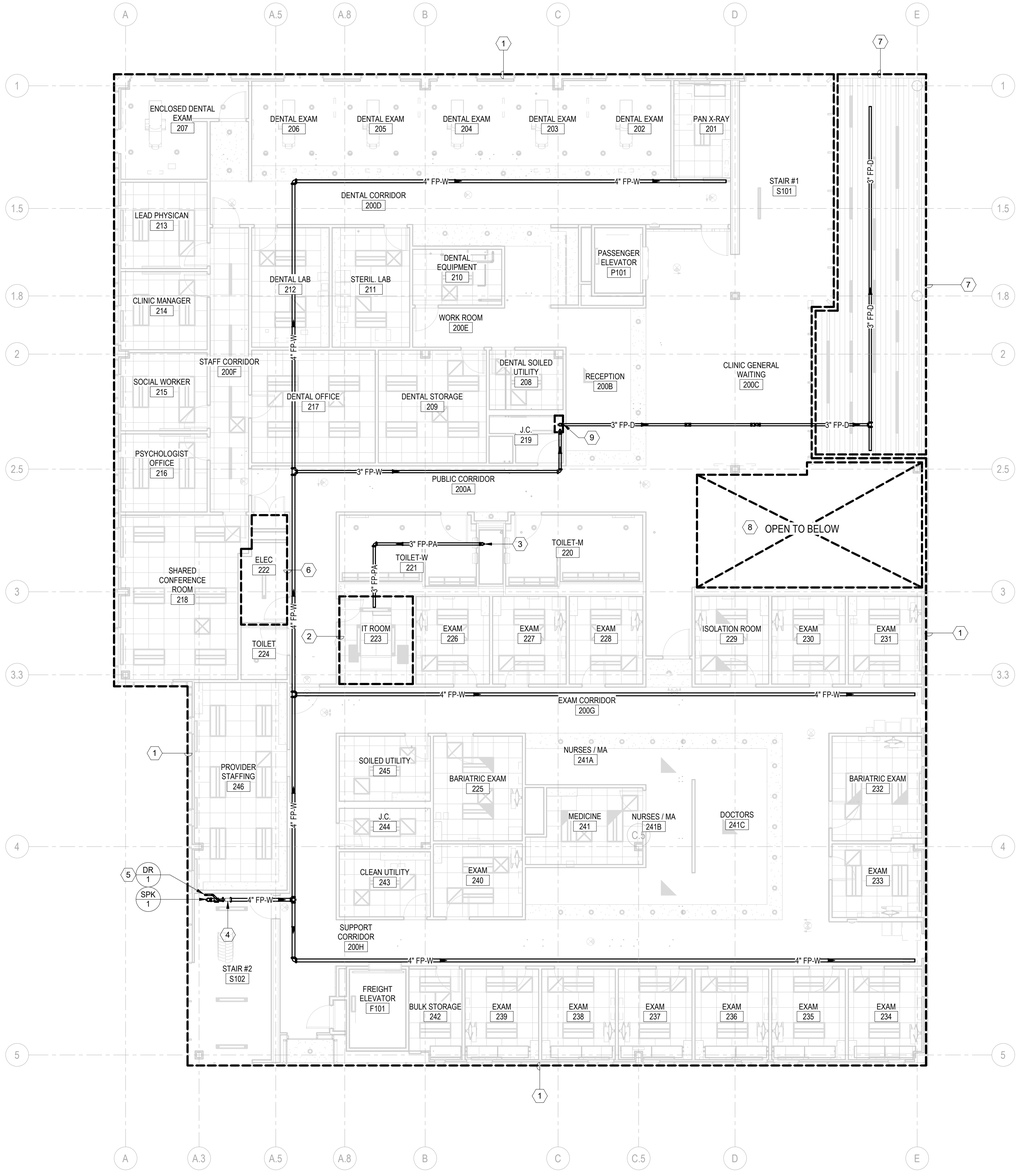
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

100 LEVEL FIRE PROTECTION PLAN

Sheet Name

Drawing No. **F-101**



FIRE PROTECTION KEYNOTES

KEY VALUE	KEYNOTE TEXT
1	THE ENCLOSED AREA TO BE SPRINKLERED VIA THE NEW SPRINKLER RISER (SPK) LOCATED IN STAIRWELL S102. PROVIDE ALL REQUIRED QUANTITY OF SPRINKLER HEADS TO OBTAIN REQUIRED COVERAGE. PROVIDE CONCEALED TYPE PENDENT HEADS IN ROOMS WITH FINISHED CEILINGS AND UPRIGHT TYPE HEADS IN MECHANICAL/ELECTRICAL ROOMS WITH NO CEILINGS. HEADS TO BE CENTERED IN ACOUSTICAL TILES. REFER TO MECHANICAL PLANS AND ELECTRICAL PLANS FOR CEILING MOUNTED DEVICES. REFER TO ARCHITECTURAL PLANS FOR REFLECTED CEILING PLAN.
2	THE ENCLOSED IT ROOM TO BE FULLY SPRINKLERED AND SERVED BY THE PRE-ACTION FIRE PROTECTION SYSTEM. PROVIDE ALL REQUIRED SPRINKLERS AND BRANCH PIPING TO OBTAIN PROPER COVERAGE.
3	PRE-ACTION PIPE DOWN.
4	FLOOR CONTROL VALVE ASSEMBLY. SHALL INCLUDE SHUT-OFF VALVE WITH SUPERVISORY TAMPER SWITCH, WATERFLOW ALARM WITH A COVER TAMPER SWITCH, PRESSURE GAUGE, ALARM TEST ORIFICE, DRAIN AND SIGHT GLASS. ROUTE ASSEMBLY DISCHARGE TO ADJACENT DRAIN RISER. FIELD VERIFY AND COORDINATE EXACT LOCATION.
5	2" DRAIN RISER DOWN THRU FLOOR.
6	FIRE PROTECTION MAIN PIPING SHALL NOT RUN THRU ELECTRICAL ROOM. PROVIDE SPRINKLER BRANCH PIPING TO SPRINKLER INTO ELECTRICAL ROOM ONLY. FIELD VERIFY AND COORDINATE WITH ELECTRICAL EQUIPMENT.
7	THE ENCLOSED AREA TO BE FULLY SPRINKLERED AND SERVED BY DRY SPRINKLER SYSTEM. PROVIDE PENDANT SPRINKLERS. PROVIDE ALL REQUIRED SPRINKLERS TO OBTAIN PROPER COVERAGE. DRY PIPE VALVE ASSEMBLY STATION IS LOCATED IN JANITOR'S CLOSET ROOM 219.
8	THE ENCLOSED AREA IS OPEN BELOW. SPRINKLER COVERAGE SHALL BE FED FROM THE FIRST FLOOR SPRINKLER ZONE.
9	DRY PIPE VALVE ASSEMBLY STATION TO SERVE EXTERIOR CANOPY. ROUTE DRAIN DISCHARGE TO OVER FLOOR DRAIN IN MECHANICAL ROOM. PROVIDE AIR GAP.

1 200 LEVEL FIRE PROTECTION PLAN
F-102 1/8" = 1'-0"

3" = 1'-0" | 1" = 1'-0" | 1/2" = 1'-0" | 1/4" = 1'-0" | 1/8" = 1'-0" | 1/16" = 1'-0" | 1" = 30'-0"

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Project Number	15849
Drawn	FA
Checked	FA
Proj. Arch./Eng.	AS

COOK COUNTY HEALTH

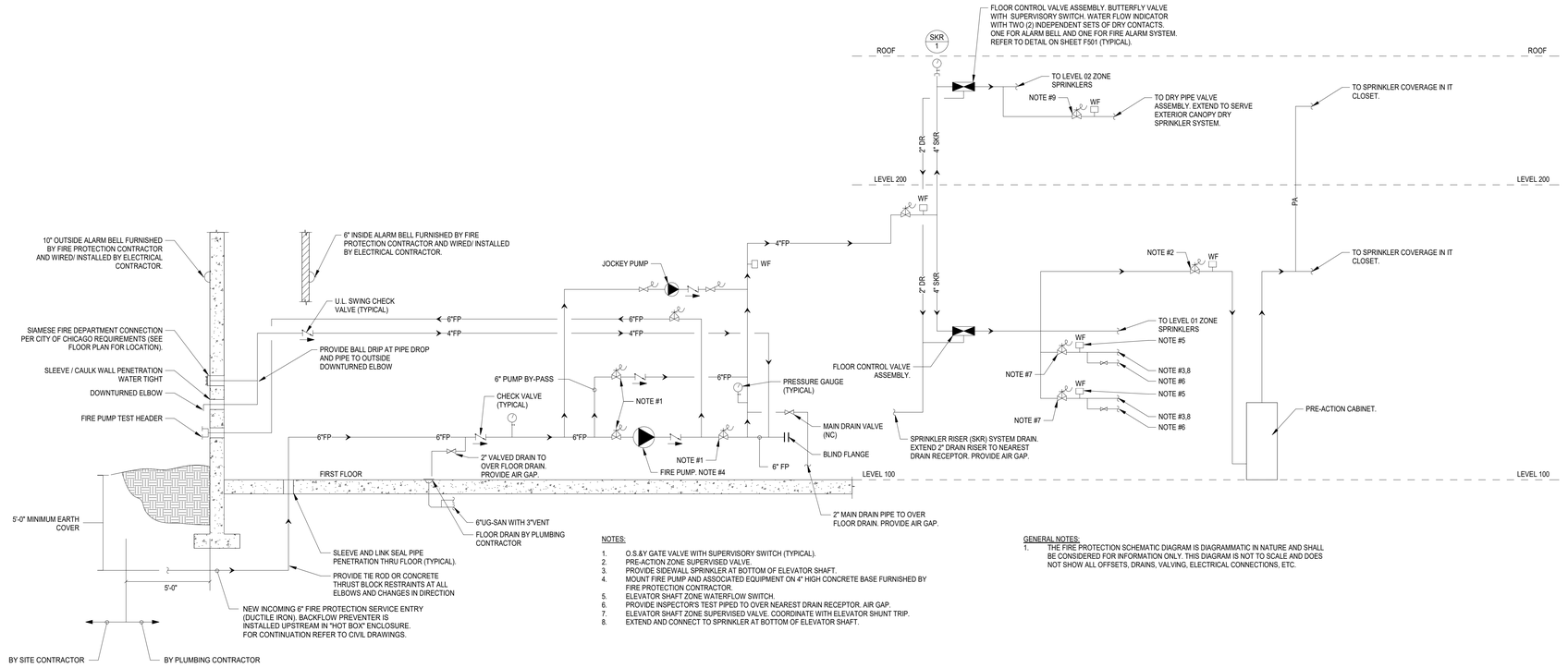
Project Name & Address

HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639

200 LEVEL FIRE PROTECTION PLAN

Sheet Name

Drawing No. **F-102**



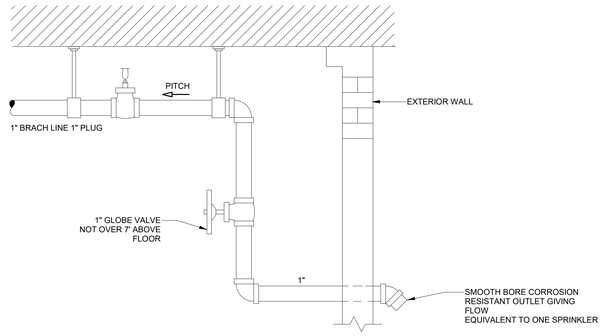
NOTES:

1. O.S.&Y GATE VALVE WITH SUPERVISORY SWITCH (TYPICAL).
2. PRE-ACTION ZONE SUPERVISED VALVE.
3. PROVIDE SIDEWALL SPRINKLER AT BOTTOM OF ELEVATOR SHAFT.
4. MOUNT FIRE PUMP AND ASSOCIATED EQUIPMENT ON 4" HIGH CONCRETE BASE FURNISHED BY FIRE PROTECTION CONTRACTOR.
5. ELEVATOR SHAFT ZONE WATERFLOW SWITCH.
6. PROVIDE INSPECTOR'S TEST PIPED TO OVER NEAREST DRAIN RECEPTOR. AIR GAP.
7. ELEVATOR SHAFT ZONE SUPERVISED VALVE. COORDINATE WITH ELEVATOR SHUNT TRIP.
8. EXTEND AND CONNECT TO SPRINKLER AT BOTTOM OF ELEVATOR SHAFT.

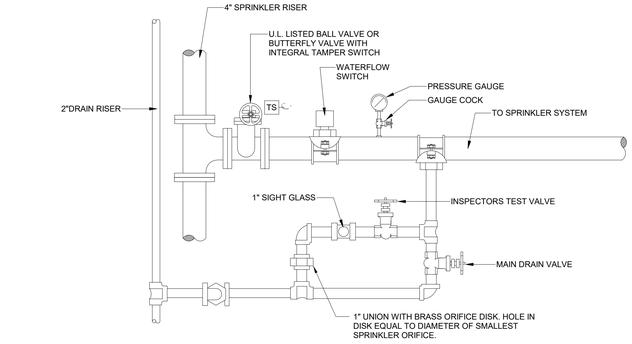
GENERAL NOTES:

1. THE FIRE PROTECTION SCHEMATIC DIAGRAM IS DIAGRAMMATIC IN NATURE AND SHALL BE CONSIDERED FOR INFORMATION ONLY. THIS DIAGRAM IS NOT TO SCALE AND DOES NOT SHOW ALL OFFSETS, DRAINS, VALVING, ELECTRICAL CONNECTIONS, ETC.

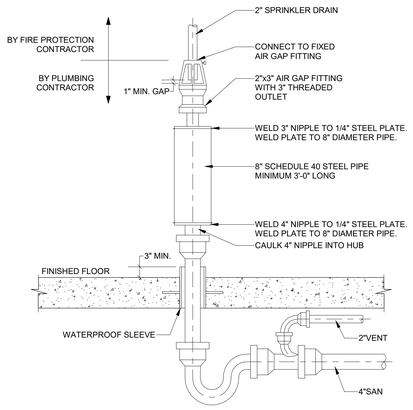
1 DETAIL SCHEMATIC FIRE PROTECTION RISER DIAGRAM - HANSON
N.T.S.



3 DETAIL INSPECTOR'S TEST CONNECTION WET SYSTEM
N.T.S.



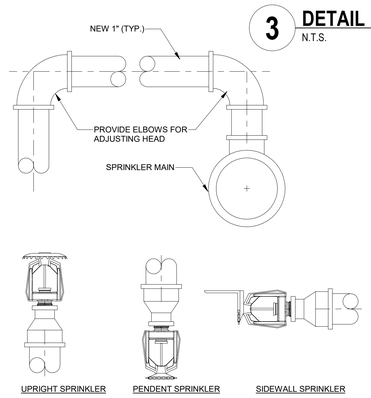
2 DETAIL FLOOR CONTROL VALVE ASSEMBLY
N.T.S.



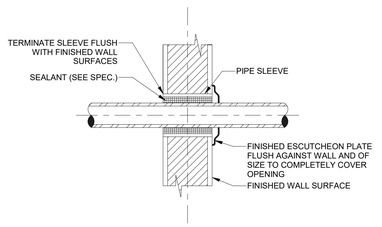
7 DETAIL SPRINKLER DRAIN STANDPIPE
N.T.S.

NOTES:

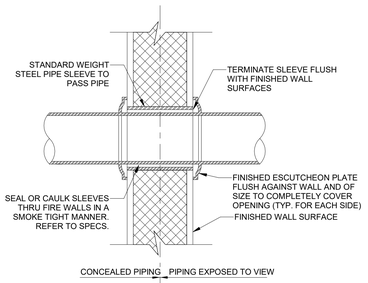
1. HEADS SHOWN HERE ARE DIAGRAMMATIC ONLY AND THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND INSTALLING THE PROPER TYPE OF HEAD.
2. ALL SPRINKLER HEADS INSTALLED IN SUSPENDED ACOUSTIC TILE CEILINGS SHALL BE CENTERED IN THE CEILING TILE (2'x2'). OR CENTERED IN ONE HALF OF THE CEILING TILE(2'x4').
3. CONCEALED SPRINKLERS SHALL HAVE CHROME COVER.



6 DETAIL TYPES OF SPRINKLERS
N.T.S.



5 DETAIL PIPE SLEEVE THRU INTERIOR WALL
N.T.S.



4 DETAIL PIPE PENETRATION THRU RATED WALL
N.T.S.

SLEEVES AND ESCUTCHEONS

A. SLEEVES FOR PIPING THROUGH MASONRY WALLS SHALL BE SCHEDULE 40, STANDARD GALVANIZED STEEL PIPE; IN FRAMED PARTITIONS SHALL BE 20 GAUGE SHEET METAL. THE SPACE BETWEEN THE PIPE AND ITS SLEEVE SHALL NOT EXCEED ONE-HALF INCH. THE SLEEVE SHALL HAVE A SUFFICIENT LENGTH TO BE FLUSH WITH THE FINISHED WALL SURFACE.
B. EXPOSED PIPING PASSING THROUGH WALLS, FLOORS OR CEILING SHALL BE FITTED WITH CHROMIUM-PLATED CAST BRASS ESCUTCHEONS WITH FASTENING SET SCREWS.

CUTTING AND PATCHING

A. PIPING PASSING THROUGH WALLS SHALL HAVE A TRIM OPENING CUT NO GREATER THAN NECESSARY FOR THE INSTALLATION OF A SLEEVE SECURED THEREIN.
B. PIPING PASSING THROUGH CONCRETE FLOORS SHALL HAVE AN OPENING CORE DRILLED SO THAT THE SPACE BETWEEN THE OPENING AND THE PIPE SHALL NOT EXCEED ONE-HALF INCH.
C. ANNULAR SPACES BETWEEN PIPING AND SLEEVES OR CORE DRILLED FLOOR OPENINGS SHALL BE PACKED WITH MINERAL WOOL AND SEALED, TO RETAIN THE FIRE INTEGRITY OF THE WALLS AND FLOORS, WITH A NON-HARDENING COMPOUND SIMILAR OR EQUAL TO DUXSEAL AS MANUFACTURED BY THE J.M. CLIPPER CORP.

1/2" = 1'- 0"
3" = 1'- 0"
1" = 1'- 0"
1/4" = 1'- 0"
1/8" = 1'- 0"
1/16" = 1'- 0"
1" = 30'- 0"

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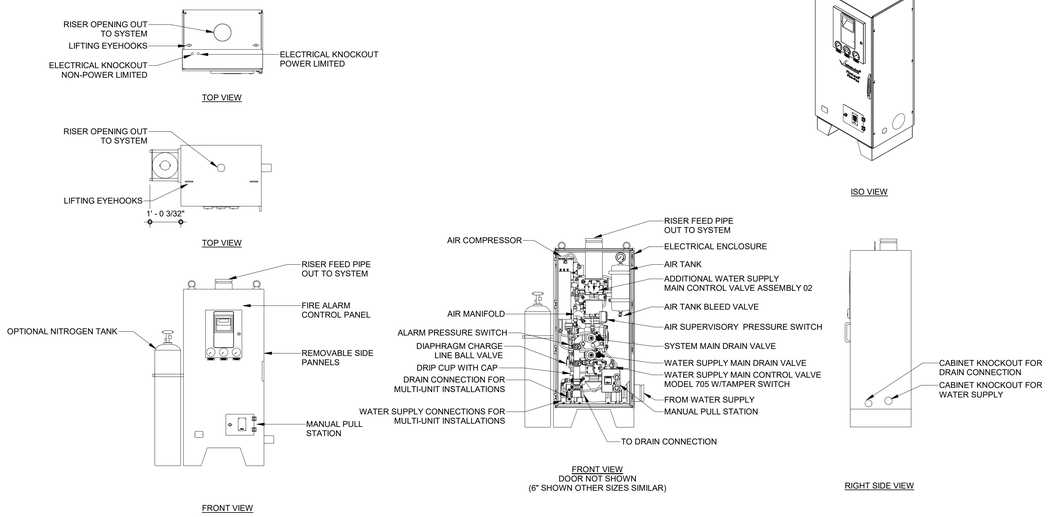
Checked	FA
Proj. Arch./Eng.	AS

COOK COUNTY HEALTH

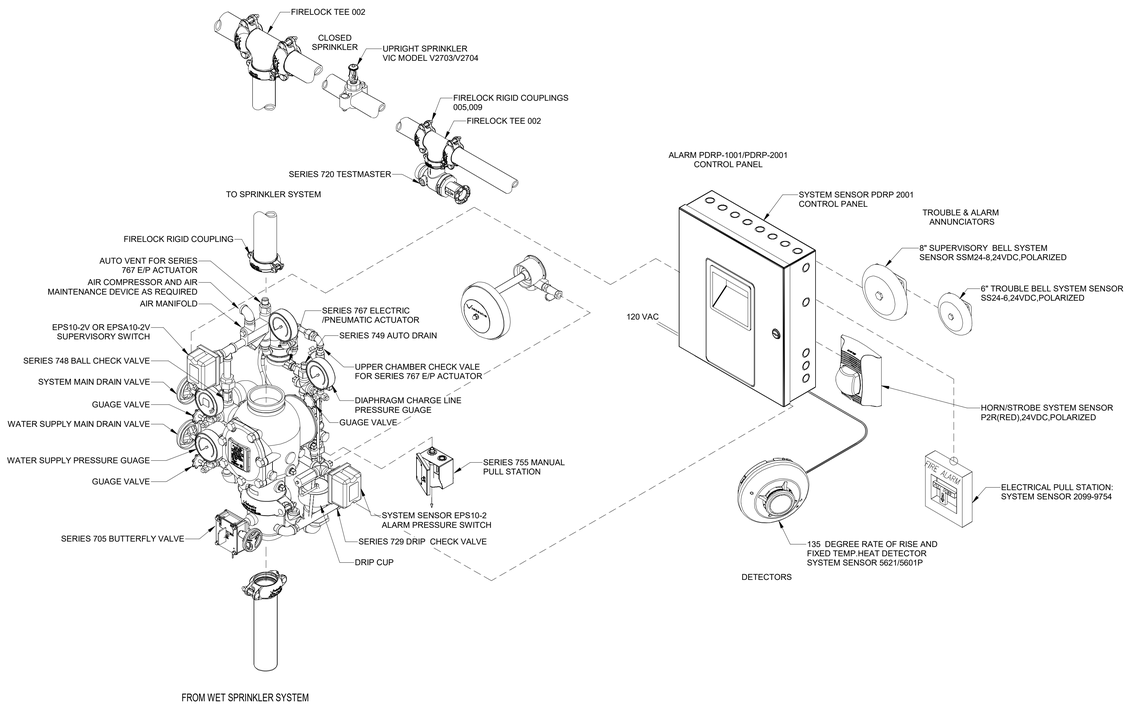
HANSON PARK HEALTH CENTER
5501 W FULLERTON AVE
CHICAGO, IL 60639
Project Name & Address

FIRE PROTECTION DETAILS
Sheet Name
Drawing No. F-501



3 DETAIL PRE-ACTION CABINET WITH NITROGEN TANK

N.T.S.

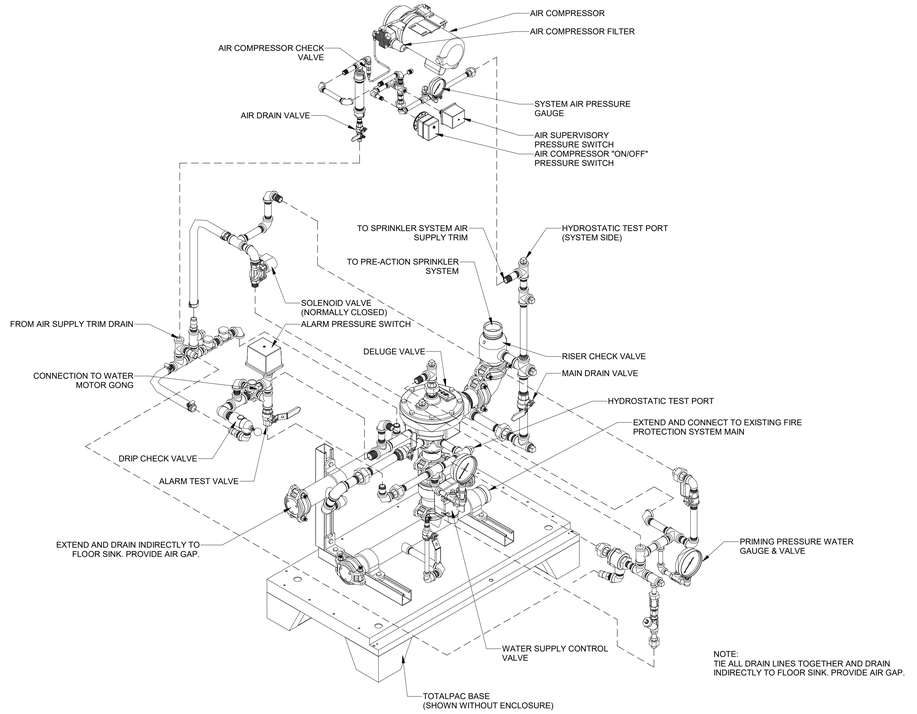


PREACTION VALVE WITH PNEUMATIC/ELECTRIC RELEASE TRIM DOUBLE-INTERLOCK

GENERAL NOTES:
1. SCHEMATIC DIAGRAM IS BASED ON VICTAULIC SYSTEM COMPONENTS AND MODEL NUMBERS AS INDICATED. FIRE PROTECTION CONTRACTOR TO PROVIDE AND FOLLOW INSTALLATION PER SUBMITTED MANUFACTURER'S INSTALLATION REQUIREMENTS.
2. REFER TO PRE-ACTION CABINET ASSEMBLY DETAIL AND PRE-ACTION SYSTEM NOTES.
3. SCHEMATIC DIAGRAM IS FOR REFERENCE ONLY.

4 DETAIL DOUBLE-INTERLOCK PREACTION SYSTEM WITH ELECTRIC RELEASE TRIM

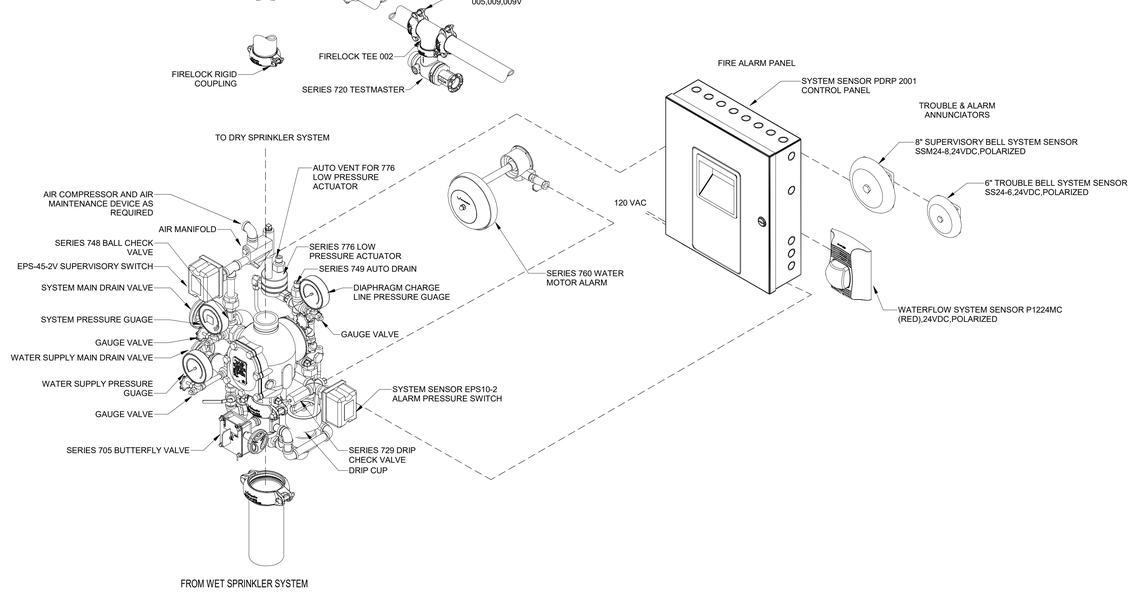
N.T.S.



NOTE:
TIE ALL DRAIN LINES TOGETHER AND DRAIN INDIRECTLY TO FLOOR SINK. PROVIDE AIR GAP.

1 DETAIL PRE-ACTION CABINET SCHEMATIC

N.T.S.



SERIES 768 FIRELOCK NXT DRY VALVE WITH SERIES 776 LOW PRESSURE ACTUATOR

DRY PIPE VALVE ASSEMBLY WITH LOW PRESSURE ACTUATOR

GENERAL NOTES:
1. SCHEMATIC DIAGRAM IS BASED ON VICTAULIC SYSTEM COMPONENTS AND MODEL NUMBERS AS INDICATED. FIRE PROTECTION CONTRACTOR TO PROVIDE AND FOLLOW INSTALLATION PER SUBMITTED MANUFACTURER'S INSTALLATION REQUIREMENTS.
2. SCHEMATIC DIAGRAM IS FOR REFERENCE ONLY.

2 DETAIL DRY PIPE SYSTEM FIRE PROTECTION SCHEMATIC

N.T.S.

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Project Name & Address

FIRE PROTECTION DETAILS

Sheet Name

Drawing No. **F-502**