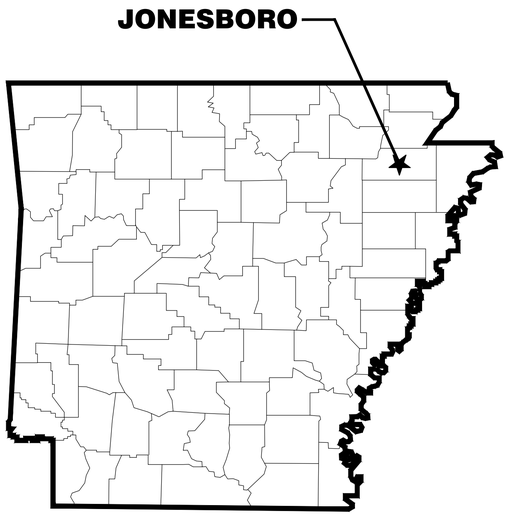
PRODUCTION AREA COOLING PROJECT

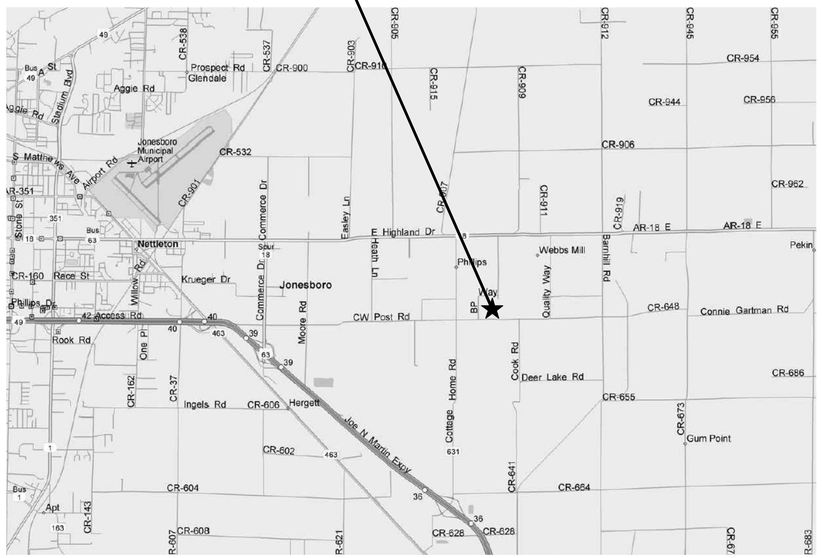
FOR

CRANE COMPOSITES, INC
JONESBORO, ARKANSAS



AREA MAP
NO SCALE

PROJECT LOCATION:
8500 C.W. POST ROAD,
JONESBORO, AR 72402



PROJECT LOCATION MAP
NO SCALE

DRAWING LIST

SHEET NO.	DRAWING TITLE
G0.1	TITLE SHEET AND DRAWING LIST
C1.1	CIVIL - CHILLER PAD, ASPHALT, AND GRADING PLAN
S0.1	STRUCTURAL - SYMBOLS AND ABBREVIATIONS
S1.1	STRUCTURAL - OVERALL FIRST FLOOR PLAN
S1.2	STRUCTURAL - MEZZANINE PLAN
S4.1	STRUCTURAL - ENLARGED PLANS - 1
S4.2	STRUCTURAL - ENLARGED PLANS - 2
S4.3	STRUCTURAL - ENLARGED PLANS - 3
S5.1	STRUCTURAL - DETAILS - 1
S5.2	STRUCTURAL - DETAILS - 2
H0.1	HVAC - SYMBOLS AND ABBREVIATIONS
H1.1	HVAC - OVERALL FIRST FLOOR PLAN
H1.2	HVAC - MEZZANINE PLAN
H3.1	HVAC - SECTIONS
H4.1	HVAC - ENLARGED PLAN - 1
H4.2	HVAC - ENLARGED PLAN - 2
H4.3	HVAC - ENLARGED PLANS - 3
H4.4	HVAC - ENLARGED PLANS - 4
H5.1	HVAC - DETAILS - 1
H5.2	HVAC - DETAILS - 2
H6.1	HVAC - SCHEDULES
H7.1	HVAC - PROCESS FLOW DIAGRAM - 1
H7.2	HVAC - PROCESS FLOW DIAGRAM - 2
H8.1	HVAC - CONTROLS DIAGRAMS - 1
H8.2	HVAC - CONTROLS DIAGRAMS - 2
E0.1	ELECTRICAL - SYMBOLS AND ABBREVIATIONS
E1.1	ELECTRICAL - OVERALL FIRST FLOOR PLAN
E1.2	ELECTRICAL - MEZZANINE PLAN
E4.1	ELECTRICAL - ENLARGED UTILITY ROOM PLAN
E4.2	ELECTRICAL - ENLARGED PLAN - 1
E4.3	ELECTRICAL - ENLARGED PLAN - 2
E4.4	ELECTRICAL - ENLARGED PLAN - 3
E4.5	ELECTRICAL - ENLARGED PLAN - 4
E5.1	ELECTRICAL - DETAILS AND ONE-LINE DIAGRAM
E6.1	ELECTRICAL - SCHEDULES

910 West Wingra Drive
Madison, WI 53715
608-251-4843
608-251-8655 fax
www.strand.com

CONTRACT 3-2018

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17255
NICHOLAS ELON SALES
4/5/18

ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 14829
DAVID DALE RYE
4/5/18

ISSUE FOR BID, 04/05/18

STRAND ASSOCIATES®

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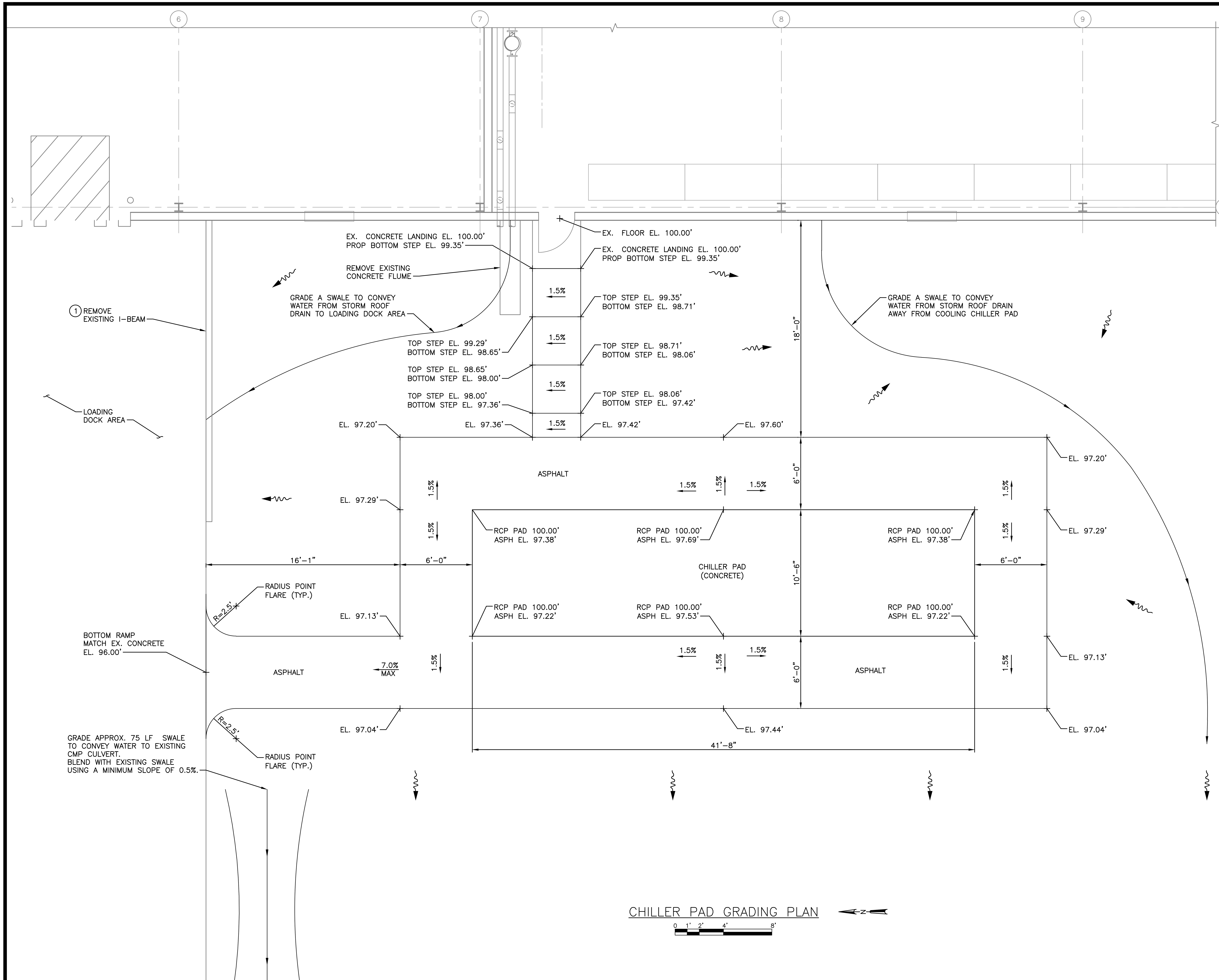


CHILLER PAD GRADING PLAN

0 1' 2' 4' 8'

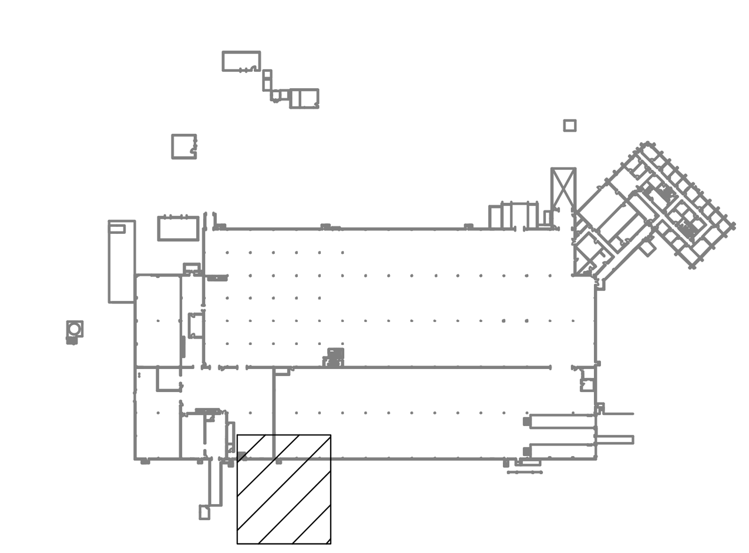
NOT FOR CONSTRUCTION

GENERAL NOTES:

1. CONTRACTOR IS TO RE-GRADE THE AREA AROUND THE CHILLER PAD AND BLEND TO EXISTING GIVEN:
   a. MAXIMUM GRADES ON GRASS SLOPES SHALL NOT EXCEED 4H:1V.
   b. MINIMUM SLOPE ON GRASS AREAS TO BE 1% TO FACILITATE THE .DRAINAGE OF WATER AWAY FROM CHILLER PAD
   c. IF NECESSARY, PROVIDE FILL MATERIAL PER SPECIFICATIONS TO SATISFY GENERAL NOTES 1.1 AND 1.2.
2. MAXIMUM SLOPE OF RAMP FROM EXISTING LOADING DOCK AREA TO CHILLER PAD TO BE 7%. FIELD VERIFY AND NOTIFY ENGINEER IF GREATER THAN 7%.
3. STEPS ARE TO BE FIELD CAST-IN-PLACE CONCRETE.
4. CONCRETE STEPS TO HAVE 6-IN OF CLASS 8, 3/4-INCH BASE COURSE.
5. SURFACE AREA OF STEPS 4-FT X 4-FT.
6. MAXIMUM RISE HEIGHT OF STEP TO BE 7.25-IN.
7. ASPHALT TO HAVE 12" OF CLASS 6, 1-1/4 INCH DENSE GRADED BASE COURSE.
8. ASPHALT AROUND CHILLER TO BE 6-FT WIDE WITH A DEPTH OF 4.00-IN.

KEY NOTES:

1. COORDINATE WITH THE OWNER WHERE TO PLACE THE EXISTING I-BEAM AFTER REMOVAL.



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

CIVIL
CHILLER PAD, ASPHALT, AND GRADING PLAN

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007
PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
2
C1.1

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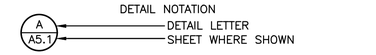
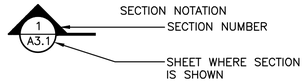
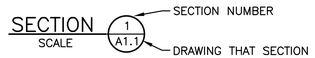
DRAFTING SYMBOLS



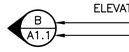
DETAIL NOTATION
DETAIL LETTER
SHEET WHERE SHOWN



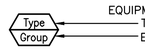
SECTION NOTATION
SECTION NUMBER
SHEET WHERE SECTION IS SHOWN



SECTION NUMBER
DRAWING THAT SECTION IS SHOWN ON



ELEVATION NOTATION
ELEVATION LETTER
SHEET WHERE SHOWN



EQUIPMENT IDENTIFICATION
TYPE OF EQUIPMENT
EQUIPMENT GROUP

ROOM IDENTIFICATION

DOOR IDENTIFICATION

WINDOW IDENTIFICATION

KEY/SPECIFIC NOTE CALL-OUT

PARTITION TYPE REFERENCE

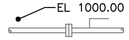
CENTER LINE OF BEAM-COLUMN FRAME SYSTEM

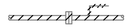
POINTS OF VIEW BEING CONSIDERED
MATCH LINE

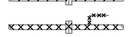
REVISION

+EL 1000.00 FINISH ELEVATION

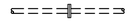
SPOT ELEVATION


EXISTING OBJECTS ARE SCREENED


EXISTING OBJECTS TO BE ABANDONED


EXISTING OBJECTS TO BE DEMOLISHED

HIDDEN OBJECT


FUTURE OBJECT

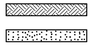

OBJECT SUPPLIED BY OWNER

ARCHITECTURAL SYMBOLS


EARTH


SAND, PLASTER, STUCCO

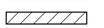

CONCRETE


BRICK


CONCRETE BLOCK

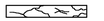

ACOUSTIC BLOCK


ASHLAR STONE VENEER


METAL

METAL LATH


WOOD-FINISH


WOOD-FRAMING

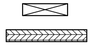

PLYWOOD

ACOUSTICAL TILE

GYPSUM BOARD


BATT INSULATION


RIGID INSULATION


GRATING


CHECKERED PLATE

HANDRAIL

TOPOGRAPHICAL SYMBOLS

AREA OF THE SITE

CORPORATE LIMITS

PROPERTY LINE AND/OR RIGHT OF WAY

RIGHT OF WAY MARKER

CONSTRUCTION EASEMENT ON SEWER AND WATER PLANS

PERMANENT EASEMENT ON SEWER AND WATER PLANS

SECTION LINE

CENTER LINE

BENCH MARK

SOIL BORING

PROPERTY STAKE

PRIVATE WELL

EXISTING UTILITY POLE

NEW UTILITY POLE

BURIED TELEPHONE CABLE PEDESTAL

SIGN

LIGHT POLE

DECIDUOUS TREE

CONIFEROUS TREE

DECIDUOUS SHRUBS

CONIFEROUS SHRUBS

INTERMITTENT STREAM

STREAM OR RIVER

WETLAND AREA

RAILROAD - LARGE SCALE

BRIDGE

EXISTING CULVERT

SILT FENCE

FENCE

GUARD RAIL

CURB, GUTTER AND INLET

REJECT CURB

CONTOUR LINES

EXISTING DEPRESSION

TOP OF CUT OR BERM

UNDERGROUND UTILITY SYMBOLS

NEW WATER MAIN AND VALVE MANHOLE

WATER MAIN AND VALVE IN ROAD BOX

EXISTING WATER MAIN AND FIRE HYDRANT

NEW WATER MAIN AND FIRE HYDRANT WITH AUXILIARY VALVE

EXISTING SANITARY SEWER AND MANHOLE

NEW SANITARY SEWER AND MANHOLE

EXISTING STORM SEWER AND MANHOLE (I-INLET)

NEW STORM SEWER AND MANHOLE (I-INLET)

FORCE MAIN

VALVE MANHOLE ON FORCE MAIN

WYE BRANCH

RISER

MODIFIED RISER

TELEPHONE OR TV CABLE AND MANHOLE

GAS MAIN

UNDERGROUND ELECTRIC CABLE

EXISTING WATER MAIN, SEWER MANHOLE, AND FORCE MAIN IN PROFILE

NEW WATER MAIN, SEWER, MANHOLE AND FORCE MAIN IN PROFILE

CULVERT IN PROFILE

NEW GRADE LINE

SLOPE INTERCEPT

ORIGINAL GROUND IN PROFILE

ROCK IN PROFILE

SURVEY OR REFERENCE LINE

POINT OF INTERSECTION

POINT ON REFERENCE LINE

BUILDING IN PROFILE

DIRECTION OF TRAFFIC

NOTATION FOR COMBUSTIBLE FLUIDS

NO.	REVISIONS	DATE:
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STRUCTURAL
SYMBOLS AND ABBREVIATIONS

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 3 S0.1

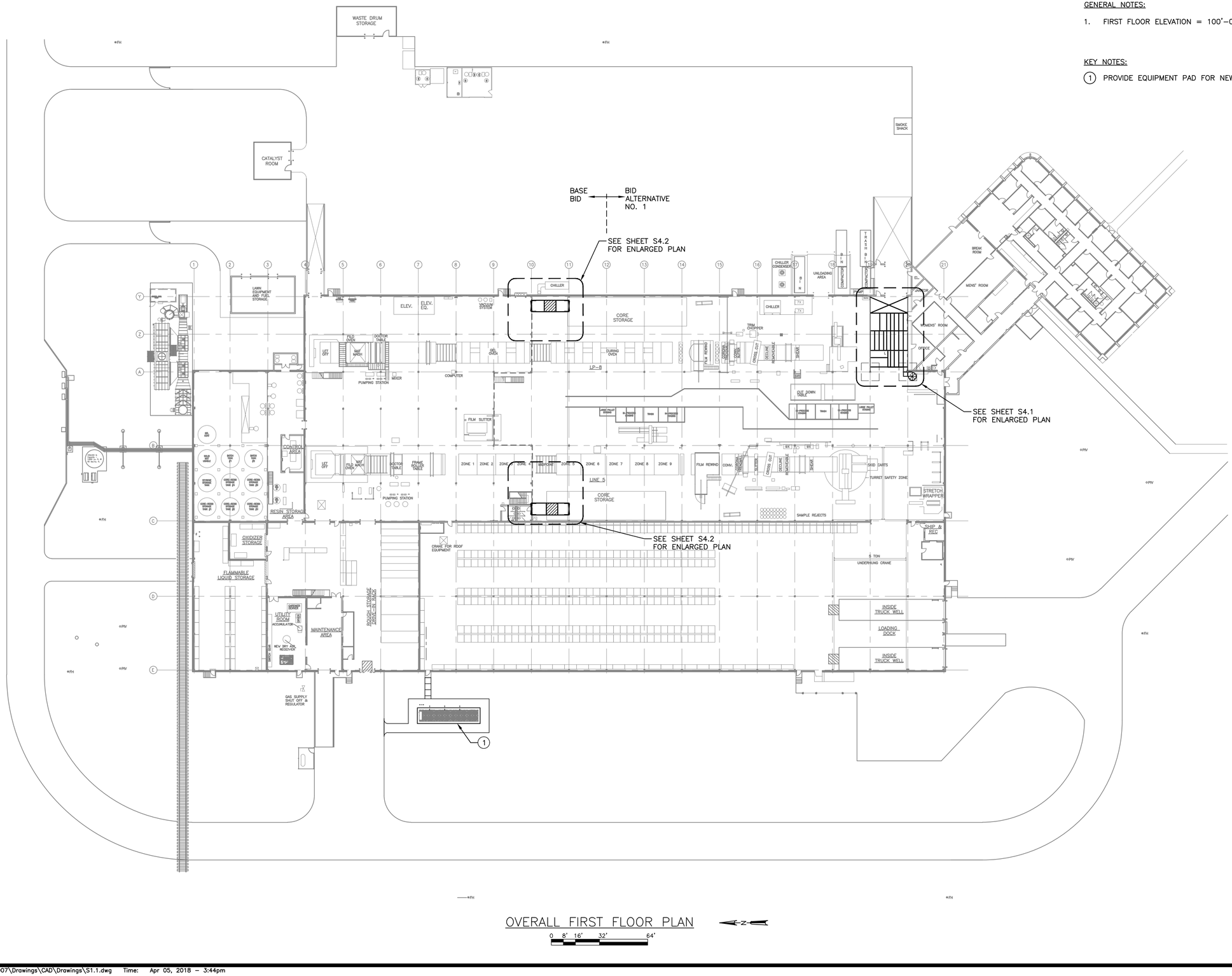
NOT FOR CONSTRUCTION

GENERAL NOTES:

1. FIRST FLOOR ELEVATION = 100'–0".

KEY NOTES:

(1) PROVIDE EQUIPMENT PAD FOR NEW CHILLER (A / S5.2).



OVERALL FIRST FLOOR PLAN

0 8' 16' 32' 64'

NO.	REVISIONS	DATE:
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STRUCTURAL
OVERALL FIRST FLOOR PLAN

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
4
S1.1

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NOT FOR CONSTRUCTION

GENERAL NOTES:

1. FINISHED FLOOR=100'-0"±.
2. MEZZANINE EL = 116'-6"±.

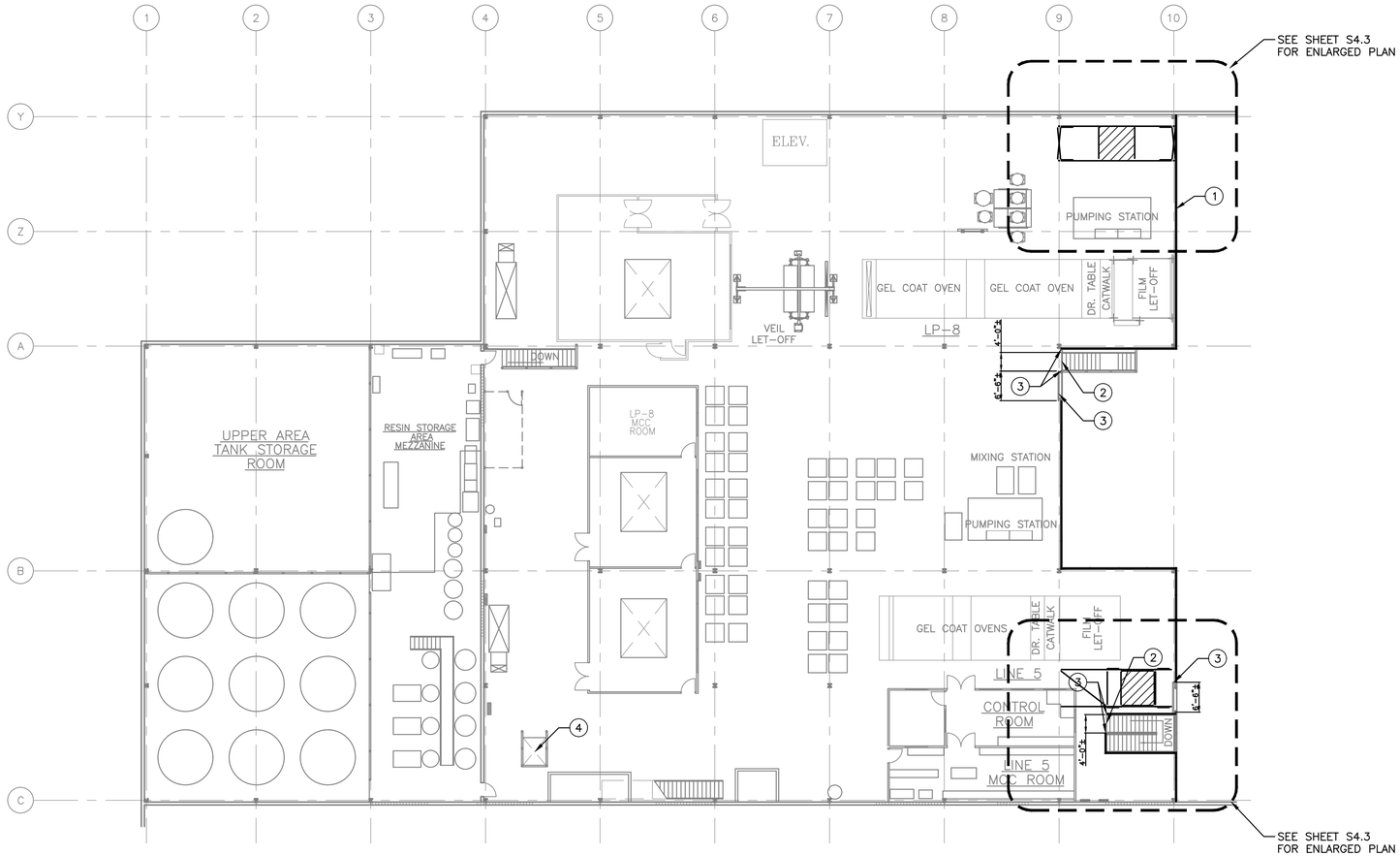
KEY NOTES:

(1) PROVIDE 4" IMP WALL ALONG ENTIRE SOUTH EDGE OF MEZZANINE. SEE DETAILS B/S5.2 C/S5.2.

(2) PROVIDE 7'-0" HIGH OPENING IN IMP WALL FOR STAIR. MATCH OPENING WIDTH TO WIDTH OF STAIR. PROVIDE DOOR FRAME AROUND OPENING PER D/S5.2.

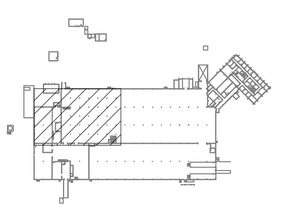
(3) PROVIDE 7'-0" HIGH OPENING IN IMP WALL AT GATE. MATCH OPENING WIDTH TO GATE. PROVIDE DOOR FRAME PER D/S5.2 AND PLASTIC CURTAIN OVER OPENING.

(4) INFILL FLOOR OPENING W/CONCRETE. ROUGHEN SIDES OF OPENING TO 1/4" MIN. AMPLITUDE. PROVIDE #4@12"x1'-6" ADHESIVE ANCHOR DOWELS EMBEDDED 6" IN SIDES OF OPENING, CENTERED IN SLAB. PROVIDE BONDING AGENT ON SIDES OF OPENING. MATCH THICKNESS OF INFILL TO EXISTING FLOOR SLAB THICKNESS.



MEZZANINE PLAN

0 4' 8' 16' 32'



KEY PLAN
NO SCALE

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STRUCTURAL
MEZZANINE PLAN

PRODUCTION AREA COOLING PROJECT
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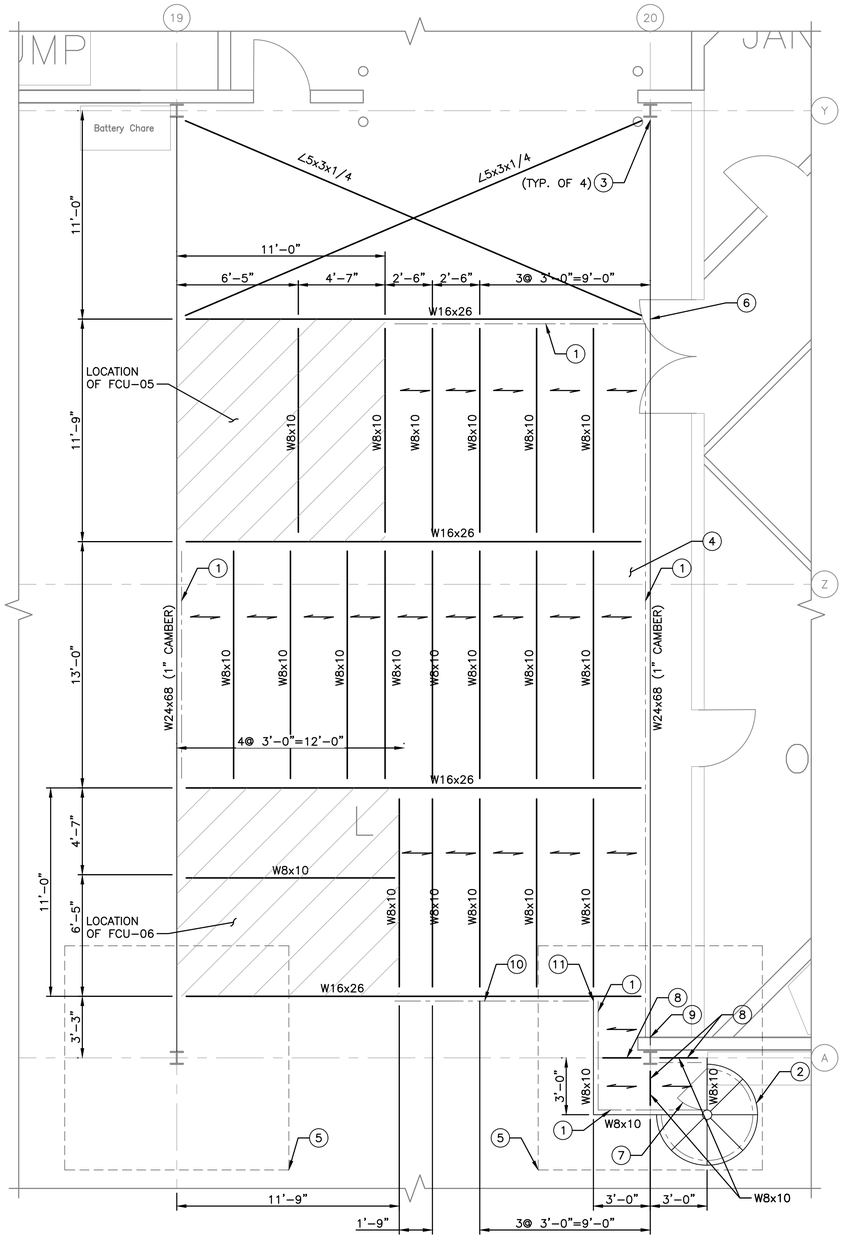
NICHOLAS E. SALES

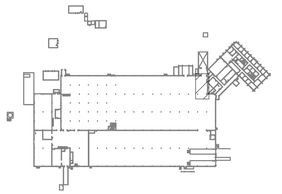
STRAND ASSOCIATES®

SHEET
5
S1.2



ENLARGED PLAN

0 1' 2' 4' 8'



KEY PLAN
NO SCALE

NOT FOR CONSTRUCTION

GENERAL NOTES:

1. DESIGN LOADS
   LL= 60 PSF
   STEEL PLATE = 14 PSF
   FCU = 7,860 LBS EACH

2. TOP OF PLATFORM = 120'-0".
   FINISH FLOOR = 100'-0".

3. UNLESS OTHERWISE SHOWN OR NOTED, PROVIDE BOLTED OR WELDED CLIP ANGLE OR SHEAR TAB CONNECTIONS FOR ALL BEAM-TO-BEAM AND BEAM-TO-COLUMN CONNECTIONS. CONNECTION DESIGN AND DETAILS SHALL BE PROVIDED BY CONTRACTOR. CONNECTION DETAILS SHALL CONFORM TO STANDARD FRAMED BEAM CONNECTIONS PROVIDED BY THE AISC MANUAL OF STEEL CONSTRUCTION, 14TH EDITION. VERTICAL SHEAR CAPACITY OF CONNECTIONS SHALL EXCEED ONE HALF THE ALLOWABLE UNIFORM LOAD IN KIPS LISTED IN THE AISC MANUAL OF STEEL CONSTRUCTION, 14TH EDITION, FOR THE GIVEN BEAM SPAN AND SIZE.

4. PLATFORM SHALL BE CONSTRUCTED OF THE FOLLOWING MATERIALS:
   WF BEAMS: ASTM A992 GR. 50
   HSS MEMBERS: ASTM A500 GR. B
   ANGLES AND PLATES: ASTM A36
   CONNECTION BOLTS: ASTM A325
   WELD: E70 XX ELECTRODES
   RAILING: ASTM A53 GR. B

5. SHOP PRIME AND FINISH PAINT ALL NEW STEEL TO MATCH EXISTING PER SECTION 09 91 00.

6. COORDINATE FINAL FCU SUPPORT STEEL LOCATIONS AND CONNECTIONS BETWEEN UNIT AND SUPPORTS WITH EQUIPMENT MANUFACTURER.

7. ALL WORK SHOWN ON THIS SHEET SHALL BE PART OF BID ALTERNATIVE NO. 1.

KEY NOTES:

1. STEEL RAILING. TYP. ALL EDGES OF PLATFORM EXCEPT AT AHU'S. SEE DETAIL F/S5.1.
2. SPIRAL STAIR. SEE DETAILS A/S5.1 B/S5.1 C/S5.1.
3. NEW BEAM-TO-EXISTING COLUMN CONNECTION. SEE DETAIL J/S5.1.
4. 5/16" STEEL CHECKERED FLOOR PLATE E/S5.1. CONNECT PLATE TO ALL SUPPORTING MEMBERS.
5. PROVIDE NEW COLUMN FOOTING. SEE DETAIL K/S5.1. (TYP. OF 2).
6. TYPICAL BEAM-BEAM CONNECTION. SEE DETAIL D/S5.1.
7. SAFETY GATE. SEE DETAIL H/S5.1.
8. BRACKET SUPPORT E/S5.2.
9. CUT OPENING IN METAL WALL PANEL TO CONNECT NEW W24x68 TO EXISTING COLUMN. PATCH WALL PANEL AROUND BEAM. W/FOAM FILL AND METAL CLOSURE PLATE.
10. REMOVABLE RAILING F/S5.1 K/S5.2.
11. PROVIDE FALL PROTECTION ANCHOR POST. PROVIDE HSS 4x0.313x2'-0" FULLY WELDED TO TOP FLANGE OF W16x26 BEAM. PROVIDE 1/2" TOP PLATE, FULLY WELDED TO POST. AT TOP OF POST, PROVIDE D-RING W/MINIMUM 5000LB RATING.

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STRUCTURAL
ENLARGED PLANS

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JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
6
S4.1

NOT FOR CONSTRUCTION

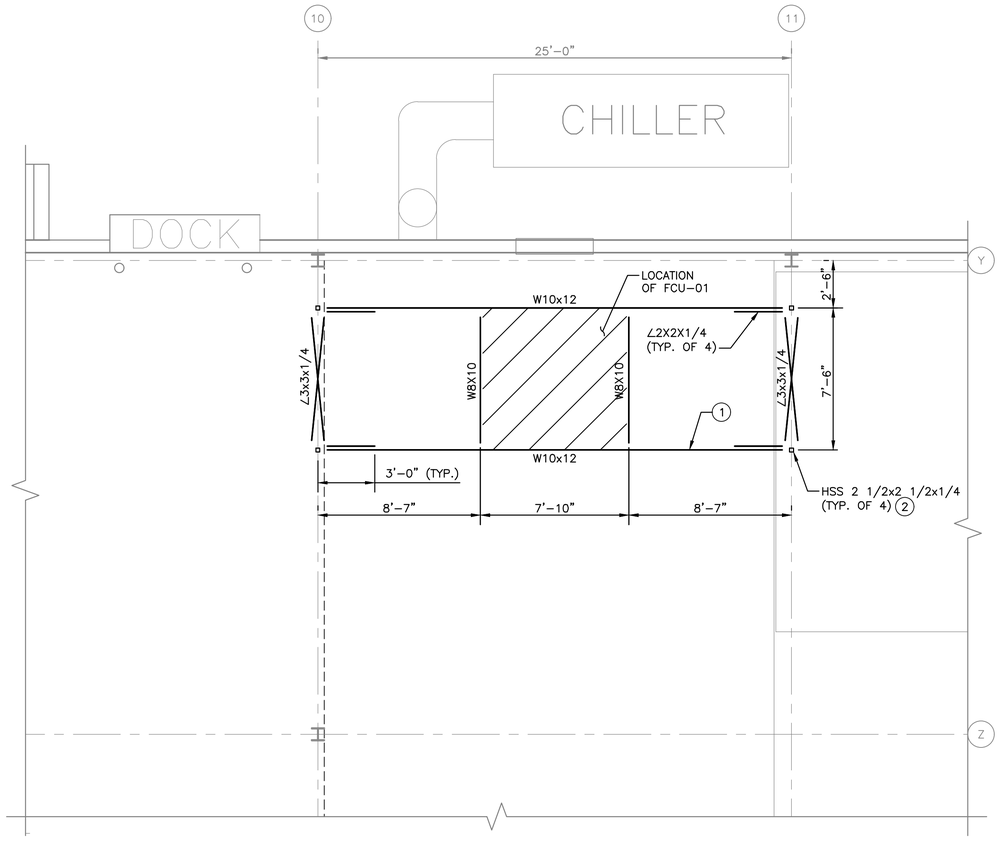
GENERAL NOTES:

1. DESIGN LOADS
   FCU = 3,983 LBS EACH
2. TOP OF SUPPORT STEEL = 118'–6".
   FINISH FLOOR = 100'–0".
3. ROOF JOIST BEARING
   COL LINE Y = 135'–9"±
   COL LINE C = 135'–0"±
4. UNLESS OTHERWISE SHOWN OR NOTED, PROVIDE BOLTED OR WELDED CLIP ANGLE OR SHEAR TAB CONNECTIONS FOR ALL BEAM–TO–BEAM AND BEAM–TO–COLUMN CONNECTIONS. CONNECTION DESIGN AND DETAILS SHALL BE PROVIDED BY CONTRACTOR. CONNECTION DETAILS SHALL CONFORM TO STANDARD FRAMED BEAM CONNECTIONS PROVIDED BY THE AISC MANUAL OF STEEL CONSTRUCTION, 14TH EDITION. VERTICAL SHEAR CAPACITY OF CONNECTIONS SHALL EXCEED ONE HALF THE ALLOWABLE UNIFORM LOAD IN KIPS LISTED IN THE AISC MANUAL OF STEEL CONSTRUCTION, 14TH EDITION, FOR THE GIVEN BEAM SPAN AND SIZE.
5. PLATFORM SHALL BE CONSTRUCTED OF THE FOLLOWING MATERIALS:
   WF BEAMS: ASTM A992 GR. 50
   HSS MEMBERS: ASTM A500 GR. B
   ANGLES AND PLATES: ASTM A36
   CONNECTION BOLTS: ASTM A325
   WELD E70 XX ELECTRODES
   RAILING: ASTM A53 GR. B
6. SHOP PRIME AND FINISH PAINT ALL NEW STEEL TO MATCH EXISTING PER SECTION 09 91 00.
7. COORDINATE FINAL FCU SUPPORT STEEL LOCATIONS AND CONNECTIONS BETWEEN UNIT AND SUPPORTS WITH EQUIPMENT MANUFACTURER.

KEY NOTES:

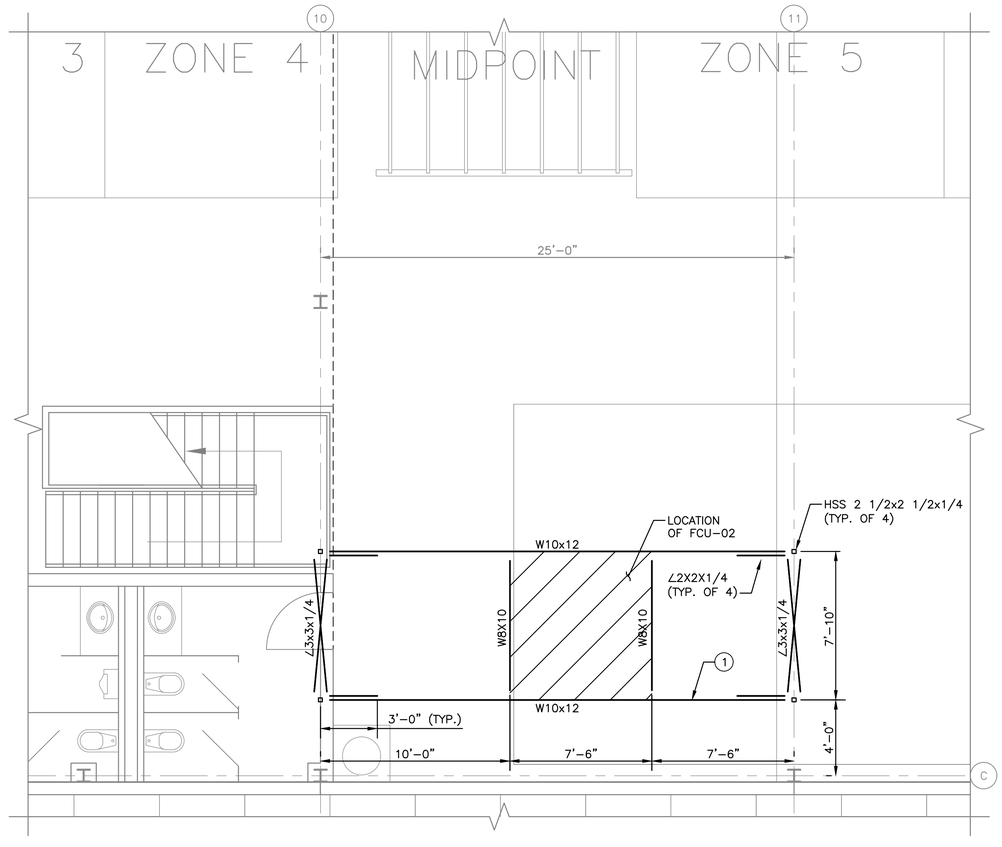
(1) EQUIPMENT HANGER. SEE DETAIL F / S5.2

(2) PROVIDE STRUT ANGLES AT LOCATIONS WHERE HANGER MEMBERS ARE MORE THAN 6" FROM JOIST GIRDER PANEL POINT. SEE DETAIL G / S5.2 .



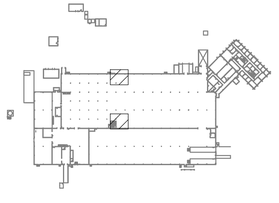
ENLARGED PLAN

0 1' 2' 4' 8'



ENLARGED PLAN

0 1' 2' 4' 8'



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

STRUCTURAL
ENLARGED PLANS - 2

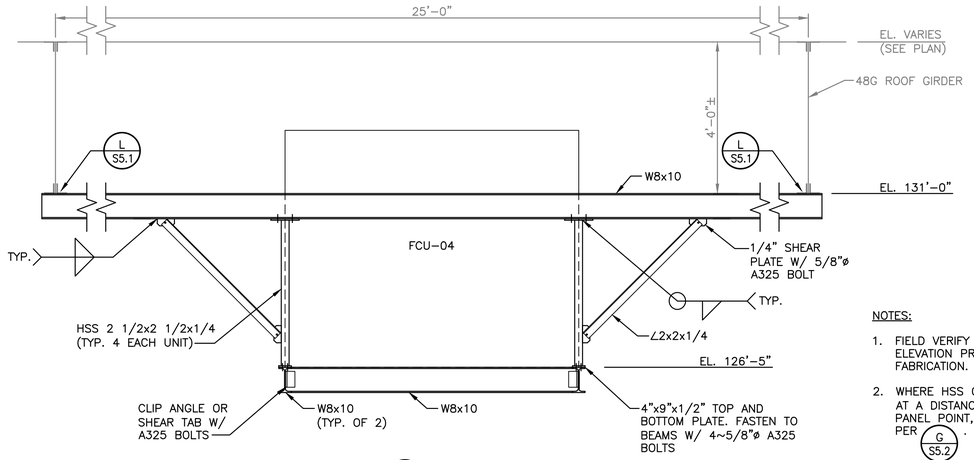
PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 7 S4.2



A S4.3 FCU-04 HANGER
NO SCALE

NOTES:

1. FIELD VERIFY BOTTOM OF JOIST GIRDER ELEVATION PRIOR TO HANGER FABRICATION.
2. WHERE HSS CONNECT TO JOIST GIRDER AT A DISTANCE MORE THAN 6" FROM PANEL POINT, PROVIDE STRUT ANGLES PER G S5.2 .

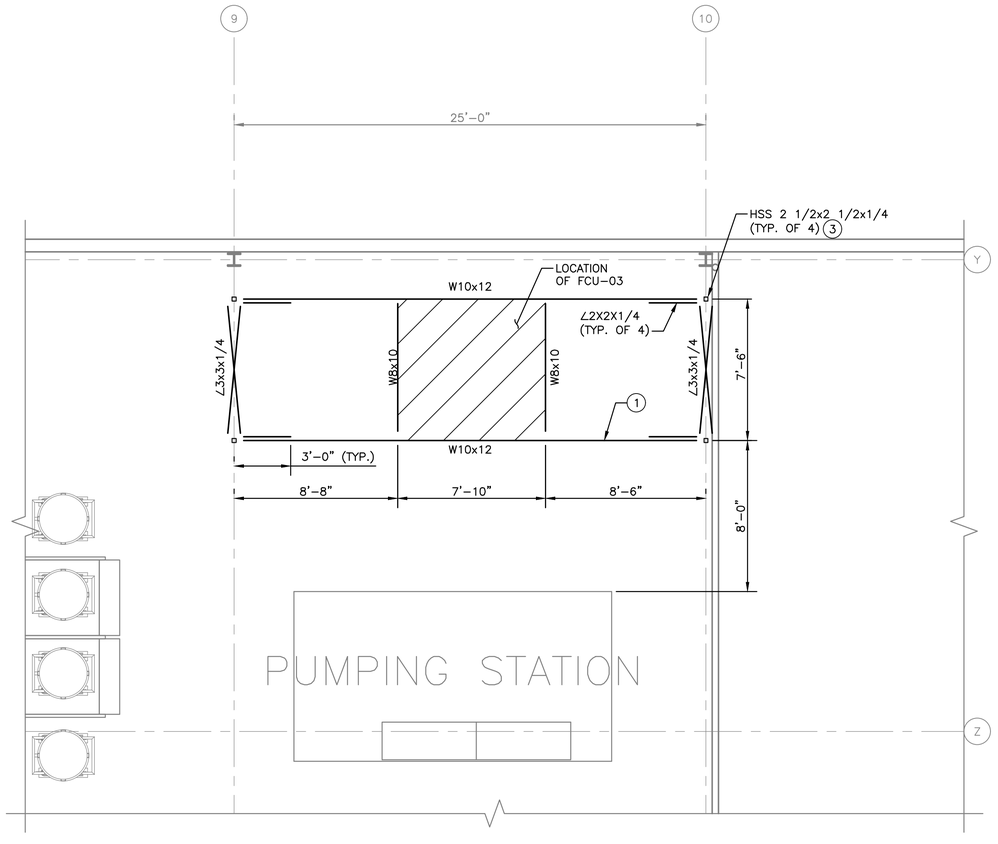
GENERAL NOTES:

1. DESIGN LOADS
   FCU = 3,983 LBS EACH
2. TOP OF SUPPORT STEEL = 126'-5".
   FINISH FLOOR = 100'-0".
3. ROOF JOIST BEARING
   COL LINE Y = 135'-9"±
   COL LINE C = 135'-0"±
4. UNLESS OTHERWISE SHOWN OR NOTED, PROVIDE BOLTED OR WELDED CLIP ANGLE OR SHEAR TAB CONNECTIONS FOR ALL BEAM-TO-BEAM AND BEAM-TO-COLUMN CONNECTIONS. CONNECTION DESIGN AND DETAILS SHALL BE PROVIDED BY CONTRACTOR. CONNECTION DETAILS SHALL CONFORM TO STANDARD FRAMED BEAM CONNECTIONS PROVIDED BY THE AISC MANUAL OF STEEL CONSTRUCTION, 14TH EDITION. VERTICAL SHEAR CAPACITY OF CONNECTIONS SHALL EXCEED ONE HALF THE ALLOWABLE UNIFORM LOAD IN KIPS LISTED IN THE AISC MANUAL OF STEEL CONSTRUCTION, 14TH EDITION, FOR THE GIVEN BEAM SPAN AND SIZE.
5. PLATFORM SHALL BE CONSTRUCTED OF THE FOLLOWING MATERIALS:
   WF BEAMS: ASTM A992 GR. 50
   HSS MEMBERS: ASTM A500 GR. B
   ANGLES AND PLATES: ASTM A36
   CONNECTION BOLTS: ASTM A325
   WELD E70 XX ELECTRODES
   RAILING: ASTM A53 GR. B
6. SHOP PRIME AND FINISH PAINT ALL NEW STEEL TO MATCH EXISTING PER SECTION 09 91 00.
7. COORDINATE FINAL FCU SUPPORT STEEL LOCATIONS AND CONNECTIONS BETWEEN UNIT AND SUPPORTS WITH EQUIPMENT MANUFACTURER.

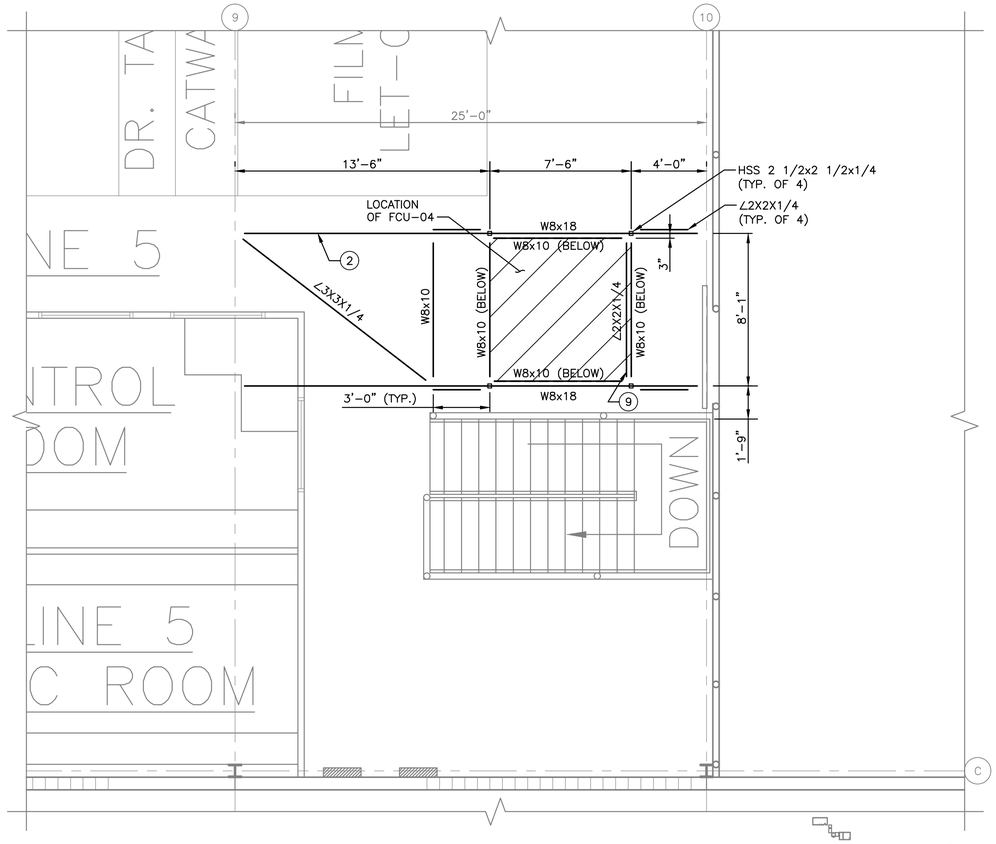
KEY NOTES:

1. EQUIPMENT HANGER. SEE DETAIL F S5.2 .
2. FCU-04 HANGER. SEE DETAIL A S4.3 .
3. PROVIDE STRUT ANGLES AT LOCATIONS WHERE HANGER MEMBERS ARE MORE THAN 6" FROM JOIST GIRDER PANEL POINT. SEE DETAIL G S5.2 .
4. PROVIDE ∠2x2x1/4 DIAGONAL BRACE BETWEEN HSS MEMBERS.

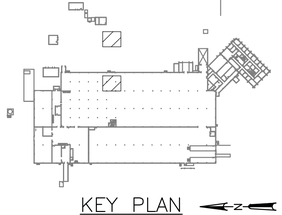
NOT FOR CONSTRUCTION



ENLARGED MEZZANINE PLAN
0 1' 2' 4' 8'



ENLARGED MEZZANINE PLAN
0 1' 2' 4' 8'



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

STRUCTURAL
ENLARGED PLANS - 3

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

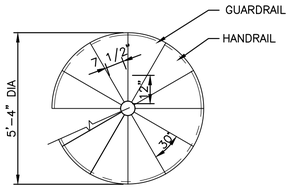
JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

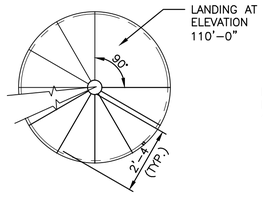
STRAND ASSOCIATES®

SHEET
8
S4.3

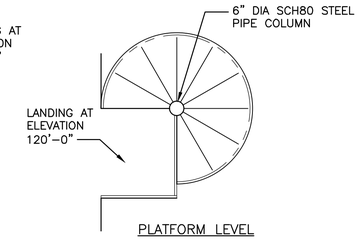
File: S:\MAD\3600--3699\3626\007\Drawings\CAD\Drawings\S4.3.dwg Time: Apr 05, 2018 - 3:44pm



MID-FLIGHT



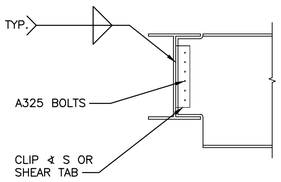
INTERMEDIATE LANDING



PLATFORM LEVEL

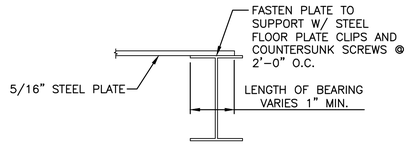
A S5.1 SPIRAL STAIR PLANS

0 1' 2' 4'



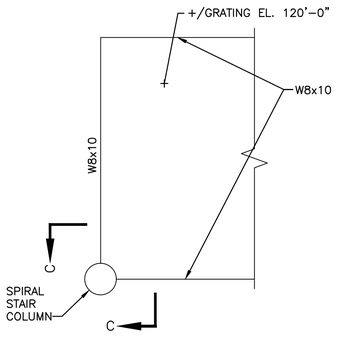
D S5.1 TYPICAL BEAM-BEAM CONNECTION

0 1' 2'

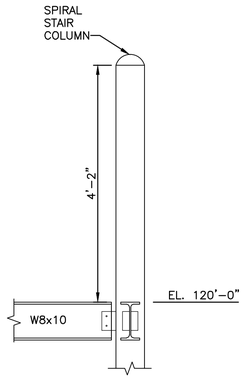


E S5.1 STEEL FLOOR PLATE

0 1' 2'



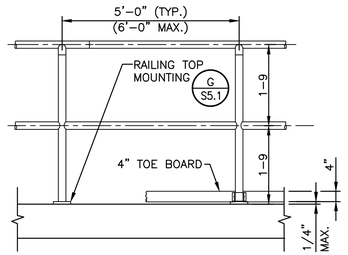
PLAN



C-C

B S5.1 DETAIL

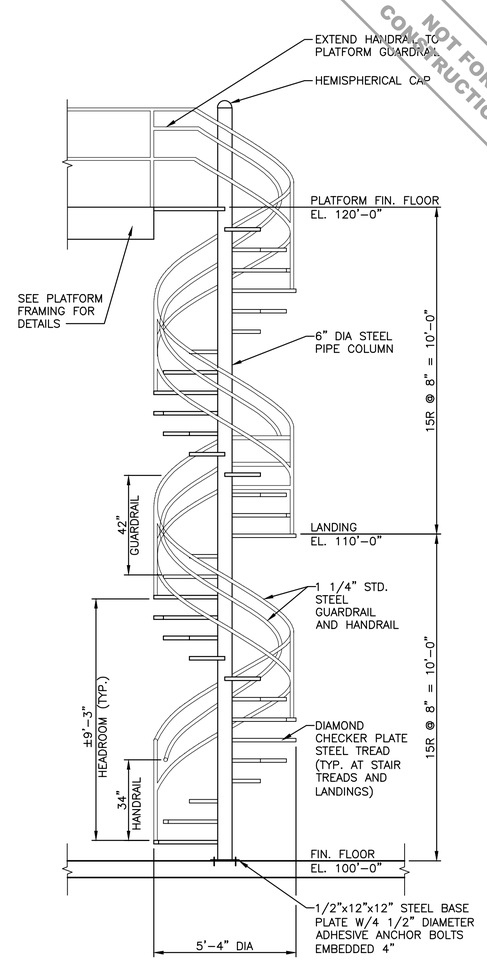
0 1' 2'



NOTES:

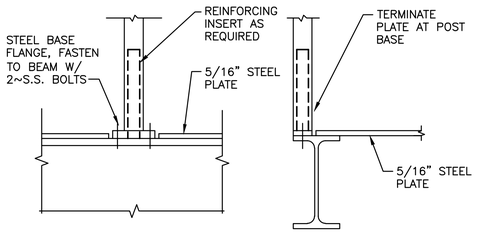
1. ALL RAILS, POSTS & TOE BOARDS AND FASTENERS SHALL BE CARBON STEEL.
2. ALL RAIL SYSTEMS SHALL MEET OSHA PERFORMANCE STANDARDS FOR PUBLIC AND INDUSTRIAL APPLICATIONS AND 2012 INTERNATIONAL BUILDING CODE.
3. PROVIDE TOEBOARD AT ALL RAILING LOCATIONS.

F S5.1 STEEL RAILING NO SCALE

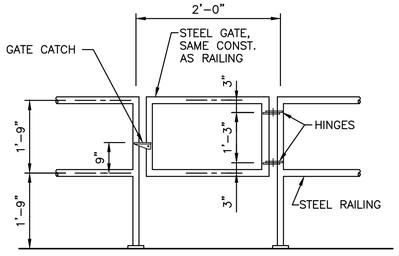


C S5.1 SPIRAL STAIR ELEVATION

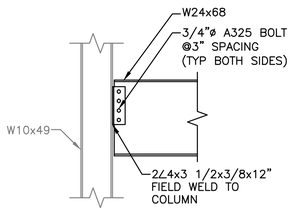
0 1' 2' 4'



G S5.1 RAILING TOP MOUNTING NO SCALE

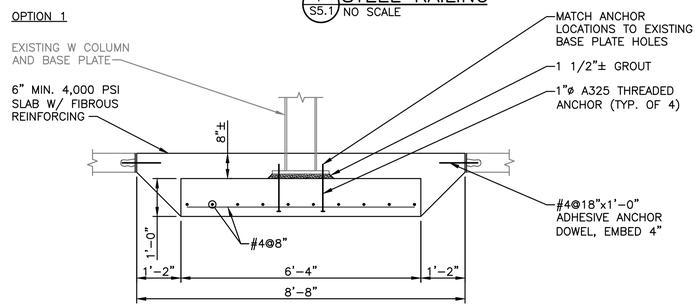


H S5.1 SAFETY GATE NO SCALE



NEW BEAM-TO-EXISTING
J S5.1 COLUMN CONNECTION NO SCALE

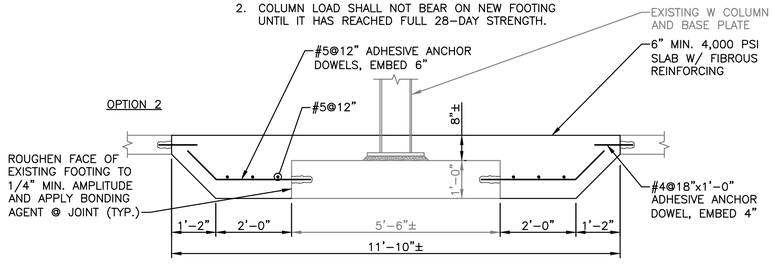
OPTION 1



NOTES:

1. MATCH T/CONCRETE TO EXISTING FINISH FLOOR.
2. COLUMN LOAD SHALL NOT BEAR ON NEW FOOTING UNTIL IT HAS REACHED FULL 28-DAY STRENGTH.

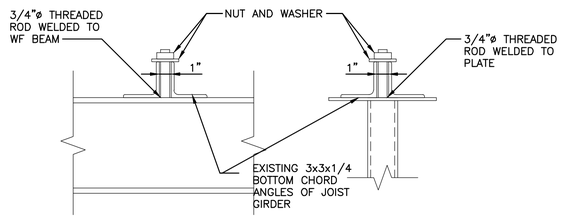
OPTION 2



NOTES:

1. MATCH T/CONCRETE TO EXISTING FINISH FLOOR.
2. NO ADDITIONAL LOAD SHALL BE ADDED TO COLUMN UNTIL NEW FOOTING HAS REACHED FULL 28-DAY STRENGTH.

K S5.1 COLUMN FOOTING NO SCALE



L S5.1 JOIST-GIRDER CONNECTION NO SCALE

NOT FOR CONSTRUCTION

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

STRUCTURAL DETAILS - 1

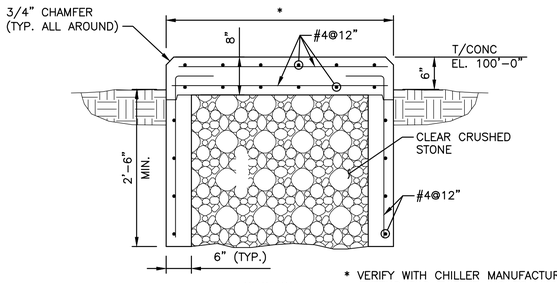
PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 9 **S5.1**

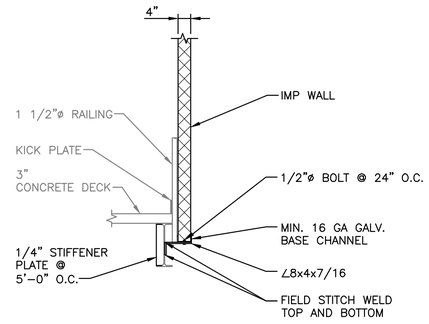


SECTION

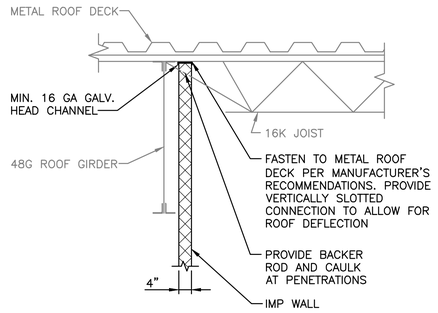
* VERIFY WITH CHILLER MANUFACTURER. EXTEND PAD TWELVE INCHES MINIMUM PAST CHILLER, ALL SIDES

CONCRETE SHALL HAVE A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI, MINIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, AND A MAXIMUM OF 5.5 GALLONS OF TOTAL WATER PER SACK. THE SLUMP OF THE CONCRETE SHALL BE WITHIN THE RANGE OF 2 TO 3 1/2 INCHES. AN AIR-ENTRAINING ADMIXTURE CONFORMING TO ASTM C260, EQUAL TO "DAREX," SHALL BE USED IN ALL CONCRETE TO OBTAIN 4% TO 7% AIR CONTENT. A WATER REDUCER MEETING ASTM C494 TYPE A REQUIREMENTS SHALL BE INCLUDED IN THE MIX. MIXES SHALL BE DESIGNED TO ACCORDANCE WITH ACI 211.1.

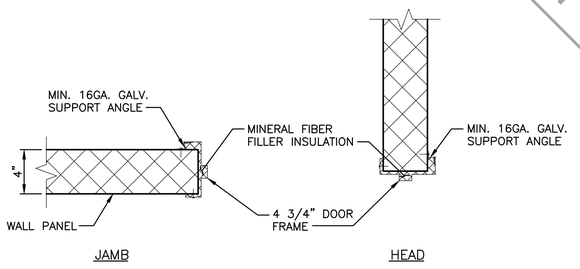
A S5.2 CHILLER PAD
NO SCALE



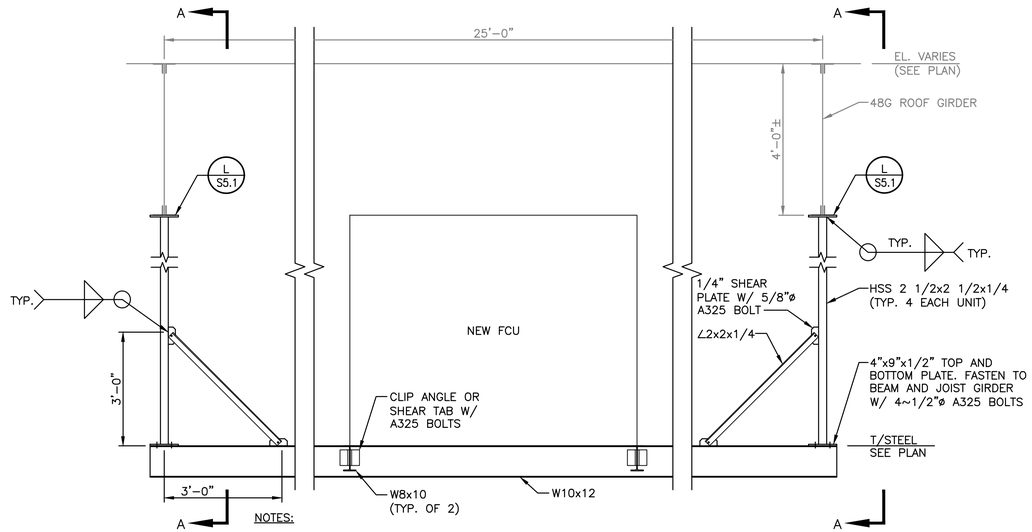
B S5.2 PARTITION BASE
NO SCALE



C S5.2 PARTITION EAVE
NO SCALE



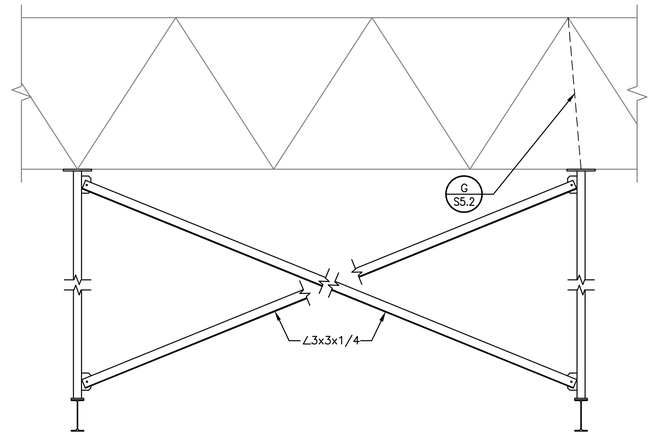
D S5.2 DOOR DETAILS
NO SCALE



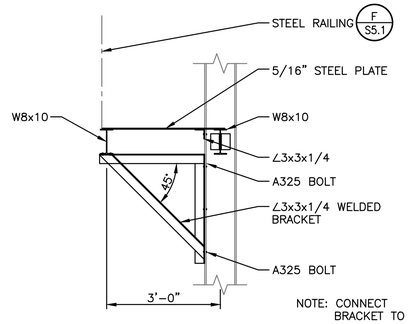
NOTES:

1. FIELD VERIFY BOTTOM OF JOIST GIRDER ELEVATION PRIOR TO HANGER FABRICATION.
2. WHERE HSS CONNECT TO JOIST GIRDER AT A DISTANCE MORE THAN 6" FROM PANEL POINT, PROVIDE STRUT ANGLES PER G S5.2 .

F S5.2 EQUIPMENT HANGER DETAIL
NO SCALE

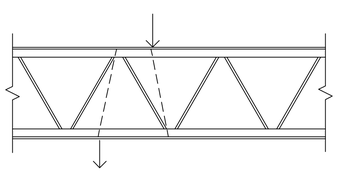


SECTION A-A



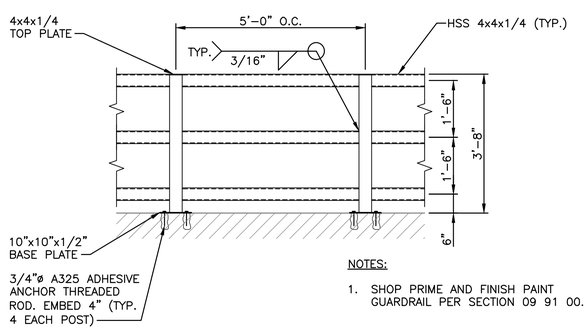
NOTE: CONNECT BRACKET TO FLANGE OR WEB OF COLUMN.

E S5.2 BRACKET SUPPORT
NO SCALE



NOTE: WHEN LOADS >100# OCCUR AT A DISTANCE MORE THAN SIX INCHES FROM A PANEL POINT, A STRUT ANGLE(S) MUST BE FURNISHED AND INSTALLED IN THE FIELD TO CARRY THE LOAD TO AN OPPOSITE PANEL POINT AS SHOWN. STRUT ANGLE(S) TO MATCH OR EXCEED SIZE OF ADJACENT JOIST DIAGONAL MEMBERS. PROVIDE TWO STRUT ANGLES (ONE EACH SIDE OF JOIST) IF JOIST DIAGONALS CONSIST OF DOUBLE ANGLES.

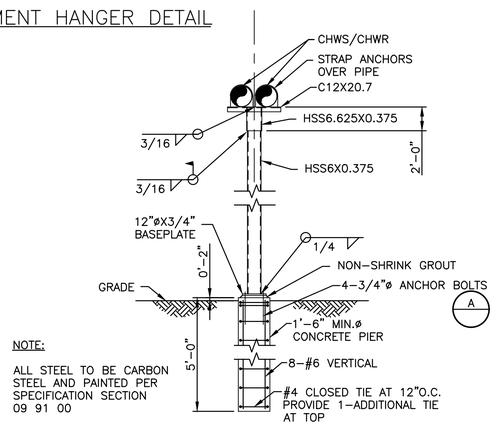
G S5.2 TYPICAL CONCENTRATED LOADS ON JOISTS FOR TRAPEZE HANGERS
NO SCALE



NOTES:

1. SHOP PRIME AND FINISH PAINT GUARDRAIL PER SECTION 09 91 00.

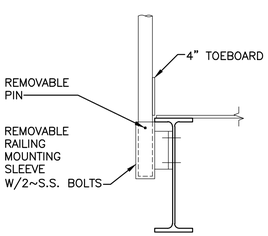
H S5.2 STEEL FORKLIFT GUARDRAIL
NO SCALE



NOTE:

ALL STEEL TO BE CARBON STEEL AND PAINTED PER SPECIFICATION SECTION 09 91 00

J S5.2 EXTERIOR PIPE SUPPORT
NO SCALE



K S5.2 REMOVABLE RAILING
NO SCALE

NOT FOR CONSTRUCTION

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

STRUCTURAL DETAILS - 2

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007
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STRAND ASSOCIATES®

SHEET 10 S5.2

EQUIPMENT ABBREVIATIONS

ACC	AIR COOLED CHILLER
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
BLR	BOILER
BB	BASEBOARD
CONV	CONVECTOR
CD	CEILING DIFFUSER
CHW	CHILLED WATER
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CWP	CHILLED WATER PUMP
DC	DRY COOLER
DH	DEHUMIDIFIER
DL	DRUM LOUVER
EBB	ELECTRIC BASEBOARD
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EL	EXPANSION LOOP
ER	EXHAUST REGISTER
ERC	ELECTRIC REHEAT COIL
ERU	ENERGY RECOVERY UNIT
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WALL HEATER
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FTR	FINNED TUBE RADIATION
FUR	FURNACE
HC	HEATING COIL
HP	HEAT PUMP
HU	HUMIDIFIER
HUH	HOT WATER UNIT HEATER
HWP	HOT WATER PUMP
HX	HEAT EXCHANGER
L	LOUVER
MAU	MAKE–UP AIR UNIT
P	PUMP
PC	PUMPED CONDENSATE
RCP	RADIANT CEILING PANEL
RF	RETURN FAN
RG	RETURN GRILLE
RR	REGISTER
RTU	ROOFTOP UNIT
SD	SUCTION DIFFUSER
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
SS	SPLIT SYSTEM
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
TCP	TEMPERATURE CONTROL PANEL
TG	TRANSFER GRILLE
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME BOX
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE

GENERAL ABBREVIATIONS

ACH	AIR CHANGES PER HOUR
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AP	ACCESS PANEL
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
COND	CONDENSATE
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DG	DOOR GRILLE
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EL	ELEVATION
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
(F)	FURNISHED BY OWNER
FC	FAIL CLOSED
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FO	FAIL OPEN
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FT	FEET
FVNR	FULL VOLTAGE NON REVERSING
GA	GAUGE
GPM	GALLONS PER MINUTE
HHW	HEATING HOT WATER
IPLV	INTEGRATE PART LOAD VALVE
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTER
ODP	OPEN DRIP PROOF
OV	OUTLET VELOCITY
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
TEFC	TOTALLY ENCLOSED FAN COOLED
TR	TONS OF REFRIGERATION
WB	WET BULB

EQUIPMENT SYMBOLS

EQUIPMENT TAG

INLINE PUMP

ROOF EXHAUST FAN

AIR FLOW DIRECTION

DUCTWORK SYMBOLS

SUPPLY DUCT (UP OR SECTION)

SUPPLY OR OUTSIDE AIR DUCT (DOWN/OR AWAY)

EXHAUST OR RETURN DUCT (UP OR SECTION)

EXHAUST OR RETURN DUCT (DOWN/OR AWAY)

ROUND DUCTWORK UP

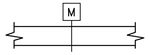
ROUND DUCTWORK DOWN

FLEXIBLE CANVAS CONNECTION

TURNING VANES

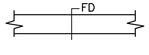
DAMPER SYMBOLS

MANUAL VOLUME DAMPER



AUTOMATIC DAMPER

BACKDRAFT DAMPER



1–1/2 HR. FIRE DAMPER

PIPING SYMBOLS

BALL VALVE

TEE DOWN

TEE UP

ELBOW DOWN

ELBOW UP

GATE VALVE

GLOBE VALVE

2–WAY CONTROL VALVE

3–WAY CONTROL VALVE

METER

GAS SHUTOFF PLUG VALVE

BALANCING VALVE

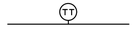
PRESSURE REDUCING VALVE

STRAINER

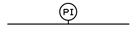
UNION

BUTTERFLY VALVE

TEMPERATURE ELEMENT



TEMPERATURE INDICATOR



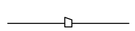
TEMPERATURE TRANSMITTER

PRESSURE INDICATOR

PRESSURE TRANSMITTER

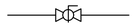
FLOW SWITCH

MANUAL AIR VENT



CHECK VALVE

CONCENTRIC REDUCER



ECCENTRIC REDUCER

FLEXIBLE CONNECTOR

TRIPLE DUTY VALVE

FLOOR DRAIN

PIPING DESIGNATIONS

CHILLED WATER RETURN

CHILLED WATER SUPPLY

COOLING COIL CONDENSATE

FIELD MOUNTED CONTROLS

THERMOSTAT

ROOM HUMIDISTAT

PRESSURE SENSOR

ROOM SENSOR

DUCT SMOKE DETECTOR

TEMPERATURE ELEMENT

ACTUATORS

MOTOR (ELECTRIC)

PNEUMATIC

SOLENOID

NOT FOR CONSTRUCTION

GENERAL NOTES:

1. CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
2. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY CODE.
3. ALL MECHANICAL WORK SHALL BE COORDINATED WITH ALL TRADES TO ELIMINATE ANY CONFLICTS BETWEEN PIPING, DUCTWORK, ELECTRICAL WORK, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DUCTWORK AND PIPE OFFSETS REQUIRED FOR COMPLETE SYSTEM INSTALLATION.
4. CONTRACTOR SHALL PROVIDE ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
5. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED SHOP DRAWINGS. COORDINATE AND PROVIDE ALL DUCTWORK TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS. FIELD VERIFY AND COORDINATE ALL DUCTWORK AND PIPING DIMENSIONS PRIOR TO FABRICATION.
6. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES AND OTHER INSTRUMENTS IN ACCESSIBLE LOCATIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. ALL EXISTING EQUIPMENT, PIPING, INSTRUMENTATION, STRUCTURE, ETC. ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION.
8. DUCT AND EQUIPMENT PENETRATIONS SHALL BE COORDINATED AS TO NOT INTERFERE WITH ROOF STRUCTURE.
9. CONTRACTOR SHALL COORDINATE ROOFING AND FLASHING REQUIREMENTS FOR ALL VENT PENETRATIONS.
10. LOCATE ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES IN ACCESSIBLE LOCATIONS.
11. INSTALL ALL PIPING SYSTEMS TO PROVIDE MINIMUM OF 3" CLEARANCE FROM ADJACENT STRUCTURE.
12. ALL PIPE LOCATIONS AND ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW PIPE ROUTING AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
SYMBOLS AND ABBREVIATIONS

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
11
H0.1

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NOT FOR CONSTRUCTION

GENERAL NOTES:

1. SEE SHEET H0.1 FOR ADDITIONAL GENERAL NOTES.

KEY NOTES:

(1) DRUM LOUVERS ON RECTANGULAR DUCTWORK SHALL HAVE BLADES AT 45° ANGLE. DRUM LOUVERS ON CIRCULAR DUCTWORK SHALL BE INSTALLED AT 45° DOWN FROM HORIZONTAL. BOTTOM MOUNTED DIFFUSERS SHALL BLOW DOWN ONLY.

(2) PROVIDE NEW MOTORIZED DAMPER, ACTUATOR, AND FILTER BOX ON NEW LOUVER.

(3) BID ALTERNATIVE NO. 1 INCLUDES ALL FAN COIL UNITS, DUCTWORK, PIPING, VALVES, INSULATION, AND ACCESSORIES FROM BASE BID VALVES TO FAN COIL UNITS ON NEW PLATFORM.

(4) RELOCATE VACUUM HOSE AND PROP FAN IN FRONT OF LOUVER. COORDINATE WITH OWNER ON FINAL LOCATION OF RELOCATED EQUIPMENT.

(5) EXTEND DUCTWORK FROM LOUVER TO 3–INCHES BEYOND BRACING FOR INSTALLATION OF DAMPER AND FILTER FRAME. CAULK SEAL AROUND BRACING AND DUCTWORK.

(6) INSTALL DRUM LOUVERS IN LOCATIONS THAT MAINTAIN DUCT HEIGHT AND DO NOT CONFLICT WITH RACEWAYS, EQUIPMENT, ETC.

(7) OFFSET CHW PIPING TO AVOID VERTICAL STAINLESS STEEL DUCTWORK.

(8) ROUTE DUCTWORK AS HIGH AS POSSIBLE BELOW MEZZANINE.

(9) ROUTE DUCTWORK BELOW BEAMS. OFFSET DUCTWORK UP TO JOISTS ABOVE PROCESS EQUIPMENT AND ROUTE AS HIGH AS POSSIBLE.

(10) FURNISH AND INSTALL SPLITTER PLATE FULL HEIGHT OF DUCT WITH REINFORCING TO PREVENT VIBRATION.

(11) ROUTE 24 INCH ROUND DUCTWORK ON EXTERIOR WALL OF MEZZANINE. DUCTWORK ELEVATION SHALL BE EVEN WITH MEZZANINE FLOOR.

(12) ROUTE 24 INCH DUCTWORK DOWN TO UNDERSIDE OF MEZZANINE. ROUTE DUCTWORK AS HIGH AS POSSIBLE BELOW MEZZANINE.

(13) THIS EQUIPMENT OR MODIFICATIONS TO FANS NOTED SHALL BE PART OF BID ALTERNATIVE NO. 1.

(14) PIPING SHALL BE ROUTED TO AVOID INTERFERENCE WITH ROOF HATCH.

(15) FAN CONTROLS SHALL BE MODIFIED WITH PROJECT. SEE CONTROL SEQUENCES AND SHEET H8.2 FOR DIAGRAM ON CONTROLS.

(16) MOUNT TE ON COLUMN ON SIDE AWAY FROM OVEN 42" ABOVE FINISHED FLOOR.

(17) PROVIDE 4'–0" LONG FORKLIFT GUARDRAIL AT LOUVERS (TYP. 9 LOCATIONS).

OVERALL FIRST FLOOR PLAN

0 8' 16' 32' 64'

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
OVERALL FIRST FLOOR PLAN

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 12 **H1.1**

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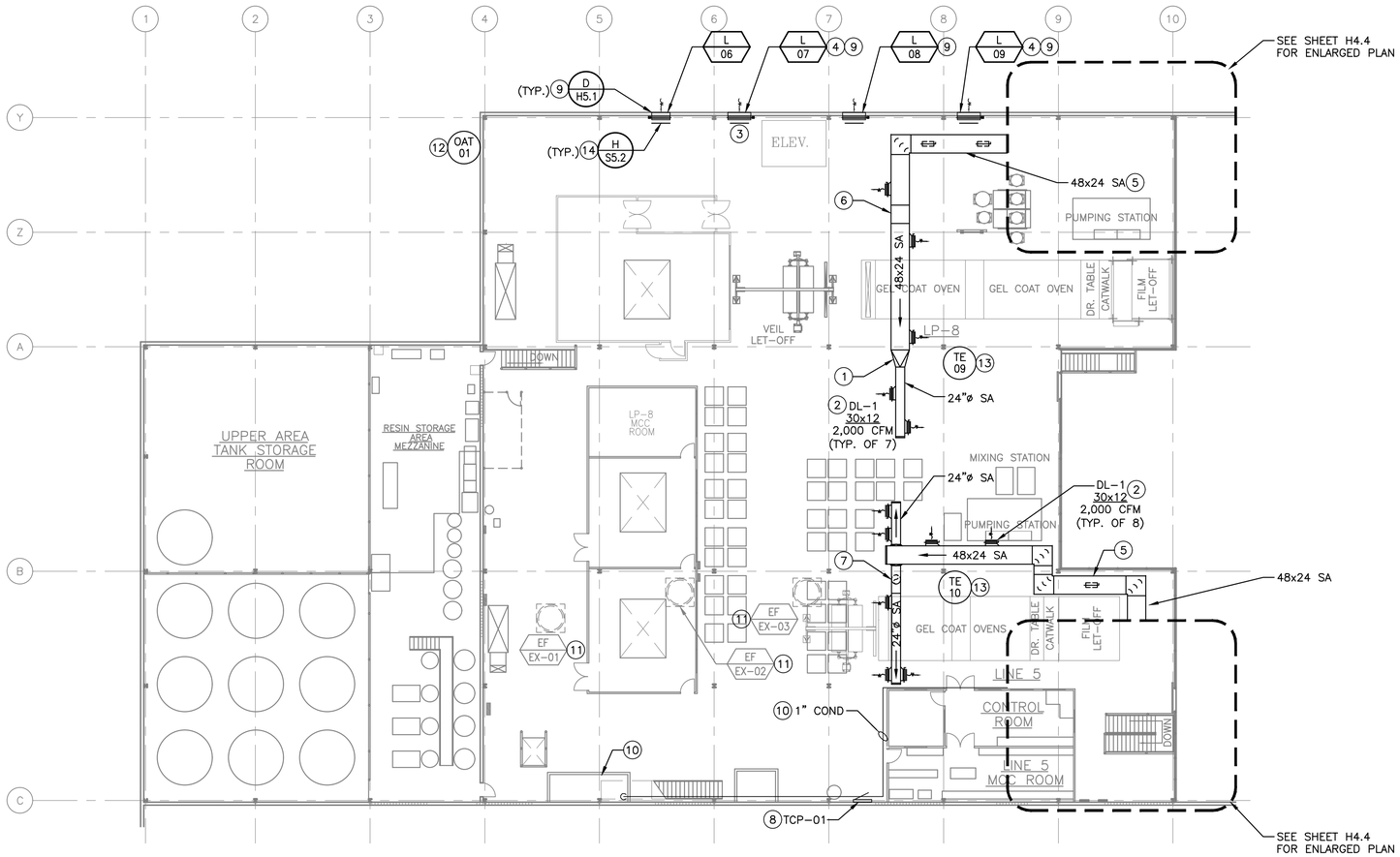

MEZZANINE PLAN

0 4' 8' 16' 32'

GENERAL NOTES:

1. SEE SHEET H0.1 FOR ADDITIONAL GENERAL NOTES.

KEY NOTES:

(1) 48X24 TO 24 INCH DIAMETER TRANSITION.

(2) DRUM LOUVERS ON RECTANGULAR DUCTWORK SHALL HAVE BLADES AT 45° ANGLE. DRUM LOUVERS ON CIRCULAR DUCTWORK SHALL BE INSTALLED AT 45° DOWN FROM HORIZONTAL.

(3) RELOCATE DESK IN FRONT OF LOUVER. COORDINATE FINAL LOCATION OF DESK WITH OWNER.

(4) EXTEND DUCTWORK FROM LOUVER TO 3-INCHES BEYOND BRACING FOR INSTALLATION OF DAMPER AND FILTER FRAME. CAULK SEAL AROUND BRACING AND DUCTWORK. SEE H8.2 FOR LOUVER SIZES.

(5) ROUTE 48x24 SUPPLY DUCTWORK AS HIGH AS POSSIBLE. SUPPORT DUCTWORK FROM GIRDERS.

(6) OFFSET SUPPLY DUCTWORK UP TO JOISTS AND OVER TOP OF OPEN PORTION OF OVEN. SUPPORT DUCTWORK FROM JOISTS.

(7) OFFSET 24-INCH DIAMETER DUCTWORK UP AND ROUTE ABOVE EXISTING STAINLESS-STEEL DUCTWORK AND OVER OPEN PORTION OF OVEN. SUPPORT DUCTWORK FROM JOISTS.

(8) INSTALL TOP OF TEMPERATURE CONTROL PANEL 6'-0" FROM MEZZANINE FLOOR.

(9) PROVIDE NEW MOTORIZED DAMPER, ACTUATOR, AND FILTER BOX ON NEW LOUVER.

(10) ROUTE COOLING COIL CONDENSATE TO DRAIN LOCATED AT EXISTING CHILLED WATER PUMPING AREA. SEE SHEET H1.2 FOR CONTINUATION.

(11) FAN CONTROLS SHALL BE MODIFIED WITH PROJECT. SEE CONTROL SEQUENCES AND SHEET H8.1 FOR DIAGRAM ON CONTROLS.

(12) MOUNT OAT ON WALL 6'-0" ABOVE PLANT FIRST FLOOR.

(13) MOUNT TE ON COLUMN ON SIDE AWAY FROM OVEN 42" ABOVE FINISHED FLOOR.

(14) PROVIDE 4'-0" LONG FORKLIFT GUARDRAIL AT LOUVERS (TYP. 4 LOCATIONS).

NOT FOR CONSTRUCTION

NO.	REVISIONS	DATE:
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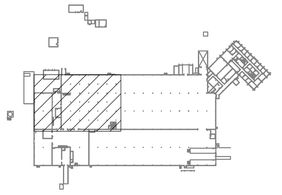
HVAC
MEZZANINE PLAN

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS



KEY PLAN
NO SCALE

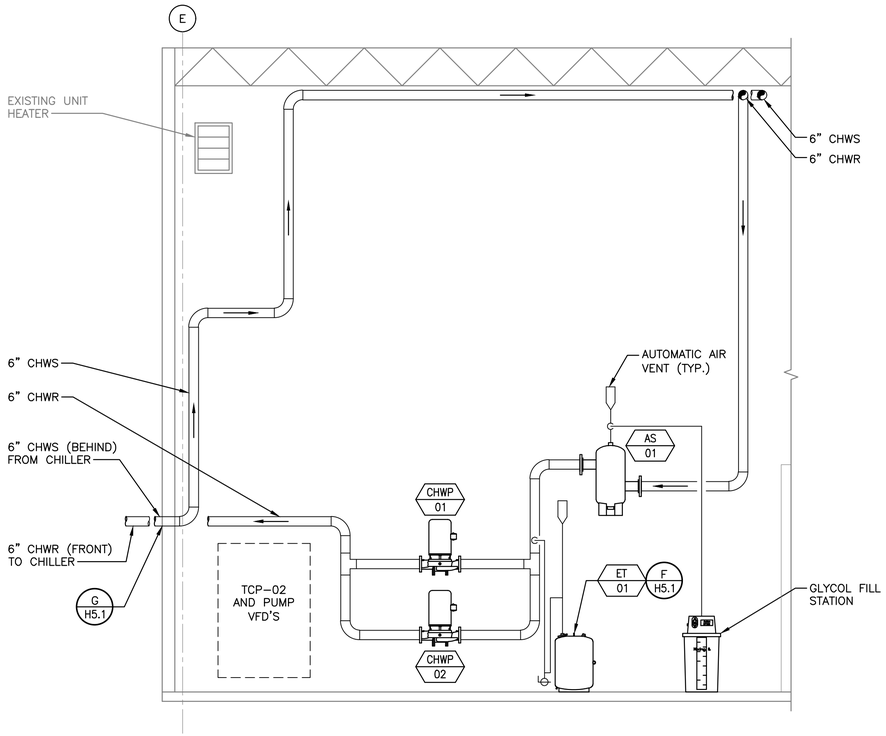
JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

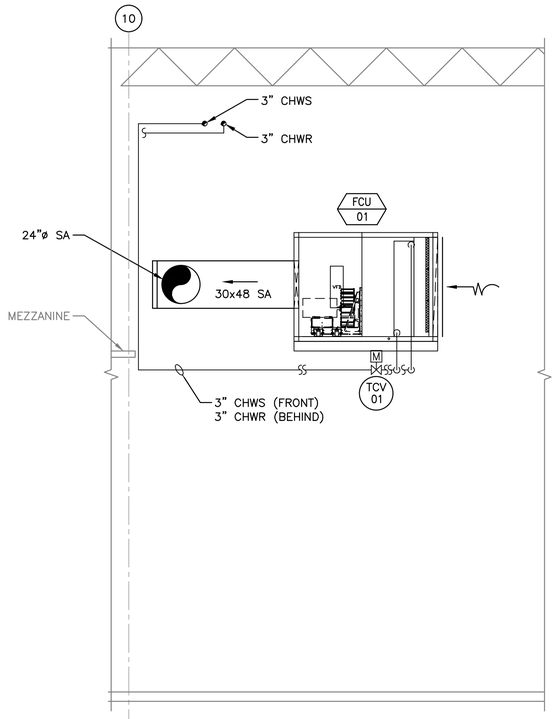
SHEET
13
H1.2

NOT FOR CONSTRUCTION



SECTION 1 H3.1

0 1' 2' 4' 8'



SECTION 2 H3.1

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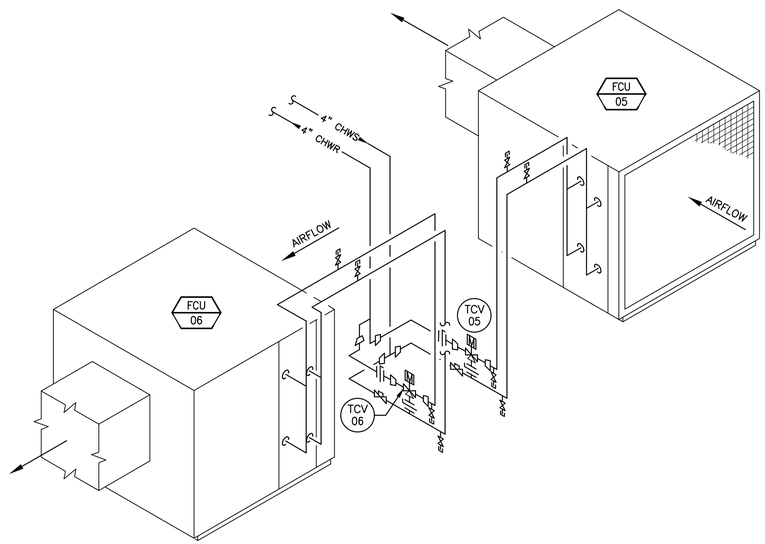

TYPICAL FAN COIL ISOMETRIC
(3-WAY CONTROL VALVE) (BID ALTERNATIVE NO. 1)
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC SECTIONS

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

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SHEET 14 H3.1

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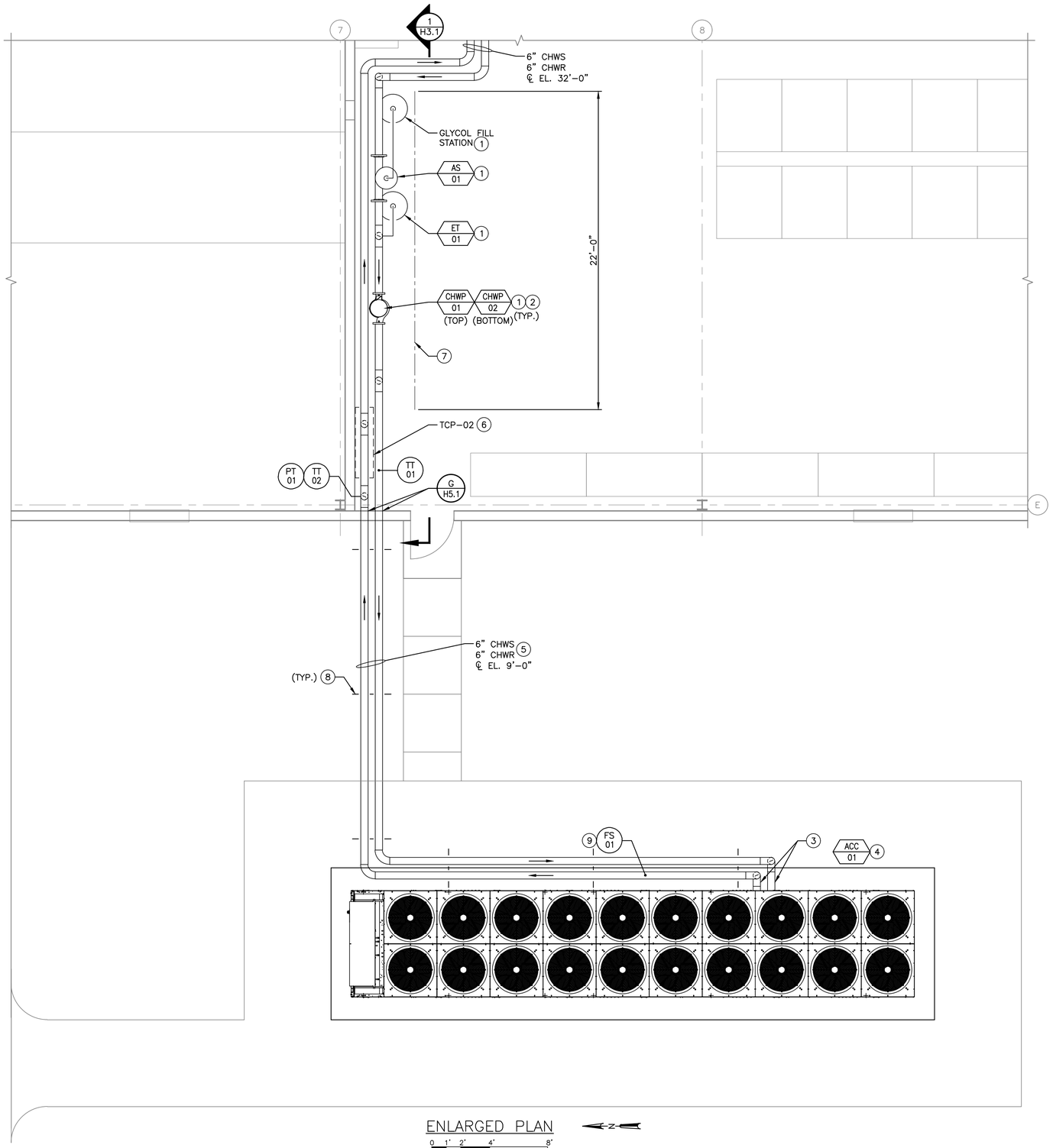


ENLARGED PLAN

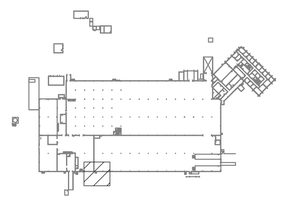
0 1' 2' 4' 8'

GENERAL NOTES:

1. SEE SHEET H0.1 FOR ADDITIONAL GENERAL NOTES.

KEY NOTES:

1. SUPPORT EQUIPMENT SEPARATE FROM PIPING.
2. INSTALL CHWP-01 AND CHWP-02 ON FLOOR MOUNTED FRAME 6'-6" AND 3'-0" ABOVE FINISHED FLOOR, RESPECTIVELY.
3. PROVIDE FLEXIBLE CONNECTION AND COORDINATE CONNECTION SIZES AND LOCATION WITH CHILLER MANUFACTURER.
4. INSTALL OWNER FURNISHED CHILLER ON CONCRETE EQUIPMENT PAD PER MANUFACTURERS REQUIREMENTS. SEE STRUCTURAL PLANS FOR ADDITIONAL INSTALLATION DETAILS. UNLOAD FOR TRUCK. SET IN OWNER PREFERRED LOCATION UNTIL PAD IS PREPARED. PICK UP AND SET IN FINAL LOCATION.
5. PROVIDE PIPING SUPPORTS AS NECESSARY. SEE STRUCTURAL PLANS FOR DETAILS.
6. INSTALL TOP OF TEMPERATURE CONTROL PANEL 6'-0" ABOVE FINISHED FLOOR.
7. FORKLIFT GUARDRAIL (H S5.2).
8. EXTERIOR PIPE SUPPORT @ 10'-0" O.C. MAX. (J S5.2)
9. FLOW SWITCH PROVIDED BY CHILLER MANUFACTURER.



KEY PLAN
NO SCALE

NOT FOR CONSTRUCTION

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/20/18

HVAC
ENLARGED PLAN - 1

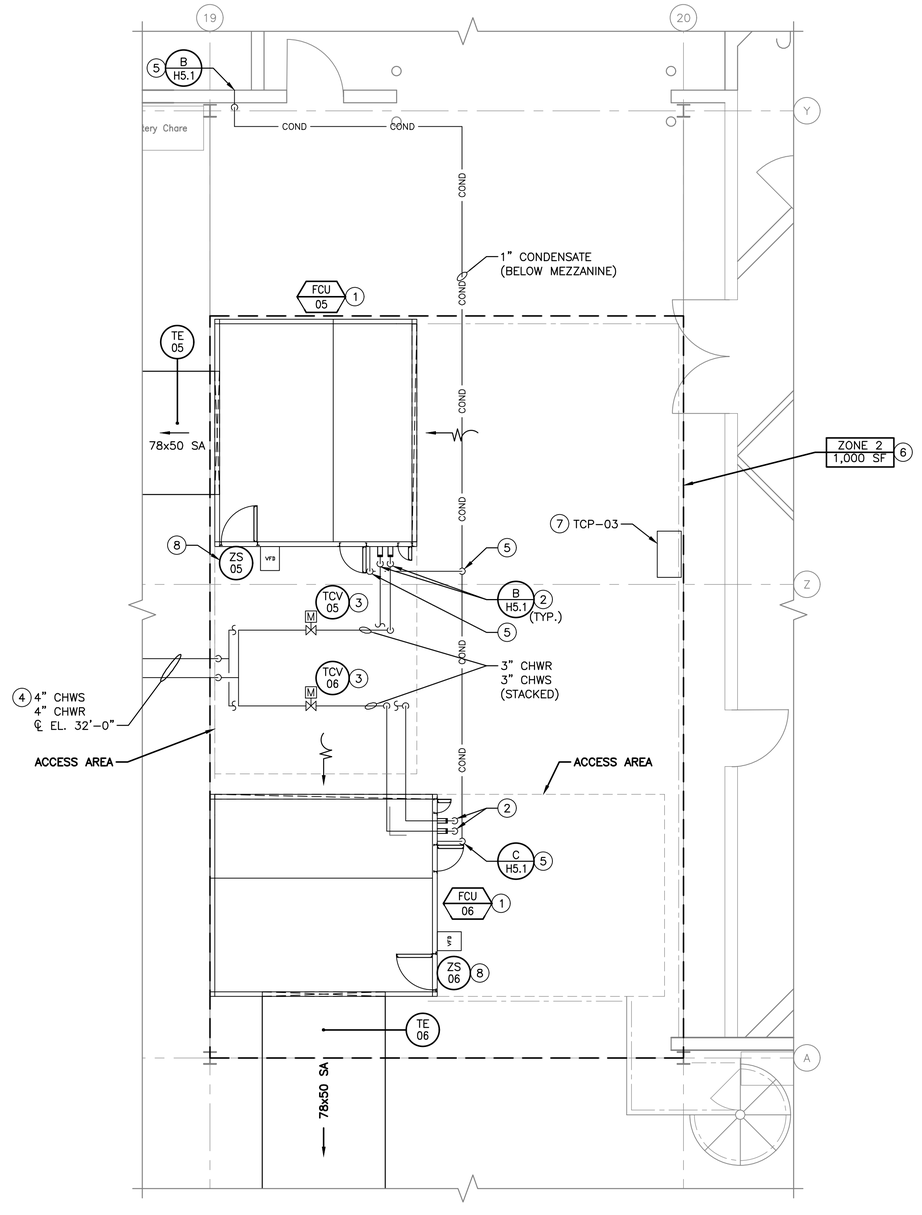
PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
15
H4.1



ENLARGED PLAN – 2

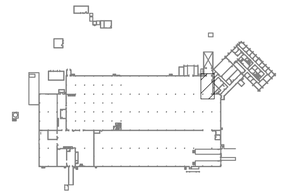
0 1' 2' 4' 8'

GENERAL NOTES:

1. SEE SHEET H0.1 FOR ADDITIONAL GENERAL NOTES.
2. ALL WORK SHOWN ON THIS SHEET SHALL BE PART OF BID ALTERNATIVE NO. 1.

KEY NOTES:

1. INSTALL OWNER FURNISHED FAN COIL UNIT ON NEW PLATFORM. SEE STRUCTURAL SHEETS FOR ADDITIONAL PLACEMENT INFORMATION.
2. 3" CHW TO FCU. FOUR CONNECTIONS TOTAL.
3. SEE SHEET H3.1 FOR CHILLED WATER PIPING CONFIGURATION. PIPING SHALL BE ROUTED IN SUCH A WAY TO ALLOW FULL COIL PULL AREA ACCESS WITH MINIMAL PIPE REMOVAL.
4. 4" CHW DOWN TO PLATFORM. SEE SHEET H1.1 FOR CONTINUATION.
5. ROUTE CONDENSATE COIL DRAINS FROM FAN COIL UNIT UNDERNEATH PLATFORM. TIE DRAINS TOGETHER AND ROUTE DOWN INSIDE EXTERIOR WALL TO GRADE.
6. EXTEND EXISTING FIRE PROTECTION SERVICE BELOW NEW PLATFORM. SEE SPECIFICATION SECTION 21 00 01 FOR DETAILS.
7. INSTALL TOP OF TEMPERATURE CONTROL PANEL 6'-0" FROM PLATFORM FLOOR.
8. DOOR SWITCH SHALL BE ALLEN BRADLEY MODEL 440G-T47047, OR EQUAL.



KEY PLAN
NO SCALE

NOT FOR CONSTRUCTION

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
ENLARGED PLAN - 2

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
16
H4.2

GENERAL NOTES:

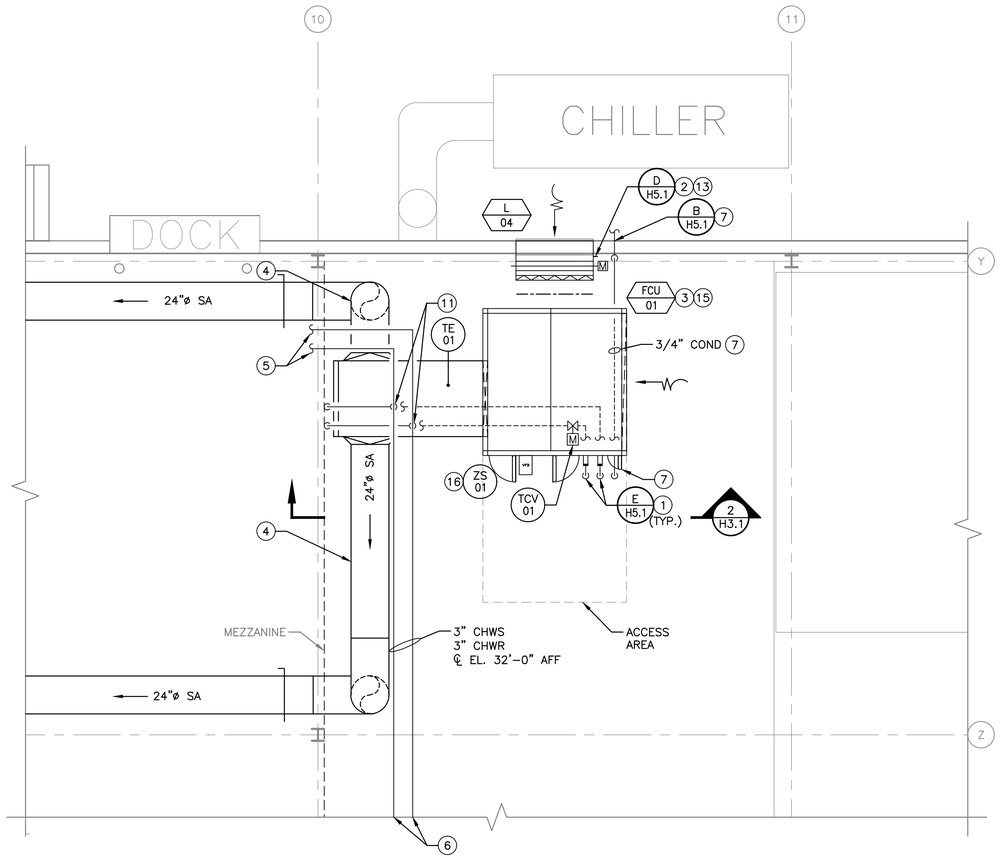
1. SEE SHEET H0.1 FOR ADDITIONAL GENERAL NOTES.

KEY NOTES:

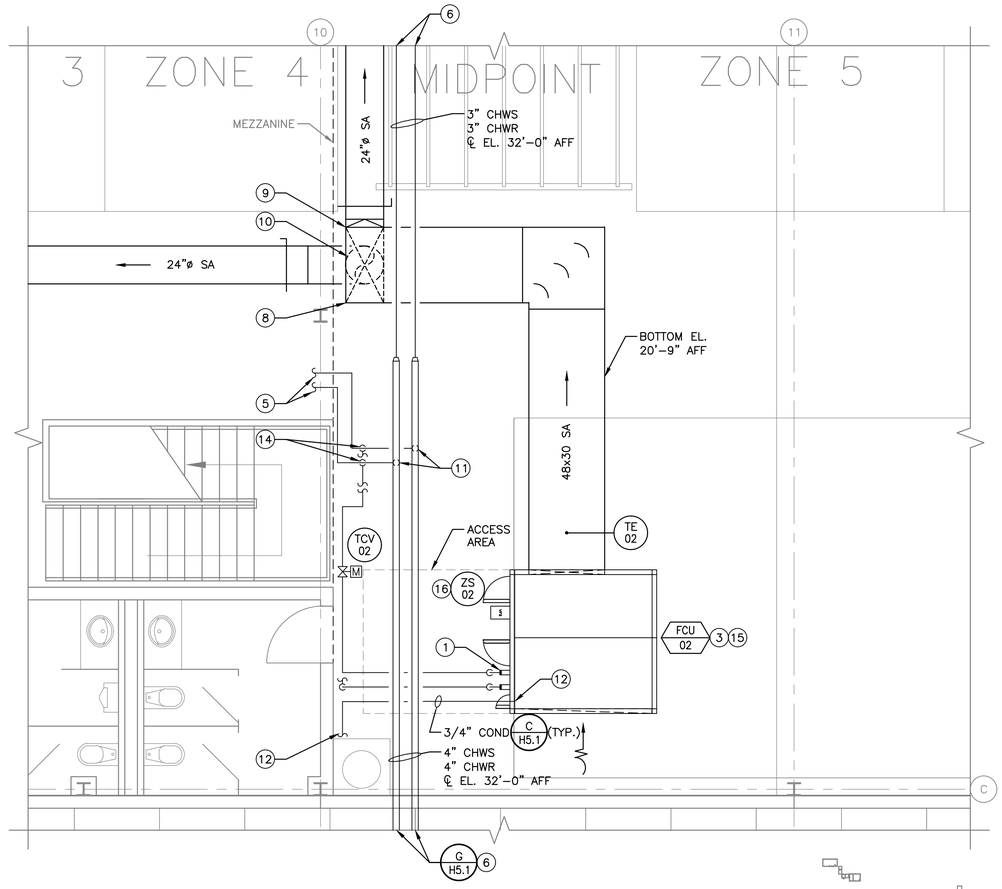
1. 3" CHW TO FCU. TWO CONNECTIONS TOTAL.
2. EXTEND DUCTWORK FROM LOUVER TO 3–INCHES BEYOND BRACING FOR INSTALLATION OF DAMPER AND FILTER FRAME. CAULK SEAL AROUND BRACING AND DUCTWORK.
3. INSTALL OWNER FURNISHED FCU. BOTTOM OF FCU SHALL BE 18'–6" AFF. PROVIDE VIBRATION ISOLATION.
4. ROUTE 24 INCH ROUND DUCTWORK DOWN BETWEEN STAINLESS STEEL DUCTS TO SPACE UNDERNEATH MEZZANINE. ROUTE DUCTWORK AS HIGH AS POSSIBLE BELOW MEZZANINE.
5. 3–INCH CHW TAPS TO MEZZANINE. CHW TO PENETRATE NEW MEZZANINE WALL 28'–0" ABOVE FINISHED FLOOR. SEAL WALL PENETRATION. SEE SHEET H4.4 FOR CONTINUATION.
6. SEE SHEET H1.1 FOR CONTINUATION.
7. ROUTE COOLING COIL CONDENSATE DRAIN UNDERNEATH UNIT TO WALL. ROUTE DRAIN DOWN AND OUT EXTERIOR WALL TO GRADE.

KEY NOTES (CONT'D):

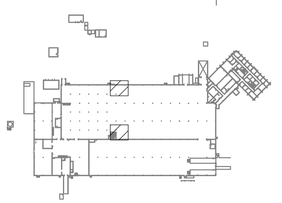
8. 48x30 TO 48x24 TRANSITION ELBOW. 48x24 DOWN MEZZANINE WALL TO BELOW MEZZANINE. ROUTE DUCTWORK AS HIGH AS POSSIBLE BELOW MEZZANINE.
9. PROVIDE 24–INCH ROUND TAKEOFF TO BOTTOM OF MEZZANINE UPSTREAM OF VERTICAL TRANSITION.
10. 48x24 TO 24 INCH ROUND TRANSITION IN VERTICAL.
11. PROVIDE 3 INCH CHW TAKE OFFS DOWN TO 26'–0" AFF.
12. ROUTE COOLING COIL CONDENSATE DRAIN TO EXISTING DRAIN PIPE LOCATED AT WATER HEATER.
13. PROVIDE NEW MOTORIZED DAMPER, ACTUATOR, AND FILTER BOX ON NEW LOUVER.
14. 3" CHW TAPS DOWN TO 20'–0" ABOVE FINISHED FLOOR. STACK CHW LINES. RETURN LINE SHALL BE ON THE BOTTOM.
15. EXTEND EXISTING FIRE PROTECTION SERVICE BELOW NEW FCU.
16. DOOR SWITCH SHALL BE ALLEN BRADLEY MODEL 440G–T47047, OR EQUAL.



ENLARGED PLAN



ENLARGED PLAN



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
ENLARGED PLANS - 3

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
17
H4.3

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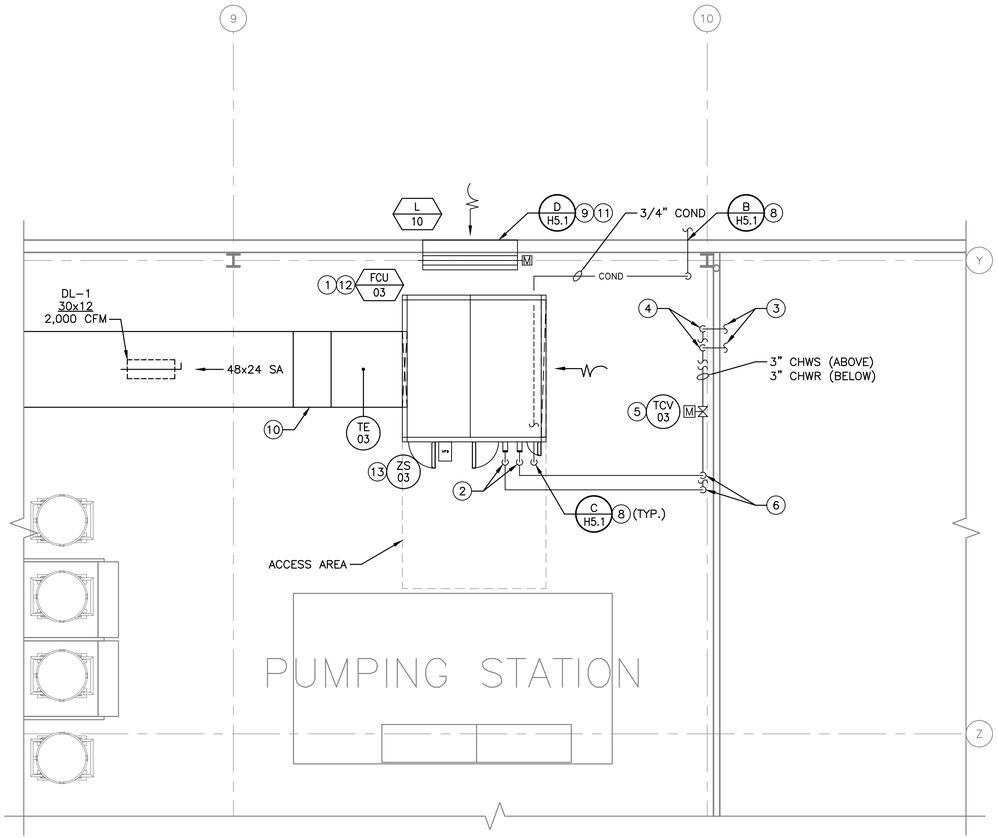
GENERAL NOTES:

1. SEE SHEET H0.1 FOR ADDITIONAL GENERAL NOTES.

KEY NOTES:

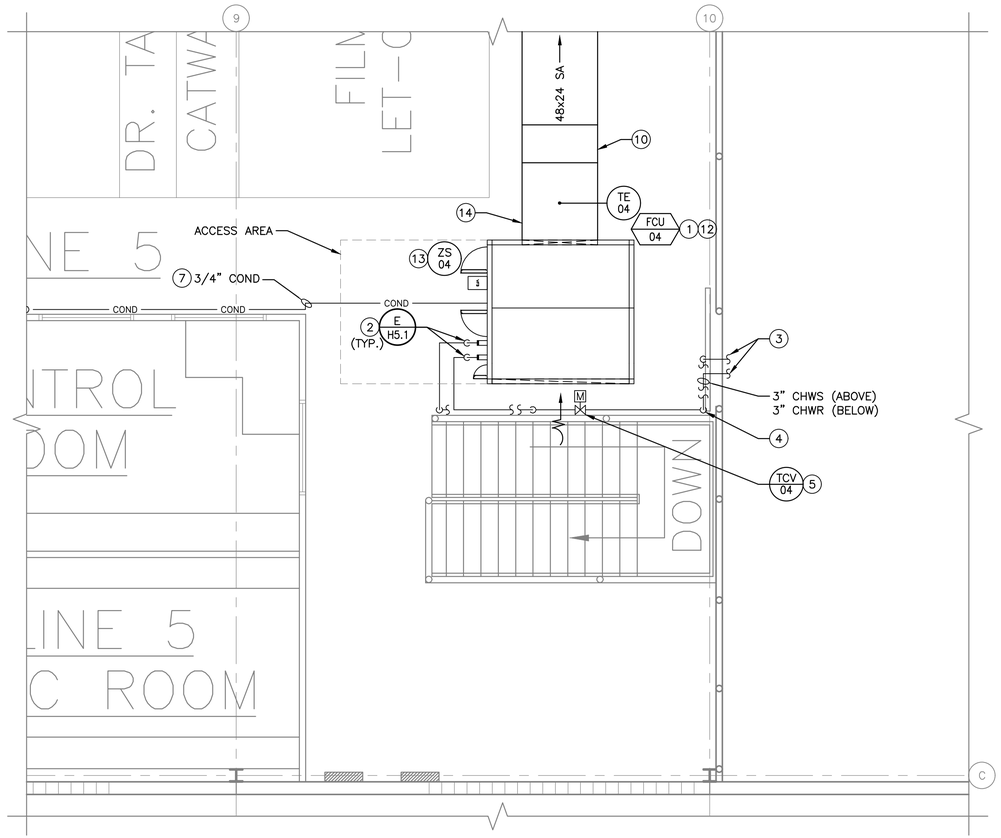
1. INSTALL OWNER FURNISHED FCU. BOTTOM OF FCU SHALL BE 10'–0" FROM MEZZANINE FLOOR. PROVIDE VIBRATION ISOLATION.
2. 3" CHW TO FCU. TWO CONNECTIONS TOTAL.
3. 3" CHW INTO MEZZANINE FROM MAIN FLOOR. SEE SHEET H4.3 FOR CONTINUATION.
4. CHWR ONLY DOWN TO 6' ABOVE MEZZANINE FLOOR. STACK CHWS (TOP) AND CHWR (BOTTOM) ON WALL.
5. INSTALL TCV 6'–0" ABOVE MEZZANINE FLOOR.
6. CHW UP TO 14'–0" ABOVE MEZZANINE FLOOR.
7. ROUTE COOLING COIL CONDENSATE TO DRAIN LOCATED AT EXISTING CHILLED WATER PUMPING AREA. SEE SHEET H1.2 FOR CONTINUATION.
8. ROUTE COOLING COIL CONDENSATE DRAIN UNDERNEATH UNIT TO WALL. ROUTE DRAIN DOWN AND OUT EXTERIOR WALL TO GRADE.
9. EXTEND DUCTWORK FROM LOUVER TO 3–INCHES BEYOND BRACING FOR INSTALLATION OF DAMPER AND FILTER FRAME. CAULK SEAL AROUND BRACING AND DUCTWORK.
10. 48x30 FROM CONNECTION ON UNIT TO 48x24 TRANSITION.
11. PROVIDE NEW MOTORIZED DAMPER, ACTUATOR, AND FILTER BOX ON NEW LOUVER.
12. EXTEND EXISTING FIRE PROTECTION SERVICE BELOW NEW FCU.
13. DOOR SWITCH SHALL BE ALLEN BRADLEY MODEL 440G–T47047, OR EQUAL.
14. 48X30 SA FROM UNIT BELOW STRUCTURAL SUPPORT. IMMEDIATELY OFFSET DUCTWORK UP AS HIGH AS POSSIBLE.

NOT FOR CONSTRUCTION



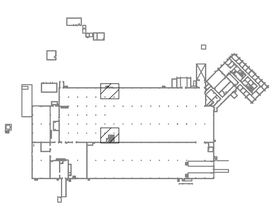
ENLARGED MEZZANINE PLAN

0 1' 2' 4' 8'



ENLARGED MEZZANINE PLAN

0 1' 2' 4' 8'



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
ENLARGED PLANS - 4

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

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SHEET
18
H4.4

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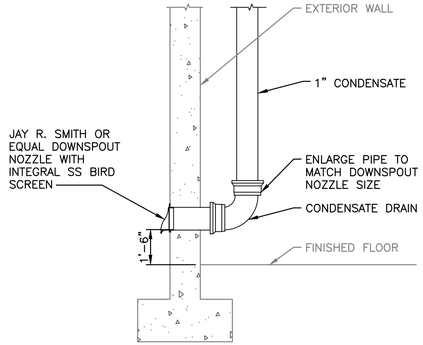
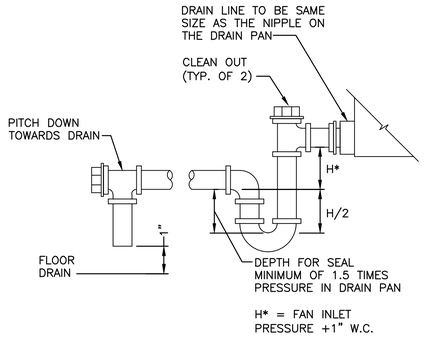
BRANCH TAKE–OFF RECTANGULAR TO RECTANGULAR	L=.25D (4" MIN.) 45° D	BRANCH TAKE–OFF RECTANGULAR TO ROUND	L=.25D (4" MIN.) 45° D
BRANCH TAKE–OFF ROUND TO ROUND	L=5.25 IN. 1" L	ROUND TRANSITION FITTING	15°
ELBOW	D R R=1.5 X D (MIN.)	TEE	R D R=1.5 X D (MIN.)

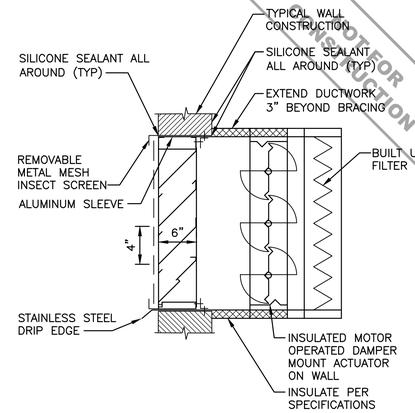
A H5.1 TYPICAL DUCT TAKE–OFF
NO SCALE



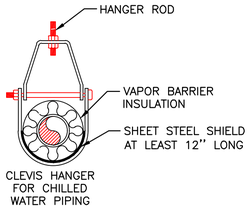
B H5.1 DOWNSPOUT NOZZLE DETAIL
NO SCALE



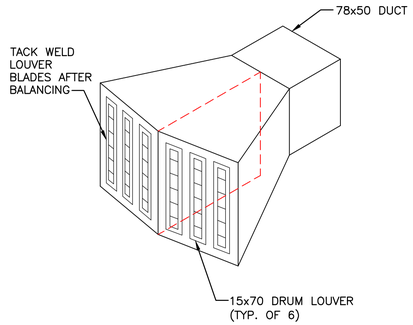
C H5.1 CONDENSATE DRAIN
NO SCALE



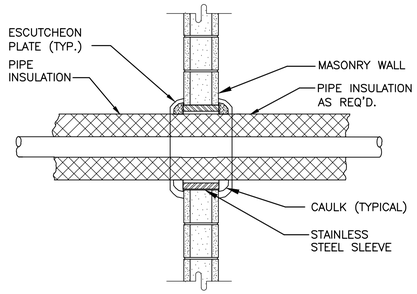
D H5.1 WALL LOUVER AND DAMPER
NO SCALE



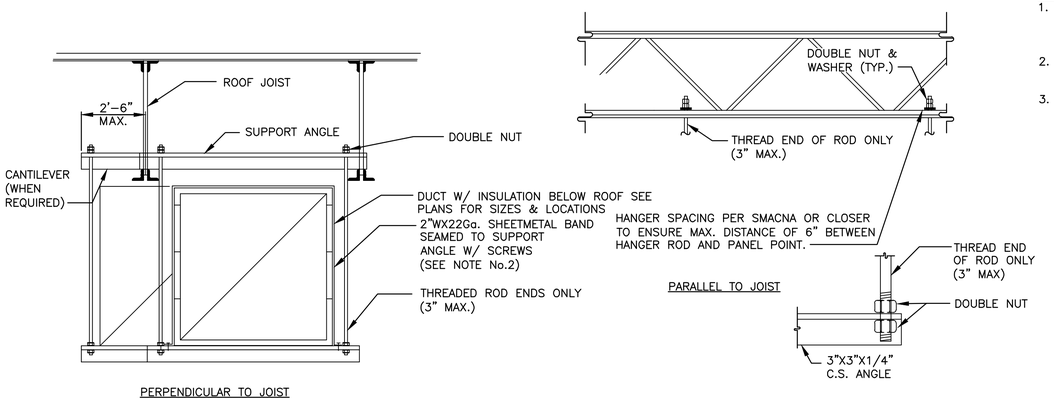
E H5.1 PIPE HANGER
NO SCALE



F H5.1 DRUM LOUVER BOX DETAIL
NO SCALE



INSULATED PIPE PENETRATION
G H5.1 DETAIL THRU MASONRY WALL
NO SCALE



NOTES:
1. 3"X3"X1/4" ANGLE FOR DUCT WIDTHS TO 5'–0" 3 1/2"X3 1/2"X5/16 ANGLE FOR DUCT WIDTHS TO 10'–0".
2. PROVIDE GALVANIZED STEEL ANGLE AND RODS FOR SUPPORT OF STEEL DUCTS.
3. NO SCREWS TO PENETRATE DUCTWORK.

H H5.1 TYPICAL HVAC HANGER DETAIL (BELOW JOISTS)
NO SCALE

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NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
DETAILS - 1

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

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19
H5.1

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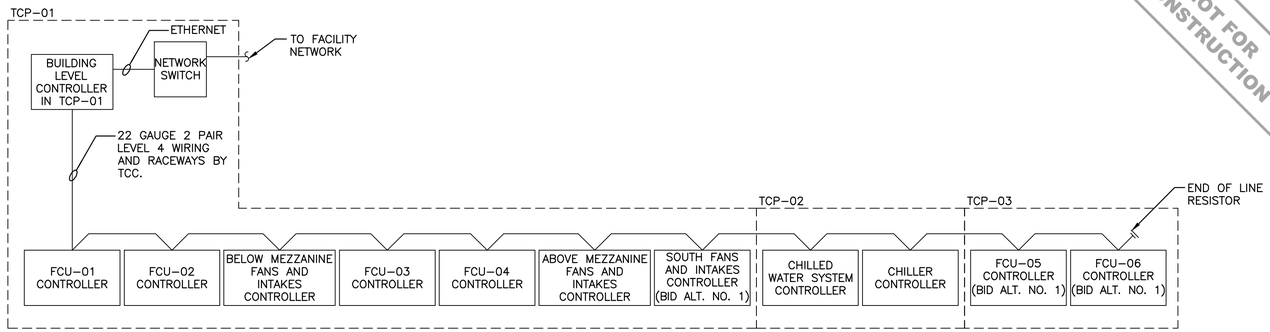

* SEE SECTION 23-09-00 FOR EQUIPMENT AND I/O FOR EACH CONTROLLER AND CONTROL PANEL.

A / H5.2 TEMPERATURE CONTROL SYSTEM RISER
NO SCALE

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NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
DETAILS - 2

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

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20
H5.2

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AIR COOLED CHILLER SCHEDULE

UNIT NO. ACC–	LOCATION	SERVICE	YORK MODEL NO.	NOMINAL CAPACITY (TONS)	OUTDOOR FANS			EVAPORATOR SECTION							COMPRESSORS				ELECTRICAL									REMARKS
					NOMINAL AIRFLOW (CFM)	NO. OF FANS	FAN DIA. (IN.)	EWT (°F)	LWT (°F)	COOLING MEDIUM	MAX FLOW (GPM)	MIN. FLOW (GPM)	DESIGN FLOW (GPM)	GLYCOL P.D. (FT. HD.)	CONNECTION SIZE (IN)	NO. OF CIRCUITS	NO. OF COMPRESSORS	COMPRESSOR TYPE	REFRIGERANT TYPE	VOLTAGE	PHASE	FLA	MCA	BREAKER SIZE	DISCONNECT BY	EER	NPLV	OPERATING WEIGHT (LBS.)	
01	EXTERIOR	FAN COILS	YVAA0345EXV46BAVNXX	300	VARIES	20	36	58	42	30% PROPYLENE GLYCOL	1062	269.5	477	19.5	10	2	2	SCREW	R134A	460	3	569	700	700A	MFR	9.797	18.35	21,932	(1)

(1) UNIT SHALL BE OWNER FURNISHED, CONTRACTOR INSTALLED.

FAN COIL SCHEDULE

UNIT NO. FCU–	LOCATION	SERVICE	YORK MODEL NO.	UNIT CONFIGURATION	FAN SECTION			COOLING COIL SECTION								ELECTRICAL				OPERATING WEIGHT (LBS)	REMARKS
					SUPPLY AIR (CFM)	ESP (IN. W.C.)	MOTOR SIZE (HP)	COOLING MEDIUM	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EAT DB/WB (°F)	LAT DB/WB (°F)	EWT (°F)	LWT (°F)	FLOWRATE (GPM)	WPD (FT.)	VOLTS	PHASE	FLA	BREAKER SIZE		
01	FIRST FLOOR NORTH	FIRST FLOOR NORTH	SOLUTION XT	HORIZONTAL	16,000	1.25	15	30% PROPYLENE GLYCOL	520.2	384.7	80/67	57/56.2	42	58.3	67.2	11.2	460	3	23	40A	3,796	(1)(2)
02	FIRST FLOOR NORTH	FIRST FLOOR NORTH	SOLUTION XT	HORIZONTAL	16,000	1.25	15	30% PROPYLENE GLYCOL	520.2	384.7	80/67	57/56.2	42	58.3	67.2	11.2	460	3	23	40A	3,796	(1)(2)
03	MEZZANINE	MEZZANINE	SOLUTION XT	HORIZONTAL	16,000	0.75	15	30% PROPYLENE GLYCOL	520.2	384.7	80/67	57/56.2	42	58.3	67.2	11.2	460	3	23	40A	3,983	(1)(2)
04	MEZZANINE	MEZZANINE	SOLUTION XT	HORIZONTAL	16,000	0.75	15	30% PROPYLENE GLYCOL	520.2	384.7	80/67	57/56.2	42	58.3	67.2	11.2	460	3	23	40A	3,983	(1)(2)
05	PLATFORM	FIRST FLOOR SOUTH	SOLUTION XT	HORIZONTAL	40,000	1.50	50	30% PROPYLENE GLYCOL	1094.5	841.7	80/67	59.9/58.1	42	59.3	133	12.4	460	3	72	125A	7,860	(1)(2)(3)
06	PLATFORM	FIRST FLOOR SOUTH	SOLUTION XT	HORIZONTAL	40,000	1.50	50	30% PROPYLENE GLYCOL	1094.5	841.7	80/67	59.9/58.1	42	59.3	133	12.4	460	3	72	125A	7,860	(1)(2)(3)

(1) STARTER SHALL BE VFD PROVIDED BY MANUFACTURER.

(2) UNIT SHALL BE OWNER FURNISHED, CONTRACTOR INSTALLED.

(3) UNIT SHALL BE PART OF BID ALTERNATIVE NO. 1.

EXPANSION TANK SCHEDULE

UNIT NO. ET–	LOCATION	BELL AND GOSSETT MODEL NO.	CAPACITY (GAL.)	REMARKS
01	STORAGE	B–200	53	

PUMP SCHEDULE

UNIT NO.	LOCATION	SERVICE	TYPE	AURORA MODEL NO.	FLOWRATE (GPM)	TOTAL HEAD (FT. OF WATER)	MOTOR SIZE (HP)	MOTOR SPEED (RPM)	SUCTION SIZE (IN.)	DISCHARGE SIZE (IN.)	TRIPLE DUTY VALVE	ELECTRICAL					REMARKS
												VOLTS	PHASE	STARTER BY	STARTER TYPE	DISCONNECT BY	
CHWP–01	STORAGE	CHW	INLINE	380–4x4x12	550	130	30	1,760	4	4	YES	480	3	DIV. 40	VFD	DIV. 26	(1)
CHWP–02	STORAGE	CHW	INLINE	380–4x4x12	550	130	30	1,760	4	4	YES	480	3	DIV. 40	VFD	DIV. 26	(1)

(1) 30% PROPYLENE GLYCOL.

AIR SEPARATOR SCHEDULE

UNIT NO. AS–	LOCATION	SERVICE	BELL & GOSSETT MODEL NO.	WATER FLOW (GPM)	CONNECTION SIZE (IN.)	STRAINER	REMARKS
01	STORAGE	CHW	ROLAIRTROL RL–6	600	600	NO	

WALL LOUVER SCHEDULE

UNIT NO. L–	LOCATION	SERVICE	GREENHECK MODEL NO.	AIRFLOW (CFM)	WIDTH (IN)	HEIGHT (IN)	BLADE DEPTH (IN)	MAX. APD (IN WG)	MAX. FACE VEL. (FPM)	FREE AREA (SQ. FT.)	SCREEN		TOP ELEVATION	REMARKS
											TYPE	LOCATION		
01	FIRST FLOOR NORTH	FIRST FLOOR NORTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)
02	FIRST FLOOR NORTH	FIRST FLOOR NORTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)
03	FIRST FLOOR NORTH	FIRST FLOOR NORTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)
04	FIRST FLOOR NORTH	FIRST FLOOR NORTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)
05	FIRST FLOOR NORTH	FIRST FLOOR NORTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)
06	MEZZANINE	MEZZANINE	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)
07	MEZZANINE	MEZZANINE	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)
08	MEZZANINE	MEZZANINE	ESD–635	–	60	60	6	–	–	15.02	NONE	–	–	(1)(2)
09	MEZZANINE	MEZZANINE	ESD–635	–	60	60	6	–	–	15.02	NONE	–	–	(1)(2)
10	MEZZANINE	MEZZANINE	ESD–635	–	60	60	6	–	–	15.02	NONE	–	–	(1)(2)
11	FIRST FLOOR SOUTH	FIRST FLOOR SOUTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)(3)
12	FIRST FLOOR SOUTH	FIRST FLOOR SOUTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)(3)
13	FIRST FLOOR SOUTH	FIRST FLOOR SOUTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)(3)
14	FIRST FLOOR SOUTH	FIRST FLOOR SOUTH	ESD–635	–	48	84	6	–	–	17.76	NONE	–	–	(1)(2)(3)

(1) NEW LOUVER SHALL BE INSTALLED IN EXISTING LOCATION.

(2) CONTRACTOR TO FIELD VERIFY ALL LOUVER SIZES AND LOCATIONS.

(3) UNIT SHALL BE PART OF BID ALTERNATIVE NO. 1.

UNIT SOUND POWER SCHEDULE

UNIT	TYPE	OCTAVE BAND (HZ)								REMARKS
		63	125	250	500	1000	2000	4000	8000	
FCU–01	RADIATED	89	86	92	90	87	83	80	79	
FCU–02	RADIATED	89	86	92	90	87	83	80	79	
FCU–03	RADIATED	91	87	92	89	87	83	80	79	
FCU–04	RADIATED	91	87	92	89	87	83	80	79	
FCU–05	RADIATED	85	84	92	80	79	82	70	57	
FCU–06	RADIATED	85	84	92	80	79	82	70	57	
ACC–01	RADIATED	99	99	100	103	99	94	90	87	

DESIGN CONDITIONS

APPLICABLE BUILDING CODE: 2009 INTERNATIONAL BUILDING CODE		SUMMER EXTERIOR: 97°F DB / 75°F WB WINTER EXTERIOR: 17°F DB		
OCCUPANCY TYPE	VENTILATION	SUMMER INTERIOR (DB/WB)	WINTER INTERIOR (DB)	REMARKS
FIRST FLOOR	COOLING	80/67	80/67	
MEZZANINE	COOLING	80/67	80/67	

NO.	REVISIONS	DATE:
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HVAC SCHEDULES

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

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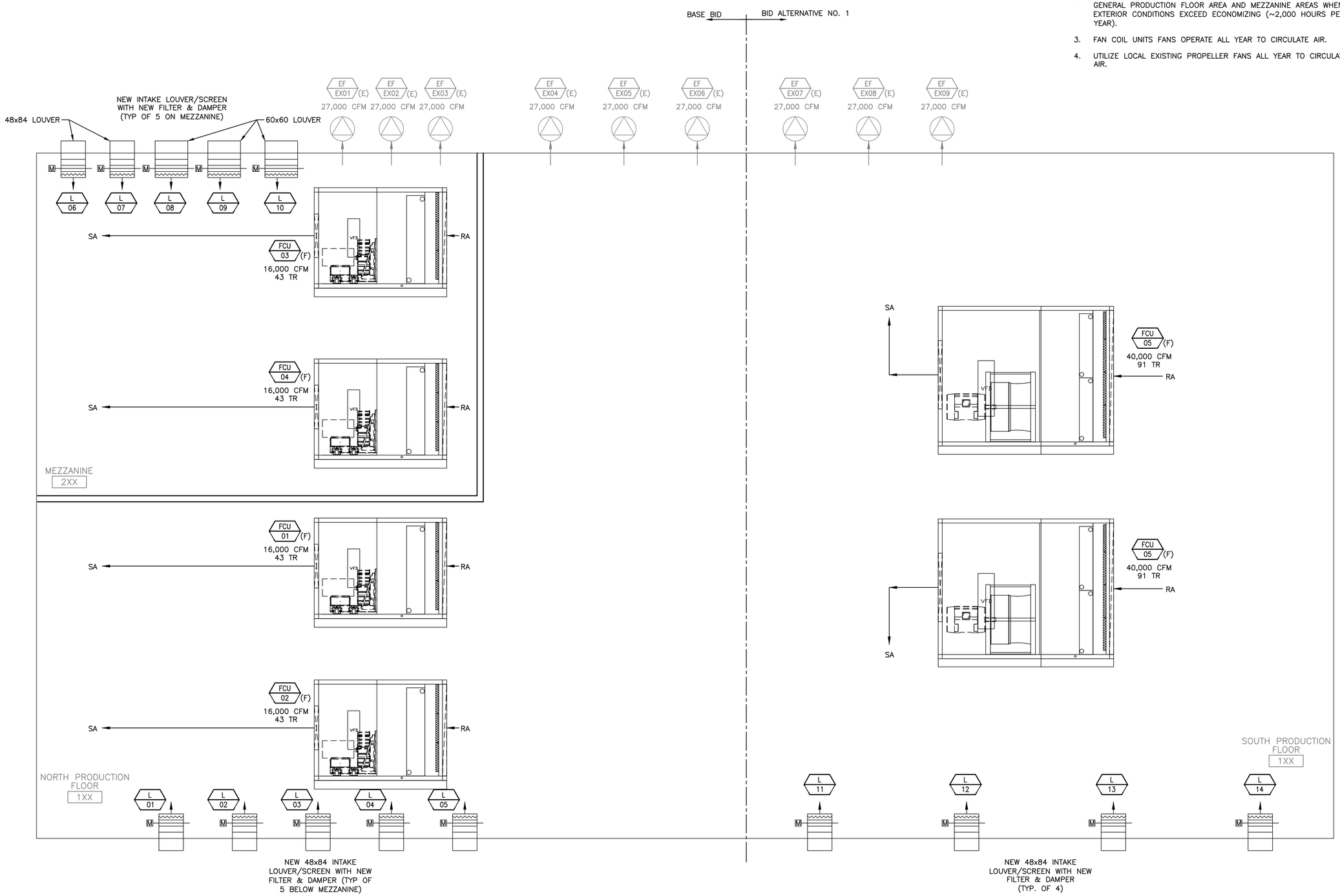
GENERAL SYSTEM INFORMATION:

1. UTILIZE EXISTING VENTILATION SYSTEM (243,000 CFM, 6.4 ACH) WHEN EXTERIOR CONDITIONS ARE ACCEPTABLE (~6,500 HOURS PER YEAR). ADD NEW FILTERS AND DAMPERS ON INTAKES (243,000 CFM). CLOSE DAMPERS AND SHUT FANS OFF WHEN EXTERIOR CONDITIONS ARE NOT ACCEPTABLE.
2. PROVIDE FAN COIL UNITS COOLING BY AIR COOLED CHILLER FOR GENERAL PRODUCTION FLOOR AREA AND MEZZANINE AREAS WHEN EXTERIOR CONDITIONS EXCEED ECONOMIZING (~2,000 HOURS PER YEAR).
3. FAN COIL UNITS FANS OPERATE ALL YEAR TO CIRCULATE AIR.
4. UTILIZE LOCAL EXISTING PROPELLER FANS ALL YEAR TO CIRCULATE AIR.

NOT FOR CONSTRUCTION



HVAC PROCESS FLOW DIAGRAM – FAN COIL UNITS

NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC PROCESS FLOW DIAGRAM

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007
PROJECT MGR. NICHOLAS E. SALES

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SHEET 22 H7.1

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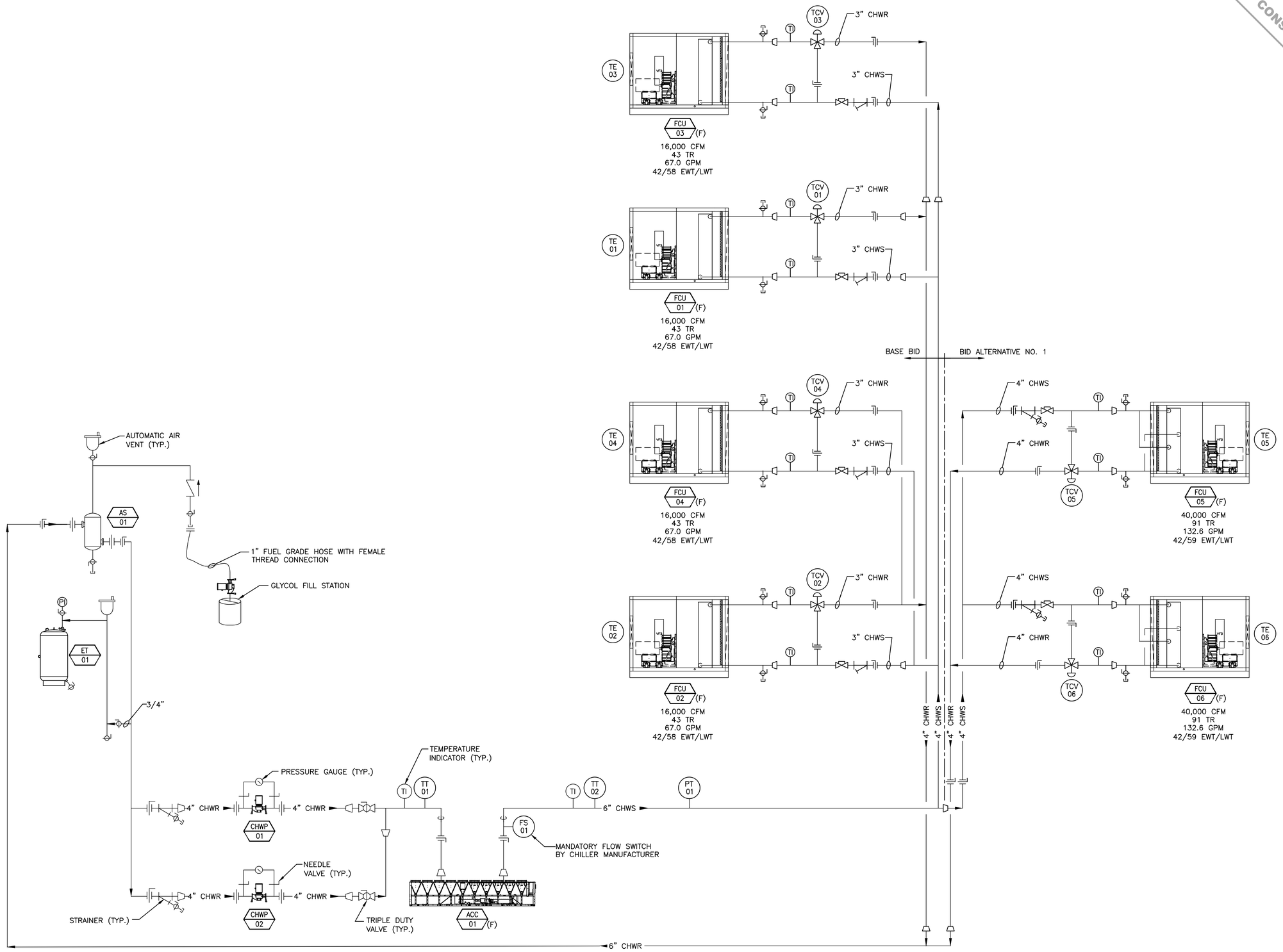

HVAC PROCESS FLOW DIAGRAM – 2
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
PROCESS FLOW DIAGRAM

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007
PROJECT MGR. NICHOLAS E. SALES

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SHEET 23
H7.2

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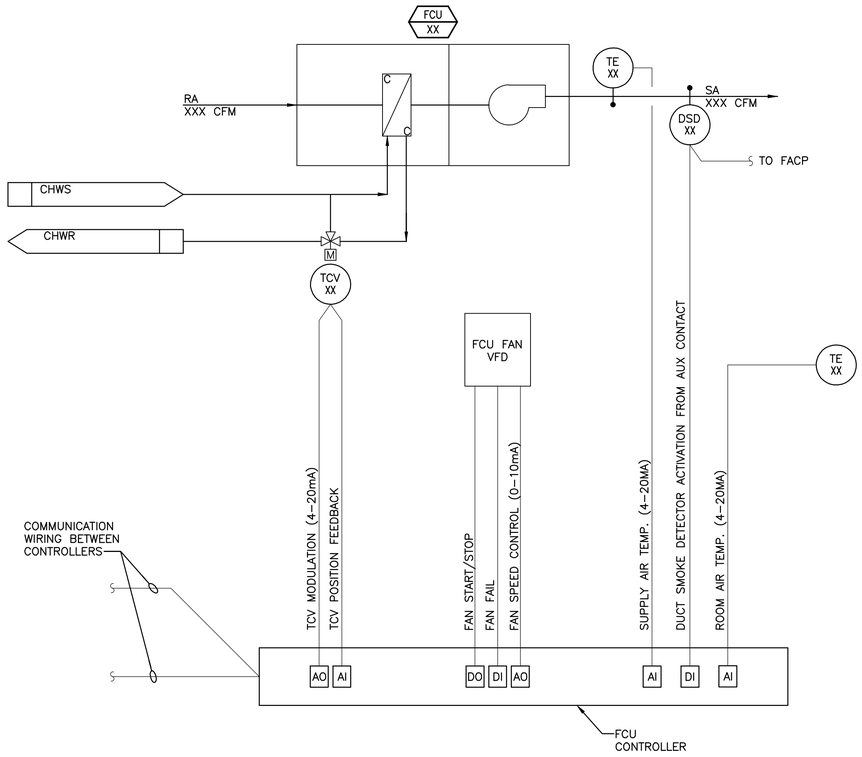
NOT FOR CONSTRUCTION

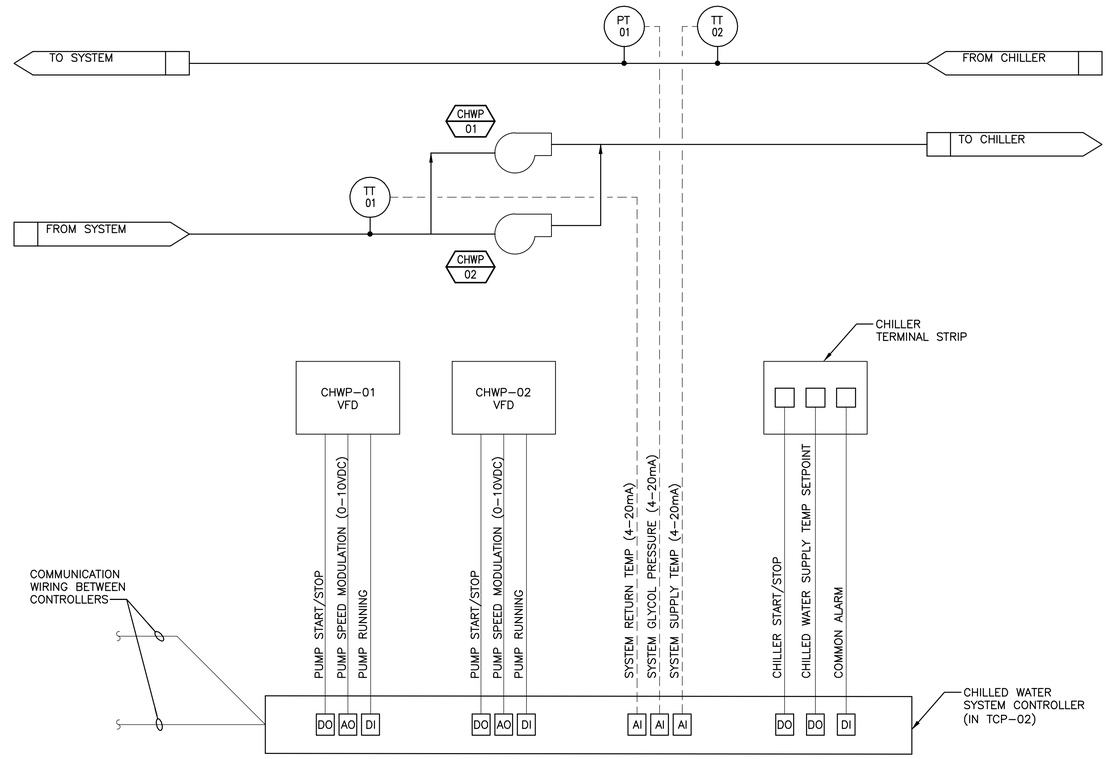


TYPICAL FCU CONTROL SCHEMATIC

NO SCALE

FCU 01–04 – BASE BID (IN TCP–01)

FCU 05, 06 – BID ALTERNATE #1 (IN TCP–03)



CHILLED WATER CONTROL SCHEMATIC

NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
CONTROLS DIAGRAMS - 1

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

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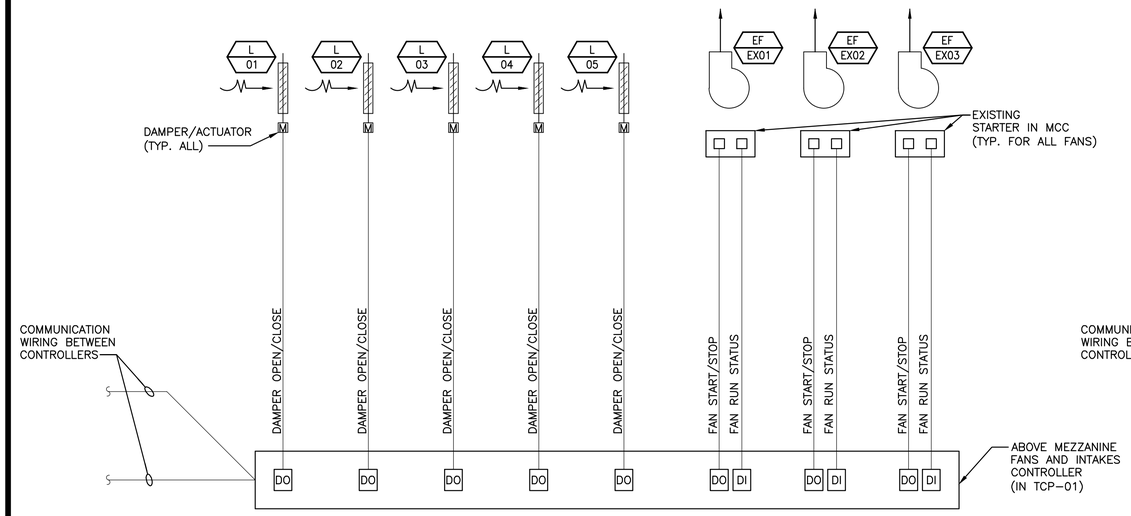
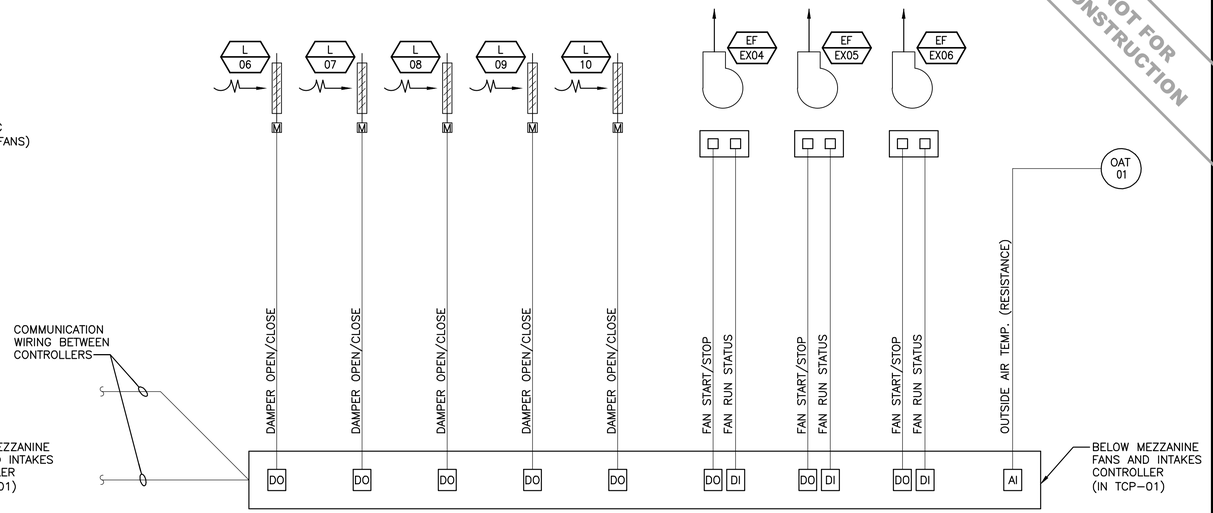
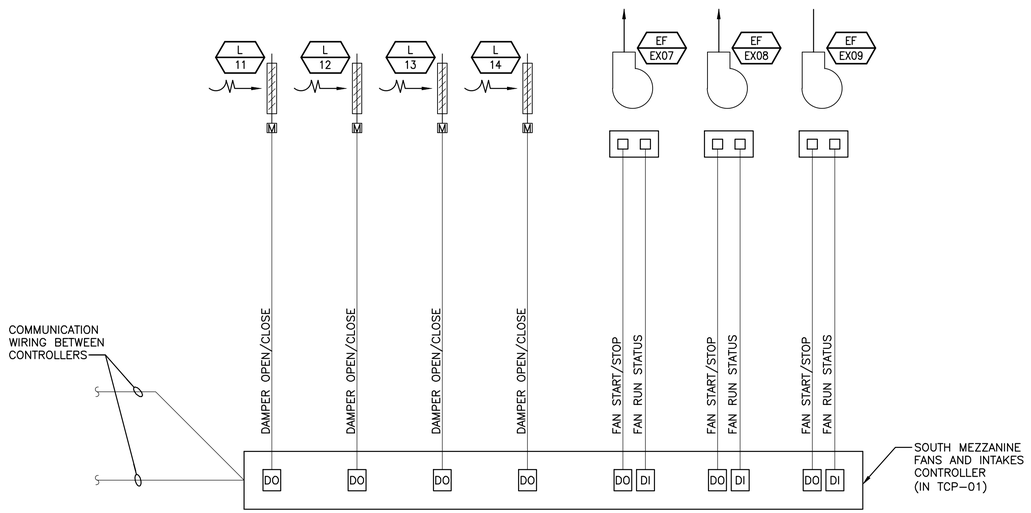
SHEET 24 H8.1



ABOVE MEZZANINE EXHAUST FAN/LOUVER
CONTROL SCHEMATIC
NO SCALE



BELOW MEZZANINE EXHAUST FAN/LOUVER
CONTROL SCHEMATIC
NO SCALE



FIRST FLOOR SOUTH EXHAUST
FAN/LOUVER CONTROL SCHEMATIC
(BID ALTERNATE NO. 1)
NO SCALE

NOT FOR CONSTRUCTION

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

HVAC
CONTROLS DIAGRAMS - 2

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

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ELECTRICAL ABBREVIATIONS

A	AMPERE
A/V	AUDIO VISUAL
AF	AMPERE FRAME
AFM	AIR FLOW METER
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CR	CARD READER
CS	CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DISC	DISCONNECT
DM	DENSITY METER
DO	DISSOLVED OXYGEN DEVICE
DP	DOOR POSITION SWITCH
DT	DIFFERENTIAL PRESSURE TRANSDUCER
E	EMERGENCY
EMS	EMERGENCY STOP
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE DEVICE
ES	ELECTRIC STRIKE
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FIT	FLOW INDICATING TRANSMITTER
FLA	FULL LOAD AMPERES
FLS	FLOW SWITCH
FM	FLOW METER
FPCP	FIRE PUMP CONTROL PANEL
FS	FLOAT SWITCH
FT	FEET
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GFI	GROUND FAULT INTERRUPTER
GFM	GAS FLOW METER
GFP	GROUND FAULT PROTECTION (EQUIPMENT)
GRD	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND OFF AUTO
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
J	JUNCTION BOX
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
LIT	LEVEL INDICATING TRANSMITTER
LP	LIGHTING PANEL
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION
MC	METAL CLAD
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MILS
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANELBOARD
MFM	MAGNETIC FLOW METER
ML	MAGNETIC LOCK
MLO	MAIN LUGS ONLY
MO	MOTOR OPERATED
MS	MOTION SENSOR
MSB	MAIN SWITCHBOARD
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE

ELECTRICAL ABBREVIATIONS

N/A	NOT APPLICABLE
NAC	NOTIFICATION APPLIANCE CIRCUIT PANEL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NM	NONMETALLIC
NO	NORMALLY OPEN
NTS	NOT TO SCALE
ø	PHASE
OCB	OIL CIRCUIT BREAKER
OL	OVERLOAD
OS	OCCUPANCY SENSOR
OT	OVERTEMP
P	POLE
PB	PULL BOX
PC	PULL CORD
PH	PH SENSOR
PNL	PANELBOARD
PR	PAIR
PRI	PRIMARY
PS	PRESSING SWITCH
PT	PRESSURE TRANSDUCER
PTF	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
RE	REQUEST TO EXIT
RTS	REMOTE TEST SWITCH
RVSS	REDUCED VOLTAGE SOLID STATE
SC	SHORT CIRCUIT
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SCC	SUPERVISORY CONTROL CENTER
SE	SERVICE ENTRANCE
SEC	SECONDARY
SH	SHIELDED
SPD	SURGE PROTECTION DEVICE
SPT	SUBMERSIBLE PRESSURE TRANSDUCER
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
TEL	TELEPHONE
T	THERMOSTAT
TS2W	TWO SPEED TWO WINDING
TYP	TYPICAL
UFM	ULTRASONIC FLOW METER
UG	UNDERGROUND
ULT	ULTRASONIC LEVEL TRANSMITTER
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE OR WATT
WP	WEATHERPROOF
WT	SCALE
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

ELECTRICAL SYMBOLS

LIGHTING

- FIXTURE SYMBOL (TYPICAL) A=INDICATES FIXTURE TYPE 2=INDICATES CIRCUIT NUMBER b=INDICATES SWITCHING SOLID CIRCLE INDICATES ALWAYS ON
- INCANDESCENT, LED, HID, SURFACE OR PENDANT
- INCANDESCENT, LED, HID, WALL
- 1X4 FLUORESCENT, SURFACE OR PENDANT
- 1X8 FLUORESCENT, SURFACE OR PENDANT
- FLUORESCENT, WALL
- 1X4 FLUORESCENT, RECESSED
- 2X2 FLUORESCENT, RECESSED
- 2X4 FLUORESCENT, RECESSED
- CAN, FLUORESCENT, LED, OR HID
- EXIT, SURFACE, PENDANT OR RECESSED
- EXIT, WALL
- EMERGENCY LIGHTING

SWITCHES

- SINGLE POLE
- TWO POLE
- THREE WAY
- FOUR WAY
- KEYED
- DIMMER
- MANUAL MOTOR SWITCH (3 PHASE)
- WEATHER PROOF
- SWITCH WITH PILOT LIGHT
- LC — LIGHTING CONTROL STATION
- RJ3 — LOCKOUT STOP SWITCH
- DP — DOOR POSITION SWITCH
- PC — PHOTOCELL

POWER SYMBOLS

- CIRCUIT NUMBER (TYPICAL); OTHERWISE SHOWN PANEL DESIGNATION (TYP.)
- 2(X) — DUPLEX, 125 VOLT, WP INDICATES WEATHERPROOF
- DUPLEX, 125 VOLT, ABOVE FURNITURE
- DOUBLE DUPLEX, 125 VOLT, ABOVE FURNITURE
- DOUBLE DUPLEX, 125 VOLT
- EWC — SINGLE CONVENIENCE, 125 VOLT FOR ELECTRIC WATER COOLER
- EXPLOSION–PROOF, ABOVE FURNITURE
- EXPLOSION–PROOF
- FIXED EQUIPMENT CONNECTION
- POWER OUTLET, VOLTAGE & AMPERAGE AS INDICATED
- AUTOMATIC TRANSFER SWITCH (ONE–LINE DIAGRAM)
- CIRCUIT BREAKER (ONE–LINE DIAGRAM)
- M — METER (ONE–LINE DIAGRAM)
- PANELBOARD

INSTRUMENTATION EQUIPMENT

- AE — ANALYSIS ELEMENT
- AIT* — ANALYSIS INDICATING TRANSMITTER, *: DO=DISSOLVED OXYGEN, PH=PH, TRB=TURBIDITY, TSS=TOTAL SUSPENDED SOLIDS, GD=GAS DETECTOR, CA=CHLORINE ANALYZER, OP=OXYGEN PURITY, LEL=LOWER EXPLOSIVE LIMIT, PR=PROXIMITY, MST=MOISTURE
- CS 1,2 — CONTROL SWITCH; 1=DEVICE TYPE, 2=(SEE MCC SCHEDULE)
- DE — DENSITY ELEMENT
- DIT — DENSITY INDICATING TRANSMITTER
- FE — FLOW ELEMENT
- FIT* — FLOW INDICATING TRANSMITTER, *: M=MAGNETIC, TM= THERMAL MASS DP=DIFFERENTIAL PRESSURE, U=ULTRASONIC
- FS* — FLOW SWITCH *: P=PADDLE, T=THERMAL, C=CAPACITANCE, A=AIR FLOW
- HS* — HAND SWITCH *: SS=SAFETY SWITCH
- IE OR EE — POWER ELEMENT (CURRENT XFMR, POTENTIAL XFMR)
- IS — CURRENT SWITCH
- JIT — POWER INDICATING TRANSMITTER
- KS — TIME SWITCH
- LE — LEVEL ELEMENT
- LIT* — LEVEL INDICATING TRANSMITTER, *: S=SUBMERSIBLE, U=ULTRASONIC, R=RADAR, TL=TANK LEVEL/RING PRESSURE TYPE
- LS* — LEVEL SWITCH, *: C=CONDUCTANCE, F=BALL FLOAT, V=VIBRATING FORK, B=BUILDING FLOODING
- PDIT — DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
- PE — PRESSURE ELEMENT
- PIT — PRESSURE INDICATING TRANSMITTER
- PS — PRESSURE SWITCH
- SS — SPEED SWITCH
- TC — TEMPERATURE CONTROLLER
- TE* — TEMPERATURE ELEMENT, *: R=RTD, T=THERMOCOUPLE
- TIT — TEMPERATURE INDICATING TRANSMITTER
- TK — TEMPERATURE CONTROL STATION
- TS — TEMPERATURE SWITCH
- TT — TEMPERATURE TRANSMITTER
- VE — VIBRATION ELEMENT
- VIT — VIBRATION INDICATING TRANSMITTER
- WE — WEIGHT ELEMENT
- WIT — WEIGHT INDICATING TRANSMITTER
- WS — TORQUE SWITCH
- WT — WEIGHT TRANSMITTER (SCALE)
- YS — PRESENCE/ABSENCE DETECTOR
- ZS* — POSITION SWITCH, *: D=DOOR, L=LIMIT, P=PROXIMITY
- SOLENOID VALVE
- GD H — GAS DETECTION SYSTEM HORN; WALL MOUNT
- GAS DETECTION SYSTEM STROBE; WALL MOUNT

EQUIPMENT AND WIRING

- GROUND ROD CONNECTION (ONE–LINE DIAGRAM)
- TRANSFORMER
- DISCONNECT, F=FUSED, B=CIRCUIT BREAKER, BLANK=NON–FUSED
- MOTOR STARTER MAGNETIC
- CIRCUIT BREAKER COMBINATION STARTER
- JUNCTION BOX
- T — LINE VOLTAGE THERMOSTAT
- T — LINE VOLTAGE THERMOSTAT W/REMOTE BULB
- P–01–01 — 480V LOAD, REFER TO MCC SCHEDULE FOR EQUIPMENT NUMBER
- VFD — VARIABLE FREQUENCY DRIVE

SITE SYMBOLS

- E — UNDERGROUND ELECTRIC
- OH — OVERHEAD ELECTRIC
- C — CABLE TELEVISION SERVICE
- T — TELEPHONE SERVICE
- FO — FIBER OPTIC CABLE
- UTILITY POLE

TECHNOLOGY SYMBOLS

- (*) — DATA JACK
- (*) — PHONE JACK
- (*P *D) — POTS ANALOG PHONE AND DATA JACKS * = # OF JACKS
- VOIP — WALL MOUNT VOIP PHONE JACK 54" AFF
- WALL MOUNT POTS ANALOG PHONE JACK 54" AFF
- SCADA NETWORK JACK
- DATA RACK
- COAX CABLE
- POWER POLE
- PA H — PA SYSTEM HORN SPEAKER; 10'–0" AFF
- PA S — PA SYSTEM SPEAKER
- K — KEY PAD
- GBD — GLASS BREAK DETECTOR
- MS — MOTION SENSOR
- P — PUSH BUTTON
- ES — ELECTRIC STRIKE
- ML — MAGNETIC LOCK
- I — INTERCOM STATION
- DS — DOOR SWITCH
- OS ## — OCCUPANCY SENSOR; SEE SCHEDULE FOR SENSOR TYPE
- YE — CARD READER
- RVC — REMOTE VOLUME CONTROL
- * # — PA SPEAKER; CEILING MOUNT * = SPEAKER TYPE # = WATTAGE TAP
- FIX — FIXED SECURITY CAMERA
- PTZ — PAN, TILT, ZOOM SECURITY CAMERA

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NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

ELECTRICAL SYMBOLS AND ABBREVIATIONS

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

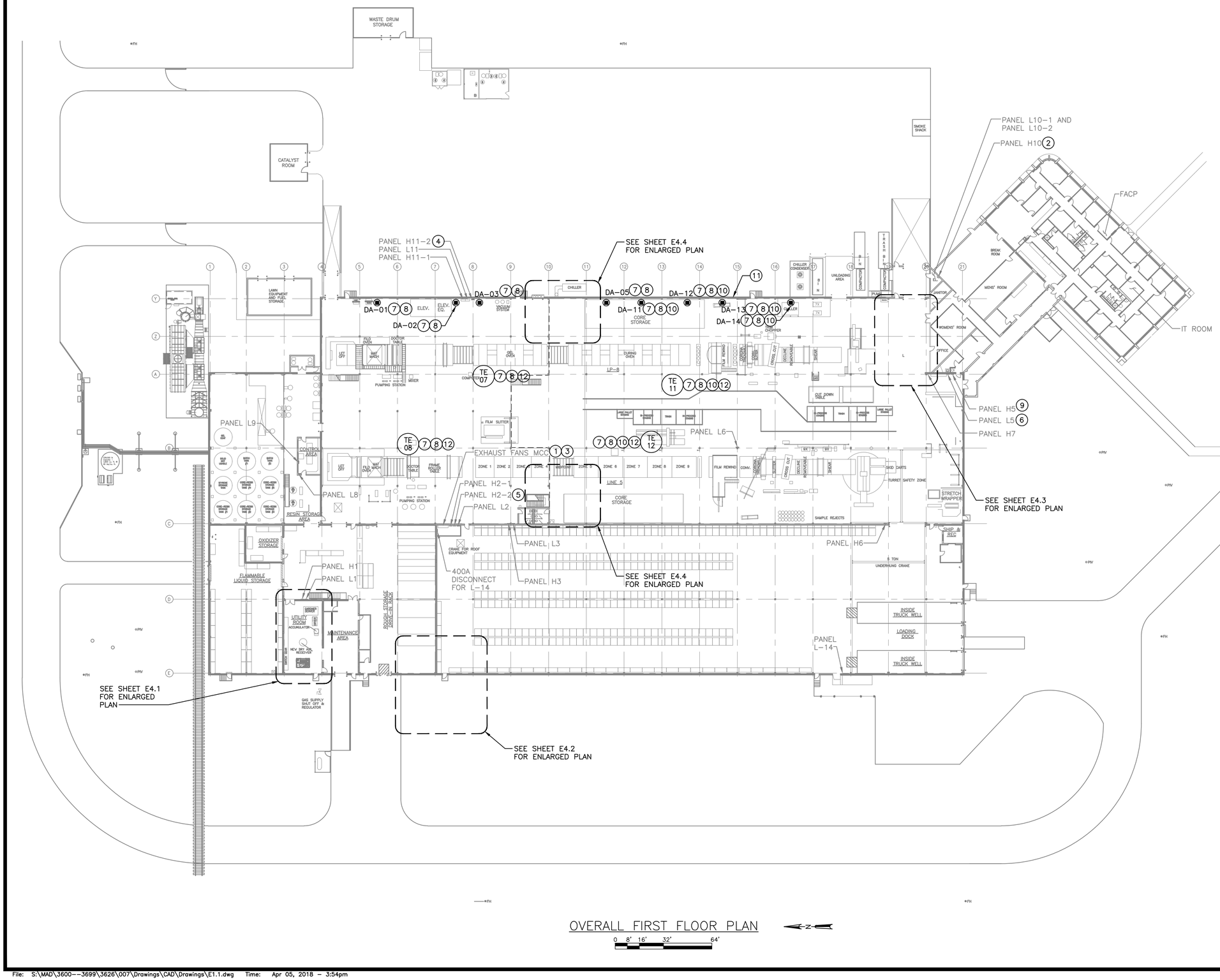
JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 26 E0.1

NOT FOR CONSTRUCTION



OVERALL FIRST FLOOR PLAN

0 8' 16' 32' 64'

GENERAL NOTES:

1. PROVIDE UPDATED, TYPED PANEL SCHEDULE IN EACH PANELBOARD WHERE WORK IS DONE AS PART OF THIS PROJECT.

KEY NOTES:

(1) PROVIDE TERMINAL BLOCKS AND AUXILIARY CONTACTS IN EF-EX01 THROUGH EF-EX09 STARTER BUCKETS (NINE TOTAL) TO ACCEPT REMOTE START/STOP SIGNAL, AND TRANSMIT RUN STATUSES. PROVIDE WIRING AS REQUIRED. AUXILIARY CONTACTS FOR EF-EX07, EF-EX08, EF-EX09 (3 TOTAL) SHALL BE PROVIDED AS PART OF BID ALTERNATIVE NO. 1.

(2) REMOVE TWO EXISTING THREE-POLE CIRCUIT BREAKERS FROM PANEL H10, CIRCUITS 2, 4, 6, AND 8, 10, 12. PROVIDE 2~125A, THREE-POLE CIRCUIT BREAKERS IN EXISTING SPACE WITHIN PANEL H10 FOR 480V POWER TO FCU-05 AND FCU-06, LOCATED WHERE SHOWN ON DRAWING E4.3. PANEL H10 IS A SIEMENS S2 SERIES, 277/480V, 400A, 3-PHASE, 4-WIRE PANELBOARD. CATALOG NO. S2E4ML400ATS, S.O. NO. 79-59308-A00. MANUFACTURED 04/02/1997, LOCATION D. WORK AND EQUIPMENT SHALL BE PROVIDED AS PART OF BID ALTERNATIVE NO. 1.

(3) EXHAUST FANS MCC IS AN ALLEN-BRADLEY CENTERLINE 2100 SERIES, 480V, 600A, 3-PHASE, 3-WIRE MCC. CATALOG NO. SN W 912606/1.

(4) PROVIDE A 40A, THREE-POLE CIRCUIT BREAKER IN EXISTING SPACE WITHIN PANEL H11-2 FOR 480V POWER TO FCU-01, LOCATED WHERE SHOWN ON DRAWING E4.4. PANEL H11-2 IS A GE A-SERIES II, 277/480V, 225A, 3-PHASE, 4-WIRE PANELBOARD. SHOP ORDER 162ME15199. ITEM NO. 57A. C# C846192.

(5) PROVIDE A 40A, THREE-POLE CIRCUIT BREAKER AND 2~80A, THREE-POLE CIRCUIT BREAKERS IN EXISTING SPACE WITHIN PANEL H2-2 FOR 480V POWER TO FCU-02, LOCATED WHERE SHOWN ON DRAWING E4.4, AND CHWP-01 AND CHWP-02, LOCATED WHERE SHOWN ON DRAWING E4.2.

(6) PROVIDE 2~20A, SINGLE-POLE CIRCUIT BREAKERS IN EXISTING SPACE WITHIN PANEL L5 FOR 120V POWER TO RECEPTACLES AND TCP-02 LOCATED WHERE SHOWN ON DRAWING E4.3. PANEL L5 IS A SIEMENS S1 SERIES, 120/208V, 3-PHASE, 4-WIRE PANELBOARD. CATALOG NO. S1C42E4125ABS, S.O. NO. 79-30550-A00, ITEM NO. A01. MANUFACTURED 03/18/1992, LOCATION D. WORK AND EQUIPMENT SHALL BE PROVIDED AS PART OF BID ALTERNATIVE NO. 1.

(7) REFER TO THE TEMPERATURE CONTROLS SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH THIS DEVICE.

(8) EQUIPMENT PROVIDED AS SPECIFIED IN DIVISION 23 AND WIRED BY DIVISION 26. COORDINATE LOCATION OF EQUIPMENT WITH DIVISION 23.

(9) PROVIDE 20A, SINGLE-POLE CIRCUIT BREAKER IN EXISTING SPACE WITHIN PANEL H5 FOR 277V POWER TO LIGHT FIXTURES LOCATED WHERE SHOWN ON DRAWING E4.3. PANEL H5 IS A SIEMENS 277/480V, 100A, 3-PHASE, 4-WIRE PANELBOARD. CAT. NO. S3E42BC100ATS. S.O. 79-30550-B00. MANUFACTURED 03/18/1992, LOCATION D. WORK AND EQUIPMENT SHALL BE PROVIDED AS PART OF BID ALTERNATIVE NO. 1.

(10) DEVICE PROVIDED AS PART OF BID ALTERNATIVE NO. 1.

(11) ALTER AND EXTEND CONDUIT AND WIRING AND RELOCATED PROP FAN RECEPTACLE IN FRONT OF LOUVER AS REQUIRED. COORDINATE FINAL LOCATION OF RECEPTACLE WITH OWNER.

(12) PROVIDE SINGLE GANG BOX FOR DEVICE.

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

ELECTRICAL
OVERALL FIRST FLOOR PLAN

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007
PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 27 **E1.1**

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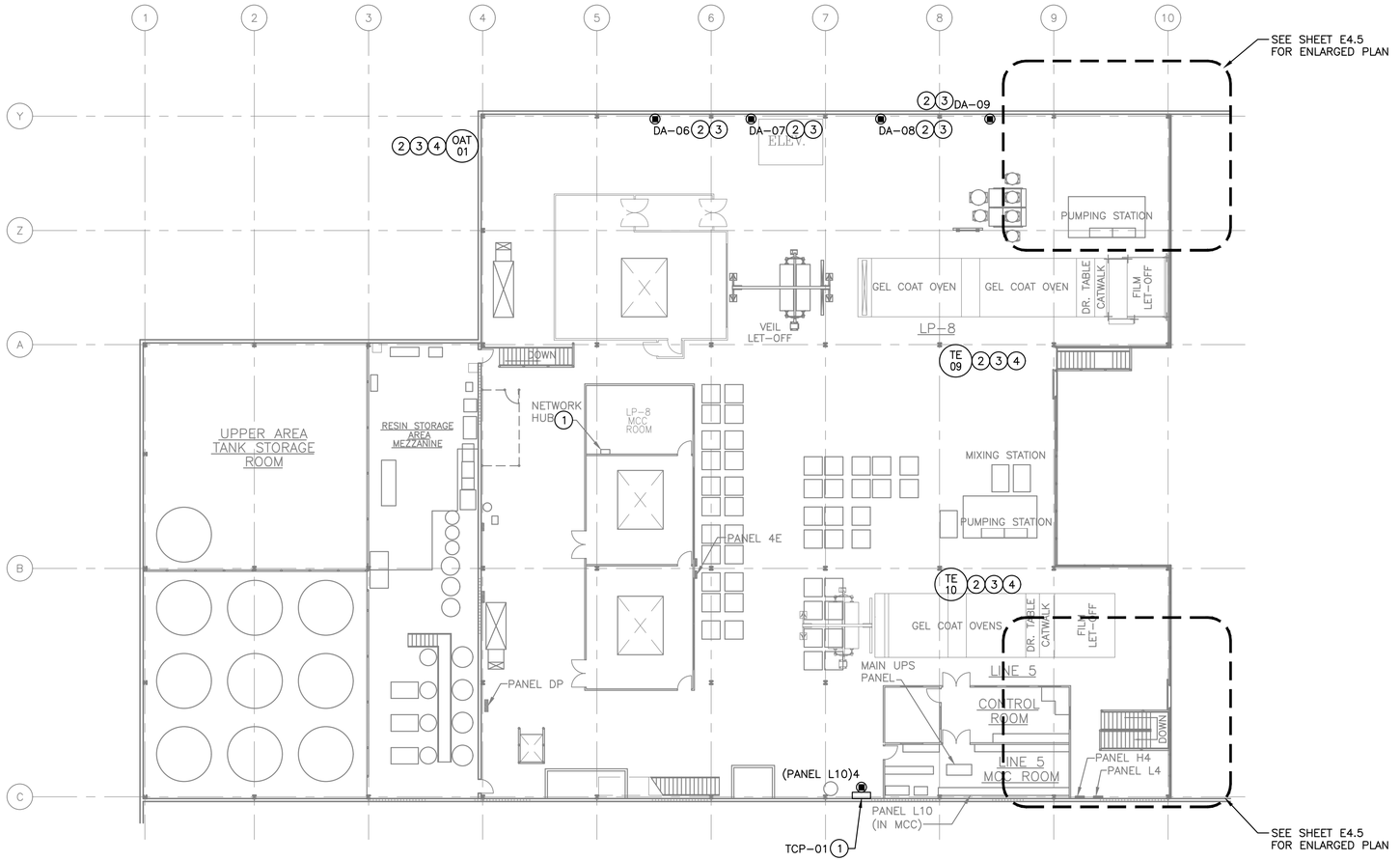
NOT FOR CONSTRUCTION

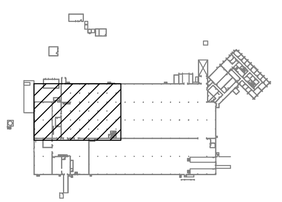
KEY NOTES:

1. PROVIDE CAT6 CABLE IN 3/4" CONDUIT FROM TCP–01 TO NETWORK HUB. COORDINATE TERMINATION LOCATION WITH OWNER.
2. REFER TO THE TEMPERATURE CONTROLS SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH THIS DEVICE.
3. EQUIPMENT PROVIDED AS SPECIFIED IN DIVISION 23 AND WIRED BY DIVISION 26. COORDINATE LOCATION OF EQUIPMENT WITH DIVISION 23.
4. PROVIDE SINGLE GANG BOX FOR DEVICE.



MEZZANINE PLAN

0 4' 8' 16' 32'



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

ELECTRICAL
MEZZANINE PLAN

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007
PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 28 E1.2

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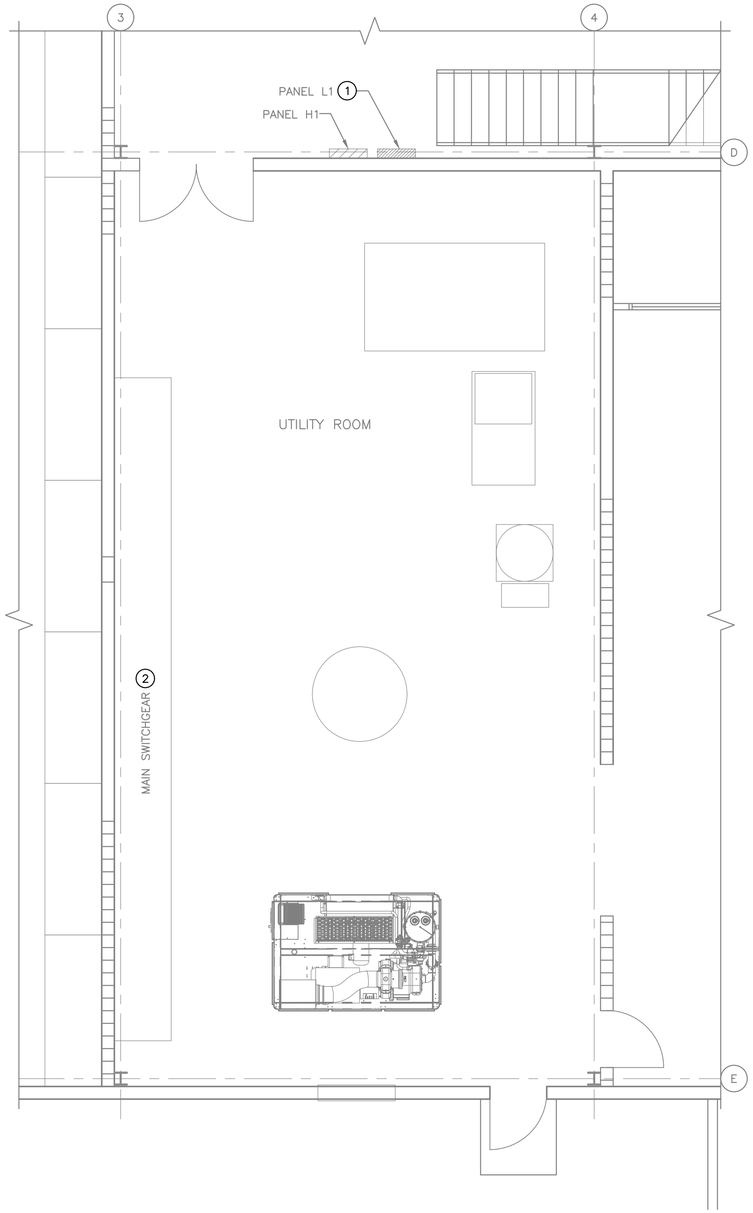


PARTIAL FIRST FLOOR PLAN

0 1' 2' 4' 8'

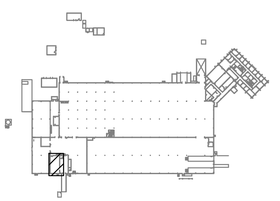
GENERAL NOTES:

1. PROVIDE UPDATED, TYPED PANEL SCHEDULE IN EACH PANELBOARD WHERE WORK IS DONE AS PART OF THIS PROJECT.

KEY NOTES:

(1) PROVIDE 4~20A, SINGLE-POLE CIRCUIT BREAKERS IN EXISTING SPACE WITHIN PANEL L1, FOR 120V POWER TO THE GLYCOL FILL STATION, RECEPTACLES, TCP-02, AND LIGHT FIXTURES AT ACC-01, LOCATED WHERE SHOWN ON DRAWING E4.2. PANEL L1 IS A SIEMENS ITE SERIES, SERIES 8, 120/208V, 100A, 3-PHASE, 4-WIRE PANELBOARD. CATALOG NO. 17-05541-F003, MANUFACTURED 06-1990, LOCATION S.

(2) ACC-01 SHALL BE POWERED FROM MAIN SWITCHGEAR. REFER TO DRAWING E5.1 FOR ADDITIONAL INFORMATION.



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

ELECTRICAL
ENLARGED UTILITY ROOM PLAN

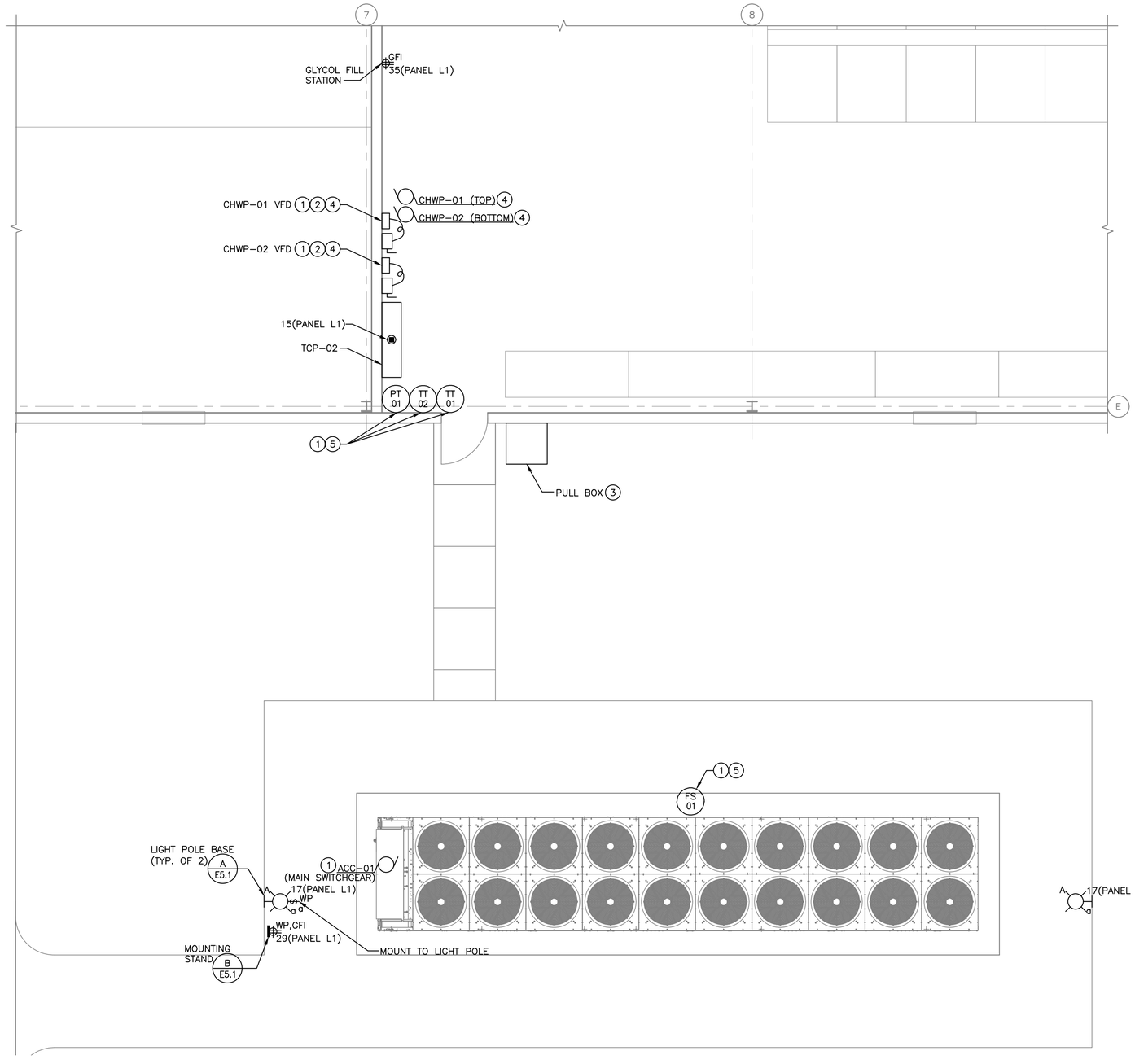
PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 29 E4.1



ENLARGED PLAN

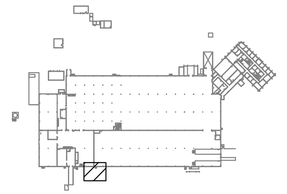
0 1' 2' 4' 8'

GENERAL NOTES:

1. REFER TO DRAWING E1.1 FOR PANEL L1 LOCATION.

KEY NOTES:

1. REFER TO TEMPERATURE CONTROLS SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH THIS DEVICE.
2. VFD FURNISHED AS SPECIFIED IN DIVISION 40 AND INSTALLED AND WIRED BY DIVISION 26.
3. PROVIDE A NEMA 4X PULL BOX, SIZED AS REQUIRED, FOR FEED TO ACC-01.
4. REFER TO THE FEEDER CONDUIT AND WIRE SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH EQUIPMENT.
5. EQUIPMENT PROVIDED AS SPECIFIED IN DIVISION 23 AND WIRED BY DIVISION 26. COORDINATE LOCATION OF EQUIPMENT WITH DIVISION 23.



KEY PLAN
NO SCALE

NOT FOR CONSTRUCTION

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/20/18

ELECTRICAL
ENLARGED PLAN - 1

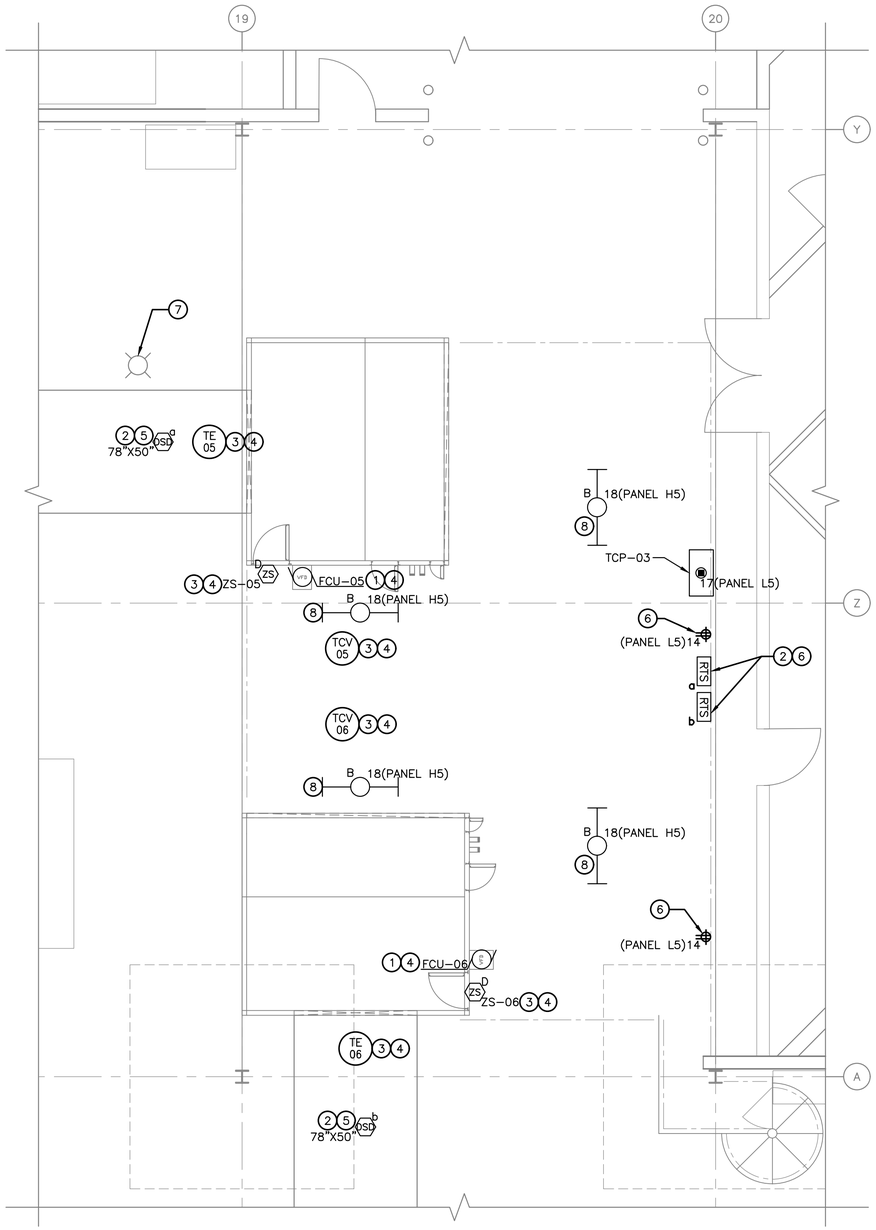
PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
30
E4.2



ENLARGED PLAN

0 1' 2' 4' 8'

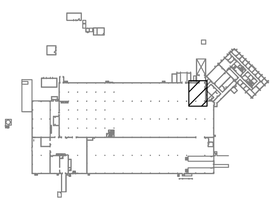
NOT FOR CONSTRUCTION

GENERAL NOTES:

1. ALL WORK AND EQUIPMENT SHOWN ON THIS DRAWING SHALL BE PROVIDED AS PART OF BID ALTERNATIVE NO. 1.
2. REFER TO DRAWING E1.1 FOR PANEL L5 AND PANEL H5 LOCATIONS.

KEY NOTES:

1. REFER TO THE FEEDER CONDUIT AND WIRE SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH EQUIPMENT.
2. PROVIDE CONDUIT AND WIRING AS REQUIRED BETWEEN DUCT SMOKE DETECTOR AND REMOTE TEST SWITCH.
3. EQUIPMENT PROVIDED AS SPECIFIED IN DIVISION 23 AND WIRED BY DIVISION 26. COORDINATE LOCATION OF EQUIPMENT WITH DIVISION 23.
4. REFER TO THE TEMPERATURE CONTROLS SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH THIS DEVICE.
5. DUCT SMOKE DETECTOR SHALL BE INSTALLED IN VERTICAL FACE OF DUCT. PROVIDE DETECTOR SAMPLING TUBE SUPPORT HARDWARE AS REQUIRED. PROVIDE ADDRESSABLE RELAY MODULES AS REQUIRED TO INTERFACE WITH ASSOCIATED FAN COIL UNIT. PROVIDE CONDUIT AND WIRING FROM DUCT SMOKE DETECTOR TO TCP-03 AND FROM DUCT SMOKE DETECTOR TO FIRE ALARM CONTROL PANEL LOCATED WHERE SHOWN ON DRAWING E1.1. COORDINATE TERMINATION LOCATION AT FIRE ALARM CONTROL PANEL WITH OWNER.
6. MOUNT DEVICE TO HANDRAIL ON PLATFORM (EL. = 120.00) WITH GALVANIZED STEEL MOUNTING PLATE PER DETAIL C/E5.1.
7. RELOCATE EXISTING LIGHT FIXTURE AS REQUIRED TO ACCOMMODATE NEW MECHANICAL EQUIPMENT. ALTER AND EXTEND CONDUIT AND WIRING AS REQUIRED TO MAINTAIN EXISTING FUNCTIONALITY.
8. SUFACE-MOUNT LIGHT FIXTURE TO UNDERSIDE OF PLATFORM.



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

ELECTRICAL
ENLARGED PLAN - 2

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO.
3626.007

PROJECT MGR.
NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET
31
E4.3

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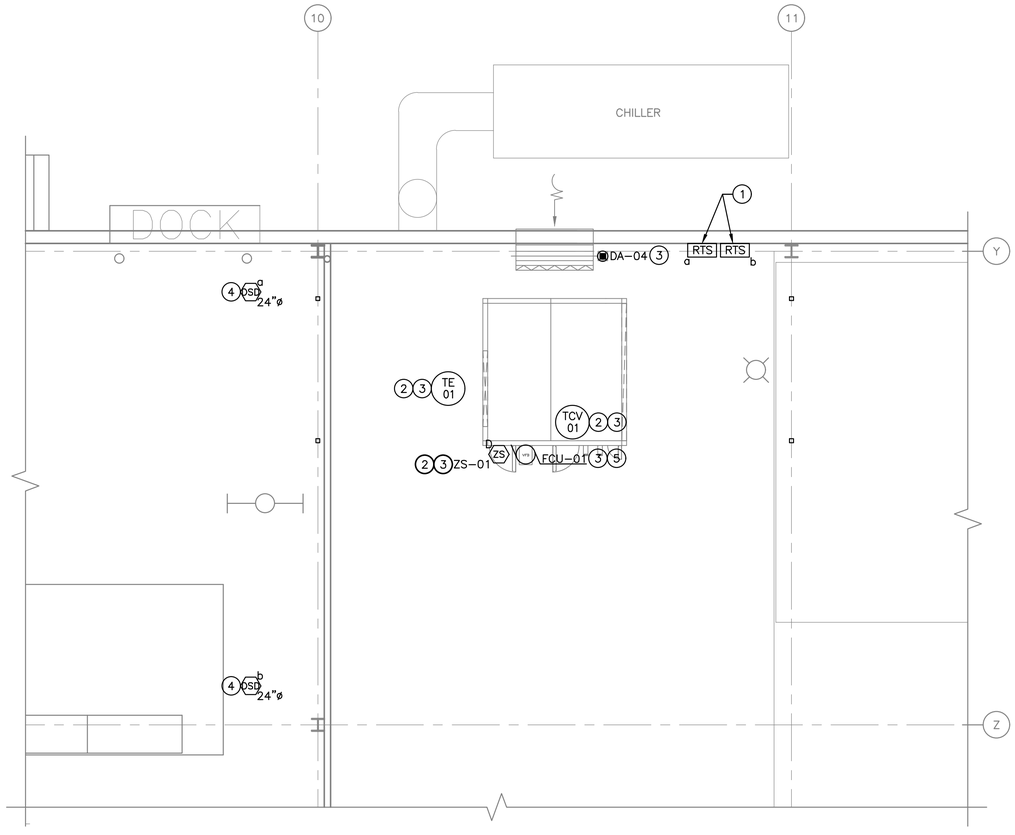
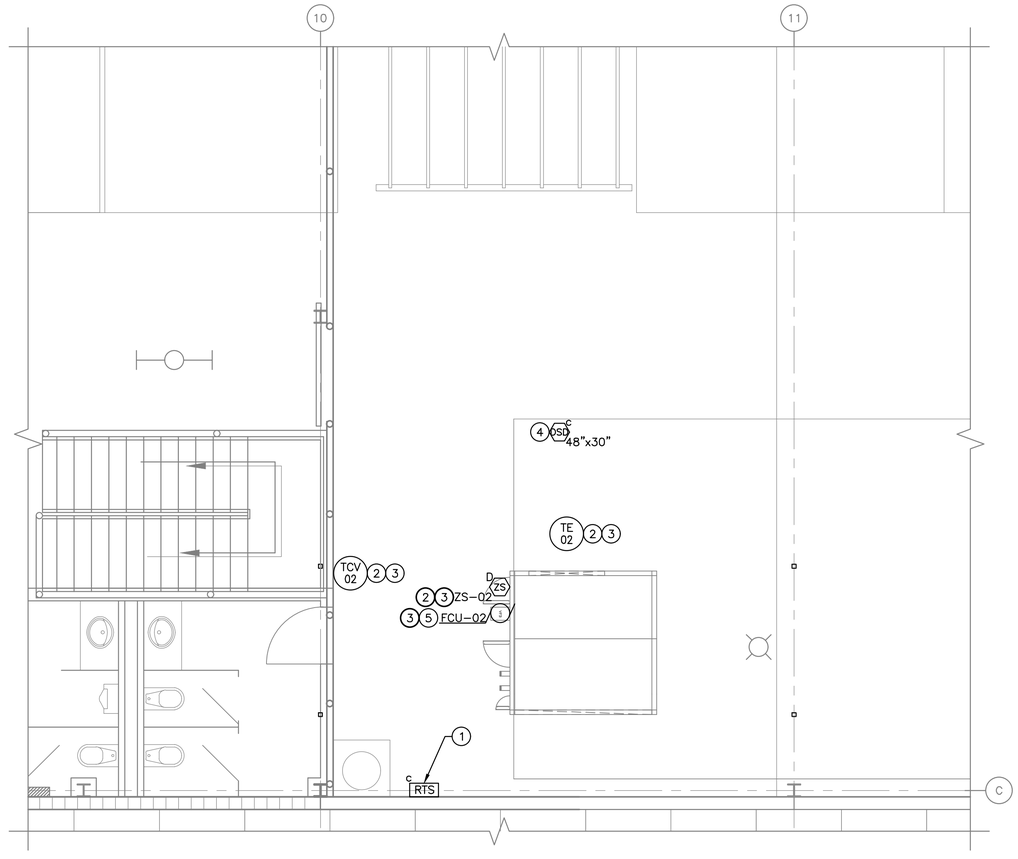
NOT FOR CONSTRUCTION

KEY NOTES:

1. PROVIDE CONDUIT AND WIRING AS REQUIRED BETWEEN DUCT SMOKE DETECTOR AND REMOTE TEST SWITCH.
2. EQUIPMENT PROVIDED AS SPECIFIED IN DIVISION 23 AND WIRED BY DIVISION 26. COORDINATE LOCATION OF EQUIPMENT WITH DIVISION 23.
3. REFER TO THE TEMPERATURE CONTROLS SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH THIS DEVICE.
4. DUCT SMOKE DETECTOR SHALL BE INSTALLED IN VERTICAL FACE OF DUCT. PROVIDE DETECTOR SAMPLING TUBE SUPPORT HARDWARE AS REQUIRED. PROVIDE ADDRESSABLE RELAY MODULES AS REQUIRED TO INTERFACE WITH ASSOCIATED FAN COIL UNIT. PROVIDE CONDUIT AND WIRING FROM DUCT SMOKE DETECTOR TO TCP–01 AND FROM DUCT SMOKE DETECTOR TO FIRE ALARM CONTROL PANEL LOCATED WHERE SHOWN ON DRAWING E1.1. COORDINATE TERMINATION LOCATION AT FIRE ALARM CONTROL PANEL WITH OWNER.
5. REFER TO THE FEEDER CONDUIT AND WIRE SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH EQUIPMENT.



ENLARGED PLAN



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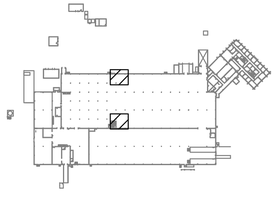


KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/26/18

ELECTRICAL
ENLARGED PLANS - 3

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007

PROJECT MGR. NICHOLAS E. SALES

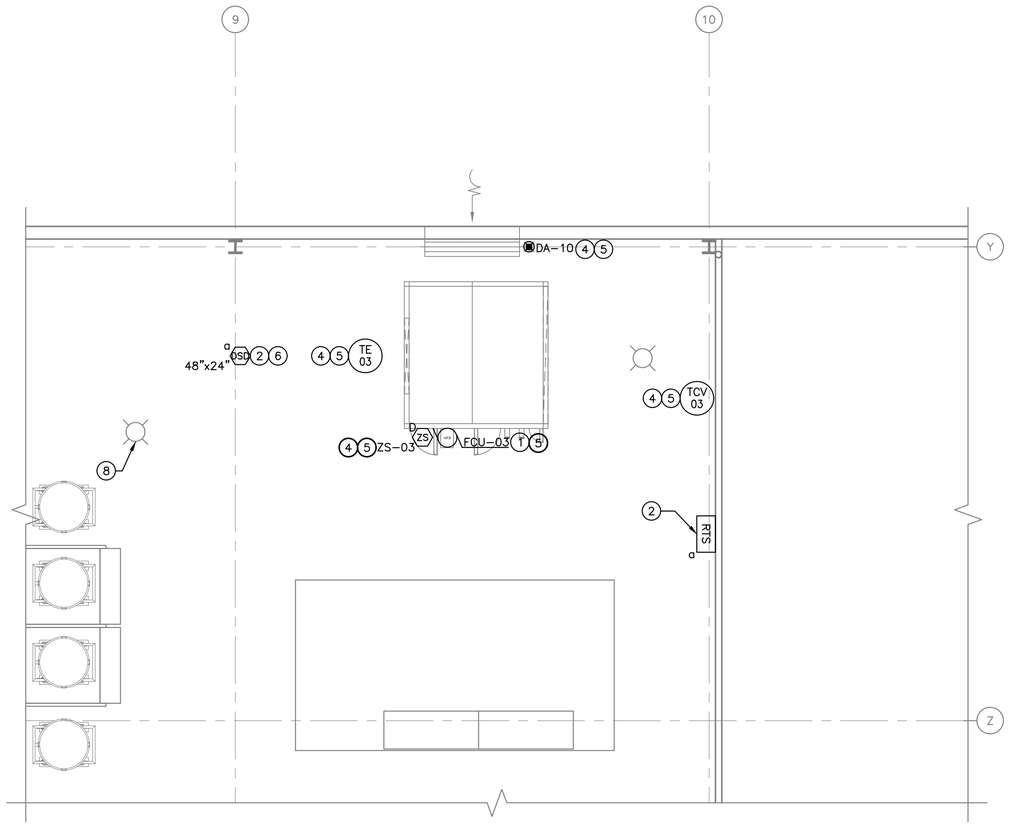
STRAND ASSOCIATES®

SHEET 32 **E4.4**

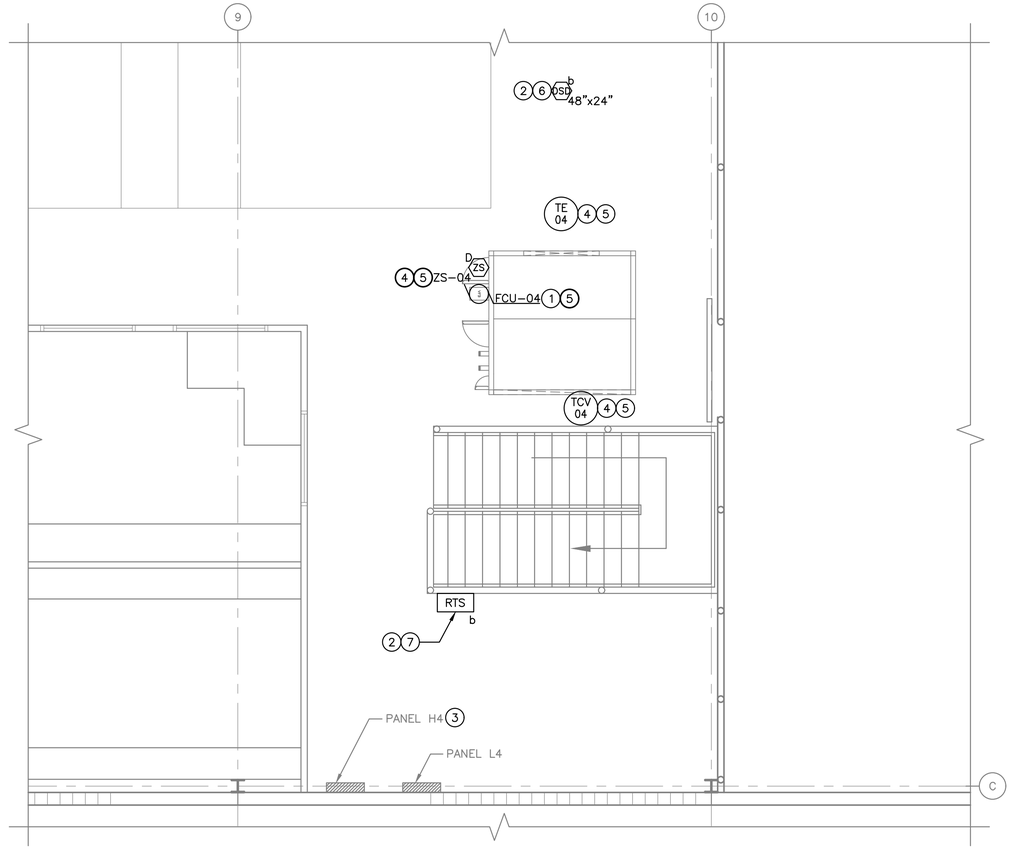
KEY NOTES:

1. REFER TO THE FEEDER CONDUIT AND WIRE SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH EQUIPMENT.
2. PROVIDE CONDUIT AND WIRING AS REQUIRED BETWEEN DUCT SMOKE DETECTOR AND REMOTE TEST SWITCH.
3. PROVIDE 2–40A, THREE–POLE CIRCUIT BREAKERS IN EXISTING SPACE WITHIN PANEL H4 FOR 480V POWER TO FCU–03 AND FCU–04. PANEL H4 IS A SIEMENS ITE SERIES, SERIES 7, 277/480V, 225A, 3–PHASE, 4–WIRE PANELBOARD. CATALOG NO. K442LM4225SBM, S.O. 17–05541–F011. MANUFACTURED 06–1990, LOCATION S.
4. EQUIPMENT PROVIDED AS SPECIFIED IN DIVISION 23 AND WIRED BY DIVISION 26. COORDINATE LOCATION OF EQUIPMENT WITH DIVISION 23.
5. REFER TO THE TEMPERATURE CONTROLS SCHEDULE ON DRAWING E6.1 FOR CONDUIT AND WIRING ASSOCIATED WITH THIS DEVICE.
6. DUCT SMOKE DETECTOR SHALL BE INSTALLED IN VERTICAL FACE OF DUCT. PROVIDE DETECTOR SAMPLING TUBE SUPPORT HARDWARE AS REQUIRED. PROVIDE ADDRESSABLE RELAY MODULES AS REQUIRED TO INTERFACE WITH ASSOCIATED FAN COIL UNIT. PROVIDE CONDUIT AND WIRING FROM DUCT SMOKE DETECTOR TO TCP–01 AND FROM DUCT SMOKE DETECTOR TO FIRE ALARM CONTROL PANEL LOCATED WHERE SHOWN ON DRAWING E1.1. COORDINATE TERMINATION LOCATION AT FIRE ALARM CONTROL PANEL WITH OWNER.
7. MOUNT REMOTE TEST SWITCH TO HANDRAIL WITH GALVANIZED STEEL MOUNTING PLATE PER DETAIL C/E5.1.
8. RELOCATE EXISTING LIGHT FIXTURE AS REQUIRED TO ACCOMMODATE NEW MECHANICAL EQUIPMENT. ALTER AND EXTEND EXISTING CONDUIT AND WIRING AS REQUIRED TO MAINTAIN EXISTING FUNCTIONALITY.

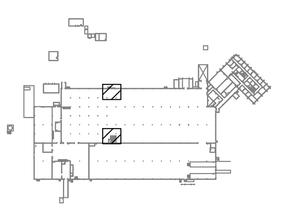
NOT FOR CONSTRUCTION



ENLARGED MEZZANINE PLAN



ENLARGED MEZZANINE PLAN



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE:
A	ISSUE FOR BID	04/05/18

ELECTRICAL
ENLARGED PLANS - 4

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007
PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 33
E4.5

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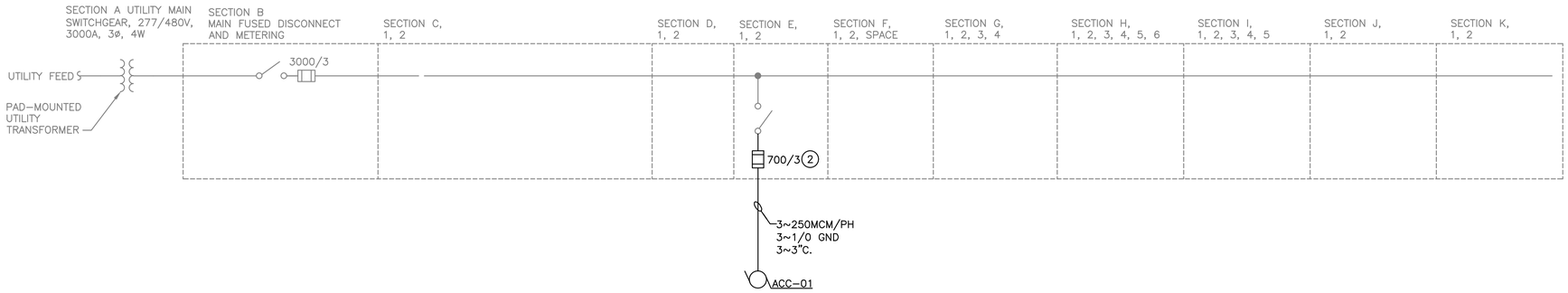


PARTIAL ONE-LINE DIAGRAM (1)
NO SCALE

GENERAL NOTES:

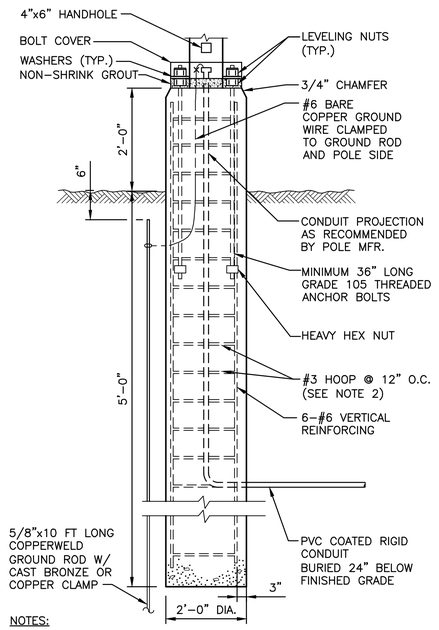
1. NOT ALL EXISTING LOADS SHOWN ON ONE-LINE DIAGRAM.

KEY NOTES:

(1) EXISTING MAIN SWITCHGEAR IS A SIEMENS ITE SERIES, CAT. NO. FC2, SERIES 6, 277/480V, 3-PHASE, 4-WIRE SWITCHBOARD, WITH AN INTERRUPTING RATING OF 100kAIC. S.O. 17-05541-1, MANUFACTURED 06-1990, LOCATION S.

(2) REMOVE 1200A FUSES FROM FUSIBLE DISCONNECT SWITCH IN MAIN SWITCHGEAR SECTION E2, LINE 4, AND REPLACE WITH 700A FUSES FOR 480V POWER TO ACC-01. FUSIBLE DISCONNECT SWITCH IS A SIEMENS ITE VACU-BEAK SWITCH, SERIES A, 600V, 1200A, 3-POLE. CAT. NO. VF358TL. CONTRACTOR SHALL VERIFY LUG SIZES IN FUSIBLE DISCONNECT SWITCH AND PROVIDE LUG KIT AS REQUIRED.

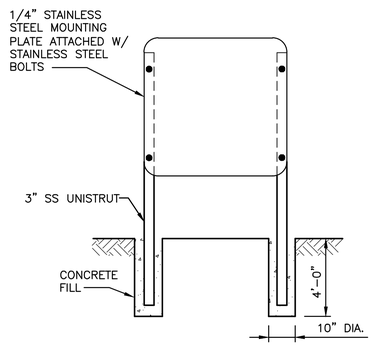
NOT FOR CONSTRUCTION



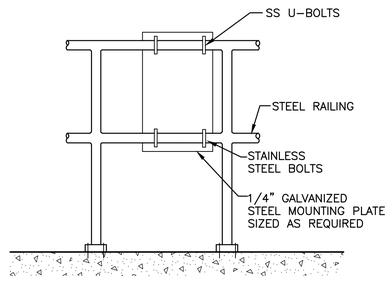
NOTES:

1. TOP 36" TO BE FORMED.
2. PROVIDE 3-#3 TIES @ 3" O.C. AT TOP OF POLE BASE.

A E5.1 LIGHT POLE BASE
NO SCALE



B E5.1 MOUNTING STAND
NO SCALE



C E5.1 HANDRAIL MOUNTING
NO SCALE

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ELECTRICAL
DETAILS AND ONE-LINE DIAGRAM

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
JONESBORO, ARKANSAS

JOB NO. 3626.007
PROJECT MGR. NICHOLAS E. SALES

STRAND ASSOCIATES®

SHEET 34 E5.1

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NOT FOR CONSTRUCTION

KEY NOTES:

(1) ALL WIRE TERMINATIONS SHALL BE BY DIVISION 23 UNLESS OTHERWISE NOTED.

TEMPERATURE CONTROLS SCHEDULE

CONDUIT DESIGNATION	ORIGIN	TERMINATION	CONDUIT SIZE	CONDUCTORS
TCV-01 Control and Power	TCP-01	TCV-01	2~3/4"	2~#12 2~SH.PR.
TCV-02 Control and Power	TCP-01	TCV-02	2~3/4"	2~#12 2~SH.PR.
TCV-03 Control and Power	TCP-01	TCV-03	2~3/4"	2~#12 2~SH.PR.
TCV-04 Control and Power	TCP-01	TCV-04	2~3/4"	2~#12 2~SH.PR.
TCV-05 Control and Power	TCP-03	TCV-05	2~3/4"+	2~#12+ 2~SH.PR.+
TCV-06 Control and Power	TCP-03	TCV-06	2~3/4"+	2~#12+ 2~SH.PR.+
DA-01 Power	TCP-01	DA-01	3/4"	2~#12
DA-02 Power	TCP-01	DA-02	3/4"	2~#12
DA-03 Power	TCP-01	DA-03	3/4"	2~#12
DA-04 Power	TCP-01	DA-04	3/4"	2~#12
DA-05 Power	TCP-01	DA-05	3/4"	2~#12
DA-06 Power	TCP-01	DA-06	3/4"	2~#12
DA-07 Power	TCP-01	DA-07	3/4"	2~#12
DA-08 Power	TCP-01	DA-08	3/4"	2~#12
DA-09 Power	TCP-01	DA-09	3/4"	2~#12
DA-10 Power	TCP-01	DA-10	3/4"	2~#12
DA-11 Power	TCP-01	DA-11	3/4"+	2~#12+
DA-12 Power	TCP-01	DA-12	3/4"+	2~#12+
DA-13 Power	TCP-01	DA-13	3/4"+	2~#12+
DA-14 Power	TCP-01	DA-14	3/4"+	2~#12+
FCU-01 Door Switch	TCP-01	ZS-01	3/4"	2~#14
FCU-02 Door Switch	TCP-01	ZS-02	3/4"	2~#14
FCU-03 Door Switch	TCP-01	ZS-03	3/4"	2~#14
FCU-04 Door Switch	TCP-01	ZS-04	3/4"	2~#14
FCU-05 Door Switch	TCP-03	ZS-05	3/4"+	2~#14+
FCU-06 Door Switch	TCP-03	ZS-06	3/4"+	2~#14+
OAT-01 Outside Air Temperature	TCP-01	OAT-01	3/4"	SH.PR.
TE-01 Supply Air Temperature	TCP-01	TE-01	3/4"	SH.PR.
TE-02 Supply Air Temperature	TCP-01	TE-02	3/4"	SH.PR.
TE-03 Supply Air Temperature	TCP-01	TE-03	3/4"	SH.PR.
TE-04 Supply Air Temperature	TCP-01	TE-04	3/4"	SH.PR.
TE-05 Supply Air Temperature	TCP-03	TE-05	3/4"+	SH.PR.+
TE-06 Supply Air Temperature	TCP-03	TE-06	3/4"+	SH.PR.+
TE-07 Room Air Temperature	TCP-01	TE-07	3/4"	SH.PR.
TE-08 Room Air Temperature	TCP-01	TE-08	3/4"	SH.PR.
TE-09 Room Air Temperature	TCP-01	TE-09	3/4"	SH.PR.
TE-10 Room Air Temperature	TCP-01	TE-10	3/4"	SH.PR.
TE-11 Room Air Temperature	TCP-03	TE-11	3/4"	SH.PR.+
TE-12 Room Air Temperature	TCP-03	TE-12	3/4"	SH.PR.+
CHWP-01 Control and Status	TCP-02	CHWP-01 VFD	2~3/4"	4~#14 SH.PR.
CHWP-02 Control and Status	TCP-02	CHWP-02 VFD	2~3/4"	4~#14 SH.PR.
ACC-01 Control and Status	TCP-02	ACC-01	2~3/4"	4~#14 SH.PR.
TT-01 System Return Temperature	TCP-02	TT-01	3/4"	SH.PR.
TT-02 System Supply Temperature	TCP-02	TT-02	3/4"	SH.PR.
ACC-01 Flow Indication	Control Panel on ACC-01	FS-01	3/4"	2~#14*
PT-01 System Glycol Pressure	TCP-02	PT-01	3/4"	SH.PR.
BACnet Communication Wiring	TCP-01	TCP-02	3/4"	22 AWG/2 conductor, raspberry color, shielded, plenum-rated cable. Windy City Model No. 0043280ALR-S, or equal.
BACnet Communication Wiring	TCP-02	TCP-03	3/4"+	22 AWG/2 conductor, raspberry color, shielded, plenum-rated cable. Windy City Model No. 0043280ALR-S, or equal.+
EF-EX01 Run Status, Start/Stop Signals	EF-EX01 Starter in Exhaust Fans MCC	TCP-01	3/4"	4~#14
EF-EX02 Run Status, Start/Stop Signals	EF-EX02 Starter in Exhaust Fans MCC	TCP-01	3/4"	4~#14
EF-EX03 Run Status, Start/Stop Signals	EF-EX03 Starter in Exhaust Fans MCC	TCP-01	3/4"	4~#14
EF-EX04 Run Status, Start/Stop Signals	EF-EX04 Starter in Exhaust Fans MCC	TCP-01	3/4"	4~#14
EF-EX05 Run Status, Start/Stop Signals	EF-EX05 Starter in Exhaust Fans MCC	TCP-01	3/4"	4~#14
EF-EX06 Run Status, Start/Stop Signals	EF-EX06 Starter in Exhaust Fans MCC	TCP-01	3/4"	4~#14
EF-EX07 Run Status, Start/Stop Signals	EF-EX07 Starter in Exhaust Fans MCC	TCP-01	3/4"+	4~#14+
EF-EX08 Run Status, Start/Stop Signals	EF-EX08 Starter in Exhaust Fans MCC	TCP-01	3/4"+	4~#14+
EF-EX09 Run Status, Start/Stop Signals	EF-EX09 Starter in Exhaust Fans MCC	TCP-01	3/4"+	4~#14+
FCU-01 Fan Control and Status	TCP-01	FCU-01	2~3/4"	4~#14 SH.PR.
FCU-02 Fan Control and Status	TCP-01	FCU-02	2~3/4"	4~#14 SH.PR.
FCU-03 Fan Control and Status	TCP-01	FCU-03	2~3/4"	4~#14 SH.PR.
FCU-04 Fan Control and Status	TCP-01	FCU-04	2~3/4"	4~#14 SH.PR.
FCU-05 Fan Control and Status	TCP-03	FCU-05	2~3/4"+	4~#14+ SH.PR.+
FCU-06 Fan Control and Status	TCP-03	FCU-06	2~3/4"+	4~#14+ SH.PR.+

+Work and equipment shall be provided as part of Bid Alternative No. 1.

*Wire terminations by Division 26

FEEDER CONDUIT AND WIRE SCHEDULE

CONDUIT DESIGNATION	ORIGIN	TERMINATION	OCPD SIZE	CONDUIT SIZE	CONDUCTORS	GROUND
CHWP-01 VFD Power	Panel H2-2	CHWP-01 VFD	80A, 3-Pole Circuit Breaker	1"	3~#4	#8
CHWP-01 Power	CHWP-01 VFD	CHWP-01	N/A	3/4"	3~#8	#8
CHWP-02 VFD Power	Panel H2-2	CHWP-02 VFD	80A, 3-Pole Circuit Breaker	1"	3~#4	#8
CHWP-02 Power	CHWP-02 VFD	CHWP-02	N/A	3/4"	3~#8	#8
FCU-01 Power	Panel H11-2	FCU-01	40A, 3-Pole Circuit Breaker	3/4"	3~#8	#10
FCU-02 Power	Panel H2-2	FCU-02	40A, 3-Pole Circuit Breaker	3/4"	3~#8	#10
FCU-03 Power	Panel H4	FCU-03	40A, 3-Pole Circuit Breaker	3/4"	3~#8	#10
FCU-04 Power	Panel H4	FCU-04	40A, 3-Pole Circuit Breaker	3/4"	3~#8	#10
FCU-05 Power	Panel H10	FCU-05	125A, 3-Pole Circuit Breaker	1 1/2"	3~#1	#6
FCU-06 Power	Panel H10	FCU-06	125A, 3-Pole Circuit Breaker	1 1/2"	3~#1	#6

FIXTURE SCHEDULE

Fixture Type	Manufacturer(s)	Model Number	Lamp Type	Mounting	Remarks
A	Cree	ARE-EDG-3M-DA-04-E-UL-BZ-350-40K	50W LED	Pole	Provide square straight aluminum pole model SSA14D5-4-BM, as manufactured by Hapco, or equal.
B	Metalux	VT4LED-LD4-23-DR-UNV-L840-ED2-WL-U	204W LED	Surface	

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ELECTRICAL SCHEDULES

PRODUCTION AREA COOLING PROJECT
CRANE COMPOSITES, INC.
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