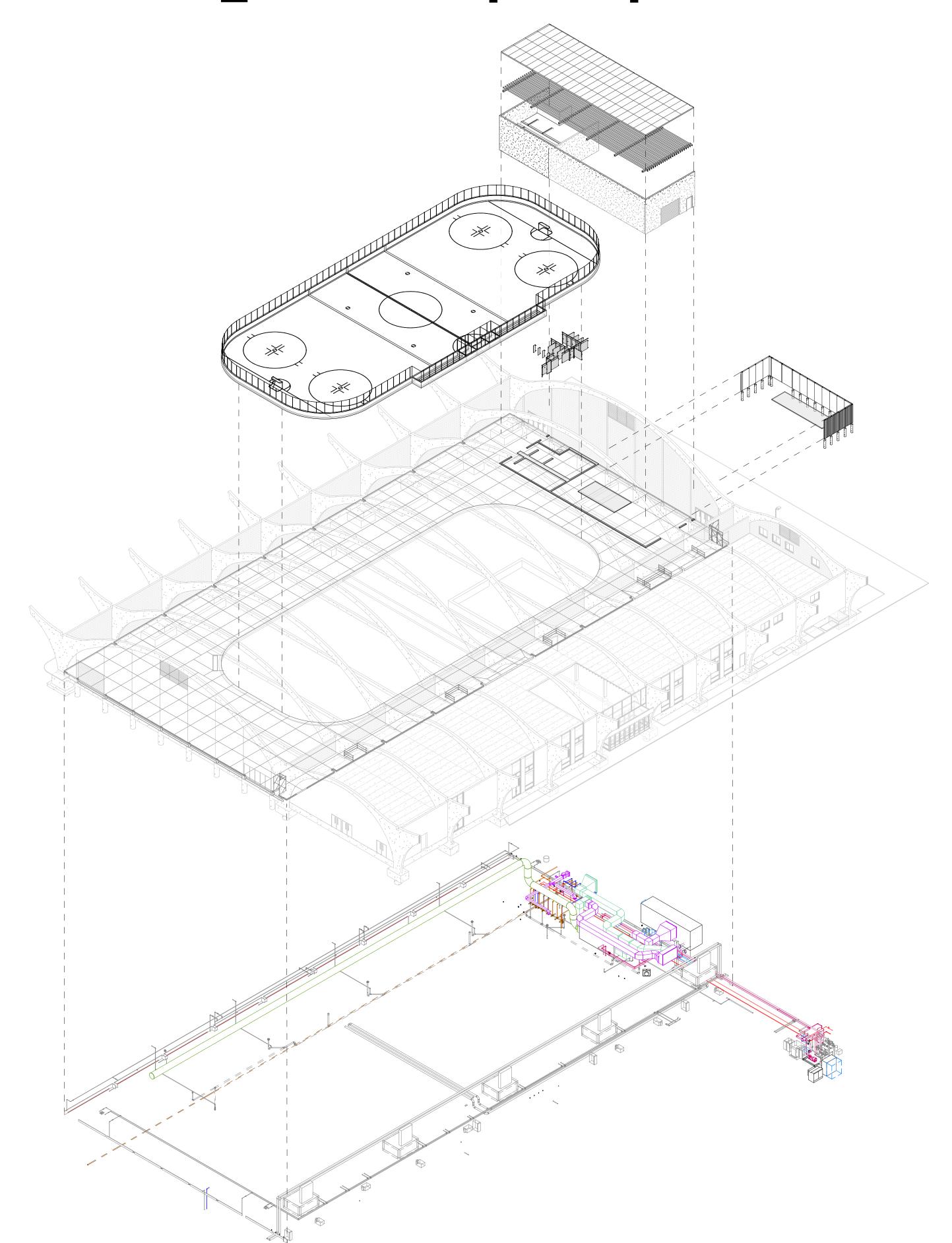


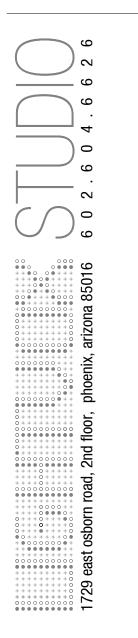
# NORTHERN ARIZONA [fieldhouse] multipurpose center UNIVERSITY



# **ISSUED FOR** SD

**M P C** 3001.17.01/09.300.176

**COVER** 



#### PROJECT DESCRIPTION

WALL SECTION NUMBER

BUILDING SECTION NUMBER

SIMILAR INDICATION

SHEET NUMBER

SHEET NUMBER

**DETAIL NUMBER** 

SHEET NUMBER

SHEET NUMBER

SHEET NUMBER

SIM—— SIMILAR INDICATION

SHEET NUMBER

- LEVEL DESCRIPTION

- LEVEL ELEVATION

COLUMN GRID LINE

SHEET NUMBER

SHEET NUMBER

MATCH LINE

PLAN NORTH

**ROOM NAME** 

ROOM NUMBER

CEILING TYPE

FINISHED FLOOR

TYPE IDENTIFIER

**ROOM NUMBER** 

FLOOR FINISH

WALL FINISH

BASE FINISH

CASEWORK IDENTIFIER

FURNITURE IDENTIFIER

SPEC. EQUIPMENT IDENTIFIER

LEVEL

OPENING IDENTIFIER

IDENTIFIER

CEILING HEIGHT ABOVE

PARTITION/WALL TYPE

STOREFRONT/CURTAINWALL

LEVEL

PROJECT NORTH

COLUMN GRID INDICATOR

EXISTING COLUMN GRID INDICATOR

REVISION NUMBER (SHEET SPECIFIC)

**CLOUDED AREA OF REVISION** 

EXISTING COLUMN GRID LINE

A1.00 <del>✓</del>

A3 🕶

LEVEL 01

1 / A0103

1 / A0102

**ROOM NAME** 

101-

1'-0" A.F.F.

( XX-XX-001 <del>)</del>

XX-XX-001

SIMILAR INDICATION

**ELEVATION NUMBER** 

**ELEVATION NUMBER** 

PLAN OR DETAIL NUMBER

THE FIELDHOUSE (BUILDING 30) WILL BE RENOVATED TO SUPPORT A MULTIPURPOSE ACTIVITY CENTER WITH A SEASONAL ICE RINK. THE RENOVATION WILL INCLUDE A RESTROOM AND MECHANICAL ROOM ADDITION PLANNED FOR DURING THE FIELDHOUSE FLOOR REPLACEMENT, MECHANICAL UPGRADES TO THE SPACE IN SUPPORT OF THE OCCUPANT LOAD AND THE ICE RINK VENUE AND THE ACTIVATION OF THE REFRIGERATED SLAB THAT WAS BUILT DURING THE FLOOR REPLACEMENT. THIS PROJECT WILL INCLUDE SELECTIVE DEMOLITION. MECHANICAL, ELECTRICAL AND PLUMBING SCOPES.

FUTURE PLANNING AND USES FOR THIS SPACE WERE CONSIDERED DURING THE FIELDHOUSE FLOOR REPLACEMENT SCOPE IN ORDER TO PROVIDE UNDERGROUND UTILITIES AND/OR PATHWAYS IN SUPPORT OF A MULTIPURPOSE ACTIVITY CENTER WITH ICE RINK, MECHANICAL ROOM, AND RESTROOMS. THE UNDERGROUND SANITARY LINES. UNDERGROUND ELECTRICAL CONDUIT, UNDERGROUND WATER LINES AND UNDERGROUND REFRIGERATION MAINS ASSOCIATED WITH FUTURE ICE RINK WERE ALL CAPPED AND LABELED ABOVE SLAB FOR CONNECTION DURING THIS SCOPE

THE DEMOLITION WORK IN THIS SCOPE CONSISTS OF THE FOLLOWING: REMOVAL OF AN EXISTING FIRE SHUTTER ALONG THE MAIN ENTRY TO THE FIELDHOUSE THAT IS NO LONGER NEEDED NOR IS ACTIVE. SELECTIVE CHIPPING OF THE EXISTING SLAB TO PROVIDE SPACE FOR PLUMBING CONNECTIONS TO STUB OUTS PROVIDED IN THE FLOOR REPLACEMENT SCOPE. NEW OPENINGS IN THE NORTH BRICK FACADE TO SUPPORT NEW MECHANICAL SYSTEM INTAKE AND EXHAUST FUNCTIONS, SITE DEMOLITION ASSOCIATED WITH INSTALLATION OF NEW EQUIPMENT YARD ENCLOSURE.

THE DESIGN TEAM FORESEES THE NEED FOR A PROLONGED SHUTDOWN ASSOCIATED WITH SES UPGRADES TO THE ENTIRE BUILDING THAT NEED TO BE ACCOUNTED FOR IN BUDGETING EFFORTS.

#### THE TOTAL PROJECT AREA IS APPROXIMATELY 44.700 SQ. FT.

#### **APPLICABLE CODES**

ТҮРЕ	CODE REFERENCE	CLIMATE ZONE 5B
ENERGY EXISTING BUILDING BUILDING MECHANICAL ELECTRICAL PLUMBING FUEL GAS FIRE FIRE ALARM	2012 INTERNATIONAL ENERGY 2012 INTERNATIONAL EXISTIN 2012 INTERNATIONAL BUILDIN 2012 INTERNATIONAL MECHAI 2011 NATIONAL ELECTRICAL O 2012 INTERNATIONAL PLUMBI 2012 INTERNATIONAL FUEL GA 2012 INTERNATIONAL FIRE CO 2013 NATIONAL FIRE PROTECT	G BUILDING CODE (IEBC) IG CODE (IBC) NICAL CODE (IMC) CODE (NEC)(NFPA 70) NG CODE (IPC) AS CODE (IFGC) DE (IFC) TION AGENCY (NFPA 72)
FIRE SPRINKLER ACCESSIBILITY	2013 NATIONAL FIRE PROTECT 2010 ADAAG 2009 ICC/ANSI	` ,

#### **ADDITIONAL CRITERIA**

WORK SHALL COMPLY WITH THE LATEST EDITION OF THE NORTHERN ARIZONA UNIVERSITY (NAU) DESIGN AND TECHNICAL GUIDELINES, NAU FIRE CODE, ARIZONA STATE FIRE CODE, NAU DESIGN GUIDELINES FOR DISABLED ACCESS PARKING AND ACCESSIBLE ROUTE AT VEHICULAR TRAFFIC AREAS. WHERE DISCREPANCIES EXIST BETWEEN THE NAU GUIDELINES AND THE FEDERAL, STATE, AND LOCAL BUILDING CODES; ALL ISSUES ARE TO BE ADDRESSED AND RESOLVED BY THE ARCHITECT/ENGINEER OF RECORD AS WELL AS NAU PLANS REVIEW AND FACILITIES DEVELOPMENT AND MANAGEMENT DEPARTMENT.

#### **DEFERRED SUBMITTALS**

FIRE ALARM FIRE SPRINKLERS

#### **BUILDING AREA**

ALL AREAS NOTED ARE EXISTING LEVEL 01 67.160 GSF LEVEL 02 22,460 GSF **BUILDING TOTAL** 89,620 GSF

**SCOPE OF WORK:** LEVEL 01 (FIELDHOUSE)

#### EGRESS AND PLUMBING FIXTURES

SECTION 304 OCCUPANCY CLASSIFICATION A-4 (FIXED SEATING VENUE) S-1 (STORAGE)

SECTION 1004 - OCCUPANT LOAD FIXED OCCUPANT LOAD ESTABLISHED BY NAU AHJ BASED ON BLEACHER SEATING PROVIDED BY NAU- **790 OCCUPANTS** 

44,700 GSF

#### **EXISTING EXITS:**

3 EXITS REQUIRED / EXITS EXISTING 3 **EXISTING EGRESS WIDTH:** 

19 DOORS AT 34" = 646" OR APPROXIMATELY 4,250 OCCUPANTS. IF 50% EXISTING THROUGH MAIN ENTRY RULE APPLICABLE TO VENUE THEN OCCUPANCY LIMITED TO 2,270.

<u>SECTION 1016 – TRAVEL DISTANCE</u> A-4 OCCUPANCY-250' SPRINKLERED

MAX EXISTING TRAVEL DISTANCE =161' (TO EXIT A FROM CENTER OF SPACE)

#### **MINIMUM PLUMBING FACILITIES (PER IBC 2012):**

A-4 ASSEMBLY=790 OCCUPANTS

#### **WATER CLOSETS (WC):** MALE 395 OCC. = 1WC / 75 OCC. = 6 REQ (2 WC + 4 URINALS PER 67% RULE) $\underline{\mathsf{FEMALE}\ 395\ \mathsf{OCC}}. \qquad = \mathsf{1WC}\ /\ \mathsf{40}\ \mathsf{OCC}. = \mathsf{10}\ \mathsf{REQ}$

# LAVATORIES:

MALE 395 OCC. = 1 LAV/ 200 OCC. = 2 REQ FEMALE 395 OCC. = 1 LAV/ 150 OCC. =3 REQ

#### **DRINKING FOUNTAINS:**

<u>790 OCC.</u> = 1 DF/ 1000 OCC. =1 REQ (1 EXISTING)

(NOTE THAT THESE CALCULATIONS WERE PERFORMED DURING THE FLOOR REPLACEMENT SCOPE IN DETERMINING ADEQUATE UNDERGROUND ROUGH—IN FOR THE RESTROOMS THAT WILL BE INCLUDED IN THIS SCOPE)

**OWNER DATA** 

OWNER:

ARIZONA BOARD OF REGENTS NORTHERN ARIZONA UNIVERSITY

PROJECT ADDRESS: 1050 S. KNOLES DR. FLAGSTAFF, AZ 86011

FACILITY NUMBER BUILDING 30 [FIELDHOUSE]

ASU REP:

**NAU FACILITIES SERVICES** KATHLEEN VISKOCIL. PE

STAKEHOLDER .	APPROVALS		
NAME	TITLE	SIGNATURE/APPROVAL	DATE
ANDREW IACONA	FACILITIES SERVICES PROJECT MANAGER		
AGNES DROGI	FACILITIES SERVICES PD&C DIRECTOR		
TC EBERLY	CSA ADM. EXECUTIVE DIRECTOR		
MEGAN PROCTOR	STUDENT UNIONS & ACTIVITIES ASS. DIR.		

REVISED

ISSUED

8.24.2017

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**VICINITY MAP** 

**SHEET INDEX** 

COVER

AD1.00 DEMOLITION PLAN

INDEX, LEGEND & GENERAL PROJECT DATA

OVERALL REFERENCE PLAN

LEVEL 01 OVERALL FLOOR PLAN

LEVEL 01 OVERALL CEILING PLAN

BUILDING ELEVATIONS & SECTIONS

**BUILDING ELEVATIONS & SECTIONS** 

MD1.00 MECHANICAL DEMOLITION PLAN — BASE BID

MECHANICAL COVER SHEET

MECHANICAL PLAN — BASE BID

MECHANICAL PLAN — OPTION 1

MECHANICAL PLAN — OPTION 2

MECHANICAL DETAILS

MECHANICAL SCHEDULES

MECHANICAL SCHEDULES

MECHANICAL CONTROLS

PLUMBING COVER SHEET

OVERALL FLOOR PLAN-PLUMBING

PLUMBING DETAILS AND SCHEDULES

ELECTRICAL LIGHTING PLAN — OPTION 01

ELECTRICAL LIGHTING PLAN — OPTION 02

ELECTRICAL POWER PLAN — OPTION 1

EP2.00 ENLARGED ELECTRICAL ROOM – BASE BID

FP1.01 OVERALL FLOR PLAN – FIRE PROTECTION

EL1.03 ELECTRICAL LIGHTING PLAN — OPTION 3

EP1.00 ELECTRICAL POWER PLAN – BASE BID

EP1.02 ELECTRICAL POWER PLAN – OPTION 2

RESTROOM ENLARGED PLAN

ELECTRICAL COVER SHEET

ONE LINE DIAGRAM

PANEL SCHEDULES

LUMINAIRE SCHEDULE

FP0.00 FIRE PROTECTION COVER SHEET

ISO.00 ICE SYSTEMS COVER SHEET

IS1.01 ICE SYSTEMS PLAN – BASE BID

HEATING PLANT UPGRADES — BASE BID

ENLARGED FLOOR PLANS

RESTROOM ELEVATIONS

**AXONOMETRIC** 

A14.00 ICE RINK EQUIPMENT PLAN

DETAILS

A11.01 PARTITION TYPES

SHT # NAME

G0.00

A1.00

A5.00

A6.00

M0.00

M6.00

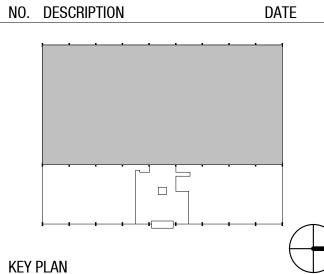
E0.00

E4.01

E5.01



-- SD ISSUANCE 8.24.2017





PROJECT: **NAU Fieldhouse** MPC 3001.17.01/09.300.176 1050 S KNOLES DR. FLAGSTAFF, AZ 86011

INDEX, LEGEND & **GENERAL PROJECT** 

CONSTRUCTION TYPE AND OCCUPANCY TYPE IB (PRE ORDINANCE APPR. EQUAL TO)

IBC OCCUPANCY CLASSIFICATION:

BASEMENT:

B EDUCATIONAL OFFICES A-3 MEETING ROOMS & LOCKERS A-3 ASSEMBLY (NON FIXED SEATING) A-4 FIXED SEATING VENUE

NON-SEPARATED USES

FIRE SPRINKLERED: YES (NFPA 14) FIRE ALARM SYSTEM: YES (NFPA 72) YES (NFPA 14) STANDPIPE SYSTEM: **HAZARDOUS MATERIALS:** 

**SERVICE SINK:** 1 REQ

NO. DESCRIPTION

NO. DESCRIPTION

KEY PLAN

O 9 9 C 9 9 C CONTRACTOR OF CONTRACTOR OF

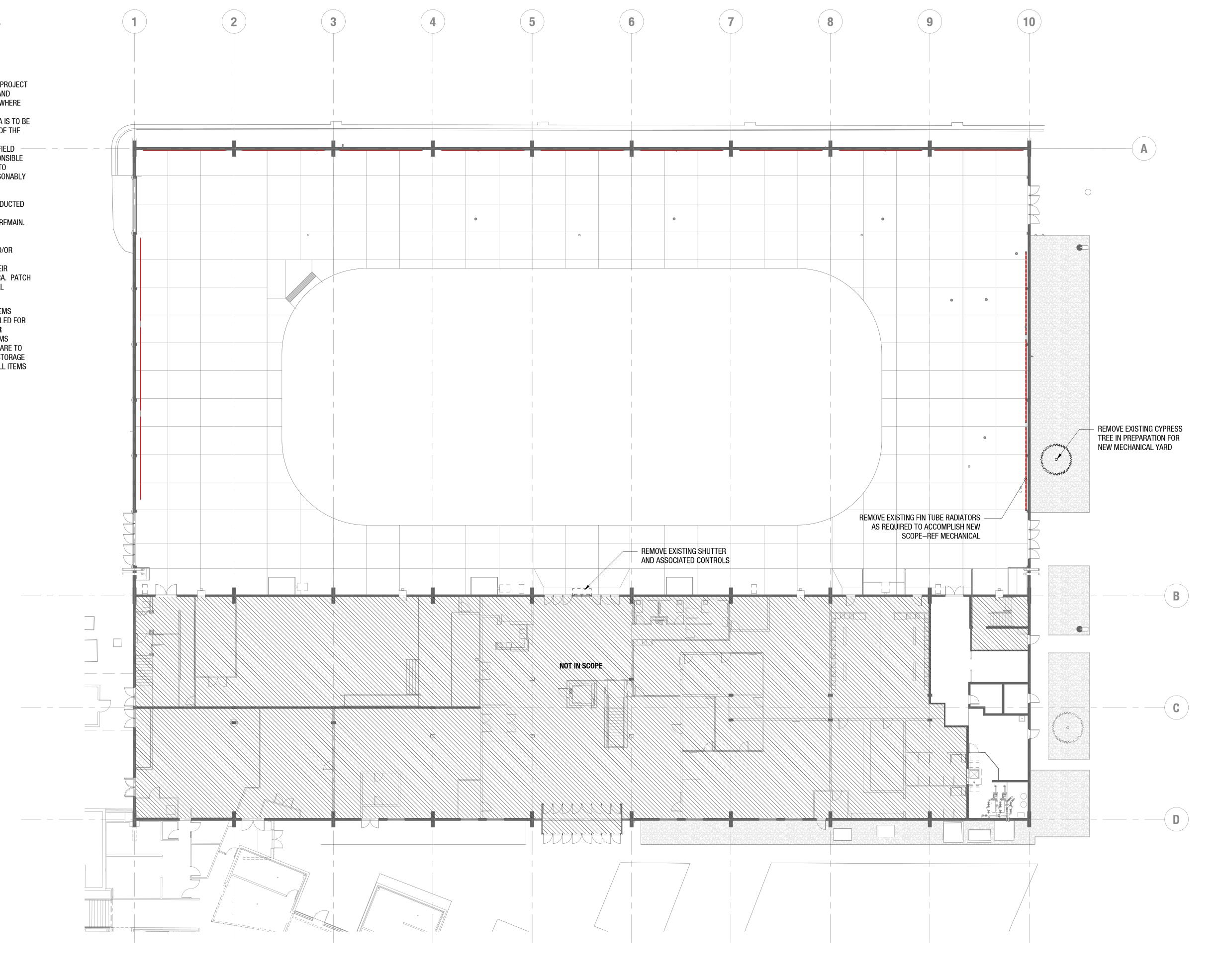
#### **REGULATORY REQUIREMENTS:**

COMPLY WITH APPLICABLE REQUIREMENTS OF THE STATE OF ARIZONA, LOCAL ORDINANCES, AND REGULATIONS CONCERNING MANAGEMENT OF CONSTRUCTION, CLEARING, AND INERT MATERIALS.

DISPOSAL SITE, RECYCLERS, AND WASTE MATERIALS PROCESSORS: USE ONLY FACILITIES PROPERLY PERMITTED BY THE STATE OF ARIZONA, AND/OR BY LOCAL AUTHORITIES WHERE APPLICABLE.

THE CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING THAT THE APPROPRIATE GOVERNMENTAL ENTITIES ARE NOTIFIED OF THE WORK.

- EXERCISE DUE *CARE* DURING THE DEMOLITION PORTION OF THE PROJECT SO AS TO MINIMIZE DAMAGE TO THE EXISTING CONSTRUCTION AND COMPONENTS OF THE BUILDING. PROVIDE TEMPORARY WALLS WHERE AREAS UNDER CONSTRUCTION CAN BE ISOLATED FROM THE UNDISTURBED BUILDING AREAS. ACCESS TO THE PROJECT AREA IS TO BE ISOLATED FROM THE ACCESS TO THE UNDISTURBED PORTIONS OF THE BUILDING NOT IN THE SCOPE OF THIS PROJECT.
- ALL DEMOLITION REQUIRED TO COMPLETE THE WORK IS TO BE FIELD COORDINATED BY THE CONTRACTOR. THE CONTRACTOR IS REPONSIBLE TO REVIEW THE PLANS AND COORDINATE ALL TRADES NEEDED TO COMPLETE WORK AS IS SPECIFIED HEREIN AND AS MAY BE REASONABLY
- COORDINATE ALL DEMOLITION ACTIVITIES WITH THE BUILDING MANAGEMENT. WORK SUBJECT TO EXCESS NOISE IS TO BE CONDUCTED DURING MANAGEMENT APPROVED HOURS
- 4. ALL SCREENED LINES REPRESENT EXISTING CONSTRUCTION TO REMAIN. ALL ITEMS SHOWN DASHED INDICATE THAT THEY ARE TO BE DEMOLISHED, REMOVED, OR SALVAGED AS NOTED.
- PERFORM ALL REQUIRED DEMOLITION INCLUDING REMOVAL AND/OR RELOCATION OF ITEMS IN ORDER TO ACCOMPLISH NEW WORK.
- 6. ALL ITEMS SHOWN TO BE REMOVED ARE TO BE REMOVED IN THEIR ENTIRETY, INCLUDING ALL TRIMS, ATTACHMENTS, AND ETCETERA. PATCH BACK ALL ADJACENT CONSTRUCTION AND RESTORE TO ORIGINAL CONDITION.
- THE OWNER RESERVES THE RIGHT TO SALVAGE ANY AND ALL ITEMS MATERIAL, EQUIPMENT, OR MISCELLANEOUS ITEMS SCHEDULED FOR DEMOLITION. PRIOR TO THE START OF DEMOLITION THE OWNER WILL WALK THE SITE WITH THE CONTRACTOR AND TAG ANY ITEMS HE/SHE WANTS SALVAGED. ALL ITEMS TAGGED BY THE OWNER ARE TO BE CAREFULLY REMOVED AND TURNED OVER TO THE OWNER. STORAGE OF SALVAGED ITEMS IS THE RESPONSIBILITY OF THE OWNER. ALL ITEMS NOT TAGGED ARE TO BE REMOVED AND DISPOSED OF PER NAU REQUIRMENTS.



01 <u>DEMO FLOOR PLAN – LEVEL 01</u>
1/16" = 1'-0"

EXISTING CONSTRUCTION TO REMAIN

EXISTING CONSTRUCTION TO BE DEMOLISHED

U.N.O. ITEM TO BE REMOVED, REUSED OR RELOCATED U.N.O.

NO. DESCRIPTION KEY PLAN

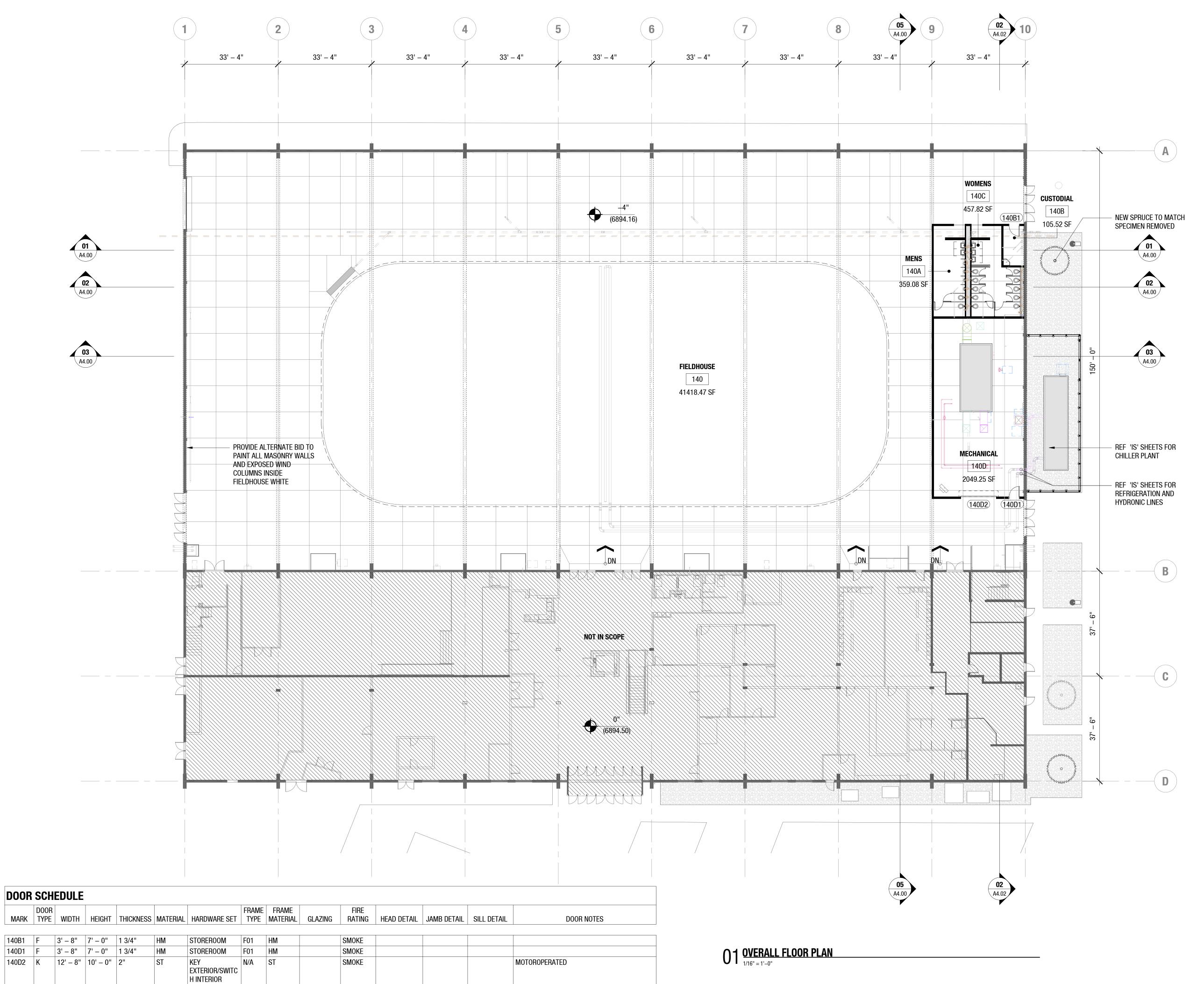
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**NAU Fieldhouse** MPC 3001.17.01/09.300.176 1050 S KNOLES DR. FLAGSTAFF, AZ 86011

8.24.2017

DATE

**DEMOLITION PLAN** 



#### **FLOOR PLAN NOTES**

- 1. DO NOT DETERMINE DIMENSIONS AND SIZE OF THE GRAPHIC REPRESENTATIONS SHOWN ON THE DRAWINGS BY USING MEASURING DEVICES (DO NOT "SCALE"). RELY ON THE NUMERIC DIMENSIONS SHOWN ON THE DRAWINGS FOR MEASUREMENT.
- DIMENSIONS ARE TAKEN FROM CENTERLINE OF STRUCTURE, FACE OF MASONRY OR FINISHED
- 3. REFERENCE COVER SHEET FOR SYMBOLS LEGEND

FACE OF PARTITIONS UNO.

4. GC NOTE: UNDERGROUND PLUMBING ROUGH-IN FOR FIXTURES NOTED IN THIS PLAN WERE INSTALLED AN CAPPED OFF FLUSH WITH SLAB DURING PREVIOUS SCOPE OF WORK. ALL PLUMBING WORK FOR THIS PHASE WILL OCCUR ABOVE SLAB BUT MAY REQUIRE CHIPPING OFF EXISTING SLAB FOR TIE IN.

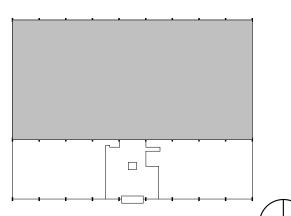
## **WALL TYPE LEGEND**

EXISTING CONSTRUCTION TO REMAIN

NEW CONSTRUCTION (REF A10.00 FOR PARTITION TYPES)

-- SD ISSUANCE

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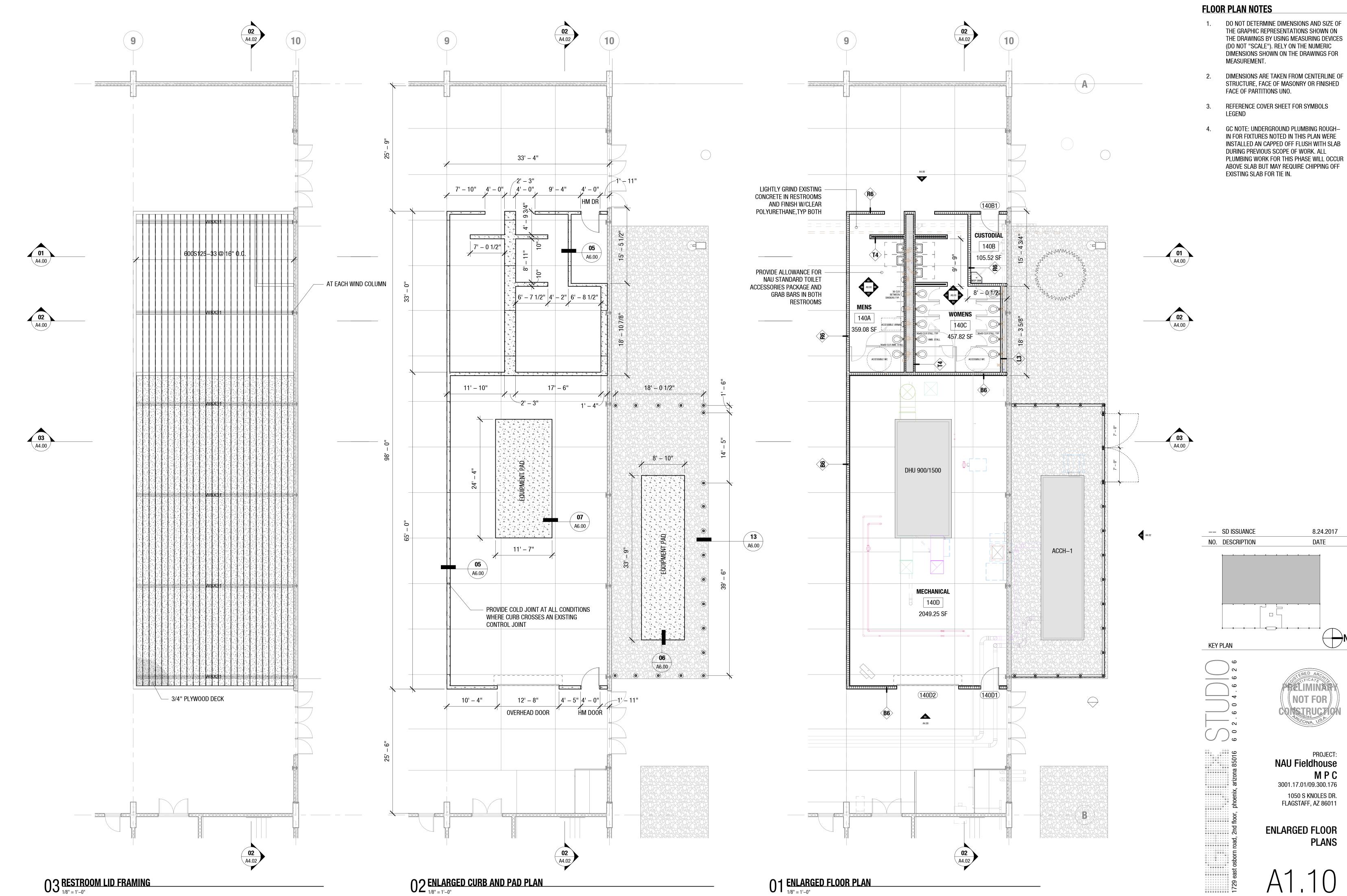


**KEY PLAN** 



**NAU Fieldhouse** 3001.17.01/09.300.176 1050 S KNOLES DR. FLAGSTAFF, AZ 86011

LEVEL 01 OVERALL **FLOOR PLAN** 



NO. DESCRIPTION

KEY PLAN

KEY PLAN

NOT FOR

OF THE PROJECT:

NAU Fieldhouse

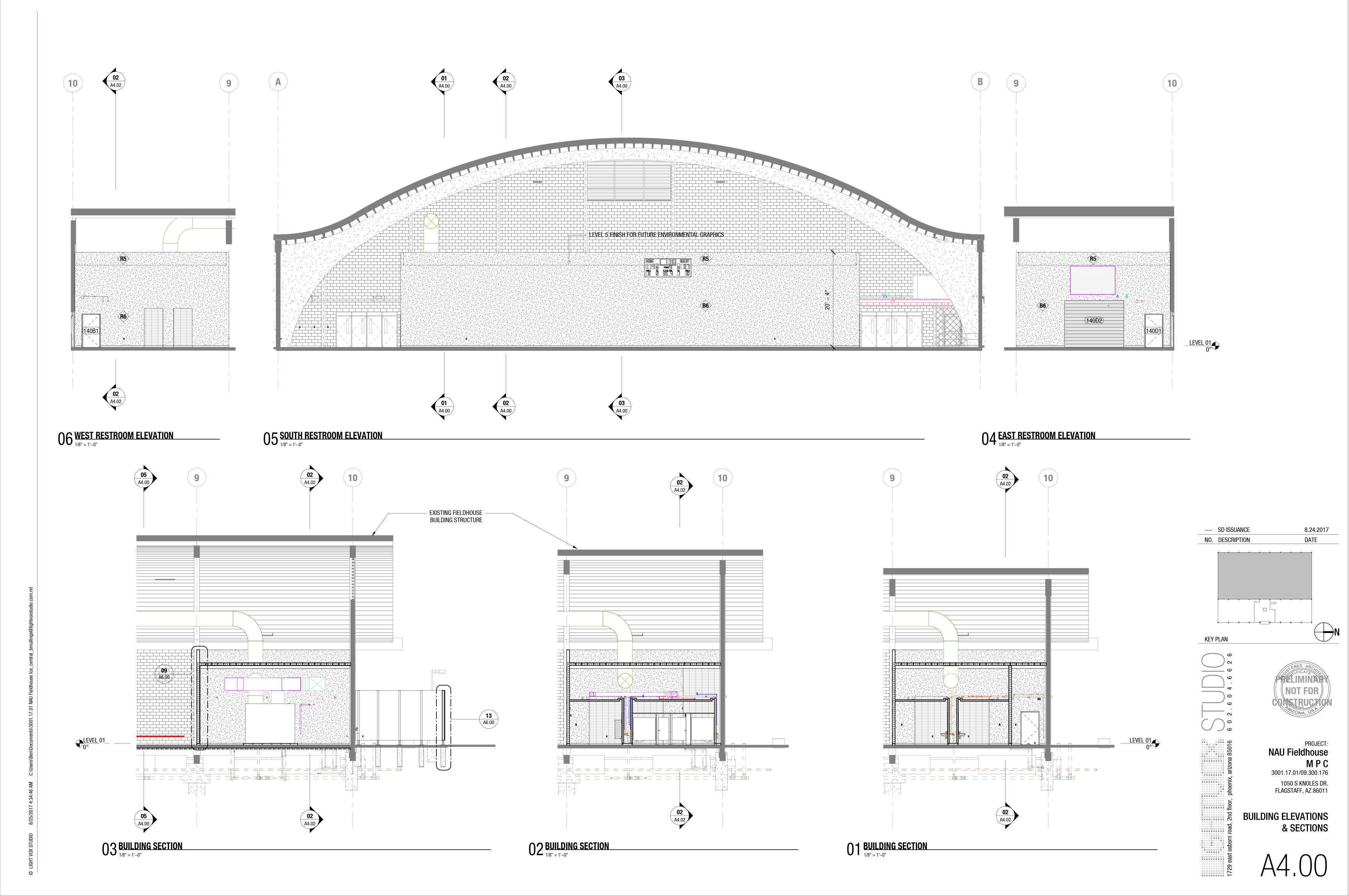
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3001.17.01/09.300.176

1050 S KNOLES DR.
FLAGSTAFF, AZ 86011

LEVEL 01 OVERALL
CEILING PLAN

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PROJECT:
NAU Fieldhouse
M P C
3001.17.01/09.300.176
1050 S KNOLES DR.
FLAGSTAFF, AZ 86011

BUILDING ELEVATIONS & SECTIONS

A4.02

8.24.2017 DATE PROJECT: NAU Fieldhouse **M P C** 3001.17.01/09.300.176

1050 S KNOLES DR. FLAGSTAFF, AZ 86011

**AXONOMETRIC** 

VON CTIDIO 0/25/2017 4:20:07 AM CALlock/Don/Documents/2001 17 01 MAII Endebouse to control brandlings Sightwoorted on a

KEY PLAN

RESTROOM

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RESTROOM

RELEVATIONS

RESTROOM

RELEVATIONS

8.24.2017

DATE

-- SD ISSUANCE NO. DESCRIPTION

R/I	ETAL CT	UD SIZE	5 psf / DEFLECTION LIMITS						
IVI	CIAL 31	OD SIZE	H / 120	H / 240	H / 360				
	STEEL STUD DESIGNATION	GAUGE	MAX. HT.	MAX. HT.					
(JE)	600S125-18	25			18' – 1"				
<b>6"</b> Flange)	600S125-27	22		24'-4"	21'-3"				
1/4"	600S125-30	20 (DRYWALL)		24'-7"	21'-6"				
ב	600S125-33	20 (STRUCTURAL)		25'-6"	22'-3"				

- BASED ON 16" O.C. SPACING FOR METAL STUDS & 5/8" GYPSUM BOARD SHEATHING INSTALLED IN THE VERTICAL ORIENTATION TO BOTH SIDES OF THE PARTITION USING MIN. NO. 6 TYPE S DRYWALL SCREWS SPACED A MAX. OF 16"
- ASSUME H/240 FOR ALL PARTITIONS FINISHED WITH PAINT. ASSUME H/360 FOR ALL PARTITIONS FINSHED WITH TILE.

#### **GENERAL FIRESTOPPING NOTES**

WHERE REQUIRED (SEE ITEM 2) EACH FIRESTOPPING SYSTEM IS TO BE INSTALLED PER APPLICABLE U.L. SYSTEMS NUMBER & ITS INSTALLATION REQUIREMENTS IN THE LATEST EDITION OF UNDERWRITERS LABORATORIES INC. "FIRE RESISTANCE DIRECTORY — VOLUME II" REFERENCE SPECIFICATION "SECTION 07 84 13 – PENETRATION FIRESTOPPING".

FIRESTOPPING IS REQUIRED AT:

A. ALL EXPANSION JOINTS OCCURRING IN NON-RATED FLOOR OR ROOF CONSTRUCTION USING THE SAME U.L. SYSTEM REQUIREMENTS FOR A ONE HOUR RATING

B. ALL PENETRATIONS OF FIRE RESISTIVE FLOOR & ROOF CONSTRUCTION, AND FIRE/SMOKE RESISTIVE WALLS AND PARTITIONS RESULTING FROM WORK OF ALL TRADES.

C..ALL VOIDS AND JOINTS AT TOP AND BOTTOM OF ALL FIRE/ SMOKE RESISTIVE WALLS AND PARTITIONS. SEE DETAILS & NOTES ON SHEET A11.1

D. ALL CONSTRUCTION/EXPANSION JOINTS IN ALL FIRE/SMOKE RESISTIVE WALLS AND PARTITIONS AND FIRE RESISTIVE FLOOR AND ROOF CONSTRUCTION.

F. ALL PENETRATIONS OF ALL NON-RATED FLOOR AND ROOF CONSTRUCTION, RESULTING FROM WORK OF ALL TRADES, USING THE SAME U.L. SYSTEM REQUIREMENTS FOR A ONE HOUR RATING.

- ALL PENETRATIONS, AND VOIDS, RESULTING FROM WORK OF ALL TRADES, AND ALL VOIDS & JOINTS AT TOP AND BOTTOM OF ALL NON-RATED PARTITIONS, WHERE PARTITIONS EXTEND FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF DECK. AND TOP OF PARTITION IS CONCEALED BY A CEILING. COMPLY TO DETAILS AND NOTES ON SHEET A11.1, USING THE SAME U.L. SYSTEM REQUIREMENTS FOR A ONE HOUR RATING.
- FOR RENOVATION WORK WHERE OPENINGS AROUND PENETRATING ITEM (S) IN EXISTING WALLS, PARTITIONS, FLOORS AND ROOFS DO NOT MEET U.L. SYSTEM REQUIREMENTS, THEN THE OPENING SHALL BE INFILLED, BY THE GENERAL CONTRACTOR, WITH MATCHING WALL, PARTITION, FLOOR OR ROOF CONSTRUCTION MATERIALS TO COMPLY WITH THE ANNULAR OPENING SIZE REQUIREMENT OF THE U.L. SYSTEM. WHERE THE OPENING CANNOT BE CLOSED DUE TO EXISTING CONDITIONS OR QUANTITY AND TYPE OF PENETRATING ITEM(S), THEN THE FIRESTOPPING CONTRACTOR SHALL OBTAIN AN ENGINEERING JUDGMENT RECOMMENDATION OF THE U.L. SYSTEM TO BE USED FROM THE ENGINEERING DEPARTMENT OF THE MANUFACTURER OF THE FIRESTOPPING MATERIALS. THIS JUDGMENT SHALL BE VERIFIED BY UNDERWRITERS LABORATORIES. THE ENGINEERING JUDGMENT AND THE U.L. VERIFICATION SHALL BE SUBMITTED AS WRITTEN AND/OR GRAPHIC DOCUMENTATION.
- FOR NEW CONSTRUCTION WHERE THE CONDITION DOES NOT MEET THE REQUIREMENTS OF A U.L. SYSTEM, THEN OBTAIN AN ENGINEERING JUDGMENT AS OUTLINED IN ITEM 4. ABOVE.

**GENERAL PARTITION NOTES** 

# FOR ALL OTHER NON-RATED PARTITIONS, CLOSE THE VOID BETWEEN PARTITION AND UNDERSIDE OF FLOOR OR ROOF DECK WITH MINERAL WOOL (SAFING INSULATION) AND PROVIDE 1/2" DEEP NON-SAG

**ELEVATION** 

BOTTOM TRACK, FOR CONNECTION

SEE TYPICAL NON-BEARING WALL

CONNECTION DETAIL -

TYPICAL ALL STUD PARTITION TYPES: PROVIDE CONTINUOUS 2x8 TREATED WOOD BLOCKING, REINFORCING SUPPORT, FOR ALL WALL HUNG ITEMS INCLUDING HANDRAILS, GRAB BARS, MILLWORK, USE 1x8 TREATED WOOD BLOCKING AT METAL FURRING.

PROVIDE THE FOLLOWING AT ALL LOCATIONS WHERE THE JUNCTION OF THE PARTITION TO UNDERSIDE OF FLOOR OR ROOF DECK IS EXPOSED TO VIEW (NO CEILINGS OR FLOATING CEILINGS HELD AWAY FROM THE PARTITION):

AT FIRE RATED/SMOKE BARRIER PARTITIONS, CLOSE THE VOID BETWEEN PARTITION AND UNDERSIDE OF FLOOR OR ROOF DECK WITH UL JOINT SYSTEM OF EQUAL OR GREATER RATING THAN THE ASSEMBLIES

USE UL SYSTEM HW-D-0498 FOR GYPSUM BOARD PARTITIONS.

AT INTERIOR SIDE OF EXTERIOR WALLS TO BOTTOM OF FLOOR OR ROOF DECK, AT BOTH SIDES OF ALL NON-RATED CORRIDOR PARTITIONS AND AROUND ALL FOUR WALLS OF ANY TYPE OF CLOSET, DINING, ELECTRICAL, LABORATORY, LAUNDRY, LOCKER, KITCHEN, MAINTENANCE, MECHANICAL, SHOP, STORAGE OF UTILITY ROOM, CLOSE THE VOID BETWEEN PARTITION AND UNDERSIDE OF DECK USING SAME UL SYSTEM (1 HOUR) AS NOTED ABOVE.

ACOUSTICAL SEALANT, BEADED.

PROVIDE THE FOLLOWING AT ALL LOCATIONS WHERE THE JUNCTION OF THE PARTITION TO UNDERSIDE OF FLOOR OR ROOF DECK IS CONCEALED TO VIEW (ABOVE CEILINGS THAT ARE INSTALLED WALL TO WALL):

AT FIRE RATED/SMOKE BARRIER PARTITIONS, CLOSE THE VOID BETWEEN PARTITIONS AND UNDERSIDE OF FLOOR OR ROOF DECK WITH UL JOINT SYSTEM OF EQUAL OR GREATER RATING THAN THE ASSEMBLIES JOINED

AT INTERIOR SIDE OF EXTERIOR WALLS TO BOTTOM OF FLOOR OR ROOF DECK AND AT ALL OTHER PARTITIONS, CLOSE THE VOID BETWEEN PARTITION AND UNDERSIDE OF DECK WITH UL JOINT SYSTEM OF EQUAL OR GREATER RATING THAN THE ASSEMBLIES JOINED

PROVIDE SOUND ATTENUATION BLANKET, FRICTION FIT, FULL HEIGHT OF EACH METAL STUD CAVITY AT ALL PARTITIONS UNLESS NOTED OTHERWISE.

PARTITIONS THICKNESSES ARE EXCLUSIVE OF ADDITIONAL VENEERS/FINISHES. REFER TO FINISH PLANS FOR SPECIFIC TILE, STONE OR OTHER VENEER FINISH WHERE OCCURS IN PLAN. CONTRACTOR TO COORDINATE CRITICAL CLEAR DIMENSIONS, WHERE INDICATED IN PLAN, WITH TOTAL FINISHED WALL ASSEMBLY.

FOR ALL FULL—HEIGHT PARTITIONS: PROVIDE 1" MINIMUM DEFLECTION TRACK AND JOINT FOR THOSE PARTITIONS OCCURRING ON THE FIRST FLOOR AND 1-1/2" FOR THOSE PARTITIONS OCCURRING ON THE SECOND FLOOR.

PROVIDE WATER RESISTANT GREEN GYP BD AT ALL WET LOCATIONS WHERE NOT SCHEDULED TO RECEIVE TILE FINISH.

REPLACE GYP BD LAYER WITH CEMENT BACKER BOARD AT ALL LOCATIONS WHERE GYP BD PARTITIONS ARE SCHEDULED TO RECEIVE TILE FINISH. REFER TO RESPECTIVE TCNA INSTALLATION GUIDELINES AND SPECIFICATION SECTION 09 30

UNDERSIDE OF DECK OR UNDERSIDE OF DECK OR STRUCTURE STRUCTURE ABOVE ABOVE WHERE OCCURS DEFLECTION TRACK ACOUSTICAL SEALANT EXTEND GYP. BD. TO CONSTRUCTION ABOVE AND SEAL ON SIDE OF PARTITION DEFLECTION TRACK WHERE NO CEILING OCCURS FINISHED CEILING WHERE OCCURS (SEE RCP) SOUND ATTENUATION BRACE FRAMING TO SUBSTRATE BLANKET NOT TO EXCEED 8'-0" O.C. (SEE SCHEDULE BELOW) STEEL STUD FRAMING (SEE SCHEDULE BELOW) LINE OF NEW OR EXISTING PARTITION OR SUBSTRATE FIFI DHOUSE (1) LAYER OF 5/8" GWB ACOUSTICAL SEALANT ACOUSTICAL SEALANT FINISHED FLOOR FINISHED FLOOR - SEE SCHEDULE BELOW FOR DIMENSION -SEE SCHEDULE BELOW FOR DIMENSION STUD PART. PART. ATTN **NOTES** ATTN NOTES SIZE THICK. SIZE THICK. (L1) 1-5/8" R1 3-5/8" 600S125-33 2-1/4" NONE N/A 4-7/8" NONE (L2) | 2–1/2" | 3-1/8" N/A 4-7/8" 600S125-33 NONE (L3) 3-5/8" NONE N/A 5-1/4" NONE 600S125-33 4-1/4" 5-1/4" 600S125-33 7–1/4" NONE 600S125-33 7-1/4" 600S125-33 NON-RATED PARTITION NON-RATED PARTITION SCALE: 1 1/2" = 1'-0" SCALE:  $1 \frac{1}{2} = 1' - 0''$ 

UNDERSIDE OF DECK ABOVE ACOUSTICAL SEALANT DEFLECTION TRACK FINISHED CEILING WHERE OCCURS (SEE RCP) FINISHED CEILING WHERE OCCURS (SEE RCP) SOUND ATTENUATION BI ANKET (SEE SCHEDULE BELOW) BRACE @ EACH STUD @ 48" O.C. MAX VERT. (1) LAYER OF 5/8" TYPE "X" GWB -PROVIDE STEEL STUD FRAMING (SEE HIGH IMPACT RESISTANT WHEN FACING SCHEDULE) (1) LAYERS OF 5/8" GWB AT EACH SIDE ACOUSTICAL SEALANT FINISHED FLOOR -SEE SCHEDULE BELOW FOR DIMENSION STUD PART. TYPE ATTN NOTES SIZE THICK. T1 2-1/2" NONE N/A PLAN T2 2-1/2" N/A PLAN T3 3-5/8" NONE N/A PLAN T4 3-5/8" N/A PLAN NON-RATED PARTITION SCALE: 1 1/2" = 1'-0"



STUD

SIZE

SCALE:  $1 \frac{1}{2}$ " = 1'-0"

B1 3-5/8"

PART.

THICK.

6"

6"

6-3/8"

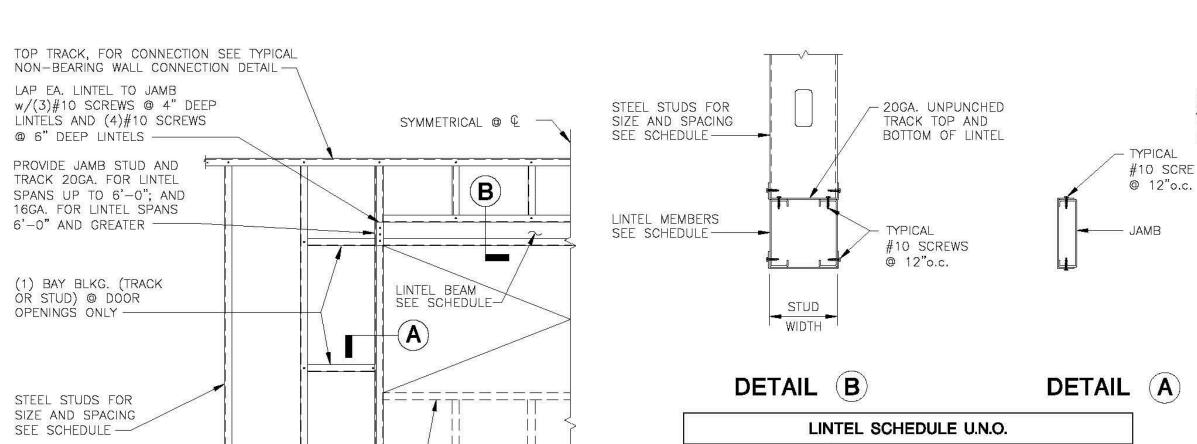
6-3/8"

8-3/8"

8-3/8"

HIGH IMPACT/ACOUSTIC PARTITION

**PARTITION TYPES** 



UNDERSIDE OF DECK OR STRUCTURE

FINISHED CEILING WHERE OCCURS (SEE RCP)

ABOVE WHERE OCCURS

ACOUSTICAL SEALANT

DEFLECTION TRACK

RC-1 CHANNEL AT 24" O.C

MINERAL WOOL BATT

(SEE SCHEDULE BELOW)

STEEL STUD FRAMING (SEE

(2) LAYERS OF 5/8" TYPE "X"

(1) LAYER OF 5/8" TYPE "X" GWB -

PROVIDE HIGH IMPACT RESISTANT

NOTES

600S125-33

600S125-33

600S125-33

600S125-33

600S125-33

600S125-33

- 16GA. CONT. TRACK

@ SILLS

UL DESIGN U419/RAL-TL-84-136

WHEN FACING FIELDHOUSE

ACOUSTICAL SEALANT

BELOW FOR DIMENSION

FINISHED FLOOR

-SEE SCHEDULE

WOOL

NONE

NONE

NONE

SCHEDULE BELOW)

LINTEL SCHEDULE U.N.O.							
SPAN	LINTEL SIZE						
_<6'-0"	(2) 4"x20 GA. METAL CEE STUDS						
<6'-0"- <u>&lt;</u> 8'-0"	(2) 6"x18 GA. METAL CEE STUDS						
<8'-0"- <u>&lt;</u> 19'-6"	(2) 6"x18 GA. METAL CEE STUDS						

#### TYP NON-BEARING INTERIOR STUD WALL DETAILS (3) FLUTE (2 PER 4 EACH SIDE STUD 4 EACH SIDE EACH STUD 4 EACH STUD P16GAx3x1'-3" — METAL STUD @ 16"o.c.(U.N.O.) @ 16"o.c. —— PER TABLE BELOW, PROVIDE 18GA. SLOTTED BRIDGING @ 4'-0"o.c. OR PER TOP TRACK MANUFACTURER WHERE GYPSUM ICC ESR-1042 -BOARD IS NOT APPLIED TO BOTH SURFACES, SEE TYPICAL STUD PERPENDICULAR STUD PARALLEL STUD PARALLEL NON-BEARING METAL STUD WALL TO STEEL DECK TO STEEL DECK TO STEEL DECK BRIDGING DETAILS. BETWEEN FLUTES ON FLUTE TOP OF SLAB

**METAI** 

MARK

@ 36"o.c.

@ 36"o.c.

METAL STUD FASTENER SCHEDULE

**FASTENERS** 

SIZE AND SPACING

HILTI X-U UNIVERSAL POWDER DRIVEN FASTENERS

HILTI X-U UNIVERSAL POWDER DRIVEN FASTENERS

HILTI X-U UNIVERSAL POWDER DRIVEN FASTENER

HILTI KB-TZ  $\frac{3}{8}$ "  $\neq$  x  $2\frac{5}{8}$ " EXPANSION ANCHORS

@ 36"o.c. AT METAL DECK w/CONC. FILL,

AT METAL DECK w/CONC. FILL,

AT METAL DECK W/NO CONC. FILL

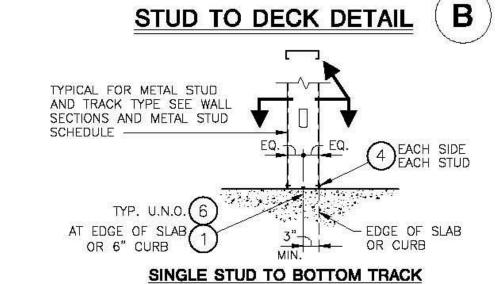
#10 SHEET METAL SCREW x 1" LONG

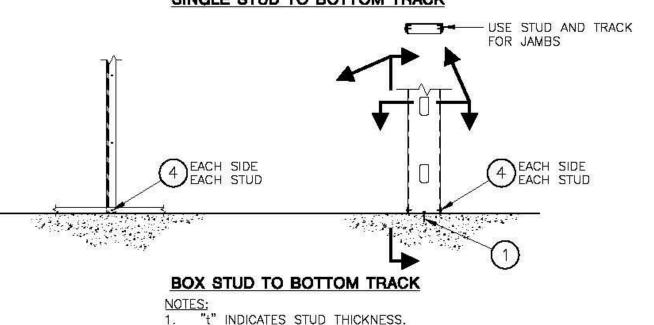
#12 SHEET METAL SCREW x 1" LONG

USE #10 SHEET METAL SCREWS x 1" LONG

@ 16"o.c. AT METAL DECK w/NO CONC. FILL

USE #10 SHEET METAL SCREW x 1" LONG





# STUD TO SLAB DETAIL

WELDING PROCEDURE PER AWS D1.3.

FOR STEEL STUD AND TRACK TYPE, SEE PLANS, SECTIONS AND METAL STUD SIZE SCHEDULE.

2. FOR METAL STUD FASTENERS, SEE METAL STUD FASTENER SCHEDULE. 3. ALL POWER DRIVEN FASTENERS TO HAVE A MINIMUM PENETRATION OF  $1\frac{1}{4}$ ".

L STUD ELEVATION		
L'OTOD ELLVATION		
	KEY PLAN	
	6 6 2 6	CSTERED ARCHITE

REMARKS

ESR-2269

ESR-2269

ESR-2269

ESR-1408

ESR-1408

ESR-1917

.....

-- SD ISSUANCE

NO. DESCRIPTION

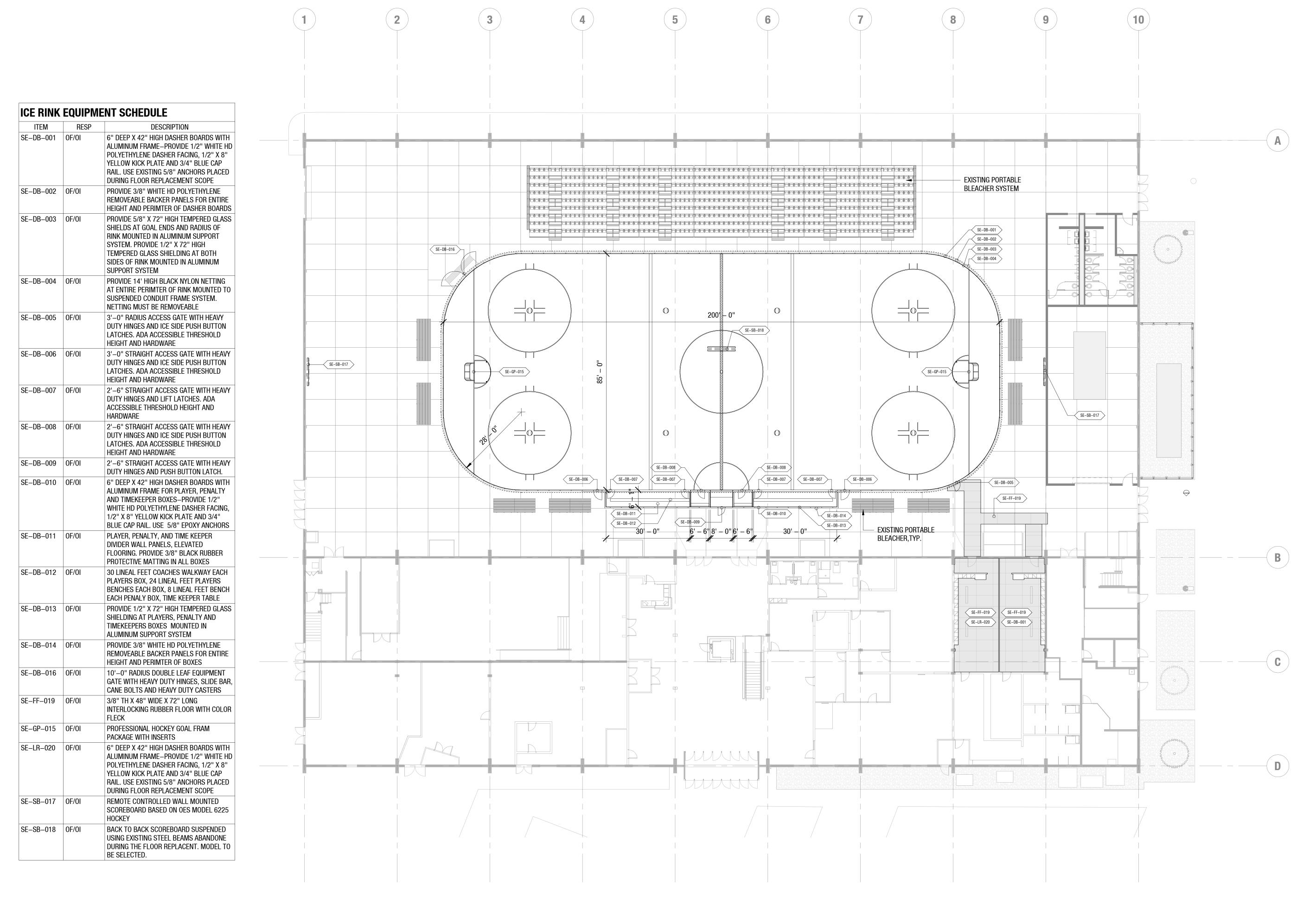


PROJECT: **NAU Fieldhouse** MPC 3001.17.01/09.300.176 1050 S KNOLES DR. FLAGSTAFF, AZ 86011

8.24.2017

DATE

PARTITION TYPES



NO. DESCRIPTION

NO. DESCRIPTION

KEY PLAN

KEY PLAN

NOT FOR
CONSTRUCTION

PROJECT:
NAU Fieldhouse
M P C
3001.17.01/09.300.176
1050 S KNOLES DR.
FLAGSTAFF, AZ 86011

ICE RINK EQUIPMENT

**PLAN** 

1 ICE RINK EQUIPMENT PLAN
1/16" = 1'-0"

## FIRE / SMOKE BARRIER DESIGNATIONS

THE LINE TYPES SHOWN ARE FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY RATINGS WITH THE LATEST SET OF ARCHITECTURAL PLANS AND FURNISH ALL MATERIALS REQUIRED TO COMPLY WITH THOSE RATINGS WHETHER SHOWN OR NOT.

ALL FLOOR ASSEMBLIES SHALL BE DESIGNATED AS HOUR FIRE BARRIER(S). UNLESS NOTED OTHERWISE ON THE PLANS. RATINGS WERE ACQUIRED FROM THE ARCHITECTURAL PLANS.

1 HOUR FIRE BARRIER

# APPLICABLE CODES

\_-----

CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS.

BUILDING CODE: **IBC 2012 EDITION** FIRE CODE: IFC 2012 EDITION PLUMBING CODE: IPC 2012 EDITION **IMC 2012 EDITION** MECHANICAL CODE: ELECTRICAL CODE: NFPA 70 (NEC) 2011 EDITION

**ENERGY CONSERVATION CODE:** IECC 2012

LOCAL BUILDING CODE: CURRENT EDITION

STANDARDS: NAU TECHNICAL STANDARDS CURRENT EDITION

CONTACT PERSONS:								
DESCRIPTION:	PERSON:							
PROJECT MANAGER	JORDAN ROELFS							
MECHANICAL ENGINEER	JORDAN ROELFS							
ELECTRICAL ENGINEER	CARLOS LANDA							
ICE SYSTEMS ENGINEER	RUSSELL BIRCH							

	<b>CONTRACTOR ABBREVIATION KEY</b>
ABBR:	DESCRIPTION:
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR

—CWR——	
014/0	CHILLED WATER SUPPLY
—CWS—	CHILLED WATER SUPPLY
—DPP——	DRAIN  CLYCOL WATER RETURN
—GWR——	GLYCOL WATER SURPLY
—GWS——	GLYCOL WATER SUPPLY
—HWR—	HEATING WATER CURRING
—HWS——	HEATING WATER SUPPLY
—LPC—	LOW PRESSURE CONDENSATE
—LPS——	LOW PRESSURE STEAM
——PC——	PUMPED CONDENSATE
——PD——	PUMPED DISCHARGE
<del></del>	PIPE CAP
—— <b>э</b>	PIPE DOWN
o	PIPE UP OR UP/DOWN
	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
<del></del>	NEW CONNECTION
——	DIELECTRIC CONNECTION
——II———	UNION/FLANGE
<b>─</b> ──	SHUTOFF VALVE NORMALLY OPEN
NA NA	SHUTOFF VALVE NORMALLY CLOSED
—W——	THROTTLING VALVE
—¤	BALANCING VALVE (NUMBER INDICATES GPM)
	AUTOMATIC BALANCING VALVE
	MIXING VALVE
<b>──}</b>	CONTROL VALVE (THREE-WAY)
	CONTROL VALVE (TWO-WAY)
	SOLENOID VALVE
	CHECK VALVE
~ <u>-</u>	
	SAFETY/RELIEF VALVE
<del></del>	PRESSURE REDUCING VALVE (LIQUID/GAS)
	PRESSURE REDUCING VALVE (STEAM)
<b>Ψ</b>	TRIPLE DUTY VALVE (ANGLE TYPE)
	TRIPLE DUTY VALVE (IN-LINE TYPE)
<b>-(D)</b>	PUMP
$\nabla$	VACUUM BREAKER
1	
<u> </u>	"WYE" - STRAINER
	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
<u> </u>	BASKET STRAINER
	FLEXIBLE CONNECTION
	PRESSURE/TEMPERATURE TEST PLUG
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
<b>→</b> •	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	SUCTION DIFFUSER WITH SUPPORT FOOT
용	AUTOMATIC AIR VENT
	7.616.W/(16741/CVEIV)
$\mathbf{x}$	MANUAL AIR VENT
▼	DRAIN VALVE WITH HOSE CONNECTION AND CAP
<u> </u>	
	TEMPERATURE SENSOR WITH WELL
<u> </u>	
<del>_</del>	THERMOMETER WITH WELL (DIAL TYPE)
	THERMOMETER WITH WELL (FILLED TYPE)
<u>T</u>	·
FM	FLOW METER
- <del></del>	FLOW SENSOR
— <u>[fs]</u> —	FLOW SENSOR
F T	FLOW SWITCH
	STEAM TRAP (REFER TO SCHEDULE)
<u> </u>	FOT STEAM TO AD (DEFED TO SOLVED) WES
$\bigcup_{\underline{T}^{-*}}$	F&T STEAM TRAP (REFER TO SCHEDULE)
— <u> </u>	INVERTED BUCKET STEAM TRAP (REFER TO SCHEDULE)
<u> </u>	ALIGNMENT GUIDE
×	PIPE ANCHOR
	EXPANSION JOINT
(T)	THERMOSTAT/SENSOR
	THERMOSTAT/SENSOR W/HEAVY DUTY ENCLOSURE
• <b>•</b> ••	DIFFERENTIAL PRESSURE SENSOR
© ©2	CARBON MONOXIDE SENSOR
(C2)	CARBON DIOXIDE SENSOR
Θ	HUMIDISTAT SENSOR
H	HUMIDISTAT/SENSOR (DUCT MOUNTED)
<b>©</b>	OCCUPANCY SENSOR
®	PRESSURE SENSOR/MONITOR
P	PRESSURE SENSOR (DUCT MOUNTED)

**PIPING SYMBOL LIST** 

NOT ALL SYMBOLS MAY APPLY.

#### **MECHANICAL ABBREVIATION KEY** ABBR: **DESCRIPTION:** AD ACCESS DOOR ABOVE FINISHED FLOOR COMMON CO CLEANOUT CD-E CEILING DIFFUSER - EXISTING DPG (0-2") DIFFERENTIAL PRESSURE GAUGE (RANGE) DIFFERENTIAL PRESSURE SWITCH FD FIRE DAMPER FSD FIRE/SMOKE DAMPER EXHAUST/RELIEF AIR **ELECTRICAL TO PNEUMATIC VALVE** MIXED AIR MIXING VALVE **NEW CONNECTION** NORMALLY CLOSED NOT IN CONTRACT N.O. NORMALLY OPEN OUTSIDE AIR PRESSURE SWITCH TYPICAL **RETURN AIR** SUPPLY AIR **UNLESS NOTED OTHERWISE**

NOT ALL SYMBOLS MAY APPLY.								
SYMBOL:	DESCRIPTION:							
	DIRECTION OF AIR FLOW							
	FLEXIBLE DUCT							
	MANUAL VOLUME DAMPER							
R	RISE IN DIRECTION OF AIR FLOW							
D	DROP IN DIRECTION OF AIR FLOW							
	DUCT CAP							
×	DUCT DOWN							
	DUCT UP							
$\boxtimes$	SUPPLY/OUTSIDE AIR DUCT SECTION							
	RETURN AIR DUCT SECTION							
	EXHAUST/RELIEF AIR DUCT SECTION							
	4-WAY DIFFUSER WITH BLANKOFF IN ONE DIRECTION							
<u>CD-1</u> 6/115	AIR TERMINAL PROPERTIES SYMBOL NECK SIZE/CFM							
	OPPOSED BLADE DAMPER (REFER TO SCHEDULE)							
//////	PARALLEL BLADE DAMPER (REFER TO SCHEDULE)							
•—•	DIFFERENTIAL PRESSURE SENSOR							
©	CARBON MONOXIDE SENSOR							
<b>©</b> 2	CARBON DIOXIDE SENSOR							
$\Theta$	HUMIDISTAT SENSOR							
H	HUMIDISTAT/SENSOR (DUCT MOUNTED)							
0	OCCUPANCY SENSOR							
®	PRESSURE SENSOR/MONITOR							
P	PRESSURE SENSOR (DUCT MOUNTED)							
<u></u>	THERMOSTAT/SENSOR							
	TEMPERATURE SENSOR (DUCT MOUNTED)							
	THERMOSTAT/SENSOR WITH HEAVY DUTY ENCLOSURE							

#### **PIPING GENERAL NOTES:**

- 1. THE SIZE OF BRANCH PIPING TO TERMINAL HEATING DEVICES AND COILS SHALL BE 3/4" UNLESS
- 2. PIPE DRAIN LINES FROM EQUIPMENT TO NEAREST FLOOR DRAIN. 3. INSTALL ALL REFRIGERANT LIQUID AND SUCTION PIPING AND SIZED PER EQUIPMENT
- MANUFACTURER RECOMMENDATIONS.

#### **VENTILATION GENERAL NOTES:**

- 1. THE SIZE OF EACH BRANCH DUCT TO A TERMINAL AIR BOX (TAB) SHALL MATCH THE TAB'S INLET SIZE UNLESS THE BRANCH IS GREATER THAN 6 FEET IN LENGTH, THEN THE BRANCH SHOULD BE
- INCREASED ONE DUCT SIZE, OR NOTED OTHERWISE. 2. ALIGN TEMPERATURE SENSORS WITH LIGHT SWITCHES AND WHEN IN CLOSE PROXIMITY TO EACH
- 3. PROVIDE ACCESS DOORS AT ALL DUCT MOUNTED EQUIPMENT
- 4. EXISTING AIR INLET AND OUTLET CFM SHOWN ON DRAWINGS ARE FROM EXISTING DRAWINGS, AND ARE FOR REFERENCE ONLY. CONTRACTOR SHALL USE PRE-BALANCE VALUES, AND NOT EXISTING CFM SHOWN ON DRAWINGS.
- 5. CONTRACTOR MAY REUSE PORTIONS OF EXISTING DUCT PROVIDED SIZES AND PRESSURE CLASSES ARE CORRECT, DUCT IS THOROUGHLY CLEANED AND FREE OF DEFECTS, AND ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS, AND DUCT WALL PENETRATIONS ARE SEALED AS SPECIFIED FOR NEW DUCTWORK.
- 6. CLEAN ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK UPSTREAM OF ALL NEW CONNECTIONS PER SPECIFICATION SECTION 23 31 00. [NTD: INCLUDE ONLY IF NECESSARY. CLEANING IS EXPENSIVE]

#### **MECHANICAL RENOVATION NOTES:**

THESE NOTES APPLY TO ALL MECHANICAL SHEETS

- 1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
- 2. NOT ALL EXISTING DUCTWORK AND PIPING IS SHOWN. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK.
- 3. FIELD VERIFY THE AVAILABLE CLEARANCES FOR PIPING BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.

4. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS WORK AND SHALL

- NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO HIS AREA OF WORK. WHERE EXISTING MECHANICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT OR PIPING TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, PIPING, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH
- OF NEW EQUIPMENT, PIPING, OR DUCTWORK. 6. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. MAINTAIN ACCESS TO EXISTING MECHANICAL INSTALLTIONS WHICH REMAIN

EXISTING SYSTEMS, OR REWORK EXISTING MECHANICAL SYSTEMS TO ALLOW FOR INSTALLATION

- 7. OBTAIN PERMISSION FROM OWNER BEFORE SHUTTING DOWN ANY SYSTEM FOR ANY REASON. MAINTAIN SERVICE TO ALL COMPONENTS THAT ARE TO REMAIN UNTIL NEW SYSTEMS ARE
- INSTALLED. 8. MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR TIE IN AND SWITCHOVER. DRAIN SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER BEFORE PARTIALLY OR COMPLETELY DRAINING SYSTEM. MAKE CHANGEOVER TO NEW SYSTEMS WITH MINIMUM OUTAGE.

#### **MECHANICAL GENERAL NOTES:**

THESE NOTES APPLY TO ALL MECHANICAL SHEETS.

- 1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, PIPING, ETC, ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF PIPING. EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
- 2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
- COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS
- 4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
- 5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO
- 6. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR
- PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
- 8. SEAL ALL FLOOR AND WALL PENETRATIONS AIRTIGHT WHERE PIPING PENETRATES. [PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
- 9. WHERE PIPES ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL
- SLEEVE PERIMETER TO BE WATERTIGHT. 10. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

## **MECHANICAL SHEET INDEX**

MECHANICAL COVER SHEET M1.00 MECHANICAL PLAN - BASE BID

MECHANICAL PLAN - OPTION 1 M1.01

MECHANICAL PLAN - OPTION 2 M1.02 M2.00 HEATING PLANT UPGRADES - BASE BID

M3.00 MECHANICAL DETAILS

M5.00 MECHANICAL SCHEDULES

M5.01 MECHANICAL SCHEDULES

MECHANICAL CONTROLS M6.00

MECHANICAL DEMOLITION PLAN - BASE BID

contact: BENJAMIN MULLINGS 0.602.604.6626

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016

PROJECT DIRECTORY

0.480.526.5484

LIGHTVOX STUDIO

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS

Electrical:

Mechanical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN o. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251

contact: MARK RUDOW 0.480.946.8171

KEY PLAN **PRELIMINARY** 

-- SD ISSUANCE

NO. DESCRIPTION

**NOT FOR** CONSTRUCTION

8.24.2017

DATE

PROJECT: **NAU Fieldhouse** MPC 3001.17.01/09.300.176

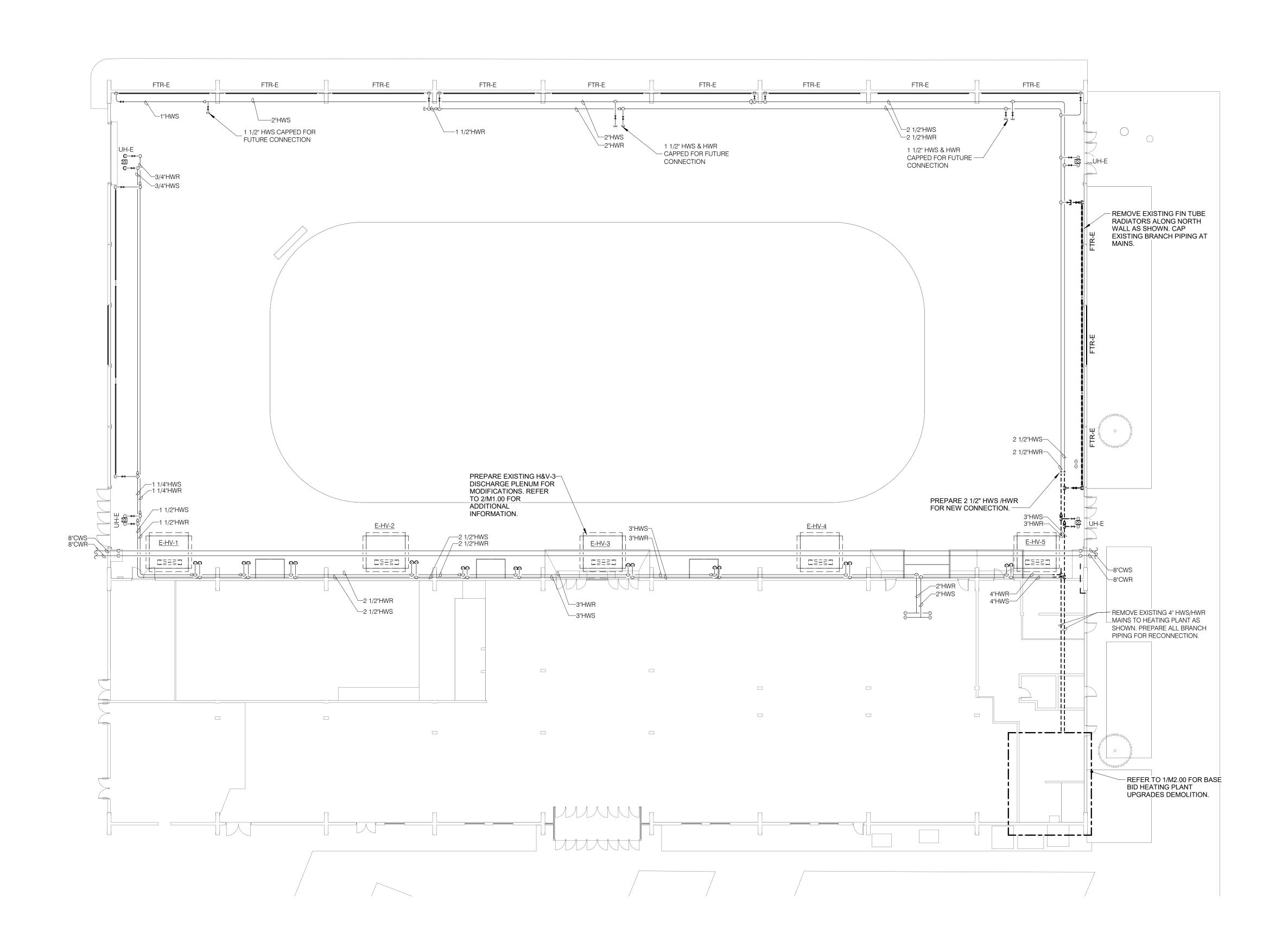
1050 S. Knoles Dr. Flagstaff, AZ 86011

**MECHANICAL COVER** SHEET

- ALL WORK SHOWN SHALL BE CONSIDERED BASE BID.
   REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE FOR ADDITIONAL INFORMATION.
- ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.

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REFERENCE SCALE IN INCHES





Architect:

LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS 0.602.604.6626

Mechanical:

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

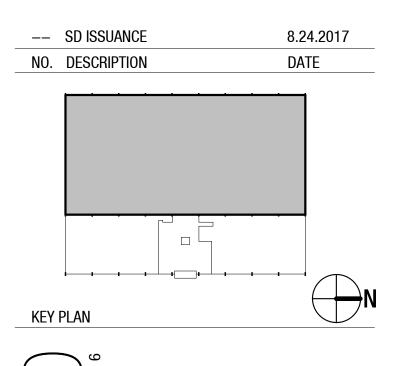
Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171



**PRELIMINARY NOT FOR** CONSTRUCTION

PROJECT: **NAU Fieldhouse** MPC

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

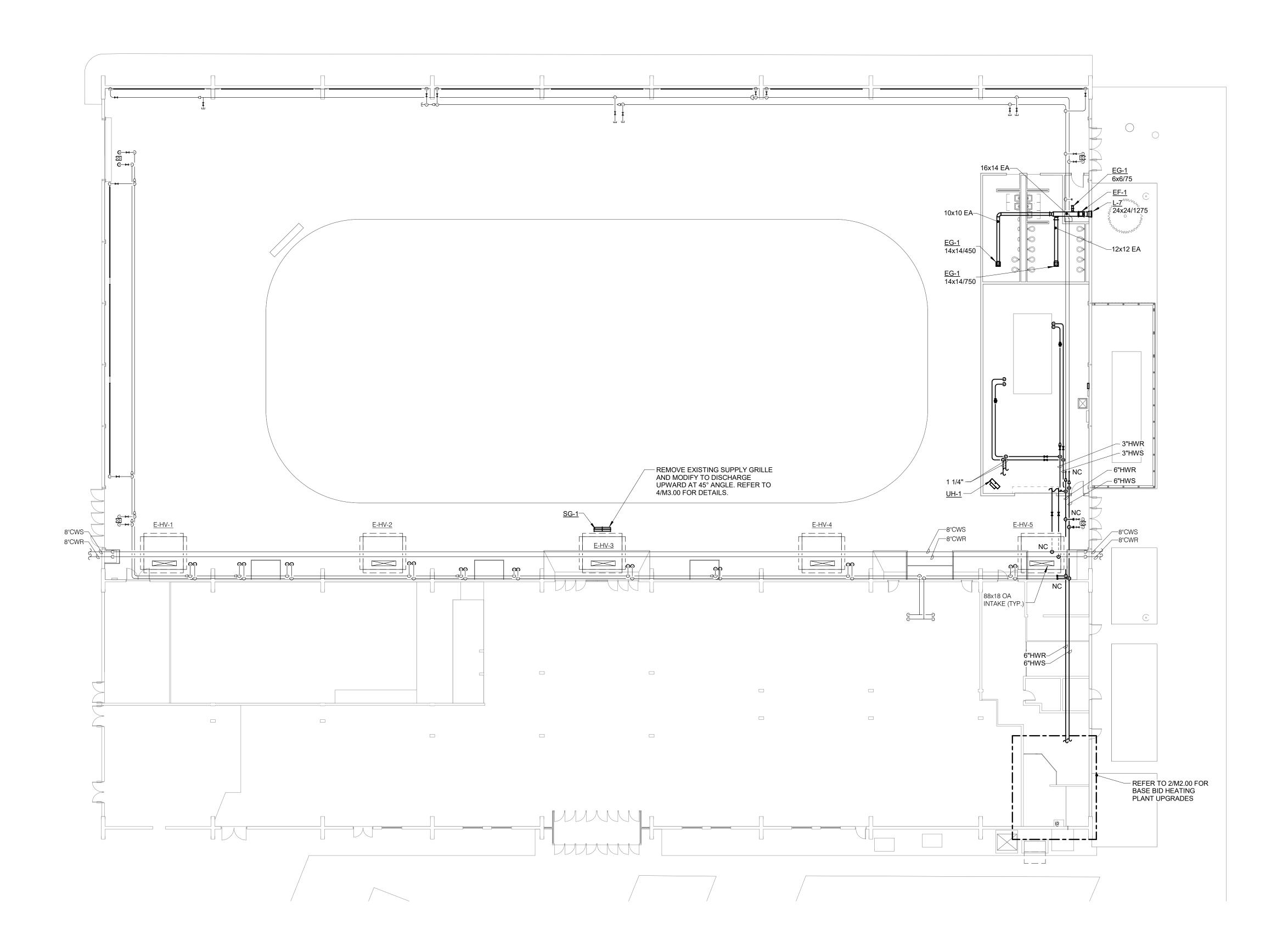
**MECHANICAL DEMOLITION PLAN -BASE BID** 



- ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS EXISTING CONDITIONS.

 ALL WORK SHOWN SHALL BE CONSIDERED BASE BID.
 REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE FOR ADDITIONAL INFORMATION.

SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL







Architect:

LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS

Mechanical:

0.602.604.6626

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

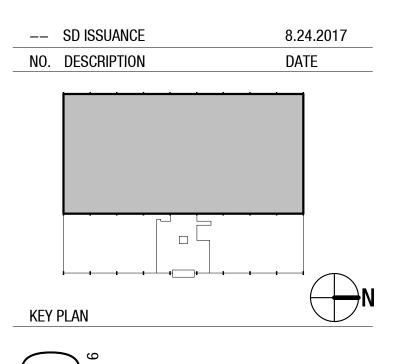
Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171



**PRELIMINARY NOT FOR** CONSTRUCTION

**NAU Fieldhouse** MPC 3001.17.01/09.300.176

1050 S. Knoles Dr. Flagstaff, AZ 86011

**MECHANICAL PLAN -BASE BID** 

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REFERENCE SCALE IN INCHES



#### **GENERAL SHEET NOTES:**

- ALL WORK SHOWN SHALL BE CONSIDERED MECHANICAL OPTION 1.
- REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE
- FOR ADDITIONAL INFORMATION.
- ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.

#### KEYNOTES #

- MECHANICAL PLAN OPTION 1 ALT BID: PROVIDE FABRIC DUCT ALTERNATIVE (DUCTSOX SEDONA XM OR EQUAL) WITH INTERNAL TENSIONING SYSTEM BEYOND THIS LÓCATION. PROVIDE BREAKOUT PRICING FOR THIS ALTERNATE.
- REFER TO 3/M3.00 FOR COIL FREEZE PROTECTION DETAIL.
- EXTEND NEW 3" CHWS/CHWR TO TWO DHU COOLING
- PROVIDE HEATING & CHILLED WATER USAGE METER AND DDC INTEGRATION TO CAMPUS EMS FOR NEW RUNS SERVING DEHUMIDIFIER. INSERTABLE MAGNETIC FLOW METER - ONICON F3500 WITH ONICON SERIES 10 TOTALIZER.

PROJECT DIRECTORY

Architect:

LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS

Mechanical:

**IMEG** 

0.602.604.6626

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

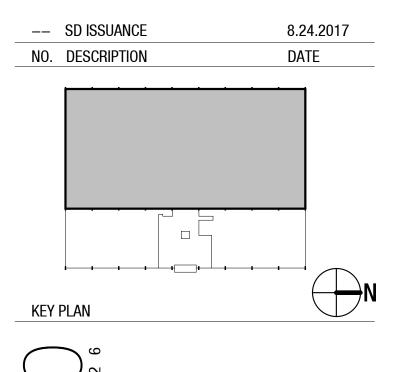
Electrical:

**IMEG** 323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171



**PRELIMINARY NOT FOR** CONSTRUCTION

**NAU Fieldhouse** MPC

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

**MECHANICAL PLAN -**OPTION 1

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REFERENCE SCALE IN INCHES





#### **GENERAL SHEET NOTES:**

- . ALL WORK SHOWN SHALL BE CONSIDERED MECHANICAL OPTION 2.
- REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE
- FOR ADDITIONAL INFORMATION.
- ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.

#### KEYNOTES #

- MECHANICAL PLAN OPTION 2 ALT BID: PROVIDE FABRIC DUCT ALTERNATIVE (DUCTSOX SEDONA XM OR EQUAL) WITH INTERNAL TENSIONING SYSTEM BEYOND THIS LOCATION. PROVIDE BREAKOUT PRICING FOR THIS ALTERNATE.
- REFER TO 3/M3.00 FOR COIL FREEZE PROTECTION
- EXTEND NEW 3" CHWS/CHWR TO TWO DHU COOLING

#### PROJECT DIRECTORY

Architect:

#### LIGHTVOX STUDIO

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS 0.602.604.6626

Mechanical:

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

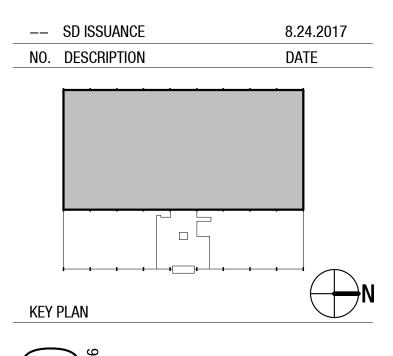
Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171

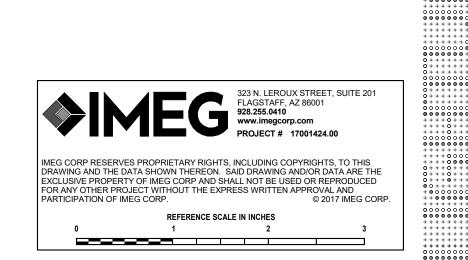


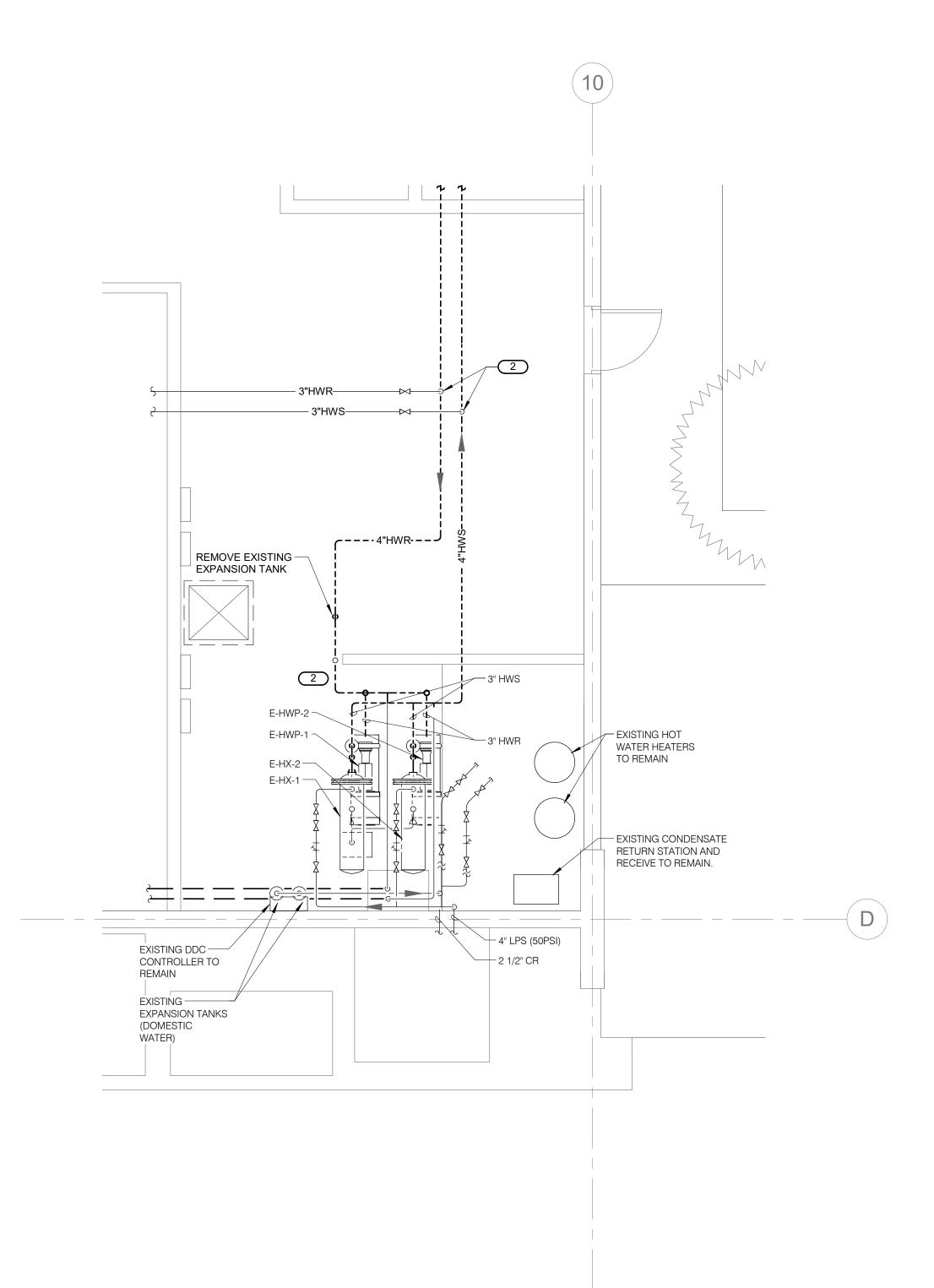
**PRELIMINARY NOT FOR** CONSTRUCTION

**NAU Fieldhouse** MPC

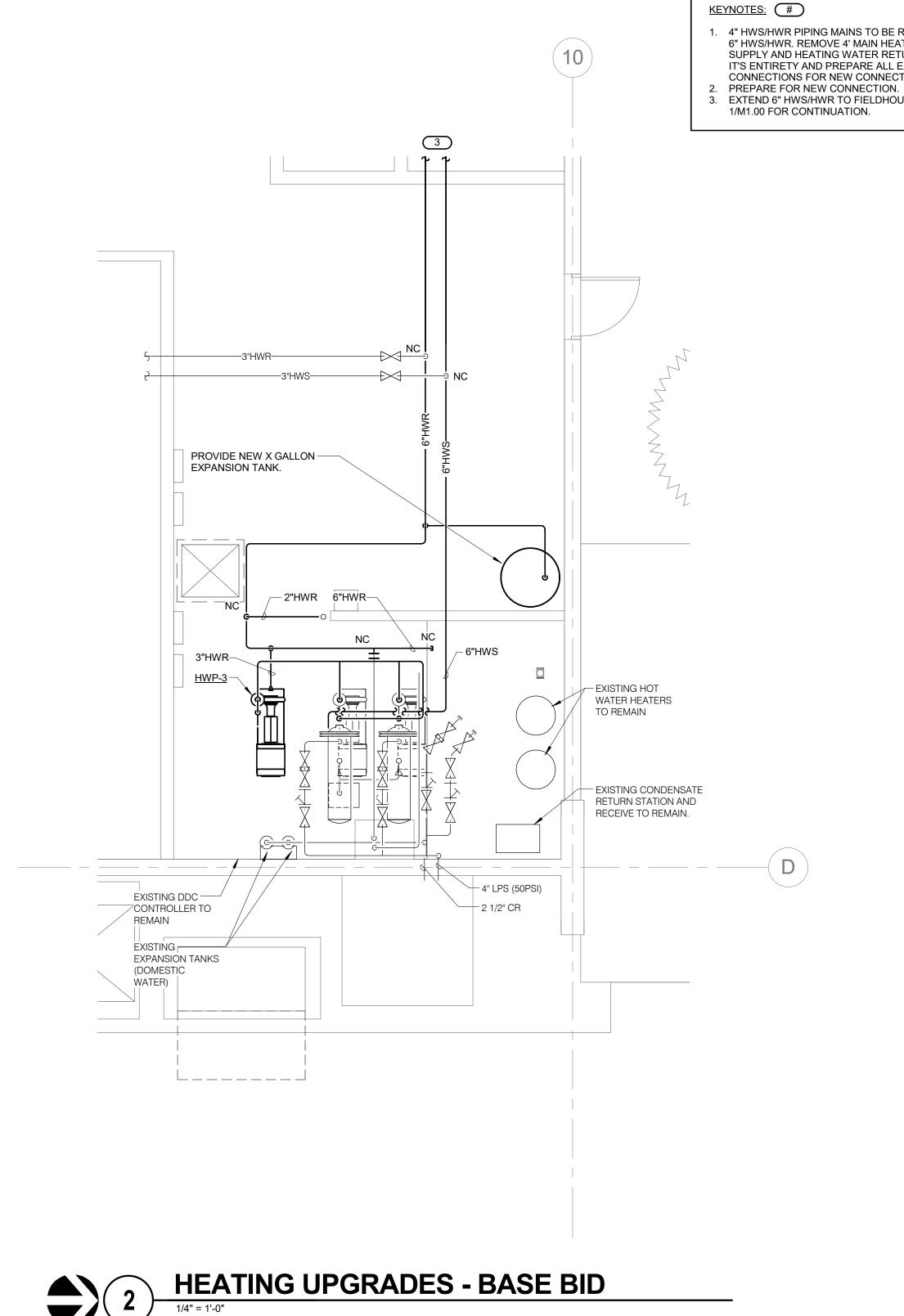
3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

**MECHANICAL PLAN -**OPTION 2





HEATING UPGRADES DEMOLITION- BASE BID



**GENERAL SHEET NOTES:** PROJECT DIRECTORY

 ALL WORK SHOWN SHALL BE CONSIDERED BASE BID.
 REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE FOR ADDITIONAL INFORMATION. ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS

SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.

REFER TO 1/M3.00 AND 2/3.00 FOR HEATING WATER AND STEAM AND CONDENSATE PIPING DIAGRAMS.

1. 4" HWS/HWR PIPING MAINS TO BE REPLACED WITH 6" HWS/HWR. REMOVE 4' MAIN HEATING WATER SUPPLY AND HEATING WATER RETURN PIPING IN IT'S ENTIRETY AND PREPARE ALL EXISTING BRANCH CONNECTIONS FOR NEW CONNECTIONS.

3. EXTEND 6" HWS/HWR TO FIELDHOUSE. REFER TO

1/M1.00 FOR CONTINUATION.

Electrical:

Architect:

Mechanical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281

Structural:

RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251

LIGHTVOX STUDIO

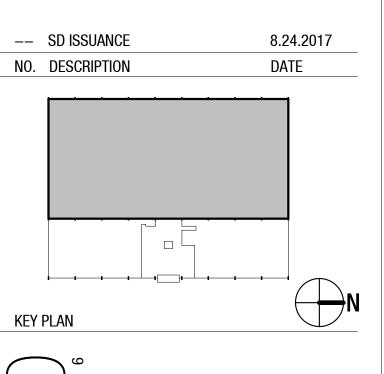
contact: BENJAMIN MULLINGS

0.602.604.6626

contact: JORDAN ROELFS

0.480.526.5484

contact: MARK RUDOW 0.480.946.8171

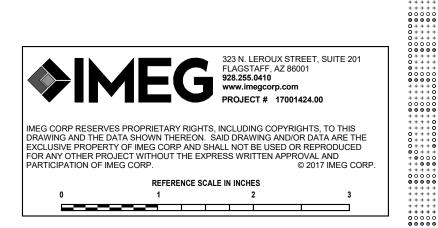


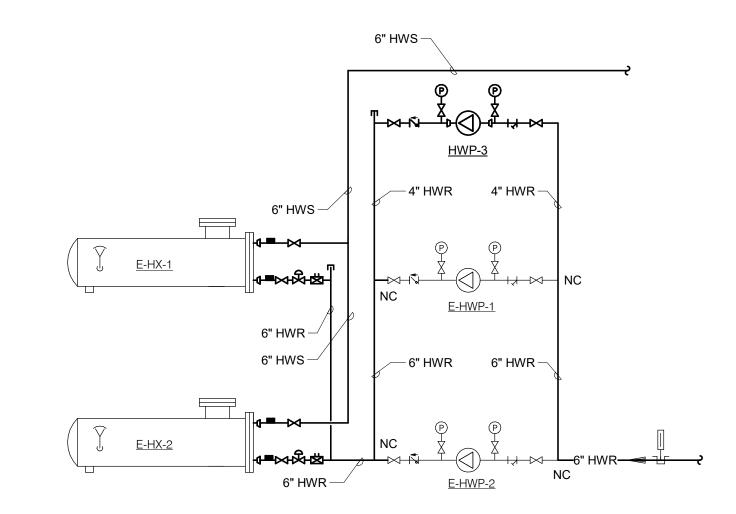
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**NAU Fieldhouse** 

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

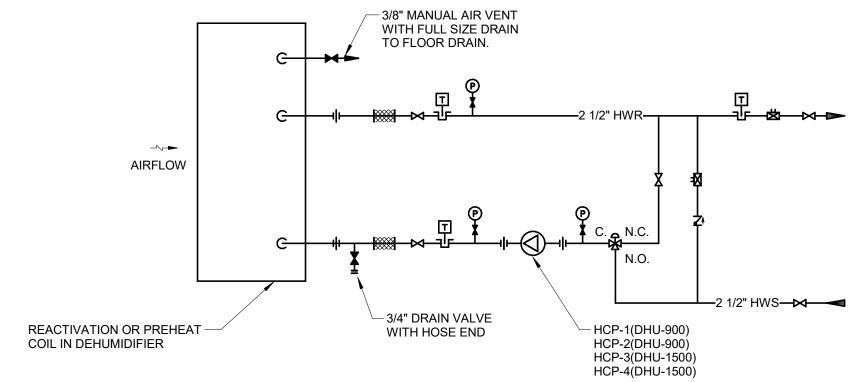
**HEATING PLANT UPGRADES - BASE BID** 





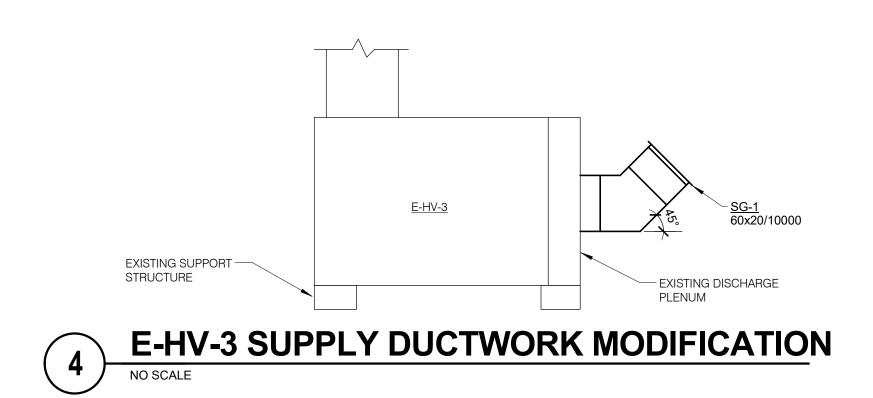
1 STEAM & CONDENSATE PIPING DIAGRAM - BASE BID

2 HEATING WATER PIPING DIAGRAM - BASE BID
NO SCALE



PUMPED HEATING COIL - FREEZE PROTECTION

NO SCALE





Architect:

LIGHTVOX STUDIO

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016
contact: BENJAMIN MULLINGS
0. 6 0 2 . 6 0 4 . 6 6 2 6

Mechanical:

D STE 220 TEMPE A7 0

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS o. 4 8 0 . 5 2 6 . 5 4 8 4

Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251

contact: MARK RUDOW

0. 480.946.8171

-- SD ISSUANCE 8.24.2017

NO. DESCRIPTION DATE

KEY PLAN

PRELIMINARY NOT FOR CONSTRUCTION

PROJECT: **NAU Fieldhouse M P C**3001.17.01/09.300.176

1050 S. Knoles Dr. Flagstaff, AZ 86011

**MECHANICAL DETAILS** 

M3.00



(NOTE A) (NOTE B)

E.C.

CONTROLLER/

STARTER

SCCR

**5KAIC** 

BY (NOTE A)

CONTROL MANUFACTURER MODEL REMARKS

WS SEE NOTES

**REZNOR** 

UH-X

1. EXHAUST FAN PERFORMANCE IS BASED ON 7000 FT ELEVATION ABOVE SEA LEVEL.

2. REFER TO X/M6.00 FOR SEQUENCE OF CONTROL AND DDC INTEGRATION REQUIREMENTS.

**UNIT HEATER SCHEDULE - HOT WATER ELECTRICAL** W.P.D. DISCONNECT LWT **EWT** SYMBOL SERVICE CFM MBH FT. VOLT-°F **RPM** BY HEAD **PHASE** 

140

100

2.0

0.16

850

120-1

10.0

**MECHANICAL** UH-1 HORIZONTAL 2,300 ROOM

1. REFER TO X/M6.00 FOR SEQUENCE OF CONTROL AND DDC INTEGRATION REQUIREMENTS.

PUMP SCHEDULE															
			PUMP FT.	MIMIMUM					ELECTF	RICAL					
SYMBOL	SERVICE	GPM	HEAD AT	PUMP	INLET SIZE IN.	HP	RPM	VOLT-	DISCO	NNECT	CONTROLL	ER/STARTER	MANUFACTURER	MODEL	REMARKS
			DESIGN	EFFICIENCY	0.22	(NOTE E)	Krivi	PHASE	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)			
HWP-3	HEATING WATER PUMP	200.0	95	71.0	3"	7.5	1,760	460-3	E.C.	NF			TACO	2510C	
HCP-1	DHU-900 PREHEAT	26.0	20		1.5"	0.5	1,750	120-1	E.C.	NF			TACO	IL133	
HCP-2	DHU-900 REACTIVATION	35.0	20		2"	0.75	1,750	120-1	E.C.	NF			TACO	IL133	
HCP-3	DHU-1500 PREHEAT	35.0	20		2"	0.75	1,750	120-1	E.C.	NF			TACO	IL133	
HCP-4	DHU-1500 REACTIVATION	50.0	25		2"	0.75	1,750	120-1	E.C.	NF			TACO	IL133	

GRIL	GRILLES REGISTERS & DIFFUSERS SCHEDULE											
SYMBOL	MAT'L	TYPE	MARGIN (NOTE 1)	INLET SIZE (INCH)	FACE SIZE (INCH)	VOLUME DAMPER REQ'D	FINISH	MANUFACTURER	MODEL	REMARKS		
SG-1	STEEL	HIGH CAPACITY	1 1/4"	SEE DWG.	INLET +2	YES	WHITE	TITUS	DL	DRUM LOUVER		
EG-1	STEEL	35° DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	350R			

1. CONTRACTOR SHALL DETERMINE PROPER MARGIN STYLE TO MATCH CEILING CONSTRUCTION.

2. ALL RUN OUT DUCTWORK TO DIFFUSERS SHALL BE NECK SIZE UNLESS OTHERWISE NOTED. 3. ALL ALUMINUM CONSTRUCTION FOR MRI USE. NON FERROUS FASTENERS ARE REQUIRED.

LOUVER SCHEDULE											
SYMBOL	SERVICE	СҒМ	SIZE W x H (IN.)	FREE AREA VEL. FPM	S.P. IN. W.C.	FINISH	MANUFACTURER	MODEL	REMARKS		
L-1	DHU-900 INTAKE	12,000	84x72	500	0.04	TYPE 6	RUSKIN	ELF6375DX	REFER TO FINISH SCHEDULE		
L-2	DHU-900 EXHAUST	10,000	84x72	450	0.04	TYPE 6	RUSKIN	ELF6375DX	REFER TO FINISH SCHEDULE		
L-3	DHU-900 RETURN	12,000	114x60	450	0.04	TYPE 6	RUSKIN	ELF6375DX	REFER TO FINISH SCHEDULE		
L-4	DHU-1500 INTAKE	16,000	114x72	500	0.04	TYPE 6	RUSKIN	ELF6375DX	REFER TO FINISH SCHEDULE		
L-5	DHU-1500 EXHAUST	14,000	114x72	450	0.04	TYPE 6	RUSKIN	ELF6375DX	REFER TO FINISH SCHEDULE		
L-6	DHU-1500 RETURN	16000	120x60	550	0.05	TYPE 6	RUSKIN	ELF6375DX	REFER TO FINISH SCHEDULE		
L-7	EF-1	1275	24x24	675	0.06	TYPE 6	RUSKIN	ELF6375DX	REFER TO FINISH SCHEDULE		

FINISH TYPE:

TYPE 1 MILL FINISH TYPE 2 204-R1 SATIN ANODIZED

TYPE 3 BAKED ENAMEL FINISH ON PRETREATED PRIME PAINT. STANDARD COLOR - SELECTION BY ARCHITECT.

TYPE 4 BAKED EPOXY FINISH ON PRIME COATED METAL. STANDARD COLOR - SELECTION BY ARCHITECT. TYPE 5 DURANODIC BRONZE - LIGHT, MEDIUM, DARK

TYPE 6 PVDF (KYNAR 500, HYLAR 5000, OR DURANAR). STANDARD COLOR - SELECTION BY ARCHITECT.

**SCHEDULE GENERAL NOTES:** 

A. DISCONNECT AND CONTROLLER STARTER FURNISHED AND **INSTALLED BY:** MFR = MANUFACTURER

EC = ELECTRICAL CONTRACTOR. MC = FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED

BY ELECTRICAL CONTRACTOR MFR/EC = FURNISHED LOOSE BY MANUFACTURER INSTALLED BY ELECTRICAL CONTRACTOR

ATC = AUTOMATIC TEMPERATURE CONTROL CONTRACTOR B. DISCONNECT TYPE:

F = FUSED NF = NON-FUSED

C. CONTROLLER STARTER TYPE:

NAME PLATE RATING.

**FV = FULL VOLTAGE** WYE = WYE-DELTA SS = SOLID STATE (SOFT START)

MS = MANUAL STARTER VFD = VARIABLE FREQUENCY DRIVE

VFD/B = VARIABLE FREQUENCY DRIVE WITH BYPASS D. FAN RPM SHALL NOT EXCEED 110% OF SCHEDULED VALUE,

WITH THE SCHEDULED WHEEL TYPE. SUBSTITUTION OF BI OR BIA... FANS FOR FC IS ACCEPTABLE IF EFFICIENCY IS NOT LOWER. E. NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR

F. MUST BE WITHIN +/- 10% OF SCHEDULED RPM.

G. CURB TYPE:

MFR = STANDARD CURB BY MANUFACTURER GC = BY GENERAL CONTRACTOR

SAC = SOUND ATTENUATOR CURB

PROJECT DIRECTORY

Architect:

LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS

Mechanical:

**IMEG** 1600 N. DESERT DR. STE 230 TEMPE. AZ 85281

0. 928 . 2 55 . 0412

0.480.946.8171

0.602.604.6626

contact: JORDAN ROELFS 0.480.526.5484

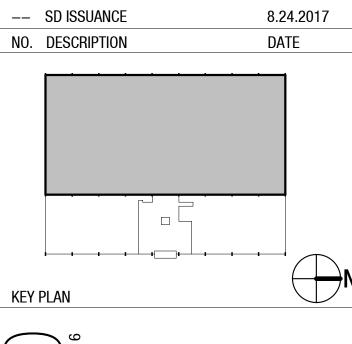
Electrical:

**IMEG** 323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN

Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW

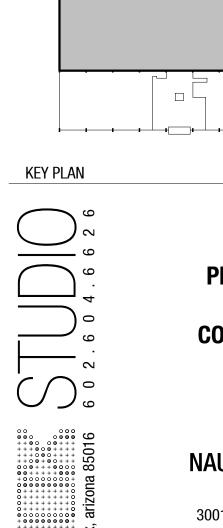


**PRELIMINARY NOT FOR CONSTRUCTION** 

PROJECT: **NAU Fieldhouse** 3001.17.01/09.300.176

1050 S. Knoles Dr. Flagstaff, AZ 86011

**MECHANICAL SCHEDULES** 



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REFERENCE SCALE IN INCHES 

MOTOR HP	' '
IMOTORTII	20
CONTROL	VFD
REACTIVATION FAN	
TYPE	Direct-Drive SWS
AIR VOLUME (SCFM)	Variable to 12,00
MOTOR HP	15
CONTROL	VFD
	VIB
PROCESS PRE-HEAT COIL	540,400
CAPACITY (BTU/HR)	540,100
CONDITIONED AIR (SCFM)	12,000
ENT/LVG AIR TEMP (F)	0 / 41.5
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	140 / 98.5
FLUID VOLUME (GPM)	26.3
FLUID PRESSURE DROP (FT H2O)	4.4
PROCESS CHILLED WATER PRE-COOL COIL	
CAPACITY (BTU/HR)	233,300
CONDITIONED AIR (SCFM)	12,000
ENTERING AIR TEMP (°Fdb / gr)	72 / 75.1
LEAVING AIR TEMP (°Fdb / gr)	54.7 / 75.1
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	48 / 59.9
FLUID VOLUME (GPM)	39.3
FLUID PRESSURE DROP (FT H2O)	4.2
PROCESS DX PRE-COOL COIL	
REFRIGERANT TYPE	R-410A
CIRCUIT 'A' - NOMINAL TONNAGE	15-TON
COIL CIRCUITS	1
CONDITIONED AIR (SCFM)	12,000
ENTERING AIR TEMP (°Fdb / gr)	54.7 / 75.1
LEAVING AIR TEMP (°Fdb / gr)	46 / 64
DESICCANT WHEEL	40 / 04
=	4000 000
SIZE	1800 x 200 mn
CONDITIONED AIR (SCFM)	12,000
ENTERING AIR TEMP (°Fdb / gr)	46 / 64
LEAVING AIR TEMP (°Fdb / gr)	73 / 31
REACTIVATION PRE-HEAT COIL	
CAPACITY (BTU/HR)	695,300
CONDITIONED AIR (SCFM)	Variable to 12,00
ENT/LVG AIR TEMP (F)	35 / 99.1
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	140 / 99.3
FLUID VOLUME (GPM)	34.6
FLUID PRESSURE DROP (FT H2O)	12.9
REACTIVATION CONDENSER COIL	12.0
CIRCUIT 'A' - NOMINAL TONNAGE	15 TON
	15-TON
CONDITIONED AIR (SCFM)	Variable to 12,00
ENTERING AIR TEMP (°Fdb / gr)	100 / 75
LEAVING AIR TEMP (°Fdb / gr)	115 / 75
PROCESS CHILLED WATER POST-COOL COIL	
CAPACITY (BTU/HR)	278,400
CONDITIONED AIR (SCFM)	12,000
ENTERING AIR TEMP (°Fdb / gr)	75 / 31
LEAVING AIR TEMP (°Fdb / gr)	53.8 / 31
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	48 / 59.6
FLUID VOLUME (GPM)	48
FLUID PRESSURE DROP (FT H2O)	
` '	3.9
PROCESS POST-HEAT COIL	<b>#0.</b> 222
CAPACITY (BTU/HR)	520,800
CONDITIONED AIR (SCFM)	12,000
ENT/LVG AIR TEMP (F)	41.5 / 81.5
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	140 / 98.5
FLUID VOLUME (GPM)	25.4
FLUID PRESSURE DROP (FT H2O)	6.6
FILTERS	
TYPE	2" x 30% PLEAT
ELECTRICAL	2 X 00 /0   LLAI
	460/0/00
	460/3/60
SYSTEM VOLTAGE (V/P/H)	71.5
UNIT FLA	_
` ′	78.2 100

DHU-900 - MECHANICAL OPTION 1

MUNTERS

FD-HCUc1215

280" x 127" x 102"

14,500

12,000

0 - 12,000

12,000 - 0

Belt-Drive SWSI-BI

12,000

MANUFACTURER

MODEL NUMBER

WEIGHT (LBS)

**DESIGN DATA** 

SUPPLY FAN

AIR VOLUME (SCFM)

DIMENSIONS (L x W x H)

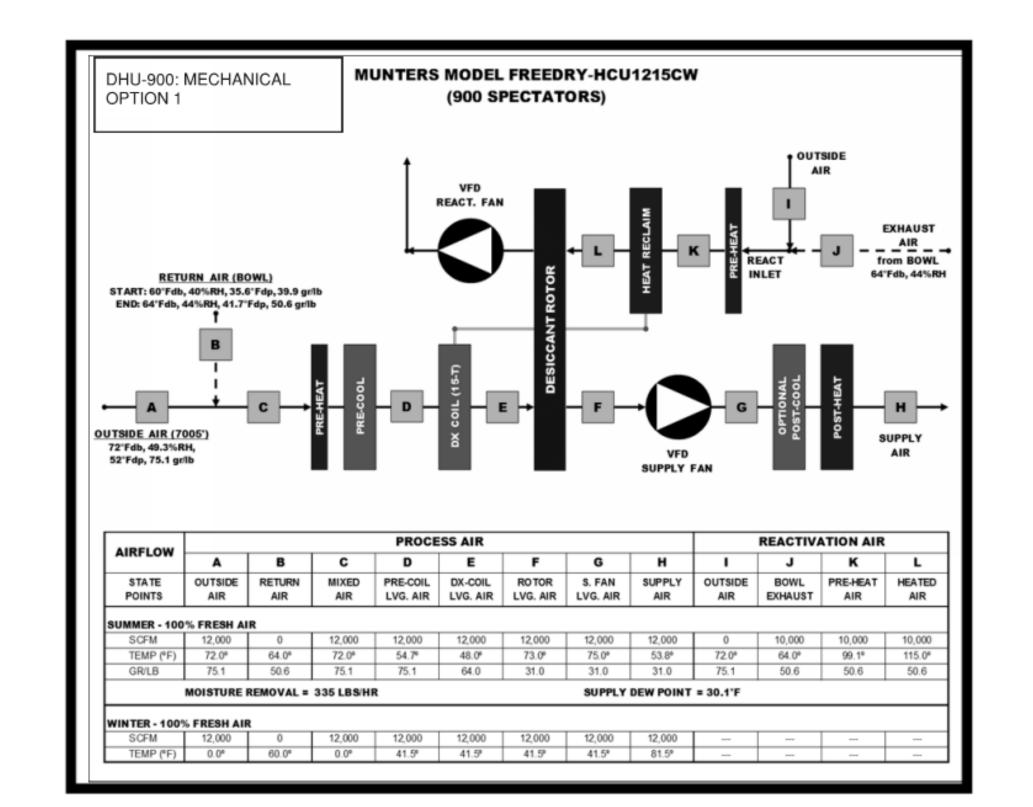
SUPPLY AIRFLOW (SCFM)

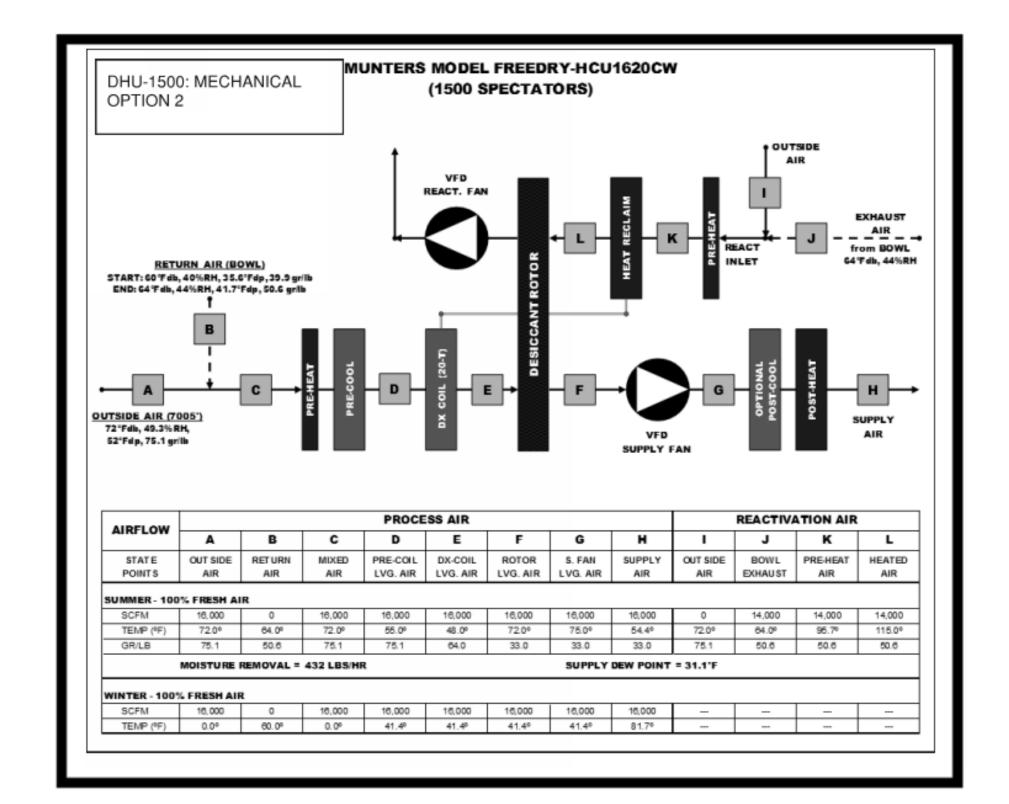
MAKE-UP AIR VOLUME (SCFM)

RETURN AIR VOLUME (SCFM)

EXTERNAL STATIC PRESSURE

DHU-1500 - MECHANICAL	OPTION 2
MANUFACTURER	MUNTERS
MODEL NUMBER	FD-HCUc1620CW
DIMENSIONS (L x W x H)	280" x 127" x 102"
WEIGHT (LBS)	15,000
DESIGN DATA	
SUPPLY AIRFLOW (SCFM)	16,000
MAKE-UP AIR VOLUME (SCFM)	0 - 16,000
RETURN AIR VOLUME (SCFM)	16,000 - 0
SUPPLY FAN	,
TYPE	Direct-Drive SWSI-BI
AIR VOLUME (SCFM)	Variable to 16,000
EXTERNAL STATIC PRESSURE	1
MOTOR HP	25
CONTROL	VFD
REACTIVATION FAN	51 1 5 1 20121 51
TYPE	Direct-Drive SWSI-BI
AIR VOLUME (SCFM)	Variable to 16,000
MOTOR HP	20
CONTROL	VFD
PROCESS PRE-HEAT COIL	
CAPACITY (BTU/HR)	719,100
CONDITIONED AIR (SCFM)	16,000
ENT/LVG AIR TEMP (F)	0 / 41.4
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	140 / 98.6
FLUID VOLUME (GPM)	35.1
FLUID PRESSURE DROP (FT H2O)	7.8
	7.0
PROCESS CHILLED WATER PRE-COOL COIL CAPACITY (BTU/HR)	307,500
	· ·
CONDITIONED AIR (SCFM)	16,000
ENTERING AIR TEMP (°Fdb / gr)	72 / 75
LEAVING AIR TEMP (°Fdb / gr)	55 / 75
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	48 / 59.7
FLUID VOLUME (GPM)	52.4
FLUID PRESSURE DROP (FT H2O)	4.8
PROCESS DX PRE-COOL COIL	
REFRIGERANT TYPE	R-410A
CIRCUIT 'A' - NOMINAL TONNAGE	20-TON
COIL CIRCUITS	1
CONDITIONED AIR (SCFM)	16,000
ENTERING AIR TEMP (°Fdb / gr)	55 / 75
LEAVING AIR TEMP (°Fdb / gr)	44 / 64
DESICCANT WHEEL	44704
SIZE	2200 x 200 mm
CONDITIONED AIR (SCFM)	16,000
ENTERING AIR TEMP (°Fdb / gr)	44 / 64
LEAVING AIR TEMP (°Fdb / gr)	72 / 33
REACTIVATION PRE-HEAT COIL	72733
	004 400
CAPACITY (BTU/HR)	921,100
CONDITIONED AIR (SCFM)	Variable to 16,000
ENT/LVG AIR TEMP (F)	35 / 96
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	140 / 101
FLUID VOLUME (GPM)	48.4
FLUID PRESSURE DROP (FT H2O)	8.2
REACTIVATION CONDENSER COIL	
CIRCUIT 'A' - NOMINAL TONNAGE	20-TON
CONDITIONED AIR (SCFM)	Variable to 16,000
ENTERING AIR TEMP (°Fdb / gr)	96 / 75
LEAVING AIR TEMP (°Fdb / gr)	116 / 75
PROCESS CHILLED WATER POST-COOL COIL	110,10
CAPACITY (BTU/HR)	360,900
CONDITIONED AIR (SCFM)	16,000
,	75 / 33
ENTERING AIR TEMP (°Fdb / gr)	
LEAVING AIR TEMP (°Fdb / gr)	54.4 / 33
FLUID TYPE	WATER
ENT/LVG FLUID TEMP (°F)	48 / 59.2
` '	64
FLUID VOLUME (GPM)	6.8
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O)	0.0
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O)	0.0
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL	705,400
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL CAPACITY (BTU/HR)	
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL CAPACITY (BTU/HR) CONDITIONED AIR (SCFM)	705,400
FLUID VOLUME (GPM)	705,400 16,000 41.4 / 81.7
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL CAPACITY (BTU/HR) CONDITIONED AIR (SCFM) ENT/LVG AIR TEMP (F) FLUID TYPE	705,400 16,000 41.4 / 81.7 WATER
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL CAPACITY (BTU/HR) CONDITIONED AIR (SCFM) ENT/LVG AIR TEMP (F) FLUID TYPE ENT/LVG FLUID TEMP (°F)	705,400 16,000 41.4 / 81.7 WATER 140 / 98.3
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O)  PROCESS POST-HEAT COIL  CAPACITY (BTU/HR)  CONDITIONED AIR (SCFM)  ENT/LVG AIR TEMP (F)  FLUID TYPE  ENT/LVG FLUID TEMP (°F)  FLUID VOLUME (GPM)	705,400 16,000 41.4 / 81.7 WATER 140 / 98.3 34.2
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL CAPACITY (BTU/HR) CONDITIONED AIR (SCFM) ENT/LVG AIR TEMP (F) FLUID TYPE ENT/LVG FLUID TEMP (°F) FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O)	705,400 16,000 41.4 / 81.7 WATER 140 / 98.3
FLUID VOLUME (GPM)  FLUID PRESSURE DROP (FT H2O)  PROCESS POST-HEAT COIL  CAPACITY (BTU/HR)  CONDITIONED AIR (SCFM)  ENT/LVG AIR TEMP (F)  FLUID TYPE  ENT/LVG FLUID TEMP (°F)  FLUID VOLUME (GPM)  FLUID PRESSURE DROP (FT H2O)	705,400 16,000 41.4 / 81.7 WATER 140 / 98.3 34.2 4.2
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL CAPACITY (BTU/HR) CONDITIONED AIR (SCFM) ENT/LVG AIR TEMP (F) FLUID TYPE ENT/LVG FLUID TEMP (°F) FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) FILTERS TYPE	705,400 16,000 41.4 / 81.7 WATER 140 / 98.3 34.2
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL  CAPACITY (BTU/HR) CONDITIONED AIR (SCFM) ENT/LVG AIR TEMP (F) FLUID TYPE ENT/LVG FLUID TEMP (°F) FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) FILTERS TYPE ELECTRICAL	705,400 16,000 41.4 / 81.7 WATER 140 / 98.3 34.2 4.2 2" x 30% PLEATED
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL  CAPACITY (BTU/HR) CONDITIONED AIR (SCFM) ENT/LVG AIR TEMP (F) FLUID TYPE ENT/LVG FLUID TEMP (°F) FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) FILTERS TYPE ELECTRICAL SYSTEM VOLTAGE (V/P/H)	705,400 16,000 41.4 / 81.7 WATER 140 / 98.3 34.2 4.2 2" x 30% PLEATED
FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) PROCESS POST-HEAT COIL  CAPACITY (BTU/HR) CONDITIONED AIR (SCFM) ENT/LVG AIR TEMP (F) FLUID TYPE ENT/LVG FLUID TEMP (°F) FLUID VOLUME (GPM) FLUID PRESSURE DROP (FT H2O) FILTERS TYPE ELECTRICAL	705,400 16,000 41.4 / 81.7 WATER 140 / 98.3 34.2 4.2 2" x 30% PLEATED







PROJECT DIRECTORY

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Architect:

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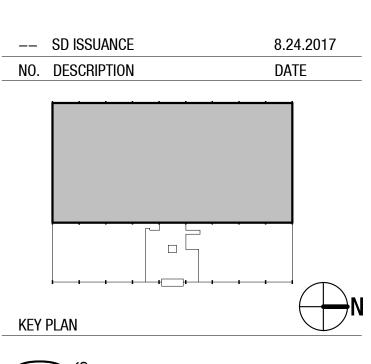
Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251

contact: MARK RUDOW 0.480.946.8171

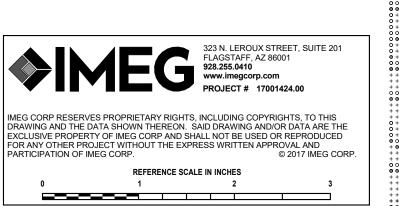


**PRELIMINARY NOT FOR CONSTRUCTION** 

PROJECT: **NAU Fieldhouse** MPC 3001.17.01/09.300.176

1050 S. Knoles Dr. Flagstaff, AZ 86011

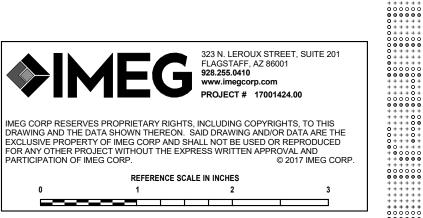
> **MECHANICAL SCHEDULES**



FDBK

OUTSIDE

#### **DEHUMIDIFIER REPORT GENERATION**



## PROJECT DIRECTORY

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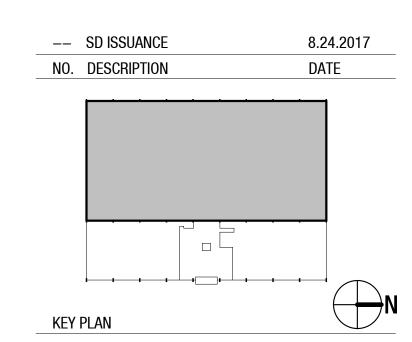
Electrical:

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Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171



**PRELIMINARY NOT FOR CONSTRUCTION** 

PROJECT: **NAU Fieldhouse** 3001.17.01/09.300.176

> 1050 S. Knoles Dr. Flagstaff, AZ 86011

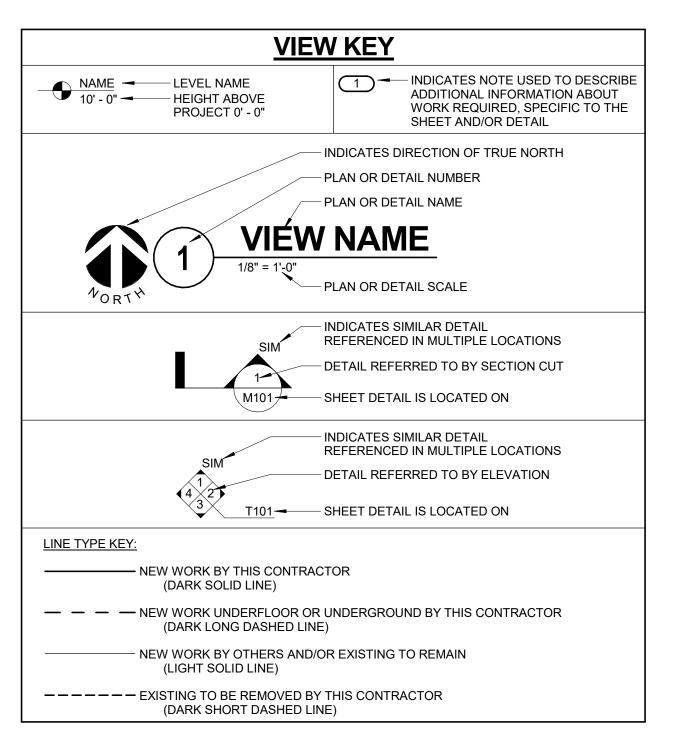
**MECHANICAL** 



NOTES:

1. CONTROLS SHALL BE PROVIDED BY T.C.C. 2. EXTEND EXISTING ALERTON DDC TO NEW EQUIPMENT

COILS), AND GENERAL LALARMS AND SAFETIES.



APPLICABLE CODES			
CONTRACTOR SHALL COMPLY	WITH APPLICABLE CODES AND LOCAL AMENDMENTS.		
BUILDING CODE:	IBC 2012 EDITION		
FIRE CODE:	IFC 2012 EDITION		
PLUMBING CODE:	IPC 2012 EDITION		
MECHANICAL CODE:	IMC 2012 EDITION		
ELECTRICAL CODE:	NFPA 70 (NEC) 2011 EDITION		
ENERGY CONSERVATION CODE:	IECC 2012		
LOCAL BUILDING CODE:	CURRENT EDITION		
STANDARDS:	NAU TECHNICAL STANDARDS CURRENT EDITION		

<b>CONTACT PERSONS:</b>			
DESCRIPTION:	PERSON:		
PROJECT MANAGER	JORDAN ROELFS		
MECHANICAL ENGINEER	JORDAN ROELFS		
ELECTRICAL ENGINEER	CARLOS LANDA		
ICE SYSTEMS ENGINEER	RUSSELL BIRCH		

	NOT ALL SYMBOLS MAY APPLY.
SYMBOL:	DESCRIPTION:
CW	COLD WATER - POTABLE
D	DRAIN
——DI——	DEIONIZED WATER
DT	DRAIN TILE
G	NATURAL GAS
SAN	SANITARY DRAINAGE
V	VENT
W	SERVICE WATER - POTABLE
<del></del>	PIPE CAP
<del></del>	PIPE DOWN
<del></del> o	PIPE UP OR UP/DOWN
o <sub>FD</sub>	PIPE SERVING FIXTURE ON FLOOR ABOVE (EXAMPLE: FD = FLOOR DRAIN)
_	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
<del></del> II	NEW CONNECTION
<del></del>	DIELECTRIC CONNECTION
	UNION/FLANGE
——⋈——	SHUTOFF VALVE NORMALLY OPEN
—₩—	SHUTOFF VALVE NORMALLY CLOSED

	CONTRACTOR ABBREVIATION KEY		
ABBR:	DESCRIPTION:		
C.M.	CONSTRUCTION MANAGER		
E.C.	ELECTRICAL CONTRACTOR		
F.P.C.	FIRE PROTECTION CONTRACTOR		
G.C.	GENERAL CONTRACTOR		
M.C.	MECHANICAL CONTRACTOR		
P.C.	PLUMBING CONTRACTOR		

	PLUMBING ABBREVIATION KEY			
ABBR:	DESCRIPTION:			
AD	ACCESS DOOR			
AFF CO E FCO	ABOVE FINISHED FLOOR CLEANOUT EXISTING FLOOR CLEANOUT			
FD	FLOOR DRAIN			
НВ	HOSE BIBB			
I.E. NC	INVERT ELEVATION (FOR REFERENCE ONLY) NEW CONNECTION			
NIC	NOT IN CONTRACT			
TD	TRENCH DRAIN			
TYP	TYPICAL			
UR	URINAL			
VTW	VENT THROUGH WALL			
WCO	WALL CLEANOUT			
UNO	UNLESS NOTED OTHERWISE			

YARD CLEANOUT

#### **GENERAL NOTES:**

- 1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS. WHETHER SPECIFIED OR NOT.
- 2. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN.
- 3. CONTRACTOR SHALL VERIFY THAT FIXTURES SUPPLIED ARE APPROVED PER ALL APPLICABLE STATE, LOCAL AND GOVERNING AUTHORITIES.
- 4. ALL FIXTURES SHALL CONFORM TO FEDERAL ACT S.3874 5. INVERT ELEVATIONS ARE FROM EXISTING DRAWINGS AND MAY NOT BE ACCURATE. VERIFY ALL ELEVATIONS BEFORE BEGINNING WORK.
- 6. VERIFY UNDERGROUND PIPE SIZES, INVERT ELEVATIONS, AND LOCATIONS PRIOR TO BEGINNING
- 7. REFER TO THE PLUMBING ROUGH-IN SCHEDULE FOR THE SIZES OF BRANCH PIPES TO PLUMBING FIXTURES.
- 8. EXISTING CONDITIONS ON DEMOLITION PLANS ARE PROVIDED TO INDICATE THE GENERAL SCOPE OF ITEMS TO BE REMOVED. SEE SPECIFICATION SECTION 22 05 05 FOR ADDITIONAL DEMOLITION INFORMATION.
- 9. P.C. SHALL CUT AND PATCH EXISTING AS REQUIRED FOR NEW OR DEMOLITION WORK UNLESS NOTED OTHERWISE. SEE SPECIFICATION SECTION 22 05 05 FOR ADDITIONAL INFORMATION.

#### **MECHANICAL RENOVATION NOTES:**

THESE NOTES APPLY TO ALL MECHANICAL SHEETS.

- 1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
- 2. NOT ALL EXISTING DUCTWORK AND PIPING IS SHOWN. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK, NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK. 3. FIELD VERIFY THE AVAILABLE CLEARANCES FOR PIPING BEFORE FABRICATION. RISES AND
- DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS. 4. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO
- BE REMOVED OR RELOCATED TO ALLOW ACCESS TO HIS AREA OF WORK. 5. WHERE EXISTING MECHANICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT OR PIPING TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, PIPING, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING MECHANICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.
- 6. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. MAINTAIN ACCESS TO EXISTING MECHANICAL INSTALLTIONS WHICH REMAIN
- 7. OBTAIN PERMISSION FROM OWNER BEFORE SHUTTING DOWN ANY SYSTEM FOR ANY REASON. MAINTAIN SERVICE TO ALL COMPONENTS THAT ARE TO REMAIN UNTIL NEW SYSTEMS ARE INSTALLED.
- 8. MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR TIE IN AND SWITCHOVER. DRAIN SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM OWNER BEFORE PARTIALLY OR COMPLETELY DRAINING SYSTEM. MAKE CHANGEOVER TO NEW SYSTEMS WITH MINIMUM OUTAGE.

#### **MECHANICAL GENERAL NOTES:**

THESE NOTES APPLY TO ALL MECHANICAL SHEETS.

- 1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
- 2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW
- ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES. 3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE
- ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS. 4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE
- ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS. 5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO
- 6. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
- 8. SEAL ALL FLOOR AND WALL PENETRATIONS AIRTIGHT WHERE PIPING PENETRATES. [PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS
- RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE. 9. WHERE PIPES ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL
- SLEEVE PERIMETER TO BE WATERTIGHT. 10. DO NOT SUPPORT EQUIPMENT. PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

- PLUMBING COVER SHEET OVERALL FLOOR PLAN - PLUMBING P1.00
- RESTROOM ENLARGED PLAN
- PLUMBING DETAILS AND SCHEDULES

# **PLUMBING SHEET INDEX**

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REFERENCE SCALE IN INCHES

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KEY PLAN

-- SD ISSUANCE

NO. DESCRIPTION

PROJECT DIRECTORY

LIGHTVOX STUDIO

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contact: JOEL DEHAVEN

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323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251

Architect:

Mechanical:

Electrical:

Structural:

**PRELIMINARY NOT FOR CONSTRUCTION** 

8.24.2017

DATE

PROJECT: **NAU Fieldhouse** MPC

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

PLUMBING COVER SHEET

#### PROJECT DIRECTORY

Architect:

**GENERAL SHEET NOTES:** 

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-- SD ISSUANCE 8.24.2017 NO. DESCRIPTION DATE **KEY PLAN** 

> **PRELIMINARY NOT FOR** CONSTRUCTION

PROJECT: **NAU Fieldhouse** MPC

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

**OVERALL FLOOR PLAN** - PLUMBING

REFERENCE SCALE IN INCHES 

#### **GENERAL SHEET NOTES:**

- ALL WORK SHOWN SHALL BE CONSIDERED BASE BID.
   REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE FOR ADDITIONAL INFORMATION.
- ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.

PROJECT DIRECTORY

Architect:

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Mechanical:

 $0.\,6\,0\,2\,.\,6\,0\,4\,.\,6\,6\,2\,6$ 

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS  $0.\,4\,8\,0\,.\,5\,2\,6\,.\,5\,4\,8\,4$ 

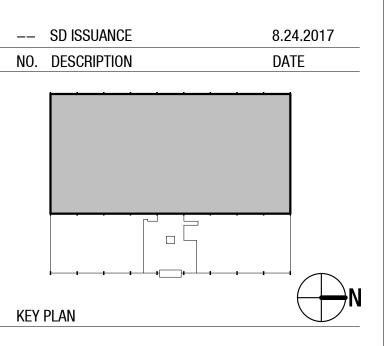
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4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW  $0.\,4\,8\,0\,.\,9\,4\,6\,.\,8\,1\,7\,1$ 



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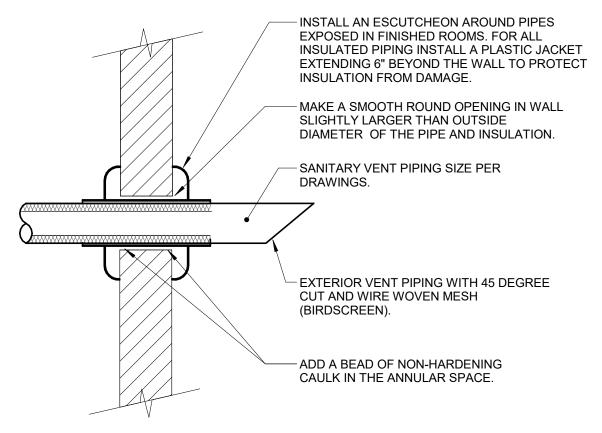
**NAU Fieldhouse** MPC 3001.17.01/09.300.176

1050 S. Knoles Dr. Flagstaff, AZ 86011

**RESTROOM ENLARGED** 

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REFERENCE SCALE IN INCHES 



# **VENT THROUGH EXTERIOR WALL DETAIL**

EXISTING.

1. THE INTENTION IS TO CONTINUE THE INSULATION AND VAPOR BARRIER THROUGH ALL PENETRATIONS. PERMIT THERMAL EXPANSION WITHOUT DAMAGING INSULATION, AND TO SEAL AIRTIGHT AROUND INSULATED AND UNINSULATED PIPES FOR NOISE TRANSMISSION CONTROL.

SEE SPECIFICATION SECTION 22 05 29 FOR ADDITIONAL INFORMATION. 3. INSTALL A MINIMUM OF 10'-0" ABOVE FINISHED FLOOR. 4. WHEN INSTALLING IN EXISTING MASONRY WALLS, CONTRACTOR SHALL TAKE CARE TO PATCH OPENINGS, TOOTH IN BRICKS AS REQUIRED TO MATCH

	DRIP-PROOF NON OVERLOADING MOTOR WITH THERMAL OVERLOAD PROTECTION, FLANGED CONNECTIONS, RATED FOR 125 PSIG AT 225°F, UL LISTED.	PUMP - B&G (PL SERIES), TACO (OO SERIES), GRUNDFOS (UP
<u>CP-1</u>	5 GPM @ 15 FEET OF HEAD. MOTOR SHALL BE 1/12 HP OPERATING AT 2650 RPM.	SERIES)  AQUASTAT - HONEYWELL, WHITE-RODGERS, JOHNSON
	AQUASTAT - LINE VOLTAGE, ADJUSTABLE SETTING OF 90-180°F WITH STRAP-ON REMOTE SENSOR BULB, UL LISTED. PROVIDE WITH TRANSFORMER IF REQUIRED. INSTALL PER MANUFACTURERS INSTRUCTIONS.	CONTROLS, SAME AS PUMP MANUFACTURER
	ELECTRICAL REQUIREMENTS - 115V-1 PHASE (HARD-WIRE)	
	SINK - ACCESSIBLE, WALL MOUNTED, WHITE VITREOUS CHINA, 20"x18", 4" HIGH BACKSPLASH, SINGLE FAUCET HOLE, DRILLED FOR CONCEALED ARM CARRIER.	
	TRIM - SINGLE HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, CONVENTIONAL SPOUT WITH AERATOR, WASHERLESS PUSH-PULL LEVER HANDLE WITH SUPPLIES AT SINGLE HOLE, CERAMIC DISC CARTRIDGE, PERFORATED GRID STRAINER WITH 1-1/4" 17 GAUGE TAILPIECE.	LAVATORY - GERBER (12-651), KOHLER (K-2031), ZURN (Z5841)
<u>L-1</u>	MAXIMUM FLOW TO BE 0.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1M., FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. PROVIDE RESTRICTIVE DEVICE AS REQUIRED.	LAVATORY TRIM - DELTA (22C631)
	INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES AND SUPPLY LINES.	INSULATION KIT - TRUEBRO (LAV-GUARD), BROCAR PRODUCTS (TRAP WRAP), MCGUIRE (PROWRAP),
	ACCESSORIES - QUARTER-TURN 3/8" CHROME PLATED HEAVY BRASS LOOSE KEY SUPPLY STOPS, CHROME PLATED SOFT COPPER SUPPLY LINES, DRAIN AND OFFSET TAILPIECE, 1-1/4 PVC P-TRAP, SUPPORT CARRIER.	PLUMBEREX (PRO-EXTREME)
	MOUNT SINK WITH SUPPORT CARRIER BOLTED SECURELY TO FLOOR. TOP OF RIM SHALL BE AT 34" ABOVE FLOOR IN COMPLIANCE WITH LATEST ADA STANDARD.	
	MOP BASIN - NEO-ANGLE CORNER STYLE, PRECAST TERRAZZO, 24"x24"x12", 6" DEEP FRONT, STAINLESS STEEL INTEGRAL DRAIN WITH REMOVABLE STRAINER, 3" OUTLET, STAINLESS STEEL THRESHOLD.	MOP BASIN - FIAT (TSBC1610), ACORN, CREATIVE INDUSTRIES (MCNC24), WILLIAMS (SBC-1700)
<u>MB-1</u>	TRIM - EXPOSED TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, SINGLE WING HANDLES, 1/4 TURN CERAMIC DISC CARTRIDGE, 3/4" HOSE THREAD SPOUT WITH INTEGRAL VACUUM BREAKER, WALL BRACE, PAIL HOOK, CHECK STOPS OR INLINE CHECK VALVES TO PREVENT THERMAL CROSSOVER. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874.	TRIM - DELTA (28C2383), AMERICAN STANDARD (8344.012), CHICAGO FAUCETS (897-CP), MOEN (8124), SPEAKMAN (SC-5812), SYMMONS (S-2490), ZURN (Z841M1-XL)
	ACCESSORIES - MOP HANGER, HOSE AND HOSE BRACKET, DEEP SEAL TRAP	
<u>TP-1</u>	TRAP PRIMER - PRESSURE DROP ACTIVATED, 1/2" MALE NPT INLET AND 1/2" FEMALE NPT OUTLET, BUILT-IN AIRGAP, REMOVABLE FILTER SCREEN, ASSE 1018 LISTED.  REQUIRES NO ADJUSTMENTS OR PRE-CHARGE.	TRAP PRIMER - MIFAB (M-500), PPP (PR-500), WATTS (LFTP300T), SIOUX CHIEF (PRIME PERFECT)
	URINAL - ACCESSIBLE, WALL MOUNTED, WHITE VITREOUS CHINA, FLUSH VALVE TYPE, WASHOUT ACTION, ELONGATED RIM, EXTENDED SIDE SHIELDS, 3/4" TOP SPUD, 2" OUTLET.	
	FLUSH VALVE - EXPOSED, MANUAL OPERATION, 1.0 GALLONS PER FLUSH, 11-1/2" ROUGH-IN, CHROME-PLATED, 3/4" I.P.S. SCREWDRIVER STOP-CHECK VALVE WITH VANDAL RESISTANT CAP, HIGH BACK PRESSURE VACUUM BREAKER, NON-HOLD-OPEN HANDLE, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, WALL FLANGE WITH SET SCREW, CHLORAMINE RESISTANT MATERIALS, 3-YEAR WARRANTY.	URINAL - ZURN (Z5750)
<u>UR-1</u>	CONTRACTOR OPTION: COMBINATION URINAL/FLUSH VALVE PACKAGED SYSTEM BY AMERICAN STANDARD, KOHLER, SLOAN, OR ZURN	FLUSH VALVE - ZURN (Z6003AV), SLOAN (ROYAL 186), AMERICAN STANDARD (6045.101), KOHLER (K13518-CP), DELANY (451)
	ACCESSORIES - SUPPORT CARRIER WITH TOP AND BOTTOM BEARING PLATES MOUNT WITH CARRIER BOLTED SECURELY TO FLOOR. TOP OF BOWL RIM SHALL BE AT 17" (MAXIMUM) ABOVE FLOOR IN COMPLIANCE WITH LATEST ADA STANDARDS. FLUSH HANDLE SHALL BE AT 44" (MAXIMUM) ABOVE FLOOR AND OPERATE WITH NO GREATER THAN 5 LB FORCE IN COMPLIANCE WITH LATEST ADA STANDARDS. VERIFY EQUIPMENT REQUIREMENTS AND ROUGH-IN LOCATIONS.	
	WATER CLOSET - ACCESSIBLE, WALL HUNG, FLUSH VALVE TYPE, WHITE VITREOUS CHINA, SIPHON JET, HIGH EFFICIENCY RATED FOR 1.28 GPF, ELONGATED BOWL, 1-1/2" TOP SPUD.	
	FLUSH VALVE - EXPOSED, MANUAL OPERATION, 1.28 GALLONS PER FLUSH, 11-1/2" ROUGH-IN, CHROME PLATED, 1" I.P.S. SCREWDRIVER STOP-CHECK VALVE WITH VANDAL RESISTANT CAP, HIGH BACK PRESSURE VACUUM BREAKER, SPUD COUPLING AND FLANGE, WALL FLANGE WITH SET SCREW, NON-HOLD-OPEN HANDLE, ADJUSTABLE TAILPIECE, ADA COMPLIANT, 3 YEAR WARRANTY.	WATER CLOSET - AMERICAN STANDARD (2257.101), SLOAN (ST-2050), ZURN (Z5615), KOHLER (K-4325), TOTO (CT708E)
<u>WC-1</u>	SEAT - WHITE, EXTRA HEAVY, OPEN FRONT, INJECTION MOLDED SOLID ANTI-MICROBIAL PLASTIC, CHECK HINGE, STAINLESS STEEL OR PLATED STEEL POSTS AND NUTS.	FLUSH VALVE - ZURN (Z6000AV-HET), SLOAN (111-1.28), AMERICAN STANDARD (6047.121), KOHLER (K-13517-CP)
	CONTRACTOR OPTION: COMBINATION WATER CLOSET/FLUSH VALVE PACKAGED SYSTEM BY AMERICAN STANDARD, KOHLER, SLOAN, OR ZURN	SEAT - BEMIS (3155C), CHURCH (3155C),
	ACCESSORIES - WATER CLOSET SUPPORT CARRIER RATED FOR 500 LBS.  MOUNT WATER CLOSET WITH CARRIER BOLTED SECURELY TO FLOOR. TOP OF SEAT SHALL BE AT 16"-17" ABOVE FINISHED FLOOR (VERIFY EXACT MOUNTING HEIGHT WITH MANUFACTURER). FLUSH HANDLE SHALL BE LOCATED ON THE WIDE SIDE OF THE TOILET STALL AND BE AT 12" (MAXIMUM) ABOVE BOWL RIM AND OPERATE WITH NO GREATER THAN 5 LB FORCE IN COMPLIANCE WITH LATEST ADA STANDARDS. VERIFY EQUIPMENT	BENEKE (533PC), OLSONITE (95), SAME AS WATER CLOSET MANUFACTURER
<u>WCO-1</u>	WALL CLEANOUT - END CAP, CAST IRON ACCESS BODY, GAS AND WATERTIGHT BRONZE OR BRASS THREADED PLUG, ROUND STAINLESS STEEL ACCESS COVER, EXTENDED MACHINE SCREW.	ZURN (Z-1441), SMITH (4422), WADE (W-8480-R/8550), JOSAM (58600-CO), WATTS (CO-380-RD)
NOTE: ALL	FIXTURES SHALL CONFORM TO FEDERAL ACT S.3874.	

PLUMBING FIXTURE LIST

**ACCEPTABLE MANUFACTURERS** 

**DESCRIPTION** 

CIRCULATING PUMP - LEAD FREE BRONZE CONSTRUCTION, PERMANENTLY

LUBRICATED SEALED BEARINGS, MECHANICAL SEAL, OIL LUBRICATED, OPEN

TAG

#### PROJECT DIRECTORY

Architect:

LIGHTVOX STUDIO

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS 0.602.604.6626

Mechanical:

1600 N. DESERT DR. STE 230 TEMPE. AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

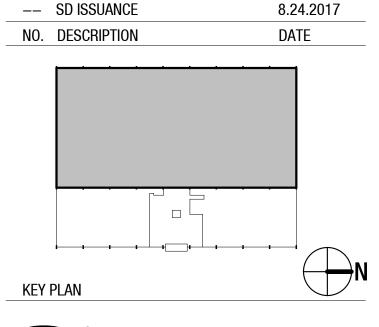
Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251

contact: MARK RUDOW 0.480.946.8171



**PRELIMINARY NOT FOR CONSTRUCTION** 

323 N. LEROUX STREET, SUITE 201 FLAGSTAFF, AZ 86001 928.255.0410 www.imegcorp.com
PROJECT # 47004404 00

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REFERENCE SCALE IN INCHES 

PROJECT: **NAU Fieldhouse** MPC 3001.17.01/09.300.176

1050 S. Knoles Dr. Flagstaff, AZ 86011

PLUMBING DETAILS AND SCHEDULES

ELECTRICAL SYMBOL LIST			
SYMBOL:	TAG:	SPEC	DESCRIPTION:
<u> </u>		SECTION:	
J	<u>JB</u>	26 05 33	JUNCTION BOX
<b>(19)</b>	<u>FB-1</u>	26 27 26	FLOOR BOX - DUPLEX RECEPTACLE
	<u>FB-2</u>	26 27 26	FLOOR BOX - DUAL COMPARTMENT
	<u>FB-3</u>	26 27 26	FLOOR BOX - MULTI SERVICE
<b>⊚</b> <sub>SV</sub>	<u>FB-4</u>	26 27 26	FLOOR - SERVICE FITTING
RI	RI-TECH	26 05 33	TECHNOLOGY ROUGH-IN
$\nabla$	RI-TECH-W	26 05 33	TECHNOLOGY ROUGH-IN, MOUNTED +54" AFF
TV	<u>RI-TV</u>	26 05 33	TV ANTENNA OUTLET
HH	<u>HH-#</u>	26 05 31	HAND HOLE
	<u>WM-#</u>	26 05 35	MULTI OUTLET SYSTEM
<b>Φ#</b> Φ	<u>WW-#</u>	26 05 35	ELECTRICAL WIREWAY w/ DEVICES SHOWN
DEM	<u>DEM</u>	26 09 13	ENERGY METER
DPM	<u>DPM</u>	26 09 13/ 26 24 13	DIGITAL POWER METER
EEM	<u>EEM</u>	26 09 13	EXTERNAL ENERGY METER
M	KWM	26 09 13	METER
PQM	<u>PQM</u>	26 09 13	POWER QUALITY METER
	LCS-#	26 09 33	LIGHTING CONTROL STATION
#B	SW-DCS	26 09 33	DIMMER CONTROL STATION
#B#F	SW-LCS	26 09 33	DIMMER CONTROL STATION WITH FADERS
$S_LV$	<u>SW-LV</u>	26 09 33	SWITCH - LOW VOLTAGE
TC	<u>TC-#</u>	26 09 33	TIME SWITCH
CPC ES	<u>CPC</u> <u>ES</u>	26 09 39 26 09 39	CONTROL POWER CABINET  EMERGENCY STOP, N.C. CONTACT
EPO EPO#	ES EPO	26 09 39	EMERGENCY STOP, N.C. CONTACT  EMERGENCY STOP, N.O. CONTACT
LA LA	FA-LA	26 09 39	LAMP ANNUNCIATOR
РВ	<u>PB</u>	26 09 39	MOMENTARY PUSHBUTTON OPERATOR
ST	<u>ST</u>	26 09 39	SHUNT TRIP
	<u>PANEL '###'</u>	26 24 16	PANELBOARD - RECESS MOUNT
	<u>PANEL '###'</u>	26 24 16	PANELBOARD - SURFACE MOUNT
	MX-#/MS-#/FCS-#	26 24 19	MANUAL SWITCH / STARTER / COMBINATION
	IPP-#	26 24 21	STARTER ISOLATED POWER PANEL
		26 24 22	INTEGRATED POWER CENTER
	IPC-#		
	<u>TR-#</u>	26 22 00	TRANSFORMER
	MPC-#	26 24 23	PACKAGED POWER CENTER
[B <u></u> B <u>B</u> BB]	<u>BD-#</u>	26 25 00	BUSWAY
	BCS-#	26 25 00	BUSS PLUG - COMBINATION STARTER
	<u>BP-#</u>	26 25 00	BUSS PLUG - CIRCUIT BREAKER
∟հ [Rh <sub>#</sub>	BFP-# BD-REC	26 25 00 26 25 00	BUSS PLUG - FUSIBLE DISCONNECT BUSSWAY RECEPTACLE UNIT
0 <del>=</del>	REC-DUP-O	26 27 26	DUPLEX RECEPTACLE CONTROLLED BY
o <b>=</b>	REC-QUAD-O	26 27 26	OCCUPANCY QUAD RECEPTACLE CONTROLLED BY
- <b>⊕</b>	REC-DUP	26 27 26	OCCUPANCY DUPLEX RECEPTACLE, 125V
<b>≠</b> ⊖	REC-DUP-GFI	26 27 26	DUPLEX GFI RECEPTACLE, 125V
0	REC-DUP-PED	26 05 33	RECEPTACLE - PEDESTAL STYLE
G	REC-DUP-GFI-R	26 27 26	GROUND FAULT DEVICE
w₩	REC-DUP-WP	26 27 26	DUPLEX GFI WEATHERPROOF RECEPTACLE 125\
<sub>X</sub> <b>⇒</b>	REC-DUP-XP	26 27 26	DUPLEX RECEPTACLE, EXPLOSION PROOF, 125V
<b>⊕</b> s <b>⊕</b>	REC-ISO REC-ISO-SUR	26 27 26 26 27 26	ISOLATED GROUND RECEPTACLE, 125V ISOLATED GROUND RECEPTACLE WITH SURGE
S —	REC-ISO-	26 27 26	SUPPRESSION, 125V ISOLATED GROUND QUAD RECEPTACLE WITH
s =	SUR-QUAD		SURGE SUPPRESSION, 125V
∪ <del>=</del>	REC-USB	26 27 26	DUPLEX RECEPTACLE, USB CHARGING
<b>⇒</b>	REC-ARC REC-SIM-520R	26 27 26 26 27 26	ARC FAULT CIRCUIT INTERRUPTER RECEPT 125\ SIMPLEX RECEPTACLE, 125V
<b>⊕</b> ⊕	REC-SIM-520R REC-SIM-530R	26 27 26	RECEPTACLE 125V, PHENOLIC FACE, 125V
<b></b>	REC-SIM-550R	26 27 26	RECEPTACLE 125V, 50A, 125V
-	REC-SIM-620R	26 27 26	RECEPTACLE, 6-20R, 250V
<del></del>	REC-SIM-630R	26 27 26	RECEPTACLE, 6-30R, 250V
<b>≢</b>	REC-SIM-650R REC-SIM-720R	26 27 26 26 27 26	RECEPTACLE, 6-50R, 250V RECEPTACLE, 7-20R, 277V
<b>→</b>	REC-SIM-730R	26 27 26	RECEPTACLE, 7-30R, 277V
•	REC-SIM-750R	26 27 26	RECEPTACLE, 7-50R, 277V
<b>→</b>	REC-SIM-1420R	26 27 26	RECEPTACLE, 14-20R, 125/250V
- <b>♦</b> = <b>♦</b>	REC-SIM-1430R REC-SIM-1450R	26 27 26 26 27 26	RECEPTACLE, 14-30R, 125/250V RECEPTACLE, 14-50R, 125/250V
<b>→</b>	REC-SIM-1460R	26 27 26	RECEPTACLE, 14-60R, 125/250V
-€	REC-SIM-1520R	26 27 26	RECEPTACLE, 15-20R, 250V, 3PH
<b>≠</b>	REC-SIM-1530R	26 27 26 26 27 26	RECEPTACLE, 15-30R, 250V, 3PH RECEPTACLE, 15-50R, 250V, 3PH
<b>=</b>	REC-SIM-1550R REC-SIM-1560R	26 27 26	RECEPTACLE, 15-50R, 250V, 3PH  RECEPTACLE, 15-60R, 250V, 3PH
х <sup>-</sup> Ө	REC-SIM-XP	26 27 26	RECEPTACLE, 13-60K, 250V, 3PH RECEPTACLE, EXPLOSION PROOF, 125V
^ <del>==</del> >	REC-TAMP	26 27 26	DUPLEX RECEPTACLE, TAMPERPROOF, 125V
<b>=</b> ₩	REC-QUAD	26 27 26	QUAD RECEPTACLE, 125V
<del>≠</del>	REC-QUAD-GFI	26 27 26	QUAD GFI RECEPTACLE, 125V
<b>₩</b>	REC-OLIAD-WP	26 27 26	OLIAD GELWEATHERPROOF RECEPTACLE 125V

REC-QUAD-WP 26 27 26 QUAD GFI WEATHERPROOF RECEPTACLE, 125V

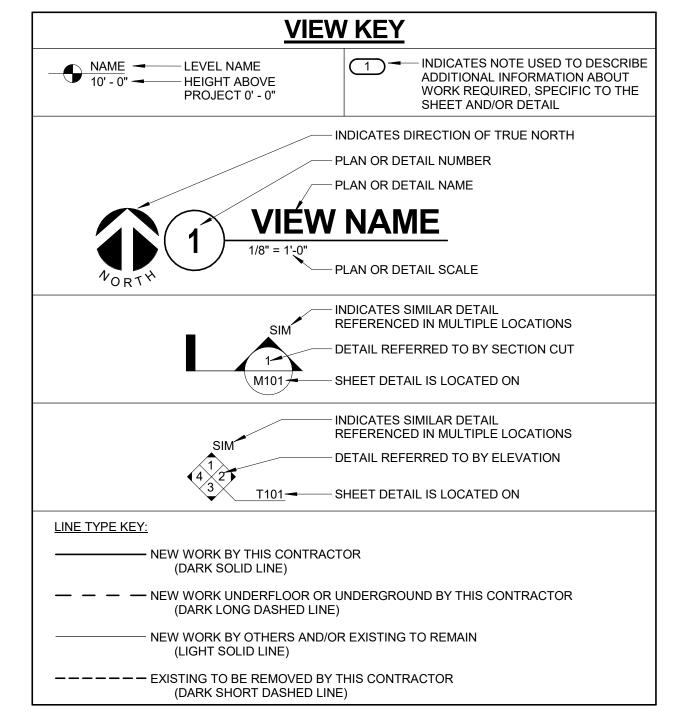
	ELEC		SYMBOL LIST	
SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:	
S	SW-1P	26 09 33	SWITCH - SINGLE POLE	
S	SW-1P-EX	26 09 33	SWITCH - EXPLOSION PROOF	
s <sub>x</sub>				
s <sub>K</sub>	<u>SW-1P-K</u>	26 09 33	SWITCH - SINGLE POLE - KEY LOCK	
S <sub>L</sub>	<u>SW-1P-LH</u>	26 09 33	SWITCH - LIGHTED HANDLE	
S <sub>M</sub>	<u>SW-1P-M</u>	26 09 33	SWITCH - MOMENTARY CONTACT	
S <sub>P</sub>	SW-1P-PL	26 09 33	SWITCH - PILOT LIGHT	
s <sub>w</sub>	SW-1P-WP	26 09 33	SWITCH - WEATHERPROOF	
<b>S</b> <sub>2</sub>	SW-2P	26 09 33	SWITCH - TWO POLE	
S <sub>K2</sub>	<u>SW-2P-K</u>	26 09 33	SWITCH - TWO POLE - KEY LOCK	
<b>s</b> <sub>3</sub>	<u>SW-3W</u>	26 09 33	SWITCH - THREE WAY	
S <sub>3E</sub>	SW-3W-EM	26 09 33	SWITCH - THREE WAY - EMERGENCY	
s <sub>K3</sub>	<u>SW-3W-K</u>	26 09 33	SWITCH - THREE WAY - KEY LOCK	
<b>S</b> <sub>4</sub>	<u>SW-4W</u>	26 09 33	SWITCH - FOUR WAY	
S <sub>4E</sub>	SW-4W-EM	26 09 33	SWITCH - FOUR WAY - EMERGENCY	
S <sub>K4</sub>	<u>SW-4W-K</u>	26 09 33	SWITCH - FOUR WAY - KEY LOCK	
S <sub>C</sub>	SW-A-TPCO	26 09 33	SWITCH - THREE POSITION-CENTER OFF	
₫ S	SW-COMB	26 09 33	COMBINATION SWITCH AND RECEPTACLE	
	<u>SW-D-6</u>	26 09 33	DIMMER - 600 WATT	
D <sub>6</sub>	<u>SW-D-0</u>	26 09 33	DIMMER - 1000 WATT	
D <sub>10</sub>	SW-D-15	26 09 33	DIMMER - 1500 WATT	
D <sub>15</sub>	SW-D-10	26 09 33	DIMMER - 2000 WATT	
D <sub>20</sub>		26 09 33	DIMMER - 2000 WATT	
D <sub>F</sub>	<u>SW-D-FL</u> <u>SW-D-LED</u>	26 09 33	DIMMER - FLUORESCENT BALLAST DIMMER - LED	
D <sub>D</sub>	SW-D-LVE	26 09 33	DIMMER - ELECTRONIC BALLAST	
D <sub>L</sub>	SW-D-LVM	26 09 33	DIMMER - MAGNETIC BALLAST	
D3 <sub>6</sub>	<u>SW-D3-6</u>	26 09 33	DIMMER - 600 WATT - 3 WAY	
D3 <sub>10</sub>	SW-D3-10	26 09 33	DIMMER - 1000 WATT - 3 WAY	
D3 <sub>15</sub>	SW-D3-15	26 09 33	DIMMER - 1500 WATT - 3 WAY	
D3 <sub>20</sub>	SW-D3-20	26 09 33	DIMMER - 2000 WATT - 3 WAY	
D <sub>D3</sub>	SW-D3-LED	26 09 33	DIMMER - LED - 3-WAY	
D <sub>O</sub>	SW-OD	26 09 33	DIMMER - WALL DIMMER OCCUPANCY SENSOR	
LS	SW-LS	26 09 33	DAYLIGHT LEVEL SENSOR	
LS <sub>3</sub>	<u>SW-LS-3Z</u>	26 09 33	DAYLIGHT LEVEL SENSOR - 3 ZONE	
_				
	<u>SW-LS-D</u>	26 09 33	DAYLIGHT LEVEL SENSOR - 1 ZONE DIMMING	
LS <sub>3D</sub>	SW-LS-D-3Z	26 09 33	DAYLIGHT LEVEL SENSOR - 3 ZONE DIMMING	
PC	SW-LS-PC	26 09 33	PHOTOCELL	
© <sub>D</sub>	SW-OC-D	26 09 33	OCCUPANCY SENSOR - DUAL TECHNOLOGY	
O <sub>D</sub>	<u>3W-OC-D</u>	20 09 33	OCCOLANCE SENSON - BOAL FECTINOLOGY	
OC D	SW-OC-D-W	26 09 33	OCCUPANCY SENSOR - DUAL TECHNOLOGY - WALL MOUNTED	
© <sub>HA</sub>	SW-OC-P-HA	26 09 33	OCCUPANCY SENSOR - HIGH BAY AISLE	
			COVERAGE	
© <sub>HB</sub>	SW-OC-P-HB	26 09 33	OCCUPANCY SENSOR - HIGH BAY	
<b>s</b> <sub>0</sub>	SW-OC-P-0	26 09 33	SWITCH - OCCUPANCY SENSOR WALL SWITCH	
s <sub>02</sub>	SW-OC-P-02	26 09 33	SWITCH - OCCUPANCY SENSOR AND DUAL	
			SWITCH	
OC) P	SW-OC-P-P	26 09 33	OCCUPANCY SENSOR - PASSIVE INFRARED 360 DEGREE COVERAGE	
© P2	SW-OC-P-P2	26 09 33	OCCUPANCY SENSOR - PASSIVE INFRARED 100 DEGREE COVERAGE	
	SW-OC-P-W	26 09 33	OCCUPANCY SENSOR - PASSIVE INFRARED -	
OC P	<u> </u>	20 09 33	WALL MOUNTED	
⊚ <sub>u</sub>	SW-OC-U	26 09 33	OCCUPANCY SENSOR - ULTRASONIC 360 DEGREE COVERAGE	
© <sub>U2</sub>	<u>SW-OC-U2</u>	26 09 33	OCCUPANCY SENSOR - ULTRASONIC 35'X30'	
_			HAND MOTION COVERAGE	
66 A	SW-OC-U-A	26 09 33	OCCUPANCY SENSOR - ULTRASONIC TWO SIDED CORRIDOR COVERAGE	
oc u	SW-OC-U-W	26 09 33	OCCUPANCY SENSOR - ULTRASONIC - WALL	
SW	SW	26 09 33	MOUNTED WALL CONTROL STATION	
#B	SW-DCS	26 09 33	DIMMER CONTROL STATION	
LCS S	SW-LCS SW-LV	26 09 33	DIMMER CONTROL STATION  CENTRAL CONTROL - STATION	
S <sub>LV</sub>	SW-LV	26 09 33	CENTRAL CONTROL - STATION	
LCD	SW-LCD	26 09 33	LIGHTING CONTROL LCD STATION	
	<u>DS-#</u>	26 28 16	DISCONNECT	
	<u>F#</u>	26 51 00	LINEAR LUMINAIRES	
	<u>F#</u>	26 51 00	TROFFER	
	<u>F#</u>	26 51 00	WALL SCONCE LUMINAIRE	
	<u>F#</u>	26 51 00	DOWNLIGHT LUMINAIRE	
\(\rightarrow\)	<u>—</u> <u>F#</u>	26 51 00	AIMABLE OR WALL WASH LUMINAIRE	
	<u>F#</u> F#	26 51 00 26 51 00	INDUSTRIAL LUMINAIRE WALL BRACKET LUMINAIRE	
	<u>F#</u>			
	<u>S#</u>	26 51 00	POLE MOUNTED LUMINAIRE	
8	<u>X#</u>	26 51 00	SINGLE FACE EXIT SIGN	
$\otimes$	<u>X#</u>	26 51 00	DOUBLE FACE EXIT SIGN	
42				

	ELECTRICAL SYMBOL LIST			
SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:	
ET	<u>ET</u>	27 53 13	ELAPSED TIME CLOCK	
	<u>FA-100</u>	28 31 00	FIRE ALARM CONTROL PANEL	
	FA-110	28 31 00	FIRE FIGHTERS PHONE	
(SD)	<u>FA-120</u>	28 31 00	FIRE ALARM SMOKE DETECTOR - CEILING MOUNTED	
SD <sub>BT</sub> SDBR	<u>FA-121</u>	28 31 00	FIRE ALARM PROJECTED BEAM SMOKE DETECTOR	
(SD)	<u>FA-122</u>	28 31 00	FIRE ALARM DUCT SMOKE DETECTOR	
SD	<u>FA-123</u>	28 31 00	FIRE ALARM IN DUCT SMOKE DETECTOR	
F	FA-130	28 31 00	FIRE ALARM MANUAL PULL STATION	
FT	<u>FA-131</u>	28 31 00	FIRE ALARM MANUAL PULL STATION W/ COVER	
H	<u>FA-140</u>	28 31 00	FIRE ALARM HEAT DETECTOR	
HF	<u>FA-141</u>	28 31 00	HEAT DETECTOR - 200 DEGREE	
HX	<u>FA-142</u>	28 31 00	HEAT DETECTOR - EXPLOSION PROOF	
	<u>FA-150</u>	28 31 00	FIRE ALARM CARBON MONOXIDE DETECTOR	
(FD)	FA-151	28 31 00	FIRE ALARM FLAME DETECTOR	
	<u>FA-153</u> FA-160	28 31 00 28 31 00	FIRE ALARM AUXILIARY CONTROL RELAY FIRE ALARM ADDRESSABLE MONITOR MODULE	
[MM] [AR]	FA-161	28 31 00	FIRE ALARM ADDRESSABLE RELAY	
·—	FA-170	28 31 00	SMOKE DETECTOR - STAND ALONE	
SD <sub>B</sub>	FA-171	28 31 00	SMOKE DETECTOR - STAND ALONE 177	
	<u></u>	200.00	CANDELA	
V7 VH VS	<u>FA-200</u>	28 31 00	FIRE ALARM VISUAL NOTIFICATION DEVICE - WALL MOUNTED	
(V1)(V3) (V7)(VH)(VS)	<u>FA-201</u>	28 31 00	FIRE ALARM VISUAL NOTIFICATION DEVICE - CEILING MOUNTED	
V11 V33 V77 VHH	<u>FA-202</u>	28 31 00	EMERGENCY NOTIFICATION - VISUAL - WALL MOUNTED	
∨ <sub>w</sub>	<u>FA-203</u>	28 31 00	FIRE ALARM VISUAL NOTIFICATION DEVICE - WALL MOUNTED - WEATHERPROOF	
A	FA-210	28 31 00	FIRE ALARM AUDIO NOTIFICATION DEVICE - WALL MOUNTED	
A1 A3 A7 AH AS	<u>FA-211</u>	28 31 00	FIRE ALARM AUDIO/VISUAL NOTIFICATION DEVICE - WALL MOUNTED	
AW	<u>FA-212</u>	28 31 00	FIRE ALARM AUDIO/VISUAL NOTIFICATION DEVICE - WALL MOUNTED - WEATHERPROOF	
A11 A33 A77 AHH AS#	<u>FA-220</u>	28 31 00	EMERGENCY NOTIFICATION - AUDIO/VISUAL - WALL MOUNTED	
(1)(A33(A77) (99)(AH)(AS#)	<u>FA-221</u>	28 31 00	EMERGENCY NOTIFICATION - AUDIO/VISUAL - CEILING MOUNTED	
1)(33(77) 99 (/S#)	<u>FA-222</u>	28 31 00	EMERGENCY NOTIFICATION - VISUAL ONLY - CEILING MOUNTED	
A	FA-230	28 31 00	FIRE ALARM AUDIO NOTIFICATION DEVICE - CEILING MOUNTED	
(A1)(A3) (A7)(AH)(AS)	<u>FA-231</u>	28 31 00	FIRE ALARM AUDIO/VISUAL NOTIFICATION DEVICE - CEILING MOUNTED	
<b>S</b> A	<u>FA-232</u>	28 31 00	FIRE ALARM CM LOUD SPEAKER	
MH	FA-233	28 31 00	FIRE ALARM AUDIO NOTIFICATION DEVICE - WALL MOUNTED - MINI-HORN	
RTS/I	<u>FA-240</u>	28 31 00	FIRE ALARM REMOTE INDICATOR	
RI	<u>FA-241</u>	28 31 00	AND TEST SWITCH FIRE ALARM REMOTE INDICATOR	
SD	FA-250	28 31 00	FIRE ALARM SMOKE DAMPER - WALL MOUNTED	
ARD	FA-251	28 31 00	SMOKE OR FIRE DAMPER CONTROLLER	
HD	FA-252	28 31 00	FIRE ALARM HOISTWAY DAMPER	
HDS #	<u>FA-253</u>	28 31 00	FIRE ALARM HOISTWAY DAMPER SWITCH	
<b>S</b> D	<u>FA-254</u>	28 31 00	FIRE ALARM SMOKE DAMPER WITH DUCT DETECTOR AND ADDRESSABLE RELAY	
FS	<u>FA-260</u>	28 31 00	FIRE ALARM FLOW SWITCH TO MONITOR FIRE PROTECTION SYSTEM	
MS	<u>FA-261</u>	28 31 00	FIRE ALARM MONITOR SWITCH TO MONITOR FIRE PROTECTION SYSTEM	
PIV	<u>FA-262</u>	28 31 00	FIRE ALARM POST INDICATOR VALVE CONNECTION	
EB	<u>FA-263</u>	28 31 00	FIRE ALARM ELECTRONIC BELL FOR SPRINKLER SYSTEM	
DH	<u>FA-270</u>	28 31 00	FIRE ALARM ELECTROMAGNETIC DOOR HOLD DEVICE	
DH I	<u>FA-271</u>	28 31 00	FIRE ALARM DOOR HOLD OPEN DEVICE	
DH <sub>PD</sub>	<u>FA-272</u>	28 31 00	FIRE ALARM HOLD OPEN OVERRIDE CONNECTION	
DB	<u>DB</u>	ARCH	DOOR BELL	
HD	<u>HD</u>	ARCH	HAND DRYER	
PP	PP	ARCH	PUSH PAD	

ARCH

PUSH PAD

<b>CONTRACTOR ABBREVIATION KEY</b>				
ABBR:	BBR: DESCRIPTION:			
C.M.	CONSTRUCTION MANAGER			
E.C.	ELECTRICAL CONTRACTOR			
F.P.C.	FIRE PROTECTION CONTRACTOR			
G.C.	GENERAL CONTRACTOR			
M.C.	MECHANICAL CONTRACTOR			
P.C.	PLUMBING CONTRACTOR			



	<b>ELECTRICAL ABBREVIATION KEY</b>									
ABBR:	ABBR: DESCRIPTION:									
AFF	ABOVE FINISHED FLOOR									
С	CONDUIT									
GFI	GROUND FAULT INTERRUPTER									
N.C.	NORMALLY CLOSED									
NIC	NOT IN CONTRACT									
N.O.	NORMALLY OPEN									
SV	SOLENOID VALVE									
TYP	TYPICAL									
UNO	UNLESS NOTED OTHERWISE									

#### PROJECT DIRECTORY

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0. 6 0 2 . 6 0 4 . 6 6 2 6

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**IMEG** 1600 N. DESERT DR. STE 230 TEMPE, AZ 85281

contact: JORDAN ROELFS o. 4 8 0 . 5 2 6 . 5 4 8 4

Electrical:

IMEG 323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY
4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251

contact: MARK RUDOW

0.480.946.8171

-- SD ISSUANCE
NO. DESCRIPTION

KEY PLAN

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
NAU Fieldhouse
M P C

8.24.2017

DATE

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

ELECTRICAL COVER SHEET

E0.00



E0.00 ELECTRICAL COVER SHEET
EP1.00 ELECTRICAL POWER PLAN - BASE BID
EP1.01 ELECTRICAL POWER PLAN - OPTION 1
EP1.02 ELECTRICAL POWER PLAN - OPTION 2
EP2.00 ENLARGED ELECTRICAL ROOM - BASE BID
EL1.01 ELECTRICAL LIGHTING PLAN - OPTION 1

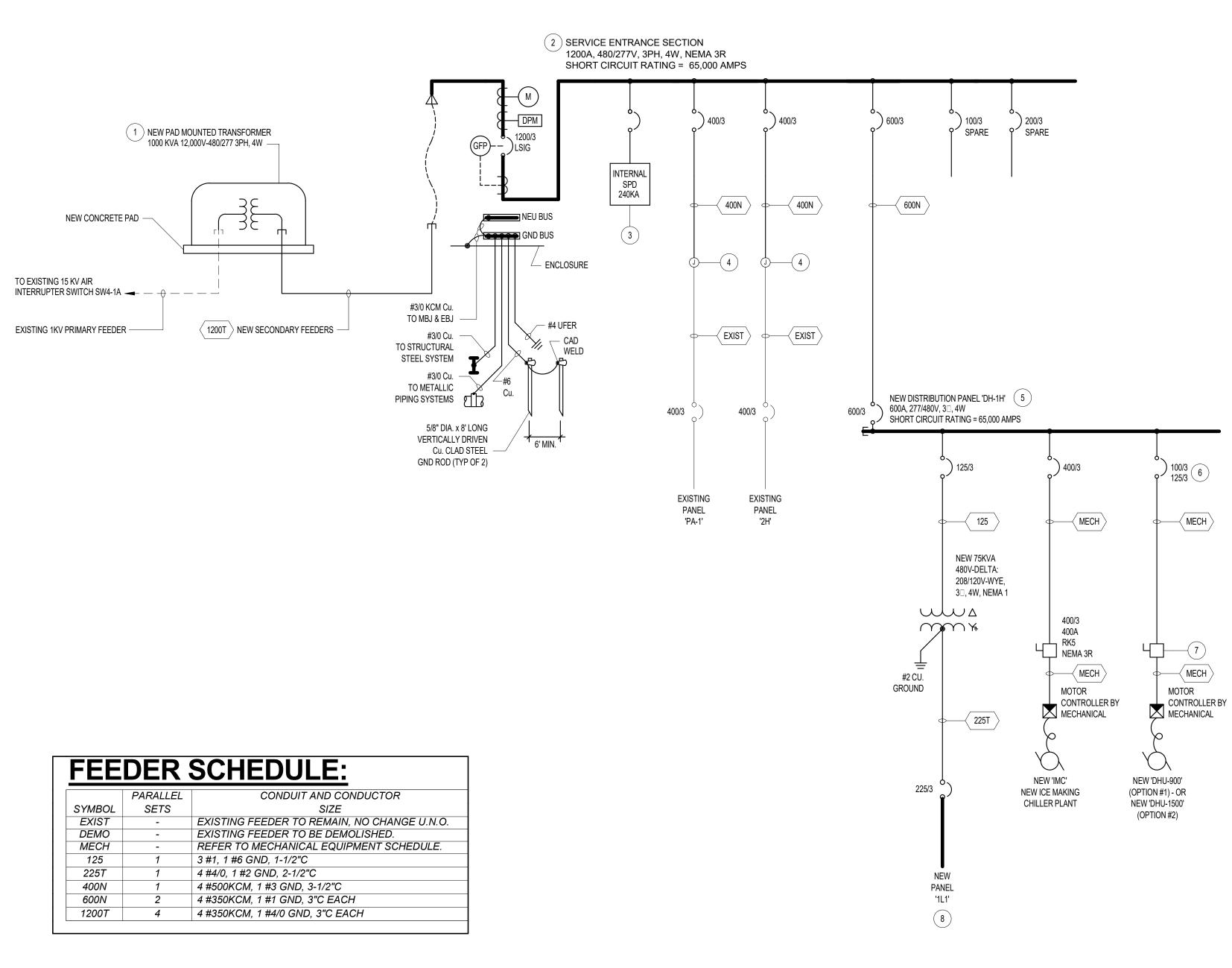
EL1.01 ELECTRICAL LIGHTING PLAN - OPTION 1
EL1.03 ELECTRICAL LIGHTING PLAN - OPTION 3
EL1.02 ELECTRICAL LIGHTING PLAN - OPTION 2
EL5.01 LUMINAIRE SCHEDULES

EL5.01 LUMINAIRE SCHEDULES
E4.01 ONE LINE DIAGRAM

323 N. LEROUX STREET, SUITE 201 FLAGSTAFF, AZ 86001 928.255.0410 www.imegcorp.com PROJECT # 17001424.00

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REFERENCE SCALE IN INCHES
0 1 2 3



## SINGLE LINE DIAGRAM

NOT TO SCALE

HWP-3 11.0 CP-1 5.8 EF-1 9.8 UH-1 2.5 DPTION #1  DHU-900 78.2 HCP-1 9.8 HCP-2 13.8	MCA FLA FLA FLA MCA FLA FLA FLA FLA	480 480 120 120 120 120 480 120 480 120	PH  3 3 1 1 1 1 3 1 1 3	F F T T T T	SIZE  400/3 30/3 20/1 20/1 20/1 100/3 20/1 20/1	TYPE	SIZE	SIZE  (2) 3#3/0, #3 GND, 2"C  3#12, #12 GND, 3/4"C  2#12, #12 GND, 3/4"C  2#12, #12 GND, 3/4"C  2#12, #12 GND, 3/4"C	REMARKS  400A MOCP. NEMA-3R DISCONNECT SWITCH FUSED PER MFGR'S RECOMMENDATION.  7.5 HP. CIRCUIT VIA ABB ACH-550 VFD BY E.C.  RUNS CONTINUOUSLY.
CE MAKING CHILLER PLANT	FLA FLA FLA MCA FLA MCA FLA FLA	480 120 120 120 120 480 120 480 120	3 1 1 1 1 1	T T T	400/3 30/3 20/1 20/1 20/1 100/3 20/1			3#12, #12 GND, 3/4"C 2#12, #12 GND, 3/4"C 2#12, #12 GND, 3/4"C	7.5 HP. CIRCUIT VIA ABB ACH-550 VFD BY E.C.
HWP-3 11.0 CP-1 5.8 EF-1 9.8 UH-1 2.5 DPTION #1  DHU-900 78.2 HCP-1 9.8 HCP-2 13.8  DPTION #2  DHU-1500 97.4 HCP-3 13.8	FLA FLA FLA MCA FLA MCA FLA FLA	480 120 120 120 120 480 120 480 120	3 1 1 1 1 1	T T T	30/3 20/1 20/1 20/1 20/1 100/3 20/1			3#12, #12 GND, 3/4"C 2#12, #12 GND, 3/4"C 2#12, #12 GND, 3/4"C	7.5 HP. CIRCUIT VIA ABB ACH-550 VFD BY E.C.
CP-1 5.8 EF-1 9.8 UH-1 2.5  DPTION #1  DHU-900 78.2 HCP-1 9.8 HCP-2 13.8  DPTION #2  DHU-1500 97.4 HCP-3 13.8	FLA FLA FLA MCA FLA MCA FLA	120 120 120 120 480 120 480 120	3 1 1	T T T	20/1 20/1 20/1 100/3 20/1			2#12, #12 GND, 3/4"C 2#12, #12 GND, 3/4"C	
EF-1 9.8 UH-1 2.5  DPTION #1  DHU-900 78.2 HCP-1 9.8 HCP-2 13.8  DPTION #2  DHU-1500 97.4 HCP-3 13.8	FLA FLA MCA FLA MCA FLA FLA	120 120 120 480 120 120 480 120	3 1 1	T T	20/1 20/1 100/3 20/1	1 1		2#12, #12 GND, 3/4"C	RUNS CONTINUOUSLY.
UH-1 2.5  DPTION #1  DHU-900 78.2  HCP-1 9.8  HCP-2 13.8  DPTION #2  DHU-1500 97.4  HCP-3 13.8	FLA  MCA FLA  FLA  MCA FLA	480 120 120 120 120	3 1 1	F T	20/1 100/3 20/1	1		. ,	RUNS CONTINUOUSLY.
DPTION #1  DHU-900 78.2  HCP-1 9.8  HCP-2 13.8  DPTION #2  DHU-1500 97.4  HCP-3 13.8	MCA FLA FLA MCA FLA	480 120 120 480 120	3 1 1	F	100/3 20/1	I   I		2#12, #12 GND, 3/4"C	
DHU-900 78.2  HCP-1 9.8  HCP-2 13.8  DPTION #2  DHU-1500 97.4  HCP-3 13.8	FLA FLA MCA FLA	120 120 120 480 120	1 1	T	20/1	l			
HCP-1 9.8 HCP-2 13.8 DPTION #2 DHU-1500 97.4 HCP-3 13.8	FLA FLA MCA FLA	120 120 120 480 120	1 1	T	20/1	I			
HCP-2 13.8  DPTION #2  DHU-1500 97.4  HCP-3 13.8	FLA MCA FLA	120 480 120	1					3#2, #8 GND, 1-1/4"C	100A MOCP. NEMA-1 DISCONNECT SWITCH FUSED PER MFGR'S RECOMMENDATION.
DPTION #2  DHU-1500 97.4  HCP-3 13.8	MCA FLA	480 120	'	Т	20/4			2#12, #12 GND, 3/4"C	0.5 HP.
DHU-1500 97.4 HCP-3 13.8	FLA	120	3		20/ I	1		2#10, #10 GND, 3/4"C	0.75 HP.
HCP-3 13.8	FLA	120	3						
			0	F	200/3			3#1, #6 GND, 1-1/2"C	125A MOCP. NEMA-1 DISCONNECT SWITCH FUSED PER MFGR'S RECOMMENDATION.
HCP-4 13.8	FLA		1	Т	30/2	ı		2#10, #10 GND, 3/4"C	0.75 HP.
	. – .	120	1	T	30/2	l i		2#10. #10 GND. 3/4"C	0.75 HP.
		C. D. E. F.	PROPE ALL DIS FUSED ALL EQ WEATH SEE EL	RLY SIZEI SCONNEC' SWITCHE UIPMENT IERPROOI ECTRICAL	D FOR EQU T CONNEC S SHALL E INSTALLEI F NEMA	JIPMENT CT SWITC EMPLOY ( D OUTDO SCHEDU	BASED CHES SH CLASS F OORS OF	IALL BE 3 POLE RK5 FUSES UNLESS NOTED OTHE R IN OTHERWISE WET OR DAMP	IG PRIOR TO CONDUIT ROUGH IN. ERWISE
		M = C = NF = F =	MANUA COMBII NON-FU FUSED	L MOTOR NATION M JSED SAF SAFETY S	OTOR STA ETY SWIT( SWITCH DI	(PROVID ARTER AN CH DISCO SCONNE	DE WITH ND DISC DNNECT CT	•	LATE) H OL'S BASED ON MOTOR NAMEPLATE) TOR PRIOR TO ORDERING EQUIPMENT AND MATERIALS.

# PROJECT DIRECTORY

Architect:

## LIGHTVOX STUDIO

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Mechanical:

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

Electrical:

D. SWITCHBOARD COMPONENTS, INCLUDING OVER CURRENT

PROTECTIVE DEVICES SHALL BE FULLY RATED FOR THE A.F.C. SHOWN ON FAULT CURRENT TABLE.

A. ALL ELECTRICAL SERVICE & SWITCHBOARD COMPONENTS

SHALL ESTABLISH EXACT DIMENSIONS AND ADEQUATE CLEARANCES PRIOR TO ORDERING. REFER TO POWER PLANS

B. ALL INTERIOR ELECTRICAL EQUIPMENT ENCLOSURE(S) SHALL

INSULATED, COPPER WIRE APPLIED AT 60° C AMPACITIES SIZES UP TO #1 AWG, AND 75° C, AMPACITIES FOR SIZES #1 AWG OR

BE NEMA 1, ALL EXTERIOR ELECTRICAL EQUIPMENT

C. CONDUCTOR SIZES BASED ON THHN/XHHW-2, 90° C, 600V,

SHALL HAVE PHYSICAL DIMENSIONS THAT WILL PERMIT ITS

INSTALLATION IN SPECIFIED AREAS. ELECTRICAL CONTRACTOR

**GENERAL NOTES:** 

ENCLOSURE(S) SHALL NEMA 3R.

FOR LOCATIONS.

- E. NO DESIGN CHANGES MAY BE MADE TO THE SYSTEM WITHOUT THE PRIOR APPROVAL OF THE DESIGN ENGINEER AND THE ELECTRICAL INSPECTOR.
- F. PROVIDE LABELING ON SES THAT WARNS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER NEC 110.16.
- G. IF METAL GAS PIPING IS INSTALLED, PROVIDE BONDING CONDUCTOR TO METAL GAS PIPING PER NEC 250.104(B) SIZED PER NEC 250.122.
- H. PROVIDE ALL TESTING AS DIRECTED BY ELECTRICAL SPECIFICATIONS. NOTIFY ENGINEER 48 HOURS IN ADVANCE TO WITNESS TESTING. ENGINEER SHALL PROVIDE DEVICE SETTINGS PRIOR TO TESTING.
- I. ALL WORK SHOWN ON THIS SHEET SHALL BE CONSIDERED BASE BID EXCEPT AS NOTED OTHERWISE IN KEYNOTES BELOW.

## **# KEY NOTES:**

- 1. NEW S&C DEAD-FRONT TRANSFORMER TO REPLACE EXISTING 500 KVA TRANSFORMER. FIELD COORDINATE REPLACEMENT INCLUDING POWER SHUT DOWN, COMPLETE INSTALLATION AND RE-CONNECTION OF EXISTING 15KV PRIMARY FEEDERS AND NEW SECONDARY FEEDERS TO NEW SES WITH OWNER.
- 2. NEW SERVICE ENTRANCE SECTION TO REPLACE EXISTING SES. FIELD COORDINATE REPLACEMENT INCLUDING POWER SHUT DOWN, COMPLETE INSTALLATION AND RE-CONNECTION OF (2) EXISTING ELECTRICAL PANEL FEEDERS AS INDICATED PER KEYNOTE #4 WITH OWNER. PROVIDE WITH AMMETER, VOLTMETER (BOTH WITH PHASE SWITCHING POSITIONS AND OFF POSITIONS). PROVIDE WITH INTEGRAL KILO-WATT-HOUR METER WITH DEMAND REGISTER. KWH METER SHALL BE ADAPTABLE TO SUPPLY A PULSE TRAIN OUTPUT FOR FUTURE BMS SYSTEM.
- 3. PROVISION FOR FACTORY INSTALLED INTEGRAL SPD.
- 4. FIELD VERIFY AND DISCONNECT AND RE-CONNECT EXISTING ELECTRICAL FEEDER WITH SES REPLACEMENT.
- 5. PROVIDE PANEL WITH 30 SPACES FOR BRANCH CIRCUITS WITH (10) 20 AMP, 1-POLE, 18K AIC CIRCUIT BREAKERS.
- 6. PROVIDE 100A/3P CIRCUIT BREAKER UNDER OPTION #1 AND 125A/3P CIRCUIT BREAKER UNDER OPTION #2.
- 7. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR SIZING INFORMATION BASED ON OPTION SELECTED.
- 8. PROVIDE 42 CIRCUIT, 225A, 120/208V-3PH, 4W PANELBOARD WITH (30) 20 AMP, 1-POLE, AND (4) 30 AMP, 1-POLE, 10K AIC BRANCH CIRCUIT BREAKERS.

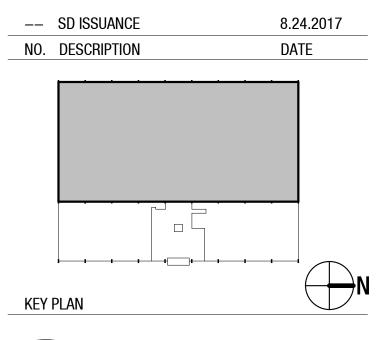
**IMEG** 

**IMEG** 323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY

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**PRELIMINARY NOT FOR CONSTRUCTION** 

PROJECT: **NAU Fieldhouse** MPC

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

**ONE LINE DIAGRAM** 

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PANEL 'A1 SEC. 2' (EXIST)	<u> </u>			D TYPE NE	:HB				125 AMP MAIN LUG ONLY		
480/277V 3%%c 4 WIRE		SURF	ACE M	IOUNTED					MAIN LU	JG ONLY	
		LO	AD	LOAD PER F	PHASE (VA)		LC	AD			
USE OR AREA SERVED	СВ	TY	PE	A%%C	B%%C	C%%C	TY	PE	СВ	USE OR AREA SERVED	
LIGHTS - BASKETBALL	20	С	1	1000			2	С	20 1	LIGHTS - TENNIS SE 1	
LIGHTS - BASKETBALL	20	С	3		1200 1500		4	С	20 1	LIGHTS - TENNIS SE 2	
LIGHTS - BASKETBALL	20	С	5			1200 1800	6	С	20	LIGHTS - TENNIS SE 2	
SPARE	30	N	7	1500	   		8	С	20	LIGHTS - TENNIS	
SPARE	30	N	9		2000 1600		10	С	20	LIGHTS - TENNIS	
SPARE	20	N	11			1400 1600	12	С	20	LIGHTS - TENNIS	
LIGHTS - BASKETBALL	20	С	13	1200 1200	   		14	С	20	EMERGENCY LIGHTS WEST	
LIGHTS - BASKETBALL	20	С	15		1400 1000		16	С	20	NIGHT LIGHTS EAST	
LIGHTS - BASKETBALL	20	С	17			1200 1100	18	С	20	NIGHT LIGHTS WEST	
LIGHTS - BADMITTEN	20	С	19	1100 1400			20	С	20 1	EMERGENCY LIGHTS EAST	
SPARE	20	N	21		1200		22	N		SPARE	
INVERTER POWER	20	N	23			1400	24	N		SPARE	
SPARE		N	25	800	'		26	N	15	GARAGE DOOR	
BUSSED SPACE		N	27		800		28	N	-		
BUSSED SPACE		N	29			800	30	N	3		
LOAD PER PHASE NON-CON	800	4000	3600				VA / 277 V = 45 AMPS				
LOAD PER PHASE CONTINUO		9200	6700	6900							
25% OF CONTINUOUS		2300	1675	1725			TOT *:	0 DUACE VA 00000 VA			
-		0	0	0			IOTAL	3 PHASE VA = 36900 VA			
TOTAL				12300	12375	12225			18,000	A.I.C. BREAKERS	

#### %%uGENERAL NOTE:

A. "C" LOAD TYPES ARE CONTINUOUS OR LARGEST MOTOR LOADS AND 'N' LOAD TYPES ARE NON-CONTINUOUS.

B. ALL BREAKERS ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE.

#### %%uKEY NOTES:

1. EXISTING LOAD ON EXISTING CIRCUIT BREAKER, NO CHANGE.

2. PROVIDE A CIRCUIT BREAKER LOCK. LOCK IN THE 'ON' POSITION.

3. NEW LOAD ON NEW CIRCUIT BREAKER.

PANEL 'LITE PANEL' (EXIST	)	GE A							<b>⊣</b>	) AMP (125A RATING)
208/120V 3%%c 4 WIRE		FLUSH	MOUN	NIED					MAIN C	IRCUIT BREAKER
	ı	LO	AD	LOAD PER F	PHASE (VA)		LO	AD		
USE OR AREA SERVED	СВ	TYI	PE	A%%C	B%%C	C%%C	TY	Έ	СВ	USE OR AREA SERVED
RECEPT. N. END FIELDHOUSE	20	N	1	500				N	20	RECEPT. BAY 3
	1	IN		400		1	2	IN	1	
RECEPT. N. END FIELDHOUSE	20	N	3		500 400		4	Ν	20	RECEPT. BAY 3
TIME CLOCK GYM LIGHTS	20		5		400	700	4		20	RECEPT. BAY 3
TIME GEOGRETIM EIGHTO	1	С				400	6	N	1	TAEGET 1. B/TT G
BACK BOARD MTRS. E.	30	N	7	700				N	20	OUTSIDE LIGHTS N. WALL
DAOK BOARD MEDO. F	1	.,		1100	700	1	8		1	DECERT DAYS
BACK BOARD MTRS. E.	30	N	9		700 400		10	Ν	20	RECEPT. BAY 2
BACK BOARD MTRS. W.	20	N	11			700			20	RECEPT. BAY 2
	1	IN			1	400	12	N	1	
BACK BOARD MTRS. W.	20	N	13	700			11	Ν	20	RECEPT. BAY 2
EQUIP. STORAGE ROOM	20		15	400	500	]	14		20	OUTS. LIGHTS N. WALL END
EQUII : STONAGE NOOM	1	N	10		400		16	С	1	.
RECEPT. OVER DOOR	20	N	17			400		С	20	OUTSIDE LIGHTS N.W.
	1	1,	10	500	1	800	18		1	
COND. PUMP	15	N	19	500 500			20	Ν	20	SPARE
EXIT SIGNS N. SIDE	20		21	000		]	20		20	SPARE
-	1	С			500		22	N	1	
OUTS. EMERG. LIGHTS N.SIDE	20	С	23				0.4	N		BUSSED SPACE
BUSSED SPACE	1		25		]		24		20	AHU CONTROL CIRCUIT
BUSSED SPACE		N	23	400			26	Ν	1	AND CONTROL CIRCUIT
BUSSED SPACE		N	27					N	20	SPARE
		IN .	00		500		28	11	1	
BUSSED SPACE		N	29			700	30	Ν	20	SPARE
							30			
LOAD PER PHASE NON-CONTII	NUOUS			5200	3500	2600	-		5200 V	A / 120 V = 43 AMPS
LOAD PER PHASE CONTINUOU	IS			0	400	1500				
25% OF CONTINUOUS				0	100	375				
-				0	0	0			TOTAL	. 3 PHASE VA = 13675 VA
				5200					10.000	ALC PDEAKEDS
TOTAL				5200	4000	4475			10,000	A.I.C. BREAKERS

#### %%uGENERAL NOTE:

A. "C" LOAD TYPES ARE CONTINUOUS OR LARGEST MOTOR LOADS AND 'N' LOAD TYPES ARE NON-CONTINUOUS.

B. ALL BREAKERS ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE.

#### %%uKEY NOTES:

1. EXISTING LOAD ON EXISTING CIRCUIT BREAKER, NO CHANGE.

2. PROVIDE A CIRCUIT BREAKER LOCK. LOCK IN THE 'ON' POSITION.

3. NEW LOAD ON NEW CIRCUIT BREAKER.

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1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS  $0.\,4\,8\,0\,.\,5\,2\,6\,.\,5\,4\,8\,4$ 

Electrical:

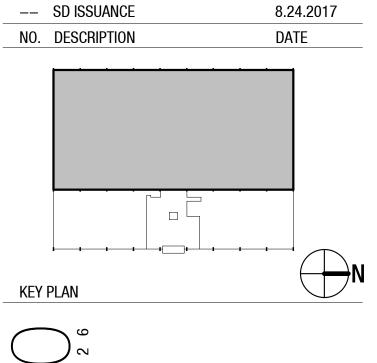
Mechanical:

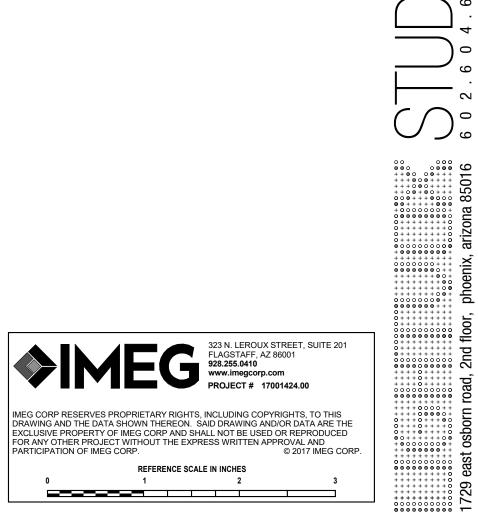
323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

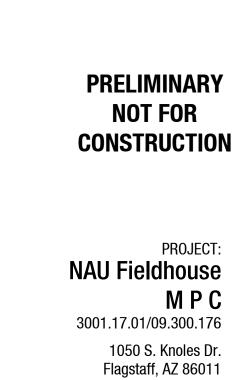
RUDOW + BERRY

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REFERENCE SCALE IN INCHES



PANEL SCHEDULES

Schedule								
Label	Arrangement	LLF	Description	Arr. Watts	Total Watts	Lum. Lumens	[MANUFAC]	IES Class
EX	SINGLE	1.000	LHV4-854-GW-4EPU-F5841	-	18400	30737	EXISTING FIXTURE	Type VS
L1	SINGLE	1.000	LLHV4-35X-WST-EU	286.7	5447.3	35828	COLUMBIA LIGHTING	Type VS
	Label EX	Label Arrangement EX SINGLE	Label Arrangement LLF EX SINGLE 1.000	LabelArrangementLLFDescriptionEXSINGLE1.000LHV4-854-GW-4EPU-F5841	Label     Arrangement     LLF     Description     Arr. Watts       EX     SINGLE     1.000     LHV4-854-GW-4EPU-F5841     -	LabelArrangementLLFDescriptionArr. WattsTotal WattsEXSINGLE1.000LHV4-854-GW-4EPU-F5841-18400	LabelArrangementLLFDescriptionArr. WattsTotal WattsLum. LumensEXSINGLE1.000LHV4-854-GW-4EPU-F5841-1840030737	LabelArrangementLLFDescriptionArr. WattsTotal WattsLum. Lumens[MANUFAC]EXSINGLE1.000LHV4-854-GW-4EPU-F5841-1840030737EXISTING FIXTURE

L1a

EX 

L1a

L1a

EX 

EX

----

EX

#### LIGHTING CONTROL SEQUENCE

CONTROL SEQUENCE SHALL BE AS FOLLOWS:

#### EQUIPMENT ROOMS, MECHANICAL ROOMS AND RESTROOMS;

- SWITCH AND OCCUPANCY/ VACANCY SENSOR...

- OR SWITCH COMBINATION WITH OCCUPANCY SENSOR

LIGHTING FIXTURES ARE OFF WHEN THE SPACE IS UNOCCUPIED; AS OCCUPANCY IS REGISTERED THE LIGHTS TURN ON TO 100% AS THE SPACE IS EVACUATED, WHEN NO OCCUPANCY IS DETECTED THE LIGHTS TURN OFF AFTER A 30 MINUTE DELAY.

#### B. GENERAL OPEN (HOCKEY) AREA

EX

EX

\_ EX

L1a

EX

EX

EX

L1a

L1a

#### - LIGHTING CONTROL PANELS

LIGHTS SHALL BE ON AT ALL TIMES DURING NORMAL BUSINESS HOURS. THE NON-EMERGENCY/ NON-NIGHT LIGHT FIXTURES SHALL BE TURNED OFF BY THE BUILDING AUTOMATION SYSTEM VIA THE LIGHTING CONTROL PANEL. NIGHT LIGHTS SHALL REMAIN ON AT ALL TIMES.

EX

L1a

EX

L1a

L1a

EX

#### **OCCUPANCY SENSOR NOTES:**

- CONTRACTOR SHALL INCLUDE IN BID TO HAVE THE MANUFACTURER MAKE INSTALLATION DRAWINGS FOR ALL CONFIGURATIONS. FINAL ADJUSTMENTS OF SENSITIVITY AND AIMING OF ALL SENSORS.
- ADJUST OCCUPANCY OR VACANCY SENSOR TIME DELAY OFF PER OWNERS REQUIREMENTS UP TO 30 MINUTES MAXIMUM.
- CONNECT AND PROVIDE WIRING AS REQUIRED BY MANUFACTURER, ALL WIRING (INCLUDING LOW
- VOLTAGE) SHALL BE IN CONDUIT 3/4" WIRING.
- PROVIDE SUFFICIENT RELAYS/ POWER PACKS FOR INSTALLATION SHOWN.

 $+\Box$ 

EX

L1a

L1a

EX

- COORDINATE ALL TRIM AND DEVICE COLORS WITH ARCHITECT PRIOR TO PLACING ORDERS.
- IF APPLICABLE, REFER TO CONTROL WIRING DIAGRAMS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE SENSORS WITH ISOLATED RELAY FOR SLAVE RELAY THAT PROVIDES A DRY CONTACT FOR MONITORING OR CONTROL AIR MOVING SYSTEMS AS REQUIRED.

L1a

## **LIGHTING GENERAL NOTES**

- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR ALL AREAS OF THE BUILDING. VERIFY ALL CEILING TYPES AND LIGHTING FIXTURE COMPATIBILITY PRIOR TO SUBMITTING LIGHTING FIXTURE FOR APPROVAL.
- CONDUIT SHALL RUN PARALLEL TO ROOF DECKING AND PERPENDICULAR TO STRUCTURAL COMPONENTS BUT NOT LIMITED TO BEAMS, JOISTS AND SUPPORT CHANNELS IN OPEN CEILING AREAS. PRIOR TO INSTALLATION, COORDINATE AND VERIFY ALL EXPOSED CONDUIT ROUTING LOCATIONS WITH THE ARCHITECT.
- LOCATIONS WITH MULTIPLE SWITCHES SHALL BE INSTALLED WITH A MULTI-GANG BOX AND WITH A SINGLE COVERPLATE.
- INSTALLATION OF ALL FIXTURES IN OPEN CEILING AREAS SHALL BE NEAT AND ORDERLY WITH THREADED RODS AND/OR UNISTRUT SUPPORT.
- OCCUPANCY SENSORS SHALL ENABLE LOCAL SWITCH OPERATION IN ROOMS COVERED BY SENSORS. REFERENCE SHEET EL602 FOR ADDITIONAL INFORMATION.
- THE BASIS OF DESIGN IS BASED ON INTERIOR EGRESS PATHWAY LIGHTING FIXTURES TO PROVIDE AN AVERAGE OF 1 FOOTCANDLE PER CODE REQUIREMENTS. IN ADDITION, ALL EGRESS LIGHTING FIXTURES SHALL BE CONTROLLED THROUGH AN EMERGENCY BATTERY PACK OR LOCAL INVERTER.
- WHERE EXIT SIGNS ARE INDICATED ABOVE DOOR, MOUNT AS FOLLOWS: CENTER THE EXIT SIGN BETWEEN TOP OF DOOR FRAME AND CEILING. IF DISTANCE BETWEEN TOP OF DOOR FRAME AND CEILING IS 24" OR LESS. OTHERWISE MOUNT BOTTOM OF EXIT SIGN 6" FROM TOP OF DOOR FRAME. MOUNT OTHER WALL MOUNTED EXIT SIGNS IN THE SAME AREA AT THE HEIGHT. COORDINATE WITH ARCHITECTURAL DETAILS. REFERENCE ARCHITECTURAL CODE SHEETS FOR FINAL LOCATIONS AND REQUIREMENTS.
- CONDUCTOR COUNTS AND CONDUIT WIRING FOR THIS PLAN HAVE NOT BEEN INDICATED. CONTRACTOR SHALL PROVIDE CONDUCTORS FOR SWITCH LEGS AND NON-SWITCHED LOADS AS REQUIRED. ALL DIMMING LOADS SHALL INCLUDE A DEDICATED NEUTRAL INSTALLED FOR EACH CONTROLLED GROUP.
- PROVIDE SEPARATE NEUTRALS FOR DIMMING CIRCUITS.

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REFERENCE SCALE IN INCHES

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LIGHTVOX STUDIO

contact: BENJAMIN MULLINGS

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

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Architect:

Mechanical:

Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171

- ALL SCOPE OF WORK WITHIN THE OUTLINED AREA SHALL BE CONSIDERED BASE BID. PROVIDE A SEPARATE BREAKOUT NUMBER

FOR THIS WORK.



-- SD ISSUANCE

NO. DESCRIPTION

**KEY PLAN** 

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**NAU Fieldhouse** 3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

**ELECTRICAL LIGHTING** PLAN - OPTION 1

8.24.2017

DATE

**PRELIMINARY** 

**NOT FOR** 

**CONSTRUCTION** 



Luminaire So	chedule								
Qty	Label	Arrangement	LLF	Description	Arr. Watts	Total Watts	Lum. Lumens	[MANUFAC]	IES Class
46	L1b	SINGLE	1.000	T5HO LED TUBE REPLACEMENT	286.7	13188.2	35828	SATCO	N/A

#### LIGHTING CONTROL SEQUENCE

CONTROL SEQUENCE SHALL BE AS FOLLOWS:

- **EQUIPMENT ROOMS, MECHANICAL ROOMS AND RESTROOMS;**
- SWITCH AND OCCUPANCY/ VACANCY SENSOR...
- OR SWITCH COMBINATION WITH OCCUPANCY SENSOR

LIGHTING FIXTURES ARE OFF WHEN THE SPACE IS UNOCCUPIED; AS OCCUPANCY IS REGISTERED THE LIGHTS TURN ON TO 100% AS THE SPACE IS EVACUATED, WHEN NO OCCUPANCY IS DETECTED THE LIGHTS TURN OFF AFTER A 30 MINUTE DELAY.

- B. GENERAL OPEN (HOCKEY) AREA
  - LIGHTING CONTROL PANELS
  - LIGHTS SHALL BE ON AT ALL TIMES DURING NORMAL BUSINESS HOURS. THE NON-EMERGENCY/ NON-NIGHT LIGHT FIXTURES SHALL BE TURNED OFF BY THE BUILDING AUTOMATION SYSTEM VIA THE LIGHTING CONTROL PANEL. NIGHT LIGHTS SHALL REMAIN ON AT ALL TIMES.

#### **OCCUPANCY SENSOR NOTES:**

- CONTRACTOR SHALL INCLUDE IN BID TO HAVE THE MANUFACTURER MAKE INSTALLATION DRAWINGS FOR ALL CONFIGURATIONS. FINAL ADJUSTMENTS OF SENSITIVITY AND AIMING OF ALL SENSORS.
- ADJUST OCCUPANCY OR VACANCY SENSOR TIME DELAY OFF PER OWNERS REQUIREMENTS UP TO 30 MINUTES MAXIMUM.
- CONNECT AND PROVIDE WIRING AS REQUIRED BY MANUFACTURER, ALL WIRING (INCLUDING LOW
- VOLTAGE) SHALL BE IN CONDUIT 3/4" WIRING.
- PROVIDE SUFFICIENT RELAYS/ POWER PACKS FOR INSTALLATION SHOWN.
- COORDINATE ALL TRIM AND DEVICE COLORS WITH ARCHITECT PRIOR TO PLACING ORDERS.
- IF APPLICABLE, REFER TO CONTROL WIRING DIAGRAMS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE SENSORS WITH ISOLATED RELAY FOR SLAVE RELAY THAT PROVIDES A DRY CONTACT FOR MONITORING OR CONTROL AIR MOVING SYSTEMS AS REQUIRED.

#### **LIGHTING GENERAL NOTES**

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- TO STRUCTURAL COMPONENTS BUT NOT LIMITED TO BEAMS, JOISTS AND SUPPORT CHANNELS IN OPEN CEILING AREAS. PRIOR TO INSTALLATION, COORDINATE AND VERIFY ALL EXPOSED CONDUIT ROUTING LOCATIONS WITH THE ARCHITECT.
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- OCCUPANCY SENSORS SHALL ENABLE LOCAL SWITCH OPERATION IN ROOMS COVERED BY SENSORS. REFERENCE SHEET EL602 FOR ADDITIONAL INFORMATION.
- THE BASIS OF DESIGN IS BASED ON INTERIOR EGRESS PATHWAY LIGHTING FIXTURES TO PROVIDE AN AVERAGE OF 1 FOOTCANDLE PER CODE REQUIREMENTS. IN ADDITION, ALL EGRESS LIGHTING FIXTURES SHALL BE CONTROLLED THROUGH AN EMERGENCY BATTERY PACK OR LOCAL INVERTER.
- WHERE EXIT SIGNS ARE INDICATED ABOVE DOOR, MOUNT AS FOLLOWS: CENTER THE EXIT SIGN BETWEEN TOP OF DOOR FRAME AND CEILING. IF DISTANCE BETWEEN TOP OF DOOR FRAME AND CEILING IS 24" OR LESS. OTHERWISE MOUNT BOTTOM OF EXIT SIGN 6" FROM TOP OF DOOR FRAME. MOUNT OTHER WALL MOUNTED EXIT SIGNS IN THE SAME AREA AT THE HEIGHT. COORDINATE WITH ARCHITECTURAL DETAILS. REFERENCE ARCHITECTURAL CODE SHEETS FOR FINAL LOCATIONS AND REQUIREMENTS.
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- PROVIDE SEPARATE NEUTRALS FOR DIMMING CIRCUITS.

0. 928 . 2 55 . 0412

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RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW

- ALL SCOPE OF WORK WITHIN THE OUTLINED AREA SHALL BE CONSIDERED BASE BID. PROVIDE A

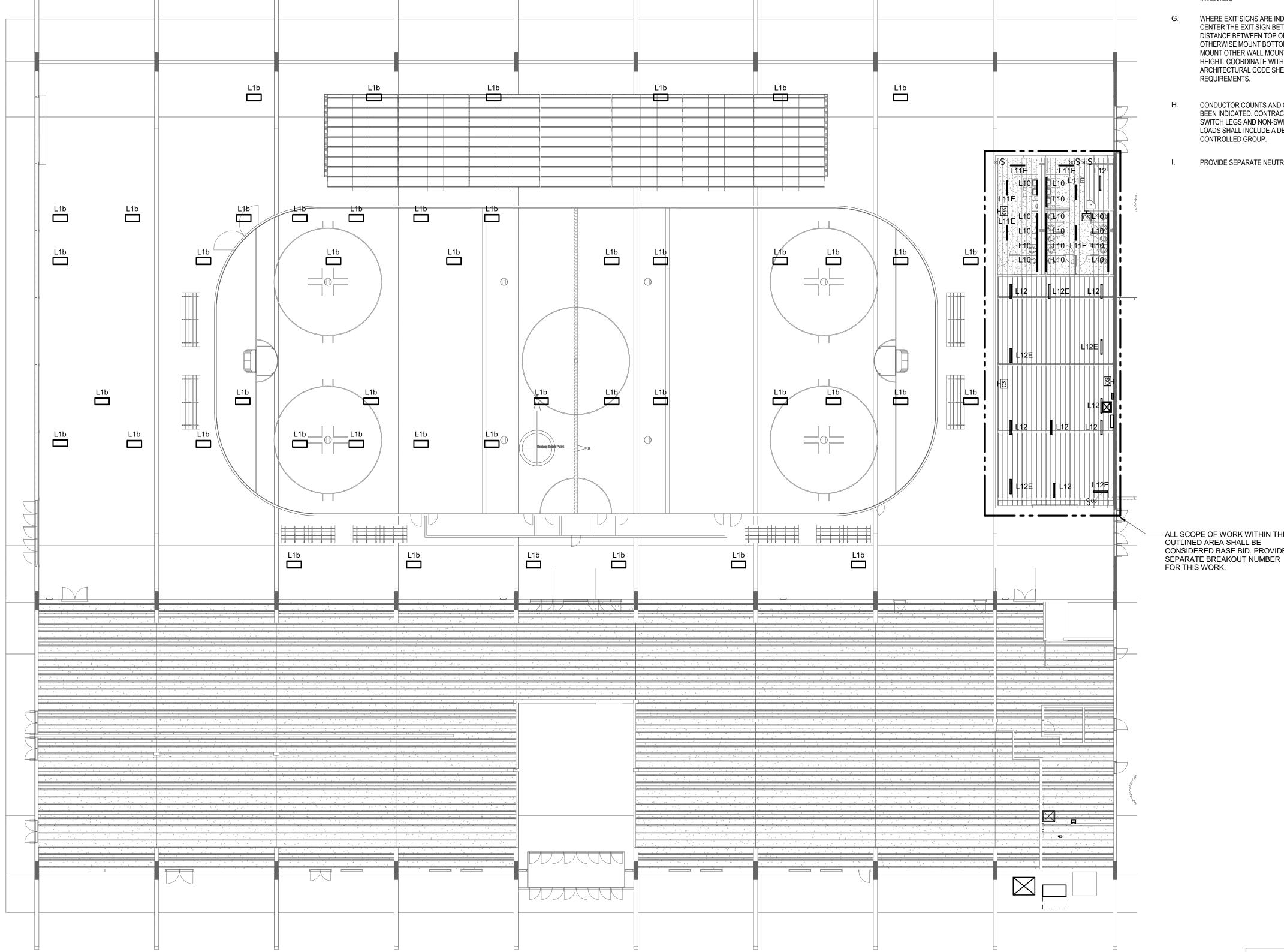
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> > REFERENCE SCALE IN INCHES

-- SD ISSUANCE 8.24.2017 NO. DESCRIPTION DATE **KEY PLAN** 

> **PRELIMINARY NOT FOR**

3001.17.01/09.300.176 1050 S. Knoles Dr.



CONDUIT SHALL RUN PARALLEL TO ROOF DECKING AND PERPENDICULAR

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016

Mechanical:

Architect:

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0.602.604.6626

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1600 N. DESERT DR. STE 230 TEMPE, AZ 85281

contact: JORDAN ROELFS

PROJECT DIRECTORY

Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN

Structural:

**CONSTRUCTION** 

**NAU Fieldhouse** 

Flagstaff, AZ 86011

**ELECTRICAL LIGHTING** PLAN - OPTION 2

Luminaire S	Schedule								
Qty	Label	Arrangement	LLF	Description	Arr. Watts	Total Watts	Lum. Lumens	[MANUFAC]	IES Class
32	L1c	SINGLE	1.000	Optical 6825 Original test dat	380	12160	37288	SPI Lighting Inc. Mequon,	N.A.
8	L1Wc	SINGLE	1.000	Optical 6825 Original test dat	127	1016	12429	SPI Lighting Inc. Mequon,	N.A.

#### LIGHTING CONTROL SEQUENCE

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- COORDINATE ALL TRIM AND DEVICE COLORS WITH ARCHITECT PRIOR TO PLACING ORDERS.
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> > REFERENCE SCALE IN INCHES

PROJECT DIRECTORY

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LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS 0.602.604.6626

Mechanical:

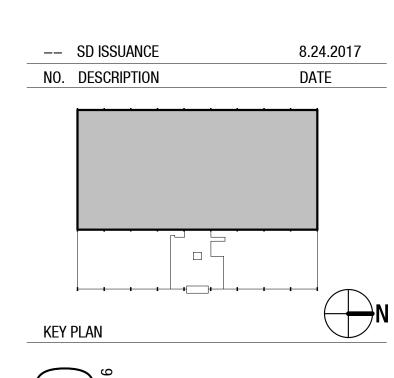
1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

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Structural:

RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW  $0.\,4\,8\,0\,.\,9\,4\,6\,.\,8\,1\,7\,1$ 

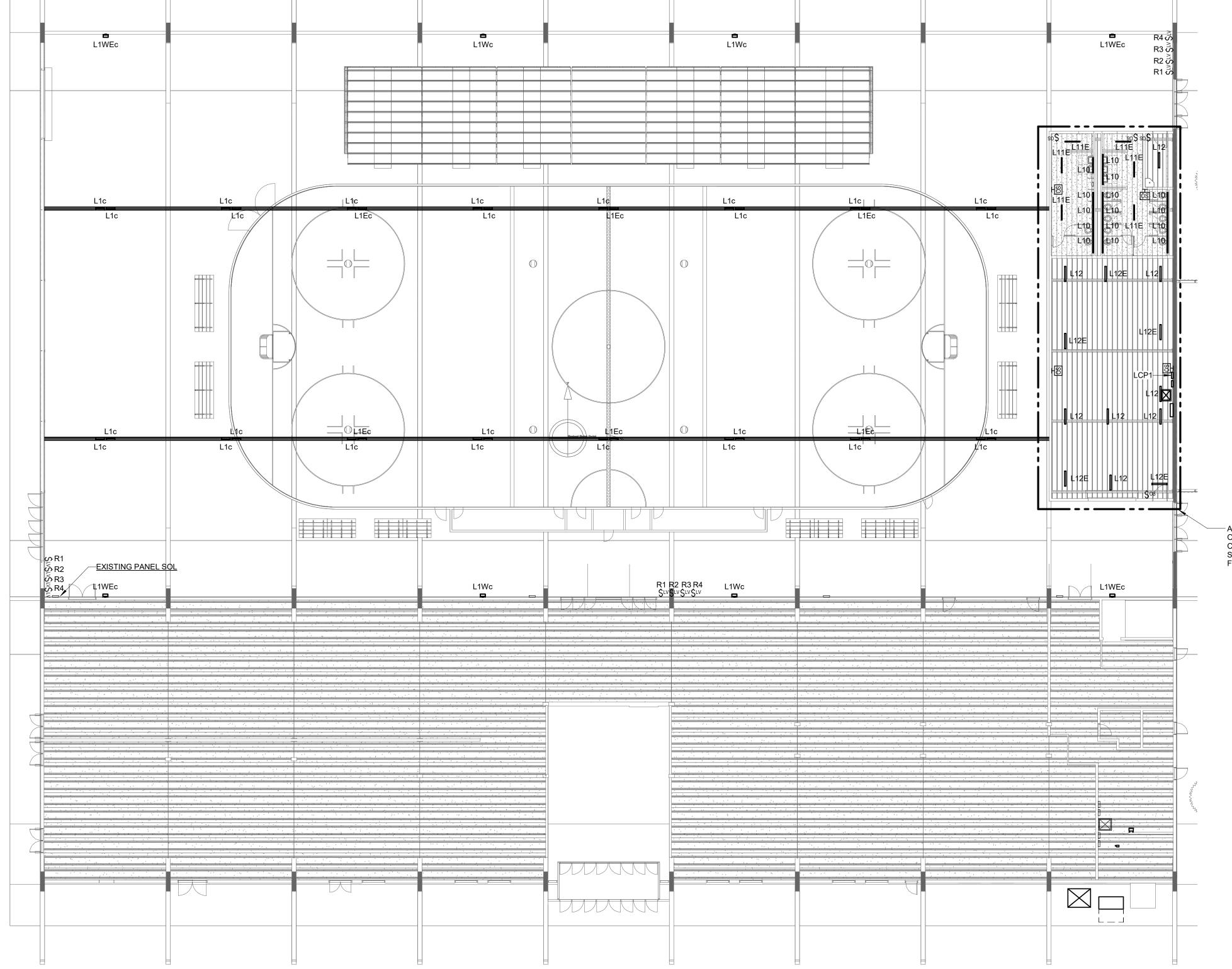


**PRELIMINARY NOT FOR CONSTRUCTION** 

**NAU Fieldhouse** 

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

**ELECTRICAL LIGHTING** PLAN - OPTION 3



LOW VOLTAGE RELAY CONTROL PANEL - LCP1								
NOTES:								
1. ON AT SUNSET AND OFF AT 11PM	1. ON AT SUNSET AND OFF AT 11PM							
2. ON AT SUNSET AND OFF AT SUNF	2. ON AT SUNSET AND OFF AT SUNRISE							
RELAY CIRCUIT NUMBER	ELEC. PANEL	AREA DESCRIPTION	CONTROL DESCRIPTION	OVERRIDE				

## LIGHTING FIXTURE SCHEDULE

MOUNTING: (MTG) RE - RECESSED SP - SUSPENDED CL - CEILING SURFACE WL - WALL UN - UNIVERSAL

LAMP TYPE: FL - FLUORESCENT LED - LIGHT EMITTING DIODE

A - ACRYLIC N - NONE P - PRISMATIC PC - POLYCARBONATE FA - FLAT ALUMINUM FS - FLAT STEEL

BALLAST/ DRIVER: EB - ELECTRONIC BALLAST DRIVER - LED ML - MULTI - LEVEL SWITCHING EM - EMERGENCY BATTERY

Mechanical:

Architect:

PROJECT DIRECTORY

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contact: BENJAMIN MULLINGS

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Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

-- SD ISSUANCE

NO. DESCRIPTION

KEY PLAN

8.24.2017

DATE

**PRELIMINARY** 

**NOT FOR** 

**CONSTRUCTION** 

**NAU Fieldhouse** 

3001.17.01/09.300.176

1050 S. Knoles Dr.

PROJECT:

MPC

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW  $0.\,4\,8\,0\,.\,9\,4\,6\,.\,8\,1\,7\,1$ 

LENS/LOUVER: (L/L) DOOR:

O - OTHER (SEE DESCRIPTION) WG - WIRE GUARD

RA - REGRESSED ALUMINUM RS - REGRESSED STEEL

PROVIDE DISCONNECTING MEANS FOR LED LUMINAIRES THAT CAN BE SERVICED IN PLACE WHICH INCLUDES LUMINAIRES THAT UTILIZE DOUBLE ENDED LAMPS, LUMINAIRES CONTAINING A DRIVER(S) AND SUPPLIED FROM MULTI-WIRE BRANCH CIRCUITS. THE DISCONNECT MEANS MUST DISCONNECT ALL SUPPLY CONDUCTORS SIMULTANEOUSLY, INCLUDING THE GROUNDED CONDUCTOR. EXCEPTIONS ARE PROVIDED FOR; HAZARDOUS LOCATIONS, EMERGENCY ILLUMINATION, CORD-AND-PLUG CONNECTED LUMINAIRES, INDUSTRIAL FACILITIES, AND LUMINAIRES NOT SUPPLIED BY A MULTIWIRE BRANCH CIRCUIT WHICH DOES NOT LEAVE THE ILLUMINATED SPACE IN TOTAL DARKNESS. REFER TO NEC 410.130(G).

CATALOG NUMBER SHALL BE NOT CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. THE COMPLETE DESCRIPTION AND THE SPECIFICATION SHALL BE COORDINATED WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE FIRST MANUFACTURER LISTED IS THE BASUS FOR DESIGN. HOWEVER ANY SUBSTITUTIONS OF THE FIRST MANUFACTURER WHEATHER LISTED WITHIN SCHEDULE BELOW OR NOT, MUST BE PRIOR APPROVED IN WRITING BY BOTH ARCHITECT AND ENGINEER.

ALL LAMPS FOR THIS PROJECT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.

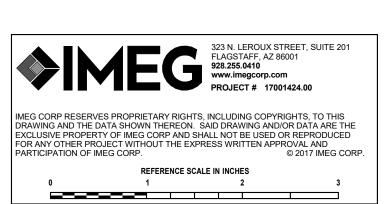
REFER TO SPECIFICATION FOR LAMP, DRIVER AND/OR BALLAST REQUIREMENTS, SHOP DRAWING SUBMITTAL REQUIREMENTS AND ADDITIONAL INFORMATION.

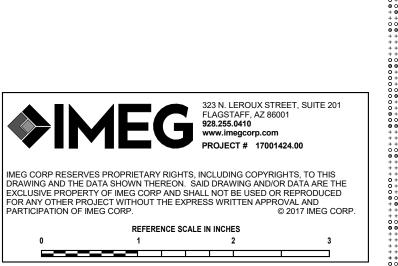
1. ALL EMERGENCY BALLAST/BATTERY(S) SHALL BE CAPABLE OF PRODUCING A MINIMUM OF 1400 LUMENS FOR 90 MINUTES. BALLAST SHALL BE BODINE SWITCHABLE BALLAST OR EQUAL.

2. FURNISH AND INSTALL ALL LIGHTING FIXTURES AND TRACK ACCESSORIES NECESSARY FOR A COMPLETE AND WORKING SYSTEM. 3. SUFFIX E = EMERGENCY OPERATION PER NEC ARTICLE 700 EMERGENCY SYSTEMS AND NEW ARTICLE 701 LEGALLY REQUIRED STANDBY SYSTEMS AS REQUIRED.

4. EMERGENCY LIGHTS SHALL BE SWITCHABLE AND SHALL BE PROVIDED WITH NECESSARY RELAYS TO OVERRIDE THE AREA LIGHT SWITCH AND OPERATE THE EMERGENCY LAMP(S) IN THE EVENT OF A POWER FAILURE.

COUNT	ITEM	DESCRIPTION	SIZE	MTG	LAMP TYPE	LAMPS QTY	LAMP SIZE	VOLTAGE	BALLAST/DRIVER	L/L	APPROVED MANUFACTURER/ MODEL	LOAD
					•					·		
51	EX	OPTION 1 or 2 - EXISTING HIGH BAY FIXTURE		SP	F54T5	8		277	BALLAST	0		0 VA
19	L1a	OPTION 1 - LED HIGH BAY, WIDE DISTRIBUTION WITH SOLID TOP	4' x 21"	SP	LED	6	MODULE	277	DRIVER	С	COLUMBIA: LLHV-4-40-U-W-ST-ED-U-CAWG	0 VA
46	L1b	OPTION 2 - LED REPLACEMENT LAMPS		SP	LED	8	25T5HO/LED	277	BALLAST	0	SATCO: S9910	0 VA
26	L1c	OPTION 3 - LED ROUND DIRECT WITH LIGHTTRUSS SYSTEM	9"DIA x 27.5"	SP	LED	1	MODULE	277	DRIVER	0	SPI LIGHTING: LT MODIFIED-EIW12029-4M-WW-ARCYLIC LENS-L254W/4000K/HO-LED-DIRECT FOWARD THROW	0 VA
6	L1Ec	OPTION 3 - LED ROUND DIRECT WITH LIGHTTRUSS SYSTEM	9"DIA x 27.5"	SP	LED	1	MODULE	277	DRIVER	0	SPI LIGHTING: LT MODIFIED-EIW12029-4M-WW-ARCYLIC LENS-L254W/4000K/HO-LED-DIRECT FOWARD THROW	0 VA
4	L1Wc	OPTION 3 - LED ROUND DIRECT WALL FIXTURE	22.5"x8"x22.5"	WL	LED	1	MODULE	277	DRIVER	0	SPI LIGHTING: EIW-L127W-PT02-277-4000K-F	0 VA
4	L1WEc	OPTION 3 - LED ROUND DIRECT WALL FIXTURE	22.5"x8"x22.5"	WL	LED	1	MODULE	277	DRIVER	0	SPI LIGHTING: EIW-L127W-PT02-277-4000K-F	0 VA
15	L10	LED DIRECT LINEAR WITH SATINE LENS AND ASYMMETIC LENS	4'-0"	SU	LED	1	MODULE	277	DRIVER	0	PINNACLE: EX12-WHE-N-35-4'-AC(SURFACE)-U-1-0-W	0 VA
6	L11E	LED DIRECT LINEAR WITH SATINE LENS AND BATWING LENS	4'-0"	SU	LED	1	MODULE	277	DRIVER	0	PINNACLE: EX12-BW-N-35-4'-AC(SURFACE)-U-1-0-W	0 VA
8	L12	LED STRIP FIXTURE WITH PRISMATIC ACRYLIC LENS	4'-0"	SU	LED	1	MODULE	277	DRIVER	PA	COLUMBIA: LCL-4-35-ML-E-U	0 VA
5	L12E	LED STRIP FIXTURE WITH PRISMATIC ACRYLIC LENS	4'-0"	SU	LED	1	MODULE	277	DRIVER	PA	COLUMBIA: LCL-4-35-ML-E-U	0 VA







- AIR-COOLED ICE-MAKING CHILLER PACKAGE
   REMOTE AND UNIT MOUNTED CONTROLS W/ 120 V POWER 460/3PH, 348 MCA, 400 MOPD 10K SCCR. PROVIDE FUSED 400A DISCONNECT SWITCH. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS. 2. NEW UTILITY TRANSFORMER PER NAU STANDARD
- 337300, WITH ENVIROTEMP FR3 INSULATING FLUID TO REPLACE EXISTING 500 KVA TRANSFORMER. FIELD COORDINATE REPLACEMENT INCLUDING POWER SHUT DOWN, COMPLETE INSTALLATION WITH NEW CONCRETE PAD, RE-CONNECTION OF EXISTING 15KV PRIMARY FEEDERS AND PROVISION AND CONNECTION OF NEW SECONDARY FEEDERS TO NEW SES WITH OWNER. REFER TO SINGLE-LINE DIAGRAM ON SHEET E4.01 FOR ADDITIONAL INFORMATION.
- 3. NEW SERVICE ENTRANCE SECTION TO REPLACE EXISTING SES. FIELD COORDINATE REPLACEMENT INCLUDING POWER SHUT DOWN, COMPLETE INSTALLATION WITH NEW CONCRETE PAD AND RE-CONNECTION OF (2) EXISTING ELECTRICAL PANEL FEEDERS AS INDICATED PER KEYNOTE #4 WITH OWNER. REFER TO SINGLE-LINE DIAGRAM ON SHEET E4.01 FOR
- KEYNOTES: (CONTINUED)
- 4. PROVIDE WALL MOUNTED J-BOX WITH 120V. 20 CIRCUIT FROM PANEL-1L1 WITH COMPLETE CONNECTION TO SCOREBOARD. FIELD COORDINATE EXACT LOCATION, MOUNTINGH HEIGHT AND ELECTRICAL REQUIREMENTS WITH VENDOR AND OWNER PRIOR TO ROUGH-IN.
- MOUNTED. 6. PROVIDE WALL MOUNTED 50A, 120/208V-1PH, POWER RECEPTACLE CIRCUITED TO NEW PANEL-1L1 FOR POWER TO ELECTRIC ZAMBONI UNIT CHARGING UNIT. FIELD COORDINATE

5. TYPICAL OF KEYNOTE #4 ABOVE EXCEPT CEILING

- EXACT LOCATION, MOUNTINGH HEIGHT AND ELECTRICAL REQUIREMENTS WITH VENDOR AND OWNER PRIOR TO ROUGH-IN.
- 7. PROVIDE NEW 120V, 20A CIRCUIT VIA EXISTING CONDUIT FROM PANEL-'PB' TO EXISTING FLOOR 8. ALLOW FOR FUSE REPLACEMENT IN EXISTING
- SWITCHING CABINETS TO MATCH NEW UTILITY TRANSFORMER PER KEYNOTE #2 ABOVE.

#### **GENERAL NOTES:**

- 1. ALL WORK SHOWN SHALL BE CONSIDERED BASE BID. 2. REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE
- FOR ADDITIONAL INFORMATION. 3. ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED
- 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. 4. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ALL ELBOWS 45 DEGREES AND GREATER SHALL BE
- PVC COATED RIGID GALVANIZED CONDUIT. 5. REFER TO 1/E0.00 FOR UNDERFLOOR CONDUIT DETAILS.

Mechanical:

Architect:

PROJECT DIRECTORY

0.602.604.6626

LIGHTVOX STUDIO

contact: BENJAMIN MULLINGS

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016

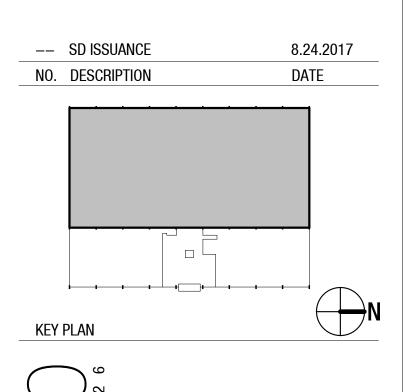
Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW  $0.\,4\,8\,0\,.\,9\,4\,6\,.\,8\,1\,7\,1$ 

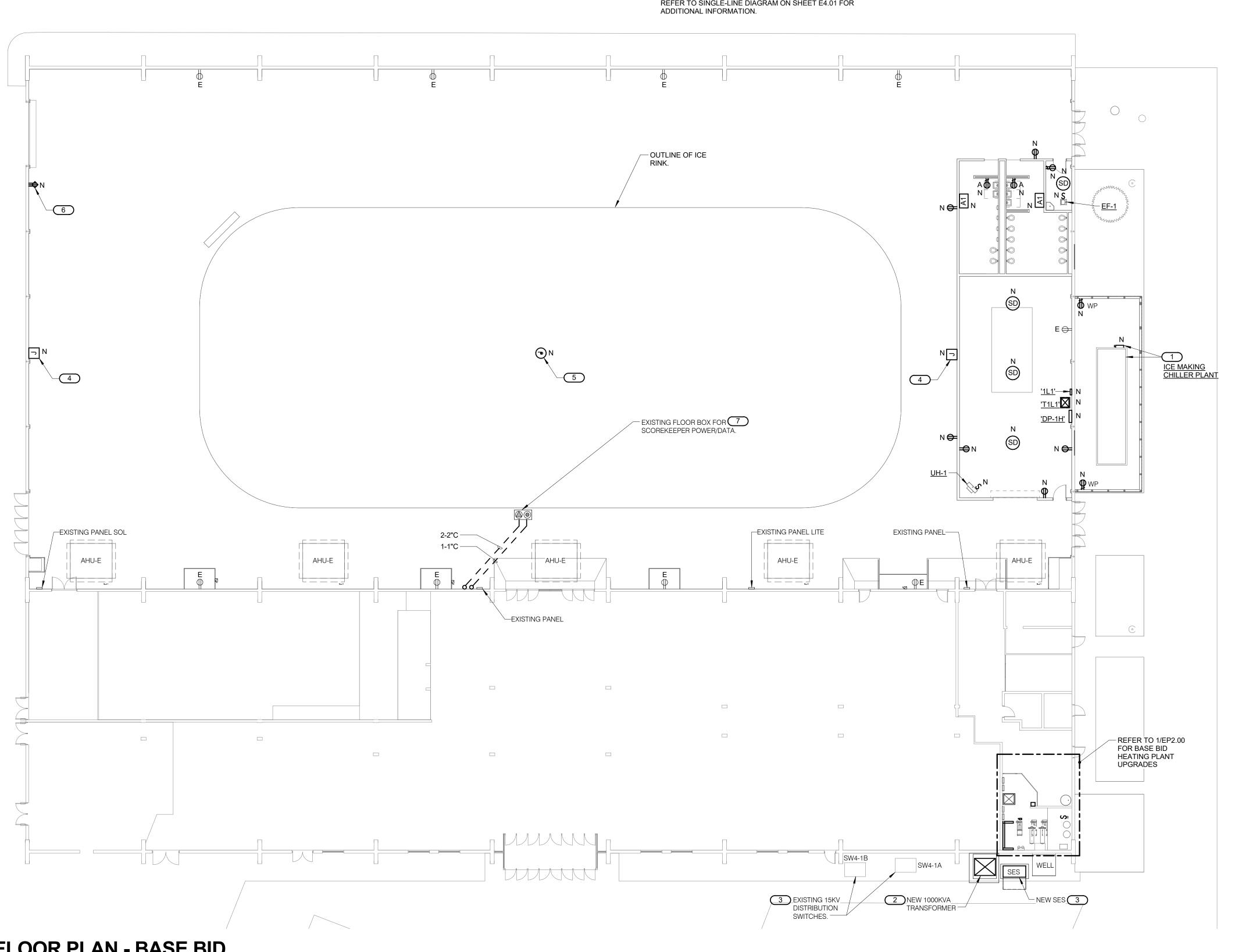


**PRELIMINARY NOT FOR CONSTRUCTION** 

**NAU Fieldhouse** MPC

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

**ELECTRICAL POWER** PLAN - BASE BID



**ELECTRICAL POWER FLOOR PLAN - BASE BID** 

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 DHU-900 DEHUMIDIFIER - 480/3PH, 71.5 FLA, 78.2 MCA, 100A MOP FUSED 100A DISCONNECT. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

1. ALL WORK IDENTIFIED AS NEW ON THIS SHEET SHALL

**GENERAL NOTES:** 

BE CONSIDERED UNDER OPTION-1 BID.

2. REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE FOR ADDITIONAL INFORMATION.

3. ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS

SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION
AND ORIGINAL CONSTRUCTION DRAWINGS DATED 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.

Mechanical:

Architect:

PROJECT DIRECTORY

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

LIGHTVOX STUDIO

contact: BENJAMIN MULLINGS

 $0.\,6\,0\,2\,.\,6\,0\,4\,.\,6\,6\,2\,6$ 

Structural:

RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171

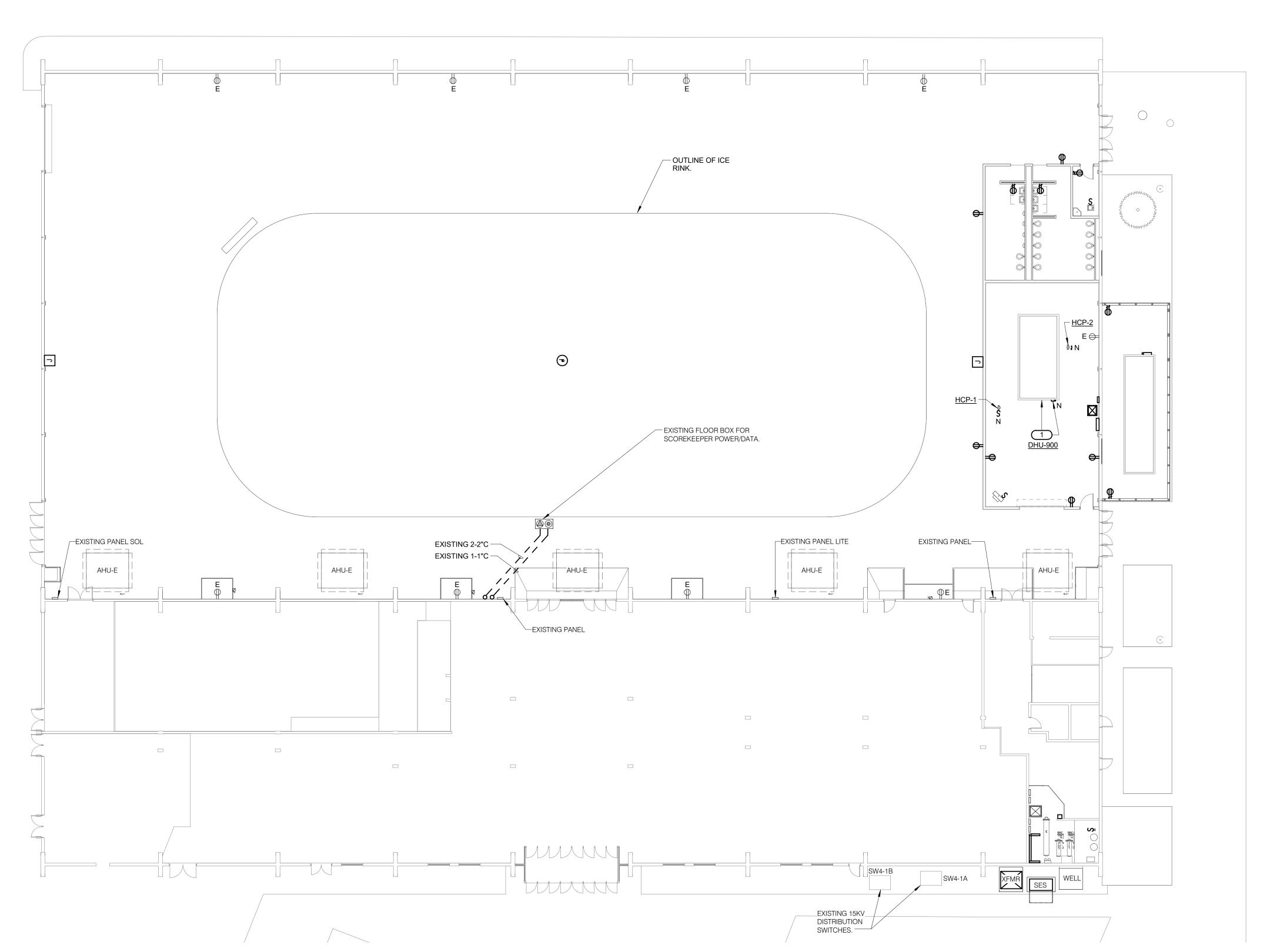
-- SD ISSUANCE 8.24.2017 NO. DESCRIPTION DATE KEY PLAN

> **PRELIMINARY NOT FOR** CONSTRUCTION

**NAU Fieldhouse** MPC

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

**ELECTRICAL POWER** PLAN - OPTION 1





ELECTRICAL POWER FLOOR PLAN - OPTION 1

1/16" = 1'-0"

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1. DHU-1500 DEHUMIDIFIER - 480/3PH, 89.6 FLA, 97.4 MCA, 125A MOP FUSED 200A DISCONNECT. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS.

GENERAL NOTES :

1. ALL WORK IDENTIFIED AS NEW ON THIS SHEET SHALL BE CONSIDERED UNDER OPTION-2 BID.

BE CONSIDERED UNDER OPTION-2 BID.

2. REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE FOR ADDITIONAL INFORMATION.

3. ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS

3. ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.

PROJECT DIRECTORY

Architect: LIGHTVOX STUDIO

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS o. 6 0 2 . 6 0 4 . 6 6 2 6

Mechanical:

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS o. 480.526.5484

Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251

contact: MARK RUDOW

0.480.946.8171

-- SD ISSUANCE 8.24.2017

NO. DESCRIPTION DATE

KEY PLAN

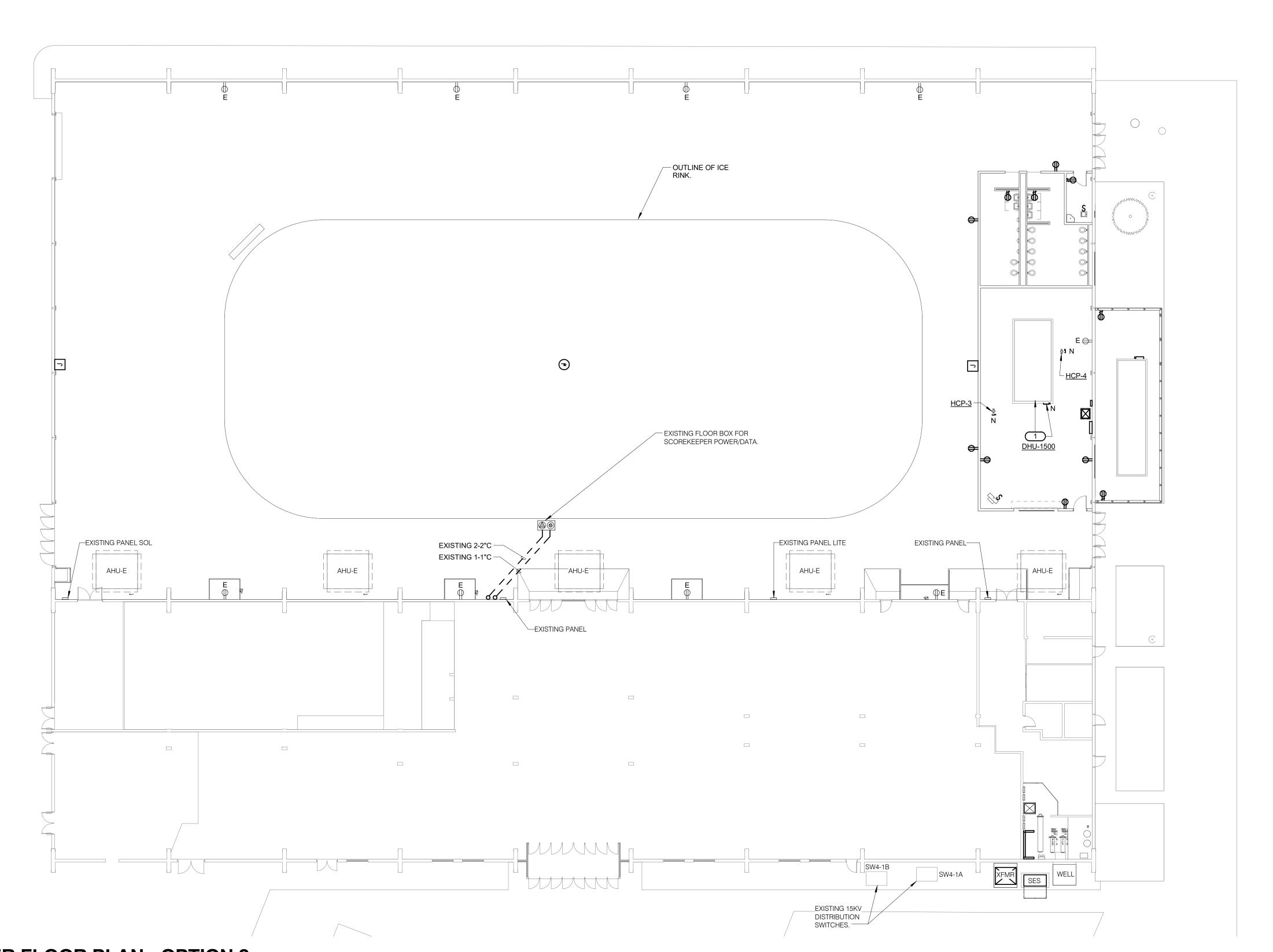
PRELIMINARY NOT FOR CONSTRUCTION

PROJECT: **NAU Fieldhouse M P C**3001.17.01/09.300.176

3001.17.01/09.300.176 1050 S. Knoles Dr. Flagstaff, AZ 86011

ELECTRICAL POWER PLAN - OPTION 2

EP1.02



1 VORTY ELECTRICAL POWER FLOOR PLAN - OPTION 2

1/16" = 1'-0"

323 N. LEROUX STREET, SUITE 201
FLAGSTAFF, AZ 86001
928.255.0410
www.imegcorp.com
PROJECT # 17001424.00

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REFERENCE SCALE IN INCHES

1. NEW ABB ACH-550 VFD DRIVE WITH INTEGRAL DISCONNECT SWITCH WITH COMPLETE CONNECTION TO NEW 'HWP-3'. FIELD COORDINATE EXACT LOCATION AND INSTALLATION WITH MECHANICAL CONTRACTOR AND OWNER. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEET E4.01.

**GENERAL NOTES:** 

 ALL WORK SHOWN SHALL BE CONSIDERED BASE BID.
 REFER TO THE SCHEMATIC DESIGN MEP NARRATIVE FOR ADDITIONAL INFORMATION. 3. ALL EXISTING EQUIPMENT, ROUTING AND LOCATIONS SHOWN ARE BASED ON LIMITED FIELD INVESTIGATION AND ORIGINAL CONSTRUCTION DRAWINGS DATED 12.20.1963. CONTRACTOR SHALL FIELD VERIFY ALL

EXISTING CONDITIONS.

## PROJECT DIRECTORY

Architect:

LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS  $0.\,6\,0\,2\,.\,6\,0\,4\,.\,6\,6\,2\,6$ 

Mechanical:

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS 0.480.526.5484

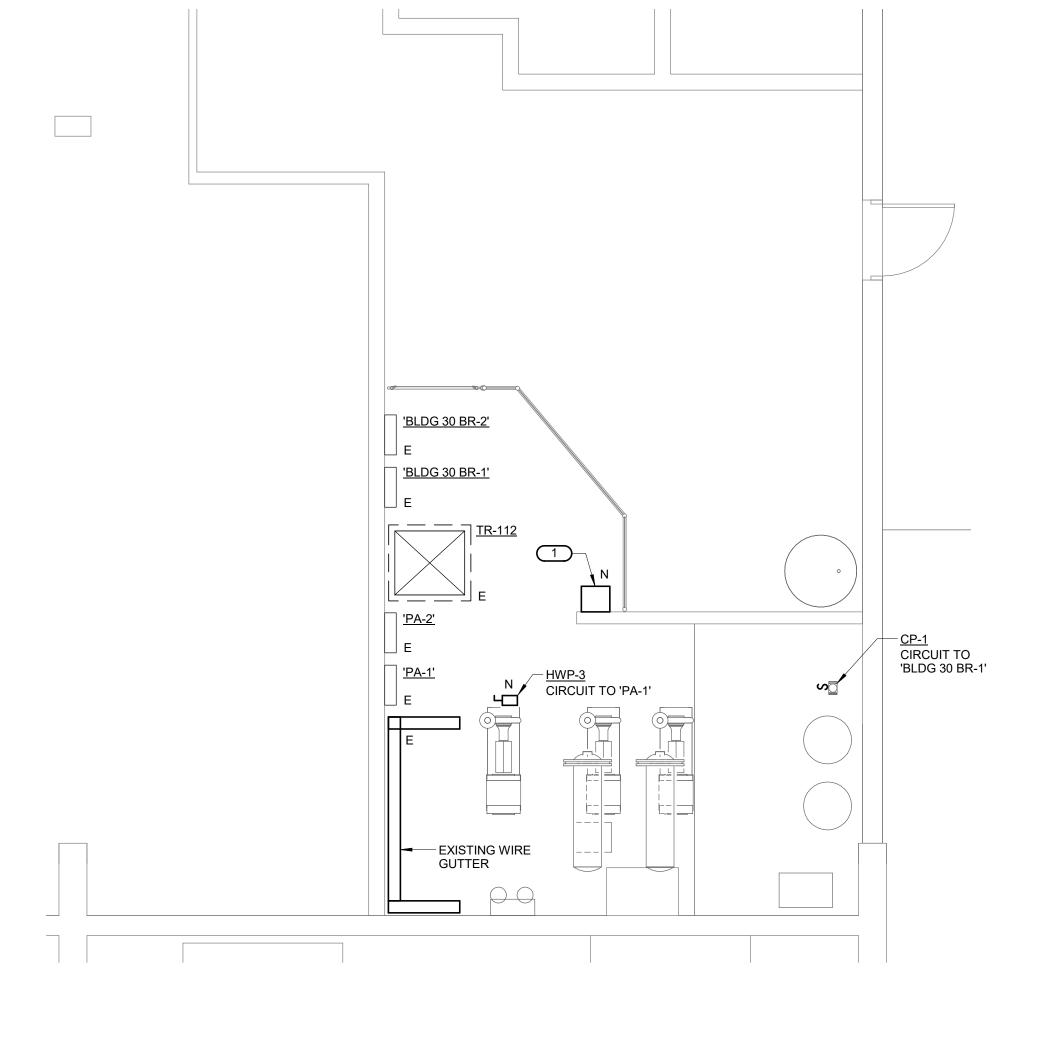
Electrical:

323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN 0. 928 . 2 55 . 0412

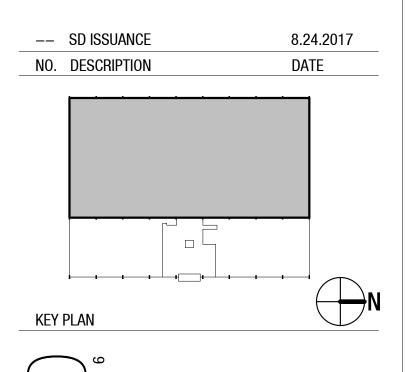
Structural:

RUDOW + BERRY

4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171







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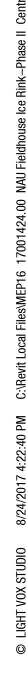
**NAU Fieldhouse** MPC

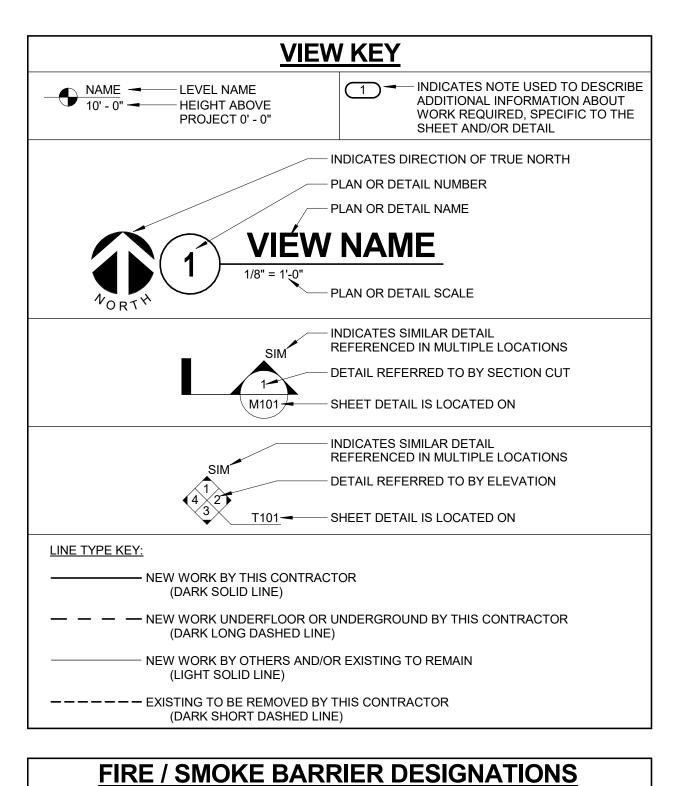
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**ENLARGED ELECTRICAL** ROOM - BASE BID

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REFERENCE SCALE IN INCHES





CONTRACTOR SHALL COMPLY WITH APPL	CABLE CODES AND LOCAL AMENDMENTS.							
APPLICABLE CODES								
1 HOUR FIRE BARRIER ——————————————————————————————————								
ALL FLOOR ASSEMBLIES SHALL BE DESIGNATED AS HOUR FIRE BARRIER(S), UNLESS NOTED OTHERWISE ON THE PLANS. RATINGS WERE ACQUIRED FROM THE ARCHITECTURAL PLANS.								
MATERIALS REQUIRED TO COMPLY WITH THOSE RATINGS WHETHER SHOWN OR NOT.								

THE LINE TYPES SHOWN ARE FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY RATINGS WITH THE LATEST SET OF ARCHITECTURAL PLANS AND FURNISH ALL

BUILDING CODE:	IBC 2012 EDITION
FIRE CODE:	IFC 2012 EDITION
PLUMBING CODE:	IPC 2012 EDITION
MECHANICAL CODE:	IMC 2012 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2011 EDITION
ENERGY CONSERVATION CODE:	IECC 2012
LOCAL BUILDING CODE:	CURRENT EDITION
STANDARDS:	NAU TECHNICAL STANDARDS CURRENT EDITION

CONTRACTOR ABBREVIATION KEY										
ABBR:	DESCRIPTION:									
C.M.	CONSTRUCTION MANAGER									
E.C.	ELECTRICAL CONTRACTOR									
F.P.C.	FIRE PROTECTION CONTRACTOR									
G.C.	GENERAL CONTRACTOR									
M.C.	MECHANICAL CONTRACTOR									
P.C.	PLUMBING CONTRACTOR									

CONTA	ACT PERSONS:
DESCRIPTION:	PERSON:
PROJECT MANAGER	JORDAN ROELFS
MECHANICAL ENGINEER	JORDAN ROELFS
ELECTRICAL ENGINEER	CARLOS LANDA
ICE SYSTEMS ENGINEER	RUSSELL BIRCH

	FIRE PROTECTION SYMBOL LIST
	NOT ALL SYMBOLS MAY APPLY.
SYMBOL:	DESCRIPTION:
—CAF——	COMPRESSED AIR - FIRE PROTECTION
—DFP——	DRAIN
—FP——	FIRE PROTECTION
—FPD——	FIRE PROTECTION - DRY SYSTEM
W	SERVICE WATER - POTABLE
	PIPE CAP
<del></del>	PIPE DOWN
<del></del>	PIPE UP OR UP/DOWN
<del></del>	NEW CONNECTION
—— -——	UNION/FLANGE
<b>-&gt;</b>	DIRECTION OF FLOW IN PIPE
•	SPRINKLER - WALL MOUNTED
•	SPRINKLER
0	SPRINKLER - CONCEALED
•	SPRINKLER
8	SPRINKLER
Θ	SPRINKLER
$\bullet_{A}$	SPRINKLER
O <sub>A</sub>	SPRINKLER

<u>F</u>	FIRE PROTECTION ABBREVIATION KEY			
ABBR:	DESCRIPTION:			
AD	ACCESS DOOR			
AFF	ABOVE FINISHED FLOOR			
BFP	BACKFLOW PREVENTER			
I.E.	INVERT ELEVATION			
NC	NEW CONNECTION			
N.C.	NORMALLY CLOSED			
NIC	NOT IN CONTRACT			
N.O.	NORMALLY OPEN			
TYP	TYPICAL			
UNO	UNLESS NOTED OTHERWISE			

#### **FIRE PROTECTION GENERAL NOTES:**

- 1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY
- OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS
- BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER IS THE BASIS OF DESIGN.
- 3. FIRE PROTECTION PIPE ROUTING IS SHOWN FOR GENERAL LAYOUT. DETERMINE EXACT NUMBER OF SPRINKLERS, PIPE SIZING, AND PIPE ROUTING. CENTER SPRINKLERS IN CEILING TILES IN BOTH DIRECTIONS IN ALL AREAS. IN AREAS WITH 2'X4'
- CEILING TILES CENTERING USING A 2'X2' CEILING PATTERN IS ACCEPTABLE. NEW SPRINKLERS SHALL BE QUICK RESPONSE TYPE, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL NOT MIX STANDARD RESPONSE SPRINKLERS WITH QUICK RESPONSE SPRINKLERS IN
- UNPARTITIONED SPACES. 6. PROVIDE COVERAGE ABOVE AND BELOW ALL DUCTWORK GREATER THAN 48" WIDE.
- PROVIDE COVERAGE ABOVE AND BELOW FLOATING CEILINGS, REFER TO ARCHITECTURAL

#### **FIRE PROTECTION SHEET INDEX**

FP0.00 FIRE PROTECTION COVER SHEET

FP1.01 OVERALL FLOOR PLAN - FIRE PROTECTION

#### PROJECT DIRECTORY

Architect:

LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS

Mechanical:

1600 N. DESERT DR. STE 230 TEMPE, AZ 85281 contact: JORDAN ROELFS

0.480.526.5484

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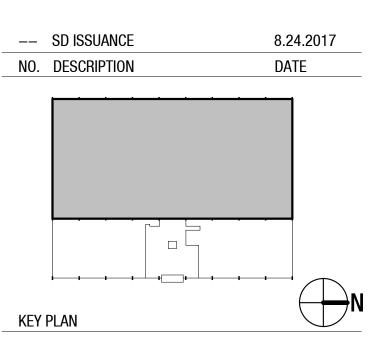
0.602.604.6626

Electrical:

**IMEG** 323 N. LEROUX ST. STE 201 FLAGSTAFF, AZ 86001 contact: JOEL DEHAVEN

Structural:

RUDOW + BERRY 4032 N MILLER RD STE 100 SCOTTSDALE, AZ 85251 contact: MARK RUDOW 0.480.946.8171



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> PROJECT: NAU Fieldhouse MPC 3001.17.01/09.300.176

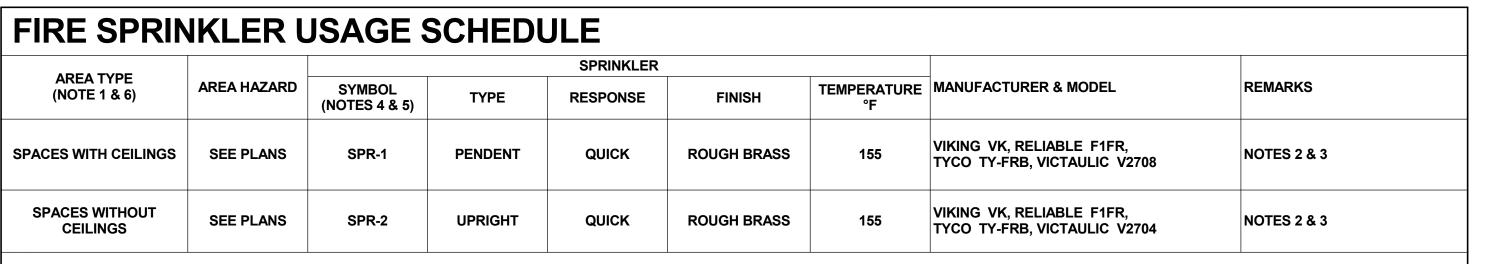
> > 1050 S. Knoles Dr. Flagstaff, AZ 86011

FIRE PROTECTION **COVER SHEET** 

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REFERENCE SCALE IN INCHES 



1. SEE FLOOR PLANS FOR ZONING REQUIREMENTS.

2. CONTRACTOR TO VERIFY EXISTING SPRINKLER TYPES AND NOTIFY A/E OF INSTANCES WHERE STANDARD REPSONSE EXISTS. MIXING OF QUICK AND STANDARD RESPONSE IN AREAS IS NOT ACCEPTABLE.

3. ALL SPRINKLERS SHALL BE UL LISTED.

4. CONTRACTOR TO VERIFY SPRINKLER REQUIREMENTS BASED ON ACTUAL INSTALLATION, USAGE, ARCHITECTURAL CEILING PLAN AND NFPA 13 REQUIREMENTS.

5. SYMBOL IS PRIMARILY FOR INDENTIFYING SPRINKLERS IN SUBMITTALS. IT MAY OR MAY NOT BE FOUND ELSEWHERE ON THE DRAWINGS. CONTRACTOR TO SUBMIT ALL SPRINKLER TYPES TO BE USED. 6. AREAS ARE GENERAL IN NATURE. CONTRACTOR TO MATCH UNSCHEDULED AREAS TO SIMILAR SPACES.

KEYNOTES: #

1. LIGHT HAZARD
2. ORDINARY GROUP 1
3. FPC SHALL EXTEND EXISTING AUTOMATIC WET FIRE PROTECTION SYSTEM TO NEW ROOMS CREATED PER NFPA 13 AND APPLICABLE NAU STANDARDS.

PROJECT DIRECTORY

Architect:

LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS 0.602.604.6626

Mechanical:

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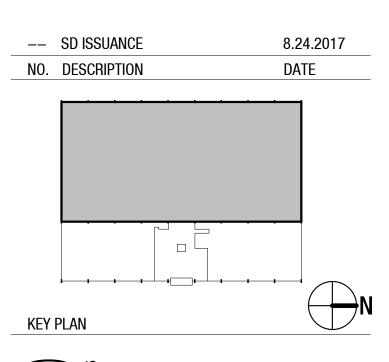
Electrical:

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Structural:

RUDOW + BERRY

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**NAU Fieldhouse** MPC 3001.17.01/09.300.176

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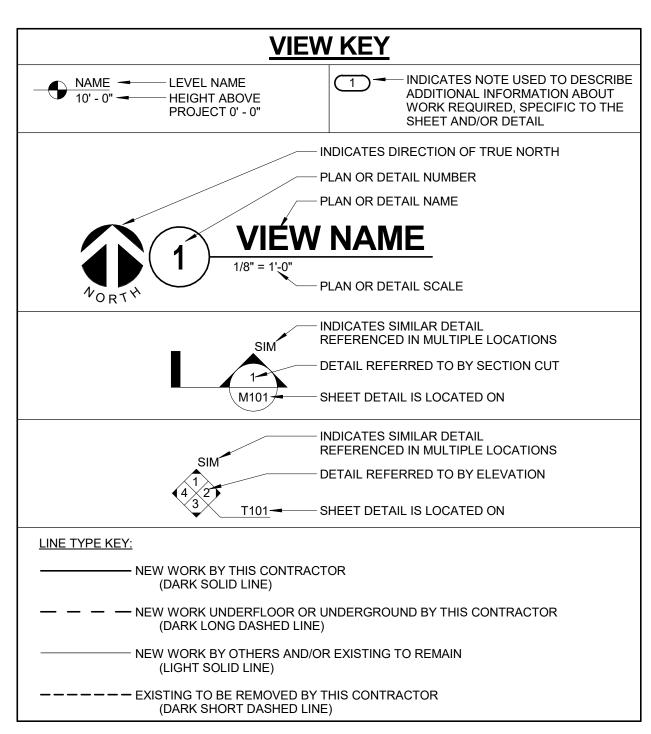
**OVERALL FLOOR PLAN** - FIRE PROTECTION

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REFERENCE SCALE IN INCHES

OVERALL FLOOR PLAN - FIRE PROTECTION - BASE BID

1/16" = 1'-0"



	PIPING ABBREVIATION KEY
ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
С	COMMON
СО	CLEANOUT
DPG (0-2")	DIFFERENTIAL PRESSURE GAUGE (RANGE)
DPS	DIFFERENTIAL PRESSURE SWITCH
EA	EXHAUST/RELIEF AIR
EP	ELECTRICAL TO PNEUMATIC VALVE
MA	MIXED AIR
MV	MIXING VALVE
NC	NEW CONNECTION
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
OA	OUTSIDE AIR
PS	PRESSURE SWITCH
TYP	TYPICAL
RA	RETURN AIR
SA	SUPPLY AIR
UNO	UNLESS NOTED OTHERWISE

	NOT ALL SYMBOLS MAY APPLY.
YMBOL:	DESCRIPTION:
BD	BOILER BLOW DOWN
BF	BOILER FEED WATER
CA	COMPRESSED AIR
CR	CONDENSER WATER CURRING
CS	CONDENSER WATER SUPPLY CLEAN STEAM - NUMBER INDICATES PRESSURE IN PSIG.
CWR	CHILLED WATER RETURN
cws	CHILLED WATER SUPPLY
DPP	DRAIN
G	NATURAL GAS
GV——	GAS REGULATOR VENT GLYCOL WATER RETURN
GWR	GLYCOL WATER RETURN GLYCOL WATER SUPPLY
HCR——	HEATING/CHILLED WATER RETURN
—HCS——	HEATING/CHILLED WATER SUPPLY
——HG———	REFRIGERANT HOT GAS
——HPC-——	HIGH PRESSURE CONDENSATE
HPS	HIGH PRESSURE STEAM
HWR-	HEATING WATER RETURN HEATING WATER SUPPLY
HWS	LOW PRESSURE CLEAN STEAM
LIQ-	REFRIGERANT LIQUID
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LWR	LOOP WATER RETURN
LWS	LOOP WATER SUPPLY
MV	MEDICAL VACUUM OIL RETURN
OR	OIL SUPPLY
PC	PUMPED CONDENSATE
PD	PUMPED DISCHARGE
RWR	REHEAT WATER RETURN
RWS	REHEAT WATER SUPPLY
SUC	REFRIGERANT SUCTION
SV	SAFETY RELIEF VENT
VAC	LAB VACUUM PIPE CAP
	PIPE DOWN
o	PIPE UP OR UP/DOWN
	PITCH PIPE IN DIRECTION
<b>-&gt;</b>	DIRECTION OF FLOW IN PIPE
<del></del>	NEW CONNECTION
——————————————————————————————————————	DIELECTRIC CONNECTION  UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
<b></b>	SHUTOFF VALVE NORMALLY CLOSED
	THROTTLING VALVE
—Ճ——	BALANCING VALVE (NUMBER INDICATES GPM)
子 <b>四</b>	AUTOMATIC BALANCING VALVE
— <b>#</b> ——	MIXING VALVE
<del></del>	CONTROL VALVE (THREE-WAY)
————	CONTROL VALVE (TWO-WAY)
_₩	SOLENOID VALVE
	CHECK VALVE
*	SAFETY/RELIEF VALVE
· <b>,</b>	PRESSURE REDUCING VALVE (LIQUID/GAS)
<u> </u>	PRESSURE REDUCING VALVE (STEAM)
~ 人	TRIPLE DUTY VALVE (ANGLE TYPE)
	TRIPLE DUTY VALVE (IN-LINE TYPE)
	PUMP
Ŷ	VACUUM BREAKER
<del></del>	"WYE" - STRAINER
- <del> </del>	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
	BASKET STRAINER
	FLEXIBLE CONNECTION
	PRESSURE/TEMPERATURE TEST PLUG
<b>—</b>	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
_ <b>₩</b> -®	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	SUCTION DIFFUSER WITH SUPPORT FOOT
<del>-</del>	AUTOMATIC AIR VENT
1	MANUAL AIR VENT
<b>↑</b>	
'	DRAIN VALVE WITH HOSE CONNECTION AND CAP

## PIPING SYMBOL LIST NOT ALL SYMBOLS MAY APPLY. SYMBOL: DESCRIPTION: TEMPERATURE SENSOR WITH WELL ┸┸ THERMOMETER WITH WELL (DIAL TYPE) THERMOMETER WITH WELL (FILLED TYPE) FLOW METER FLOW SENSOR FLOW SWITCH STEAM TRAP (REFER TO SCHEDULE) F&T STEAM TRAP (REFER TO SCHEDULE) INVERTED BUCKET STEAM TRAP (REFER TO SCHEDULE) ALIGNMENT GUIDE PIPE ANCHOR EXPANSION JOINT TERMINAL AIR BOX w/REHEAT COIL (REFER TO SCHEDULE) HUMIDIFIER THERMOSTAT/SENSOR THERMOSTAT/SENSOR w/HEAVY DUTY ENCLOSURE DIFFERENTIAL PRESSURE SENSOR CARBON MONOXIDE SENSOR CARBON DIOXIDE SENSOR HUMIDISTAT SENSOR HUMIDISTAT/SENSOR (DUCT MOUNTED) OCCUPANCY SENSOR PRESSURE SENSOR/MONITOR PRESSURE SENSOR (DUCT MOUNTED)

## **ICE SYSTEMS RENOVATION NOTES:**

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL. 1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS,

- EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS TO ENGINEER BEFORE PROCEEDING.
- 2. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK.
- 3. FIELD VERIFY THE AVAILABLE CLEARANCE FOR DUCTWORK AND PIPING BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.
- 4. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS WORK AND SHALL
- NOTIFY THE CONSTRUCTION MANAGER PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO HIS AREA OF WORK.
- 5. OBTAIN PERMISSION FROM OWNER BEFORE SHUTTING DOWN ANY SYSTEM FOR ANY REASON. MAINTAIN SERVICE TO ALL COMPONENTS THAT ARE TO REMAIN UNTIL NEW SYSTEMS ARE

#### **MECHANICAL GENERAL NOTES:**

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, ICE SYSTEMS, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL. 1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE

2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL. STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.

FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL

- 3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
- 4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
- 5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
- 6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN. 7. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS
- RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH. 8. SEAL ALL PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. 9. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
- 10. WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
- 11. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY BETWEEN DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK,
- 12. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES. 13. MAINTAIN MINIMUM 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL PANELS, MOTOR STARTERS, SWITCHES, AND DISCONNECTS.
- 14. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

#### PROJECT DIRECTORY

LIGHTVOX STUDIO 1729 E OSBORN RD STE 200 PHOENIX, AZ 85016 contact: BENJAMIN MULLINGS

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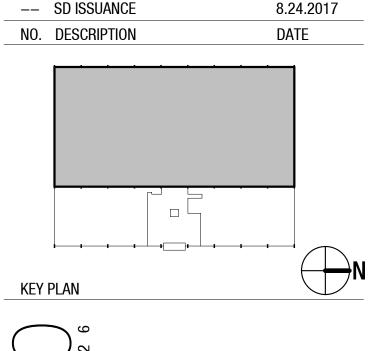
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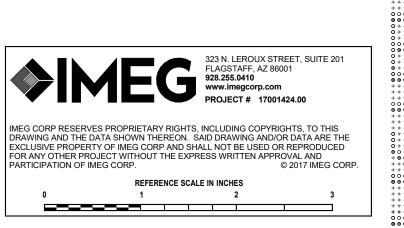


**PRELIMINARY NOT FOR** CONSTRUCTION

> **NAU Fieldhouse** 3001.17.01/09.300.176

1050 S. Knoles Dr. Flagstaff, AZ 86011

**ICE SYSTEMS COVER** SHEET



KEYNOTES: #

1. 8" GR/GS. REFER TO DETAIL 1 ON IS3.01.

REFER TO DETAIL 1 ON IS3.03.

2. 3/4" PVC CONDUIT FOR ICE TEMPERATURE SENSOR.

EXTENSION. IDENTIFY STUB-UPS WITH PERMANENT

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REFERENCE SCALE IN INCHES

3. STUB UP ABOVE FLOOR AND CAP FOR FUTURE

PROJECT DIRECTORY

LIGHTVOX STUDIO

**IMEG** 

**IMEG** 

1729 E OSBORN RD STE 200 PHOENIX, AZ 85016

Architect: