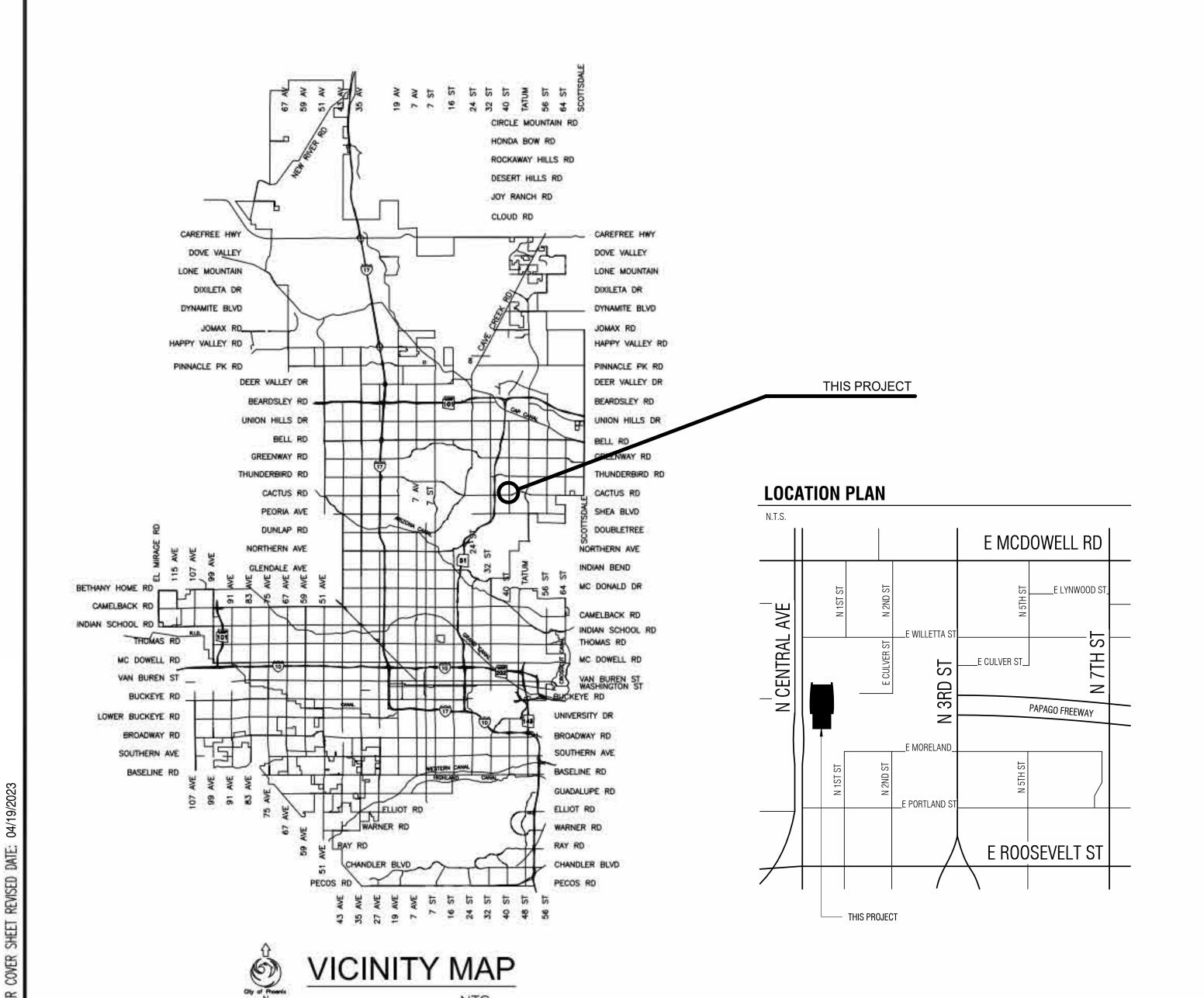
CITY OF PHOENIX

OFFICE OF THE CITY ENGINEER

City of Phoenix PHXWORKS at Burton Barr 1221 N Central Ave, Phoenix, AZ 85004

City of Phoenix Project No. 7510111011





2024



MAYOR

KATE GALLEGO

CITY COUNCIL

DISTRICT NO. 1 - ANN O'BRIEN

DISTRICT NO. 2 - JIM WARING

DISTRICT NO. 3 - DEBRA STARK

DISTRICT NO. 4 - LAURA PASTOR

DISTRICT NO. 5 - BETTY GUARDADO

DISTRICT NO. 7 - YASSAMIN ANSARI

DISTRICT NO. 6 - SAL DICICCIO

DISTRICT NO. 8 - CARLOS GARCIA

CITY MANAGER

JEFF BARTON

CITY ENGINEER

SDEV # SDEV#

ERIC J. FROBERG, PE

APPROVALS

Nicholas Hartman (CLIENT DEPARTMENT) Unis Kasal ENGINEERING MANAGER

6/10/2024 DATE 6/10/24

VERTICAL PROJECT MANAGEMENT SECTION

KIVA# KIVA#

2/27/2024 9:00:58 AM

Sheet 1 of 50

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EXPIRES ON 3/31/2025

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Designed By:

Drawn By:

Checked By:

04/19/23

1221 N Central Ave, Phoenix,

City of Phoenix Burton Barr Central Library

Gary J Nelson City of Phoenix Project Manager Phone: 602 262 4959

AZ 85004

Nicholas D Hartman Library Department Project Manager Phone: 602 534 7862 Email: nicholas.hartman@phoenix.gov

Email: gary.j.nelson@phoenix.gov

Marlene Imirzian & Associates Architects 8906 N Central Ave Phoenix, AZ 85020

> Marlene Imirzian Phone: 602 943 5279 Email: mimirzian@imirzian-architects.com **MECHANICAL ENGINEER**

> > 1501 W Fountainhead Pkwy Suite 330,

Tempe, AZ 85282 Stephen D. Kerchner Mechanical & Plumbing Engineer

Spectrum Engineers

ELECTRICAL ENGINEER Spectrum Engineers 1501 W Fountainhead Pkwy Suite 330,

CONTACT: Hector A. Nunez Electrical Engineer Phone: 480 621 3447

Tempe, AZ 85282

SHEET INDEX

A0.01 SHEET INDEX, SCOPE, DIRECTORY A0.10 CODE PLAN A1 00 FLOOR PLAN & DEMO PLAN REFLECTED CEILING PLAN ENLARGED FLOOR PLAN BUILDING SECTIONS BUILDING SECTIONS INTERIOR ELEVATIONS A7.00 DOOR & FINISH SCHEDUL

MECHANICAL SYMBOLS. ABBREVIATIONS LEGENDS AND DRAWING INDEX MECHANICAL SPECIFICATIONS

DETAIL/ ENLARGED PLAN REFERENCE CALL OUT EP1.02 REFERENCE DESIGNATION ELEVATION VIEW

DRAWING REVISION

SHEET NUMBER

- SHEET NUMBER

F. COORDINATE ALL NEW SMOKE DETECTORS WITH LIBRARY STANDARDS.

2. SUSPENSION SYSTEM: MATCH EXISTING PRODUCT.

6. REFER TO DRAWINGS FOR CEILING DIRECTION AND LAYOUT.

A. FIRE SPRINKLER SYSTEM TO BE INSTALLED IN AREAS WITH NEW CEILING CONSTRUCTION.

D. HEADS TO BE FLAT DISK, CHROME FINISH AT CEILINGS UNLESS OTHERWISE NOTED.

B. WORK TO BE DONE UNDER SEPARATE PERMIT BY LICENSED FIRE PROTECTION CONTRACTOR

SIZE FOR FIVE TIMES DESIGN LOAD, INDICATED IN ASTM C 635, TABLE I, DIRECT HUNG UNLESS NOTED

OTHERWISE. WIRE FOR HANGERS AND TIES - ASTM A 641, CLASS I ZINC COATING, SOFT TEMPER, PRE-

GAUGE. EDGE MOLDINGS AND TRIM -METAL OR EXTRUDED ALUMINUM OF TYPES AND PROFILES

PENETRATIONS (INCLUDING LIGHT FIXTURES) THAT FIT TYPE AND EDGE DETAIL OF SUSPENSION

5. SUPRAFINE 9/16" CROSS TEES TO RUN BETWEEN MAIN BEAMS ALONG SHORT (24") EDGE OF TILE.

C. PROVIDE SHOP DRAWINGS INDICATING LAYOUT OF SPRINKLER HEADS AND OTHER SYSTEM COMPONENTS FOR

E. EXISTING FIRE SPRINKLERS AT PERFORATED CEILING TO BE LEFT AS IS, ADD ADDITIONAL SPRINKLERS AS

G. COORDINATE WITH THE LIBRARY TO ASSURE ALL EXISTING SMOKE BEAMS ARE STILL FULLY OPERATIONAL.

SYSTEM INDICATED. PROVIDE MOLDINGS WITH EXPOSED FLANGE OF SAME WIDTH AS EXPOSED RUNNER

4. INTERLUDE XL 9/16" DIMENSIONAL MAIN BEAM TO RUN CONTINUOUS ALONG LONG (48") EDGE OF TILE

INDICATED OR, IF NOT INDICATED, MANUFACTURER'S STANDARD MOLDINGS FOR EDGES AND

STRETCHED WITH A YIFLD STRESS LOAD OF AT LEAST THREE TIMES DESIGN LOAD, BUT NOT LESS THAN 12

3. ATTACHMENT DEVICES:

DIVISION 10 - SPECIALTIES

FIRE PROTECTION SYSTEM

RFOLIRFD

ARCHITECT'S REVIEW AND APPROVAL.

DRAWING TITLE STRUCTURAL GRID DRAWING NUMBER ON SHEET GRID REFERENCE DRAWING SCALE **ELEVATION DATUM** TRUE NORTH

EXTERIOR/ INTERIOR ELEVATION REFERENCE — ELEVATION VIEW

SHEET NUMBER

 REFERENCE DESIGNATION ELEVATION VIEW SHEET NUMBER

DETAIL NUMBER 、SIM← REFERENCE DESIGNATION

DOOR/ SIGNAGE IDENTIFICATION - DOOR NUMBER (A101) SIGNAGE NUMBER

GLAZING/WINDOW IDENTIFICATION

WINDOW OR **GLAZING TYPE** REFERENCE

ROOM IDENTIFICATION MILLWORK, FURNITURE, EQUIPMENT IDENTIFICATION ROOM NAME ← ROOM NAME 101 ← ROOM NUMBER 150 SF ← AREA DRAWING IDENTIFICATION View Name **→** Scale: 1/8" = 1'-0"

NORTH SYMBOLS PLAN NORTH

SIM ← REFERENCE DESIGNATION

WALL SECTION REFERENCE

DETAIL/ ENLARGED PLAN REFERENCE CALL OUT

ARCHITECTURAL SYMBOL LEGEND

BUILDING SECTION REFERENCE

A0.00

COVER SHEET

MECHANICAL DETAILS AND SCHEDULES MECHANICAL HVAC PLAN LEVEL 2 EE0.01 ELECTRICAL COVER SHEET ELECTRICAL SPECIFICATIONS

TYPICAL MOUNTING DETAILS TYPICAL LABELING DETAILS LEVEL 2 OVERALL PLAN LEVEL 2 ELECTRICAL PLAN ONE-LINE DIAGRAM - NORMAL ELECTRICAL SCHEDULES LEVEL 2 ELECTRICAL PLAN LEVEL 2 LIGHTING PLAN EL1.02 LIGHTING FIXTURE SCHEDULES

DEFERRED SUBMITTAL

ALL MODIFICATIONS TO EXISTING FIRE SPRINKLER SYSTEMS & ALL NEW WORK OF SAME.

ADD ALT 1

REMOVE & RELOCATED EXISTINGS GLASS WALL IN ITS ENTIRETY WHERE INDICATED BASE BID: DO NOT REUSE ANY EXISTING GLASS WALLS.

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2 OF 50

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Marlene Imirzian & Associates Architects 8906 North Central Ave Phoenix, AZ 85020

KIVA# SDEV#

HR HVAC

ARCHITECTURAL ABBREVIATIONS

IN

INCL

INF0

INT

INV

JB

JST

KPL

LAM

LAV

LIN

LLV

LPT

MACH

MAN

MAS

MATL

MAX

MED

MET

MFR

MH

MIN

MM

MO

MOD

MTD

MTG

NA

NIC

NO

NRC

NTS

NW

0PP

OZ

OVHD

P.LAM

PART

PCF

PCI

PERF

PERP

PLF

PNL

PREP

PROJ

PR0P

PSF

PVC

QTR

QTY

REINF

REQD

REQT

RET

ROW

PVMT

MECH

INSUL

INSIDE DIAMETER

INCLUDE, INCLUDING

INFORMATION

INSULATION

JUNCTION BOX

INTERIOR

INVERT

JOIST

TIMIOI.

KICK PLATE

LENGTH, LONG

LINEAR, LINEAL

LOW POINT

LIGHT

METERS

MACHINE

MANUAL

MASONRY

MATERIAL

MAXIMUM

MECHANICA

MANUFACTURER

MEDIUM

MANHOLE

MINIMUM

MILLIMETER

MOUNTED

MOUNTING

NORTH

NATURAL

NUMBER

NOT TO SCALE

NORTHWEST

ON CENTER

OPPOSITE

OVERHEAD

OUNCE

PARTIAL

PERFORATED

PLATE

PANEL

PREFAB

PROJECT

PROPERTY

PAVEMENT

QUARTER

QUANTITY

RADIUS

RETURN AIR

ROOF DRAIN

REFERENCE

REINFORCING

REQUIRED

REQUIRMENT

RIGTH HAND

REVISE, REVISION

ROUGH OPENING

RIGHT OF WAY

RETURN

R00M

SOUTH

SOLID CORE

RESILIENT BASE

REFLECTED CEILING PLAN

PAIR

PLYWD PLYWOOD

PERPENDICULAR

PIECE

OUTSIDE DIAMETER

OWNER FURNISHED

OVERFLOW DRAIN

PLASTIC LAMINATE

POUNDS PER CUBIC FOOT

POUNDS PER CUBIC INCH

POUNDS PER LINEAL FOOT

PREPARE, PREPARATION

POUNDS PER SQUARE FOOT

POUNDS PER SQUARE INCH

POLYVINYL CHLORIDE

NORTHEAST

NOT APPLICABLE

NOT IN CONTRACT

NOISE REDUCTION COEFFICIENT

MASONRY OPENING

MODULAR, MODULE

METAL

LONG LEG HORIZONTAL

LONG LEG VERTICAL

LAMINATE

LAVATORY

POUND

INCH

ABOVE

ACOUSTIC

area Drain

ADDENDUM

ADJACENT

ALUMINUM

ALTERNATE

ANODIZED

BOARD

BETWEEN

BACKING

BUILDING

BLOCKING

BENCHMARK

BOTTOM OF

COURSE

CABINET

CATCH BASIN

CHECKERED

CENTERLINE

CEILING

CLEAR

COLUMN

CARPET

CENTER

DETAIL

DIAMETER

DIAGNAL

DOWN

DRAIN

EACH

DIFFERENT

DO NOT DISTURB

EXPANSION JOINT

ELECTRIC, ELECTRICAL

EXPOSED, EXPANSION

ELEVATION

ELEVATOR

EMERGENCY

ENCLOSURE

EQUIPMENT

EXHAUST

EXTERIOR

FIRE ALARM

FLOOR DRAIN

FINISH FLOOR

FLOOR

FLASHING

FLEXIBLE

FACE OF CONCRETE

FACE OF STUD

FACE OF

F00T

FOOTING

FUTURE

FURNITURE

FIELD VERIFY

GAGE, GAUGE

GALVANIZED

GENERAL CONTRACTOR

GALLON

GRADE

GLASS

GYPSUM

HIGH

HOSE BIBB

HARDWARE

HOLLOW METAL

CONDITIONING

HEATING, VENTILATION, AIR

HORIZONTAL

HIGH POINT

H0UR

HEIGHT

GENERAL

FLOOR CLEAN OUT

FIRE EXTINGUISHER CABINET PREFAB

EQUAL

EDGE OF SLAB

EXTERIOR INSULATION FINISH OFCI

CONCRETE

CONTINUOUS

CORRUGATED

CASEWORK

DEEP OR DEPTH

DRINKING FOUNTAIN

CONTROL JOINT

CEMENT. CEMENTITOUS

BOTTOM OF STEEL

BUILT UP ROOFING

BITUMINOUS

ACCESS PANEL

ARCHITECTURAL

APPROXIMATE

ABOVE FINISHED FLOOR

ACT

ADJ

AFF

ANOD

APPROX

ARCH

BET

BITUM

BLDG

BOS

BOT

BUR

CAB

CB

CEM

CLG

CLR

COL

CONC

CONT

CORR

CPT

CTR

DET

DND

DWG

EIFS

ELEC

ELEV

EMER

ENCL

EOS

EQ

EQPT

EXH

EXP

EXT

FΑ

FD

FEC

FLASH

FLEX

F0

FOC

F0S

FTG

FURN

FUT

GAL

GALV

GD, GR

GENL

GYP

HDWR

HORIZ

HPT

FCD

CSWK

CHKD

SCHED SCHED

SECT

SIM

SPEC

SPKLR

SPKR

SST

STC

STD

STRUCT

SUSP

SW

SYM

SYST

TBC

TEMP

THRU

TOS

TOW

TYP

UNO

VERT

VIF

VOL

WP

WT

THERM

TC

STORM DRAIN

SPECIFIED, SPECIFICATION

SOUND TRANSMISSION CLASS

STRUCTURE, STRUCTURAL

SYMMETRICAL, SYMMETRICALLY

SOUTHEAST

SECTION

SHEET

SIMILAR

SPRINKI F

SPEAKER

STANDARD

SUSPENDED

SOUTHWEST

SYSTEM

TREAD

TACKBOARD

CONCRETE

TELEPHONE

TEMPORARY

THICK, THICKNESS

UNDERWRITERS LABORATORY

UNLESS NOTED OTHERWISE

THERMAL

THROUGH

TOP OF STEEL

TOP OF WALL

UNFINISHED

VAPOR BARRIER

VERIFY IN FIELD

WIDE, WIDTH, WEST

VERTICAL

VOLUME

WITH

WITHOUT

WOOD

WEIGHT

XFMR TRANSFORMER

YARD

WORK POINT

TYPICAL

TOP OF

TOP OF CURB. TOP OF

STEEL

STAINLESS STEEL

SQUARE

PROJECT GENERAL NOTES

APPROVED IN ADVANCE BY THE ARCHITECT.

THE ARCHITECTURAL DRAWINGS ARE PART OF A LARGER SET OF DRAWINGS WHICH, WHEN COMPLETE

ANY ONE DISCIPLINE MAY BE AFFECTED BY THE WORK OF ANOTHER DISCIPLINE AND MAY REQUIRE

OF THE CONTRACT DOCUMENTS BEFORE COMMENCING CONSTRUCTION, AND TO ASSURE THAT ALL

PARTIES ARE AWARE OF ALL REQUIREMENTS, REGARDLESS OF WHERE THE REQUIREMENTS OCCUR IN

AS PART OF THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK OF ALL SUBCONTRACTORS

TRADES, AND SUPPLIERS, THE CONTRACTOR SHALL ENDEAVOR TO IDENTIFY AND NOTIFY THE ARCHITECT

OF ANY CONFLICTS BETWEEN THE WORK OF DIFFERENT PARTIES AT THE EARLIEST POSSIBLE DATE SO AS

TO ALLOW REASONABLE AND ADEQUATE TIME FOR THE CONFLICT TO BE RESOLVED WITHOUT DELAYING

THE WORK. ALL DEVIATIONS FROM THAT WHICH IS REQUIRED BY THE CONTRACT DOCUMENTS MUST BI

LOCATION OF ALL THE EXPOSED ELEMENTS OF THE WORK OF ALL THE TRADES. INCLUDING THAT WORK

WHICH IS ILLUSTRATED PRIMARILY ON DRAWINGS OF OTHER DISCIPLINES. LOCATIONS SHOWN ON

OTHER DRAWINGS ARE SCHEMATIC, UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS

THE ARCHITECTURAL DRAWINGS TAKE PRECEDENCE FOR THE FINISHED APPEARANCE AND LOCATION OF

EXCEPTION: DIMENSIONED LOCATIONS SHOWN ON DRAWINGS OF OTHER DISCIPLINES SHALL GOVERN

B. OCCURRING WITHIN A ROOM OR OTHER IDENTIFIED SPACE FOR WHICH ARCHITECTURAL SHEET OR

REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR THE DETAILED DESIGN OF THOSE SYSTEMS.

FINISH FLOOR ELEVATIONS ARE TO TOP OF CONCRETE FLOOR SLAB UNLESS NOTED OTHERWISE. WHERE

EXCEPT WHERE DIRECTED TO PLACE ITEMS OF THE WORK AT THE APPROXIMATE LOCATIONS SHOWN. DO

NOT SCALE DRAWINGS FOR DIMENSIONAL INFORMATION. ALL ELEMENTS OF THE DRAWINGS MAY NOT BE

DRAWN TO EXACT SCALE, ALL DIMENSIONS REQUIRED ARE SHOWN, OR MAY BE DERIVED FROM THOSE

SHOWN ON THE FLOOR PLANS, DETAILS, ELEVATIONS, SECTIONS, SCHEDULES, AND SPECIFICATIONS.

THE CONTRACTOR SHALL MAINTAIN THE PERMIT SET AND ALL UPDATED DRAWINGS, SPECIFICATIONS,

THE ARCHITECT SHALL BE AT ALL PRE-CONSTRUCTION MEETINGS WITH SPECIFIC SUBCONTRACTORS AS

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ANY COMMUNICATION BETWEEN THE CONTRACTOR

CONTRACTOR SHALL REPAIR. AT HIS OWN EXPENSE, ANY DAMAGE, WHETHER INSIDE OR OUTSIDE OF THE

LIMIT OF CONTRACT LINE, TO UTILITY SYSTEMS, SURFACE PAVEMENTS, FIXTURES OR STRUCTURES THAT

THE LIMIT OF WORK LINE, DEFINES THE LIMITS OF WORK IN THIS CONTRACT. THERE MAY BE INSTANCES

AN ON SITE COORDINATION SIGN OFF MEETING SHALL BE HELD WITH ALL PRINCIPAL TRADES PRIOR TO

COMMUNICATION INSTALLATION WORK. EACH TRADE SUBCONTRACTOR SHALL SIGN ON THE PLANS THAT

CUTTING, BORING, SAW-CUTTING OR DRILLING THROUGH THE NEW OR EXISTING STRUCTURAL ELEMENTS

TO BE DONE ONLY WHEN SO DETAILED IN THE DRAWINGS OR ACCEPTED BY THE ARCHITECT WITH THE

THEY HAVE COORDINATED THEIR WORK WITH EACH OTHER AND THE GENERAL CONTRACTOR AND THAT

START OF THE BUILDING MECHANICAL, FIRE PROTECTION, ELECTRICAL, FIRE ALARM, AND

WHERE UTILITY SYSTEMS EXTEND BEYOND THE LIMIT OF WORK LINE IN ORDER TO SUCCESSFULLY

ARE NOT SPECIFICALLY INDICATED TO BE REMOVED OR RELOCATED AS PART OF THE PROJECT

SCHEDULE NOTES INDICATE THAT DIMENSIONS PROVIDED ELSEWHERE SHALL GOVERN.

THE CONCRETE IS DEPRESSED TO ACCOMODATE CONCRETE FILL, CONCRETE WEAR SLABS.

WATERPROOFING, RAISED FLOORS AND OTHER SIMILAR FLOOR ASSEMBLIES, FINISHED FLOOR

THE ARCHITECTURAL DRAWINGS ESTABLISH AND COORDINATE THE FINISHED APPEARANCE AND

REFERENCE BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW AND

THE CONTRACT DOCUMENTS. WHICH MIGHT AFFECT THE WORK OF THAT PARTY

A. SPECIFICALLY AND INDIVIDUALLY INDICATED BY THAT DISCIPLINE

OF WHICH PORTIONS MAY BE SHOWN ON THE ARCHITECTURAL DRAWINGS.

ELEVATIONS ARE TO TOP OF FINISHED FLOOR ASSEMBLY INDICATED

AND OTHER INFORMATION THROUGHOUT THE CONSTRUCTION PROCESS.

AND THE OWNER OR THE OWNER'S REPRESENTATIVE.

COMPLETE OPERATIONS AND/OR TIE INTO ADJACENT SYSTEMS

SEE NFPA 24 FOR UNDERGROUND FIRE SERVICE REQUIREMENTS

THE WORK CAN BE INSTALLED AS SHOWN ON THE PLANS.

DUMPING OF CONSTRUCTION DEBRIS ON SITE IS STRICTLY PROHIBITED.

NOT USED

CONSISTS OF ALL DRAWINGS LISTED ON THE SHEET INDEX. THE WORK DESCRIBED BY THE DRAWINGS OF

COORDINATE THE WORK OF ALL SUBCONTRACTORS, TRADES, AND SUPPLIERS WITH THE REQUIREMENTS

SPECIFICATIONS

FOR REVIEW BY THE ARCHITECT.

FOR REVIEW BY THE ARCHITECT

TO COMMENCEMENT OF WORK.

FOR REVIEW.

FORMED STEEL STRUCTURAL MEMBERS

OF ASTM A 570, GRADE 33.

RIGIDITY. SEE DRAWINGS FOR FINISH.

'ACROLAC', SEE DRAWINGS FOR GAUGE

MANUFACTURERS ASSOCIATION OR PRE-APPROVED EQUAL

4. ALL TRACKS SHALL HAVE A MINIMUM FLANGE WIDTH OF 1-1/4".

B. MATERIALS AND EXECUTION:

C. METAL FABRICATION:

FINISH METALS

DIVISION 7 - JOINT SEALERS

A. SUBMITTALS: PRODUCT DATA

DIVISION 8 - DOORS AND WINDOWS

INTERIOR DOORS AND GLAZING

DOOR HARDWARE

DIVISION 9 - FINISHES

NOTED OTHERWISE

WALL BASE

ACT CEILINGS

SUCH PRODUCTS FOR NOT LESS THAN 5 YEARS.

A. REFER TO THE SCHEDULE FOR DOOR TYPE AND MATERIAL.

A. DOOR HARDWARE TYPE AND FINISH TO MATCH EXISTING.

OWNER'S REQUIREMENTS AND SECURITY SYSTEM.

B. GYPSUM BOARD TO RECEIVE LEVEL '5' FINISH.

A. WALL BASE TO MATCH EXISTING RUBBER BASE

B. 24" x 48" SUSPENDED CEILING SYSTEM AT STUDY ROOMS.

B. 2 1/2" STRAIGHT NO TOE BASE.

C. PROVIDE COIL MATERIAL

GYPSUM BOARD WALLS AND CEILINGS

C. ALL CORNERS SHALL BE SECURED.

E. GLASS SHALL BE TEMPERED WHERE IS REQUIRED TO BE SAFETY GLASS.

A. PAINT ALL GYPSUM WALLS AND CEILINGS WITH LATEX BASED PAINT.

(FORMULA AVAILABLE), VERIFY BY MATCHING DRAW-DOWN ON SITE.

E. PROVIDE SAMPLES OF ALL PAINT COLORS FOR ARCHITECT'S APPROVAL

B. USE APPROPRIATE PRIMER AND A MINIMUM TWO FINAL COATS TO COVER ALL SURFACES.

2. PROVIDE LATERAL BRACING AS REQUIRED PER INDUSTRY STANDARDS.

REMOVE PANELS ONLY WITHIN PERIMETER OF MEETING ROOMS.

1. ACOUSTICAL PANEL TYPE: MATCH EXISTING PRODUCT

C. APPLY COATS AS NEEDED TO PROVIDE EVEN SOLID COLOR WITH COMPLETE COVERAGE.

F. PROVIDE SHOP DRAWINGS FOR ARCHITECTS' APPROVAL BEFORE FABRICATION

G. RE-USE DEMO GLASS WALL AND ALUMINUM WHERE POSSIBLE (ADD ALT.1).

A. GENERAL

MATERIALS WITH LIBRARY.

DIVISION 3 — CONCRETE

DIVISION 5 - METALS

STRUCTURAL METALS

A. COPLY WTH THE REQUIREMENTS AND PROCEDURES OF THE CITY OF PHOENIX PROMIS II SYSTEM

C. SUBMIT SHOP DRAWINGS AND SAMPLES FOR THOSE ITEMS INDICATED IN THE SPECIFICATIONS.

G. PRODUCT DATA: AFTER REVIEW AND APPROVAL BY THE CONTRACTOR. SUBMIT (5) PDFS OF THE

I. PROVIDE 5% ATTIC STOCK OF ALL FIXTURES AND FINISHES TO THE LIBRARY, COORDINATE STORAGE OF

A. ANY CORING OR DRILLING THROUGH EXISTING CONCRETE STRUCTURE TO BE DONE 8" OR FURTHER TO EITHER

SIDE OF CENTERLINE OF THE PRECAST TEE STEMS. ALL LOCATIONS FOR DRILLING OR CORING TO BE X-RAYED PRIOR

C. ALL CONNECTIONS TO EXISTING PRECAST TEE'S TO BE SHOT-PIN TYPE ANCHORS WITH 3/4" MAX. DEPTH, UNLESS

1. ALL EXPOSED STEEL TO BE TREATED AS FINISHED PRODUCT. SEE DRAWINGS FOR FINISH. UNLESS

1. WALLS AND OTHER ITEMS SPECIFIED AS COLD-FORMED STEEL FRAMING SHALL BE DESIGNED

DETAILED AND FABRICATED IN ACCORDANCE WITH A.I.S.I. SPECIFICATON FOR THE DESIGN OF COLD-

3. ALL STUDS SHALL HAVE A MINIMUM FLANGE WIDTH OF 1-5/8", WITH A MINIMUM 3/8" RETURN LIP.

5. ALL COLD-FORMED ITEMS SHALL BE FORMED FROM STEEL MEETING THE MINIMUM REQUIREMENTS

7. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY OR AT AN ANGLE AS AT BRACING TO FIT FIRMLY

6. WALL FRAMING COMPONENTS MAY BE PREFABRICATED INTO PANELS OF A SUITABLE SIZE FOR

AGAINST ABUTTING MEMBERS. MEMBERS SHALL BE HELD SECURELY IN PLACE UNTIL PROPERLY

9. ALL STUDS SHALL BE FASTENED TO ALL TRACKS WITH A MINIMUM #10 SCREW AT EACH FLANGE.

2. ALL EXPOSED METAL WORK TO BE THOROUGHLY CLEANED OF ALL SOIL, FINGERPRINTS, AND OTHER

3. FABRICATE MISCELLANEOUS SHEET METAL WORK OF APPROPRIATE GAUGE FOR STIFFNESS AND

5. STEEL FRAMES TO BE SHOP FABRICATED, PRIMED AND PAINTED, AND ASSEMBLED ON SITE. PAINT TO

UNLESS NOTED OTHERWISE, FINISH METAL PANS TO BE COLD-ROLLED WITH NON-DIRECTIONAL

DRAWINGS FOR HOLE SIZE/PATTERN, GAUGE, ANO FINISH. PROVIDE SAMPLES FOR REVIEW BY

OR FOR FURNITURE, MATCH EXISTING FINISH. PROVIDE SAMPLES FOR REVIEW BY ARCHITECT.

B. QUALITY ASSURANCE: PROVIDE PRODUCTS FROM A SINGLE MANUFACTURER THAT SUCCESSFULLY PRODUCED

FLOOR, WALL, BEAM/ TEMPERED GLAZING CONDITIONS AND AS SHOWN IN DRAWINGS.

B. ALL GLASS DOORS TO BE 1/2" CLEAR TEMPERED GLASS TO MATCH ADJACENT SURROUNDING GLAZING. UNLESS

C. ALUMINUM FINISH TO BE CLEAR ANODIZED. PROVIDE SAMPLE OF FINISH FOR ARCHITECTS' APPROVAL.

B. ALL FINISH HARDWARE TO BE APPROVED BY ARCHITECT. DOORS TO BE KEYED ALIKE, COORDINATE WITH

A. INSTALL 5/8" TYPE 'X' GYPSUM BOARD WITH SCREWS. INSTALL CORNER BEADS AT ALL CORNERS AND 'L' TRIM AT

ALL EDGES WHERE ABUTTING A DISSIMILAR MATERIAL AND EDGES WHERE TOP OF WALL IS EXPOSED UNLESS

D. UNLESS NOTED OTHERWISE. PAINT WALLS TO MATCH EXISTING: EXISTING WALL COLOR IS 'BRUDER WHITE

1. SUSPEND FROM EXPOSED CONCRETE TEE STEMS ONLY, DO NOT ATTACH TO EXISTING PERFORATED

3. REMOVE 'POWER BELLY' METAL CEILING PANELS WHERE REQUIRED ABOVE NEW MEETING ROOMS

D. ALL GLASS DOORS TO HAVE MIRRORED FINISH PATCH FITTINGS UNLESS INDICATED OTHERWISE.

D. INSTALL SEALANT USING AN INSTALLER APPROVED BY SEALANT MANUFACTURER.

FINISH ON ALL EXPOSED FACES AND MIRROR POLISHED FINISH ON EDGES, PROVIDE SAMPLES FOR

REVIEW BY ARCHITECT. ALL NON-STAINLESS FERROUS STEEL ELEMENTS TO BE CLEAR SEALED VWTH

2. UNLESS NOTED OTHERWISE, PERFORATED METAL PANELS TO HAVE MINIMUM MARGIN ALL SIDES. SEE

3. UNLESS NOTED OTHERWISE. STAINLESS STEEL TO HAVE NON-DIRECTONAL FINISH ON ALL EXPOSED

1. CLEAR SILICONE SEALANT: ASTM APPROVED, AT TEMPERED GLAZING, BUTTED CONDITIONS AND AT

2. SEALANT: ASTM C 834, TYPE OP, GRADE NF; ACRYLIC LATEX OR SILICONIZED ACRYLIC LATEX. APPLY

SEALANT AROUND PERIMETER OF DOOR AND BORROWED LIGHT FRAMES AND AS SHOWN IN DRAWINGS.

FACES AND MIRROR POLISH FINISH ON EDGES. WHERE USED NEAR EXISTING STAINLESS-STEEL PANELS

8. THE ATTACHMENT OF COMPONENTS SHALL BE SCREWED OR BOLTED AS INDICATED.

1. SUBMIT SHOP DRAWINGS FOR THE FABRICATION AND ERECTION OF METAL ITEMS.

FOREIGN MATERIALS. SEE DRAWINGS FOR FINISH.

BE SILVER TNEMEC, PROVIDE SAMPLES FOR REVIEW BY ARCHITECT.

2. ALL FRAMING MEMBERS SHALL BE OF THE TYPE AND SIZE AS SHOWN ON THE DRAWINGS AND

SPECIFICATIONS AND SHALL BE MANUFACTURED BY A CURRENT MEMBER OF THE STEEL STUD

NOTED OTHERWISE, DO NOT PRIME OR PAINT EXPOSED STEEL. SUBMIT FINISH SAMPLES TO ARCHITECT

MANUFACTURER'S CATALOGS AND BROCHURES FOR REVIEW BY THE ARCHITECT.

B. COORDINATE VWTH LIBRARY FOR APPROPRIATE TIMES FOR X-RAY AND CORING.

D. APPROVED SUBMITTALS TO BE DISTRIBUTED BY THE CONTRACTOR TO THE APPROPRIATE TRADES.

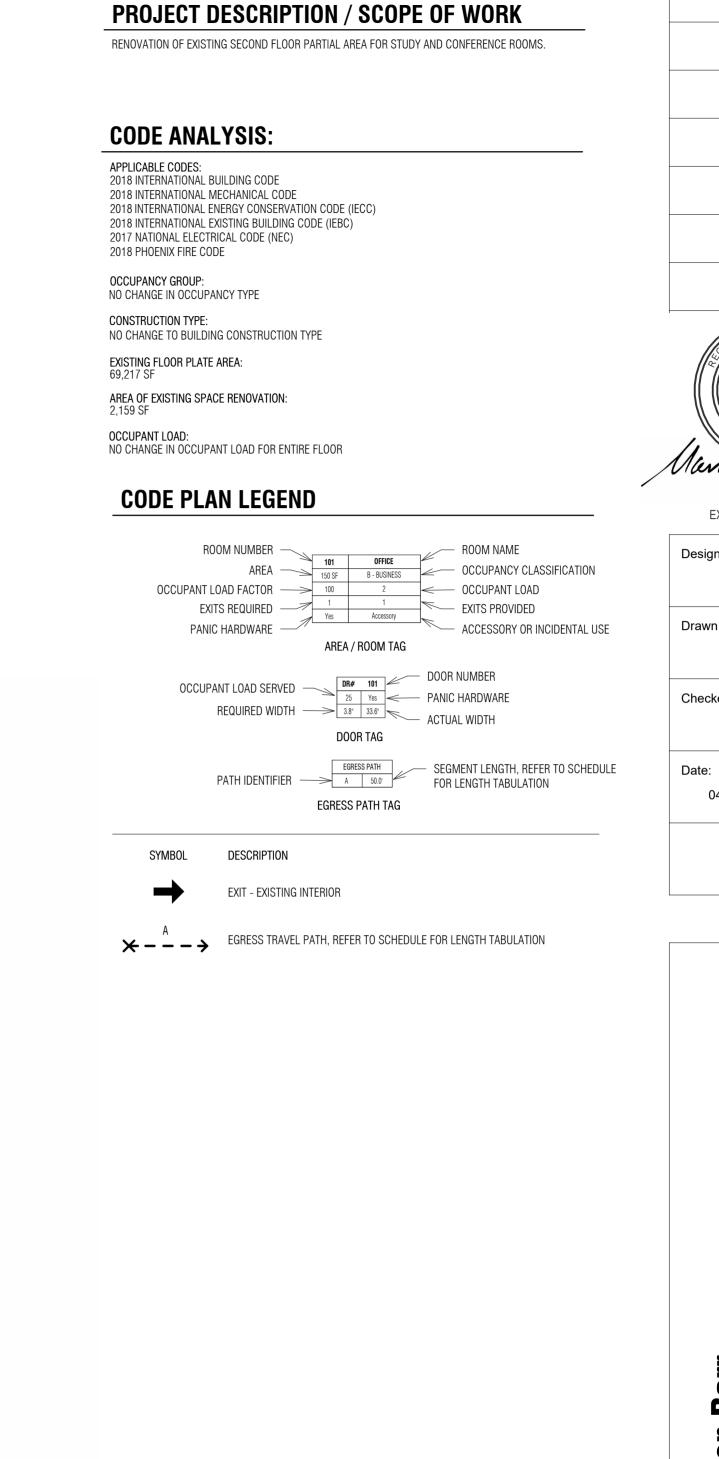
TO ALLOW FOR ANY CORRECTIONS AS TO NOT DELAY THE PROJECT

B. SUBMIT SHOP DRAWINGS, PRODUCT DATA, ANO SAMPLES AT THE APPROPRIATE TIME DURING CONSTRUCTION

E. SUBMITTALS INDICATED AS REJECTED OR TO BE CORRECTED SHALL BE CORRECTED AND RE-SUBMITTED TO THE

F. SHOP DRAWINGS: AFTER REVIEW AND APPROVAL BY THE CONTRACTOR, SUBMIT (3) PDFS OF EACH DRAWING

H. SAMPLES: AFTER REVIEW AND APPROVAL BY THE CONTRACTOR, SUBMIT (3) MATERIAL AND/OR COLOR SAMPLES



Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

CODE PLAN Scale: 1" = 20'-0"

 \Box

EXISTING EXITS TO GRADE -

EXISTING EXITS TO GRADE

0203 SOUTH STUDY ROOM 1075 SF B-BUSINESS

(A) 0.9A

Note:
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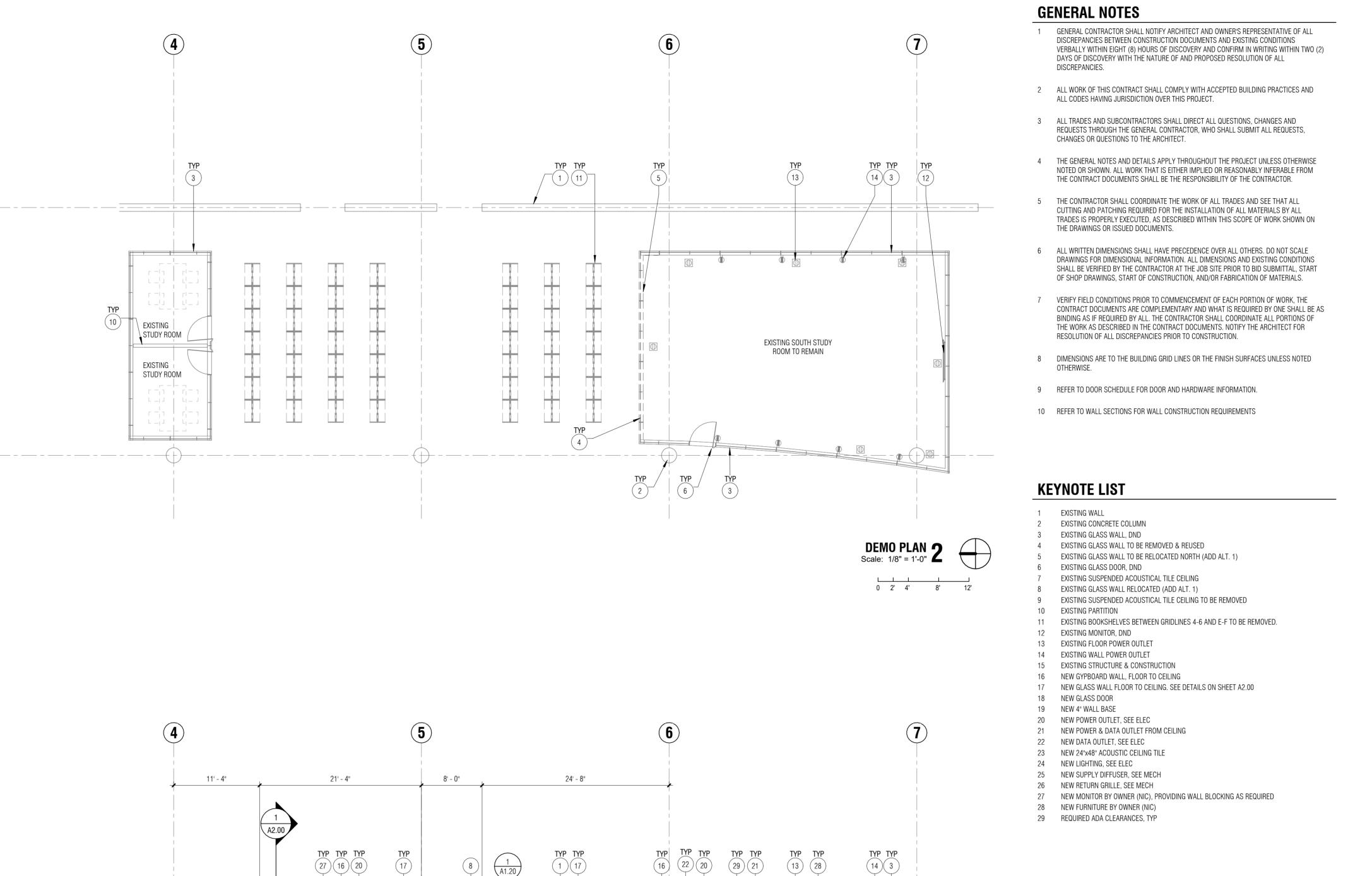
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WORKS

Revisions

OF





STUDY ROOM

STUDY ROOM

207 STUDY ROOM

EXISTING STUDY ROOM

0206

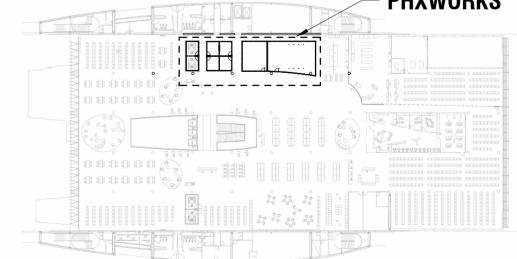
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CONFERENCE ROOM

0204

KEY PLAN

PHXWORKS



FLOOR PLAN Scale: 1/8" = 1'-0"

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Project No.

CoP

Barr

Burton

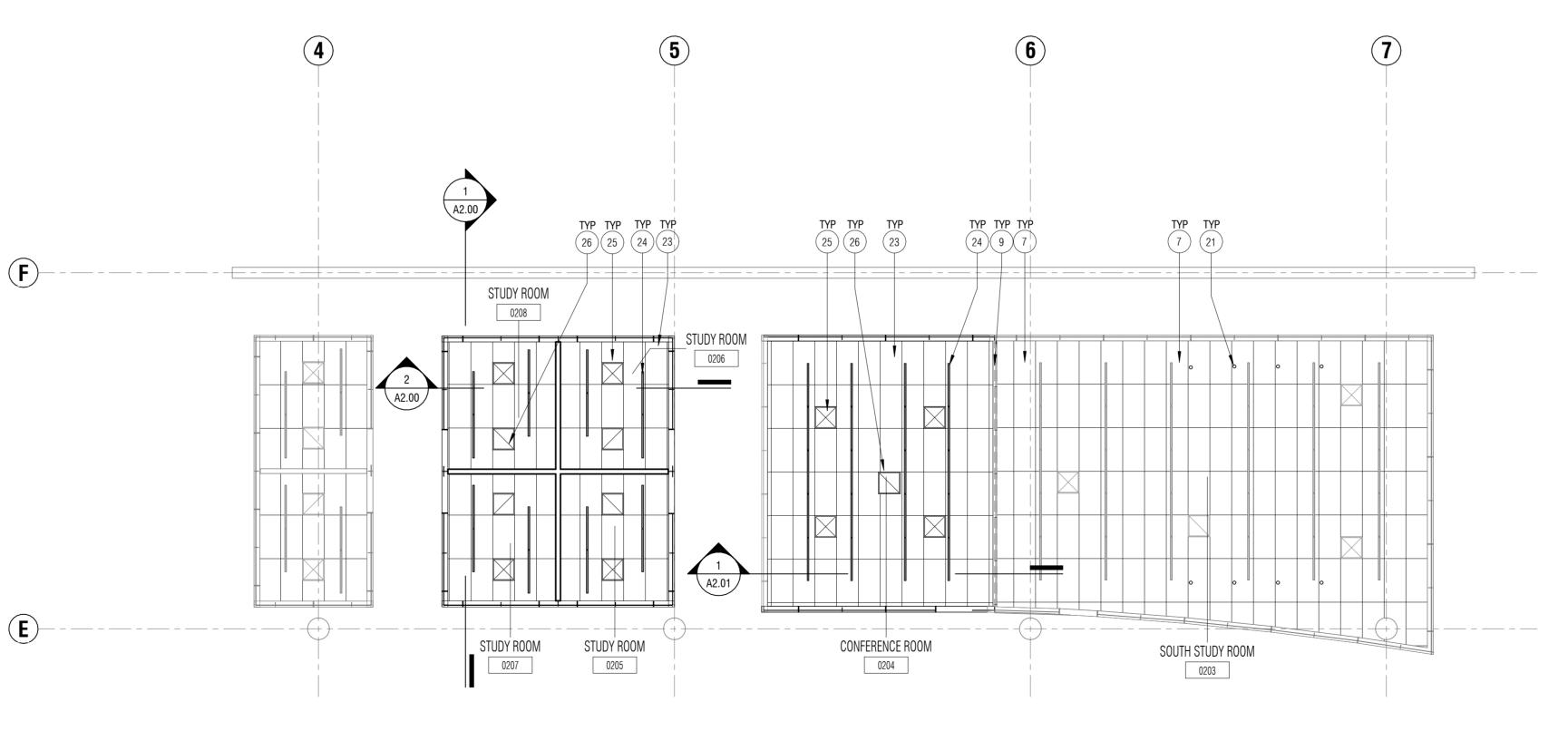
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PHXWORKS

ENGINEER

CITY

Revisions



REFLECTED CEILING PLAN
Scale: 1/8" = 1'-0"

Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

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SDEV#

KEYNOTE LIST

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GENERAL NOTES

3 EXISTING GLASS WALL, DND 4 EXISTING GLASS WALL TO BE REMOVED & REUSED

5 EXISTING GLASS WALL TO BE RELOCATED NORTH (ADD ALT. 1) 6 EXISTING GLASS DOOR, DND

MOUNTED SUPPLY REGISTERS AND RETURN AIR GRILLES.

2 REFER TO ELECTRICAL LIGHTING DRAWINGS FOR LIGHT FIXTURE TYPES.

7 EXISTING SUSPENDED ACOUSTICAL TILE CEILING

8 EXISTING GLASS WALL RELOCATED (ADD ALT. 1) 9 EXISTING SUSPENDED ACOUSTICAL TILE CEILING TO BE REMOVED

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11 EXISTING BOOKSHELVES BETWEEN GRIDLINES 4-6 AND E-F TO BE REMOVED.

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17 NEW GLASS WALL FLOOR TO CEILING. SEE DETAILS ON SHEET A2.00 18 NEW GLASS DOOR

19 NEW 4" WALL BASE

20 NEW POWER OUTLET, SEE ELEC 21 NEW POWER & DATA OUTLET FROM CEILING

22 NEW DATA OUTLET, SEE ELEC

23 NEW 24"x48" ACOUSTIC CEILING TILE 24 NEW LIGHTING, SEE ELEC 25 NEW SUPPLY DIFFUSER, SEE MECH

26 NEW RETURN GRILLE, SEE MECH

27 NEW MONITOR BY OWNER (NIC), PROVIDING WALL BLOCKING AS REQUIRED 28 NEW FURNITURE BY OWNER (NIC)

29 REQUIRED ADA CLEARANCES, TYP

CEILING LEGEND

CEILING MATERIALS - REFER TO ROOM FINISH SCHEDULE

ACOUSTICAL CEILING TILE

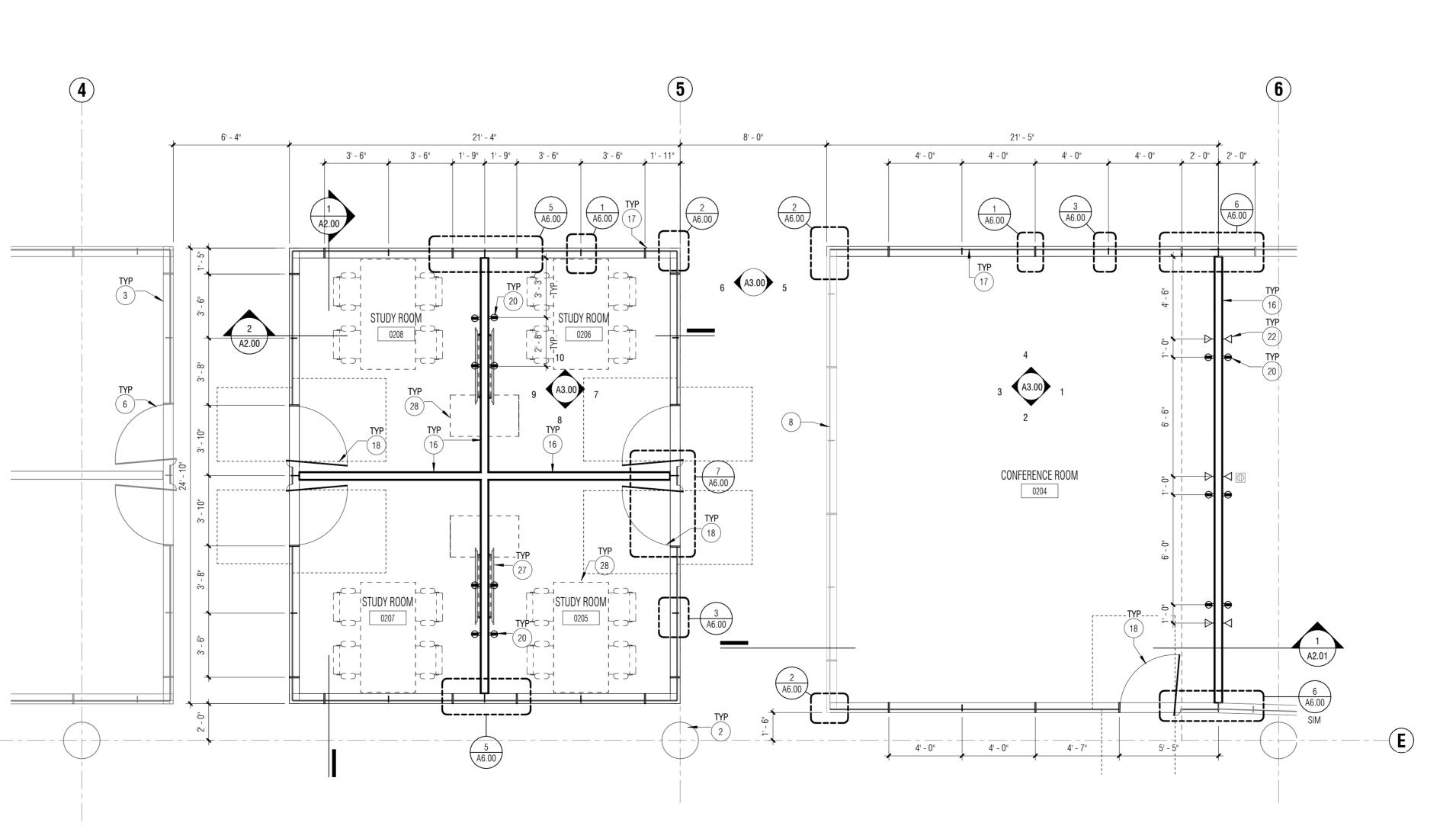
HVAC FIXTURES - REFER TO MECH DRAWINGS

AIR SUPPLY; SIZE
VARIES, SEE MECH

AIR RETURN; SIZE
VARIES, SEE MECH

KIVA#

OF



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- 1 GENERAL CONTRACTOR SHALL NOTIFY ARCHITECT AND OWNER'S REPRESENTATIVE OF ALL DISCREPANCIES BETWEEN CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS VERBALLY WITHIN EIGHT (8) HOURS OF DISCOVERY AND CONFIRM IN WRITING WITHIN TWO (2) DAYS OF DISCOVERY WITH THE NATURE OF AND PROPOSED RESOLUTION OF ALL DISCREPANCIES.
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- NEW MONITOR BY OWNER (NIC), PROVIDING WALL BLOCKING AS REQUIRED
- 28 NEW FURNITURE BY OWNER (NIC) 29 REQUIRED ADA CLEARANCES, TYP

Revisions



Designed By: Drawn By: Checked By:



Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

ENLARGED FLOOR PLAN Scale: 1/4" = 1'-0"

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Date:

04/19/23

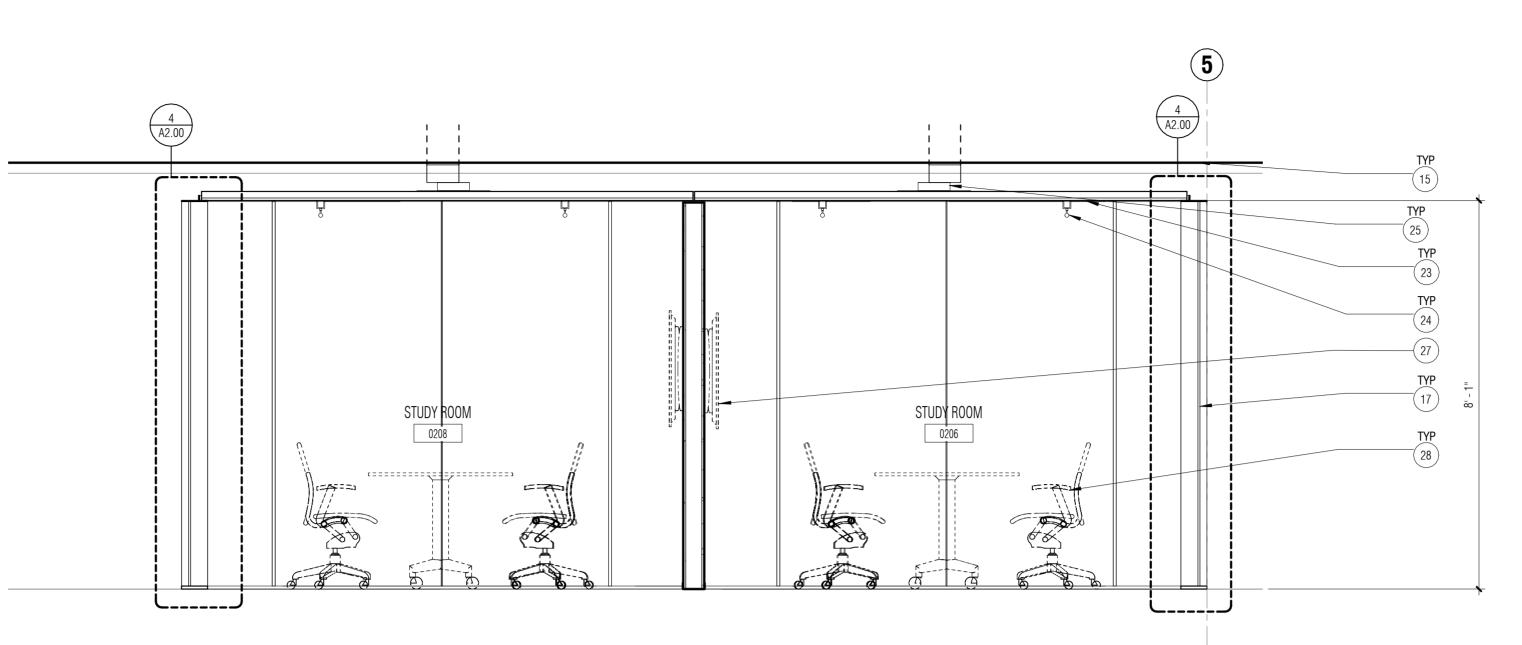
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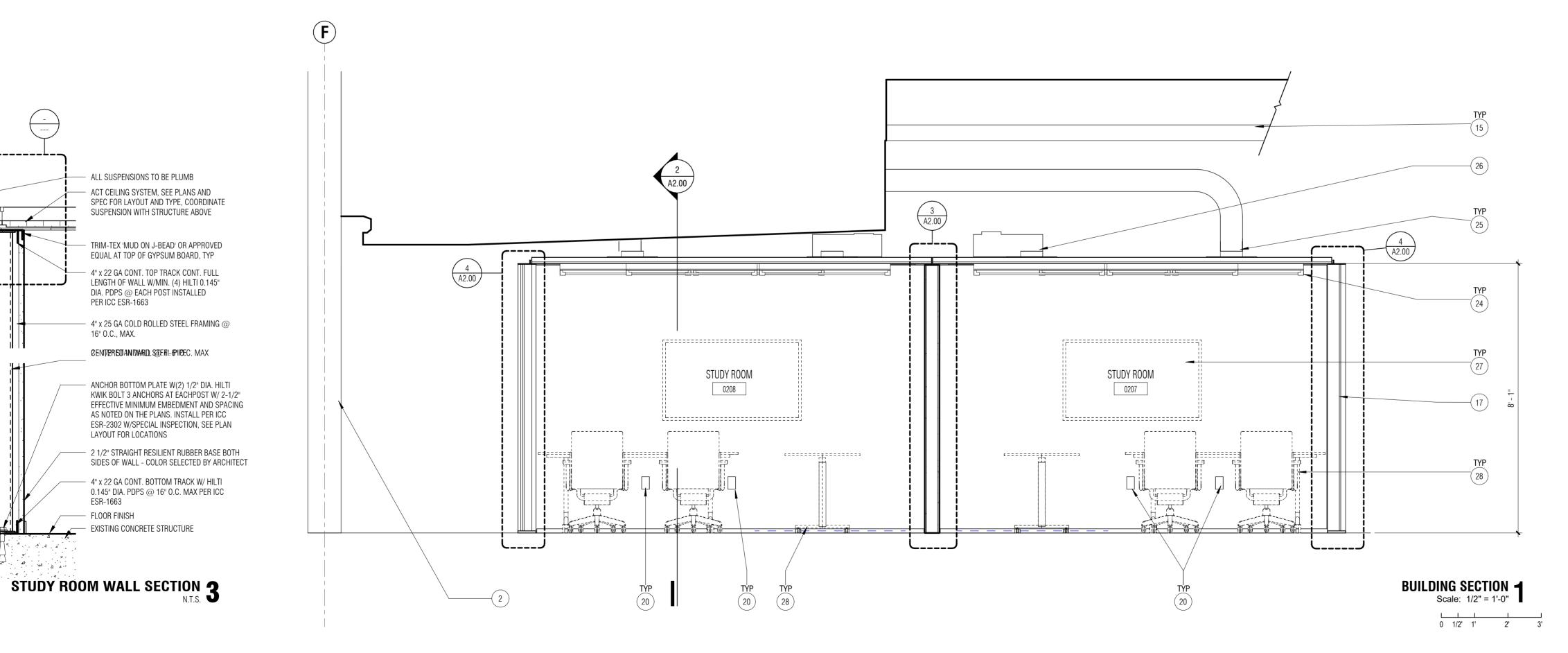
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KIVA# SDEV#



BUILDING SECTION 7 Scale: 1/2" = 1'-0"



- ALL HANGING WIRE TO BE PLUMB

ACT CEILING SYSTEM. SEE PLANS AND SPEC FOR LAYOUT AND TYPE, COODINATE

SUSPENSION WITH STRUCTURE ABOVE

- 1/4" X 1 1/4" STEEL BAR STIFFENER,

- 1/4" X 6 1/2" STEEL FRAME TOP PLATE

WELD TO TOP PLATE

— 1/2" GLAZING, TYP

PLATE, BEYOND

<u>INTERIOR</u>

- CLEAR SILICONE, ALL SIDES

1/4" X 6 1/2" STEEL FRAME SIDE

EXTERIOR - MAIN LIBRARY

LAYOUR FOR LOCATIONS

CLEAR SILICONE, ALL SIDES

WELD TO TOP PLATE

TYPICAL FRAME SECTION AT GLAZING 🖊

PER ICC ESR-1663

16" O.C., MAX.

ESR-1663 FLOOR FINISH

ANCHOR BOTTOM PLATE W(2) 1/2" DIA. HILTI KWIK BOLT 3 ANCHORS AT

EACHPOST W/ 2-1/2" EFFECTIVE MINIMUM

EMBEDMENT AND SPACING AS NOTED ON

THE PLANS, INSTALL PER ICC ESR-2302

W/SPECIAL INSPECTION, SEE PLAN

- 1/4" X 1 1/4" STEEL BAR STIFFENER,

— 1/2" X 6 1/2" STEEL FRAME BOTTOM

PLATE DIRECTLY TO CONCRETE

EXISTING CONCRETE STRUCTURE

GENERAL NOTES

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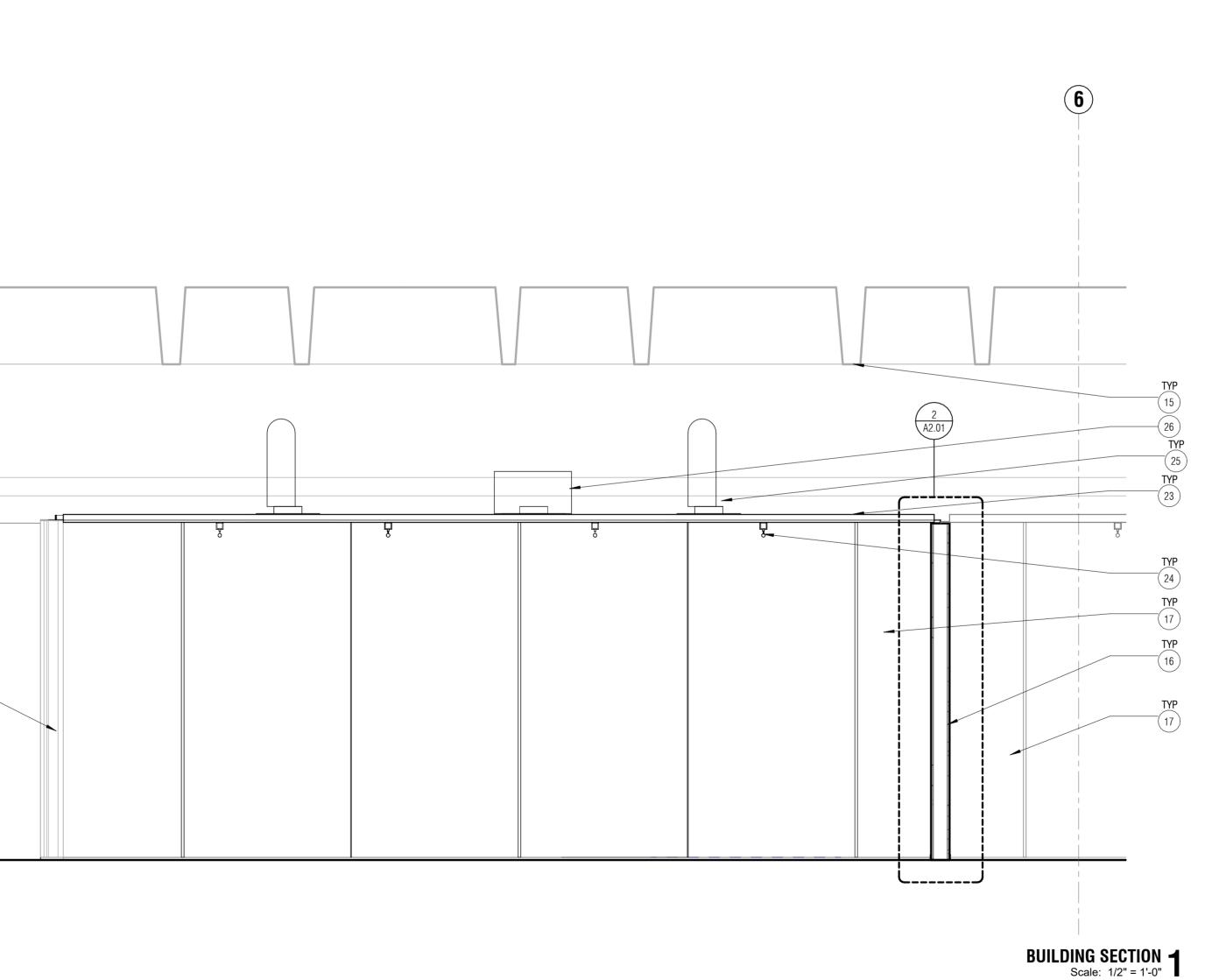


Marlene Imirzian & Associates Architects

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7 OF 50



- ALL HANGING WIRE TO BE VERTICAL

- EXISTING ACT SYSTEM TO REMAIN

AND SPEC FOR LAYOUT AND TYPE.

COODINATE SUSPENSION WITH

STRUCTURE ABOVE

- CLEAR SILICONE, TYP.

PER ICC ESR-1663

16" O.C., MAX.

NEW ACT CEILING SYSTEM, SEE PLANS

TRIM-TEX 'MUD ON J-BEAD' OR APPROVED

EQUAL AT TOP OF GYPSUM BOARD, TYP

LENGTH OF WALL W/MIN. (4) HILTI 0.145"

- 4" x 25 GA COLD ROLLED STEEL FRAMING @

- ANCHOR BOTTOM PLATE W(2) 1/2" DIA. HILTI KWIK BOLT 3 ANCHORS AT EACH POST W/ 2-1/2" EFFECTIVE MINIMUM EMBEDMENT AND SPACING AS NOTED ON THE PLANS. INSTALL PER ICC ESR-2302 W/SPECIAL INSPECTION, SEE PLAN

2 1/2" STRAIGHT RESILIENT RUBBER BASE BOTH SIDES OF WALL - COLOR SELECTED BY ARCHITECT - 4" x 22 GA CONT. BOTTOM TRACK W/ HELTI 0.145" DIA. PDPS @ 16" O.C. MAX PER ICC

LAYOUT FOR LOCATIONS

- EXISTING CONCRETE STRUCTURE

CONFERENCE ROOM WALL SECTION 2 Scale: 1 1/2" = 1'-0"

- FLOOR FINISH

--- 4" x 22 GA CONT. TOP TRACK CONT. FULL

DIA. PDPS @ EACH POST INSTALLED

2 - 1/2" STANDARD STEEL PIPE CENTERED IN WALL @ 4'-6" O.C. MAX

- CUT SHORTER AS REQUIRED

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Revisions



EXPIRES ON 3/31/2025

Designed By: Drawn By:

Checked By:



KIVA# SDEV#

Marlene Imirzian & Associates Architects

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8 OF 50

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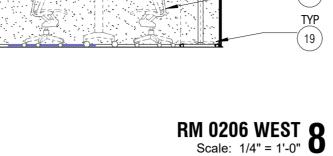
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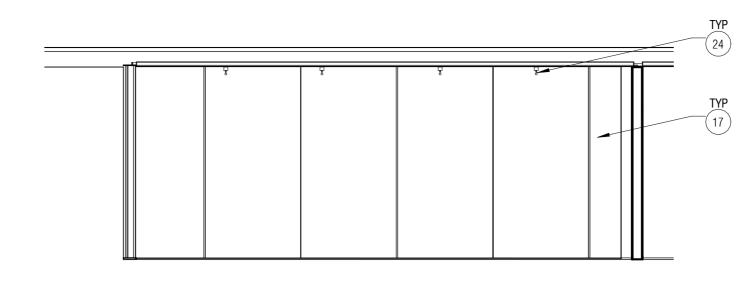
RM 0206 EAST 10

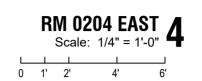
RM 0206 NORTH

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

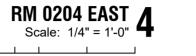
0 1' 2' 4' 6'







0 1' 2' 4' 6'





Revisions

CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS

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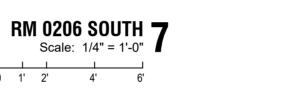
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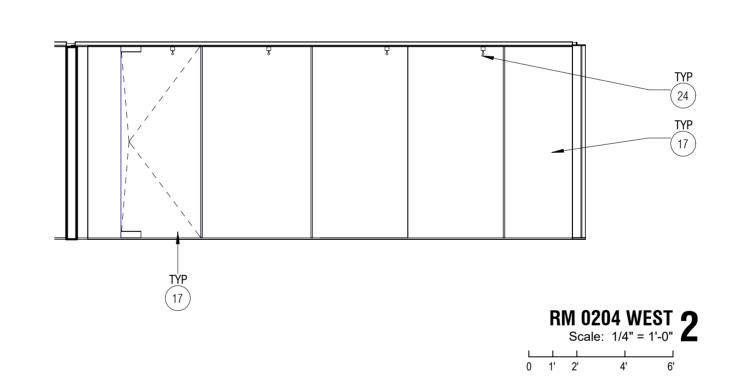
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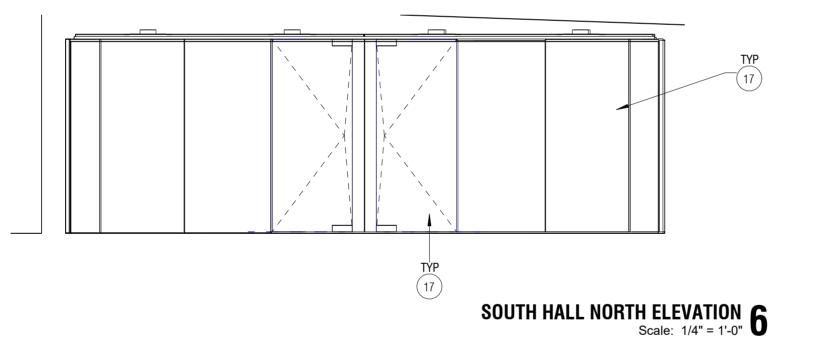
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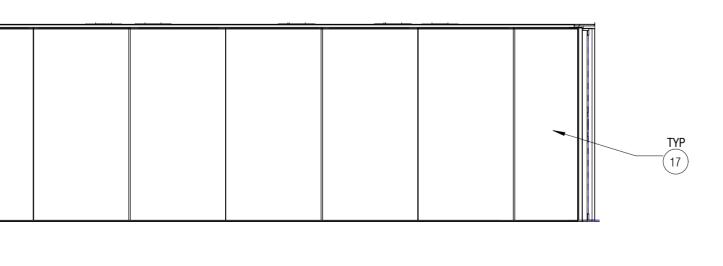
27 NEW MONITOR BY OWNER (NIC), PROVIDING WALL BLOCKING AS REQUIRED 28 NEW FURNITURE BY OWNER (NIC)

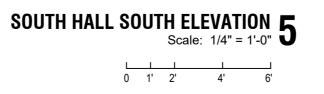
29 REQUIRED ADA CLEARANCES, TYP

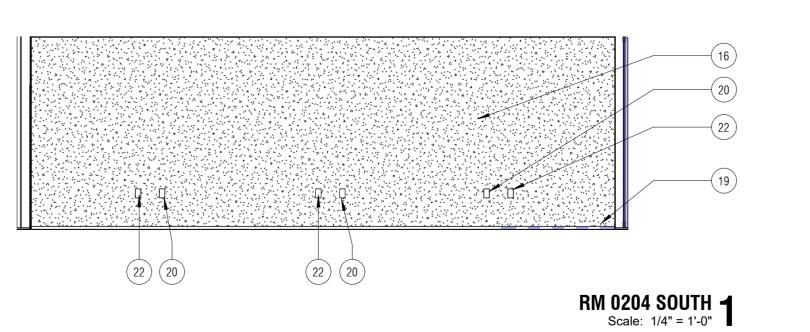












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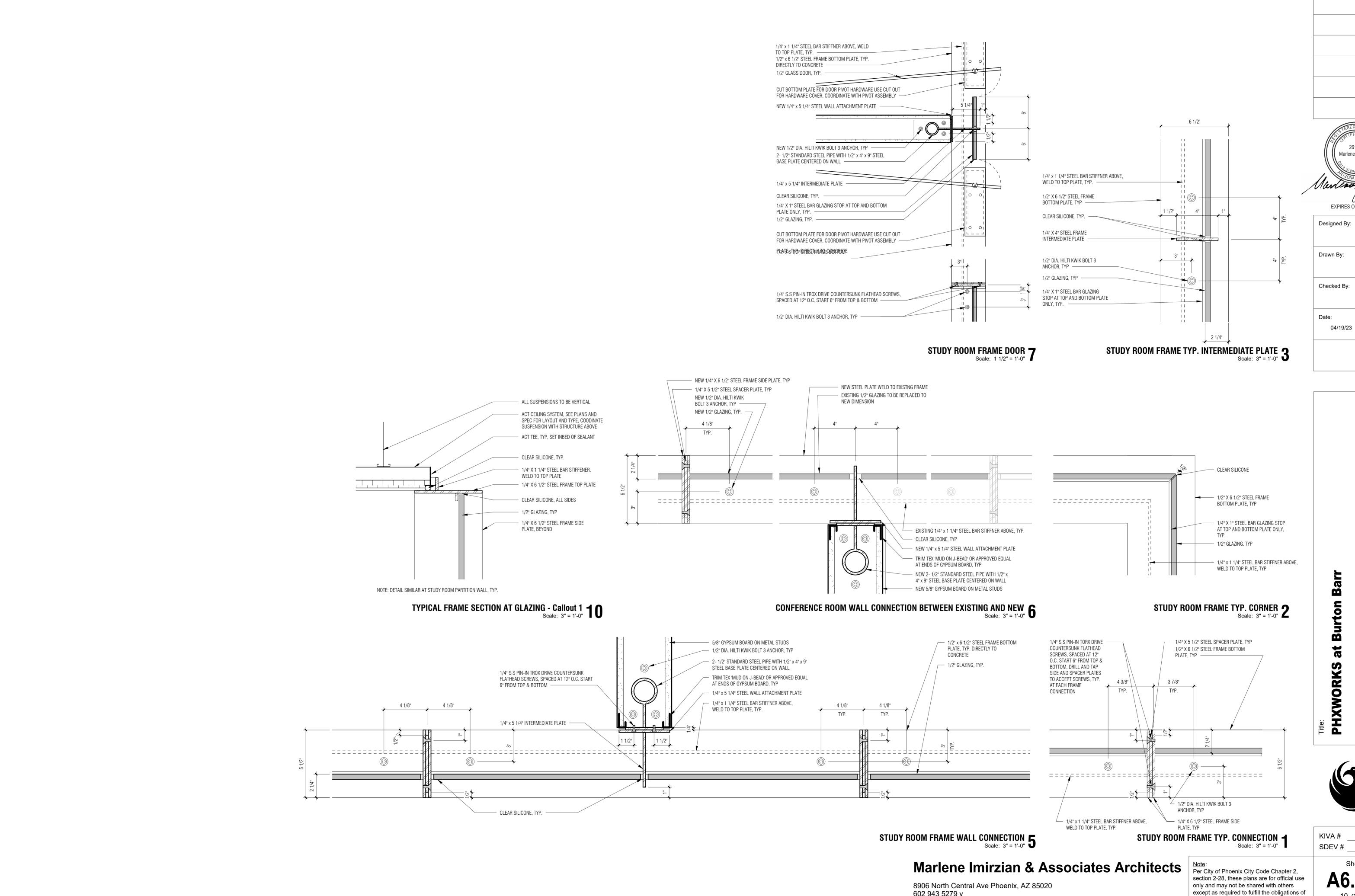


Marlene Imirzian & Associates Architects

KIVA#

ENGINEER CITY

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EXPIRES ON 3/31/2025 751(Š. Project Barr 04/19/23 Burton

WORKS

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Revisions



your contract with the City of Phoenix.

WORKS

PHXV

DOOR SCHEDULE

DOOR				DOORS				
NUMBER	TYPE	MATERIAL	WIDTH	HEIGHT	THICKNESS	FINISH	GLAZING	COMMENTS
204	А	CLR ANOD	3' - 4"	8' - 0"	1/2"	ANOD	1/2" TEMPERED	DOOR & HARDWARE TO MATCH EXISTING STUDY ROOM
205	А	CLR ANOD	3' - 4"	8' - 0"	1/2"	ANOD	1/2" TEMPERED	DOOR & HARDWARE TO MATCH EXISTING STUDY ROOM
206	А	CLR ANOD	3' - 4"	8' - 0"	1/2"	ANOD	1/2" TEMPERED	DOOR & HARDWARE TO MATCH EXISTING STUDY ROOM
207	А	CLR ANOD	3' - 4"	8' - 0"	1/2"	ANOD	1/2" TEMPERED	DOOR & HARDWARE TO MATCH EXISTING STUDY ROOM
208	А	CLR ANOD	3' - 4"	8' - 0"	1/2"	ANOD	1/2" TEMPERED	DOOR & HARDWARE TO MATCH EXISTING STUDY ROOM

DOOR TYPES



FINISH SCHEDULE

					WALL	FINISH		CEILLING	
RM NUMBER	NAME	FLOOR FINISH	BASE FINISH	EAST	WEST	NORTH	SOUTH	FINISH	COMMENTS
0203	SOUTH STUDY ROOM	CPT	RB	SF	SF	GYP	SF	ACT	FINISH TO MATCH EXISTING WHERE NEW IS REQUIRED
0204	CONFERENCE ROOM	CPT	RB	SF	SF	SF	GYP	ACT	FINISH TO MATCH EXISTING STUDY ROOMS
0205	STUDY ROOM	CPT	RB	GYP	SF	GYP	SF	ACT	FINISH TO MATCH EXISTING STUDY ROOMS
0206	STUDY ROOM	CPT	RB	SF	GYP	GYP	SF	ACT	FINISH TO MATCH EXISTING STUDY ROOMS
0207	STUDY ROOM	CPT	RB	GYP	SF	SF	GYP	ACT	FINISH TO MATCH EXISTING STUDY ROOMS
0208	STUDY ROOM	CPT	RB	SF	GYP	SF	GYP	ACT	FINISH TO MATCH EXISTING STUDY ROOMS

ACCESSIBLE DOOR REQUIREMENTS

- ALL EGRESS DOORS TO BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
- THE FLOOR OR LANDING ON EACH SIDE OF ALL DOORS CANNOT SLOPE MORE THAN 1:48 IN ANY DIRECTION. THE FLOOR OR LANDING CANNOT BE GREATER THAN 1/2" LOWER THAN THE DOORWAY THRESHOLD. FLOOR OR LANDING
- 3 ALL HAND-ACTIVATED DOOR OPENING HARDWARE TO MEET THE FOLLOWING REQUIREMENTS:

LATCHING OR LOCKING DOORS IN A PATH OF TRAVEL TO BE OPERATED WITH A SINGLE EFFORT BY LEVER TYPE HARDWARE, BY PANIC BARS, BY PUSH-PULL ACTIVATING BARS, OR BY OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP THE OPENING HARDWARE.

SAID HARDWARE TO BE CENTERED NO LESS THAN 34" BUT NO GREATER THAN 44" ABOVE

- THE MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5 POUNDS, WITH SUCH PULL OR PUSH EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOORS AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. THE MAXIMUM EFFORT TO OPERATE FIRE DOORS MAY BE INCREASED TO NOT EXCEED 15 POUNDS.
- 5 THE BOTTOM 10" OF ALL DOORS ARE TO MEET THE FOLLOWING REQUIREMENTS:

DOOR SURFACE TO BE SMOOTH & UNINTERRUPTED, ALLOWING THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST, WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION.

NARROW FRAME DOORS MAY USE A 10" HIGH SMOOTH PANEL ON THE PUSH SIDE OF THE

GENERAL DOOR NOTES

- 1 HINGED DOOR MUST OPEN AT LEAST 90°.
- 2 DOOR MUST PROVIDE A MIN. CLEAR OPENING OF 32" WHEN POSITIONED AT AN ANGLE OF 90° FROM THE CLOSED POSITION (MEASURED BETWEEN THE FACE OF THE DOOR AND THE OPPOSITE STOP).
- AT DOUBLE DOORS, WITH OR WITHOUT MULLION, AUTOMATIC OR MANUAL, CLEAR OPENING PROVIDE WIDTH OF ONE OF THE DOORS TO BE 32" MIN.
- 4 PROVIDE A CLEAR AND LEVEL (2% SLOPE MAX.) LANDING ON EACH SIDE OF DOOR.
- 5 ALL DOORS IN THE ACCESSIBLE ROUTE SHALL HAVE AN ACCESSIBLE THRESHOLD, HARDWARE, CLOSER, AND 10" SMOOTH SURFACE AT BOTTOM OF PUSH SIDE.
- 6 DOOR CLOSER TO BE 5 LBF MAX.
 - AT RATED DOORS THE AUTHORITY HAVING JURISDICTION MAY INCREASE THE MAXIMUM EFFORT TO OPERATE FIRE DOORS IN ORDER TO ACHIEVE POSITIVE LATCHING, BUT NOT EXCEEDING THE 15 LBF MAX.

Revisions



Designed By: Drawn By:

Checked By:



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SDEV#

KIVA#

Designed By:

SDK

SDK

Checked By:

KMK

Date:

Drawn By:

ENGINE

¥###########

DUCT TO BE REMOVED

MECHANICAL GENERAL NOTES

Marlene Imirzian & Associates Architects

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Per City of Phoenix City Code Chapter 2, section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of your contract with the City of Phoenix.

PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT A COMPLETE, OPERATIONAL HVAC SYSTEM FOR THE ENTIRE PROJECT AS SHOWN

ON THESE DRAWINGS, INCLUDING ALL NECESSARY FEES AND PERMITS. THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODE, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, SCHOOL DISTRICT, STATE, AND FEDERAL CODES AND REGULATIONS IN EFFECT AT THE

PRIOR TO FABRICATION AND INSTALLATION, COORDINATE THE INSTALLATION OF ALL HVAC PIPING, DUCTWORK, AND EQUIPMENT WITH PLUMBING PIPING. PLUMBING EQUIPMENT, REFRIGERATION TRENCHES AND PIPING, FIRE PROTECTION PIPING AND ALL OTHER TRADES INCLUDING BUT NOT LIMITED TO: THE MECHANICAL CONTRACTOR. REFRIGERATION CONTRACTOR. ELECTRICAL CONTRACTOR, FIRE PROTECTION CONTRACTOR, GENERAL CONTRACTOR, AND ANY CONTRACTOR HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.

DATE OF THE BID. CONFORM TO ANY CODES, RULES, REGULATIONS AND

REQUIREMENTS THAT THE PROJECT OWNER HAS.

THE DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENTS AND THE EXTENT OF THE SYSTEM. IT SHALL BE THE WORK OF THE CONTRACTOR TO MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES, OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.

ALL HVAC INFORMATION IS NOT SHOWN ON THE HVAC DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS INCLUDING ARCHITECTURAL, STRUCTURAL. MECHANICAL. ELECTRICAL AND REFRIGERATION DRAWINGS.

THE WORKING DRAWINGS ARE DIAGRAMMATIC. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR HVAC EQUIPMENT AND PIPING SHALL BE CHECKED AND COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, STRUCTURAL AND ELECTRICAL DRAWINGS.

SPACE ABOVE ALL CEILINGS IS LIMITED. CAREFUL COORDINATION IS REQUIRED WITH ALL TRADES BEFORE ANY PIPE, DUCT, OR EQUIPMENT IS ORDERED AND/OR INSTALLED. ANY CONFLICTS AND/OR CHANGES FOUND DURING INSTALLATION THAT RESULT FROM LACK OF COORDINATION BY THE CONTRACTORS DURING THE SHOP DRAWING PROCESS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

1/8" SCALE SHOP DRAWINGS (SUBMITTED FOR APPROVAL) ARE FOR ALL DUCTWORK AND PIPING SYSTEMS.

. THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.

0. DETAILS: THE CONTRACTOR IS RESPONSIBLE TO REVIEW AND USE WHERE APPROPRIATE ALL OF THE MECHANICAL DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED DETAILS IS THE RESPONSIBILITY OF THE CONTRACTOR

1. PIPING SCHEMATICS: THE CONTRACTOR IS RESPONSIBLE TO REVIEW THE PIPING SCHEMATICS INCLUDED WITH THE DRAWINGS FOR PIPING CONNECTIONS TO ALL MECHANICAL EQUIPMENT. THE PIPING SCHEMATICS SHOW DETAILED CONNECTIONS INCLUDING NECESSARY VALVES, FITTINGS, PRESSURE AND TEMPERATURE GAUGES, ETC., THAT ARE NOT SHOWN ON THE PIPING PLANS. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED PIPING SCHEMATICS IS THE RESPONSIBILITY OF THE CONTRACTOR.

12. THE STRUCTURE SHOWN ON ALL DETAILS MAY OR MAY NOT PERTAIN TO A PORTION OR ANY PORTION OF THE BUILDING. COORDINATE MOUNTING REQUIREMENTS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

13. ANY PART OF THIS INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

14. COORDINATE THE RETURN OF ALL MECHANICAL EQUIPMENT REMOVED DURING DEMOLITION WITH THE OWNER'S REPRESENTATIVE.

15. ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE SITE ALTITUDE.

16. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS TRANSITIONS, VALVES, DAMPERS, AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.

17. THE DIVISION 23 CONTRACTOR SHALL FURNISH ALL REQUIRED MOTORS. ALL MOTOR STARTING EQUIPMENT, WHEN NOT A PART OF THE EQUIPMENT, WILL BE FURNISHED BY THE ELECTRICAL CONTRACTOR.

18. EXISTING INTERIOR PIPING, EQUIPMENT, AND DUCTWORK HAS BEEN LOCATED IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS AND POINTS OF CONNECTION AND PIPE ROUTING THROUGH EXISTING CONDITIONS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL PERFORM THE WORK IN A MANNER THAT WILL CAUSE A MINIMUM DISRUPTION TO BUILDING TENANT USE AND SHALL COORDINATE THE WORK WITH THE BUILDING OWNER'S REPRESENTATIVE.

19. THE CONTRACTOR IS RESPONSIBLE FOR HVAC EQUIPMENT CHECK-IN, SAFEKEEPING, AND DAMAGE. DO NOT ROUTE DUCTS AND PIPES ABOVE ELECTRICAL PANELS. ALL ELECTRICAL PANELS MUST HAVE CLEAR ACCESS SPACE IN FRONT OF PANEL 4'-0" DEEP AND 6'-6" HIGH. DO NOT ROUTE DUCTS AND PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.

20. DO NOT ROUTE DUCTS AND PIPES ABOVE ELECTRICAL PANELS. ALL ELECTRICAL PANELS MUST HAVE CLEAR ACCESS SPACE IN FRONT OF PANEL 4'-0" DEEP AND 6'-6" HIGH DO NOT ROUTE DUCT AND PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM

MECHANICAL SHEET INDEX

MECHANICAL SYMBOLS, ABBREVIATIONS, LEGENDS AND DRAWING INDEX MECHANICAL SPECIFICATIONS MECHANICAL DETAILS AND SCHEDULES MECHANICAL HVAC PLAN LEVEL 2

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> > KIVA#

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SDEV#

Sheet 12 OF 50

LG

LH

LRA

LVG

LENGTH

LEAVING

LATENT HEAT

LEAVING WATER

TEMPERATURE

LOCKED ROTOR AMPS

WATER COLUMN

WET BULB TEMP

WATER PRESSURE DROP

CAPPED PIPE

FLOAT AND THERMOSTATIC TRAP

ANCHOR

-

WATER GAUGE

WATER

WEIGHT

YEAR

WTR

WT

CONTRACTOR'S NATIONAL ASSOCIATION, (SMACNA).

SHALL BE 10 GAUGE STEEL.

(CONCEALED DUCTWORK)

(EXPOSED DUCTWORK)

DUCTS SHALL BE RIGIDLY SUPPORTED.

RIVETED FOR A WEATHERPROOF FIT.

EXPOSED DUCTS.

PROVISIONS FOR CLEANOUT.

CONTINUOUS, EXTERNAL WELD.

JOHN-MANSVILLE OR SCHULLER INTERNATIONAL

11. CLASS I KITCHEN EXHAUST HOOD DUCT SYSTEMS:

DIFFUSERS. OPERATE FANS TO BLOW OUT DUCTWORK.

AND SEALED. INSULATION SHALL BE 1-1/2 POUND DENSITY.

DUCT LOCATION

UNCONDITIONED

OUTDOORS

CONDITIONED

CONDITIONED

SPACES

SPACES

SPACES

DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, OR THE APPLICABLE

TRANSITION ALL NEW DUCTWORK TO CONNECT TO EXISTING, AS REQUIRED.

DUCTWORK SHALL BE GALVANIZED STEEL THROUGHOUT, FABRICATED AND

THE BEST GRADE OF GALVANIZED MILLED STEEL SHEETS OF U.S. STANDARD

INSTALLED SO THAT NO VIBRATION OR NOISE RESULTS. IT SHALL BE MADE FROM

GAUGE AND BE FREE FROM BLISTERS, SLIVERS, AND PITS. ALL SEAMS SHALL BE

AIRTIGHT, THE CONSTRUCTION OF ALL DUCTWORK, INCLUDING GAUGES OF METAL

BRACING LAYOUT, ETC., SHALL BE IN ACCORDANCE WITH SMACNA. SLEEVES FOR

SEAL DUCTWORK ACCORDING TO THE FOLLOWING SMACNA DUCT SEALING CLASS:

HANGERS FOR DUCTS UP TO 18" IN WIDTH OR DIAMETER SHALL BE PLACED ON NOT

MORE THAN 8 FOOT CENTERS. DUCTS 19" AND OVER IN WIDTH OR DIAMETER SHALL

OR DIAMETER. HANGERS SHALL EXTEND DOWN SIDES AND A MINIMUM OF 1" UNDER

BE SUPPORTED ON NOT MORE THAN 4 FOOT CENTERS. DUCT HANGERS SHALL BE

CONSTRUCTED OF GALVANIZED BAND IRON 1-1/8" FOR DUCTS UP TO 36" IN WIDTH

ALL DUCTWORK SHALL BE CLEANED PRIOR TO THE INSTALLATION OF CEILING AND

RECTANGULAR LOW-PRESSURE SUPPLY AND RETURN AIR DUCTWORK SHALL BE

LINED WITH 1" FACED FIBERGLASS INSULATION SECURELY BUTTONED OR LAPPED

OUTDOOR DUCTWORK EXPOSED TO THE WEATHER SHALL BE LINED WITH MINIMUM

SEALED, AND SHALL BE FITTED WITH A 0.016 EMBOSSED ALUMINUM JACKET POP

DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE CLEAR AREA AND SHALL BE

INCREASED TO ACCOMMODATE INSULATION. DUCT LINER TO BE BY KNAUF GmbH,

DUCTWORK FOR EVAPORATIVE COOLERS AND EVAPORATIVELY COOLED MAKE-UP

AIR UNITS SHALL BE FABRICATED FROM ALUMINUM SHEETS. ALL SEAMS SHALL BE

AIRTIGHT. THE CONSTRUCTION OF ALL DUCTWORK, INCLUDING GAUGES OF METAL

CONCEALED DUCTS, AND WELDED OR FLANGED 18 GAGE STAINLESS STEEL FOR

DUCT ENCLOSURE WITH 2-HR FIRE RESISTIVE CONSTRUCTION AS

III. A PREFABRICATED GREASE DUCT SYSTEM - METAL FAB MODEL "NO

BRACING, LAYOUT, ETC. SHALL BE IN ACCORDANCE WITH SMACNA.

B. SLOPE HORIZONTAL DUCT AT 1/4" PER FOOT TOWARD HOOD.

PROVIDE AND INSTALL ONE OF THE FOLLOWING SYSTEMS:

DESCRIBED IN SECTION 508 OF THE UMC, OR,

WHICHEVER METHOD IS CHOSEN MUST HAVE APPROVAL FROM THE

PROVIDE ACCESS DOORS AT EACH CHANGE OF DIRECTION.

. PROVIDE RESIDUE TRAP AT THE BASE OF EACH VERTICAL RISER, WITH

II. A DUCT WRAP SYSTEM - 3M FIREMASTER GREASE DUCT FIRE

E. ALL SEAMS, JOINTS AND PENETRATIONS SHALL HAVE A LIQUID-TIGHT,

PROTECTION SYSTEM, OR APPROVED EQUAL, OR,

R-5 FACED FIBERGLASS INSULATION SECURELY BUTTONED OR LAPPED AND

RECTANGULAR DUCTS, AND WRAP COMPLETELY AROUND ROUND DUCTS. ALL

< 2 IN. WG > 2 IN. WG EXHAUST

DUCT TYPE

RETURN

FIRE DAMPERS AND DUCT SECTIONS FORMING AN EXTENSION OF THE FIRE WALL

STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING

MANUFACTURERS:

A. KRUEGER

B. TITUS

C. PRICE

D. NAILOR

LOUVER FACE:

SLOT DIFFUSERS:

ARCHITECTURAL

DRUM LOUVERS:

SIDEWALL GRILLE:

DOOR GRILLE:

LINEAR GRILLE:

FLOOR GRILLE:

EGG CRATE:

ROUND:

PERFORATED DIFFUSERS:

ALUMINUM BIRD SCREEN.

SHALL BE AS FOLLOWS:

BALANCING FOR THIS PROJECT.

233713 - GRILLES, DIFFUSER AND LOUVERS

THE FOLLOWING KRUEGER PRODUCTS SHALL BE USED AS A REFERENCE

MODEL: SH OR 1400

6504 (SUPPLY)

6290 (RETURN)

800 (SUPPLY)

S80 (RETURN

COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND

WITH ADJACENT SUBSTRATE AND FIT ACCURATELY FOR WEATHERPROOF INSTALLATION. LOUVERS SHALL BE COMPLETE WITH 1/2" MESH ANODIZED

GRILLES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL

LOUVERS SHALL HAVE MINIMUM FREE AREA AND MAXIMUM PRESSURE DROP AS

CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TESTING, ADJUSTING AND

LISTED IN THE SCHEDULES. LOUVER SHALL HAVE FRAME AND SILLS COMPATIBLE

480H (HEAVY DUTY SUPPLY AND RETURN)

1910

PLQ

RA2

EGC-5

1600

1800

LIGHTING LAYOUT, AND ARCHITECTURAL ELEVATIONS.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED".

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE

ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE

NCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING,

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE

SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY,

NCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS.

INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE

SUBSTITUTIONS OF MATERIALS OR PRODUCTS SHOWN HEREIN SHALL BE AT THE

CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-

"REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

IN GENERAL AND SUPPLEMENTARY CONDITIONS.

CLEANING, AND SIMILAR OPERATIONS."

READY FOR THE INTENDED USE.

GLAZING COMPOUNDS TO SEAL METAL DUCTS.

REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED

SUSPEND METAL DUCTWORK NOT EXCEEDING 30" LONGEST SIDE AT EVERY JOINT DO NOT EXCEED 10'-0" HANGER SPACING. USE 1" X 18 GAGE GALVANIZED STRAPS INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE (MINIMUM) ATTACHED TO BOTTOM AND SIDES OF DUCT.

> SUSPEND METAL DUCTWORK EXCEEDING 30" LONGEST SIDE AT MAXIMUM 8'-0" SPACING USING ANGLES AND RODS.

DECK IS NOT ACCEPTABLE.

). DUCT SIZES SHALL BE VERIFIED FOR CLEARANCES AT THE JOB SITE PRIOR TO FABRICATION. DIMENSIONS MAY BE CHANGED TO ACCOMMODATE CONSTRUCTION CLEARANCES. FREE AREA OF DUCT SHALL BE MAINTAINED.

12. PROVIDE ELBOWS AND CHANGES IN DIRECTION WITH SINGLE VANE TURNING

MASTICS, GASKETING OR OTHER APPROVED CLOSURE SYSTEMS.

5. TAPES AND MASTICS USED TO SEAL DUCTWORK MUST BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A-P" FOR PRESSURE-

181B AND SHALL BE MARKED "181B-FX" FOR PRESSURE SENSITIVE TAPE, OR "181B-M" FOR MASTIC.

COMPLY WITH UL 181 AND SHALL BE MARKED "181B-"

18. FLEXIBLE CONNECTORS SHALL NOT BE USED.

19. HIGH EFFICIENCY TAKE-OFF FITTINGS WITH MANUAL DAMPER SHALL HAVE 2" STAND

PROVIDED WITH MANUAL DAMPER.

FIRE RATED PENETRATIONS DETAILS SHOWN ON THE CONSTRUCTIONS

RESIST SPREAD OF FIRE ACCORDING TO REQUIREMENTS INDICATED, RESIST PASSAGE OF SMOKE AND OTHER GASES, AND MAINTAIN ORIGINAL FIRE-

RESISTANCE RATING OF CONSTRUCTION PENETRATED.

PENETRATION FIRESTOPPING SYSTEMS SHALL BE COMPATIBLE WITH ONE

ITEMS IF ANY. PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS: PROVIDE PENETRATION

TESTING AT A POSITIVE PRESSURE DIFFERENTIAL OF 0.01-INCH WG

PENETRATION FIRESTOPPING PRODUCTS SHALL BEAR UL. ETL OR FM GLOBAL

DO NOT INSTALL PENETRATION FIRESTOPPING WHEN AMBIENT OR SUBSTRATE MANUFACTURERS OR WHEN SUBSTRATES ARE WET BECAUSE OF RAIN, FROST,

LABELS. ATTACH LABELS PERMANENTLY TO SURFACES ADJACENT TO AND WITHIN 6 INCHES OF FIRESTOPPING EDGE SO LABELS WILL BE VISIBLE TO ANYONE SEEKING TO REMOVE PENETRATING ITEMS OR FIRESTOPPING

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NDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES,

OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN". "NOTED". "SCHEDULED". AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON

OUTSIDE AIR DUCT: 2" W.C.

'APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", DO NOT USE GRAY DUCT TAPE, FOIL BACKED TAPE, OIL BASED CAULKING AND

> CROSS-BREAK DUCT SURFACES 19" THROUGH 60". USE ANGLE REINFORCING FOR DUCTS SURFACES OVER 60".

ALL METAL LONGITUDINAL SEAMS SHALL BE PITTSBURG OR OTHER LISTED SMACNA LISTED SEAM. DO NOT USE BUTTON PUNCH SNAP-BACK SEAMS. PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND

ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING,

SUPPORT DUCTWORK FORM STRUCTURAL MEMBERS. ATTACHMENT TO ROOF

11. DUCT TRANSITIONS SHALL BE CONSTRUCTED WITH SLOPE OF 1/4.

13. ALL JOINTS SHALL BE MADE AIRTIGHT BY APPROVED METHODS, INCLUDING TAPES,

DWNER'S, ARCHITECTS, OR ENGINEER'S WRITTEN APPROVAL ONLY WITH COPIES OF 14. TAPE ALONE CANNOT BE SUBSTITUTED FOR MECHANICAL FATENERS

> SENSITIVE TAPE, "181A-M" FOR MASTIC OR "181A-H" FOR HEAT SESITIVE TAPE. 16. TAPES AND MASTICS USED TO SEAL FLEXIBLE AIR DUCTS SHALL COMPLY WITH UL

> . MECHANICAL FASTENERS USED WITH FLEXIBLE NON-METALLIC AIR DUCTS SHALL

OFF BRACKET. 20. ALL BRANCH TAKE-OFFS TO INDIVIDUAL AIR INLET OR AIR OUTLET SHALL BE

21. ALL DUCTWORK SHALL BE A MINIMUM 26 GAUGE GALVANIZED SHEET METAL.

PENETRATION FIRESTOPPING NOTES:

DOCUMENTS SHOW GENERAL METHOD OF MECHANICAL (HVAC) AND PLUMBING PENETRATION FIRESTOPPING.

CONTRACTOR SHALL REVIEW CONSTRUCTION DOCUMENTS AND PROVIDE SPECIFIC FIRESTOPPING DETAILS FROM A SPECIFIC FIRESTOPPING MANUFACTURER FOR EACH MECHANICAL (HVAC) AND PLUMBING PIPE OR DUCT PENETRATION FOR EACH

PROVIDE PENETRATION FIRESTOPPING THAT IS PRODUCED AND INSTALLED TO

FIRESTOPPING WITH RATINGS DETERMINED PER ASTM E 814 OR UL 1479, BASED ON

CLASSIFICATION MARKING OF QUALIFIED TESTING AND INSPECTING AGENCY.

TEMPERATURES ARE OUTSIDE LIMITS PERMITTED BY PENETRATION FIRESTOPPING CONDENSATION, OR OTHER CAUSES.

COORDINATE CONSTRUCTION OF OPENINGS AND PENETRATING ITEMS TO ENSURE THAT PENETRATION FIRESTOPPING IS INSTALLED ACCORDING TO SPECIFIED REQUIREMENTS.

COORDINATE SIZING OF SLEEVES, OPENINGS, CORE-DRILLED HOLES, OR CUT OPENINGS TO ACCOMMODATE PENETRATION FIRESTOPPING.

0. INSTALL PENETRATION FIRESTOPPING TO COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND PUBLISHED DRAWINGS FOR PRODUCTS

1. INSTALL FORMING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE FIRE RATINGS INDICATED.

12. IDENTIFY PENETRATION FIRESTOPPING WITH PREPRINTED METAL OR PLASTIC

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230100 - BASIC MECHANICAL REQUIREMENTS ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS AND PROCEDURES

COORDINATE THE LOCATION OF ALL NEW ROOF OPENINGS AND THE LOCATION OF ALL NEW AND RELOCATED ROOF MOUNTED EQUIPMENT WITH THE EXISTING STRUCTURE AND ARCHITECTURAL PLANS PRIOR TO ANY INSTALLATION.

V-BELT DRIVES SHALL BE OF FABRIC AND RUBBER CONSTRUCTION. BELT GUARDS SHALL BE PROVIDED FOR ALL EXPOSED BELTS AND DRIVES.

PROVIDE 6" CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED

PROPERLY LUBRICATE ALL PIECES OF EQUIPMENT BEFORE TURNING THE SYSTEM OVER TO THE OWNER.

INSTALL DUCT MOUNTED SUPPLY AND RETURN AIR SMOKE DETECTORS IN ALL ROOFTOP, FAN-COIL, AIR-HANDLING, AND OTHER SUPPLY AIR SYSTEMS, WITH A CAPACITY GREATER THAN 2000 CFM. SMOKE DETECTORS ARE PURCHASED AND

230548 - VIBRATION ISOLATION AND SEISMIC BRACING

ALL MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING MUST BE VIBRATION ISOLATED AND SEISMICALLY BRACED FOR THE SITE SPECIFIC SEISMIC DESIGN CATEGORY AND SEISMIC USE GROUP, IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE IBC, UBC, ASHRAE, AND SMACNA. PROVIDE SEISMIC PRODUCTS BY AMBER-BOOTH OR MASON INDUSTRIES.

IN GENERAL, PROVIDE SPRING MOUNTS TO ATTENUATE LOW FREQUENCY SOUND AND VIBRATION AND NEOPRENE PADS TO ATTENUATE HIGH FREQUENCY SOUND AND VIBRATION. SEISMIC BRACING/MOUNTING CAN BE COMBINED WITH VIBRATION ISOLATION AS APPLICABLE.

CONTRACTOR MANUFACTURED SEISMIC BRACING/RESTRAINT METHODS ARE NOT ACCEPTABLE. PROVIDE A SIGNED AND STAMPED LETTER FROM A PROFESSIONAL ENGINEER CERTIFYING THAT THE SUPPLIED PRODUCTS ARE CORRECT FOR THE APPLICATION AND THAT THE INSTALLATION IS IN COMPLIANCE WITH ALL APPLICABLE

230553 - MECHANICAL IDENTIFICATION

WIRED BY THE DIVISION 16 CONTRACTOR.

PLASTIC TAPE: PROVIDE MANUFACTURER'S STANDARD COLOR-CODED PRESSURE SENSITIVE (SELF ADHESIVE) VINYL TAPE, NOT LESS THAN 3 MILS THICK. 1-1/2" WIDE TAPE MARKERS ON PIPES WITH OUTSIDE DIAMETERS LESS THAN 6" (INCLUDING INSULATION, IF ANY); 2-1/2" WIDE TAPE FOR LARGER PIPES.

PROVIDE MANUFACTURER'S STANDARD LAMINATED PLASTIC; COLOR CODED DUCT MARKERS.

COLOR: COMPLY WITH ANSI A13.1

MANUFACTURER'S STANDARD PRE-PRINTED NOMENCLATURE WHICH BEST DESCRIBES PIPING OR DUCT SYSTEM IN EACH INSTANCE OR AS SELECTED BY ARCHITECT OR ENGINEER IN CASES OF VARIANCE WITH NAMES AS SHOWN.

PRINT EACH MARKER WITH ARROWS INDICATING DIRECTION OF FLOW

PROVIDE PLASTIC LAMINATE VALVE TAGS: MANUFACTURER'S STANDARD 3/32" THICK ENGRAVED TAGS WITH PIPING SYSTEM ABBREVIATION IN 1/4" HIGH LETTERS AND SEQUENCED VALVE NUMBERS 1/2" HIGH, WITH 5/32" HOLE FOR FASTENER. PROVIDE 1-1/2" SQUARE BLACK TAGS WITH WHITE LETTERING.

PROVIDE MANUFACTURER'S STANDARD SOLID BRASS CHAIN (WIRE LINK OR BEADED TYPE), OR SOLID BRASS S-HOOKS OF THE SIZED REQUIRED FOR PROPER ATTACHMENT OF TAGS TO VALVES, AND MANUFACTURED SPECIFICALLY FOR THAT

230700 - MECHANICAL INSULATION PIPE INSULATION TO BE SNAP-ON GLASS FIBER TYPE WITH VAPOR JACKET. SEAL ALL ENDS AND JOINTS TO PROVIDE A COMPLETELY SEALED SYSTEM. ALTERNATIVELY, USE FLEXIBLE UNICELLULAR ASTM 534 TYPE 1 INSULATION.

WRAP ALL SUPPLY AND RETURN DUCTWORK WITH 1-1/2" THICK FOIL FACED

OUTDOOR DUCTWORK EXPOSED TO THE WEATHER SHALL HAVE 2" INSULATION AND SHALL BE FITTED WITH 0.016 EMBOSSED ALUMINUM JACKET POP-RIVITED FOR A

TIGHT WEATHERPROOF FIT.

SEE 233113 FOR LINED RECTANGULAR DUCTWORK

USE 1" THICKNESS FOR PIPE UP TO 2"Ø, AND 1 1/2" FOR PIPE OVER 2"Ø

FIBERGLASS INSULATION. WRAP INSULATION TIGHTLY ON THE DUCT WITH ALL CIRCUMFERENTIAL JOINTS BUTTED AND LONGITUDINAL JOINTS OVERLAPPED

A MIN. OF 2". COVER ALL JOINTS WITH FOIL-REINFORCED 'KRAFT' TAPE, 3" WIDE. NO RETURN AIR DUCT INSULATION IS REQUIRED IF THE RETURN AIR AND PLENUM TEMPERATURE DIFFERENCE IS LESS THAN 10°F

FLEXIBLE DUCTWORK: THE FINAL 5 FOOT CONNECTION TO GRILLES AND DIFFUSERS IN LAY-IN CEILINGS, OR TO FLOOR MOUNTED GRILLES, MAY BE MADE WITH FLEXIBLE DUCT, FLEXMASTER

MOUNTING ANGLES, SHALL BE MULTI-BLADE, FUSIBLE LINK, SPRING ACTING WITH 11

DUCT MOUNTED BALANCING DAMPERS SHALL BE USED TO CONTROL SUPPLY AIR TO EACH DIFFUSER AND GRILLE. AN OPERATING HEAD SHALL BE PLACED ON THE SIDE OF THE DUCT WITH A POSITIVE LOCKING QUADRANT. DAMPERS SHALL BE PROVIDED IN RETURN AND EXHAUST AIR DUCTS WHERE SHOWN ON DRAWINGS. COORDINATE THE LOCATION OF CEILING ACCESS PANELS.

WITH SCREWDRIVER LATCHES. AT FIRE DAMPERS, A DUCT MOUNTED SHEET METAL HINGED DOOR SHALL BE PROVIDED AND INSTALLED WITH POSITIVE LOCKING HANDLE. WHERE DUCTS ARE

TYPE 5M ONLY. ENDS SHALL BE SEALED.

PROVIDE FLEXIBLE CONNECTIONS NOT LESS THAN 4" WIDE CONSTRUCTED OF HEAVY, WATERPROOF, WOVEN PLASTIC COATED GLASS FABRIC AT SUPPLY AND RETURN CONNECTIONS TO FURNACES, AIR HANDLING, ROOFTOP, MAKE-UP AIR OR

GRAVITY OR BACKDRAFT DAMPERS SHALL BE ALL ALUMINUM CONSTRUCTION, INTERCONNECTED AND BLADED, PRESSURE DROP THROUGH DAMPERS SHALL NOT

ADMINISTRATIVE AUTHORITY AND STATE FIRE MARSHALL

20 OUNCE VENTFABRICS OR EQUAL COMBINATION FIRE AND SMOKE DAMPERS OR FIRE DAMPERS IN DUCTWORK OF BUILDING AND SHALL BEAR THE U.L. LABEL. DAMPERS, COMPLETE WITH

GAUGE SLEEVE. FUSIBLE LINK SHALL BE RATED AT 165°F.

PROVIDE CEILING ACCESS DOORS AT ALL LOCATIONS OF BALANCING DAMPERS.

INSULATED, COVERS SHALL BE INSULATED.

EXCEED 0.04 INCH W.G.

SQUARE/RECTANGULAR ELBOWS SHALL BE PROVIDED WITH TURNING VANES.

FIRE DAMPERS, FIRE/SMOKE DAMPERS, VALVES, ETC., WHERE THERE IS NOT A LIFT OUT TYPE CEILING. ACCESS DOORS SHALL BE HINGED OF METAL CONSTRUCTION

233300 - DUCTWORK ACCESSORIES

CHASE IPIC", OR APPROVED EQUAL.

FAN-COIL UNITS. CORNERS SHALL BE SEWN TIGHT. CONNECTIONS SHALL BE THROUGH ALL FLOORS AND FIRE WALLS SHALL BE FURNISHED AND INSTALLED AS REQUIRED TO CONFORM TO THE LATEST NFPA BULLETIN CONCERNING THIS TYPE

THE MINIMUM REQUIRMENT FOR TESTING, ADJUSTING, AND BALANCING (TAB) OF THE HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) DISTRIBUTION SYSTEMS

TESTING. ADJUSTING AND BALANCING NOTES:

OUTSIDE AIR SYSTEM AND ALL ASSOCIATED EQUIPMENT.

WITH THE AABC OR NEBB TEST PROCEDURES.

TESTING, ADJUSTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH THESE NOTES AND SPECIFICATIONS. THE MECHANICAL SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED,

CONTRACTOR PERFORMING TESTING, ADJUSTING AND BALANCING WORK SHALL BE EITHER AABC OR NEBB CERTIFIED.

TESTING, ADJUSTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE

INCLUDING SUPPLY AIR SYSTEM, RETURN AIR SYSTEM, EXHAUST AIR SYSTEM

TESTING, ADJUSTING AND BALANCING REPORT FORMS SHALL BE STANDARD FORMS FROM EITHER AABC OR NEBB. CONTRACTOR SHALL VERIFY QUANTITIES AND LOCATIONS OF ALL BALANCING A. CONSTRUCT EXHAUST DUCT OF WELDED 16 GAGE CARBON STEEL SHEETS FOR DEVICES. CONTRACTOR SHALL VERIFY THAT THESE BALANCING DEVICES ARE

ACCESSIBLE AN APPROPRIATE FOR BALANCING AND FOR EFFICIENT SYSTEM AND EQUIPMENT OPERATION PRIOR TO COMMENCING WORK.

MECHANICAL AIR AND WATER SYSTEMS SHALL BE ADJUSTED TO WITHIN THE FOLLOWING TOLERANCES: PLUS 5 TO PLUS 10 PERCENT SUPPLY: RETURN: PLUS 5 TO PLUS 10 PERCENT **EXHAUST FANS:** PLUS 5 TO PLUS 10 PERCENT PLUS 5 TO PLUS 10 PERCENT **EQUIPMENT WITH FANS:** ZERO TO MINUS 10 PERCENT AIR OUTLETS AND INLETS:

DOMESTIC HW FLOW RATES: ZERO TO MINUS 10 PERCENT

10. FINAL BALANCE REPORT SHALL INCLUDE THE FOLLOWING: TEST CONDITIONS FOR FANS SYSTEM DIAGRAMS AIR CONDITIONING UNIT TEST REPORTS FAN TEST REPORTS

AIR TERMINAL DEVICE REPORTS

AND WINTER CONDITIONS.

AND OWNER, CONTRACTOR SHALL REQUEST THAT A FINAL INSPECTION BE MADE BY THE DESIGN ENGINEER. DURING THE FINAL INSPECTION, DESIGN ENGINEER MAY RANDOMLY SELECT MEASUREMENTS DOCUMENTS IN THE FINAL REPORT TO BE RECHECKED BY THE CONTRACTOR. APPROXIMATELY 90 DAYS AFTER SUBMISSION OF THE FINAL BALANCING REPORT,

. AFTER THE FINAL BALANCING REPORT IS SUBMITTED TO THE DESIGN ENGINEER

TO VERIFY THAT BALANCED CONDITIONS ARE BEING MAINTAINED THROUGHOUT EACH SYSTEM AND TO CORRECT UNUSUAL CONDITIONS. 13. ADDITIONAL TESTING, ADJUSTING AND BALANCING SHALL BE MADE AS DIRECTED BY THE DESIGN ENGINEER TO CORRECT UNUSUAL CONDITIONS. ADDITIONAL TESTING

CONTRACTOR SHALL PERFORM ADDITIONAL TESTING, ADJUSTING AND BALANCING

WILL NOT EXCEED THREE (3) DAYS DURING THE FIRST SIX MONTHS OF OPERATION.

PERFORMED DURING NEAR-PEAK SUMMER AND WINTER CONDITIONS, PERFORM

ADDITIONAL TESTING ADJUSTING AND BALANCING DURING NEAR-PEAK SUMMER

4. IF INITIAL TESTING, ADJUSTING AND BALANCING PROCEDURES WERE NOT

PPROVAL SENT TO THE PROJECT FILE. ANY DEVIATION FROM THESE DRAWINGS WILL.

ENGAGED TO PERFORM.

SUBSTITUTIONS

LOCATION IS INTENDED.

SIMILAR OPERATIONS."

NOT BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ANY SUBSTITUTIONS AND COSTS OF CHANGES INCURRED BY OTHER TRADES DUE TO HE SUBSTITUTIONS. OTHER TRADES INCLUDE: ELECTRICAL, PLUMBING, STRUCTURAL, ROOFING, OR ANY TRADE EFFECTED BY THE SUBSTITUTION. **GUARANTEE**

WORKMANSHIP FROM DEFECT OF WORKMANSHIP, AND SHALL REPLACE OR REPAIR

WORKMANSHIP, FOR A PERIOD OF (1) YEAR AFTER COMPLETION AND ACCEPTANCE.

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THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND

WITHOUT ADDITIONAL COST TO THE OWNER ALL DEFECTIVE MATERIAL AND

FIRE RATED ASSEMBLY.

ANOTHER, WITH THE SUBSTRATES FORMING OPENINGS, AND WITH PENETRATING

AND APPLICATIONS INDICATED.

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8906 North Central Ave Phoenix, AZ 85020

Marlene Imirzian & Associates Architects

480-621-3444 www.spectrum-engineers.com Project No. 230064

SDEV#

KEVIN M.

KOSOR

EXPIRES 06/30/24

Designed By:

SDK

Drawn By:

SDK

Checked By:

Date:

KMK

04/19/23

75101

CoP

PHXV

C

FFIC

KOSOR

Designed By:

SDK

SDK

Checked By:

KMK

04/19/23

Drawn By:

OF

	•	SINGL	E DUC	CT VA	V BOX	SCHE	DULE		
SYMBOL	MANUFACTURER	MODEL NO.	DESIGN AIRFLOW CFM	MINIMUM CFM	INLET DUCT RUNOUT SIZE TO UNIT	MAX NOISE CRITERIA	ELEC. REHEAT KW	V/PH/HZ	COMMENTS
(E)VAV-5-1	TITUS	ESV-3000	2,100	850	16	20	-	-	1
(E)VAV-5-1A	TITUS	ESV-3000	310	75	6	19	-	-	1
(E)VAV-6-1	TITUS	ESV-3000	1,540	745	14	20	-	-	1
(E)VAV-6-1A	TITUS	ESV-3000	200	75	5	17	-	-	1
(E)VAV-6-3	TITUS	ESV-3000	1,540	745	14	20	-	-	1
(E)VAV-6-4	TITUS	ESV-3000	1,540	745	14	20	-	-	1
VAV-6-8	TRANE	VCCF-08	800	165	8	20	-	-	1
VAV-6-9	TRANE	VCEF-06	340	60	6	20	3.5	277/1/60	1
VAV-6-10	TRANE	VCEF-06	340	60	6	20	3.5	277/1/60	1

			R	EGIST	ER - GRILLE	E- DIFFU	SER SCI	HEDU	JLE		
ACCEPTAB	LE MANUFACTURERS:	REMARKS:									
KRUEGER TUTTLE & I TITUS PRICE	BAILEY	(2) NC VALUES AF	RE BASED ON OC	TAVE BAND SO	N ACCORDANCE WITH ANSI/AS UND POWER LEVELS MINUS A I OWNER AND ARCHITECT.		OF 10 dB, RE 10(-12)	WATTS.			
LABEL	TYPE	MAX AIR FLOW (CFM)	FACE SIZE	NECK SIZE	BLOW PATTERN	PD (IN-WG)	THROW(S) (FT)	MAX NC	MANUFACTURER	MODEL	REMARKS
(E)CD	SQUARE CONE DIFFUSER	415	24" X 24"	8" Ø	4-WAY	0.146	5-7-11	30			
(E)CD	SQUARE CONE DIFFUSER	545	24" X 24"	10" Ø	4-WAY	0.122	5-8-12	30			
(E)CD	SQUARE CONE DIFFUSER	1105	24" X 24"	16" Ø	4-WAY	0.144	8-12-17	30			
(E)RG	LOUVERED RETURN GRILLE	1750	24" X 24"	SEE PLANS	N/A	0.100	N/A	30			
CD-1	SQUARE PLAQUE DIFFUSER	350	24" X 24"	8" Ø	4-WAY	0.115	4-6-10	30	PRICE INDUSTRIES	SPD	1-3
RG-1	LOUVERED RETURN GRILLE	1750	24" X 24"	SEE PLANS	N/A	0.100	N/A	30	PRICE INDUSTRIES	535	1-3

RADIUS "R" SHALL

BE EQUAL TO OR

SHORT RADIUS ELBOW WITH TWO VANES

2. ALL STANDARD RADIUS ELBOWS SHOWN ON PLANS MAY BE MADE SHORT RADIUS

CONSTRUCTED, SUPPORTED AND FASTENED

ELBOWS. ALL SHORT RADIUS ELBOWS

SHALL HAVE VANES. VANES SHALL BE

W2 = W1

W2 = W1

− W2 = W1

REQUIRED BY IMC.

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.

GREATER THAN 1/6 W.

RADIUS "R" SHALL BE EQUAL TO OR

RADIUS "R" SHALL

BE EQUAL TO OR

GREATER THAN W.

OFFSET TYPE 1: ANGLED

OFFSET TYPE 2: MITERED

OFFSET TYPE 3: RADIUSSED

OF THE 3 OFFSET TYPES ABOVE.

R (MIN.) = 3W / 2

SHOWN SHALL APPLY.

L (MIN.) = X / 0.5

L (MIN.) = X / 0.26

DUCT ELBOW - ROUND **6**

SHORT RADIUS ELBOW WITH ONE VANE

STANDARD RADIUS ELBOW

GREATER THAN 1/3 W.

			K	EGI3 I	CK - GKILLE	- DIFFU	SEK SCI		JLE		
ACCEPTAB	BLE MANUFACTURERS:	REMARKS:									
KRUEGER TUTTLE & I TITUS PRICE		(2) NC VALUES AF	RE BASED ON OC	TAVE BAND SO	N ACCORDANCE WITH ANSI/AS UND POWER LEVELS MINUS A I OWNER AND ARCHITECT.		OF 10 dB, RE 10(-12)	WATTS.			
		MAX AIR FLOW		NECK		PD	THROW(S)	MAX			
LABEL	TYPE	(CFM)	FACE SIZE	SIZE	BLOW PATTERN	(IN-WG)	(FT)	NC	MANUFACTURER	MODEL	REMARKS
(E)CD	SQUARE CONE DIFFUSER	415	24" X 24"	8" Ø	4-WAY	0.146	5-7-11	30			
(E)CD	SQUARE CONE DIFFUSER	545	24" X 24"	10" Ø	4-WAY	0.122	5-8-12	30			
(E)CD	SQUARE CONE DIFFUSER	1105	24" X 24"	16" Ø	4-WAY	0.144	8-12-17	30			
(E)RG	LOUVERED RETURN GRILLE	1750	24" X 24"	SEE PLANS	N/A	0.100	N/A	30			
CD-1	SQUARE PLAQUE DIFFUSER	350	24" X 24"	8" Ø	4-WAY	0.115	4-6-10	30	PRICE INDUSTRIES	SPD	1-3
RG-1	LOUVERED RETURN GRILLE	1750	24" X 24"	SEE PLANS	N/A	0.100	N/A	30	PRICE INDUSTRIES	535	1-3

1. ACCEPTABLE MAUFACTURERS: TRANE, TITUS, PRICE, YORK, CARRIER, OR PRIOR APPROVED EQUAL.



ECCENTRIC TRANSITION:

 $L (MIN.) = (W2-W1)/0.58 FOR 30^{\circ}$ L (MIN.) = W2-W1 FOR 45°

EXCEPT 45° IS PERMITTED AT ROUND TO

NOTE: UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN

DUCT TRANSITIONS 8

MAX. 30° ANGLE

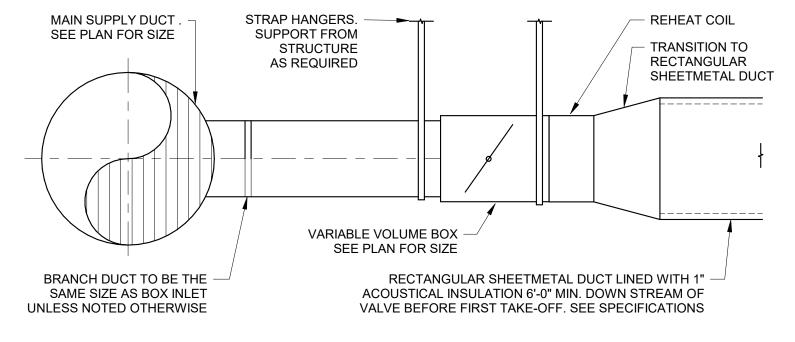
FLAT OVAL

CONVERGING CONCENTRIC

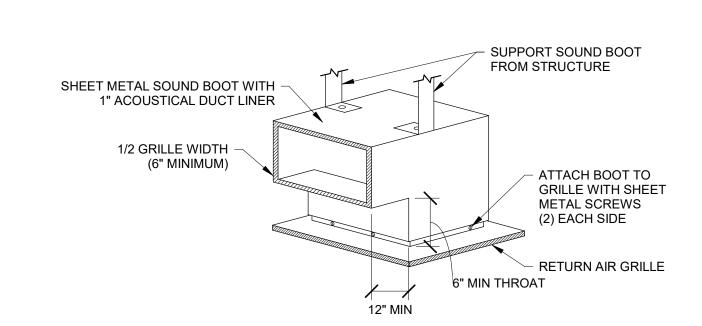
TRANSITION:

 X° = 60° MAX.

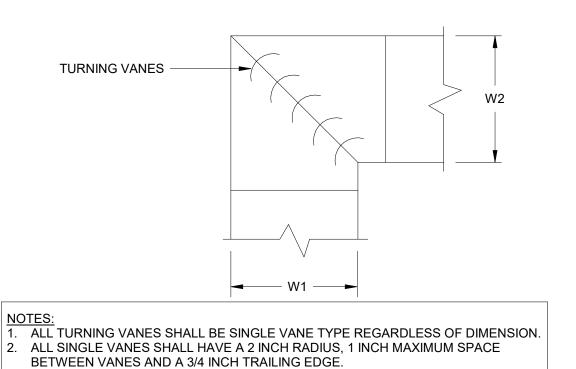
L(MIN) = (W



VAV BOX DETAIL
Scale: 1/8" = 1'-0"

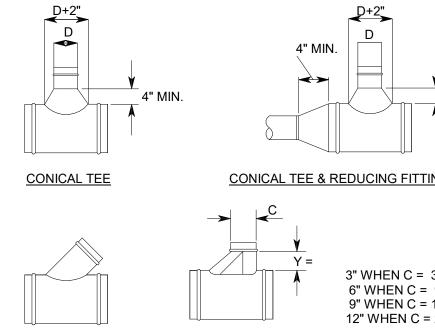


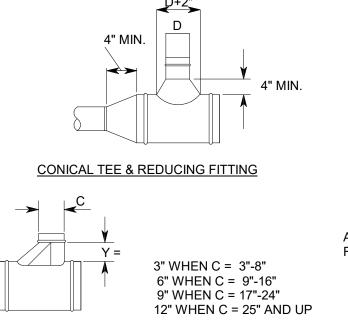
RETURN AIR GRILLE WITH SOUND BOOT 10









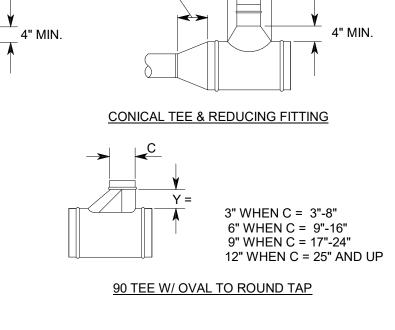


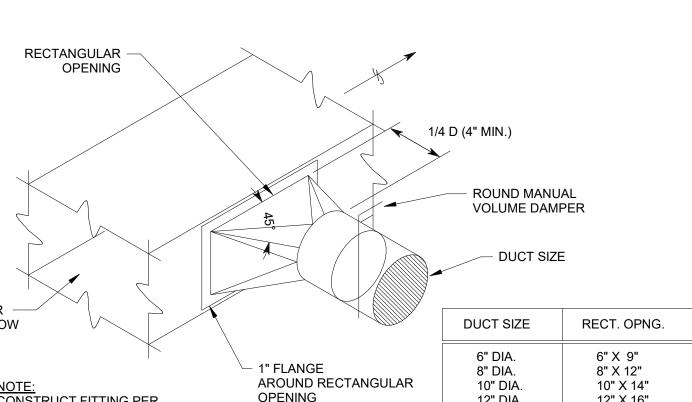
DIVERGING CONCENTRIC

L (MIN.) = (W2 - W1) / 2

TRANSITION:

 $X^{\circ} = 45^{\circ} MAX$.





1. UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES

2. ALL OFFSETS SHOWN ON DRAWINGS MADE BE MADE WITH ANY

DUCT OFFSETS

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

FLOW NOTE: CONSTRUCT FITTING PER OPENING 12" DIA. 12" X 16" SMACNA HVAC DUCT 14" DIA. 14" X 18" CONSTRUCTION STANDARDS METAL AND FLEXIBLE FIGURE 2-6.

DUCT HANGER - RECTANGULAR

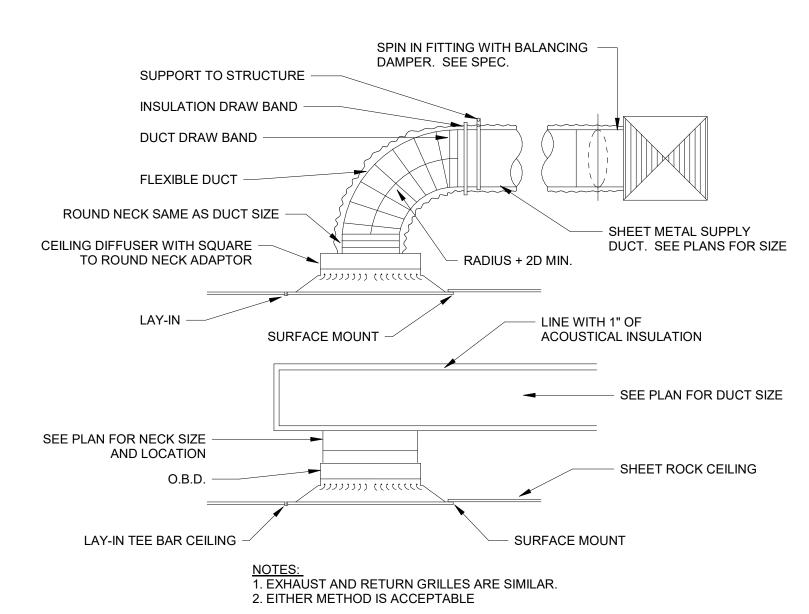
RESTRAINED

- 60" MAX. -

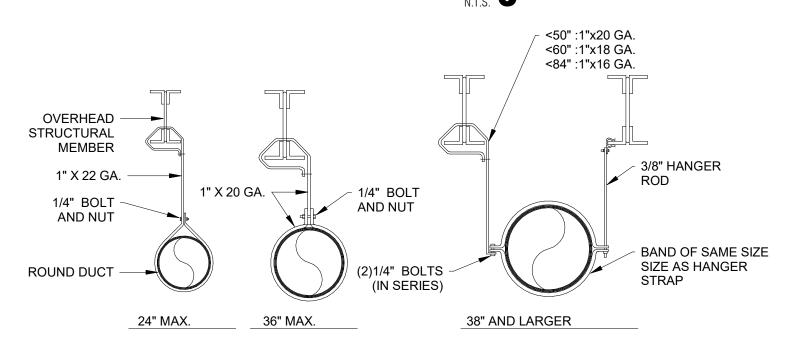
DUCT

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CEILING DIFFUSER DETAIL W/DUCTING 2



DUCT HANGER - ROUND **7** Scale: 1/8" = 1'-0"

OVERHEAD STRUCTURAL

MEMBER



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KIVA# SDEV# Sheet

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DUCT ELBOW - SQUARE

DUCT ROUND TAKE-OFF 7 Scale: 1/8" = 1'-0"

45° WYE TEE

DUCT HIGH EFFICIENCY TAKE-OFF ANT.S. 4

3/8" DIA.

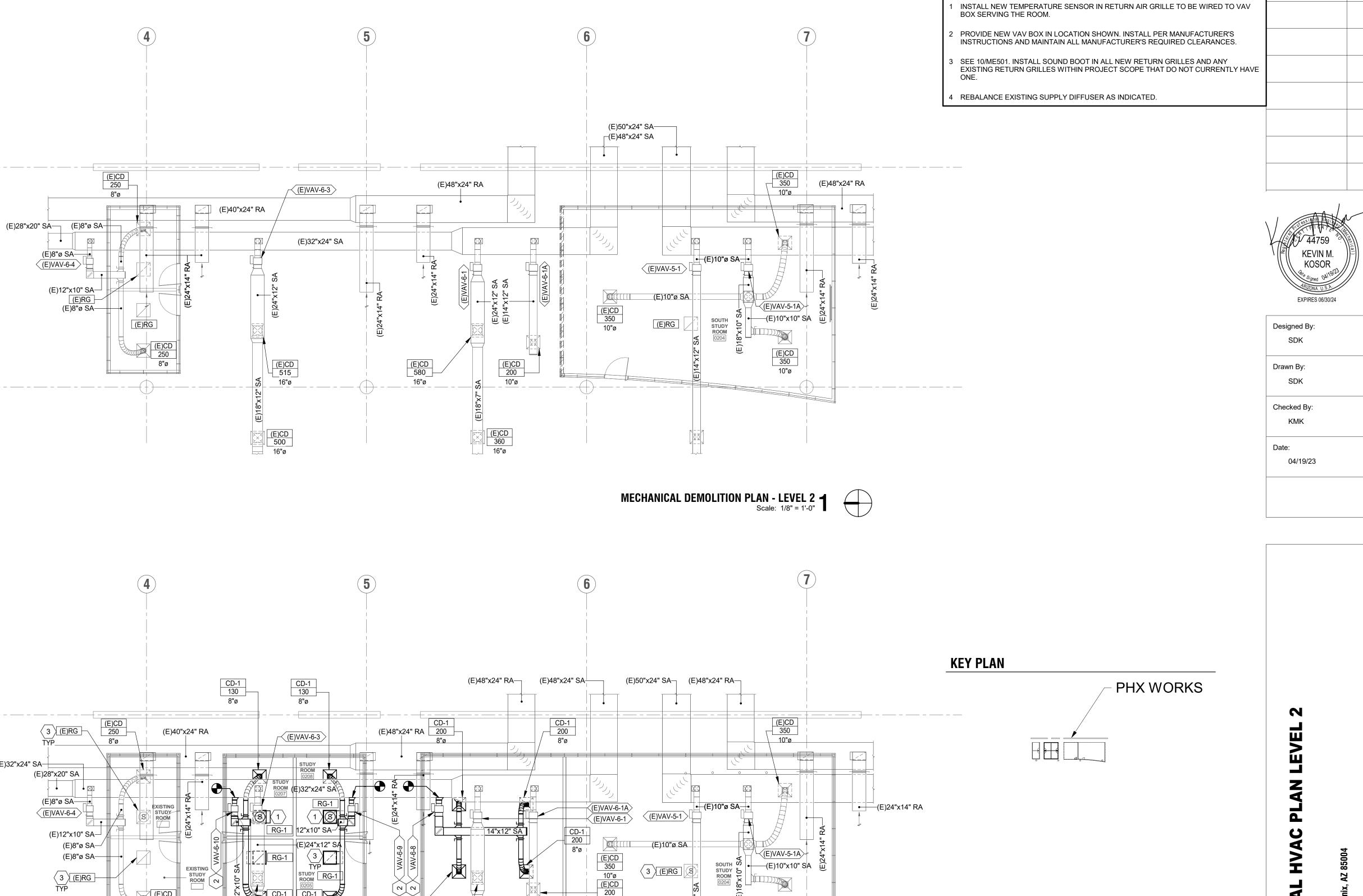
BOLT AND NUT

#10 SHEET METAL

SCREW. 6" O.C.

(TYPICAL)

1" MIN.



(E)32"x24" SA

8"ø | 8"ø

MECHANICAL HVAC PLAN - LEVEL 2 Scale: 1/8" = 1'-0"

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SPECTRUM ENGINEERS 1501 W. Fountainhead Parkway, Suite 330 Tempe, AZ 85282 800-678-7077 480-621-3444 www.spectrum-engineers.com

Project No. 230064

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○ SHEET KEYNOTES

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DIGITAL LIGHTING DIMMING CONTROLLER

SCHEDULE / DIAGRAM.

LIGHTING SPACE CONTROL TYPE. X INDICATES TYPE. SEE

WIRING DEVICES PT# FIRE ALARM FACP OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A DETECTOR, SMOKE DETECTOR, SMOKE, WALL MOUNTED. DETECTOR, SMOKE WITH STROBE SMOKE DAMPER. 120V POWER FROM ELECTRICAL SYSTEM. ∟ sd COMBINATION FIRE/SMOKE DAMPER. 120V POWER FROM ELECTRICAL SYSTEM. DETECTOR, CARBON MONOXIDE. SPEAKER, WALL MOUNTED, EVACUATION, COMBINATION STROBE. SUBSCRIPT INDICATES CANDELLA RATING. ALARM, HORN/STROBE, ONE ASSEMBLY, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING. ALARM, HORN, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING. SPEAKER/STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING. SPEAKER, CEILING MOUNTED. ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING. **ELECTRICAL SHEET INDEX** EE0.01 SHEET INDEX. ABBREVIATIONS. AND GENERAL NOTES EE0.02 ELECTRICAL SPECIFICATIONS EE7.01 TYPICAL MOUNTING DETAILS EE7.02 TYPICAL DETAILS EE8.00 LEVEL 2 OVERALL PLAN EP1.02 LEVEL 2 ELECTRICAL PLAN EP6.01 ONE-LINE DIAGRAM - NORMAL EP6.02 ELECTRICAL SCHEDULES EP6.03 PANEL SCHEDULES EL1.02 LEVEL 2 LIGHTING PLAN EL6.01 LIGHTING FIXTURE SCHEDULES

SYMBOLS LEGEND SYMBOL DESCRIPTION 1WAY RECEPTACLE, SINGLE: NEMA 5-20R. 2WAY RECEPTACLE, DUPLEX: NEMA 5-20R 3/C THREE-CONDUCTOR 3WAY THREE-WAY 40UT QUADRUPLE RECEPTACLE RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5-20R. 4PDT FOUR-POLE DOUBLE THROW RECEPTACLE, DUPLEX, CEILING: NEMA 5-20R. RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT 4WAY FOUR-WAY INTERRUPTER: NEMA 5-20R. RECEPTACLE, DUPLEX, SWITCHED, RECESSED: NEMA 5-20R. ADA RECEPTACLE, QUADRAPLEX: NEMA 5-20R. ADJ AFF RECEPTACLE, QUADRAPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R. AFG AIC FLUSH FLOOR BOX. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL ALUM ALUMINUM SPECIFICATIONS FOR CONFIGURATION AND DEVICES. AMP ANN FLUSH FIRE RATED POKE THRU. "#" SHOWN ON DRAWINGS REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL AR SPECIFICATIONS FOR CONFIGURATION AND DEVICES. ASC ATS SWITCH, DIMMER. SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED). AWG XFMR RECEPTACLE, SINGLE PLEX, WITH USB OUTLET BFG FIRE ALARM ANNUNCIATOR PANEL CATY COMMUNITY ANTENNA FIRE ALARM CONTROL PANEL, SEMI-RECESSED. CCBA FIRE ALARM TERMINAL CABINET: NAC, SLC, SPEAKER CIRCUITS; AMPLIFIERS, BATTERIES CCTV CLOSED CIRCUIT TELEVISION CF/CI CONTRACTOR FURNISHED/ CONTROL MODULE. CF/OI CONTRACTOR FURNISHED/ MONITOR MODULE CFBA CUSTOM FINISH AS SELECT SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCUIT

ABBREVIATIONS NOTE: ALL ABBR

FIBER PATCH PANEL

FVR FULL VOLTAGE REVERSING

GROUND FAULT INTERRUPTER

GROUND FAULT PROTECTION

HIGH INTENSITY DISCHARGE

HAND-OFF-AUTOMATIC

HIGH POWER FACTOR

HIGH PRESSURE SODIUM

NON-REVERSING

FVNR FULL VOLTAGE

GENERATOR

GIGA HERTZ

HEAVY DUTY

HORSE POWER

HIGH VOLTAGE

MANAGEMENT

INPUT/ OUTPUT

ISOLATED GROUND

INTERMEDIATE METAL

HERTZ

CONDUIT

INFRARED

KILOVOLT

J-BOX JUNCTION BOX

IN/IS INSULATED/ ISOLATED

KILOVOLT AMPERE

HORIZONTAL WIRE

GROUND

GFCI

GIG

GND

HD

HID

HOA

HWM

I/O

IMC

	ADDITE		10110
	NOTE: ALL ABBREVIAT	IONS MA	Y NOT BE USED.
1P	SINGLE POLE		
1PH	SINGLE-PHASE	L) (A D	KILOVOLT AMPERE REACTIVE
1WAY	ONE-WAY	kVAR kW	KILOVOLT AMPERE REACTIVE KILOWATT
2/C	TWO-CONDUCTOR	kWh	KILOWATT HOUR
2WAY	TWO-WAY	LED	LIGHT EMITTING DIODE
3/C 3WAY	THREE-CONDUCTOR THREE-WAY	LFMC	LIQUID TIGHT FLEXIBLE METAL
40UT	QUADRUPLE RECEPTACLE	LENC	CONDUIT
	OUTLET	LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
4PDT	FOUR-POLE DOUBLE THROW	LPS	LOW PRESSURE SODIUM
4PST	FOUR-POLE SINGLE THROW	LRA	LOCKED ROTOR AMPS
4W 4WAY	FOUR-WIRE FOUR-WAY	LTG	LIGHTING
A	ABOVE COUNTER	LV MATV	LOW VOLTAGE MASTER ANTENNA TELEVISION
AC	ARMORED CABLE	IVIAIV	SYSTEM
ADA	AMERICANS WITH DISABILITIES	MAX	MAXIMUM
ADJ	ACT ADJACENT	MC	METAL CLAD
AFF	ABOVE FINISHED FLOOR	MCA MCB	MINIMUM CIRCUIT AMPS MAIN CIRCUIT BREAKER
AFG	ABOVE FINISHED GRADE	MCC	MOTOR CONTROL CENTER
AIC	AMPERE INTERRUPTING	MCP	MOTOR CIRCUIT PROTECTION
ALUM	CAPACITY ALUMINUM	MDP	MAIN DISTRIBUTION PANEL
ALOW	AMPERE	MG	MOTOR GENERATOR
ANN	ANNUNCIATOR	MH	MANHOLE
AP	ACCESS POINT (WIRELESS	MIN MLO	MINIMUM MAIN LUGS ONLY
	DATA)	MOCP	MAXIMUM OVERCURRENT
AR ASC	AS REQUIRED AMPS SHORT CIRCUIT		PROTECTION
ATS	AUTOMATIC TRANSFER	MTS	MANUAL TRANSFER SWITCH
	SWITCH	NA NC	NOT APPLICABLE NORMALLY CLOSED
AV	AUDIO VISUAL	NEC	NATIONAL ELECTRICAL CODE
AWG BB	AMERICAN WIRE GAGE BUCK-BOOST TRANSFORMER	NEMA	NATIONAL ELECTRICAL
XFMR	BOCK-BOOST TRANSFORMER		MANUFACTURERS ASSOCIATION
BFF	BELOW FINISHED FLOOR	NFC	NATIONAL FIRE CODE
BFG	BELOW FINISHED GRADE	NFPA	NATIONAL FIRE PROTECTION
C CAT	CEILING MOUNTED CATEGORY		ASSOCIATION
CATV	COMMUNITY ANTENNA	NIC	NOT IN CONTRACT
	TELEVISION	NL NO	NIGHT LIGHT NORMALLY OPEN
CB	CIRCUIT BREAKER	NTS	NOT TO SCALE
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT	ОС	ON CENTER
CCTV	CLOSED CIRCUIT TELEVISION	OCP OE	OVER CURRENT PROTECTION OWNER ELECTRONICS
CF/CI	CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED	OF/CI	OWNER FURNISHED/
CF/OI	CONTRACTOR FURNISHED/		CONTRACTOR INSTALLED
	OWNER INSTALLED	OF/OI	OWNER FURNISHED/ OWNER INSTALLED
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT	OFP	OBTAIN FROM PLANS
CKT	CIRCUIT	OH DR	OVERHEAD (COILING) DOOR
СМ	CONSTRUCTION MANAGER	OL	OVERLOAD
CND	CONDUIT	PB PF	PUSHBUTTON POWER FACTOR
CO	CONVENIENCE OUTLET	PH PH	PHASE
COR	CONTRACTING OFFICER'S REPRESENTATIVE	PNL	PANEL
CP	CONTROL PANEL	PNM	PLENUM
CT	CURRENT TRANSFORMER	PR	PAIR
CTV	CABLE TELEVISION	PS PT	POWER SUPPLY
CU dBA	COPPER UNIT OF SOUND LEVEL	PTZ	POTENTIAL TRANSFORMER PAN/TILT/ZOOM
DPDT	DOUBLE POLE, DOUBLE	QTY	QUANTITY
	THROW	R	REMOVE
DS	DISCONNECT SWITCH	RCP	REFLECTED CEILING PLAN
E EA	ENHANCED FACH	RMC RNC	RIGID METAL CONDUIT RIGID NONMETAL CONDUIT
I EM	EMERGENCY	RPM	REVOLUTIONS PER MINUTE
EMT	ELECTRICAL METALLIC TUBING	RPP	RISER PATCH PANEL
ENT	ELECTRIC NONMETALLIC	RR	REMOVE AND RELOCATE
EPO	TUBING EMERGENCY POWER OFF	S/S	START/STOP
EQUIP	EQUIPMENT	SCA	SHORT CIRCUIT AMPS STANDARD COLOR AS
ER ER	EQUIPMENT ROOM	SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
EX	EXISTING	SF	SQUARE FOOT (FEET)
F	FURNITURE MOUNTED	SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
FA FCP	FIRE ALARM FIRE ALARM CONTROL PANEL	SPD	SURGE PROTECTIVE DEVICE
FLA	FULL LOAD AMPS	SPDT	SINGLE POLE, DOUBLE THROW
FMC	FLEXIBLE METAL CONDUIT	SPEC	SPECIFICATION
FOB	FREIGHT ON BOARD	SPP	STATION PATCH PANEL

SPST SINGLE POLE, SINGLE THROW

ST SINGLE THROW

SWBD SWITCHBOARD

TWIST LOCK

TELEPHONE POLE

TELECOMMMUNICATIONS

TTB TELEPHONE TERMINAL BOARD

TVSS TRANSIENT VOLTAGE SURGE

UPS UNINTERRUPTIBLE POWER

VFC/VF VARIABLE FREQUENCY MOTOR

VWM VERTICAL WIRE MANAGEMENT

TWISTED PAIR

SUPPRESSER

SWGR SWITCHGEAR

TV TELEVISION

UF UNDERFLOOR

UGND UNDERGROUND

SUPPLY

CONTROLLER

WP WEATHERPROOF

XFMR TRANSFORMER

WPP WIRELESS PATCH PANEL

VA VOLT AMPERE

TYP TYPICAL

V VOLTS

W/ WITH

W/O WITHOUT

TP

GENERAL ELECTRICAL NOTES

CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS. CONFLICTS. DELETIONS. DISCONTINUED PRODUCTS. CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT. ETC. SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.

- THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
 - THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
 - C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE.THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.
- EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
- SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT. BOUND. BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.
- REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.
- ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS. IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY

NICHOLAS KNAUS Expires: 03/31/26

Designed By: NAK

Drawn By: HAN

Revisions

Checked By:

Date: 04/19/23

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC..

SPECTRUM ENGINEERS 1501 W. Fountainhead Parkway, Suite 330 Tempe, AZ 85282 800-678-7077 480-621-3444 www.spectrum-engineers.com

Project No. 230064

KIVA# SDEV#

> Sheet 16 OF 50

Marlene Imirzian & Associates Architects

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Per City of Phoenix City Code Chapter 2, section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of your contract with the City of Phoenix.

260500 - COMMON WORK RESULTS FOR ELECTRICAL

• ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) HANDBOOK - 9TH

• INTERNATIONAL BUILDING CODE (IBC – 2018 EDITION) • INTERNATIONAL FIRE CODE (IFC - 2012 EDITION)

NFPA 70 – NATIONAL ELECTRIC CODE (2017 EDITION) • NFPA 72 – NATIONAL FIRE ALARM CODE

ADOPTED CODES LISTED HERE:

LOAD ANALYSIS TO BE PERFORMED TO DETERMINE ADEQUACY OF DISTRIBUTION EQUIPMENT AND FEEDERS.

3. BLUE STAKE REQUIRED FOR ALL UNDERGROUND EXCAVATION.

. "PROVIDE" MEANS FURNISH, INSTALL, CONNECT AND TEST UNLESS OTHERWISE

. CONTRACTOR SHALL PROVIDE COORDINATION DRAWINGS PRIOR TO START OF

i. ALL SPECIFIED EQUIPMENT SHALL BE RATED FOR THE ALTITUDE OF THE PROJECT A. PHONEIX, 1,086 FEET

. ALL EQUIPMENT AND MATERIALS SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED LABORATORY (NRTL):

A. ALL EQUIPMENT SHALL BE NEW AND CONTAIN THE MANUFACTURER'S NAME, MODEL NUMBER AND ELECTRICAL CHARACTERISTICS. ALL EQUIPMENT SHALL BE "UL" LISTED FOR IT'S INTENDED USE AND/OR APPROVED BY THE AUTHORITY

:. ALL GROUND MOUNTED EQUIPMENT SHALL BE PROVIDED WITH A MINIMUM 4" HIGH CONCRETE HOUSEKEEPING PAD.

SLEEVES AND SEAL

CONCRETE SLABS AND WALLS: INSTALL SLEEVES FOR PENETRATIONS UNLESS CORE- DRILLED HOLES OR FORMED OPENINGS ARE USED. INSTALL SLEEVES DURING ERECTION OF SLABS AND WALLS.

USE PIPE SLEEVES UNLESS PENETRATION ARRANGEMENT REQUIRES RECTANGULAR SLEEVED OPENING.

3. CONDUIT SEALS: INSTALL SEALS FOR CONDUIT PENETRATIONS OF SLABS ON GRADE AND EXTERIOR WALLS BELOW GRADE AND WHERE INDICATED.

. APPLY FIRESTOPPING TO PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES FOR ELECTRICAL INSTALLATIONS TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY.

i. FIRE-RATED-ASSEMBLY PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT RACEWAY AND CABLE PENETRATIONS. INSTALL SLEEVES AND SEAL RACEWAY AND CABLE PENETRATION SLEEVES WITH FIRESTOP MATERIALS. COMPLY WITH REQUIREMENTS IN DIVISION 07 SECTION "PENETRATION FIRESTOPPING."

: INTERIOR PENETRATIONS OF NON-FIRE-RATED WALLS AND FLOORS: SEAL ANNULAR SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE, USING JOINT SEALANT APPROPRIATE FOR SIZE, DEPTH, AND LOCATION OF JOINT. COMPLY WITH REQUIREMENTS IN DIVISION 07 SECTION "JOINT SEALANTS."

ABOVEGROUND, EXTERIOR-WALL PENETRATIONS: SEAL PENETRATIONS USING STEEL PIPE SLEEVES AND MECHANICAL SLEEVE SEALS. SELECT SLEEVE SIZE TO ALLOW FOR 1-INCH (25-MM) ANNULAR CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS.

STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40. GALVANIZED STEEL, PLAIN ENDS.

9. UNDERGROUND, EXTERIOR-WALL PENETRATIONS: INSTALL CAST-IRON PIPE SLEEVES. SIZE SLEEVES TO ALLOW FOR 1-INCH (25-MM) ANNULAR CLEAR SPACE BETWEEN RACEWAY OR CABLE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS. INSTALL WATER-TIGHT ASSEMBLY. SLOPE UNDERGROUND CONDUITS AWAY FROM BUILDING TO PREVENT ACCUMULATED WATER FROM TRAVELING DOWN CONDUIT INTO BUILDING.

10. CAST-IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE." EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE. WITH PLAIN ENDS AND INTEGRAL WATERSTOP. **UNLESS OTHERWISE INDICATED**

11. SLEEVES FOR RECTANGULAR OPENINGS: GALVANIZED SHEET STEEL. A MINIMUM METAL THICKNESS:

1. FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER LESS THAN 50 INCHES (1270 MM) AND NO SIDE MORE THAN 16 INCHES (400 MM), THICKNESS SHALL BE 0.052 INCH (1.3 MM)

2. FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER EQUAL TO, OR MORE THAN, 50 INCHES (1270 MM) AND 1 OR MORE SIDES EQUAL TO, OR THAN, 16 INCHES (400 MM), THICKNESS SHALL BE 0.138 INCH (3.5 MM).

12. SLEEVES: INSTALL IN CONCRETE SLABS AND WALLS AND ALL OTHER FIRE- RATED FLOORS AND WALLS FOR RACEWAYS AND CABLE INSTALLATIONS.

13.CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES OF WALLS.

14.EXTEND SLEEVES INSTALLED IN FLOORS 2 INCHES (50 MM) ABOVE FINISHED FLOOR

15.SIZE PIPE SLEEVES TO PROVIDE 1/4-INCH (6.4-MM) ANNULAR CLEAR SPACE BETWEEN

16. SLEAVE SEALS: MODULAR. WATER TIGHT SEALING DEVICE. DESIGNED FOR FIELD ASSEMBLY, TO FILL ANNULAR SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE.

A. ACCEPTABLE MANUFACTURERS: 1. ADVANCE PRODUCTS & SYSTEMS, INC.

2. CALPICO, INC.

3. METRAFLEX CO.

4. O-Z GEDNEY 5. PIPELINE SEAL AND INSULATOR, INC.

B. SEALING ELEMENTS: EPDM INTERLOCKING LINKS SHAPED TO FIT SURFACE OF CABLE OR CONDUIT. INCLUDE TYPE AND NUMBER REQUIRED FOR MATERIAL AND SIZE OF RACEWAY OR CABLE.

C. PRESSURE PLATES: CARBON STEEL. INCLUDE TWO FOR EACH SEALING

SLEEVE AND RACEWAY OR CABLE, UNLESS INDICATED OTHERWISE.

FLEMENT D. CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING OF LENGTH REQUIRED TO SECURE PRESSURE PLATES TO SEALING ELEMENTS. INCLUDE ONE FOR EACH SEALING ELEMENT.

17.GROUT: NONMETALLIC, SHRINKAGE-RESISTANT GROUT: ASTM C 1107, FACTORY-PACKAGED, NONMETALLIC AGGREGATE GROUT, NONCORROSIVE, NONSTAINING. MIXED WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATION AND A 30- MINUTE WORKING TIME.

260502 - ELECTRICAL DEMOLITION

. BEGINNING OF DEMOLITION MEANS CONTRACTOR ACCEPTS EXISTING CONDITIONS . DISCONNECT AND REMOVE ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL IN THEIR ENTIRETY. CONDUIT LOCATED IN

PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION.

CONCRETE SHALL BE CUT FLUSH, CAPPED, AND SEALED. LABEL AS "ABANDONED."

. EXISTING ELECTRICAL SERVICES: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ONLY TO MAKE SWITCH OVERS AND CONNECTIONS.

5. OBTAIN PERMISSION FROM THE OWNER'S REPRESENTATIVE AT LEAST 72 HOURS

BEFORE PARTIALLY OR COMPLETELY DISABLING ANY SYSTEM. b. PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE

CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT DIRECTORY

SHOWING REVISED CIRCUITING ARRANGEMENT. LUMINARIES: REMOVE EXISTING LUMINARIES FOR CLEANING, AS INDICATED ON DRAWINGS. USE MILD DETERGENT TO CLEAN ALL EXTERIOR AND INTERIOR SURFACES; RINSE WITH CLEAN WATER AND WIPE DRY. REPLACE LAMPS, BALLASTS

B. MATERIALS AND EQUIPMENT TO BE SALVAGED: REMOVE, DEMOUNT, AND DISCONNECT EXISTING ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED, AND DELIVER MATERIALS AND EQUIPMENT TO THE LOCATION DESIGNATED FOR STORAGE. COORDINATE WITH OWNER FOR SALVAGEABLE MATERIAL.

. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. ANY DAMAGE TO BUILDING, PIPING OR EQUIPMENT SHALL BE REPAIRED BY SKILLED MECHANICS OF THE TRADES INVOLVED AT NO ADDITIONAL COST TO THE OWNER.

REMOVAL AND REPLACEMENT OF CEILING TILE(S) TO PERFORM WORK OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY CEILING TILES OR FRAMEWORK THAT MAY BECOME DAMAGED AT NO COST TO THE OWNER.

260519 - LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600V AND LESS)

ACCEPTABLE MANUFACTURERS:

AND BROKEN ELECTRICAL PARTS.

A. ALCAN PRODUCTS CORPORATION; ALCAN CABLE DIVISION. B. ALPHA WIRE.

C. BELDEN INC. D. ENCORE WIRE CORPORATION.

 GENERAL CABLE TECHNOLOGIES CORPORATION. SOUTHWIRE INCORPORATED

MINIMUM #12 AWG WIRE.

NEUTRAL IS NOT ALLOWED.

. MAXIMUM 500KCMIL WIRE.

ALL CONDUCTORS SHALL BE COPPER AND SOLID FOR #12 AWG AND STRANDED FOR #10 AWG AND LARGER.

CONDUCTOR INSULATION: A. BRANCH CIRCUITS AND CONTROL CIRUITS: THHN - THWN-2. B. FEEDERS: THHN - THWN-2 AND XHHW-2.

C. SERVICE ENTRANCE: XHHW-2. . NO MORE THAN THREE CIRCUITS IN A RACEWAY, UNLESS SPECIFICALLY SHOWN OTHERWISE. PROVIDE ONE NEUTRAL FOR EACH PHASE CONDUCTOR, SHARED

PROVIDE THE FOLLOWING MINIMUM SIZES FOR DISTANCES LISTED ON 20A BRANCH CIRCUITS TO PREVENT EXCESSIVE VOLTAGE DROP. THE CIRCUIT LENGTH SHALL BE MEASURED ALONG THE LENGTH OF THE CONDUCTOR FORM THE CIRCUIT BREAKER IN THE PANELBOARD TO THE LAST DEVICE ON THE CIRCUIT. INCREASE RACEWAY SIZE TO COMPLY WITH CONDUCTOR FILL REQUIREMENTS OF NFPA 70. A. REFER TO BRANCH CIRCUIT CONDUCTOR AND CONDUIT SIZING TABLE IN

B. ALL FEEDERS WILL BE LOADED TO APPROXIMATELY 80% OF CONNECTED LOAD PER NEC, SO UP TO 20% ADDITIONAL CAPACITY WILL BE AVAILABLE.

260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

. ACCEPTABLE MANUFACTURERS:

A. BURNDY; PART OF HUBBELL ELECTRICAL SYSTEMS. B. ERICO INTERNATIONAL CORPORATION.

C. HARGER LIGHTNING AND GROUNDING.

DRAWING IN PANEL SCHEDULE SHEETS.

D. ILSCO. E. O-Z/GEDNEY: A BRAND OF THE EGS ELECTRICAL GROUP.

F. SIEMENS POWER TRANSMISSION & DISTRIBUTION, INC. . CONDUCTORS SHALL BE COPPER.

PROVIDE GROUND BUS IN ALL ELECTRICAL AND TELECOM ROOMS. PROVIDE PREDRILLED RECTANGULAR BARS OF ANNEALED COPPER, 1/4 BY 4 INCHES IN CROSS SECTION, WITH 9/32-INCH HOLES SPACED 1-1/8 INCHES APART. STAND-OFF INSULATORS FOR MOUNTING SHALL COMPLY WITH UL 891 FOR USE IN SWITCHBOARDS, 600 V AND SHALL BE LEXAN OR PVC, IMPULSE TESTED AT 5000 V.

GROUND RODS: COPPER-CLAD; 3/4 INCH BY 10 FEET.

. SOLID CONDUCTOR FOR #8 AWG AND SMALLER; STRANED FOR #6 AWG AND LARGEF

6. ALL METALLIC RACEWAYS SHALL BE PROPERLY GROUNDED AND BONDED. RACEWAYS USED FOR SINGLE OR MULTIPLE BRANCH CIRCUITS SHALL INCLUDE A CODE SIZED GREEN INSULATED GROUND CONDUCTOR.

INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDERS AND BRANCH CIRCUITS.

GROUND ELECTRICAL SYSTEM AND EQUIPEMNT IN ACCORDANCE WITH NEC ARTICLE

9. CONNECTORS TO BE LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. TIGHTEN GROUNDING AND BONDING CONNECTORS AND TERMINALS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES OR UL 486A.

B. COOPER B-LINE, INC.; A DIVISION OF COOPER INDUSTRIES. C. ERICO INTERNATIONAL CORPORATION. D. THOMAS & BETTS CORPORATION.

260529 - HANGERS AND SUPPORTS FOR ELECTRICAL

ACCEPTABLE MANUFACTURERS: A. ALLIED TUBE & CONDUIT.

E. UNISTRUT: TYCO INTERNATIONAL. LTD. 2. CONDUIT AND CABLE SUPPORT DEVICES: STEEL HANGERS, CLAMPS, AND ASSOCIATED FITTINGS, DESIGNED FOR TYPES AND SIZES OF RACEWAY OR CABLE TO BE SUPPORTED ELECTRICAL METALLIC TUBING (EMT) IN WALLS, CONCEALED.

3. SUPPORT FOR CONDUCTORS IN VERTICAL CONDUIT: FACTORY-FABRICATED ASSEMBLY CONSISTING OF THREADED BODY AND INSULATING WEDGING PLUG OR PLUGS FOR NON-ARMORED ELECTRICAL CONDUCTORS OR CABLES IN RISER CONDUITS.

. STRUCTURAL STEEL FOR FABRICATED SUPPORTS AND RESTRAINTS: ASTM A 36/A 36M, STEEL PLATES, SHAPES, AND BARS; BLACK AND GALVANIZED. 5. CONCRETE INSERTS: STEEL OR MALLEABLE-IRON, SLOTTED SUPPORT SYSTEM

6. THROUGH BOLTS: STRUCTURAL TYPE, HEX HEAD, AND HIGH STRENGTH.

. TOGGLE BOLTS: ALL-STEEL SPRINGHEAD TYPE. 8. HANGER RODS: THREADED STEEL

9. SUPPORT PARALLEL RUNS OF HORIZONTAL RACEWAYS TOGETHER ON TRAPEZE-TYPE HANGERS.

. SUPPORT INDIVIDUAL HORIZONTAL RACEWAYS BY SEPARATE PIPE HANGERS

I. SUPPORT EXPOSED AND CONCEALED RACEWAY WITHIN 1 FOOT OF AN UNSUPPORTED BOX AND ACCESS FITTINGS. 12.SPACING FOR RACEWAY SUPPORTS: UP TO 1" CONDUIT, MAXIMUM 7 FEET. 1" AND

13.SEE SECTION 260500 FOR PNETRATIONS, SLEEVES, AND SEALS.

260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS ACCEPTABLE MANUFACTURERS

A. AFC CABLE SYSTEMS, INC. B. ALLIED TUBE & CONDUIT. C. ANAMET ELECTRICAL, INC

LARGER - MAXIMUM 10 FEET.

D. ELECTRI-FLEX COMPANY. E. O-Z/GEDNEY. F. PICOMA INDUSTRIES G. REPUBLIC CONDUIT

H. ROBROY INDUSTRIES.

SOUTHWIRE COMPANY . THOMAS & BETTS CORPORATION. K. WESTERN TUBE AND CONDUIT CORPORATION.

WHEATLAND TUBE COMPANY.

. OUTDOOR CONDUIT (MINIMUM SIZE 3/4" TRADE SIZE): A. EXPOSED CONDUIT: RIGID GALVANIZED STEEL CONDUIT B. CONCEALED CONDUIT, ABOVEGROUND: RIGID GALVANIZED STEEL CONDUIT C. UNDERGROUND CONDUIT: RIGID NON-METALLIC CONDUIT, TYPE EPC-40-PVC.

1. ROVIDE WRAPPED RIGID STEEL CONDUIT WHEN PENETRATING THOUGH

FOUNDATION WALLS, BENDS ARE GREATER THAN 22 DEGREES. STUB-UPS OR WHERE UNDERGROUND CONDUITS OTHERWISE BECOME EXPOSED.

D. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): LIQUID TIGHT METALLIC CONDUIT. E. BOXES AND ENCLOSURES, ABOVEGROUND: NEMA 250, TYPE 3R.

INDOOR CONDUIT (MINIMUM SIZE 3/4" TRADE SIZE): A. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: ELECTRICAL METALLIC TUBING. B. EXPOSED, NOT SUBJECT TO SEVERE PHYSICAL DAMAGE: ELECTRICAL METALLIC

D. CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS. ELECTRICAL METALLIC TUBING. E. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND

C. EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE: GALVANIZED RIGID STEEL

HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC. EXCEPT USE LEMC IN DAMP OR WET LOCATIONS F. DAMP OR WET LOCATIONS: RIGID GALVANIZED STEEL CONDUIT. G. BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4 STAINLESS STEEL IN INSTITUTIONAL AND COMMERCIAL KITCHENS AND DAMP OR

I. ELECTRICAL METALLIC TUBING (EMT) IN WALLS, CONCEALED

. PROVIDE PULLWIRE IN ALL EMPTY CONDUIT.

WET LOCATIONS.

INSTALLATION.

S. UNDERGROUND 90 DEGREE ELBOWS 2-INCH TRADE SIZE OR LARGER, USE PLASTIC COATED OR TAPE WRAPPED INTERMEDIATE METAL OR RIGID STEEL CONDUIT. COMPLY WITH NEC FOR GROUNDING.

KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES, INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING.

. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE FINISHED SLAB.

9. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR CONTROL WIRING CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED. SUPPORT WITHIN 12 INCHES OF CHANGES IN DIRECTION.

10. SUPPORT CONDUIT WITHIN 12 INCHES OF ENCLOSURES TO WHICH ATTACHED. 11. AT EXPANSION JOINTS, USE EXPANSION FITTINGS THAT PROVIDE EXPANSION AND CONTRACTION.

12. NO FLEX LONGER THAN SIX FEET WILL BE PERMITTED.

4. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB (90-KG) TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES (300 MM) OF SLACK AT EACH END OF PULL

13. COMPLETE RACEWAY INSTALLATION BEFORE STARTING CONDUCTOR

15. CONDUITS INSTALLED WITH WRINKLES OR KINKS OR OTHERWISE IN AN UNPROFESSIONAL MANNER SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

16. ALL DEVICES BACKBOXES SHALL BE MINIMUM 4" X 4" X 2 1/8", UNLESS OTHERWISE SPECIFIED. ALL BOXES SHALL BE SECURELY FASTENED. ALL BOXES SHALL BE RECESSE/FLUSHED TO WALL, BOXES TO BE GALVANIZED STEEL. COVERPLATES TO MATCH WALL FINISH, UNLESS OTHERWISE SPECIFIED. DEVICES THAT ARE SURFACED MOUNTED SHALL BE OF SAME FINISH OF WALL. SURFACE RACEWAY SHALL BE USED INSTEAD SURFACE CONDUIT, RACEWAY FINISH TO MATCH THAT OF WALL AND SECURED TO WALL, RACEWAY TO COMPLY WITH NEC FILLINGS.

17. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING FOR BOX IN CENTER OF CELL OF MASONRY BLOCK, AND INSTALL BOX FLUSH WITH SURFACE OF WALL.

18.BOXES IN STUD WALLS: DO NOT INSTALL BOXES BACK TO BACK IN STUD WALLS. ALLOW ONE STUD SEPARATION OR 24" MINIMUM. WHERE THIS IS NOT POSSIBLE. THEN PROVIDE BOXES WITH UL-LISTED FIRE RATED AND SOUND RATED WRAPPING.

TYPE 1, FOR OUTDOOR TYPE 3R.

19.BOXES AND ENCLOUSURES TO BE SIZED PER NEC. FOR INDOOR APPLICATIONS

20.SEE SECTION 260500 FOR PENETRATIONS, SLEEVES, AND SEALS. 8906 North Central Ave Phoenix. AZ 85020

260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS . ALL EQUIPMENT SHALL BE LABELED WITH EQUIPMENT NAME, SOURCE OF POWER AND CIRCUIT DESIGNATION.

. PROVIDE ENGRAVED LEGENDS FOR EQUIPMENT: A. NORMAL POWER – WHITE LETTERS ON BLACK FACE, UNLESS NOTED OTHERWISE ON DRAWINGS.

B. EMERGENCY POWER – WHITE LETTERS ON RED FACE, UNLESS NOTED OTHERWISE ON DRAWINGS.

C. UPS POWER – WHITE LETTERS ON BLUE FACE, UNLESS NOTED OTHERWISE ON DRAWINGS.

. PROVIDE: COLOR-CODING FOR PHASE AND VOLTAGE LEVEL IDENTIFICATION, 600 V

OR LESS: USE COLORS LISTED BELOW FOR UNGROUNDED FEEDER AND BRANCH-CIRCUIT CONDUCTORS:

A. COLOR SHALL BE FACTORY APPLIED.

B. COLORS FOR 208/120-V CIRCUITS:

 PHASE A: BLACK. 2. PHASE B: RED.

4. NEUTRAL: WHITE C. COLORS FOR 240-V CIRCUITS: PHASE A: BLACK.

3. PHASE C: BLUE

2. PHASE B: ORANGE

"POWER", "UPS".

2. PHASE B: RED. D. COLORS FOR 480/277-V CIRCUITS: PHASE A: BROWN.

3. PHASE C: YELLOW 4. NEUTRAL: GRAY E. COLOR FOR EQUIPMENT GROUNDS: GREEN.

COLORS FOR ISOLATED GROUNDS: GREEN WITH WHITE STRIPE.

BANDS. LOCATE AT CHANGES IN DIRECTION, AT PENETRATIONS OF WALLS AND FLOORS AND AT 25-FOOT MAXIMUM INTERVALS. . IDENTIFY THE COVERS OF EACH JUNCTION AND PULL BOX OF THE FOLLOWING SYSTEMS WITH SELF-ADHESIVES LABELS CONTAINING THE WIRING SYSTEM LEGEND

AND SYSTEM VOLTAGE AND CIRCUIT IDENTIFICATION. "EMERGENCY POWER",

PROVIDE COLOR BANDING ON RACEWAYS WITH SNAP-AROUND COLOR-CODING

. PROVIDE WARNING TAPE FOR ALL UNDERGROUND LINES.

WORKSPACE IDENTIFICATION: PROVIDE FLOOR MARKING TAPE TO FINISHED SURFACES. SHOW WORKING CLEARANCES IN THE DIRECTION OF ACCESS TO LIVE

. PROVIDE WARNING LABELS FOR INDOOR CABINETS, BOXES, AND ENCLOSURES FOR

PROVIDE ARC-FLASH WARNING LABELS.

262726 - WIRING DEVICES

POWER AND LIGHTING.

ACCEPTABLE MANUFACTURERS: A. COOPER WIRING DEVICES; DIVISION OF COOPER INDUSTRIES, INC. (COOPER). B. HUBBELL INCORPORATED; WIRING DEVICE-KELLEMS (HUBBELL).

C. LEVITON MFG. COMPANY INC. (LEVITON). D. PASS & SEYMOUR/LEGRAND (PASS & SÉYMOUR).

NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596.

. CONVENIENCE RECEPTACLES SHALL BE: 125 V, 20 A: COMPLY WITH NEMA WD 1,

ISOLATED-GROUND, DUPLEX CONVENIENCE RECEPTACLES, 125 V, 20 A: COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596.

TAMPER-RESISTANT CONVENIENCE RECEPTACLES, 125 V, 20 A: COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498 SUPPLEMENT SD, AND FS W-C-596.

1. N/A

REQUIREMENTS.

8. WALL PLATES SHALL MATCH THE DEVICE COLOR

6. TOGGLE SWITCHES SHALL BE QUIT TUMBLER TYPE.

DEVICE COLOR: NORMAL POWER DEVICES AND PLATES SHALL BE WHITE. EMERGENCY POWER SHALL BE RED, UPS POWER SHALL BE BLUE.

 GROUND PIN OF VERTICALLY MOUNTED RECEPTACLES SHALL BE DOWN, AND ON HORIZONTALLY MOUNTED RECEPTACLES TO THE RIGHT.

2. IDENTIFY EACH RECEPTACLE WITH PANELBOARD IDENTIFICATION AND CIRCUIT NUMBER. USE HOT, STAMPED, OR ENGRAVED MACHINE PRINTING WITH BLACK-FILLED LETTERING ON FACE OF PLATE, AND DURABLE WIRE MARKERS OR TAGS INSIDE OUTLET BOXES.

13. ALL RECEPTACLE OUTLET BOXES WILL BE 4"X4"X2 1/8" WITH VERTICAL SINGLE-

FINISH FLOOR TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA)

14. THE MOUNTING HEIGHT FOR CONVENIENCE RECEPTACLES WILL BE 18" ABOVE THE

602 943 5279 v

GANG DEVICE MOUNTING RING AND DUPLEX 20 AMP GROUNDING TYPE.

METERING STUDY

GUARANTEE THE ELECTRICAL INSTALLATION AGAINST ALL DEFECTS IN MATERIALS, EQUIPMENT AND WORKMANSHIP, FOR (2) YEAR AFTER THE DATE OF ACCEPTANCE OF THE WORK. DEFECTS SHALL BE PROMPTLY REMEDIED TO THE SATISFACTION OF THE OWNER AT NO COST TO THE OWNER. ALL EQUIPMENT AND PRODUCTS SHALL CARRY A MINIMUM (2) YEAR WARRANTY FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER.

GUARANTEE

ANY PANELBOARD OR SWITCHBOARD THAT IS CALLED FOR TO HAVE A METERING STUDY, STUDY SHOULD CONFORM WITH NEC 220.87 (1) EXCEPTION. METER SHOULD CONTINUOUSLY RECORD LOAD DEMAND OVER A MINIMUM 30-DAY PERIOD. METER SHOULD RECORD DEMAND LOAD ON ALL PHASES OF PANEL OR SWITCHBOARD. ALL METERING RESULT SHOULD BE REPORT TO ENGINEER OF RECORD.

SAFETY

THE ENGINEER HAS NOT BEEN RETAINED OR COMPENSATED TO PROVIDE CONSTRUCTION REVIEW RELATED TO THE CONTRACTOR'S SAFETY PRECAUTIONS OR TO MEANS, METHODS, SEQUENCES, OR PROCEDURES REQUIRED FOR THE CONTRACTOR TO COMPLETE THE WORK.

SUBMITTALS

ALL EQUIPMENT SHALL BE NEW AND CONTAIN THE MANUFACTURER'S NAME, MODEL NUMBER AND ELECTRICAL CHARACTERISTICS. ALL EQUIPMENT SHALL BE UL AND OR NRTL (NATIONALLY RECOGNIZED TESTING LABORATORIES) LISTED FOR IT'S INTENDED USE AND/OR APPROVED BY THE AUTHORITY HAVING JURISDICTION.

DEVICES, RACEWAYS AND BOXES, SURFACE RACEWAYS, HANGER AND SUPPORTS. LIGHTING FIXTURES, LIGHTING CONTROLS, DISCONNECTS, FUSED-DISCONECTS, FUSES AND BREAKERS, TELEPHONE/DATA STRUCTURED CABLING SYSTEMS, FIRE ALARM SYSTEMS, ACCESS CONTROLS SYSTEM, INTRUSION DETECTION SYSTEM, AND LIGHTNING PROTECTION SYSTEMS.

SUBMITTALS SHALL INCLUDE ALL ELECTRICAL MATERIAL PROVIDED AS IT RELATED TO

THIS PROJECT AND SHALL SPECIFICALLY INCLUDE BUT IS NOT LIMITED TO: WIRING

SUBSTITUTIONS

SUBSTITUTIONS OF MATERIALS OR PRODUCTS SHOWN HEREIN SHALL BE AT THE OWNER'S, ARCHITECTS, OR ENGINEER'S WRITTEN APPROVAL ONLY WITH COPIES OF APPROVAL SENT TO THE PROJECT FILE. ANY DEVIATION FROM THESE DRAWINGS WILL NOT BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ANY SUBSTITUTIONS AND COSTS OF CHANGES INCURRED BY OTHER TRADES DUE TO THE SUBSTITUTIONS. OTHER TRADES INCLUDE: ELECTRICAL, PLUMBING, STRUCTURAL, ROOFING, OR ANY TRADE EFFECTED BY THE SUBSTITUTION.

NICHOLAS

Designed By: NAK

SPECTRUM 1501 W. Fountainhead Parkway, Suite 330 Tempe, AZ 85282 800-678-7077 480-621-3444 www.spectrum-engineers.com

SDEV#

KIVA#

17 OF 50

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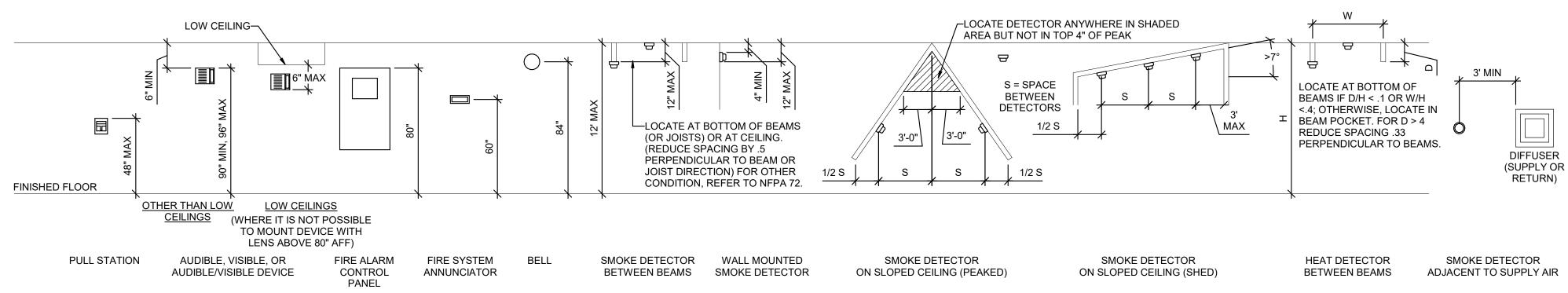
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Project No. 230064

∠MOUNT DUPLEX DO NOT LOCATE— WALL-OUTLET BEHIND ABOVE SINK WATER COOLER **MIRROR** IN TILE -COORDINATE LOCATION OF DUPLEX OUTLET WITH EQUIPMENT SUPPLIER REGULAR TILE WALLS DRINKING FOUNTAIN - SIDE ELEVATIONS

RECEPTACLE MOUNTING DETAILS A



—COMMUNICATIONS

-COUNTER TOP

RECEPTACLES BELOW COUNTER

-GROMMET

COMMUNICATIONS

DUPLEX RECEPTACLE

-COMMUNICATIONS RECEPTACLE

/-DUPLEX

RECEPTACLE

RECEPTACLES ABOVE OR BELOW COUNTER

REFER TO ARCHITECTURAL ELEVATIONS

FOR PLACEMENT OF OUTLETS

COUNTER TOP

—DUPLEX RECEPTACLE

—COMMUNICATIONS

RECEPTACLE

RECEPTACLE

RECEPTACLE

—DUPLEX RECEPTACLE

COUNTER TOP-

WINDOW

WITHOUT BACKSPLASH WITH BACKSPLASH

RECEPTACLES ABOVE COUNTER

DUPLEX-

WALL BRACKET TV

COMMUNICATIONS-

GENERAL USE:

NO SPECIAL

REQUIREMENTS

RECEPTACLE

WALL BRACKET TV

DEDICATED

RECEPTACLE

FOR SPECIAL

EQUIPMENT

DEDICATED

RECEPTACLE FOR SPECIAL

EQUIPMENT

RECEPTACLE

FINISHED FLOOR

FINISHED FLOOR

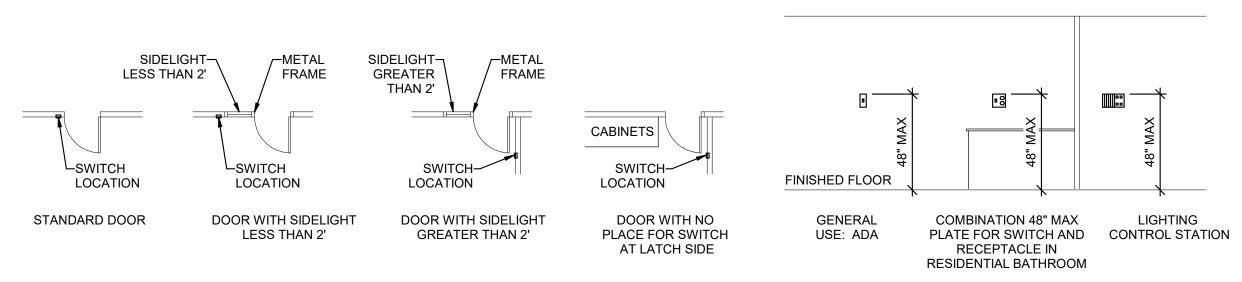
WALL PHONE PAY PHONE

GENERAL USE:

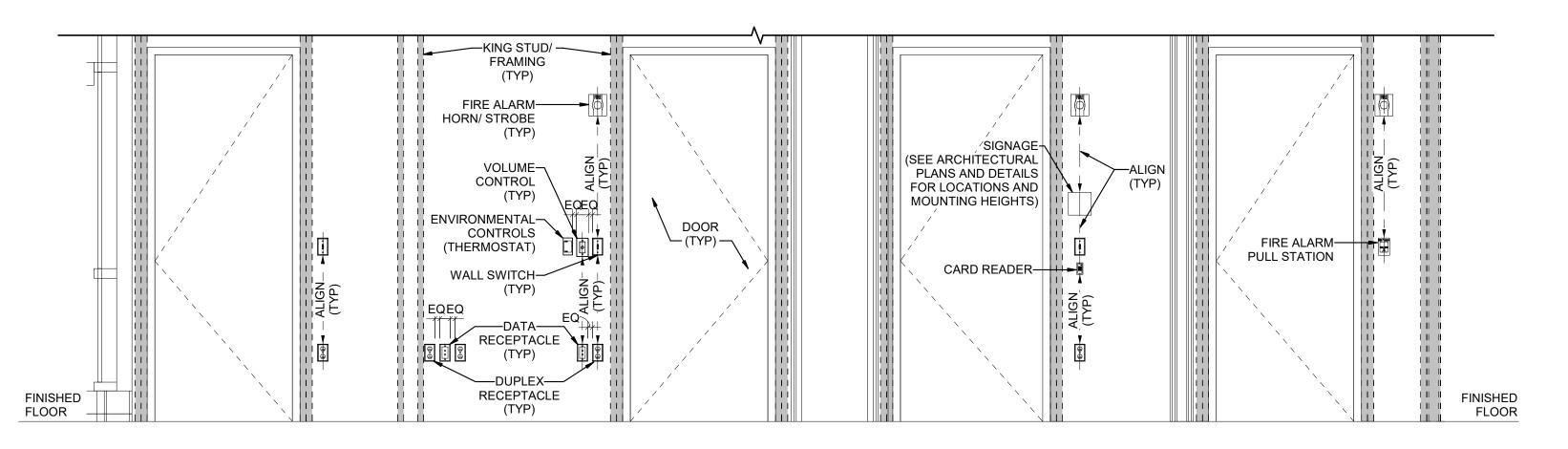
NO SPECIAL REQUIREMENTS

BACKSPLASH-

FIRE ALARM MOUNTING DETAILS



COMMUNICATIONS MOUNTING DETAILS 2



WINDOW

ABOVE

COUNTER - TYPICAL

TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL

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FOLLOWING ORDER OF PRIORITY: A - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC). B - EQUIPMENT SHOP DRAWINGS. C - FIELD INSTRUCTIONS. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND

Revisions

NICHOLAS KNAUS

Expires: 03/31/26

Designed By: NAK

Drawn By:

HAN

Checked By:

Date:

NAK

04/19/23

MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.

DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN

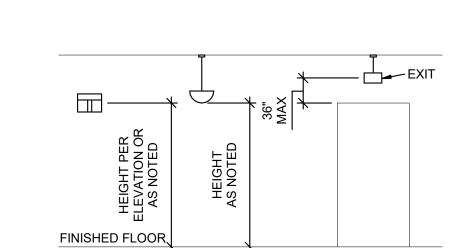
SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.

ON DRAWING TO PROVIDE PROPER ILLUMINATION.

GENERAL SHEET NOTES

MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE

- LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
- VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
 - LOCATE WIRING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.
 - WHERE DEVICES ARE LOCATED IN CLOSE PROXIMITY OF THE SAME VERTICAL PLANE, ALIGN DEVICES VERTICALLY PER THE TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL, UNLESS OTHERWISE INDICATED.



PENDANT EXIT SIGNS WALL MOUNTED PENDANT LIGHT FIXTURE LIGHT FIXTURE

LIGHTING MOUNTING DETAILS A

SWITCH MOUNTING DETAILS 2

Designed By: NAK

Drawn By:

HAN

Checked By:

Date:

NAK

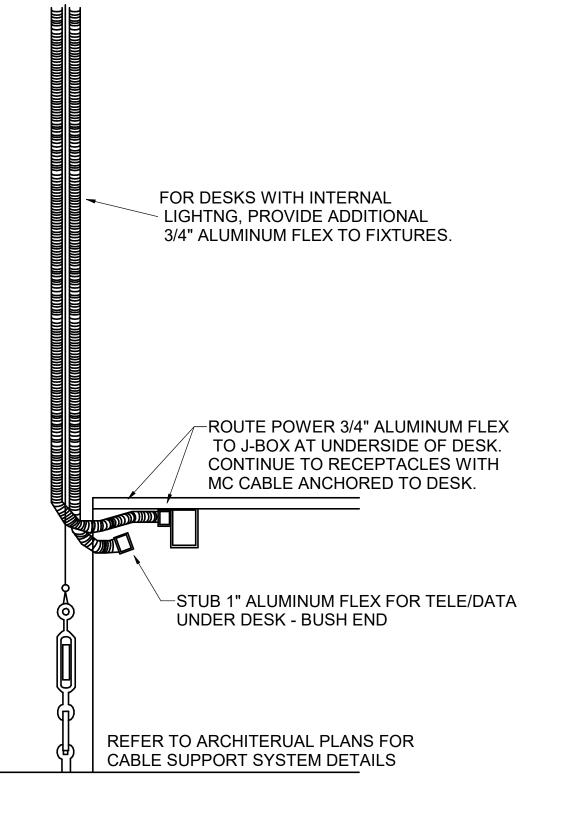
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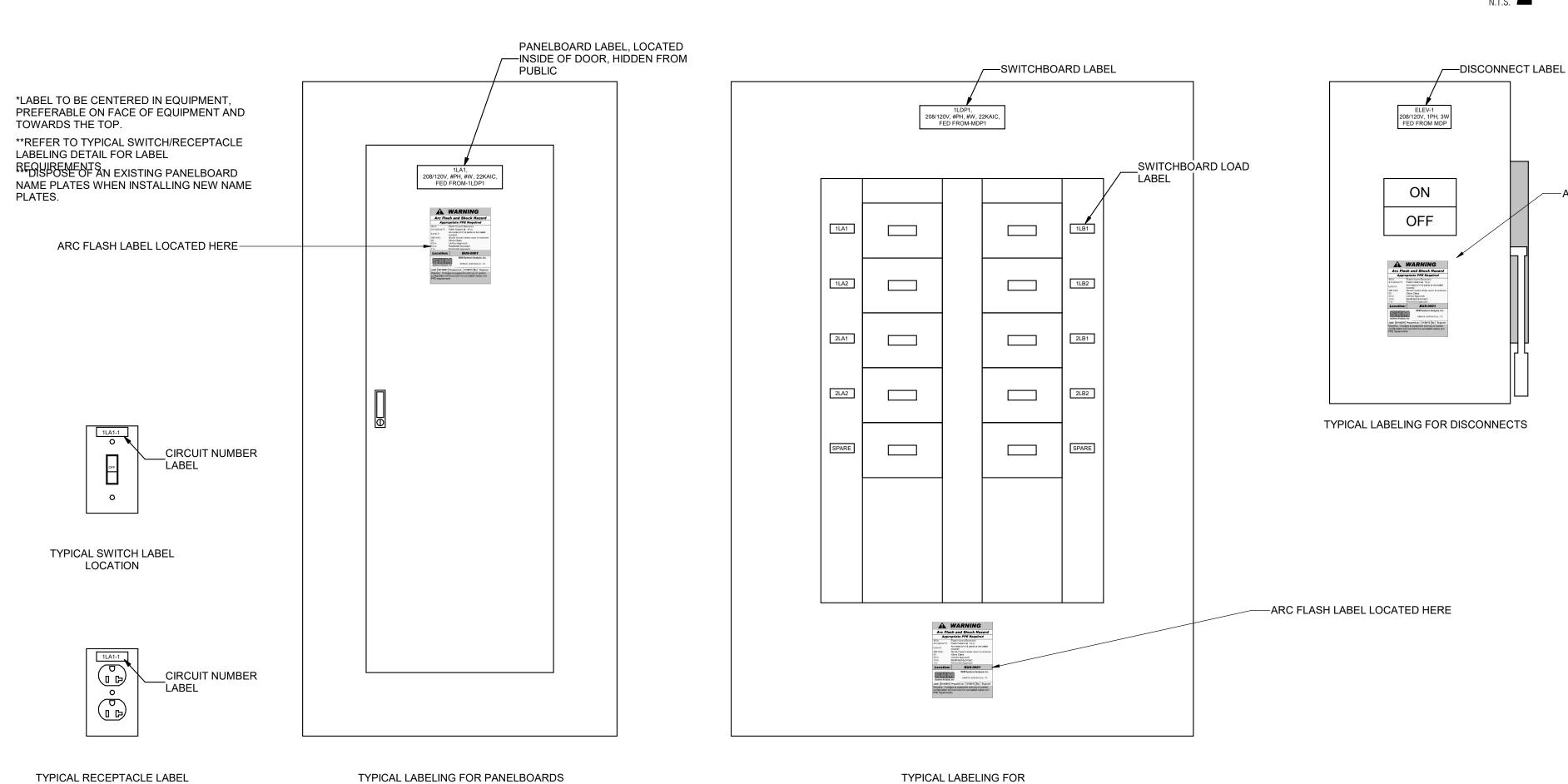
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TYPICAL POWER/DATA DROP AT DESK 2



LOCATION

IN NON-PUBLIC LOCATIONS

TYPICAL SWITCH, RECEPTACLE AND PANELBOARD/SWITCHBOARD LABELING LOCATION DETAIL 1

SWITCHBOARDS

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—ARC FLASH LABEL LOCATED HERE

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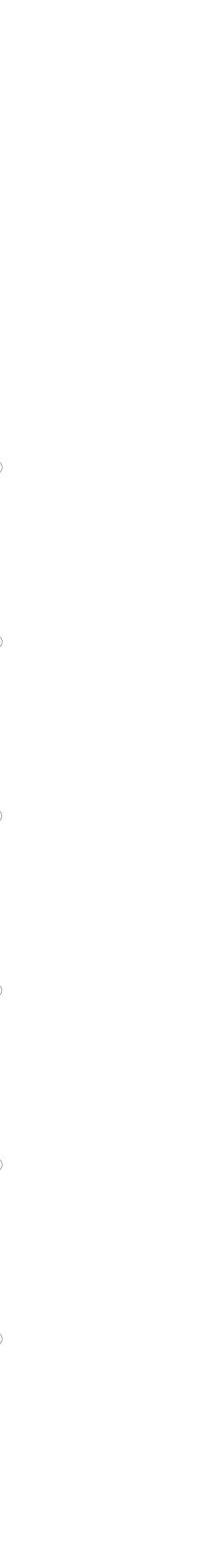
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SE ELECTRICAL ROOM

PANELS C2SE, HT2SE, L2SE

SCOPE OF WORK-

SES#1 LOCATED ON LEVEL 1-(APPROXIMATE LOCATION)

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LEVEL 2 OVERALL PLAN Scale: 1" = 100'-0"

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LEVEL 2 POWER PLAN 2 Scale: 1/8" = 1'-0"

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HAN

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Date:

NAK

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PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.

REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.

ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO ELECTRICAL SPECIFICATIONS FOR

PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER NEC 230.95(C).

○ SHEET KEYNOTES

(EX) APS UTILITY 12470.0 V 3P 999999.9 MVA SLG 333333.3 MVA (EX) PRI APS UTILITY XFMR 46299136.00 A-3P 40096208.00 A-LL 46299140.00 A-SLG (EX) APS XFMR 2500 kVA 12470.0 V / 480 V 5.7500 % (EX) SEC APS UTILITY XFMR 480.0 V 52293.69 A-3P 45287.64 A-LL 52294.10 A-LLG 52294.45 A-SLG E CBL-0001 500 kcmil Copper 8 Cbl/Ph 150.0 ft 480.0 V 45719.56 A-3P 39594.29 A-LL 44616.54 A-LLG 42871.18 A-SLG E CBL-0002 350 kcmil Copper 2 Cbl/Ph 20.0 ft CBL-0004 3/0 AWG Copper 2 Cbl/Ph 15.0 ft Copper 2 Cbl/Ph 15.0 ft (EX) SWBD DB3E 480.0 V 42519.93 A-3P (EX) PRI XFMR T2 (EX) PRI XFMR T1 480.0 V 42730.73 A-3P 480.0 V 42730.73 A-3P 36823.32 A-LL 41111.93 A-LLG 38844.60 A-SLG 37005.88 A-LL 41493.48 A-LLG 37005.88 A-LL 41493.48 A-LLG (EX XFMR T1 (EX) XFMR T2 225 kVA 480.0 V / 208 V 5.0000 % 225 kVA 480.0 V / 208 V 5.0000 % (EX) SEC XFMR T1 (EX) SEC XFMR T2 208.0 V 11086.36 A-3P 11086.36 A-3P 9601.06 A-LL 9601.06 A-LL CBL-0010 3/0 AWG 11318.59 A-LLG 11518.00 A-SLG 11318.59 A-LLG 11518.00 A-SLG Copper 1 Cbl/Ph 245.0 ft 300 kemil 300 kemil Copper 3 Cbl/Ph 20.0 ft (EX) PNL HT2SE 480.0 V 10629.82 A-3P 9205.69 A-LL 10180.40 A-LLG 8446.93 A-SLG (EX) SWBD DB1E 208.0 V 10757.25 A-3P 208.0 V 10757.25 A-3P 9316.05 A-LL 10917.99 A-LLG 9316.05 A-LL 10917.99 A-LLG 11013.55 A-SLG

(EX) PNL C2SE 208.0 V

4405.60 A-3P 3815.36 A-LL

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(EX) PNL L2SE

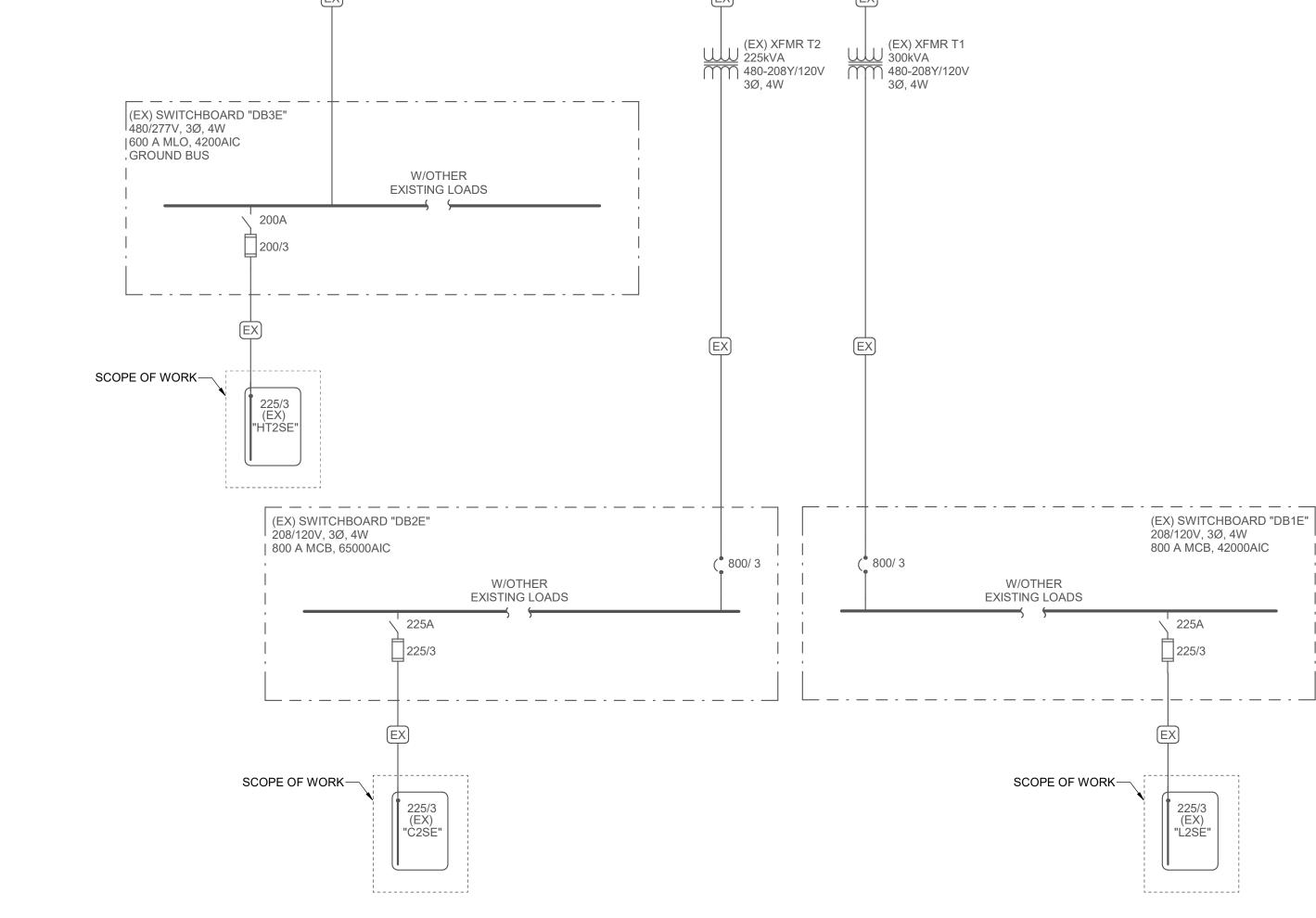
4292.30 A-3P 3717.24 A-LL

3568.65 A-SLG

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SKM SHORT-CIRCUIT 2



W/OTHER

EXISTING LOADS

400A

300A FSR

400A

300A FSR

(EX) METERING SWITCHBOARD "SES# 1"

600A

600A

W/OTHER

EXISTING LOADS

480/277V, 3Ø, 4W

1 3000 A, 65000AIC

FROM (EX) APS UTILITY

> (EX) UTILITY XFMR 12470-480Y/277V

PAD MOUNTED

ONE-LINE DIAGRAM 1

3Ø, 4W

3000A

PHXV

OFFICE

ELECTRICAL FIXTURE SCHEDULE

EQUIPMENT SCHEDULE KEY

E - DIVISION 26

0.75" CND

Q - FURNISHED WITH EQUIPMENT * - COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER ** - AUTOMATIC CONTROL WIRING BY DIVISION 23

1. NEMA 3R

EQUIP

2. TOGGLE SWITCH W/ THERMAL OVERLOAD 3. PROVIDE FUSED DISCONNECT ELEVATOR POWER MODULE WITH SHUNT TRIP 4. CONTRACTOR TO PERFOM FINAL CONNECTION TO LINE VOLTAGE THERMOSTATS 5. TOGGLE SWITCH W/BACNET INTERFACE. 6. INDOOR UNITS FED FROM OUTDOOR UNIT. PROVIDE DISCONNECTS FOR BOTH.

7. PROVIDE SWITCH WITH BACNET MS/TP CAPABILITY. 8. PROVIDE LABEL ON DISCONNECT "DISCONNECT OUTDOOR UNIT PRIOR TO INDOOR." 9. LINE VOLTAGE THERMOSTAT ON WALL.

10. PROVIDE EXPLOSION PROOF DEVICES AND WIRING METHODS. 11. PROVIDE DUAL-REDUNDANT 100% RATED VFD'S FOR AIR HANLDER.

12. PROVIDE MANUAL STARTER WITH THERMAL OVERLOAD AND RELAY FOR ATC/BAS CONTROL.

			MOUNTING		LOAD	DATA		LOAD DATA		CONNE	ECTION TYPE	
ITEM NO.	QTY	DECSRIPTION	HEIGHT (AFF)	VOLT	PHASE	AMPS	kW	HP	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	ELECTRICAL REMARKS
AVM	4	AV MONITOR	+60"	120	1	3	0.4	-	2#12, 12GR 0.75" CND	Е		SEE ARCHITECTURAL DRAWINGS FOR MOUNTING ELEVATIONS.
COM	8	COMPUTER	+18"	120	1	5	0.6	-	2#12, 12GR 0.75" CND	E	NEMA 5-20	
PRI	1	PRINTER	+18"	120	1	5	0.6	-	2#12, 12GR 0.75" CND	Е	NEMA 5-20	

EQUIPMENT SCHEDULE EQUIPMENT SCHEDULE KEY 1. VAV TO INCLUDE INTEGRAL DISCONNECT. 7. PROVIDE SWITCH WITH BACNET MS/TP CAPABILITY. 1. WHERE DISCONNECTS, STARTERS, OR VFCs ARE BEING PROVIDED BY E - DIVISION 26 ELECTRICAL CONTRACTOR, LOCATE EQUIPMENT IN ACCESSIBLE LOCATION, 2. TOGGLE SWITCH W/ THERMAL OVERLOAD. 8. PROVIDE LABEL ON DISCONNECT "DISCONNECT OUTDOOR UNIT PRIOR TO INDOOR." Q - FURNISHED WITH EQUIPMENT 3. PROVIDE FUSED DISCONNECT ELEVATOR POWER MODULE WITH SHUNT TRIP. SUCH THAT IT IS WITHIN SITE OF THE MECHANICAL EQUIPMENT IT IS SERVING, 9. LINE VOLTAGE THERMOSTAT ON WALL. - COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER 4. CONTRACTOR TO PERFORM FINAL CONNECTION TO LINE VOLTAGE THERMOSTATS. 10. PROVIDE EXPLOSION PROOF DEVICES AND WIRING METHODS. AND COMPLIES WITH N.E.C. REQUIRED CLEARANCES. ** - AUTOMATIC CONTROL WIRING BY DIVISION 23 5. TOGGLE SWITCH W/BACNET INTERFACE. 11. PROVIDE DUAL-REDUNDANT 100% RATED VFD'S FOR AIR HANDLER. 6. INDOOR UNITS FED FROM OUTDOOR UNIT. PROVIDE DISCONNECTS FOR BOTH. 12. PROVIDE MANUAL STARTER WITH THERMAL OVERLOAD AND RELAY FOR ATC/BAS CONTROL. OVERCURRENT **PROTECTION STARTER** LOAD DATA DISCONNECT NORMALLY NORMALLY PHASE SELECTOR PILOT OPEN CLOSED FAILURE **FURN** WIRE AND FURN BY DEVICE LOCATION BY DEVICE LOCATION BY DEVICE SIZES SWITCH LAMP CONTACT CONTACT RELAY NOTES **CONDUIT SIZE** MARK MARK QTY ITEM DESCRIPTION HP | kW | MCA | FLA | VOLT | PH | Hz ADJ TO - 3.5 - 13 277 1 60 20/1 6-9 VAV 2 #12, #12GR HT2SE EQUIP CB 0.75" CND VAV 13 | 277 | 1 | 60 ADJ TO 6-10 20/1 HT2SE 6-10 - 3.5 -2 #12, #12GR Q

CB

LOAD SUMMAF SERVICE ENTRANCE S (PHXWORKS & STA	SECTION "SES"
EXISITNG LOAD AS REPORTED ON SEALED DRAWINGS FROM WOODWARD ENGINEERING 11/09/09	804.6 KVA 2235.1 AMPS
NEW LOAD: PANEL C2SE	6.48 KVA 18 AMPS
NEW LOAD: PANEL L2SE	2.20 KVA 6.11 AMPS
NEW LOAD: PANEL HT2SE	7.80 KVA 21.6 AMPS
NEW LOAD: PANEL L2SW-A	2.70 KVA 7.5 AMPS
NEW LOAD: PANEL H2SW	0.40 KVA 1.11 AMPS
NEW LOAD: PANEL HT2SW	3.90 KVA 10.83 AMPS
TOTAL NEW + EXISTING LOAD	828.1 KVA 2300.22 AMPS
SERVICE ENTRANCE SECTION "SES" CAPACITY:	3000 AMPS
PERCENT LOAD %	76.7 %



Revisions

Designed By: Drawn By:

HAN Checked By:

NAK Date:

04/19/23



Project No. 230064

Tempe, AZ 85282 800-678-7077 480-621-3444

Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

Per City of Phoenix City Code Chapter 2, section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of your contract with the City of Phoenix.

KIVA# SDEV#

Sheet

Designed By:

Checked By:

04/19/23

LTS/PF	IASE	/WIR	E:		PAN	IEL SIZE	E & TYPE: MAIN SIZE AND	YPE:			FED	FRO	VI:	CABINET: L	OCATION:		NC	TES:				
/277 V,	3 PH	14W	'IRE		22" \	W x 6" D), BOLT-ON 225 AMPERE MA	N LU	GS					SURFACE								
CESSO	RIES	S:			PAN	IEL DIRI	ECTORY, IDENTIFICATION, GROUN	IDING	BAR					ļ	A	IC RATIN	G : 14	,000				
т	0	CP		LO	AD (k	(AV			PI	HASE	LOA	D				LO	AD (k\	/A)		ОСР		СКТ
	P P	OLE	BKR	LTG	PWR	СО	DESCRIPTION		4	E	3	(<u> </u>	DESCRIF	PTION	СО	PWR	LTG	BKR	POLE	AMP	NO
20	-	3				0.000	(EX) MOTOR	2.1	2.5					(EX) DUCT	HEATER	0.000	7.474	0.0		3	20	2
										2.1	2.5											4
												2.1	2.5									6
80)	3		0.0	0.000	0.000	(EX) UNKNOWN LOAD	1.0	3.9					PWR: VAV 6-1	19 (NOTE 1)	0.000	3.900	0.0		1	20	8
										1.0	3.9			PWR: VAV 6-1	10 (NOTE 1)	0.000	3.900	0.0		1	20	10
												1.0		(EX) SP	PACE	0.000	0.000	0.0		1		12
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		14
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SPACE		0.000	0.000	0.0		1		16
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	(EX) SPACE			0.0		1		18
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		20
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		22
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		24
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		26
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		28
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		30
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		32
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		34
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		36
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		38
		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		40
1		1		0.0	0.000	0.000	(EX) SPACE							(EX) SP	PACE	0.000	0.000	0.0		1		42
TALS:							CONNECTED kVA PER PHASE	(9	- (9	(3		CONN	ECTED TO	TAL I	«VA =		25		

LIGHTING & CONTINUOUS LOADS:

RECEPTACLES:

ALL OTHER LOADS @ 100%: 22.560 kVA

- 100% CONNECTED LOAD PLUS 25%

DIVERSIFIED TOTAL kVA = 26 AVERAGE AMPS PER PHASE = 31

- FIRST 10kVA @ 100%, REMAINDER @ 50% MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER, AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

1. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL. MATCH EXISTING MANUFACTURER TYPE AND AIC RATING.

BRANCH CIRCUIT CONDUCTOR AND CONDUIT SIZING TABLE

CIRCUIT	CIRCUIT	CONDUCTOR SIZE	
AMPACITY/VOLTAGE	LENGTH	(PHASE, NEUTRAL AND GR)	CONDUIT SIZI
20A/120V	0' - 60'	#12 AWG	0.75" Ø
20A/120V	60' - 95'	#10 AWG	0.75" Ø
20A/120V	95' - 150'	#8 AWG	1" Ø
20A/120V	150' - 240'	#6 AWG	1.25" Ø
20A/277V	0' - 140'	#12 AWG	0.75" Ø
20A/277V	140' - 220'	#10 AWG	0.75" Ø
20A/277V	220' - 350'	#8 AWG	1" Ø
20A/277V	350' - 550'	#6 AWG	1.25" Ø
	•		

NOTES:

1. WIRE SIZING IS BASED ON COPPER CONDUCTORS SUPPLYING A 20A, 120V CIRCUIT AT THE INDICATED VOLTAGE, ASSUMED TO BE 80% LOADED (16A), WITH MAXIMUM VOLTAGE DROP OF 3% AT THE LOAD.

2. DOWN-SIZED WIRE AT DEVICE/LOAD AS REQUIRED AND TERMINATE CONDUCTORS IN A SAFE AND CODE COMPLIANT MANNER.

3. CONDUIT SIZE IS BASED ON A MAXIMUM OF 3 CIRCUITS PER CONDUIT, EACH WITH A SEPARATE NEUTRAL CONDUCTOR.

						(EX) PA	N	ΙΕΙ	L:	"(<u> </u>	SI	=''							
VOLTS	S/PHAS	SE/WIR	E:	PANEL SIZ	E & TYPE:	MAIN SIZE AND T	YPE:			FED	FROM	/ 1:	CABINET: LOCATION:		NC	OTES:				
120/20	8V, 3 F	PH 4 W	IRE	22" W x 6"	D, BOLT-ON	225 AMPERE MAI	N LUC	GS					SURFACE							
ACCE	SSORI	ES:		PANEL DIF	RECTORY, IDENT	IFICATION, GROUN	IDING	BAR					AIC	RATIN	G : 10	,000				
СКТ		ОСР		LOAD (kVA)				Pl	HASE	LOA	D			LO	AD (k	VA)		ОСР		СКТ
NO	AMP	POLE	BKR	LTG PWR CO	DESC	RIPTION	-	A	Е	3		;	DESCRIPTION	СО	PWR	LTG	BKR	POLE	AMP	NO
1	20	1		0.0 0.000 0.000	(EX) RECEPTS	S @ HELP DESK	1.0	1.0					(EX) RECEPTS RM 44	0.000		_		1	20	2
3	20	1		0.0 0.000 0.000	(EX) RECEPTS	S @ HELP DESK			1.0	1.0			(EX) RECEPTS RM 51,52	0.000	0.000	0.0		1	20	4
5	20	1		0.0 0.000 0.000	(EX) REC	EPTACLES					1.0	1.0	(EX) RECEPTS RM 51	0.000	0.000	0.0		1	20	6
7	20	1		0.0 0.000 0.000	(EX) RECEPTS	@ INFO STATION	1.0	1.0					(EX) RECEPTS RM 46,48	0.000	0.000	0.0		1	20	8
9	20	1		0.0 0.000 0.000	(EX) RECEPTS	@ INFO STATION			1.0	1.0			(EX) RECEPTS RM 48	0.000	0.000	0.0		1	20	10
11	20	1		0.0 0.000 0.000	(EX) RECEPA	TCLES RM 255					1.0	1.0	EX) COMPUTER CENTER AREA	0.000	0.000	0.0		1	20	12
13	20	1		0.0 0.000 0.000	(EX) RECEPA	(EX) RECEPATCLES RM 255							(EX) COMPUTER CENTER AREA	0.000	0.000	0.0		1	20	14
15	20	1		0.0 0.000 0.000	(EX) RECEPA	(EX) RECEPATCLES RM 255			1.0	1.0			(EX) COMPUTER CENTER AREA	0.000	0.000	0.0		1	20	16
17	20	1		0.0 0.000 0.000	(EX) COMPUTE	(EX) COMPUTER CENTER AREA					1.0	1.0	(EX) COMPUTER CENTER AREA	0.000	0.000	0.0		1	20	18
19	20	1		0.0 0.000 0.000	(EX) COMPUTE	R CENTER AREA	1.0	1.0					(EX) COMPUTER CENTER AREA	0.000	0.000	0.0		1	20	20
21	20	1		0.0 0.000 0.000	(EX) COMPUTE	R CENTER AREA			1.0	1.0			(EX) UNKNOWN LOAD	0.000	0.000	0.0		1	20	22
23	20	1		0.0 0.000 0.000	(EX) RECEPT AZ	ROOM STORAGE					1.0	1.0	(EX) COMPUTER CENTER AREA	0.000	0.000	0.0		1	20	24
25	20	1		0.0 0.000 0.000	(EX) GREEN TAI	BLES MAGAZINES	1.0	1.0					(EX) COMPUTER CENTER AREA	0.000	0.000	0.0		1	20	26
27	20	1		0.0 0.000 0.000	(EX) GREEN TAI	BLES MAGAZINES			1.0	1.1			CO: RM 0203, 0204 (NOTE 1)	1.080	0.000	0.0		1	20	28
29	20	1		0.0 0.000 0.000	(EX) GREEN TAI	BLES MAGAZINES					1.0	1.0	(EX) UNKNOWN LOAD	0.000	0.000	0.0		1	20	30
31	20	1		0.0 0.000 0.000	(EX) GREEN TAI	BLES MAGAZINES	1.0	1.0					(EX) UNKNOWN LOAD	0.000	0.000	0.0		1	20	32
33	20	1		0.0 0.000 0.000	(EX) GREEN TAI	BLES MAGAZINES			1.0	1.0			(EX) AZ ROOM RECEPTS	0.000	0.000	0.0		1	20	34
35	20	1		0.0 0.000 0.000	(EX) GREEN TAI	BLES MAGAZINES					1.0	1.0	(EX) AZ ROOM RECEPTS	0.000	0.000	0.0		1	20	36
37	20	1				RM 0203 (NOTE 1)	2.4	1.0					(EX) RECEPTS AZ RM MAP	0.000				1	20	38
39	20	1		0.0 2.400 0.000		` ,			2.4	1.0			(EX) RECEPTS AZ RM MAP	0.000		_		1	20	40
41	20	1		0.0 0.600 0.000		RM 0209 (NOTE 1)					0.6	1.0	(EX) RECEPTS AZ RM MAP	0.000				1	20	42
TOTAL	₋S:				CONNECTE	D kVA PER PHASE	1	5	1	5	1	4	CONNEC	TED TO	DTAL	kVA =		44		
CONNECTED AMPS PER PHASE							13	31	13	31	11	3	AVERAGE CONNECTED AN	MPS PE	R PH	ASE =		123		

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25%

DIVERSIFIED TOTAL kVA = 44

RECEPTACLES: 1.080 kVA @ 100% = 1.080 kVA - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = 123

MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC ALL OTHER LOADS @ 100%: 5.400 kVA

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER, AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

1. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL. MATCH EXISTING MANUFACTURER TYPE AND AIC RATING.

VOLT:	S/PHA	SE/WIR	RE:		PAN	EL SIZ	E & TYPE:	MAIN SIZE AND T	YPE:			FED	FROI	M:	CABINET: LOCATION:		NOTES:				
120/20	8V, 3 I	PH 4 W	IRE		22" V	W x 6" [), BOLT-ON	225 AMPERE MAII	N LU	GS					SURFACE						
ACCE	SSOR	ES:			PAN	EL DIR	ECTORY, IDENTI	FICATION, GROUN	DING	BAR	2					AIC RATIN	IG: 10,000				
СКТ		ОСР		LC	AD (k	VA)				Р	HASE	LOA	D			LC	OAD (kVA)		ОСР		СКТ
NO	AMP	POLE	BKR	LTG	PWR	СО	DESCR	RIPTION		A	E	3	(С	DESCRIPTION	СО	PWR LTG	BKR	POLE	AMP	NO
1	20	3		0.0	0.000	0.000	(EX) AZ	ROOM	1.0	1.0					(EX) RECEPTS RM 18,20	0.000	0.000 0.0		1	20	2
3								-			1.0	1.0			(EX) RECEPTS RM 17	0.000	0.000 0.0		1	20	4
5							-	-					1.0	1.0	(EX) RECEPTS RM 50,51,53	0.000	0.000 0.0		1	20	6
7	30	2		0.0	0.000	0.000	(EX) WASH	IER/DRYER	1.0	1.0					(EX) RECEPTS RM 50,51 52 ,53	0.000	0.000 0.0		1	20	8
9								-			1.0	1.0			(EX) RECEPTS RM 51,52,53	0.000	0.000 0.0		1	20	10
11	30	1		0.0	0.000	0.000	(EX)	W/H					1.0	1.0	(EX) AIR DRYER RECEPTS RM 2°	0.000	0.000 0.0		1	20	12
13	20	1		0.0	0.720	0.360	PWR: RM 0206	, 0205 (NOTE 1)	1.1	1.0					(EX) VAV RM	0.000	0.000 0.0		1	20	14
15	20	1		0.0	0.720	0.360	PWR: RM 0208	, 0207 (NOTE 1)			1.1	1.0			(EX) RECEPTS @ HELP DESK	0.000	0.000 0.0		1	20	16
17	20	1		0.0	0.000	0.000	(EX) RECE	TPS RM56					1.0	1.0	(EX) SOUTH STUDY RM	0.000	0.000 0.0		1	20	18
19	20	1		0.0	0.000	0.000	(EX) RECEP	TS QUIET RM	1.0	1.0					(EX) RECEPTS RM 10,44,48	0.000	0.000 0.0		1	20	20
21	50	2		0.0	0.000	0.000	(EX) UNKN	OWN LOAD			1.0	1.0			(EX) RECEPTS RM 45,46,47,48	0.000	0.000 0.0		1	20	22
23							-	-					1.0	1.0	(EX) RECEPTS INFO STATION	0.000	0.000 0.0		1	20	24
25	20	1		0.0	0.000	0.000	(EX) HUD	DISPLAY	1.0	1.0					(EX) UNKNOWN LOAD	0.000	0.000 0.0		1	20	26
27	20	1		0.0	0.000	0.000	(EX) UNKN	OWN LOAD			1.0	1.0			(EX) J-BOX FMS PANEL	0.000	0.000 0.0		1	20	28
29	20	1		0.0	0.000	0.000	(EX) UNKN	OWN LOAD					1.0	1.0	(EX) J-BOX FMS PANEL	0.000	0.000 0.0		1	20	30
31	20	1		0.0	0.000	0.000	(EX) UNKN	OWN LOAD	1.0	1.0					(EX) RECEPTS RM 247	0.000	0.000 0.0		1	20	32
33	20	1		0.0	0.000	0.000	(EX) UNKN	OWN LOAD			1.0	1.0			(EX) RECEPTS RM 247	0.000	0.000 0.0		1	20	34
35	20	1			0.000		(EX) COMPL	JTER TABLE					1.0	1.0	(EX) RECEPTS @ HELP DESK	0.000	0.000 0.0		1	20	36
37	20	1		0.0	0.000	0.000	(EX) COMPL	JTER TABLE	1.0	1.0					(EX) FLOOR RECEPTS QUIET RI	И 0.000	0.000 0.0		1	20	38
39	20	1		0.0	0.000	0.000	(EX) COMPL	JTER TABLE			1.0	1.0			(EX) UNKNOWN LOAD		0.000 0.0		1	20	40
41	20	1		0.0	0.000	0.000	(EX) LTG RELA	Y PANEL R2SE					1.0	1.0	(EX) LIGHTS AND POWER AH-1AH	1-2 0.000	0.000 0.0		1	20	42
TOTA	_S:						CONNECTED	kVA PER PHASE	1	4	1	4	1	4	CONN	IECTED T	OTAL kVA =		42		
							CONNECTED A	MPS PER PHASE	1	17	1	17	1.	17	AVERAGE CONNECTED	AMPS PI	ER PHASE =		117		

LIGHTING & CONTINUOUS LOADS:

- 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = 42 RECEPTACLES: 0.720 kVA @ 100% = 0.720 kVA - FIRST 10kVA @ 100%, REMAINDER @ 50%

AVERAGE AMPS PER PHASE = 117

MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH ALL OTHER LOADS @ 100%: 1.440 kVA LARGEST MOTOR CALCULATED @ 125% PER NEC

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER, AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

1. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL. MATCH EXISTING MANUFACTURER TYPE AND AIC RATING.

SPECTRUM ENGINEERS 1501 W. Fountainhead Parkway, Suite 330 Tempe, AZ 85282 800-678-7077 480-621-3444 www.spectrum-engineers.com

Project No. 230064

Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

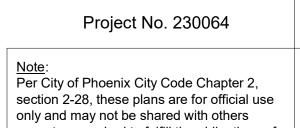
Per City of Phoenix City Code Chapter 2, section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of your contract with the City of Phoenix.

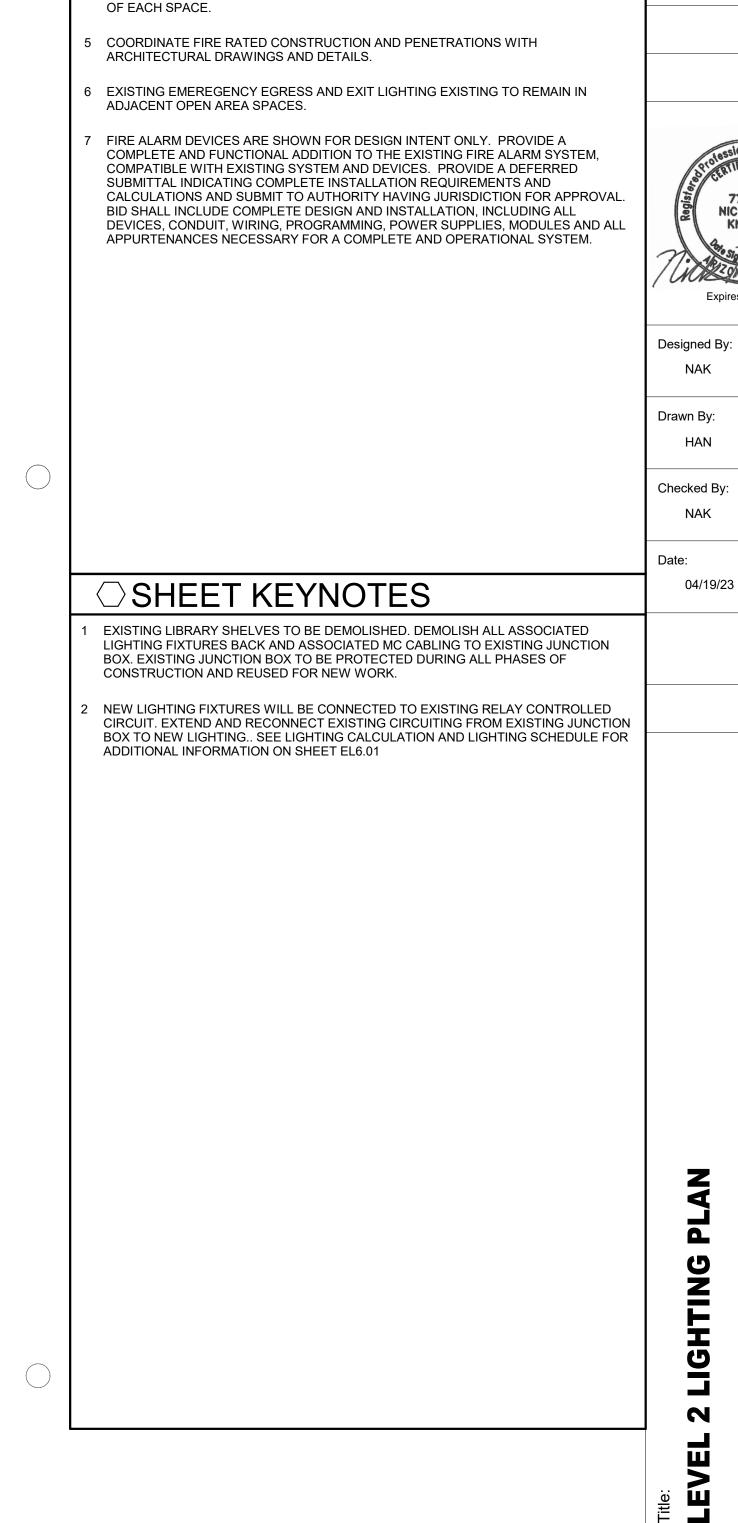


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your contract with the City of Phoenix.

Project No. 230064 Per City of Phoenix City Code Chapter 2, except as required to fulfill the obligations of





GENERAL SHEET NOTES

OTHER TRADES PRIOR TO ROUGH-IN.

CEILINGS PRIOR TO ROUGH-IN.

ELECTRICAL ROOM.

ALLOW A MINIMUM OF 4" CLEARANCE ABOVE ALL CEILING MOUNTED RECESSED LIGHT FIXTURES. COORDINATE LOCATIONS AND LIGHT FIXTURE DEPTHS WITH ALL

COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHT FIXTURES WITH MECHANICAL EQUIPMENT, DUCT, PIPE, PLUMBING, ETC. IN SPACES WITH OPEN

B DIGITAL LIGHTING CONTROL DIMMING/ROOM CONTROLLERS SHALL BE LOCATED ON THE WALL ABOVE THE DOOR FOR THE SPACE THEY SERVE WHERE POSSIBLE AND NEAR THE DOOR WHERE THIS IS NOT POSSIBLE. FOR LARGE COMMON SPACES OR EXTERIOR LIGHTING, THEY SHALL BE CENTRALLY LOCATED WITH THE

REFER TO LIGHTING/SPACE CONTROL TYPE SCHEDULES FOR WIRING DIAGRAMS

LEVEL 2 REFLECTED CEILING PLAN Scale: 1/8" = 1'-0"

⊬–(EX)H

(**¤X**)∦

LEVEL 2 DEMO REFLECTED CEILING PLAN **7**

(EX)

Marlene Imirzian & Associates Architects

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INTERIOR LIGHTING FIXTURE SCHEDULE

GENERAL NOTES

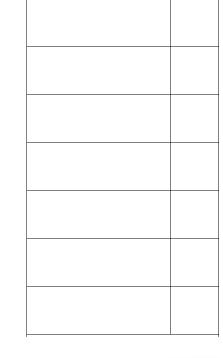
- . SUBSTITUTIONS AND/OR EQUAL FIXTURES MUST RECEIVE APPROVAL PRIOR TO BIDDING, THEY MUST BE SUBMITTED TO THE ENGINEER NO LESS THAN 2 WEEKS PRIOR
- 2. SAMPLES MUST BE PROVIDED FOR ANY AND ALL FIXTURES UPON A/E REQUEST PRIOR TO RELEASING FIXTURES.
- 3. ALL FIXTURES SHALL BE LISTED AND APPROVED FOR THEIR INTENDED USE AND LOCATION.
- 4. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
- 5. COMPLY WITH THE "INTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS.

DIAMETER

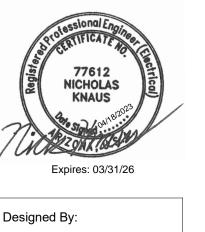
- 6. ALL LIGHT FIXTURES TO BE EITHER "DLC" OR "LIGHTING FACTS" LISTED OR TO BE APPROVED BY ARCHITECT/ENGINEER AND OWNER.
- 7. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT

	·			LUMINAIRE			DRIVER			
ID	DESCRIPTION	SIZE (NOMINAL)	DELIVERED DIRECT LUMENS	DELIVERED INDIRECT LUMENS	COLOR TEMP	CRI	TYPE	VOLTAGE	WATTS	MANUFACTURER (CATALOG SERIES)
	DESCRIPTION: LINEAR, INDIRECT/DIRECT MOUNTING: CEILNG SURFACE MOUNTED, MATCH EXISTING CONDITIONS FINISH: SCBA OPTICS: FLUSH LENS, LOW GLOSS WHITE REFLECTOR OPTIONS: FLAT END CAP, FIXED WALL BRACKET EM: NONE	LENGTH: 48" WIDTH: 4" HEIGHT: 5"	2,886	2,886	3500K	90	LED (0-10V DIMMING)	120/277V		DELRAY (SLT7-4-HO-W35-D-SAC) APPROVED MANUFACTURER EQUAL

(EX) LIGHTING CIRCUIT CALCULATION								
SHELVE LIGHTING: LIGHTING FIXTURES	40							
EXISTING LIGHTING LOAD @277V	40*32 = 1280 W							
T8 LAMP WATTAGE: 32 (ASSUMED)	1280 VA/277 V = 4.62 A							
NEW LIGHTING FIXTURES:	36							
WATTAGE: 28 W	36*28 = 1008 W							
NEW LIGHTING LOAD @277 V	1008 VA/277 V = 3.63 A							
TOTAL NET LOAD:	3.63A - 4.62 A = -0.99 A 1.01 KVA - 1.28 KVA = -0.272 KVA							



Revisions



Designed By: Drawn By: HAN

Checked By: NAK

04/19/23



Project No. 230064

Tempe, AZ 85282 800-678-7077 480-621-3444

www.spectrum-engineers.com KIVA# SDEV#

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Marlene Imirzian & Associates Architects

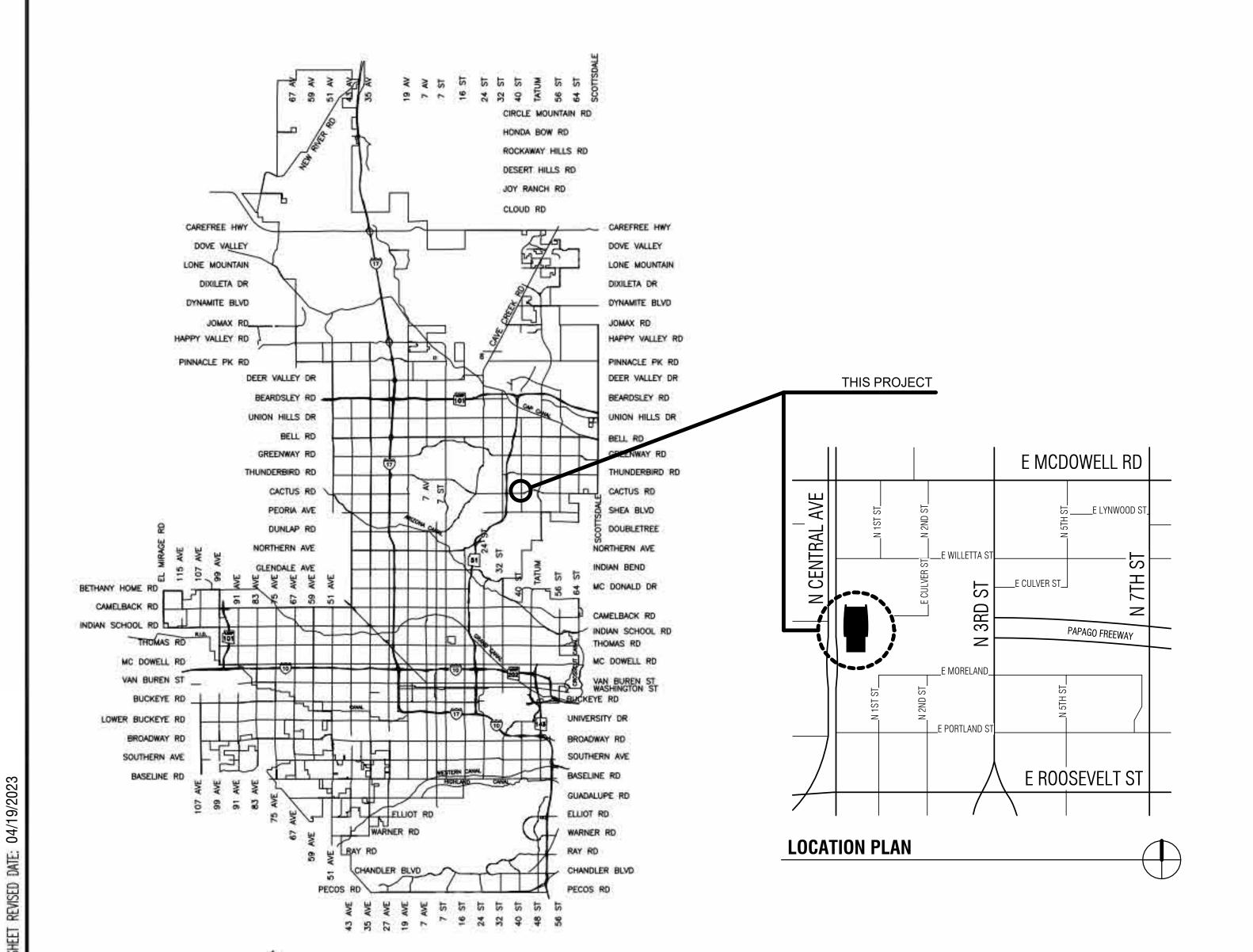
8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

CITY OF PHOENIX

OFFICE OF THE CITY ENGINEER

City of Phoenix StartUpPHX at Burton Barr 1221 N Central Ave, Phoenix, AZ 85004

City of Phoenix Project No. LS71100008





2024



MAYOR

KATE GALLEGO

CITY COUNCIL

DISTRICT NO. 1 - ANN O'BRIEN

DISTRICT NO. 2 - JIM WARING

DISTRICT NO. 3 - DEBRA STARK

DISTRICT NO. 4 - LAURA PASTOR

DISTRICT NO. 5 - BETTY GUARDADO

DISTRICT NO. 7 - YASSAMIN ANSARI

DISTRICT NO. 6 - SAL DICICCIO

DISTRICT NO. 8 - CARLOS GARCIA

CITY MANAGER

JEFF BARTON

CITY ENGINEER

ERIC J. FROBERG, PE

Entro di Friodelito, i

APPROVALS

Nicholas Hartman
(CLIENT DEPARTMENT)

Chris Kasala

ENGINEERING MANAGER

6/10/24

6/10/2024

VERTICAL PROJECT MANAGEMENT SECTION

KIVA # KIVA#

| Note: Per City of Phoenix City Code Chanter 2, section 2-28, these plans are:

Sheet 27 of 50

SDEV # SDEV# official to

Per City of Phoenix City Code Chapter 2, section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of your contract with the City of Phoenix.

ARCHITECTURAL

ACT

ANOD

ARCH

BITUM

BLKG

CEM

CLG

CONC

CONT

CORR

CSWK

CTR

CASEWORK

DEEP OR DEPTH

DRINKING FOUNTAIN

CENTER

DETAIL

DIAMETER

DIFFERENT

DIMENSION

DO NOT DISTURB

DOWN

DRAIN

DRAWING

MACHINE

MANUAL

MASONRY

MATERIAL

MAXIMUM

MEDIUM

METAL

MANHOLE

MINIMUM

MOUNTED

MOUNTING

NORTH

NATURAL

NUMBER

NORTHEAST

NOT TO SCALE

NORTHWEST

ON CENTER

OPPOSITE

OVERHEAD

OUNCE

PARTIAL

PIECE

PLATE

PLYW00D

PANEL

PAIR

PREFAB

PROJECT

PROPERTY

PAVEMENT

QUARTER

QUANTITY

RADIUS

RETURN AIR

ROOF DRAIN

REFERENCE

REQUIRED

RETURN REVISE, REVISION RIGTH HAND

R00M

SOUTH

SCHED

SCHED

SOLID CORE

STORM DRAIN

SOUTHEAST

ROUGH OPENING

RIGHT OF WAY

REINFORCING

REQUIRMENT

RESILIENT BASE

REFLECTED CEILING PLAN

OUTSIDE DIAMETER

OWNER FURNISHED

OVERFLOW DRAIN

PLASTIC LAMINATE

PERFORATED

PERPENDICULAR

POUNDS PER CUBIC FOOT

POUNDS PER CUBIC INCH

POUNDS PER LINEAL FOOT

PREPARE, PREPARATION

POUNDS PER SQUARE FOOT

POUNDS PER SQUARE INCH

POLYVINYL CHLORIDE

NOT APPLICABLE

NOT IN CONTRACT

NOISE REDUCTION COEFFICIENT

MILLIMETER

MASONRY OPENING

MODULAR, MODULE

MECHANICAL

MANUFACTURER

SYM

TEMP

THK

TOW

UNFIN

UN0

VERT

THRU

THERM

SYMMETRICAL, SYMMETRICALLY

SYSTEM

TREAD

TACKBOARD

CONCRETE

TELEPHONE

TEMPORARY

THICK, THICKNESS

THERMAL

THROUGH

TOP OF STEEL

TOP OF WALL

UNFINISHED

VAPOR BARRIER

VERIFY IN FIELD

WIDE, WIDTH, WEST

VERTICAL

VOLUME

WITH

WITHOUT

WOOD

WEIGHT

WORK POINT

TRANSFORMER

UNDERWRITERS LABORATORY

UNLESS NOTED OTHERWISE

TYPICAL

TOP OF

TOP OF CURB, TOP OF

KICK PLATE **BOARD** BETWEEN **BITUMINOUS** LENGTH, LONG **BACKING** LAMINATE BUILDING LAVATORY BLOCKING POUND BENCHMARK LINEAR, LINEAL BOTTOM OF LONG LEG HORIZONTAL LONG LEG VERTICAL **BOTTOM OF STEEL** LOW POINT BOTTOM LIGHT BUILT UP ROOFING **METERS**

COURSE MACH CABINET CATCH BASIN CEMENT, CEMENTITOUS MATL CHECKERED CONTROL JOINT MECH CENTERLINE CEILING CLEAR COLUMN CONCRETE CONTINUOUS CORRUGATED CARPET

EAST EACH EXTERIOR INSULATION FINISH EIFS SYSTEM **EXPANSION JOINT** OVHD **ELEVATION** ELEC ELECTRIC, ELECTRICAL **ELEV** ELEVATOR **EMER EMERGENCY ENCL ENCLOSURE** EOS EDGE OF SLAB **EQUAL** EQPT **EQUIPMENT EXHAUST** EXPOSED, EXPANSION **EXTERIOR PLYWD**

FIRE ALARM FCD FLOOR CLEAN OUT FLOOR DRAIN **PREFAB** FIRE EXTINGUISHER CABINET FINISH FLOOR **FLOOR PROP** FLASHING FLEX FLEXIBLE FACE OF FOC FACE OF CONCRETE **PVMT** F0S FACE OF STUD F00T **FOOTING** QTR FURN **FURNITURE FUTURE** FIELD VERIFY

GAGE, GAUGE GALLON GALV GALVANIZED GENERAL CONTRACTOR GD, GR GRADE REINF **GENL** GENERAL REQD GLASS REQT GYPSUM HIGH HOSE BIBB HDWR HARDWARE HOLLOW METAL HORIZ HORIZONTAL HIGH POINT H0UR

HEIGHT

CONDITIONING

HEATING, VENTILATION, AIR

HVAC

PROJECT GENERAL NOTES

THE ARCHITECTURAL DRAWINGS ARE PART OF A LARGER SET OF DRAWINGS WHICH, WHEN COMPLETE, CONSISTS OF ALL DRAWINGS LISTED ON THE SHEET INDEX. THE WORK DESCRIBED BY THE DRAWINGS OF ANY ONE DISCIPLINE MAY BE AFFECTED BY THE WORK OF ANOTHER DISCIPLINE AND MAY REQUIRE REFERENCE BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW AND COORDINATE THE WORK OF ALL SUBCONTRACTORS, TRADES, AND SUPPLIERS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BEFORE COMMENCING CONSTRUCTION, AND TO ASSURE THAT ALL PARTIES ARE AWARE OF ALL REQUIREMENTS, REGARDLESS OF WHERE THE REQUIREMENTS OCCUR IN THE CONTRACT DOCUMENTS. WHICH MIGHT AFFECT THE WORK OF THAT PARTY.

AS PART OF THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK OF ALL SUBCONTRACTORS, TRADES, AND SUPPLIERS, THE CONTRACTOR SHALL ENDEAVOR TO IDENTIFY AND NOTIFY THE ARCHITECT OF ANY CONFLICTS BETWEEN THE WORK OF DIFFERENT PARTIES AT THE EARLIEST POSSIBLE DATE SO AS TO ALLOW REASONABLE AND ADEQUATE TIME FOR THE CONFLICT TO BE RESOLVED WITHOUT DELAYING THE WORK. ALL DEVIATIONS FROM THAT WHICH IS REQUIRED BY THE CONTRACT DOCUMENTS MUST BE APPROVED IN ADVANCE BY THE ARCHITECT.

THE ARCHITECTURAL DRAWINGS ESTABLISH AND COORDINATE THE FINISHED APPEARANCE AND LOCATION OF ALL THE EXPOSED ELEMENTS OF THE WORK OF ALL THE TRADES. INCLUDING THAT WORK WHICH IS ILLUSTRATED PRIMARILY ON DRAWINGS OF OTHER DISCIPLINES. LOCATIONS SHOWN ON OTHER DRAWINGS ARE SCHEMATIC, UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS. THE ARCHITECTURAL DRAWINGS TAKE PRECEDENCE FOR THE FINISHED APPEARANCE AND LOCATION OF ALL PARTS OF THE

EXCEPTION: DIMENSIONED LOCATIONS SHOWN ON DRAWINGS OF OTHER DISCIPLINES SHALL GOVERN ONLY WHERE:

A. SPECIFICALLY AND INDIVIDUALLY INDICATED BY THAT DISCIPLINE. B. OCCURRING WITHIN A ROOM OR OTHER IDENTIFIED SPACE FOR WHICH ARCHITECTURAL SHEET OR SCHEDULE NOTES INDICATE THAT DIMENSIONS PROVIDED ELSEWHERE SHALL

REFER TO STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE DETAILED DESIGN OF THOSE SYSTEMS, OF WHICH PORTIONS MAY BE SHOWN ON THE ARCHITECTURAL DRAWINGS.

FINISH FLOOR ELEVATIONS ARE TO TOP OF CONCRETE FLOOR SLAB UNLESS NOTED OTHERWISE. WHERE THE CONCRETE IS DEPRESSED TO ACCOMODATE CONCRETE FILL CONCRETE WEAR SLABS, WATERPROOFING, RAISED FLOORS AND OTHER SIMILAR FLOOR ASSEMBLIES, FINISHED FLOOR ELEVATIONS ARE TO TOP OF FINISHED FLOOR ASSEMBLY

EXCEPT WHERE DIRECTED TO PLACE ITEMS OF THE WORK AT THE APPROXIMATE LOCATIONS SHOWN, DO NOT SCALE DRAWINGS FOR DIMENSIONAL INFORMATION. ALL ELEMENTS OF THE DRAWINGS MAY NOT BE DRAWN TO EXACT SCALE, ALL DIMENSIONS REQUIRED ARE SHOWN. OR MAY BE DERIVED FROM THOSE SHOWN ON THE FLOOR PLANS, DETAILS, ELEVATIONS, SECTIONS, SCHEDULES, AND SPECIFICATIONS.

THE CONTRACTOR SHALL MAINTAIN THE PERMIT SET AND ALL UPDATED DRAWINGS. SPECIFICATIONS, AND OTHER INFORMATION THROUGHOUT THE CONSTRUCTION PROCESS.

THE ARCHITECT SHALL BE AT ALL PRE-CONSTRUCTION MEETINGS WITH SPECIFIC SUBCONTRACTORS AS SPECIFIED.

THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR ANY COMMUNICATION BETWEEN THE CONTRACTOR AND THE OWNER OR THE OWNER'S REPRESENTATIVE.

10 PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL CONTACT UTILITY SERVICES TO VERIFY LOCATIONS OF ALL UNDER GROUND UTILITIES.

CONTRACTOR SHALL REPAIR, AT HIS OWN EXPENSE, ANY DAMAGE, WHETHER INSIDE OR OUTSIDE OF THE LIMIT OF CONTRACT LINE, TO UTILITY SYSTEMS, SURFACE PAVEMENTS, FIXTURES OR STRUCTURES THAT ARE NOT SPECIFICALLY INDICATED TO BE REMOVED OR RELOCATED AS PART OF THE PROJECT CONSTRUCTION.

12 THE LIMIT OF WORK LINE, DEFINES THE LIMITS OF WORK IN THIS CONTRACT. THERE MAY BE INSTANCES WHERE EROSION PROTECTION DEVICES. UTILITY SYSTEMS. AND GRADINI OPERATIONS EXTEND BEYOND THE LIMIT OF WORK LINE IN ORDER TO SUCCESSFULLY COMPLETE OPERATIONS AND/OR TIE INTO ADJACENT SYSTEMS.

13 DUMPING OF CONSTRUCTION DEBRIS ON SITE IS STRICTLY PROHIBITED.

14 SEE NFPA 24 FOR UNDERGROUND FIRE SERVICE REQUIREMENTS.

AN ON SITE COORDINATION SIGN OFF MEETING SHALL BE HELD WITH ALL PRINCIPAL TRADES PRIOR TO START OF THE BUILDING MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL. FIRE ALARM, AND COMMUNICATION INSTALLATION WORK. EACH TRADE SUBCONTRACTOR SHALL SIGN ON THE PLANS THAT THEY HAVE COORDINATED THEIR WORK WITH EACH OTHER AND THE GENERAL CONTRACTOR AND THAT THE WORK CAN BE INSTALLED AS SHOWN ON THE

16 CUTTING, BORING, SAW-CUTTING OR DRILLING THROUGH THE NEW OR EXISTING STRUCTURAL ELEMENTS TO BE DONE ONLY WHEN SO DETAIL IN THE DRAWINGS OR ACCEPTED BY THE ARCHITECT WITH THE APPROVAL OF OWNER.

ARCHITECTURAL SYMBOL LEGEND

ROOM IDENTIFICATION ROOM NAME ← ROOM NAME 101 < ROOM NUMBER 150 SF ← AREA

WALL TYPE IDENTIFICATION PARITION TYPE REFERENCE

KEYNOTE IDENTIFICATION

SPEC. DIVISION NUMBER - SEQUENTIAL NUMBER — 01-01 ← REFERENCE KEYNOTE → 1 → SHEET KEYNOTE (SEE LEGEND ON SHEET)

DRAWING IDENTIFICATION

DRAWING TITLE View Name **→** DRAWING NUMBER Scale: 1/8" = 1'-0" ON SHEET DRAWING SCALE

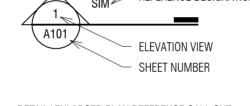
NORTH SYMBOLS TRUE NORTH PLAN NORTH

M ← REFERENCE DESIGNATION

EXTERIOR/ INTERIOR ELEVATION REFERENCE

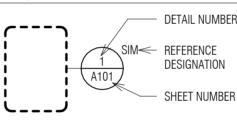


SIM REFERENCE DESIGNATION



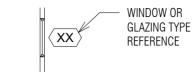
DETAIL/ ENLARGED PLAN REFERENCE CALL OUT

WALL SECTION REFERENCE

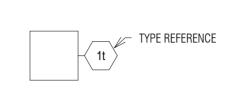


DOOR/ SIGNAGE IDENTIFICATION DOOR NUMBER SIGNAGE NUMBER

GLAZING/WINDOW IDENTIFICATION



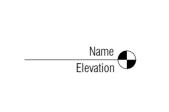
MILLWORK, FURNITURE, EQUIPMENT IDENTIFICATION



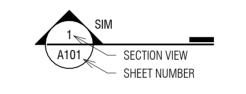
STRUCTURAL GRID (A) GRID REFERENCE

ELEVATION DATUM

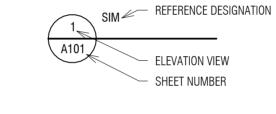
(2)(1)



BUILDING SECTION REFERENCE



DETAIL/ ENLARGED PLAN REFERENCE CALL OUT



DRAWING REVISION



PROJECT DESCRIPTION / SCOPE OF WORK

RENOVATION OF EXISTING SECOND FLOOR PARTIAL AREA FOR MEDIA, STUDY, AND CONFERENCE

PROJECT DIRECTORY

City of Phoenix Burton Barr Central Library

1221 N CENTRAL AVE Phoenix, AZ 85004 CONTACT: Gary J Nelson City of Phoenix Project Manager

Phone: 602-262-4959 Email: gary.j.nelson@phoenix.gov Nicholas D Hartman Library Department Project Manager Phone: 602-534-7862

Email: nicholas.hartman@phoenix.gov Marlene Imirzian & Associates Architects, LTD. 8906 N CENTRAL AVE Phoenix, AZ 85020

CONTACT: Marlene Imirzian Principal Phone: 602-943-5279 Email: mimirzian@imirzian-architects.com

MECHANICAL & PLUMBING ENGINEER Spectrum Engineers 1501 W FOUNTAINHEAD PKWY SUITE 330, Tempe, AZ 85282

Stephen D. Kerchner Mechanical & Plumbing Engineer Phone: 480-621-3434 Email: stephen.kerchner@speceng.com ELECTRICAL ENGINEER Spectrum Engineers 1501 W FOUNTAINHEAD PKWY SUITE 330,

Tempe, AZ 85282

CONTACT: Hector A. Nunez Electrical Engineer Phone: 480-621-3463 Email: hector.nunez@speceng.com

SHEET INDEX

EP6.03

A0.00 **COVER SHEET** SHEET INDEX, SCOPE, DIRECTORY A0.01 A0.10 CODE PLAN

A1.00 FLOOR PLAN & SPECIFICATIONS REFLECTED CEILING PLAN & DEMO PLAN A1.10 A1.20 **ENLARGED FLOOR PLAN** A2.00 **BUILDING SECTIONS**

INTERIOR ELEVATIONS **DETAILS** A7.00 DOOR SCHEDULE & FINISH SCHEDULE

MECHANICAL SYMBOLS, ABBREVIATIONS, LEGENDS AND DRAWING INDEX ME0.02 MECHANICAL SPECIFICATIONS

MECHANICAL DETAILS AND SCHEDULES ME5.01 MECHANICAL HVAC PLAN LEVEL 2

SHEET INDEX, ABBREVIATIONS, AND GENERAL NOTES EE0.02 ELECTRICAL SPECIFICATIONS

EE7.01 TYPICAL MOUNTING DETAILS EE7.02 TYPICA DETAILS LEVEL 2 OVERALL PLAN LEVEL 2 LIGHTING PLAN EL1.02

EP1.02 LEVEL 2 ELECTRICAL PLAN ONE-LINE DIAGRAM - NORMAL ELECTRICAL SCHEDULE EP6.02

PANEL SCHEDULES

Revisions

Marlene Imirzian

EXPIRES ON 3/31/2025

Designed By: Drawn By:

Checked By:

04/19/23

ENGINEER

C

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OFFIC

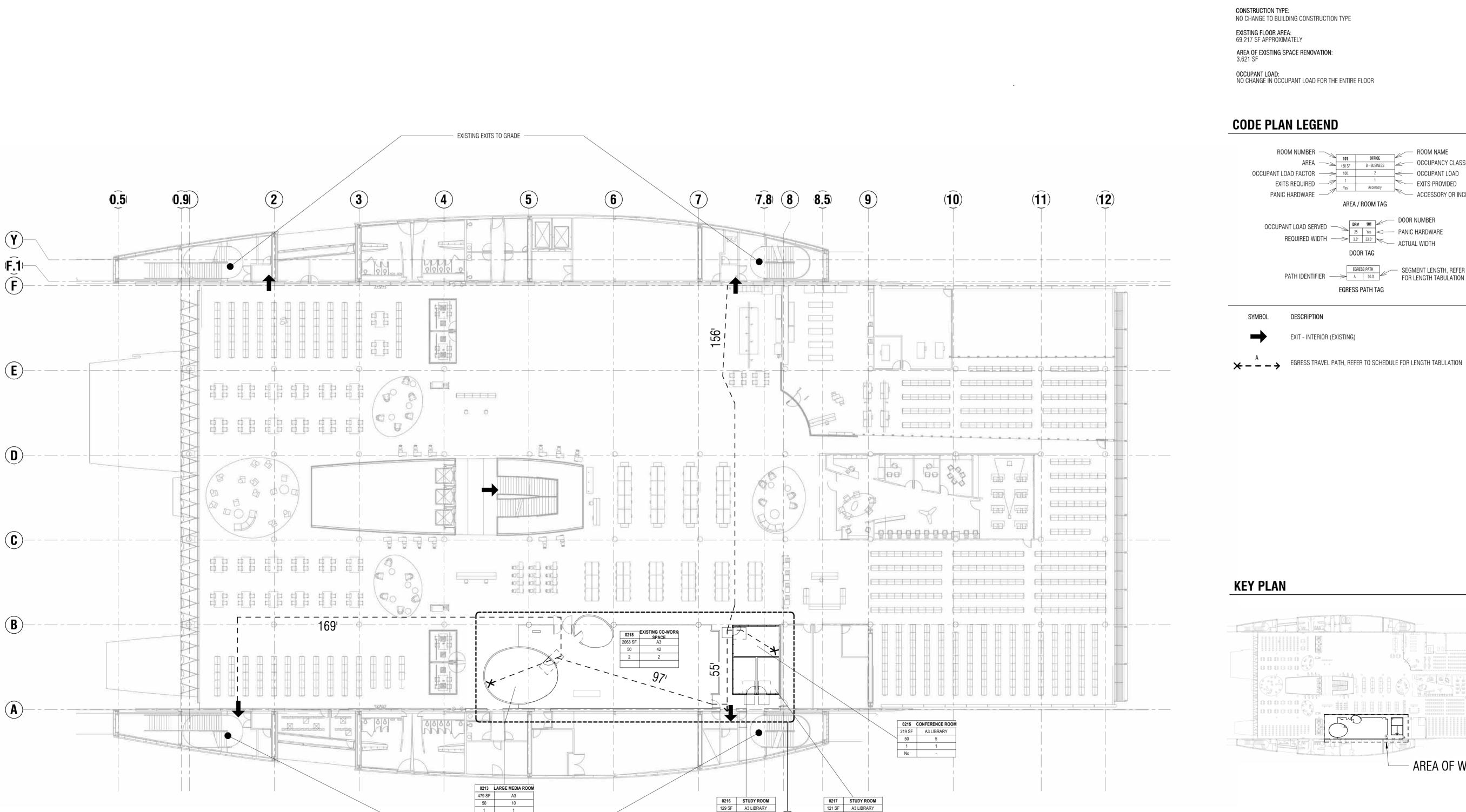
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KIVA# SDEV# Sheet



EXISTING EXITS TO GRADE

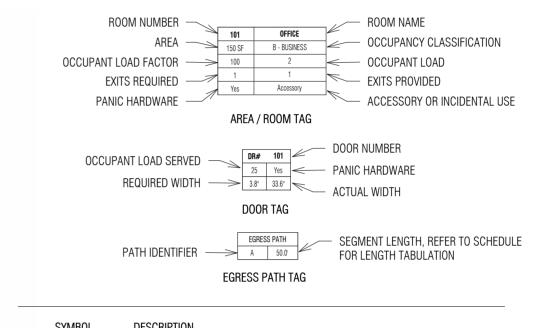
PROJECT DESCRIPTION / SCOPE OF WORK

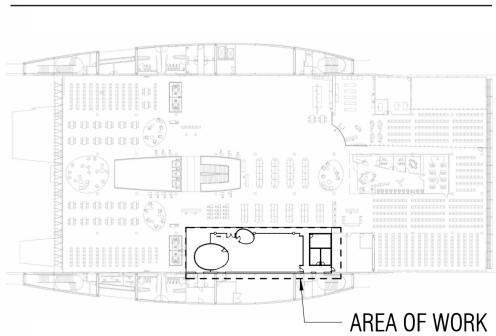
RENOVATION OF EXISTING SECOND FLOOR PARTIAL AREA FOR MEDIA, STUDY, AND CONFERENCE

CODE ANALYSIS:

APPLICABLE CODES: 2018 INTERNATIONAL BUILDING CODE 2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) 2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC) 2017 NATIONAL ELECTRICAL CODE (NEC) 2018 PHOENIX FIRE CODE

OCCUPANCY GROUP: NO CHANGE IN OCCUPANCY TYPE. A-3 LIBRARY





KIVA# SDEV#

Title: StartUpPHX

Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

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B. APPROVED SUBMITTALS TO BE DISTRIBUTED BY THE CONTRACTOR TO THE APPROPRIATE TRADES. C. SUBMITTALS INDICATED AS REJECTED OR TO BE CORRECTED SHALL BE CORRECTED ANO RE-SUBMITTED TO THE ARCHITECT FOR REVIEW.

D. SHOP DRAWINGS: AFTER REVIEW AND APPROVAL BY THE CONTRACTOR, SUBMIT (3) PDFS OF EACH DRAWING FOR REVIEW BY THE ARCHITECT. E. PRODUCT DATA AFTER REVIEW AND APPROVAL BY THE CONTRACTOR, SUBMIT (5) COPIES OF MANUFACTURER'S CATALOGS AND BROCHURES FOR REVIEW BY THE ARCHITECT.

F. SAMPLES: AFTER REVIEW ANO APPROVAL BY THE CONTRACTOR, SUBMIT (3) MATERIAL AND/OR COLOR SAMPLES FOR REVIEW BY THE ARCHITECT. G. PROVIDE 5% ATTIC STOCK OF ALL FIXTURES AND FINISHES TO THE LIBRARY, COORDINATE STORAGE OF MATERIALS

A. DRILLING THROUGH EXISTING CONCRETE STRUCTURE TO BE DONE 8" OR FURTHER TO EITHER SIDE OF CENTERLINE B. ALL CONNECTIONS TO EXISTING PRECAST TEE'S TO BE SHOT-PIN TYPE ANCHORS WITH 3/4" MAX. DEPTH, UNLESS NOTED OTHERWISE.

DIVISION 5 METALS

STRUCTURAL METALS A. GENERAL:

1. ALL EXPOSED STEEL TO BE TREATED AS FINISHED PRODUCT. SEE DRAWINGS FOR FINISH. UNLESS NOTED OTHERWISE, DO NOT PRIME OR PAINT EXPOSED STEEL. SUBMIT FINISH SAMPLES TO ARCHITECT FOR REVIEW.

B. MATERIALS AND EXECUTION: 1. WALLS AND OTHER ITEMS SPECIFIED AS COLD-FORMED STEEL FRAMING SHALL BE DESIGNED. DETAILED AND FABRICATED IN ACCORDANCE WITH A.I.S.I. SPECIFICATION FOR THE DESIGN OF COLD-

FORMED STEEL STRUCTURAL MEMBERS 2. ALL FRAMING MEMBERS SHALL BE OF THE TYPE AND SIZE AS SHOWN ON THE DRAWINGS AND SPECIFICATIONS AND SHALL BE MANUFACTURED BY A CURRENT MEMBER OF THE STEEL STUD

MANUFACTURERS ASSOCIATION OR PRE-APPROVED EQUAL. 3. ALL STUDS SHALL HAVE A MINIMUM FLANGE WIDTH OF 1-5/8". WITH A MINIMUM 3/8" RETURN LIP. 4. ALL TRACKS SHALL HAVE A MINIMUM FLANGE WIDTH Of 1-1/4".

5. ALL COLD-FORMED ITEMS SHALL BE FORMED FROM STEEL MEETING THE MINIMUM REQUIREMENTS OF AS1\A A 570, GRADE 33.

ERECTION. 7. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY OR AT AN ANGLE AS IN BRACING TO FIT FIRMLY AGAINST ABUTTING MEMBERS. MEMBERS SHALL BE HELD SECURELY IN PLACE UNTIL PROPERLY

8. ATTACHMENT OF COMPONENTS SHALL BE SCREWED OR BOLTED AS INDICATED.

6. WALL FRAMING COMPONENTS MAY BE PREFABRICATED INTO PANELS OF A SUITABLE SIZE FOR

9. ALL STUDS SHALL BE FASTENED TO ALL TRACKS WITH A MINIMUM #10 SCREW AT EACH FLANGE. 1. SUBMIT SHOP DRAWINGS FOR THE FABRICATION AND ERECTION OF METAL ITEMS.

2. ALL EXPOSED METAL WORK TO BE THOROUGHLY CLEANED OF ALL SOIL, FINGERPRINTS, AND OTHER FOREIGN MATERIALS. SEE DRAWINGS FOR FINISH. 3. FABRICATE MISCELLANEOUS FLASHING AND SHEET METAL WORK FROM APPROPRIATE GAUGE FOR STIFFNESS AND RIGIDITY. SEE DRAWINGS FOR FINISH. 4. FIELD VERIFY ALL DIMENSIONS.

5. STEEL STIFFENERS TO BE SHOP FABRICATED, PRIMED AND PAINTED, AND ASSEMBLED ON SITE. PAINT TO BE SILVER, PROVIDE SAMPLES FOR REVIEW BY ARCHITECT

DIVISION 7 - JOINT SEALERS

A. SUBMITTALS: PROOUCT DATA B. QUALITY ASSURANCE: PROVIDE PRODUCTS FROM A SINGLE MANUFACTURER THAT SUCCESSFULLY PRODUCED SUCH PRODUCTS FOR NOT LESS THAN 5 YEARS.

C. SEALANT 1. CLEAR SILICONE SEALANT: ASTM APPROVED, AT TEMPERED GLAZING, BUTTED CONDITIONS AND AT FLOOR, WALL, BEAM/ TEMPERED GLAZING CONDITIONS AND AS SHOWN IN DRAWINGS.

2. SEALANT: ASTM C 834, TYPE OP. GRADE NE. ACRYLIC LATEX OR SILICONIZED ACRYLIC LATEX, APPLY SEALANT AROUND PERIMETER OF DOOR ANO BORROWED LIGHT FRAMES AND AS SHOWN IN DRAWINGS. D. INSTALL SEALANT USING AN INSTALLER APPROVED BY SEALANT MANUFACTURER.

DIVISION 8 - DOORS AND WINDOWS

INTERIOR DOORS AND GLAZING A. FIELD VERIFY ACTUAL OWNER PROVIDED WOOD DOORS PRIOR TO INSTALLATION. B. REFER TO SCHEDULE FOR DOOR TYPE AND MATERIAL.

C. ALL WOOD DOORS TO BE SOLID CORE WITH MAPLE VENEER. UNLESS OTHERWISE NOTED TO MATCH EXISTING. D. ALL GLASS DOORS TO BE 1/2" CLEAR TEMPERED GLASS TO MATCH ADJACENT SURROUNDING GLAZING, UNLESS E. FRAMES FOR WOOD DOORS TO BE SERIES 300 ALUMINUM FRAMES BY WESTERN INTEGRATED MATERIALS, INC.,

3310 E. 59TH STREET, LONG BEACH. CA 90805, PHONE: 562.634.2823 F. ALUMINUM FINISH TO BE CLEAR ANODIZED. PROVIDE SAMPLE OF FINISH FOR ARCHITECTS APPROVAL. G. ALL GLASS DOORS TO HAVE MIRRORED FINISH PATCH FITTINGS UNLESS INDICATED OTHERWISE. H. GLASS SHALL BE TEMPERED WHERE REQUIRED TO BE SAFETY GLASS

I. PROVIDE SHOP DRAWINGS FOR ARCHITECTS APPROVAL BEFORE FABRICATION. J. RE-USE SALVAGED DOORS AND HARDWARE WHERE POSSIBLE.

ALUMINUM FRAMES

REQUIREMENTS AND SECURITY SYSTEM.

A. SECTION INCLUDES INTERIOR ALUMINUM FRAMES FOR DOORS. B. SUBMITTALS: SUBMIT MANUFACTURER'S DATA SPECIFICATIONS, RECOMMENDATIONS AND STANDARD DETAILS FOR ALUMINUM FRAMES AND COMPONENTS OF THE WORK.

C. QUALITY ASSURANCE: EXCEPT AS OTHERWISE INDICATED, THE REQUIREMENTS FOR ALUMINUM FRAMES, AND THE TERMINOLOGY USED IN THE SECTION, ARE THOSE OF NAAMM, AAMA AND AA AND IN PARTICULAR, THOSE OF THE "ENTRANCE MANUAL" AND "CURTAIN WALL MANUAL" BY NAAMM. D. COORDINATION OF FABRICATION: WHENEVER POSSIBLE, CHECK THE ACTUAL OPENINGS IN THE CONSTRUTION

WORK BY ACCURATE FIELD MEASUREMENTS BEFORE FABRICATION, ANO SHOW RECORDED MEASUREMENTS ON FINAL SHOP DRAWINGS. HOWEVER, COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS AS DIRECTED AND AVOID DELAYS IN THE WORK. WHERE NECESSARY, PROCEED WITH FABRICATION WITHOUT FIELD MEASUREMENTS.

AND COORDINATE INSTALLATION TOLERANCES TO ENSURE PROPER FIT OF UNITS. E. MANUFACTURER AND MODEL ALUMINUM FRAMES (BASIS OF DESIGN): FRAME SYSTEM SHALL BE SERIES 300 AS MANUFACTURED BY WESTERN INTEGRATED MATERIALS, INC., SOUTH EL MONTE, CA 1. DESIGN: RECTILINEAR.

2. TRIM: 1 INCH WITH 3/8 INCH RETURN. 3. THROAT SIZE: AS REQUIRED FOR WALL THICKNESS. 4. FINISH: ALL EXPOSED ALUMINUM SURFACES SHALL BE GIVEN A CLEAR ANODIC COATING, AAMA 61, COMMERCIAL, AAM12C22A26, 0.4 MI MINIMUM THICKNESS.

5. FRAMES SHALL BE PREPARED FOR SECURITY HARDWARE WHERE APPLICABLE.

DOOR HARDWARE A. REFER TO DRAWINGS FOR DOOR HARDWARE TYPE AND FINISH. B. ALL FINISH HARDWARE TO BE APPROVED BY ARCHITECT. DOORS TO BE KEYED ALIKE. COORDINATE WITH OWNER'S DIVISION 9 - FINISHES

GYPSUM BOARD WALLS AND CEILINGS A. INSTALL 5/8" TYPE 'X' GYPSUM BOARD WITH SCREWS. INSTALL CORNER BEADS AT ALL CORNERS AND 'L' TRIM AT ALL EDGES WHERE ABUTTING A DISSIMILAR MATERIAL AND EDGES WHERE TOP OF WALL IS EXPOSED UNLESS NOTED B. GYPSUM BOARD TO RECEIVE LEVEL '5' FINISH.

C. ALL CORNERS SHALL BE SECURED.

A. PAINT ALL GYPSUM WALLS AND CEILINGS WITH LATEX BASED PAINT.

B. USE APPROPRIATE PRIMER AND A MINIMUM TWO FINAL COATS TO COVER ALL SURFACES. C. APPLY COATS AS NEEDED TO PROVIDE EVEN SOLID COLOR WITH COMPLETE COVERAGE. D. UNLESS NOTED OTHERWISE, PAINT WALLS TO MATCH EXISTING: EXISTING WALL COLOR IS 'BRUDER WHITE' (FORMULA AVAILABLE), VERIFY BY MATCHING DRAW-DOWN ON SITE. E. PROVIDE SAMPLES OF ALL PAINT COLORS FOR ARCHITECT'S APPROVAL.

MFR: PRECISION COATINGS, INC. (DISTRIBUTED BY FRAZEE PAINT). PRODUCT: INTERIOR ACRTIC URETHANE FINISH, LOW VOC. COLOR: SILVER MIST 2720.

FINISH: PEARL. WALL BASE A. CONTRACTOR INSTALLED RUBBER BASE TO MATCH EXISTING. B. 2 1/2" STRAIGHT NO TOE BASE.

C. PROVIDE COIL MATERIAL. ACT CEILINGS

A. GENERAL 1. SUSPEND FROM EXPOSED CONCRETE TEE STEMS ONLY, DO NOT ATTACH TO EXISTING PERFORATED CEILING PANELS. 2. PROVIDE LATERAL BRACING AS REQUIRED PER INDUSTRY STANDARDS. B. REMOVE 'POWER BELLY' METAL CEILING PANELS WHERE REQUIRED ABOVE NEW MEETING ROOMS. REMOVE

PANELS ONLY WITHIN PERIMETER OF MEETING ROOMS. C. 24"x48" SUSPENDED CEILING SYSTEM AT MEETING ROOMS. D. ACOUSTICAL PANEL TYPE:

SURFACE TEXTURE - FINE. COMPOSITION - MINERAL FIBER. COLOR - WHITE

EDGE PROFILE - BEVELED TEGULAR FOR INTERFACE WITH INTERLUDE XL 9/16" DIMENSIONAL MAIN BEAMS AND SUPRAFINE XL 9/16" CROSS TEES. ACCEPTABLE PRODUCT - DUNE PLANK, AS MANUFACTURED BY ARMSTRONG WORLD INDUSTRIES, INC. 1. SUSPENSION SYSTEM:

COMPONENTS -ALL MAIN BEAMS AND CROSS TEES SHALL BE COMMERCIAL QUALITY HOT- DIPPED GALVANIZED (GALVANIZED STEEL, ALUMINUM, OR STAINLESS STEEL) AS PER ASTM A 653. THE MAIN BEAMS AND CROSS TEES ARE DOUBLE-WEB STEEL CONSTRUCTION TYPE WITH EXPOSED FLANGE DESIGN. EXPOSED SURFACES CHEMICALLY CLEANSED, CAPPING PRE- FINISHED GALVANIZED STEEL IN BAKED POLYESTER PAINT. MAIN BEAMS AND CROSS TEES SHALL HAVE ROTARY STITCHING (EXCEPTION: EXTRUDED ALUMINUM OR STAINLESS STEEL). STRUCTURAL CLASSIFICATION - ASTM C 635 INTERMEDIATE DUTY.

COLOR - WHITE TO MATCH ACTUAL COLOR OF SELECTED CEILING TILE, UNLESS NOTED

ACCEPTABLE PRODUCT - INTERLUDE XL 9/16" DIMENSIONAL MAIN BEAM AND SUPRAFINE 9/16" CROSS TEES AS MANUFACTURED BY ARMSTRONG WORLD INDUSTRIES, INC.

2. ATTACHMENT DEVICES:

SIZE FOR FIVE TIMES DESIGN LOAD, INDICATED IN ASTM C 635, TABLE I, DIRECT HUNG UNLESS NOTED OTHERWISE. WIRE FOR HANGERS AND TIES - ASTM A 641, CLASS I ZINC COATING, SOFT TEMPER, PRE-STRETCHED WITH A YIELD STRESS LOAD OF AT LEAST THREE TIMES DESIGN LOAD, BUT NOT LESS THAN 12 GAUGE. EDGE MOLDINGS AND TRIM -METAL OR EXTRUDED ALUMINUM OF TYPES AND PROFILES INDICATED OR, IF NOT INDICATED, MANUFACTURER'S STANDARD MOLDINGS FOR EDGES AND PENETRATIONS (INCLUDING LIGHT FIXTURES) THAT FIT TYPE ANO EDGE DETAIL OF SUSPENSION SYSTEM INDICATED. PROVIDE MOLDINGS WITH EXPOSED FLANGE OF SAME WIDTH AS 3. INTERLUDE XL 9/16" DIMENSIONAL MAIN BEAM TO RUN CONTINUOUS ALONG LONG (48") EDGE OF TILE AT 24" O.C.

4. SUPRAFINE 9/16" CROSS TEES TO RUN BETWEEN MAIN BEAMS ALONG SHORT (24") EDGE OF TILE. 5. REFER TO DRAWINGS FOR CEILING DIRECTION AND LAYOUT.

DIVISION 10 - SPECIALTIES

FIRE PROTECTION SYSTEM A. FIRE SPRINKLER SYSTEM TO BE INSTALLED IN AREAS WITH NEW CEILING CONSTRUCTION. B. WORK TO BE DONE UNDER SEPARATE PERMIT BY A LICENSED FIRE PROTECTION CONTRACTOR AND WORK. C. PROVIDE SHOP DRAWINGS INDICATING LAYOUT OF SPRINKLER HEADS AND OTHER SYSTEM COMPONENTS FOR ARCHITECT'S REVIEW AND APPROVAL.

D. HEADS TO BE FLAT DISK, CHROME FINISH AT CEILINGS UNLESS OTHERWISE NOTED. E. EXISTING FIRE SPRINKLERS AT PERFORATED CEILING TO BE LEFT AS IS, ADD ADDITIONAL SPRINKLERS AS REQUIRED

F. COORDINATE ALL NEW SMOKE DETECTORS WITH LIBRARY STANDARDS. G. COORDINATE WITH THE LIBRARY TO ASSURE ALL EXISTING SMOKE BEAMS ARE STILL FULLY OPERATIONAL.

END OF ARCHITECTURAL SPECIFICATIONS

DEFERRED SUBMITTAL

ALL MODIFICATIONS TO EXISTING FIRE SPRINKLER SYSTEMS & ALL NEW WORK OF SAME.

STUDY ROOM

0216 STUDY ROOM GENERAL CONTRACTOR SHALL NOTIFY ARCHITECT AND OWNER'S REPRESENTATIVE OF ALL DISCREPANCIES BETWEEN CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS VERBALLY WITHIN EIGHT (8) HOURS OF DISCOVERY AND CONFIRM IN WRITING WITHIN TWO (2) DAYS OF DISCOVERY WITH THE NATURE OF AND PROPOSED RESOLUTION OF ALL DISCREPANCIES.

GENERAL NOTES

ALL WORK OF THIS CONTRACT SHALL COMPLY WITH ACCEPTED BUILDING PRACTICES AND ALL CODES HAVING JURISDICTION OVER THIS PROJECT.

ALL TRADES AND SUBCONTRACTORS SHALL DIRECT ALL QUESTIONS, CHANGES AND REQUESTS THROUGH THE GENERAL CONTRACTOR, WHO SHALL SUBMIT ALL REQUESTS, CHANGES OR QUESTIONS TO THE ARCHITECT.

THE GENERAL NOTES AND DETAILS APPLY THROUGHOUT THE PROJECT UNLESS OTHERWISE NOTED OR SHOWN. ALL WORK THAT IS EITHER IMPLIED OR REASONABLY INFERABLE FROM THE CONTRACT DOCUMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND SEE THAT ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF ALL MATERIALS BY ALL TRADES IS PROPERLY EXECUTED, AS DESCRIBED WITHIN THIS SCOPE OF WORK SHOWN ON THE DRAWINGS OR ISSUED DOCUMENTS.

ALL WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER ALL OTHERS. DO NOT SCALE DRAWINGS FOR DIMENSIONAL INFORMATION. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO BID SUBMITTAL. START OF SHOP DRAWINGS, START OF CONSTRUCTION, AND/OR FABRICATION OF MATERIALS.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF WORK, THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

DIMENSIONS ARE TO THE BUILDING GRID LINES OR THE FINISH SURFACES UNLESS NOTED

REFER TO DOOR SCHEDULE FOR DOOR AND HARDWARE INFORMATION.

REFER TO PARTITION TYPES FOR WALL CONSTRUCTION REQUIREMENTS

ROOM NUMBERING ARE FOR THIS DOCUMENTATION ONLY, NOT REFERRING TO THE ORIGINAL **ROOM NUMBERS**

KEYNOTE LIST

EXISTING WALL TO REMAIN

EXISTING CONCRETE COLUMN TO REMAIN

EXISTING BASE, DND

EXISTING DOOR, DND

EXISTING WALL HEADER ABOVE TO REMAIN

EXISTING GYPBOARD. REPAINT BOTH SIDES TO MATCH EXISTING

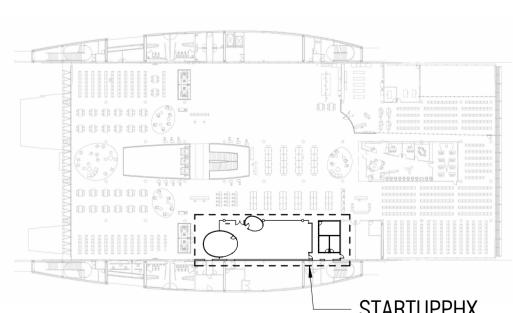
NEW DATA OUTLET, SEE ELEC

NEW RETURN GRILLE, SEE MECH

NEW MONITOR BY OWNER (NIC)

NEW FURNITURE BY OWNER (NIC)

KEY PLAN





Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020

602 943 5279 v

Per City of Phoenix City Code Chapter 2, section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of your contract with the City of Phoenix.

EXISTING SERVICE DESK TO REMAIN EXISTING GLASS WALL, DND EXISTING SUSPENDED ACOUSTICAL TILE CEILING, DND EXISTING GLASS DOOR IN EXISTING WALL TO REMAIN EXISTING GYPBOARD IN ROOM TO BE PAINTED GREEN, SPECIFIC COLOR TO BE DECIDED BY OWNER EXISTING GREEN COMPUTER STATIONS RELOCATED (NIC) NEW FRAMED WALL, FLOOR TO CEILING NEW GLASS WALL FLOOR TO EXISTING HEADER ABOVE NEW GLASS WALL FLOOR TO CEILING NEW DIGITAL MARKETING SCREEN (NIC) NEW WOOD DOOR NEW PARTITIONS, PRIME & PAINT NEW 2 1/2" WALL BASE TO MATCH EXISTING NEW POWER OUTLET, SEE ELEC NEW 24"x48" ACOUSTIC CEILING TIL NEW LIGHTING, SEE ELEC NEW SUPPLY DIFFUSER, SEE MECH **NEW GLASS DOOR** REQUIRED ADA CLEARANCES, TYP EXISTING GLASS WALL INFILL GAPS BETWEEN GLASS PANELS WITH CLEAR SILICONE. SEE DETAIL 12/A6.00 NEW DUCTWORK. SEE MECHANICAL SHEETS

EXPIRES ON 3/31/2025 Designed By: Drawn By: Checked By: 04/19/23

√arlene Imirzian

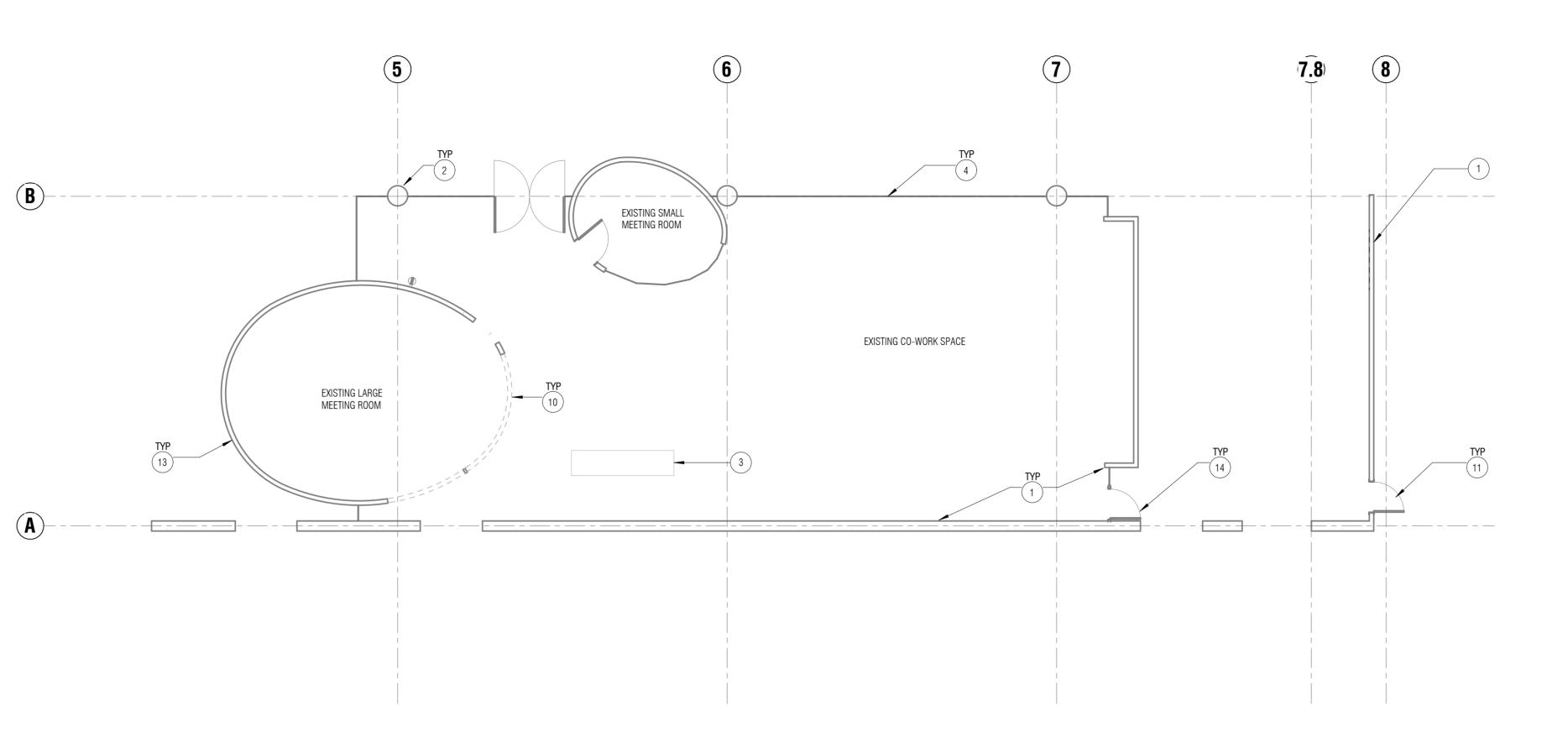
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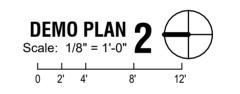
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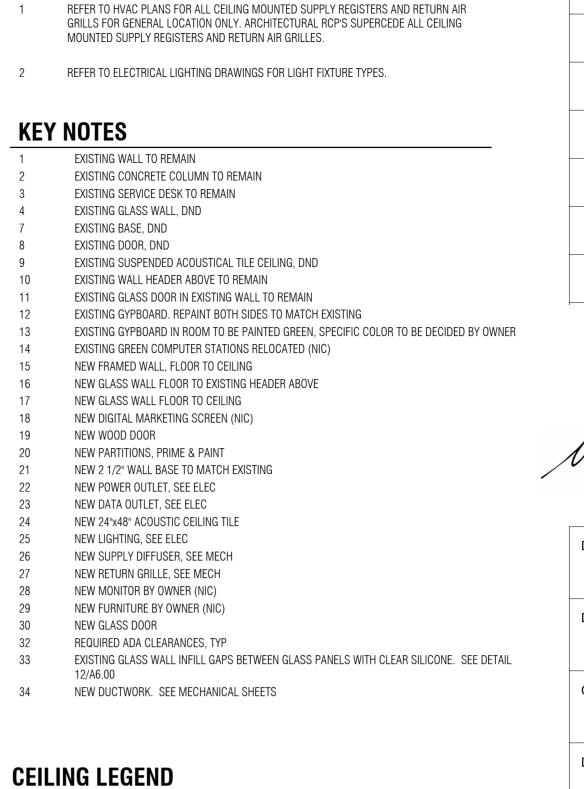
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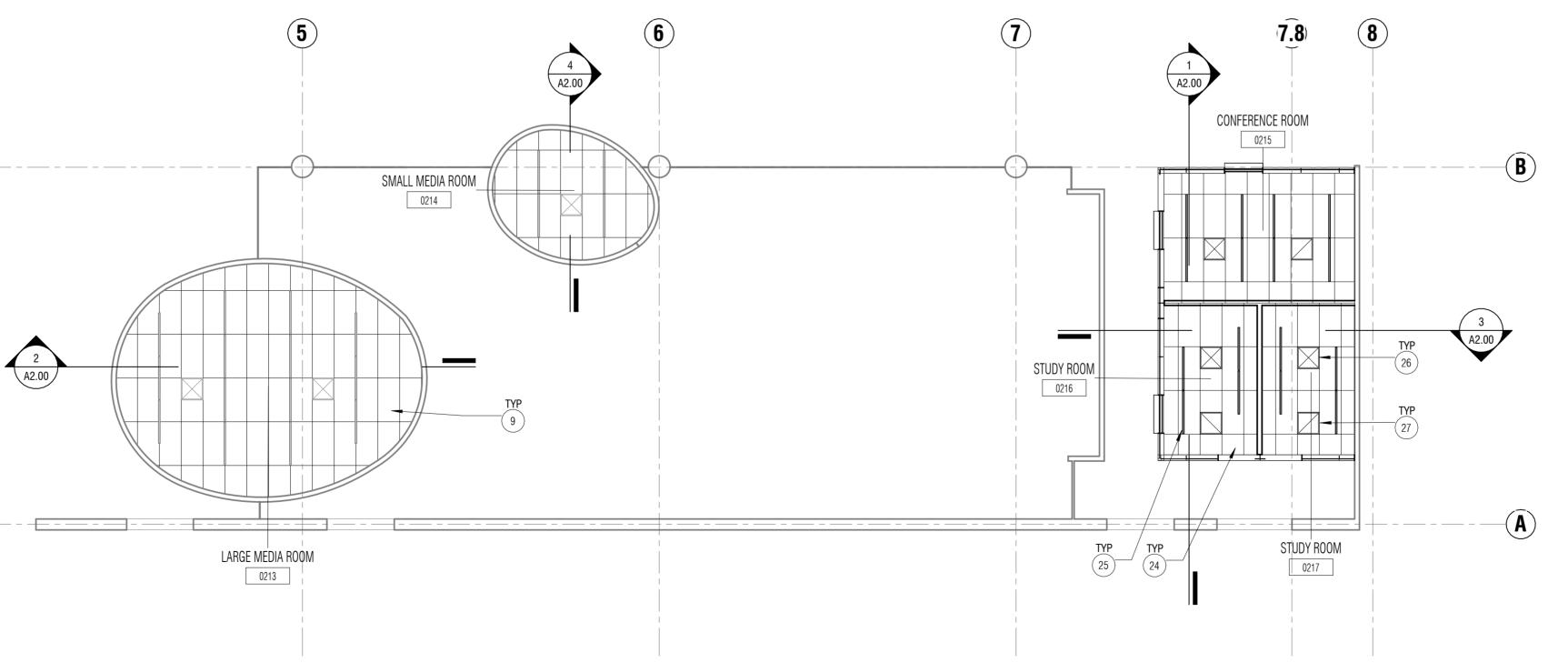
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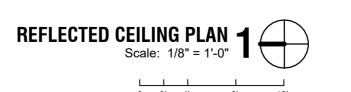






GENERAL NOTES





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CEILING MATERIALS - REFER TO ROOM FINISH SCHEDULE

AIR SUPPLY; 24" x24"

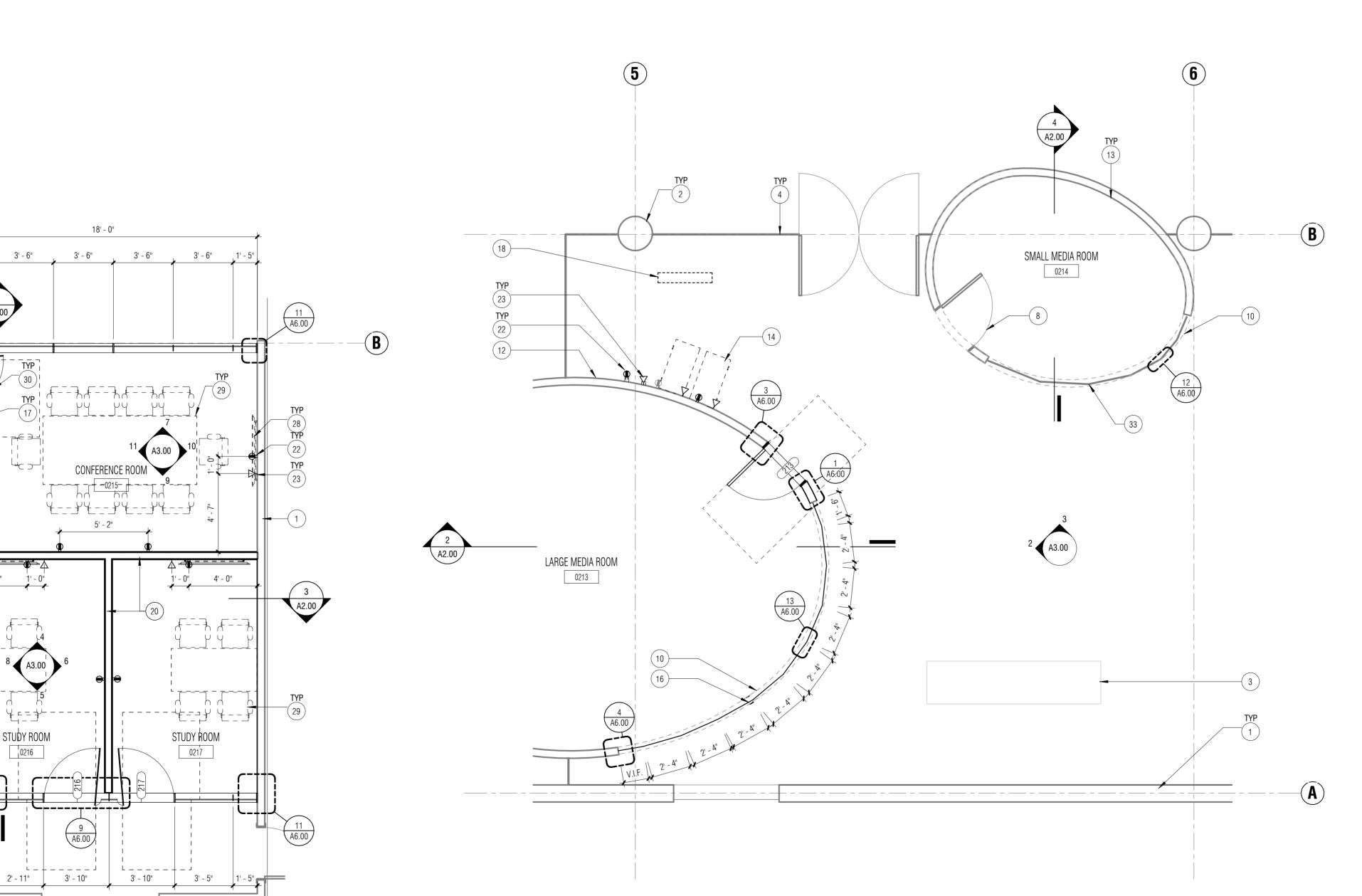
SEE MECH

AIR RETURN; 24" x 24"

SEE MECH

ACOUSTICAL CEILING TILE

HVAC FIXTURES - REFER TO MECH DRAWINGS



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- EXISTING BASE, DND EXISTING DOOR, DND
- EXISTING SUSPENDED ACOUSTICAL TILE CEILING, DND
- EXISTING WALL HEADER ABOVE TO REMAIN
- EXISTING GLASS DOOR IN EXISTING WALL TO REMAIN
- EXISTING GYPBOARD. REPAINT BOTH SIDES TO MATCH EXISTING
- EXISTING GYPBOARD IN ROOM TO BE PAINTED GREEN, SPECIFIC COLOR TO BE DECIDED BY OWNER
- EXISTING GREEN COMPUTER STATIONS RELOCATED (NIC) NEW FRAMED WALL, FLOOR TO CEILING
- NEW GLASS WALL FLOOR TO EXISTING HEADER ABOVE
- NEW GLASS WALL FLOOR TO CEILING
- NEW DIGITAL MARKETING SCREEN (NIC) NEW WOOD DOOR
- NEW PARTITIONS, PRIME & PAINT
- NEW 2 1/2" WALL BASE TO MATCH EXISTING
- NEW POWER OUTLET, SEE ELEC NEW DATA OUTLET, SEE ELEC
- NEW 24"x48" ACOUSTIC CEILING TILE NEW LIGHTING, SEE ELEC
- NEW SUPPLY DIFFUSER, SEE MECH
- NEW RETURN GRILLE, SEE MECH
- NEW MONITOR BY OWNER (NIC)
- NEW FURNITURE BY OWNER (NIC) **NEW GLASS DOOR**
- REQUIRED ADA CLEARANCES, TYP
- EXISTING GLASS WALL INFILL GAPS BETWEEN GLASS PANELS WITH CLEAR SILICONE. SEE DETAIL
- NEW DUCTWORK. SEE MECHANICAL SHEETS

EXPIRES ON 3/31/2025

Designed By:

Drawn By:

Revisions

Checked By:



Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

ENLARGED FLOOR PLAN Scale: 1/4" = 1'-0"

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EXISTING WALL TO REMAIN EXISTING CONCRETE COLUMN TO REMAIN EXISTING SERVICE DESK TO REMAIN

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EXISTING GYPBOARD. REPAINT BOTH SIDES TO MATCH EXISTING EXISTING GYPBOARD IN ROOM TO BE PAINTED GREEN, SPECIFIC COLOR TO BE DECIDED BY OWNER

EXISTING GREEN COMPUTER STATIONS RELOCATED (NIC)

NEW FRAMED WALL, FLOOR TO CEILING NEW GLASS WALL FLOOR TO EXISTING HEADER ABOVE

NEW GLASS WALL FLOOR TO CEILING NEW DIGITAL MARKETING SCREEN (NIC)

NEW PARTITIONS, PRIME & PAINT

NEW 2 1/2" WALL BASE TO MATCH EXISTING NEW POWER OUTLET, SEE ELEC NEW DATA OUTLET, SEE ELEC

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EXPIRES ON 3/31/2025

Designed By: Drawn By:

Checked By:

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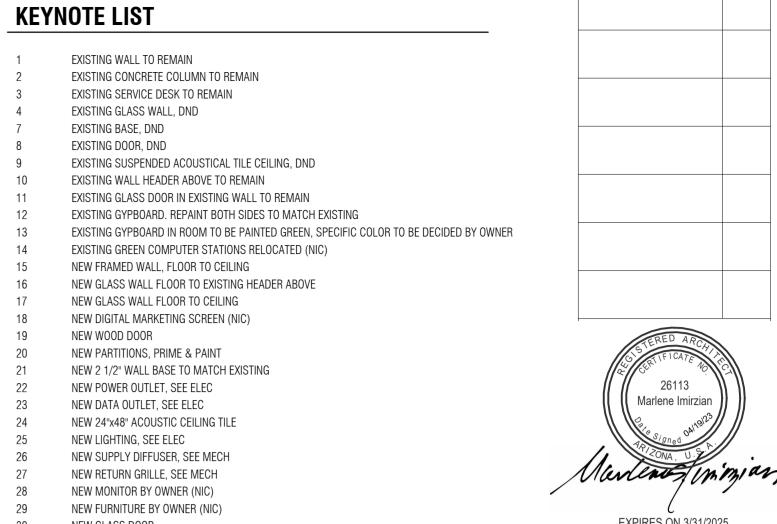
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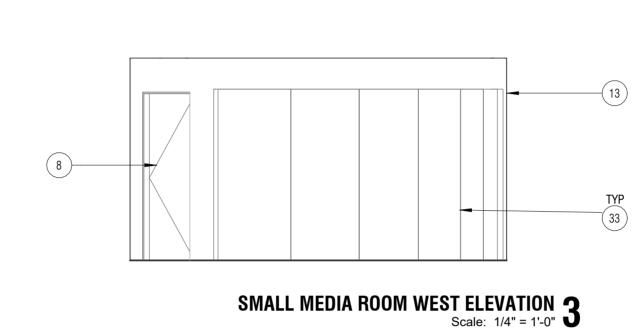
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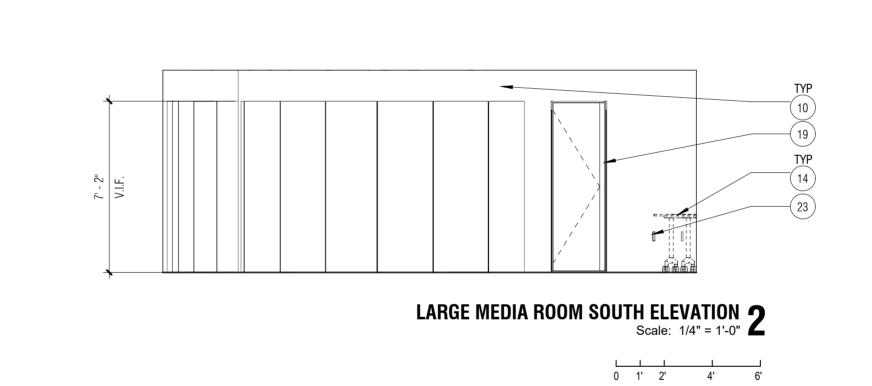
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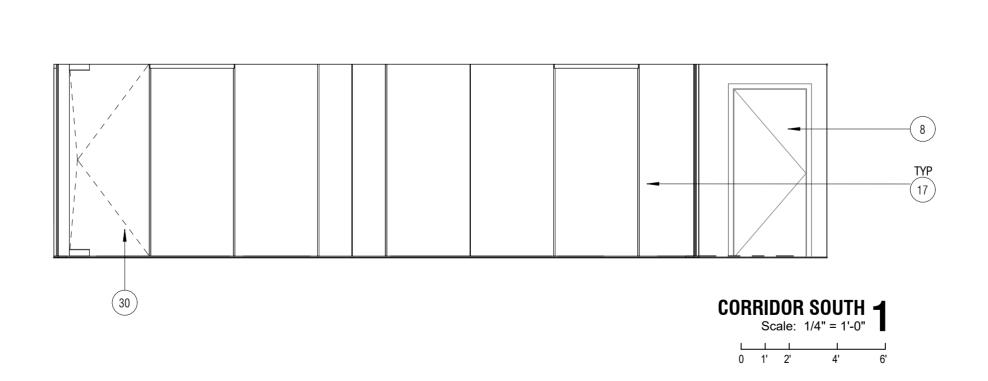
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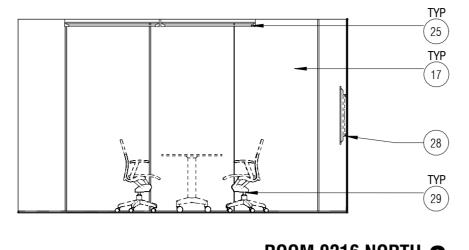


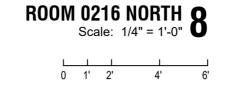


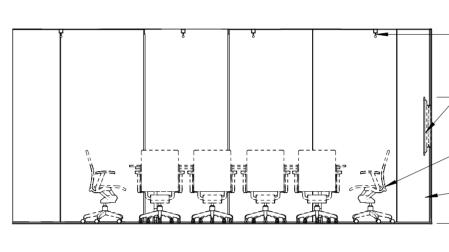
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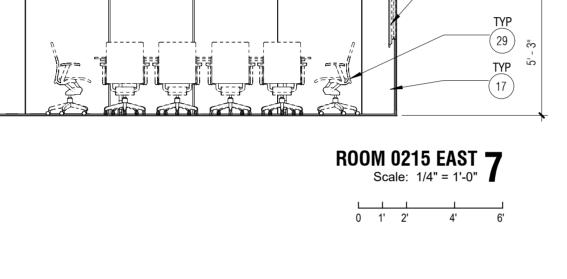


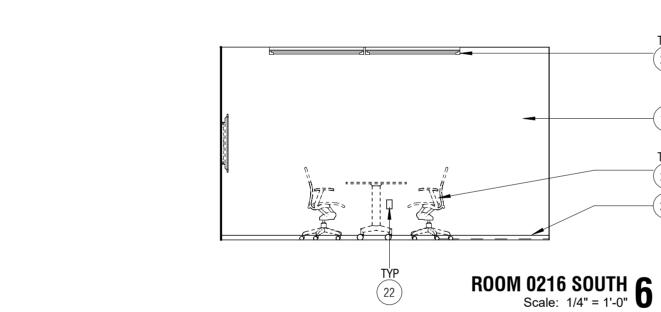










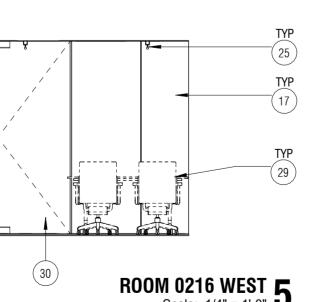


ROOM 0215 NORTH 1 1

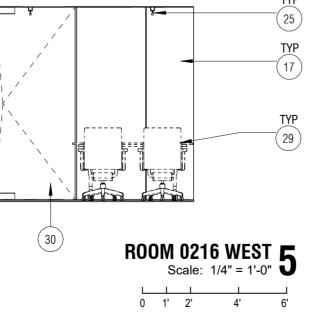
ROOM 0215 SOUTH 10 Scale: 1/4" = 1'-0"

0 1' 2' 4' 6'

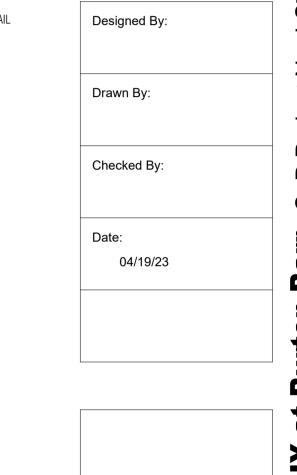
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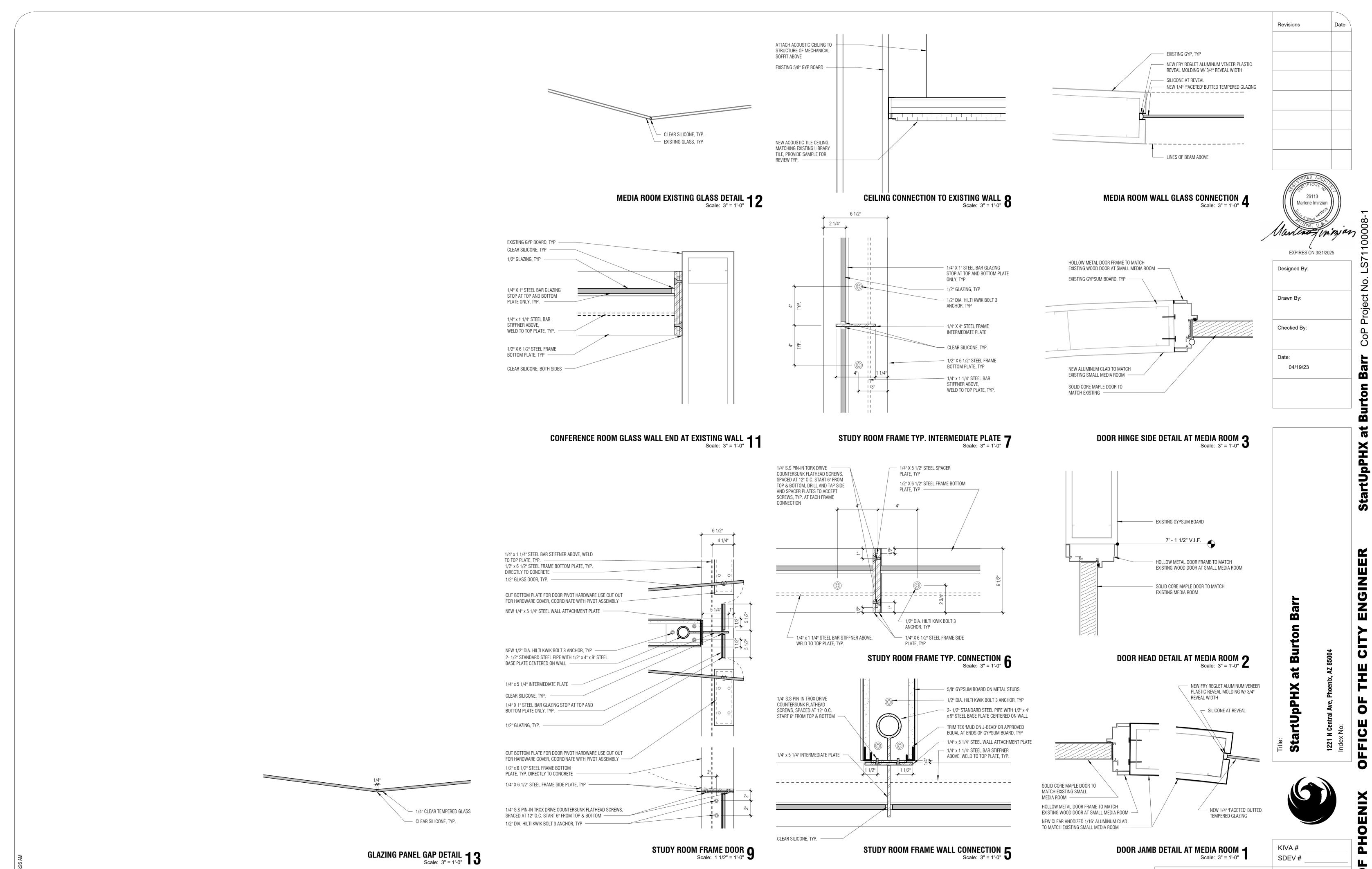


Revisions





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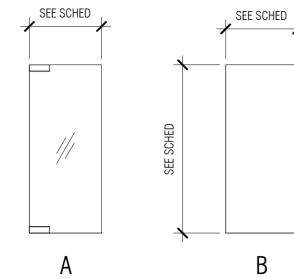
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DOOR NUMBER	TYPE	MATERIAL	WIDTH	HEIGHT	THICKNESS	FINISH	GLAZING	COMMENTS
213	В	WD	3' - 0"	7' - 0"	1 3/4"	MATCH EXISTING	N/A	MATCH EXISTING SOLID CORE MAPLE DOOR
215	А	STL/GL	3' - 4"	8' - 0"	1/2"	MATCH EXISTING	1/2" TEMPERED	DOOR & HARDWARE TO MATCH EXISTING
216	А	STL/GL	3' - 4"	8' - 0"	1/2"	MATCH EXISTING	1/2" TEMPERED	DOOR & HARDWARE TO MATCH EXISTING
217	Α	STL/GL	3' - 4"	8' - 0"	1/2"	MATCH EXISTING	1/2" TEMPERED	DOOR & HARDWARE TO MATCH EXISTING

ROOM FINISH SCHEDULE

		FLOOR FINISH	BASE FINISH	WALL FINISH					
RM NUMBER	NAME			EAST	WEST	NORTH	SOUTH	CEILLING FINISH	COMMENTS
213	LARGE MEDIA ROOM	CPT	RB	GYP	GYP	GYP	GL	(E) ACT	CARPET TO MATCH EXISTING
214	SMALL MEDIA ROOM	CPT	RB	GYP	GL	GYP	GYP	(E) ACT	CARPET TO MATCH EXISTING
215	CONFERENCE ROOM	CPT	RB	GL	GYP	GL	GYP	ACT	CARPET TO MATCH EXISTING
216	STUDY ROOM	CPT	RB	GL	GYP	GL	GYP	ACT	CARPET TO MATCH EXISTING
217	STUDY ROOM	CPT	RB	GYP	GL	GYP	GYP	ACT	CARPET TO MATCH EXISTING
218	EXISTING CO-WORK SPACE	EX	EXISITNG	EXISTING	EXISTING	EXISTING	EXISTING	EXISTING	ALL FINISHES EXISTING TO REMAIN. PROTECT DURING CONSTRUCTION

DOOR TYPES



ACCESSIBLE DOOR REQUIREMENTS

- 1 ALL EGRESS DOORS TO BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
- THE FLOOR OR LANDING ON EACH SIDE OF ALL DOORS CANNOT SLOPE MORE THAN 1:48 IN ANY DIRECTION. THE FLOOR OR LANDING CANNOT BE GREATER THAN 1/2" LOWER THAN THE DOORWAY THRESHOLD. FLOOR OR LANDING
- 3 ALL HAND-ACTIVATED DOOR OPENING HARDWARE TO MEET THE FOLLOWING REQUIREMENTS:

LATCHING OR LOCKING DOORS IN A PATH OF TRAVEL TO BE OPERATED WITH A SINGLE EFFORT BY LEVER TYPE HARDWARE, BY PANIC BARS, BY PUSH-PULL ACTIVATING BARS, OR BY OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP THE OPENING HARDWARE.

SAID HARDWARE TO BE CENTERED NO LESS THAN 34" BUT NO GREATER THAN 44" ABOVE FLOOR.

- THE MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5 POUNDS, WITH SUCH PULL OR PUSH EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOORS AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. THE MAXIMUM EFFORT TO OPERATE FIRE DOORS MAY BE INCREASED TO NOT EXCEED 15 POUNDS.
- THE BOTTOM 10" OF ALL DOORS ARE TO MEET THE FOLLOWING REQUIREMENTS:

 DOOR SURFACE TO BE SMOOTH & UNINTERRUPTED, ALLOWING THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST, WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION.

 NARROW FRAME DOORS MAY USE A 10" HIGH SMOOTH PANEL ON THE PUSH SIDE OF THE

GENERAL DOOR NOTES

- 1 HINGED DOOR MUST OPEN AT LEAST 90°.
- DOOR MUST PROVIDE A MIN. CLEAR OPENING OF 32" WHEN POSITIONED AT AN ANGLE OF 90° FROM THE CLOSED POSITION (MEASURED BETWEEN THE FACE OF THE DOOR AND THE OPPOSITE STOP).
- 3 PROVIDE A CLEAR AND LEVEL (2% SLOPE MAX.) LANDING ON EACH SIDE OF DOOR.
- 4 ALL DOORS IN THE ACCESSIBLE ROUTE SHALL HAVE AN ACCESSIBLE THRESHOLD, HARDWARE, CLOSER, AND 10" SMOOTH SURFACE AT BOTTOM OF PUSH SIDE.
- 5 DOOR CLOSER TO BE 5 LBF MAX.
- AT RATED DOORS THE AUTHORITY HAVING JURISDICTION MAY INCREASE THE MAXIMUM EFFORT TO OPERATE FIRE DOORS IN ORDER TO ACHIEVE POSITIVE LATCHING, BUT NOT EXCEEDING THE 15 LBF MAX.

ROOM FINISH KEY ABBREVIATIONS

ACT ACOUSTICAL CEILING TILE TO MATCH EXISTING

CPT CARPET TO MATCH EXISTING

GYPSUM BOARD

RB 4" RUBBER BASE TO MATCH EXISTING

L GLASS WALL TO MATCH EXISTING. SEE DETAILS

Revisions Date



EXPIRES ON 3/31/2025

Designed By:

Drawn By:

Checked By:

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MISC. SYMBOL LEGEND SYMBOL LEGEND MECHANICAL GENERAL NOTES SYMBOL LEGEND DESCRIPTION **DESCRIPTION** SYMBOL DESCRIPTION SYMBOL SYMBOL 1. COORDINATE EXACT LOCATIONS OF CEILING DIFFUSERS AND GRILLES WITH ARCHITECTURAL REFLECTED CEILING PLAN. **HVAC PIPING** REFERENCE AND LINE SYMBOLS **DUCTWORK** 22. ALL FIRE DAMPERS SHOWN ARE 1-1/2 HOUR UNLESS OTHERWISE NOTED. **DOUBLE LINE DESCRIPTION** SINGLE LINE HIGH PRESSURE STEAM ----- HPS -DETAIL INDICATOR: # INDICATES DETAIL # 23. IF CONTRACTOR ENCOUNTERS MATERIAL WHICH MAY CONTAIN ASBESTOS. NUMBER, SHEET INDICATES DRAWING SHEET IMMEDIATELY STOP WORK IN THIS AREA AND NOTIFY THE OWNER. SHEET WHERE DETAIL IS SHOWN MEDIUM PRESSURE STEAM ----- MPS -----RECTANGULAR SUPPLY 24. PROVIDE CEILING ACCESS PANELS AS REQUIRED WHERE MECHANICAL EQUIPMENT, VALVES, VAV BOXES, FIRE DAMPERS, ETC. ARE LOCATED ABOVE LOW PRESSURE STEAM ----- LPS -ELEVATION OR SECTION INDICATOR, EXTERIOR: INACCESSIBLE CEILINGS. # INDICATES ELEVATION OR SECTION NUMBER. SHEET SHEET INDICATES DRAWING SHEET WHERE ———— HPC — HIGH PRESSURE CONDENSATE RETURN 25. ENCLOSE ALL DUCT AND FLUE PENETRATIONS THROUGH 1 HOUR ROOF RECTANGULAR SUPPLY **ELEVATION OR SECTION IS SHOWN** ASSEMBLIES WITH 2 SHEET ROCK LAYERS FROM SHEET ROCK CEILING AT DUCT DOWN BOTTOM OF ROOF TRUSSES TO ROOF DECK. MEDIUM PRESSURE CONDENSATE RETURN — MPC -26. DO NOT USE STEEL ROOF DECK TO SUPPORT LOADS FROM PIPING, DUCTWORK 100 ROOM OR SPACE NUMBER OW PRESSURE CONDENSATE RETURN _____ LPC ____ OR EQUIPMENT. HANGER LOADS LESS THAN 50 LBS. MAY BE HUNG FROM THE RECTANGULAR STEEL ROOF DECK IN CASES WHERE HANGING FROM THE STEEL ROOF DECK RETURN DUCT UP $\langle 1 \rangle$ CANNOT BE AVOIDED. THE ATTACHMENT METHOD MUST DISTRIBUTE THE LOAD KEYNOTE INDICATOR —— PC — PUMP DISCHARGE ACROSS THE DECK AS APPROVED BY THE STRUCTURAL ENGINEER. REVISION INDICATOR ——— HHWS— HEATING HOT WATER SUPPLY 27. PROPERLY LUBRICATE ALL PIECES OF EQUIPMENT BEFORE TURNING THE RECTANGULAR SYSTEM OVER TO THE OWNER. RETURN DUCT DOWN — HHWR— HEATING HOT WATER RETURN DIFFUSER / GRILLE INDICATOR 28. PREPARE 6 COPIES OF SUBMITTALS IN AN INDEXED, LABELED FOLDER CONTAINING FULL PERFORMANCE. MATERIAL AND INSTALLATION INFORMATION ——— TWS —— TEMPERED WATER SUPPLY ABOUT ALL EQUIPMENT, PIPING, COMPONENTS AND ACCESSORIES TO BE USED. RECTANGULAR CU-1 **EQUIPMENT INDICATOR** SUBMITTALS WILL BE CHECKED AT MOST TWICE. TIME SPENT ON SUBSEQUENT EXHAUST DUCT UP SUBMITTALS WILL BE BILLED TO THE CONTRACTOR BY THE ENGINEER AT ITS ——— CHWS— CHILLED WATER SUPPLY MATCH LINE
SEE XX/X-XXX CURRENT HOURLY RATES MATCH LINE INDICATOR ——— CHWR— CHILLED WATER RETURN 29. TWO OPERATING AND MAINTENANCE MANUALS SHALL BE PROVIDED IN HARD RECTANGULAR **---**\/--BREAK, STRAIGHT BACK LOOSE LEAF BINDERS. MANUALS SHALL CONTAIN PRODUCT CUT SHEETS **EXHAUST DUCT DOWN** AND OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL EQUIPMENT. REFRIGERANT LIQUID ACCESSORIES, FIXTURES, VALVES, ETC., PROVIDED FOR THE PROJECT. BREAK, ROUND 30. UPON COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS AND REFRIGERANT SUCTION ----- RS -----RUBBISH. MAKE ALL REQUIRED PATCHING AND REPAIRS OF OTHER TRADES **—** ROUND DUCT UP WORK DAMAGED BY THE DIVISION 23 CONTRACTOR. AND LEAVE THE PREMISES IN DEMOLITION POINT FROM EXISTING HOT GAS BYPASS ——— HG ——— A CLEAN, ORDERLY CONDITION. NEW CONNECTION POINT TO EXISTING 1. THE DIVISION 23 CONTRACTOR SHALL OPERATE THE SYSTEM AND ____ CWS ___ CONDENSER WATER SUPPLY DEMONSTRATE ALL ASPECTS TO THE ENGINEER AND/OR OWNER, TO PROVE ITS SYMBOL LEGEND ROUND DUCT DOWN OPERATION. ALL FILTERS USED DURING CONSTRUCTION SHALL BE REPLACED CONDENSER WATER RETURN PRIOR TO THE TEST RUN PERIOD. ----- CWR -SYMBOL DESCRIPTION 32. THE DIVISION 23 CONTRACTOR SHALL GUARANTEE THE HVAC SYSTEM FOR A CONDENSATE DRAIN LINE ———— CD —— PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. ACCOUSTICALLY LINED VALVES, METERS, AND GAUGES RECTANGULAR DUCT GLYCOL SUPPLY ——— GS —— 33. THE DIVISION 23 CONTRACTOR SHALL, DURING CONSTRUCTION, MAINTAIN A SET OF AS-BUILT REDLINED RECORD DRAWINGS AT THE PROJECT SITE. ALL -><\ SHUT OFF VALVE CHANGES IN LAYOUT, ROUTING, EQUIPMENT, COMPONENTS, AND ACCESSORIES ——— GR —— **GLYCOL RETURN** 90° RECTANGULAR SHALL BE RECORDED. THESE REDLINES SHALL BE GIVEN TO THE -1-|} **ELBOW WITH TURNING** GATE VALVE ARCHITECT/ENGINEER AFTER THE FINAL INSPECTION IN ACCORDANCE WITH THE ----- FOS ---**FUEL OIL SUCTION** SPECIFICATIONS. CHECK VALVE ——— FOR — **FUEL OIL RETURN DEFINITIONS** 90° RADIUS ELBOW <u>-</u>Z-AUTO 2-WAY VALVE _____ FOV ____ **FUEL OIL VENT** NOTE: ALL DEFINITIONS MAY NOT BE USED AUTO 3-WAY VALVE COMPRESSED AIR (PSIG) ——— CA (100)—— **DUCT SIZE OR SHAPE** \rightarrow GLOBE VALVE INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC **TRANSITION EXISTING PIPE** REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR BALL VALVE REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH //// (E) //// EXISTING PIPE TO BE REMOVED OPPOSED BLADE AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED. IT IS **BALANCING DAMPER** RELIEF VALVE TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON **ABBREVIATIONS** (O.B.D.) IN RECT DUCT LOCATION IS INTENDED. CHAIN OPERATED GATE VALVE DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", NOTE: ALL ABBREVIATIONS MAY NOT BE USED "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN BALANCING DAMPER "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND ACCESS DOOR MAX MAXIMUM PRESSURE REDUCING VALVE IN ROUND DUCTS SIMILAR PHRASES. AIR CONDITION(-ING.-ED) THOUSAND BTU PER HOUR MBH MCA MINIMUM CIRCUIT AMPS APPROVE: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH APD AIR PRESSURE DROP MANUFACTURER UTTERFLY VALVE MFR THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, MINIMUM COMBINATION TEE APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES **BALANCING DAMPER NOT APPLICABLE** AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY BHP **BRAKE HORSE POWER** NORMALLY CLOSED SOLENOID VALVE BTU **BRITISH THERMAL UNIT** NOISE CRITERIA BTUH BTU/HOUR NOT IN CONTRACT FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER SPLITTER DAMPER **NORMALLY OPEN** ANGLE VALVE TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, CUBIC FEET PER HOUR NPSH NET POSITIVE SUCTION INSTALLATION, AND SIMILAR OPERATIONS." CFM CUBIC FEET PER MINUTE HEAD CLG COOLING NOT TO SCALE VENTURI INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT COMP COMPONENT SQUARE OR PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING. CONDENS(-ER, -ING, -ATION) COND **OUTSIDE AIR** RECTANGULAR CEILING ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO BALANCING OR PLUG COCK OUTSIDE DIAMETER DIFFUSER CV **CONTROL VALVE** DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OUNCE CW **COLD WATER** OPERATIONS TO MAKE THE ITEM FULLY OPERATIONAL." **FLOW SETTER** DIA PRESSURE DROP OR ROUND CEILING PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, DISCH DIFFERENCE DISCHARGE DIFFUSER COMPLETE AND READY FOR THE INTENDED USE." EXPANSION VALVE (REFRIG.) PROPYLENE GLYCOL DP DEPTH OR DEEP DB DRY BULB TEMPERATURE PHASE INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY PARTS PER MILLION GAS COCK ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, PRESS **PRESSURE EXISTING** SIDEWALL REGISTER SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A POUNDS PER SQUARE EER **ENERGY EFFICIENCY RATIO** SUPPLY OR RETURN PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, EFF **EFFICIENCY** ХМАV ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE POUNDS PER SQUARE INCH MANUAL AIR VENT EG ETHYLENE GLYCOL REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE **PSI ABSOLUTE** ELEC **ELECTRIC** ENGAGED TO PERFORM. ______ **PSI GAUGE** ELEV **ELEVATION** PSIG STRAINER +\-ROUND FLEXIBLE DUCT ENT **ENTERING** THERMAL RESISTANCE SUBSTITUTIONS EVAP EVAPORAT(-E, -ING, -ED, -OR) GAUGE COCK RETURN AIR EWT **ENTERING WATER** RECIRCULATE **TEMPERATURE** SUBSTITUTIONS OF MATERIALS OR PRODUCTS SHOWN HEREIN SHALL BE AT RECIRC REFRIGERATION -888-EXT **EXTERNAL** FLEXIBLE CONNECTION THE OWNER'S, ARCHITECTS, OR ENGINEER'S WRITTEN APPROVAL ONLY REFR RETURN GRILLE REQUIRED WITH COPIES OF APPROVAL SENT TO THE PROJECT FILE. ANY DEVIATION REQD RATED --- AMPS FROM THESE DRAWINGS WILL NOT BE ALLOWED. THE CONTRACTOR SHALL FUTURE RLA **REVOLUTIONS PER MINUTE** PRESSURE GAUGE **FAHRENHEIT** BE RESPONSIBLE FOR COORDINATION OF ANY SUBSTITUTIONS AND COSTS RAINWATER OF CHANGES INCURRED BY OTHER TRADES DUE TO THE SUBSTITUTIONS. FLEXIBLE CONNECT(-OR,-ION) THERMOMETER OTHER TRADES INCLUDE: ELECTRICAL, PLUMBING, STRUCTURAL, ROOFING, FD FIRE DAMPER EXHAUST GRILLE OR ANY TRADE EFFECTED BY THE SUBSTITUTION. **FULL LOAD AMPS** SHADING COEFFICIENT FPI FINS PER INCH VICTUALIC COUPLING STANDARD CUBIC FEET **GUARANTEE** FPM **FEET PER MINUTE** PER MINUTE FPS FEET PER SECOND SOFT COLD WATER REDUCER CONCENTRIC FIRE/SMOKE DAMPER FSD FIRE SMOKE DAMPER SAFETY FACTOR THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND FT FEET (a) FSD WORKMANSHIP FROM DEFECT OF WORKMANSHIP, AND SHALL REPLACE OR SENSIBLE HEAT බ FSD SEA LEVEL REDUCER ECCENTRIC REPAIR WITHOUT ADDITIONAL COST TO THE OWNER ALL DEFECTIVE GAL GALLON(S) STATIC PRESSURE MATERIAL AND WORKMANSHIP, FOR A PERIOD OF (1) YEAR AFTER COMPLETION AND ACCEPTANCE. GALLONS PER HOUR SPECIFICATION(S) REFRIGERANT SITE GLASS SPECS(S FIRE DAMPER GPM **GALLONS PER MINUTE** SQUARE STANDARD **HVAC SYMBOLS** STD HD REFRIGERANT STRAINER STEAM STM HG **MERCURY** HR THERMOSTAT **TEMPERATURE** HOUR REFRIGERANT FILTER DRIER **TEMP** SMOKE DAMPER HT **HEIGHT** TEMP. DROP OR DIFF. HTG HEATING THERMAL THERMOSTAT WITH LOCKING COVER THERM 90° ELBOW UP TOTAL HP HORSE POWER TOT [HERMOSTA] HW HOT WATER TSTAT S TEMPERATURE SENSOR VOLT ΗZ HERTZ(FREQUENCY) 90° ELBOW DOWN LEXIBLE CONNECTION VACUUM VARIABLE AIR VOLUME \bigoplus ID INSIDE DIAMETER HUMIDISTAT VAV 90° TEE UP VELOCITY INCH VEL VENT, VENTILATION **VENT** (SP) ı KW \bigcirc STATIC PRESSURE SENSOR **KILOWATT VERTICAL** 90° TEE DOWN EXISTING DUCT VARIABLE FREQUENCY LEAVING AIR TEMPERATURE UNION LBS VOLUME **POUNDS** WATER COLUMN LG LENGTH WATER GAUGE **CAPPED PIPE** LH LATENT HEAT DUCT TO BE REMOVED

WATER PRESSURE DROP

ANCHOR

-

FLOAT AND THERMOSTATIC TRAP

WATER

WEIGHT

YEAR

WET BULB TEMP

WTR

WT

LRA

LVG

LOCKED ROTOR AMPS

LEAVING

LEAVING WATER

TEMPERATURE

MECHANICAL GENERAL NOTES

Marlene Imirzian & Associates Architects

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ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, SCHOOL DISTRICT, STATE, AND FEDERAL CODES AND REGULATIONS IN EFFECT AT THE DATE OF THE BID. CONFORM TO ANY CODES, RULES, REGULATIONS AND REQUIREMENTS THAT THE PROJECT OWNER HAS.

PRIOR TO FABRICATION AND INSTALLATION, COORDINATE THE INSTALLATION OF ALL HVAC PIPING, DUCTWORK, AND EQUIPMENT WITH PLUMBING PIPING. PLUMBING EQUIPMENT, REFRIGERATION TRENCHES AND PIPING, FIRE PROTECTION PIPING AND ALL OTHER TRADES INCLUDING BUT NOT LIMITED TO: THE MECHANICAL CONTRACTOR. REFRIGERATION CONTRACTOR, ELECTRICAL CONTRACTOR, FIRE PROTECTION CONTRACTOR, GENERAL CONTRACTOR, AND ANY CONTRACTOR HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.

PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT A COMPLETE, OPERATIONAL HVAC SYSTEM FOR THE ENTIRE PROJECT AS SHOWN

MOST RECENTLY ADOPTED BUILDING CODE, MECHANICAL CODE, PLUMBING CODE,

ON THESE DRAWINGS, INCLUDING ALL NECESSARY FEES AND PERMITS.

THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE

THE DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENTS AND THE EXTENT OF THE SYSTEM. IT SHALL BE THE WORK OF THE CONTRACTOR TO MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES, OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.

ALL HVAC INFORMATION IS NOT SHOWN ON THE HVAC DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL. ELECTRICAL AND REFRIGERATION DRAWINGS.

THE WORKING DRAWINGS ARE DIAGRAMMATIC. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR HVAC EQUIPMENT AND PIPING SHALL BE CHECKED AND COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, STRUCTURAL AND ELECTRICAL DRAWINGS.

SPACE ABOVE ALL CEILINGS IS LIMITED. CAREFUL COORDINATION IS REQUIRED WITH ALL TRADES BEFORE ANY PIPE, DUCT, OR EQUIPMENT IS ORDERED AND/OR INSTALLED. ANY CONFLICTS AND/OR CHANGES FOUND DURING INSTALLATION THAT RESULT FROM LACK OF COORDINATION BY THE CONTRACTORS DURING THE SHOP DRAWING PROCESS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

1/8" SCALE SHOP DRAWINGS (SUBMITTED FOR APPROVAL) ARE FOR ALL DUCTWORK AND PIPING SYSTEMS.

. THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.

0. DETAILS: THE CONTRACTOR IS RESPONSIBLE TO REVIEW AND USE WHERE APPROPRIATE ALL OF THE MECHANICAL DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED DETAILS IS THE RESPONSIBILITY OF THE CONTRACTOR

1. PIPING SCHEMATICS: THE CONTRACTOR IS RESPONSIBLE TO REVIEW THE PIPING SCHEMATICS INCLUDED WITH THE DRAWINGS FOR PIPING CONNECTIONS TO ALL MECHANICAL EQUIPMENT. THE PIPING SCHEMATICS SHOW DETAILED CONNECTIONS INCLUDING NECESSARY VALVES. FITTINGS. PRESSURE AND TEMPERATURE GAUGES, ETC., THAT ARE NOT SHOWN ON THE PIPING PLANS. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED PIPING SCHEMATICS IS THE RESPONSIBILITY OF THE CONTRACTOR.

12. THE STRUCTURE SHOWN ON ALL DETAILS MAY OR MAY NOT PERTAIN TO A PORTION OR ANY PORTION OF THE BUILDING. COORDINATE MOUNTING REQUIREMENTS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

13. ANY PART OF THIS INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

14. COORDINATE THE RETURN OF ALL MECHANICAL EQUIPMENT REMOVED DURING DEMOLITION WITH THE OWNER'S REPRESENTATIVE.

15. ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE SITE

16. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS. TRANSITIONS, VALVES, DAMPERS, AND OTHER DEVICES AND ACCESSORIES

REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION. 17. THE DIVISION 23 CONTRACTOR SHALL FURNISH ALL REQUIRED MOTORS. ALL MOTOR STARTING EQUIPMENT, WHEN NOT A PART OF THE EQUIPMENT, WILL BE FURNISHED BY THE ELECTRICAL CONTRACTOR.

18. EXISTING INTERIOR PIPING, EQUIPMENT, AND DUCTWORK HAS BEEN LOCATED IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS AND POINTS OF CONNECTION AND PIPE ROUTING THROUGH EXISTING CONDITIONS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL PERFORM THE WORK IN A MANNER THAT WILL CAUSE A MINIMUM DISRUPTION TO BUILDING TENANT USE AND SHALL COORDINATE THE WORK WITH THE BUILDING OWNER'S REPRESENTATIVE.

THE CONTRACTOR IS RESPONSIBLE FOR HVAC EQUIPMENT CHECK-IN, SAFEKEEPING, AND DAMAGE. DO NOT ROUTE DUCTS AND PIPES ABOVE ELECTRICAL PANELS. ALL ELECTRICAL PANELS MUST HAVE CLEAR ACCESS SPACE IN FRONT OF PANEL 4'-0" DEEP AND 6'-6" HIGH. DO NOT ROUTE DUCTS AND PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.

20. DO NOT ROUTE DUCTS AND PIPES ABOVE ELECTRICAL PANELS. ALL ELECTRICAL PANELS MUST HAVE CLEAR ACCESS SPACE IN FRONT OF PANEL 4'-0" DEEP AND 6'-6" HIGH DO NOT ROUTE DUCT AND PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM

MECHANICAL SHEET INDEX

MECHANICAL SYMBOLS, ABBREVIATIONS, LEGENDS AND DRAWING INDEX MECHANICAL SPECIFICATIONS MECHANICAL DETAILS AND SCHEDULES

MECHANICAL HVAC PLAN LEVEL 2



Project No. 230066

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Drawn By:

- FIRE RATED PENETRATIONS DETAILS SHOWN ON THE CONSTRUCTIONS DOCUMENTS SHOW GENERAL METHOD OF MECHANICAL (HVAC) AND PLUMBING PENETRATION FIRESTOPPING.
- FIRE RATED ASSEMBLY.
- RESISTANCE RATING OF CONSTRUCTION PENETRATED. PENETRATION FIRESTOPPING SYSTEMS SHALL BE COMPATIBLE WITH ONE
- ITEMS IF ANY.
- PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS: PROVIDE PENETRATION FIRESTOPPING WITH RATINGS DETERMINED PER ASTM E 814 OR UL 1479, BASED ON
- TESTING AT A POSITIVE PRESSURE DIFFERENTIAL OF 0.01-INCH WG
- PENETRATION FIRESTOPPING PRODUCTS SHALL BEAR UL. ETL OR FM GLOBAL CLASSIFICATION MARKING OF QUALIFIED TESTING AND INSPECTING AGENCY.
- DO NOT INSTALL PENETRATION FIRESTOPPING WHEN AMBIENT OR SUBSTRATE TEMPERATURES ARE OUTSIDE LIMITS PERMITTED BY PENETRATION FIRESTOPPING MANUFACTURERS OR WHEN SUBSTRATES ARE WET BECAUSE OF RAIN, FROST. CONDENSATION, OR OTHER CAUSES.
- COORDINATE CONSTRUCTION OF OPENINGS AND PENETRATING ITEMS TO ENSURE THAT PENETRATION FIRESTOPPING IS INSTALLED ACCORDING TO SPECIFIED REQUIREMENTS.
- OPENINGS TO ACCOMMODATE PENETRATION FIRESTOPPING.
- 0. INSTALL PENETRATION FIRESTOPPING TO COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND PUBLISHED DRAWINGS FOR PRODUCTS AND APPLICATIONS INDICATED.
- 1. INSTALL FORMING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE FIRE RATINGS INDICATED.
- 12. IDENTIFY PENETRATION FIRESTOPPING WITH PREPRINTED METAL OR PLASTIC LABELS. ATTACH LABELS PERMANENTLY TO SURFACES ADJACENT TO AND WITHIN 6 INCHES OF FIRESTOPPING EDGE SO LABELS WILL BE VISIBLE TO ANYONE SEEKING TO REMOVE PENETRATING ITEMS OR FIRESTOPPING

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230100 - BASIC MECHANICAL REQUIREMENTS 233113 - METAL DUCTWORK COORDINATE THE LOCATION OF ALL NEW ROOF OPENINGS AND THE LOCATION

OF ALL NEW AND RELOCATED ROOF MOUNTED EQUIPMENT WITH THE EXISTING STRUCTURE AND ARCHITECTURAL PLANS PRIOR TO ANY INSTALLATION. V-BELT DRIVES SHALL BE OF FABRIC AND RUBBER CONSTRUCTION. BELT GUARDS

SHALL BE PROVIDED FOR ALL EXPOSED BELTS AND DRIVES. PROVIDE 6" CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED

PROPERLY LUBRICATE ALL PIECES OF EQUIPMENT BEFORE TURNING THE SYSTEM OVER TO THE OWNER.

INSTALL DUCT MOUNTED SUPPLY AND RETURN AIR SMOKE DETECTORS IN ALL ROOFTOP, FAN-COIL, AIR-HANDLING, AND OTHER SUPPLY AIR SYSTEMS, WITH A CAPACITY GREATER THAN 2000 CFM. SMOKE DETECTORS ARE PURCHASED AND

230548 - VIBRATION ISOLATION AND SEISMIC BRACING

WIRED BY THE DIVISION 16 CONTRACTOR.

ALL MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING MUST BE VIBRATION ISOLATED AND SEISMICALLY BRACED FOR THE SITE SPECIFIC SEISMIC DESIGN CATEGORY AND SEISMIC USE GROUP. IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE IBC, UBC, ASHRAE, AND SMACNA. PROVIDE SEISMIC PRODUCTS BY AMBER-BOOTH OR MASON INDUSTRIES.

IN GENERAL, PROVIDE SPRING MOUNTS TO ATTENUATE LOW FREQUENCY SOUND AND VIBRATION AND NEOPRENE PADS TO ATTENUATE HIGH FREQUENCY SOUND AND VIBRATION. SEISMIC BRACING/MOUNTING CAN BE COMBINED WITH VIBRATION ISOLATION AS APPLICABLE.

CONTRACTOR MANUFACTURED SEISMIC BRACING/RESTRAINT METHODS ARE NOT ACCEPTABLE. PROVIDE A SIGNED AND STAMPED LETTER FROM A PROFESSIONAL ENGINEER CERTIFYING THAT THE SUPPLIED PRODUCTS ARE CORRECT FOR THE APPLICATION AND THAT THE INSTALLATION IS IN COMPLIANCE WITH ALL APPLICABLE

230553 - MECHANICAL IDENTIFICATION

PLASTIC TAPE: PROVIDE MANUFACTURER'S STANDARD COLOR-CODED PRESSURE SENSITIVE (SELF ADHESIVE) VINYL TAPE, NOT LESS THAN 3 MILS THICK. 1-1/2" WIDE TAPE MARKERS ON PIPES WITH OUTSIDE DIAMETERS LESS THAN 6" (INCLUDING INSULATION, IF ANY); 2-1/2" WIDE TAPE FOR LARGER PIPES.

PROVIDE MANUFACTURER'S STANDARD LAMINATED PLASTIC; COLOR CODED DUCT MARKERS.

COLOR: COMPLY WITH ANSI A13.1

MANUFACTURER'S STANDARD PRE-PRINTED NOMENCLATURE WHICH BEST DESCRIBES PIPING OR DUCT SYSTEM IN EACH INSTANCE OR AS SELECTED BY ARCHITECT OR ENGINEER IN CASES OF VARIANCE WITH NAMES AS SHOWN.

PRINT EACH MARKER WITH ARROWS INDICATING DIRECTION OF FLOW

PROVIDE PLASTIC LAMINATE VALVE TAGS: MANUFACTURER'S STANDARD 3/32" THICK ENGRAVED TAGS WITH PIPING SYSTEM ABBREVIATION IN 1/4" HIGH LETTERS AND SEQUENCED VALVE NUMBERS 1/2" HIGH, WITH 5/32" HOLE FOR FASTENER. PROVIDE 1-1/2" SQUARE BLACK TAGS WITH WHITE LETTERING.

PROVIDE MANUFACTURER'S STANDARD SOLID BRASS CHAIN (WIRE LINK OR BEADED TYPE), OR SOLID BRASS S-HOOKS OF THE SIZED REQUIRED FOR PROPER ATTACHMENT OF TAGS TO VALVES, AND MANUFACTURED SPECIFICALLY FOR THAT

230700 - MECHANICAL INSULATION

- PIPE INSULATION TO BE SNAP-ON GLASS FIBER TYPE WITH VAPOR JACKET. SEAL ALL ENDS AND JOINTS TO PROVIDE A COMPLETELY SEALED SYSTEM. ALTERNATIVELY, USE FLEXIBLE UNICELLULAR ASTM 534 TYPE 1 INSULATION. USE 1" THICKNESS FOR PIPE UP TO 2"Ø, AND 1 1/2" FOR PIPE OVER 2"Ø
- WRAP ALL SUPPLY AND RETURN DUCTWORK WITH 1-1/2" THICK FOIL FACED FIBERGLASS INSULATION. WRAP INSULATION TIGHTLY ON THE DUCT WITH ALL CIRCUMFERENTIAL JOINTS BUTTED AND LONGITUDINAL JOINTS OVERLAPPED A MIN. OF 2". COVER ALL JOINTS WITH FOIL-REINFORCED 'KRAFT' TAPE, 3" WIDE.
- NO RETURN AIR DUCT INSULATION IS REQUIRED IF THE RETURN AIR AND PLENUM TEMPERATURE DIFFERENCE IS LESS THAN 10°F
- OUTDOOR DUCTWORK EXPOSED TO THE WEATHER SHALL HAVE 2" INSULATION AND SHALL BE FITTED WITH 0.016 EMBOSSED ALUMINUM JACKET POP-RIVITED FOR A TIGHT WEATHERPROOF FIT.
- SEE 233113 FOR LINED RECTANGULAR DUCTWORK

- ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS AND PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION, (SMACNA).
- TRANSITION ALL NEW DUCTWORK TO CONNECT TO EXISTING, AS REQUIRED.
- DUCTWORK SHALL BE GALVANIZED STEEL THROUGHOUT, FABRICATED AND INSTALLED SO THAT NO VIBRATION OR NOISE RESULTS. IT SHALL BE MADE FROM THE BEST GRADE OF GALVANIZED MILLED STEEL SHEETS OF U.S. STANDARD GAUGE AND BE FREE FROM BLISTERS, SLIVERS, AND PITS. ALL SEAMS SHALL BE AIRTIGHT, THE CONSTRUCTION OF ALL DUCTWORK, INCLUDING GAUGES OF METAL BRACING LAYOUT, ETC., SHALL BE IN ACCORDANCE WITH SMACNA. SLEEVES FOR FIRE DAMPERS AND DUCT SECTIONS FORMING AN EXTENSION OF THE FIRE WALL SHALL BE 10 GAUGE STEEL.
- SEAL DUCTWORK ACCORDING TO THE FOLLOWING SMACNA DUCT SEALING CLASS:

DUCT LOCATION		DUCT 1	TYPE	
	SUPF	PLY		
	< 2 IN. WG	> 2 IN. WG	EXHAUST	RETURN
OUTDOORS	Α	Α	Α	Α
UNCONDITIONED				
SPACES	В	Α	В	В
CONDITIONED				
SPACES	С	В	В	В
(CONCEALED DUCTWORK)				
CONDITIONED				
SPACES	Α	Α	В	В
(EXPOSED DUCTWORK)	, ,	, ,		_

- HANGERS FOR DUCTS UP TO 18" IN WIDTH OR DIAMETER SHALL BE PLACED ON NOT MORE THAN 8 FOOT CENTERS. DUCTS 19" AND OVER IN WIDTH OR DIAMETER SHALL BE SUPPORTED ON NOT MORE THAN 4 FOOT CENTERS. DUCT HANGERS SHALL BE CONSTRUCTED OF GALVANIZED BAND IRON 1-1/8" FOR DUCTS UP TO 36" IN WIDTH OR DIAMETER. HANGERS SHALL EXTEND DOWN SIDES AND A MINIMUM OF 1" UNDER RECTANGULAR DUCTS, AND WRAP COMPLETELY AROUND ROUND DUCTS. ALL DUCTS SHALL BE RIGIDLY SUPPORTED.
- ALL DUCTWORK SHALL BE CLEANED PRIOR TO THE INSTALLATION OF CEILING AND DIFFUSERS. OPERATE FANS TO BLOW OUT DUCTWORK.
- RECTANGULAR LOW-PRESSURE SUPPLY AND RETURN AIR DUCTWORK SHALL BE LINED WITH 1" FACED FIBERGLASS INSULATION SECURELY BUTTONED OR LAPPED AND SEALED. INSULATION SHALL BE 1-1/2 POUND DENSITY.
- OUTDOOR DUCTWORK EXPOSED TO THE WEATHER SHALL BE LINED WITH MINIMUM R-5 FACED FIBERGLASS INSULATION SECURELY BUTTONED OR LAPPED AND SEALED, AND SHALL BE FITTED WITH A 0.016 EMBOSSED ALUMINUM JACKET POP RIVETED FOR A WEATHERPROOF FIT.
- DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE CLEAR AREA AND SHALL BE INCREASED TO ACCOMMODATE INSULATION. DUCT LINER TO BE BY KNAUF GmbH, JOHN-MANSVILLE OR SCHULLER INTERNATIONAL
- DUCTWORK FOR EVAPORATIVE COOLERS AND EVAPORATIVELY COOLED MAKE-UP AIR UNITS SHALL BE FABRICATED FROM ALUMINUM SHEETS. ALL SEAMS SHALL BE AIRTIGHT. THE CONSTRUCTION OF ALL DUCTWORK, INCLUDING GAUGES OF METAL BRACING, LAYOUT, ETC. SHALL BE IN ACCORDANCE WITH SMACNA.

233300 - DUCTWORK ACCESSORIES

TYPE 5M ONLY. ENDS SHALL BE SEALED.

EXCEED 0.04 INCH W.G.

- FLEXIBLE DUCTWORK: THE FINAL 5 FOOT CONNECTION TO GRILLES AND DIFFUSERS IN LAY-IN CEILINGS, OR TO FLOOR MOUNTED GRILLES, MAY BE MADE WITH FLEXIBLE DUCT, FLEXMASTER
- SQUARE/RECTANGULAR ELBOWS SHALL BE PROVIDED WITH TURNING VANES.
- PROVIDE FLEXIBLE CONNECTIONS NOT LESS THAN 4" WIDE CONSTRUCTED OF HEAVY, WATERPROOF, WOVEN PLASTIC COATED GLASS FABRIC AT SUPPLY AND RETURN CONNECTIONS TO FURNACES, AIR HANDLING, ROOFTOP, MAKE-UP AIR OR FAN-COIL UNITS. CORNERS SHALL BE SEWN TIGHT. CONNECTIONS SHALL BE 20 OUNCE VENTFABRICS OR EQUAL.
- COMBINATION FIRE AND SMOKE DAMPERS OR FIRE DAMPERS IN DUCTWORK THROUGH ALL FLOORS AND FIRE WALLS SHALL BE FURNISHED AND INSTALLED AS REQUIRED TO CONFORM TO THE LATEST NFPA BULLETIN CONCERNING THIS TYPE OF BUILDING AND SHALL BEAR THE U.L. LABEL. DAMPERS, COMPLETE WITH MOUNTING ANGLES, SHALL BE MULTI-BLADE, FUSIBLE LINK, SPRING ACTING WITH 11 GAUGE SLEEVE. FUSIBLE LINK SHALL BE RATED AT 165°F.
- DUCT MOUNTED BALANCING DAMPERS SHALL BE USED TO CONTROL SUPPLY AIR TO EACH DIFFUSER AND GRILLE. AN OPERATING HEAD SHALL BE PLACED ON THE SIDE OF THE DUCT WITH A POSITIVE LOCKING QUADRANT. DAMPERS SHALL BE PROVIDED IN RETURN AND EXHAUST AIR DUCTS WHERE SHOWN ON DRAWINGS. COORDINATE THE LOCATION OF CEILING ACCESS PANELS.
- PROVIDE CEILING ACCESS DOORS AT ALL LOCATIONS OF BALANCING DAMPERS. FIRE DAMPERS, FIRE/SMOKE DAMPERS, VALVES, ETC., WHERE THERE IS NOT A LIFT-OUT TYPE CEILING. ACCESS DOORS SHALL BE HINGED OF METAL CONSTRUCTION WITH SCREWDRIVER LATCHES.
- AT FIRE DAMPERS, A DUCT MOUNTED SHEET METAL HINGED DOOR SHALL BE PROVIDED AND INSTALLED WITH POSITIVE LOCKING HANDLE. WHERE DUCTS ARE
- INSULATED, COVERS SHALL BE INSULATED. GRAVITY OR BACKDRAFT DAMPERS SHALL BE ALL ALUMINUM CONSTRUCTION, INTERCONNECTED AND BLADED, PRESSURE DROP THROUGH DAMPERS SHALL NOT

233713 - GRILLES, DIFFUSER AND LOUVERS ALL GRILLES, DIFFUSERS, AND REGISTERS SHALL BE COMPLETE WITH FRAMES AND RUBBER GASKETS. FINISH FOR ALL REGISTERS, DIFFUSERS, AND GRILLES SHALL BE

MANUFACTURERS:

- A. KRUEGER B. TITUS C. PRICE
- D. NAILOR THE FOLLOWING KRUEGER PRODUCTS SHALL BE USED AS A REFERENCE

MODEL: SH OR 1400 LOUVER FACE: SLOT DIFFUSERS: 1910 PERFORATED DIFFUSERS: 6504 (SUPPLY) 6290 (RETURN) **ARCHITECTURAL** PLQ DRUM LOUVERS: ROUND: RA2 SIDEWALL GRILLE: 800 (SUPPLY)

S80 (RETURN 480H (HEAVY DUTY SUPPLY AND RETURN) DOOR GRILLE: EGG CRATE: EGC-5 LINEAR GRILLE: 1600

FLOOR GRILLE: 1800 COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL LIGHTING LAYOUT, AND ARCHITECTURAL ELEVATIONS.

LOUVERS SHALL HAVE MINIMUM FREE AREA AND MAXIMUM PRESSURE DROP AS LISTED IN THE SCHEDULES. LOUVER SHALL HAVE FRAME AND SILLS COMPATIBLE WITH ADJACENT SUBSTRATE AND FIT ACCURATELY FOR WEATHERPROOF INSTALLATION. LOUVERS SHALL BE COMPLETE WITH 1/2" MESH ANODIZED ALUMINUM BIRD SCREEN.

TESTING, ADJUSTING AND BALANCING NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TESTING, ADJUSTING AND BALANCING FOR THIS PROJECT.
- THE MINIMUM REQUIRMENT FOR TESTING, ADJUSTING, AND BALANCING (TAB) OF THE HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) DISTRIBUTION SYSTEMS SHALL BE AS FOLLOWS:
- TESTING, ADJUSTING AND BALANCING SHALL BE DONE IN ACCORDANCE WITH THESE NOTES AND SPECIFICATIONS.
- THE MECHANICAL SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED, INCLUDING SUPPLY AIR SYSTEM, RETURN AIR SYSTEM, EXHAUST AIR SYSTEM OUTSIDE AIR SYSTEM AND ALL ASSOCIATED EQUIPMENT.
- EITHER AABC OR NEBB CERTIFIED. TESTING, ADJUSTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE
- TESTING, ADJUSTING AND BALANCING REPORT FORMS SHALL BE STANDARD FORMS FROM EITHER AABC OR NEBB.

CONTRACTOR PERFORMING TESTING, ADJUSTING AND BALANCING WORK SHALL BE

- CONTRACTOR SHALL VERIFY QUANTITIES AND LOCATIONS OF ALL BALANCING DEVICES. CONTRACTOR SHALL VERIFY THAT THESE BALANCING DEVICES ARE ACCESSIBLE AN APPROPRIATE FOR BALANCING AND FOR EFFICIENT SYSTEM AND EQUIPMENT OPERATION PRIOR TO COMMENCING WORK.
- MECHANICAL AIR AND WATER SYSTEMS SHALL BE ADJUSTED TO WITHIN THE

FOLLOWING TOLERANCES: PLUS 5 TO PLUS 10 PERCENT SUPPLY: PLUS 5 TO PLUS 10 PERCENT RETURN: **EXHAUST FANS:** PLUS 5 TO PLUS 10 PERCENT PLUS 5 TO PLUS 10 PERCENT **EQUIPMENT WITH FANS:** ZERO TO MINUS 10 PERCENT AIR OUTLETS AND INLETS:

DOMESTIC HW FLOW RATES: ZERO TO MINUS 10 PERCENT 10. FINAL BALANCE REPORT SHALL INCLUDE THE FOLLOWING: TEST CONDITIONS FOR FANS SYSTEM DIAGRAMS AIR CONDITIONING UNIT TEST REPORTS

FAN TEST REPORTS

AND WINTER CONDITIONS.

WITH THE AABC OR NEBB TEST PROCEDURES.

- AIR TERMINAL DEVICE REPORTS . AFTER THE FINAL BALANCING REPORT IS SUBMITTED TO THE DESIGN ENGINEER AND OWNER, CONTRACTOR SHALL REQUEST THAT A FINAL INSPECTION BE MADE BY THE DESIGN ENGINEER. DURING THE FINAL INSPECTION, DESIGN ENGINEER MAY RANDOMLY SELECT MEASUREMENTS DOCUMENTS IN THE FINAL REPORT TO BE RECHECKED BY THE CONTRACTOR.
- . APPROXIMATELY 90 DAYS AFTER SUBMISSION OF THE FINAL BALANCING REPORT, CONTRACTOR SHALL PERFORM ADDITIONAL TESTING, ADJUSTING AND BALANCING TO VERIFY THAT BALANCED CONDITIONS ARE BEING MAINTAINED THROUGHOUT EACH SYSTEM AND TO CORRECT UNUSUAL CONDITIONS.
- 3. ADDITIONAL TESTING, ADJUSTING AND BALANCING SHALL BE MADE AS DIRECTED BY THE DESIGN ENGINEER TO CORRECT UNUSUAL CONDITIONS. ADDITIONAL TESTING WILL NOT EXCEED THREE (3) DAYS DURING THE FIRST SIX MONTHS OF OPERATION.
- 14. IF INITIAL TESTING, ADJUSTING AND BALANCING PROCEDURES WERE NOT PERFORMED DURING NEAR-PEAK SUMMER AND WINTER CONDITIONS, PERFORM ADDITIONAL TESTING ADJUSTING AND BALANCING DURING NEAR-PEAK SUMMER

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

NDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED". 'APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE

ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED

IN GENERAL AND SUPPLEMENTARY CONDITIONS. FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE

PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS." INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE

NCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING,

ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS." PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, NCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

SUBSTITUTIONS

READY FOR THE INTENDED USE.

SUBSTITUTIONS OF MATERIALS OR PRODUCTS SHOWN HEREIN SHALL BE AT THE DWNER'S, ARCHITECTS, OR ENGINEER'S WRITTEN APPROVAL ONLY WITH COPIES OF PPROVAL SENT TO THE PROJECT FILE. ANY DEVIATION FROM THESE DRAWINGS WILL. NOT BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ANY SUBSTITUTIONS AND COSTS OF CHANGES INCURRED BY OTHER TRADES DUE TO HE SUBSTITUTIONS. OTHER TRADES INCLUDE: ELECTRICAL, PLUMBING, STRUCTURAL, ROOFING, OR ANY TRADE EFFECTED BY THE SUBSTITUTION.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FROM DEFECT OF WORKMANSHIP, AND SHALL REPLACE OR REPAIR WITHOUT ADDITIONAL COST TO THE OWNER ALL DEFECTIVE MATERIAL AND WORKMANSHIP, FOR A PERIOD OF (1) YEAR AFTER COMPLETION AND ACCEPTANCE.

SEAL ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS TO SMACNA SEAL DO NOT USE GRAY DUCT TAPE, FOIL BACKED TAPE, OIL BASED CAULKING AND GLAZING COMPOUNDS TO SEAL METAL DUCTS. CROSS-BREAK DUCT SURFACES 19" THROUGH 60". USE ANGLE REINFORCING FOR DUCTS SURFACES OVER 60". ALL METAL LONGITUDINAL SEAMS SHALL BE PITTSBURG OR OTHER LISTED SMACNA LISTED SEAM. DO NOT USE BUTTON PUNCH SNAP-BACK SEAMS.

SUSPEND METAL DUCTWORK EXCEEDING 30" LONGEST SIDE AT MAXIMUM 8'-0" SPACING USING ANGLES AND RODS.

(MINIMUM) ATTACHED TO BOTTOM AND SIDES OF DUCT.

DUCT CONSTRUCTION NOTES:

RETURN AIR DUCT: 2" W.C. (NEGATIVE)

EXHAUST AIR DUCT: 2" W.C. (NEGATIVE)

SUPPLY AIR DUCT: 2" W.C.

OUTSIDE AIR DUCT: 2" W.C.

SHEET METAL DUCT STATIC PRESSURE CLASSIFICATION:

OTHERWISE.

- SUPPORT DUCTWORK FORM STRUCTURAL MEMBERS. ATTACHMENT TO ROOF DECK IS NOT ACCEPTABLE.
-). DUCT SIZES SHALL BE VERIFIED FOR CLEARANCES AT THE JOB SITE PRIOR TO FABRICATION. DIMENSIONS MAY BE CHANGED TO ACCOMMODATE CONSTRUCTION CLEARANCES. FREE AREA OF DUCT SHALL BE MAINTAINED.

SUSPEND METAL DUCTWORK NOT EXCEEDING 30" LONGEST SIDE AT EVERY JOINT

DO NOT EXCEED 10'-0" HANGER SPACING. USE 1" X 18 GAGE GALVANIZED STRAPS

ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL, EXCEPT WHERE INDICATED

- 11. DUCT TRANSITIONS SHALL BE CONSTRUCTED WITH SLOPE OF 1/4.
- 2. PROVIDE ELBOWS AND CHANGES IN DIRECTION WITH SINGLE VANE TURNING
- 13. ALL JOINTS SHALL BE MADE AIRTIGHT BY APPROVED METHODS, INCLUDING TAPES, MASTICS, GASKETING OR OTHER APPROVED CLOSURE SYSTEMS.

5. TAPES AND MASTICS USED TO SEAL DUCTWORK MUST BE LISTED AND LABELED IN

ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A-P" FOR PRESSURE-

SENSITIVE TAPE, "181A-M" FOR MASTIC OR "181A-H" FOR HEAT SESITIVE TAPE.

- 14. TAPE ALONE CANNOT BE SUBSTITUTED FOR MECHANICAL FATENERS
- 16. TAPES AND MASTICS USED TO SEAL FLEXIBLE AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181B-FX" FOR PRESSURE SENSITIVE TAPE, OR "181B-M" FOR MASTIC.
- . MECHANICAL FASTENERS USED WITH FLEXIBLE NON-METALLIC AIR DUCTS SHALL COMPLY WITH UL 181 AND SHALL BE MARKED "181B-"
- 18. FLEXIBLE CONNECTORS SHALL NOT BE USED.
- OFF BRACKET. 20. ALL BRANCH TAKE-OFFS TO INDIVIDUAL AIR INLET OR AIR OUTLET SHALL BE
- PROVIDED WITH MANUAL DAMPER.
- 21. ALL DUCTWORK SHALL BE A MINIMUM 26 GAUGE GALVANIZED SHEET METAL.

- CONTRACTOR SHALL REVIEW CONSTRUCTION DOCUMENTS AND PROVIDE SPECIFIC FIRESTOPPING DETAILS FROM A SPECIFIC FIRESTOPPING MANUFACTURER FOR EACH MECHANICAL (HVAC) AND PLUMBING PIPE OR DUCT PENETRATION FOR EACH
- PROVIDE PENETRATION FIRESTOPPING THAT IS PRODUCED AND INSTALLED TO RESIST SPREAD OF FIRE ACCORDING TO REQUIREMENTS INDICATED. RESIST PASSAGE OF SMOKE AND OTHER GASES, AND MAINTAIN ORIGINAL FIRE-
- ANOTHER, WITH THE SUBSTRATES FORMING OPENINGS, AND WITH PENETRATING

- COORDINATE SIZING OF SLEEVES, OPENINGS, CORE-DRILLED HOLES, OR CUT

SPECTRUM ENGINEERS 1501 W. Fountainhead Parkway,

Project No. 230066

your contract with the City of Phoenix.

Marlene Imirzian & Associates Architects

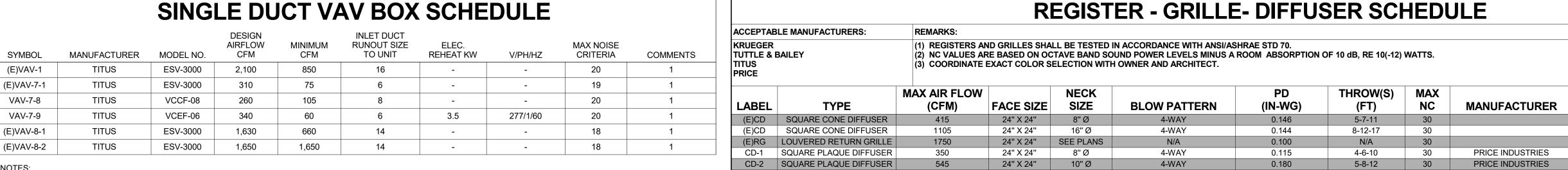
8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

KIVA# SDEV#

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REGISTER - GRILLE- DIFFUSER SCHEDULE

TITUS PRICE	5/ 4 1	` '			OWNER AND ARCHITECT.	moom Aboom non	01 10 02, 112 10(12)				
LABEL	TYPE	MAX AIR FLOW (CFM)	FACE SIZE	NECK SIZE	BLOW PATTERN	PD (IN-WG)	THROW(S) (FT)	MAX NC	MANUFACTURER	MODEL	REMARKS
(E)CD	SQUARE CONE DIFFUSER	415	24" X 24"	8" Ø	4-WAY	0.146	5-7-11	30			
(E)CD	SQUARE CONE DIFFUSER	1105	24" X 24"	16" Ø	4-WAY	0.144	8-12-17	30			
(E)RG	LOUVERED RETURN GRILLE	1750	24" X 24"	SEE PLANS	N/A	0.100	N/A	30			
CD-1	SQUARE PLAQUE DIFFUSER	350	24" X 24"	8" Ø	4-WAY	0.115	4-6-10	30	PRICE INDUSTRIES	SPD	1-3
CD-2	SQUARE PLAQUE DIFFUSER	545	24" X 24"	10" Ø	4-WAY	0.180	5-8-12	30	PRICE INDUSTRIES	SPD	1-3
RG-1	LOUVERED RETURN GRILLE	1750	24" X 24"	SEE PLANS	N/A	0.100	N/A	30	PRICE INDUSTRIES	535	1-3





	EXPIRES 06/30/24
	Designed By: SDK
	Drawn By: SDK
	Checked By:
- SHEET METAL SUPPLY DUCT. SEE PLANS FOR SIZE	KMK
	Date:
Ⅎ 1" OF	04/19/23
CAL INSULATION	

SEE PLAN FOR DUCT SIZE

SHEET ROCK CEILING

CEILING DIFFUSER DETAIL W/DUCTING1 N.T.S.

SPIN IN FITTING WITH BALANCING

RADIUS + 2D MIN.

LINE WITH 1" OF

SURFACE MOUNT

ACOUSTICAL INSULATION

DAMPER. SEE SPEC.

SUPPORT TO STRUCTURE

INSULATION DRAW BAND

SURFACE MOUNT

DUCT DRAW BAND

FLEXIBLE DUCT

ROUND NECK SAME AS DUCT SIZE

TO ROUND NECK ADAPTOR

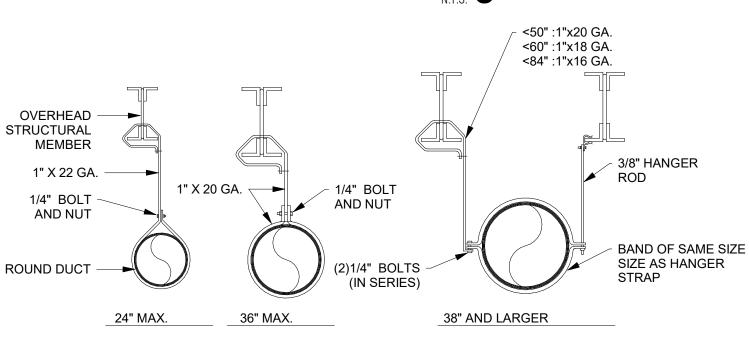
LAY-IN -

AND LOCATION

LAY-IN TEE BAR CEILING

CEILING DIFFUSER WITH SQUARE

SEE PLAN FOR NECK SIZE

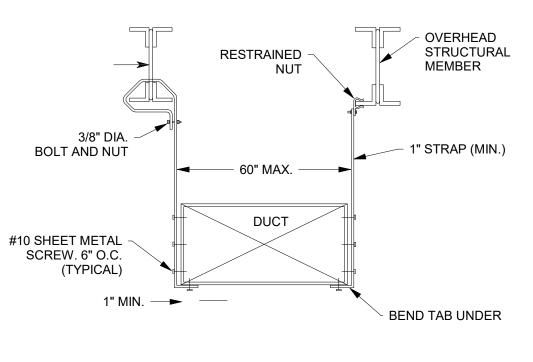


NOTES:

1. EXHAUST AND RETURN GRILLES ARE SIMILAR.

2. EITHER METHOD IS ACCEPTABLE





DUCT HANGER - RECTANGULAR1

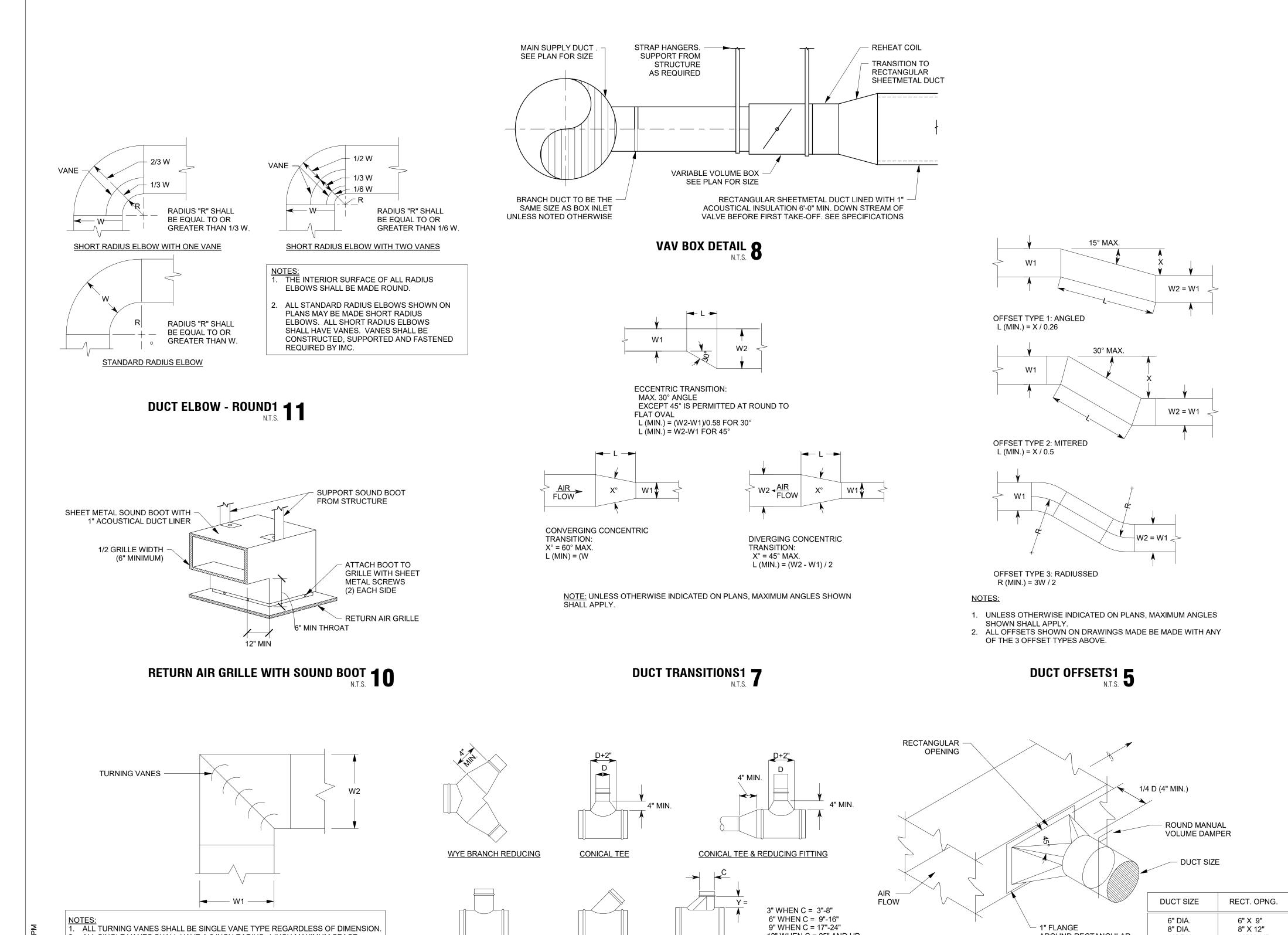
ENGINEERS 1501 W. Fountainhead Parkway, Suite 330 Tempe, AZ 85282 800-678-7077 480-621-3444 www.spectrum-engineers.com

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STRAIGHT TEE

45° WYE TEE

9" WHEN C = 17"-24"

90 TEE W/ OVAL TO ROUND TAP

DUCT ROUND TAKE-OFF1 6

12" WHEN C = 25" AND UP

NOTE: CONSTRUCT FITTING PER

CONSTRUCTION STANDARDS

METAL AND FLEXIBLE FIGURE 2-6.

SMACNA HVAC DUCT

- 1" FLANGE

OPENING

DUCT HIGH EFFICIENCY TAKE-OFF1 A.T.S.

AROUND RECTANGULAR

8" DIA.

10" DIA.

12" DIA.

14" DIA.

8" X 12"

10" X 14"

12" X 16"

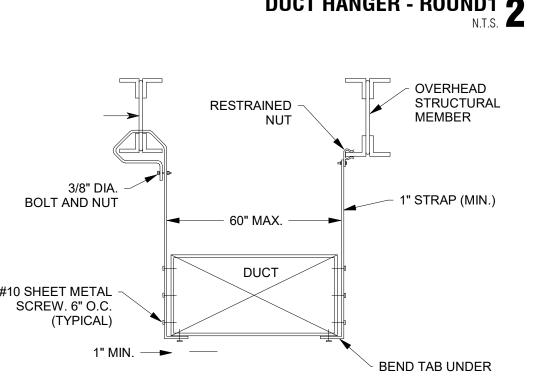
14" X 18"

1. ACCEPTABLE MAUFACTURERS: TRANE, TITUS, PRICE, YORK, CARRIER, OR PRIOR APPROVED EQUAL.

2. ALL SINGLE VANES SHALL HAVE A 2 INCH RADIUS, 1 INCH MAXIMUM SPACE

DUCT ELBOW - SQUARE1

BETWEEN VANES AND A 3/4 INCH TRAILING EDGE.



Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

KIVA#

39 of 50

OF

OFFICE

HAVE SOUND BOOTS.



Designed By: SDK Drawn By: SDK Checked By: KMK

Date:

04/19/23

480-621-3444 www.spectrum-engineers.com

KIVA# SDEV# Sheet

40 of 50



KEY PLAN

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StartUpPHX



(E)VAV-8-1 **√**VAV-7-9 **√**1 **>** (E)24"x14" RA——• (E)42"x24" SA (E)40"x24" SA (E)48"x24" SA (E)24"x14" RA 3 RG-1 (E)48"x24" RA (E)48"x24" RA ___(E)56"x24" RA

- ((E)VAV-8-1) В 4 (E)CD 270 16"ø (E)CD 520 16"ø - ((E)VAV-1) •—(E)8"ø SA 4 (E)CD 270 16"ø (E)VAV-7-1

(E)CD 515 16"ø

(E)CD 515 16"ø

(E)VAV-7-1

(E)42"x24" SA

(E)24"x14" RA——

•——(E)56"x24" RA

(E)48"x24" RA

MECHANICAL DEMOLITION PLAN - LEVEL 2 Scale: 1/8" = 1'-0"

(E)14"x12" SA

(E)24"x14" RA

(E)40"x24" SA

(E)VAV-1

(E)48"x24" RA

(E)VAV-8-1

(E)48"x24" SA

В

(E)VAV-8-2

MECHANICAL HVAC PLAN - LEVEL 2 Scale: 1/8" = 1'-0"

U

	SYMBOLS LEGEND		SYMBOLS LEGEND		SYMBOLS LEGEND
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
REFERENC	CE AND LINE SYMBOLS	ELECTRICA	AL POWER AND DISTRIBUTION	WIRING DI	EVICES
A5	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501		FUSE WITH RATING (ONE-LINE DIAGRAM).	ф	RECEPTACLE, SINGLE: NEMA 5-20R.
E-501	INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.		DISCONNECT FUSED (ONE LINE DIACRAM)	Ф	RECEPTACLE, DUPLEX: NEMA 5-20R.
			DISCONNECT, FUSED (ONE-LINE DIAGRAM).	d _A	RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5-2
A5 E-201	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.	4		ф _с	RECEPTACLE, DUPLEX, CEILING: NEMA 5-20R.
	SHEET WHERE ELEVATION OR SECTION IS SHOWN.		CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).	#	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCU INTERRUPTER: NEMA 5-20R.
A5	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES	, l	CIRCUIT BREAKER, MOLDED CASE WITH SHUNT TRIP	⊕ s	RECEPTACLE, DUPLEX, SWITCHED, RECESSED: NEI
E-201	ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.	↓	(ONE-LINE DIAGRAM).	#	RECEPTACLE, QUADRAPLEX: NEMA 5-20R.
ROOM NAME	ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.	√ MCP	CIRCUIT BREAKER, MOTOR CIRCUIT PROTECTION	#	RECEPTACLE, QUADRAPLEX WITH GROUND FAULT (INTERRUPTER: NEMA 5-20R.
(1)	KEYNOTE INDICATOR.	1	(ONE-LINE DIAGRAM).		FLUSH FLOOR BOX. "#" SHOWN ON DRAWINGS. REI
	REVISION INDICATOR.	↓ #AF	CIRCUIT BREAKER, ADJUSTABLE TRIP. "225AF" REPRESENTS	FB#	WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICE
	MECHANICAL EQUIPMENT INDICATOR. "X-X" INDICATES	#AT	THE RATING AND "150AT" REPRESENTS THE TRIP SETTING. (ONE-LINE DIAGRAM).		FLUSH FIRE RATED POKE THRU. "#" SHOWN ON DRA
X-X XMDP	EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. "XMDP" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.			PT#	REFER TO WIRING DEVICE SCHEDULE IN THE ELECT SPECIFICATIONS FOR CONFIGURATION AND DEVICE
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING		CIRCUIT BREAKER, SOLID STATE (ONE-LINE DIAGRAM).	Ф	SWITCH, DIMMER.
\sim	BREAK, ROUND		MOTOR.	X \$	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CO
MATCH LINE SEE XX/X-XXX	MATCH LINE INDICATOR: CENTER, EXTRA WIDE LINE.				RECEPTACLE, SINGLE PLEX, WITH USB OUTLET
SEE XX/X-XXX	NEW LINE: MEDIUM LINE.	<u>ww</u>	TRANSFORMER (ONE-LINE DIAGRAM).	FIRE ALAF	RM
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE			FAA	FIRE ALARM ANNUNCIATOR PANEL.
	EXISTING TO REMAIN LINE: THIN LINE.	225/3 "1H"	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS	FACP	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.
	DEMOLITION LINE: DASHED, MEDIUM LINE		SHOWN (ONE-LINE DIAGRAM).	FATC	FIRE ALARM TERMINAL CABINET: NAC, SLC, SPEAKE CIRCUITS; AMPLIFIERS, BATTERIES
				СМ	CONTROL MODULE.
	PROPERTY LINE: DASHED, WIDE LINE. CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.)225/3 "1H"	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS	ММ	MONITOR MODULE.
	ELECTRICAL EQUIPMENT INDICATOR. "XXX" INDICATES TYPE OF		SHOWN (ONE-LINE DIAGRAM).	F	FIRE ALARM MANUAL PULL STATION.
XXX EF-X	EQUIPMENT OR EQUIPMENT ID. "EF-X" IDENTIFIES MECHANICAL EQUIPMENT BEING SERVED. REFER TO EQUIPMENT SCHEDULE			5	MAGNETIC DOOR HOLDER.
	FOR ADDITIONAL INFORMATION. EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK	225/3		(5)	DETECTOR, SMOKE.
X-X 1LA-3	SHOWN ON EQUIPMENT SCHEDULE. "1LA-3" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. REFER TO EQUIPMENT SCHEDULE	"1H"	PANELBOARD WITH MAIN AND SUB FEED CIRCUIT BREAKER (ONE-LINE DIAGRAM).	2 s	DETECTOR, SMOKE WITH STROBE.
NAVIDINIO NAV	FOR ADDITIONAL INFORMATION.	60/3		2 _{RS}	DETECTOR, SMOKE, RESIDENTIAL WITH SOUNDER B
WIRING ME		00/3		2 _{AS}	DETECTOR, SMOKE, AIR SAMPLING SYSTEM PORT L
	WIRING.		CT CABINET PER UTILITY'S REQUIREMENTS (ONE-LINE DIAGRAM).	I I	
A-1	SINGLE BRANCH CIRCUIT HOME RUN TO PANELBOARD WITH DEDICATED NEUTRAL CONDUCTOR. LETTER AND NUMBER NOTATION IDENTIFY PANEL AND CIRCUIT NUMBER.		OT ONE LINE BINOTO (ONE EINE BINOTO (IVI).	L SD	SMOKE DAMPER. 120V POWER FROM ELECTRICAL S
		<u> </u>			COMPINATION FIRE (OMORE DAMPER 400) (POWER
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE. CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER		TRANSFER SWITCH (ONE-LINE DIAGRAM).	 @ FSD	COMBINATION FIRE/SMOKE DAMPER. 120V POWER FROM ELECTRICAL SYSTEM.
1	TO ONE-LINE DIAGRAM.	(M)	METER.	(co)	DETECTOR, CARBON MONOXIDE.
O	JUNCTION BOX.			75	STROBE, WALL MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
Фс	JUNCTION BOX, CEILING.		DISCONNECT SWITCH, FUSED.		ALABA HODAYOTRORE ONE ACCENDIA OFFICIAL
□ Ø _{SC}	JUNCTION BOX, SYSTEMS FURNITURE COMMUNICATION CONNECTION.		DISCONNECT SWITCH, UNFUSED.	75	ALARM, HORN, CEILING MOUNTED. SUBSCRIPT INDI
\mathbb{O}_{SP}	JUNCTION BOX, SYSTEMS FURNITURE POWER CONNECTION. MECHANICAL EQUIPMENT CONNECTION. REFER TO EQUIPMENT	■	STARTER, COMBINATION WITH DISCONNECT SWITCH.	75	SPEAKER/STROBE, CEILING MOUNTED. SUBSCRIPT
•	SCHEDULE FOR REQUIREMENTS.		STARTER OR MOTOR CONTROLLER.		CANDELA RATING. SPEAKER, CEILING MOUNTED.
▼	OUTLET, DATA COMMUNICATION (CABLE TYPES AND QUANTITES BY OTHER, COORDINATE WITH OWNER)	<u> </u>	PANELBOARD CABINET, FLUSH MOUNTED.	⊗ 75	ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT
LIGHTING			PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.		INDICATES CANDELA RATING.
(W-3)	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.	DP#	DISTRIBUTION PANEL OR SWITCHBOARD.	FI	ECTRICAL SHEET IND
	FIXTURE IDENTIFICATION: EMERGENCY LIGHTING FIXTURE WITH	LP	LIGHTING RELAY, CONTACTOR PANEL, OR DIMMING ENCLOSURE.	EE0.01 SHEE	ET INDEX, ABBREVIATIONS, AND GENERAL NOTES
(W-3E)	BATTERY PACK AND/ OR GENERATOR AND/ OR CENTRALIZED INVERTER AND/ OR CENTRALIZED UPS CONNECTION AS INDICATED		SWITCH, TOGGLE MOTOR STARTER WITH OVERLOAD	EE7.01 TYPI	CTRICAL SPECIFICATIONS CAL MOUNTING DETAILS
	IN PLANS. (W-3E) INDICATES FIXTURE TYPE AS SCHEDULED.	\$ST LIGHTING	PROTECTION.	EE8.00 LEVE	CAL DETAILS EL 2 OVERALL PLAN
EM	EMERGENCY.		OCCUPANCY SENSOR, DUAL TECHNOLOGY,	EP6.01 ONE-	EL 2 ELECTRICAL PLAN -LINE DIAGRAM - NORMAL
NL	NIGHT LIGHT: DO NOT SWITCH.	*	OMNI-DIRECTIONAL, CEILING. VACANCY SENSOR, DUAL TECHNOLOGY,	EP6.03 PANE	CTRICAL SCHEDULE EL SCHEDULES
<u></u>	EGRESS DIRECTION ARROW (EXIT SIGNS).	*	OMNI-DIRECTIONAL, CEILING. SWITCH/OCCUPANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.	EL1.02 LEVE	EL 2 LIGHTING PLAN
S	EXIT SIGN: SINGLE FACE; CEILING MOUNTED	**	SWITCH/VACANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.		
№ №	EXIT SIGN: SINGLE FACE; WALL MOUNTED	*	DIMMER SWITCH/OCCUPANCY SENSOR COMBO,		
0	EXIT SIGN: DOUBLE FACE; CEILING MOUNTED	Ψ •••	DUAL TECHNOLOGY, WALL. DIMMER SWITCH/VACANCY SENSOR		
•	EXIT SIGN: DOUBLE FACE; WALL MOUNTED	a,b	COMBO, DUAL TECHNOLOGY, WALL. LOW VOLTAGE DIGITAL LIGHTING CONTROL SWITCH: LETTER		
		S	"a,b" INDICATES ZONING WHERE SHOWN (REFER TO PLANS, SCHEDULES, AND DETAILS FOR EXACT BUTTON CONFIGURATION		
		RC	AND PROGRAMMING REQUIREMENTS) DIGITAL LIGHTING ROOM CONTROLLER		
		DC.	DIGITAL LIGHTING DIMMING CONTROLLER		

DIGITAL LIGHTING DIMMING CONTROLLER

SCHEDULE / DIAGRAM.

LIGHTING SPACE CONTROL TYPE. X INDICATES TYPE. SEE

5-20R. NEMA 5-20R. LT CIRCUIT REFER TO ICES. DRAWINGS. <u>:</u>CTRICAL ICES. CONTROLLED). R BASE. CTV LOCATION. DPDT DOUBLE POLE, DOUBLE SYSTEM. EA ENT EPO EMERGENCY POWER OFF EQUIP EQUIPMENT EX MOUNTED. FA FIRE ALARM FCP FIRE ALARM CONTROL PANEL NDICATES FLA FULL LOAD AMPS FMC FLEXIBLE METAL CONDUIT IPT INDICATES FOB FREIGHT ON BOARD FVNR FULL VOLTAGE FVR FULL VOLTAGE REVERSING GEN GENERATOR GIG GIGA HERTZ IDEX GND GROUND HD HID HOA HWM HORIZONTAL WIRE IMC

	ABBREV	IAT	IONS
	NOTE: ALL ABBREVIAT	IONS MA	Y NOT BE USED.
1P	SINGLE POLE	kVAR	KILOVOLT AMPERE REACTIVE
1PH	SINGLET GEE	kW	KILOWATT
1WAY	ONE-WAY	kWh	KILOWATT HOUR
2/C	TWO-CONDUCTOR	LED	LIGHT EMITTING DIODE
2WAY	TWO-WAY	LFMC	LIQUID TIGHT FLEXIBLE METAL
3/C	THREE-CONDUCTOR	LENO	CONDUIT
3WAY	THREE-WAY	LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
4OUT	QUADRUPLE RECEPTACLE OUTLET	LPS	LOW PRESSURE SODIUM
4PDT	FOUR-POLE DOUBLE THROW	LRA	LOCKED ROTOR AMPS
4PST	FOUR-POLE SINGLE THROW	LTG	LIGHTING
4W	FOUR-WIRE	LV	LOW VOLTAGE
4WAY	FOUR-WAY	MATV	MASTER ANTENNA TELEVISION SYSTEM
Α	ABOVE COUNTER	MAX	MAXIMUM
AC	ARMORED CABLE	MC	METAL CLAD
ADA	AMERICANS WITH DISABILITIES	MCA	MINIMUM CIRCUIT AMPS
	ACT	MCB	MAIN CIRCUIT BREAKER
ADJ	ADJACENT	MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MCP	MOTOR CIRCUIT PROTECTION
AFG	ABOVE FINISHED GRADE	MDP	MAIN DISTRIBUTION PANEL
AIC	AMPERE INTERRUPTING	MG	MOTOR GENERATOR
	CAPACITY	MH	MANHOLE
ALUM	ALUMINUM	MIN	MINIMUM
AMP	AMPERE	MLO	MAIN LUGS ONLY
ANN	ANNUNCIATOR	MOCP	MAXIMUM OVERCURRENT
AP	ACCESS POINT (WIRELESS DATA)		PROTECTION MANUAL TRANSFER SWITCH
AR	AS REQUIRED	MTS NA	NOT APPLICABLE
ASC	AMPS SHORT CIRCUIT	NC NC	NORMALLY CLOSED
ATS	AUTOMATIC TRANSFER	NEC	NATIONAL ELECTRICAL CODE
AV	SWITCH AUDIO VISUAL	NEMA	NATIONAL ELECTRICAL
AWG	AMERICAN WIRE GAGE		MANUFACTURERS
BB	BUCK-BOOST TRANSFORMER		ASSOCIATION
XFMR	Book Booot Truktor or will t	NFC	NATIONAL FIRE CODE
BFF	BELOW FINISHED FLOOR	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
BFG	BELOW FINISHED GRADE	NIC	NOT IN CONTRACT
C	CEILING MOUNTED	NL	NIGHT LIGHT
CAT	CATEGORY	NO	NORMALLY OPEN
CATV	COMMUNITY ANTENNA TELEVISION	NTS	NOT TO SCALE
СВ	CIRCUIT BREAKER	ос	ON CENTER
CCBA	CUSTOM COLOR AS SELECTED	OCP	OVER CURRENT PROTECTION
CCDA	BY ARCHITECT	OE	OWNER ELECTRONICS
CCTV	CLOSED CIRCUIT TELEVISION	OF/CI	OWNER FURNISHED/
CF/CI	CONTRACTOR FURNISHED/	OF/OI	CONTRACTOR INSTALLED OWNER FURNISHED/ OWNER
CF/OI	CONTRACTOR INSTALLED CONTRACTOR FURNISHED/	01701	INSTALLED
0.70.	OWNER INSTALLED	OFP	OBTAIN FROM PLANS
CFBA	CUSTOM FINISH AS SELECTED	OH DR	OVERHEAD (COILING) DOOR
OVE	BY ARCHITECT	OL	OVERLOAD
CKT	CIRCUIT	PB	PUSHBUTTON
CM	CONSTRUCTION MANAGER	PF	POWER FACTOR
CND	CONDUIT	PH	PHASE
CO	CONVENIENCE OUTLET	PNL	PANEL
COR	CONTRACTING OFFICER'S REPRESENTATIVE	PNM	PLENUM
CD		PR	PAIR
CP CT	CONTROL PANEL CURRENT TRANSFORMER	PS pt	POWER SUPPLY
i (.)	CURRENT IRANAFURIVIER	וטו	

CABLE TELEVISION

DISCONNECT SWITCH

COPPER

THROW

EACH

EXISTING

ENHANCED

EMERGENCY

EQUIPMENT ROOM

FIBER PATCH PANEL

NON-REVERSING

HEAVY DUTY

HORSE POWER

HIGH VOLTAGE

MANAGEMENT

INPUT/ OUTPUT

CONDUIT

kVA KILOVOLT AMPERE

J-BOX JUNCTION BOX

kV KILOVOLT

IN/IS INSULATED/ ISOLATED INFRARED

ISOLATED GROUND

HIGH POWER FACTOR

TION NER CURRENT TRANSFORMER PT POTENTIAL TRANSFORMER PTZ PAN/TILT/ZOOM QTY QUANTITY UNIT OF SOUND LEVEL R REMOVE RCP REFLECTED CEILING PLAN RMC RIGID METAL CONDUIT RNC RIGID NONMETAL CONDUIT RPM REVOLUTIONS PER MINUTE RPP RISER PATCH PANEL REMOVE AND RELOCATE ELECTRICAL METALLIC TUBING START/STOP ELECTRIC NONMETALLIC SCA SHORT CIRCUIT AMPS SCBA STANDARD COLOR AS SELECTED BY ARCHITECT SQUARE FOOT (FEET) SFBA STANDARD FINISH AS SELECTED BY ARCHITECT FURNITURE MOUNTED SPD SURGE PROTECTIVE DEVICE SPDT SINGLE POLE, DOUBLE THROW SPEC SPECIFICATION SPP STATION PATCH PANEL SPST SINGLE POLE, SINGLE THROW ST SINGLE THROW SWBD SWITCHBOARD SWGR SWITCHGEAR TWIST LOCK TELEPHONE POLE TWISTED PAIR GFCI GROUND FAULT INTERRUPTER **TELECOMMMUNICATIONS** GFP GROUND FAULT PROTECTION TTB TELEPHONE TERMINAL BOARD TV TELEVISION TVSS TRANSIENT VOLTAGE SURGE SUPPRESSER HIGH INTENSITY DISCHARGE TYP TYPICAL HAND-OFF-AUTOMATIC UF UNDERFLOOR UGND UNDERGROUND HIGH PRESSURE SODIUM UPS UNINTERRUPTIBLE POWER SUPPLY V VOLTS VA VOLT AMPERE VFC/VF VARIABLE FREQUENCY MOTOR D CONTROLLER VWM VERTICAL WIRE MANAGEMENT W/ WITH INTERMEDIATE METAL W/O WITHOUT

WP WEATHERPROOF

XFMR TRANSFORMER

602 943 5279 v

WPP WIRELESS PATCH PANEL

GENERAL ELECTRICAL NOTES

CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.

- THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
 - THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
 - C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE.THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.
- EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
- SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT, BOUND, BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.
- REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.
- ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ.

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS. NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED". "SELECTED". "APPROVED". "REQUIRED". AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM



Designed By: NAK

Revisions

Drawn By: HAN

Checked By:

Date: 04/19/23

DEFINITIONS

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION,

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

> **SPECTRUM** ENGINEERS 1501 W. Fountainhead Parkway, Suite 330 Tempe, AZ 85282 800-678-7077 480-621-3444 www.spectrum-engineers.com

> > Project No. 230066

SDEV# Sheet 41 of 50

Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 your contract with the City of Phoenix.

KIVA#

Per City of Phoenix City Code Chapter 2, section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of

ACCEPTANCE BY THE OWNER.

GUARANTEE

THE ENGINEER HAS NOT BEEN RETAINED OR COMPENSATED TO PROVIDE CONSTRUCTION REVIEW RELATED TO THE CONTRACTOR'S SAFETY PRECAUTIONS OR TO MEANS, METHODS, SEQUENCES, OR PROCEDURES REQUIRED FOR THE

ALL EQUIPMENT SHALL BE NEW AND CONTAIN THE MANUFACTURER'S NAME, MODEL NUMBER AND ELECTRICAL CHARACTERISTICS. ALL EQUIPMENT SHALL BE UL AND OR NRTL (NATIONALLY RECOGNIZED TESTING LABORATORIES) LISTED FOR IT'S INTENDED USE AND/OR APPROVED BY THE AUTHORITY HAVING JURISDICTION.

SUBMITTALS SHALL INCLUDE ALL ELECTRICAL MATERIAL PROVIDED AS IT RELATED TO THIS PROJECT AND SHALL SPECIFICALLY INCLUDE BUT IS NOT LIMITED TO: WIRING DEVICES, RACEWAYS AND BOXES, SURFACE RACEWAYS, HANGER AND SUPPORTS. LIGHTING FIXTURES, LIGHTING CONTROLS, DISCONNECTS, FUSED-DISCONECTS, FUSES AND BREAKERS, TELEPHONE/DATA STRUCTURED

CABLING SYSTEMS, FIRE ALARM SYSTEMS, ACCESS CONTROLS SYSTEM, INTRUSION

SUBSTITUTIONS

SUBSTITUTIONS OF MATERIALS OR PRODUCTS SHOWN HEREIN SHALL BE AT THE OWNER'S, ARCHITECTS, OR ENGINEER'S WRITTEN APPROVAL ONLY WITH COPIES OF APPROVAL SENT TO THE PROJECT FILE. ANY DEVIATION FROM THESE DRAWINGS WILL NOT BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ANY SUBSTITUTIONS AND COSTS OF CHANGES INCURRED BY OTHER TRADES DUE TO THE SUBSTITUTIONS. OTHER TRADES INCLUDE: ELECTRICAL, PLUMBING, STRUCTURAL, ROOFING, OR ANY TRADE EFFECTED BY THE SUBSTITUTION.

77612 NICHOLAS KNAUS

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NAK Drawn By:

HAN

Designed By:

Checked By: NAK

04/19/23

2. IDENTIFY EACH RECEPTACLE WITH PANELBOARD IDENTIFICATION AND CIRCUIT NUMBER. USE HOT, STAMPED, OR ENGRAVED MACHINE PRINTING WITH BLACK-

HORIZONTALLY MOUNTED RECEPTACLES TO THE RIGHT.

3. ALL RECEPTACLE OUTLET BOXES WILL BE 4"X4"X2 1/8" WITH VERTICAL SINGLE-GANG DEVICE MOUNTING RING AND DUPLEX 20 AMP GROUNDING TYPE.

1. N/A

REQUIREMENTS.

260529 - HANGERS AND SUPPORTS FOR ELECTRICAL

2. CONDUIT AND CABLE SUPPORT DEVICES: STEEL HANGERS, CLAMPS, AND

BE SUPPORTED ELECTRICAL METALLIC TUBING (EMT) IN WALLS, CONCEALED.

3. SUPPORT FOR CONDUCTORS IN VERTICAL CONDUIT: FACTORY-FABRICATED

PLUGS FOR NON-ARMORED ELECTRICAL CONDUCTORS OR CABLES IN RISER

36M, STEEL PLATES, SHAPES, AND BARS; BLACK AND GALVANIZED.

TOGGLE BOLTS: ALL-STEEL SPRINGHEAD TYPE.

UNSUPPORTED BOX AND ACCESS FITTINGS.

HANGER RODS: THREADED STEEL.

LARGER - MAXIMUM 10 FEET.

ACCEPTABLE MANUFACTURERS:

A. AFC CABLE SYSTEMS, INC.

B. ALLIED TUBE & CONDUIT.

D. ELECTRI-FLEX COMPANY

F. PICOMA INDUSTRIES

H. ROBROY INDUSTRIES

SOUTHWIRE COMPANY

J. THOMAS & BETTS CORPORATION.

LIQUID TIGHT METALLIC CONDUIT.

WHEATLAND TUBE COMPANY.

K. WESTERN TUBE AND CONDUIT CORPORATION.

. OUTDOOR CONDUIT (MINIMUM SIZE 3/4" TRADE SIZE):

INDOOR CONDUIT (MINIMUM SIZE 3/4" TRADE SIZE):

FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.

5. PROVIDE PULLWIRE IN ALL EMPTY CONDUIT.

COMPLY WITH NEC FOR GROUNDING.

A. EXPOSED CONDUIT: RIGID GALVANIZED STEEL CONDUIT.

G. REPUBLIC CONDUIT

E. O-Z/GEDNEY

EXPOSED.

WET LOCATIONS.

FINISHED SLAB.

CONTRACTION.

INSTALLATION.

ADDITIONAL COST TO THE OWNER.

TYPE 1, FOR OUTDOOR TYPE 3R.

C. ANAMET ELECTRICAL, INC

ASSEMBLY CONSISTING OF THREADED BODY AND INSULATING WEDGING PLUG OR

. STRUCTURAL STEEL FOR FABRICATED SUPPORTS AND RESTRAINTS: ASTM A 36/A

5. CONCRETE INSERTS: STEEL OR MALLEABLE-IRON, SLOTTED SUPPORT SYSTEM

SUPPORT PARALLEL RUNS OF HORIZONTAL RACEWAYS TOGETHER ON TRAPEZE-

12.SPACING FOR RACEWAY SUPPORTS: UP TO 1" CONDUIT, MAXIMUM 7 FEET. 1" AND

260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

B. CONCEALED CONDUIT, ABOVEGROUND: RIGID GALVANIZED STEEL CONDUIT.

C. UNDERGROUND CONDUIT: RIGID NON-METALLIC CONDUIT, TYPE EPC-40-PVC.

1. ROVIDE WRAPPED RIGID STEEL CONDUIT WHEN PENETRATING THOUGH

STUB-UPS OR WHERE UNDERGROUND CONDUITS OTHERWISE BECOME

). CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND

HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT):

A. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: ELECTRICAL METALLIC TUBING

B. EXPOSED. NOT SUBJECT TO SEVERE PHYSICAL DAMAGE: ELECTRICAL METALLIC

D. CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS. ELECTRICAL

HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT):

G. BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4

STAINLESS STEEL IN INSTITUTIONAL AND COMMERCIAL KITCHENS AND DAMP OR

3. UNDERGROUND 90 DEGREE ELBOWS 2-INCH TRADE SIZE OR LARGER, USE PLASTIC

. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND

8. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE

INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY

10. SUPPORT CONDUIT WITHIN 12 INCHES OF ENCLOSURES TO WHICH ATTACHED.

11. AT EXPANSION JOINTS, USE EXPANSION FITTINGS THAT PROVIDE EXPANSION AND

ARE ALLOWED. SUPPORT WITHIN 12 INCHES OF CHANGES IN DIRECTION.

13. COMPLETE RACEWAY INSTALLATION BEFORE STARTING CONDUCTOR

4. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR

5. CONDUITS INSTALLED WITH WRINKLES OR KINKS OR OTHERWISE IN AN UNPROFESSIONAL MANNER SHALL BE REPLACED BY THE CONTRACTOR AT NO

MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB (90-KG) TENSILE

STRENGTH. LEAVE AT LEAST 12 INCHES (300 MM) OF SLACK AT EACH END OF PULL

16. ALL DEVICES BACKBOXES SHALL BE MINIMUM 4" X 4" X 2 1/8", UNLESS OTHERWISE

17. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING FOR BOX IN CENTER OF

SPECIFIED. ALL BOXES SHALL BE SECURELY FASTENED. ALL BOXES SHALL BE RECESSE/FLUSHED TO WALL, BOXES TO BE GALVANIZED STEEL. COVERPLATES TO MATCH WALL FINISH, UNLESS OTHERWISE SPECIFIED. DEVICES THAT ARE SURFACED MOUNTED SHALL BE OF SAME FINISH OF WALL. SURFACE RACEWAY SHALL BE USED

INSTEAD SURFACE CONDUIT, RACEWAY FINISH TO MATCH THAT OF WALL AND

CELL OF MASONRY BLOCK, AND INSTALL BOX FLUSH WITH SURFACE OF WALL.

18.BOXES IN STUD WALLS: DO NOT INSTALL BOXES BACK TO BACK IN STUD WALLS.

19.BOXES AND ENCLOUSURES TO BE SIZED PER NEC. FOR INDOOR APPLICATIONS

ALLOW ONE STUD SEPARATION OR 24" MINIMUM. WHERE THIS IS NOT POSSIBLE.

THEN PROVIDE BOXES WITH UL-LISTED FIRE RATED AND SOUND RATED WRAPPING.

SECURED TO WALL, RACEWAY TO COMPLY WITH NEC FILLINGS.

20.SEE SECTION 260500 FOR PENETRATIONS, SLEEVES, AND SEALS.

12. NO FLEX LONGER THAN SIX FEET WILL BE PERMITTED.

CONDUIT RUN EXCEPT FOR CONTROL WIRING CONDUITS, FOR WHICH FEWER BENDS

STEAM OR HOT-WATER PIPES. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER

COATED OR TAPE WRAPPED INTERMEDIATE METAL OR RIGID STEEL CONDUIT.

E. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND

C. EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE: GALVANIZED RIGID STEEL

FOUNDATION WALLS, BENDS ARE GREATER THAN 22 DEGREES,

E. BOXES AND ENCLOSURES, ABOVEGROUND: NEMA 250, TYPE 3R.

F. DAMP OR WET LOCATIONS: RIGID GALVANIZED STEEL CONDUIT.

. ELECTRICAL METALLIC TUBING (EMT) IN WALLS, CONCEALED

10. SUPPORT INDIVIDUAL HORIZONTAL RACEWAYS BY SEPARATE PIPE HANGERS

SUPPORT EXPOSED AND CONCEALED RACEWAY WITHIN 1 FOOT OF AN

13. SEE SECTION 260500 FOR PNETRATIONS, SLEEVES, AND SEALS.

THROUGH BOLTS: STRUCTURAL TYPE, HEX HEAD, AND HIGH STRENGTH.

ASSOCIATED FITTINGS, DESIGNED FOR TYPES AND SIZES OF RACEWAY OR CABLE TO

B. COOPER B-LINE. INC.: A DIVISION OF COOPER INDUSTRIES.

SYSTEMS

CONDUITS.

TYPE HANGERS.

. ACCEPTABLE MANUFACTURERS:

D. THOMAS & BETTS CORPORATION.

C. ERICO INTERNATIONAL CORPORATION.

E. UNISTRUT; TYCO INTERNATIONAL, LTD.

A. ALLIED TUBE & CONDUIT.

FILLED LETTERING ON FACE OF PLATE, AND DURABLE WIRE MARKERS OR TAGS INSIDE OUTLET BOXES.

9. DEVICE COLOR: NORMAL POWER DEVICES AND PLATES SHALL BE WHITE.

EMERGENCY POWER SHALL BE RED, UPS POWER SHALL BE BLUE.

260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

B. EMERGENCY POWER – WHITE LETTERS ON RED FACE, UNLESS NOTED

AND CIRCUIT DESIGNATION.

OTHERWISE ON DRAWINGS

A. COLOR SHALL BE FACTORY APPLIED.

B. COLORS FOR 208/120-V CIRCUITS:

C. COLORS FOR 240-V CIRCUITS:

D. COLORS FOR 480/277-V CIRCUITS:

E. COLOR FOR EQUIPMENT GROUNDS: GREEN.

FLOORS AND AT 25-FOOT MAXIMUM INTERVALS.

F. COLORS FOR ISOLATED GROUNDS: GREEN WITH WHITE STRIPE.

. PROVIDE WARNING TAPE FOR ALL UNDERGROUND LINES.

PROVIDE COLOR BANDING ON RACEWAYS WITH SNAP-AROUND COLOR-CODING

BANDS. LOCATE AT CHANGES IN DIRECTION, AT PENETRATIONS OF WALLS AND

. IDENTIFY THE COVERS OF EACH JUNCTION AND PULL BOX OF THE FOLLOWING

WORKSPACE IDENTIFICATION: PROVIDE FLOOR MARKING TAPE TO FINISHED

A. COOPER WIRING DEVICES; DIVISION OF COOPER INDUSTRIES, INC. (COOPER).

CONVENIENCE RECEPTACLES SHALL BE: 125 V, 20 A: COMPLY WITH NEMA WD 1,

. ISOLATED-GROUND, DUPLEX CONVENIENCE RECEPTACLES, 125 V, 20 A: COMPLY

WD 1. NEMA WD 6 CONFIGURATION 5-20R. UL 498 SUPPLEMENT SD. AND FS W-C-596.

GROUND PIN OF VERTICALLY MOUNTED RECEPTACLES SHALL BE DOWN, AND ON

TAMPER-RESISTANT CONVENIENCE RECEPTACLES, 125 V, 20 A: COMPLY WITH NEMA

WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596.

B. HUBBELL INCORPORATED; WIRING DEVICE-KELLEMS (HUBBELL).

NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596.

SURFACES. SHOW WORKING CLEARANCES IN THE DIRECTION OF ACCESS TO LIVE

PROVIDE WARNING LABELS FOR INDOOR CABINETS, BOXES, AND ENCLOSURES FOR

AND SYSTEM VOLTAGE AND CIRCUIT IDENTIFICATION. "EMERGENCY POWER".

SYSTEMS WITH SELF-ADHESIVES LABELS CONTAINING THE WIRING SYSTEM LEGEND

CIRCUIT CONDUCTORS:

1. PHASE A: BLACK.

2. PHASE B: RED.

3. PHASE C: BLUE

4. NEUTRAL: WHITE

1. PHASE A: BLACK.

PHASE A: BROWN

PHASE B: ORANGE.

PHASE C: YELLOW.

4. NEUTRAL: GRAY

"POWER", "UPS".

POWER AND LIGHTING.

. PROVIDE ARC-FLASH WARNING LABELS.

C. LEVITON MFG. COMPANY INC. (LEVITON)

D. PASS & SEYMOUR/LEGRAND (PASS & SEYMOUR)

TOGGLE SWITCHES SHALL BE QUIT TUMBLER TYPE.

WALL PLATES SHALL MATCH THE DEVICE COLOR,

262726 - WIRING DEVICES

ACCEPTABLE MANUFACTURERS:

2. PHASE B: RED.

ON DRAWINGS.

DRAWINGS.

PROVIDE ENGRAVED LEGENDS FOR EQUIPMENT:

. ALL EQUIPMENT SHALL BE LABELED WITH EQUIPMENT NAME, SOURCE OF POWER

A. NORMAL POWER - WHITE LETTERS ON BLACK FACE, UNLESS NOTED OTHERWISE

C. UPS POWER - WHITE LETTERS ON BLUE FACE, UNLESS NOTED OTHERWISE ON

. PROVIDE: COLOR-CODING FOR PHASE AND VOLTAGE LEVEL IDENTIFICATION, 600 ${ t V}$

OR LESS: USE COLORS LISTED BELOW FOR UNGROUNDED FEEDER AND BRANCH-

4. THE MOUNTING HEIGHT FOR CONVENIENCE RECEPTACLES WILL BE 18" ABOVE THE FINISH FLOOR TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA)

SPECTRUM

www.spectrum-engineers.com Project No. 230066

your contract with the City of Phoenix.

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Per City of Phoenix City Code Chapter 2,

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Sheet 42 of 50

Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix. AZ 85020

602 943 5279 v

SAFETY

CONTRACTOR TO COMPLETE THE WORK SUBMITTALS

DETECTION SYSTEM, AND LIGHTNING PROTECTION SYSTEMS.

260500 - COMMON WORK RESULTS FOR ELECTRICAL

• INTERNATIONAL BUILDING CODE (IBC – 2018 EDITION)

• NFPA 70 – NATIONAL ELECTRIC CODE (2017 EDITION)

3. BLUE STAKE REQUIRED FOR ALL UNDERGROUND EXCAVATION.

• INTERNATIONAL FIRE CODE (IFC – 2012 EDITION)

• NFPA 72 – NATIONAL FIRE ALARM CODE

• ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) HANDBOOK - 9TH

2. LOAD ANALYSIS TO BE PERFORMED TO DETERMINE ADEQUACY OF DISTRIBUTION

I. "PROVIDE" MEANS FURNISH, INSTALL, CONNECT AND TEST UNLESS OTHERWISE

5. CONTRACTOR SHALL PROVIDE COORDINATION DRAWINGS PRIOR TO START OF

6. ALL SPECIFIED EQUIPMENT SHALL BE RATED FOR THE ALTITUDE OF THE PROJECT:

A. ALL EQUIPMENT SHALL BE NEW AND CONTAIN THE MANUFACTURER'S NAME,

BE "UL" LISTED FOR IT'S INTENDED USE AND/OR APPROVED BY THE

2. USE PIPE SLEEVES UNLESS PENETRATION ARRANGEMENT REQUIRES

AND EXTERIOR WALLS BELOW GRADE AND WHERE INDICATED.

. ALL EQUIPMENT AND MATERIALS SHALL BE LISTED AND LABELED BY A NATIONALLY

8. ALL GROUND MOUNTED EQUIPMENT SHALL BE PROVIDED WITH A MINIMUM 4" HIGH

. CONCRETE SLABS AND WALLS: INSTALL SLEEVES FOR PENETRATIONS UNLESS

CORE- DRILLED HOLES OR FORMED OPENINGS ARE USED. INSTALL SLEEVES DURING

3. CONDUIT SEALS: INSTALL SEALS FOR CONDUIT PENETRATIONS OF SLABS ON GRADE

4. APPLY FIRESTOPPING TO PENETRATIONS OF FIRE-RATED FLOOR AND WALL

5. FIRE-RATED-ASSEMBLY PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF

PENETRATIONS. INSTALL SLEEVES AND SEAL RACEWAY AND CABLE PENETRATION

SLEEVES WITH FIRESTOP MATERIALS. COMPLY WITH REQUIREMENTS IN DIVISION 07

6. INTERIOR PENETRATIONS OF NON-FIRE-RATED WALLS AND FLOORS: SEAL ANNULAR

ABOVEGROUND, EXTERIOR-WALL PENETRATIONS: SEAL PENETRATIONS USING

STEEL PIPE SLEEVES AND MECHANICAL SLEEVE SEALS. SELECT SLEEVE SIZE TO

ALLOW FOR 1-INCH (25-MM) ANNULAR CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR

ASSEMBLIES FOR ELECTRICAL INSTALLATIONS TO RESTORE ORIGINAL FIRE-

WALLS. PARTITIONS. CEILINGS. AND FLOORS AT RACEWAY AND CABLE

SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE, USING JOINT SEALANT

8. STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40,

9. UNDERGROUND, EXTERIOR-WALL PENETRATIONS: INSTALL CAST-IRON PIPE

SLEEVES. SIZE SLEEVES TO ALLOW FOR 1-INCH (25-MM) ANNULAR CLEAR SPACE

FROM BUILDING TO PREVENT ACCUMULATED WATER FROM TRAVELING DOWN

BETWEEN RACEWAY OR CABLE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE

SEALS. INSTALL WATER-TIGHT ASSEMBLY. SLOPE UNDERGROUND CONDUITS AWAY

10. CAST-IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE," EQUIVALENT TO

DUCTILE-IRON PRESSURE PIPE. WITH PLAIN ENDS AND INTEGRAL WATERSTOP.

1.SLEEVES FOR RECTANGULAR OPENINGS: GALVANIZED SHEET STEEL

THAN, 16 INCHES (400 MM), THICKNESS SHALL BE 0.138 INCH (3.5 MM).

FLOORS AND WALLS FOR RACEWAYS AND CABLE INSTALLATIONS.

SLEEVE AND RACEWAY OR CABLE, UNLESS INDICATED OTHERWISE.

1. FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER LESS THAN 50

INCHES (1270 MM) AND NO SIDE MORE THAN 16 INCHES (400 MM), THICKNESS

2. FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER EQUAL TO, OR

MORE THAN, 50 INCHES (1270 MM) AND 1 OR MORE SIDES EQUAL TO, OR MORE

12. SLEEVES: INSTALL IN CONCRETE SLABS AND WALLS AND ALL OTHER FIRE- RATED

13.CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES OF WALLS

14.EXTEND SLEEVES INSTALLED IN FLOORS 2 INCHES (50 MM) ABOVE FINISHED FLOOR

15.SIZE PIPE SLEEVES TO PROVIDE 1/4-INCH (6.4-MM) ANNULAR CLEAR SPACE BETWEEN

16. SLEAVE SEALS: MODULAR, WATER TIGHT SEALING DEVICE, DESIGNED FOR FIELD

ASSEMBLY, TO FILL ANNULAR SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE.

B. SEALING ELEMENTS: EPDM INTERLOCKING LINKS SHAPED TO FIT SURFACE OF CABLE OR CONDUIT. INCLUDE TYPE AND NUMBER REQUIRED FOR MATERIAL AND

D. CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING OF LENGTH REQUIRED TO SECURE PRESSURE PLATES TO SEALING

17.GROUT: NONMETALLIC, SHRINKAGE-RESISTANT GROUT: ASTM C 1107, FACTORY-

MIXED WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATION AND A 30- MINUTE

PACKAGED, NONMETALLIC AGGREGATE GROUT, NONCORROSIVE, NONSTAINING,

C. PRESSURE PLATES: CARBON STEEL. INCLUDE TWO FOR EACH SEALING

APPROPRIATE FOR SIZE, DEPTH, AND LOCATION OF JOINT. COMPLY WITH

REQUIREMENTS IN DIVISION 07 SECTION "JOINT SEALANTS."

MODEL NUMBER AND ELECTRICAL CHARACTERISTICS. ALL EQUIPMENT SHALL

ADOPTED CODES LISTED HERE:

EQUIPMENT AND FEEDERS.

A. PHONEIX. 1.086 FEET

HAVING JURISDICTION.

SLEEVES AND SEAL

RECOGNIZED LABORATORY (NRTL):

CONCRETE HOUSEKEEPING PAD.

ERECTION OF SLABS AND WALLS.

RECTANGULAR SLEEVED OPENING.

RESISTANCE RATING OF ASSEMBLY.

SECTION "PENETRATION FIRESTOPPING."

INSTALLING MECHANICAL SLEEVE SEALS.

GALVANIZED STEEL. PLAIN ENDS.

UNLESS OTHERWISE INDICATED.

A. MINIMUM METAL THICKNESS

SHALL BE 0.052 INCH (1.3 MM)

A. ACCEPTABLE MANUFACTURERS:

2. CALPICO, INC.

4. O-Z GEDNEY

WORKING TIME.

3. METRAFLEX CO.

SIZE OF RACEWAY OR CABLE.

1. ADVANCE PRODUCTS & SYSTEMS, INC.

5. PIPELINE SEAL AND INSULATOR, INC.

ELEMENTS. INCLUDE ONE FOR EACH SEALING ELEMENT.

CONDUIT INTO BUILDING.

EDITION

260502 - ELECTRICAL DEMOLITION

IN SERVICE DURING CONSTRUCTION.

MAKE SWITCH OVERS AND CONNECTIONS.

SHOWING REVISED CIRCUITING ARRANGEMENT.

AND BROKEN ELECTRICAL PARTS.

AND CABLES (600V AND LESS)

ACCEPTABLE MANUFACTURERS:

D. ENCORE WIRE CORPORATION.

F. SOUTHWIRE INCORPORATED

MINIMUM #12 AWG WIRE.

MAXIMUM 500KCMIL WIRE.

CONDUCTOR INSULATION:

NEUTRAL IS NOT ALLOWED.

SYSTEMS

D. ILSCO.

C. SERVICE ENTRANCE: XHHW-2.

B. FEEDERS: THHN - THWN-2 AND XHHW-2.

DRAWING IN PANEL SCHEDULE SHEETS.

ACCEPTABLE MANUFACTURERS:

. CONDUCTORS SHALL BE COPPER.

AND BRANCH CIRCUITS.

B. ERICO INTERNATIONAL CORPORATION.

C. HARGER LIGHTNING AND GROUNDING.

#10 AWG AND LARGER.

SALVAGEABLE MATERIAL

O THE OWNER.

B. ALPHA WIRE.

C. BELDEN INC.

BEGINNING OF DEMOLITION MEANS CONTRACTOR ACCEPTS EXISTING CONDITIONS

. DISCONNECT AND REMOVE ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND

CEILINGS SCHEDULED FOR REMOVAL IN THEIR ENTIRETY. CONDUIT LOCATED IN

CONCRETE SHALL BE CUT FLUSH, CAPPED, AND SEALED. LABEL AS "ABANDONED."

. EXISTING ELECTRICAL SERVICES: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL

NEW SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ONLY TO

. OBTAIN PERMISSION FROM THE OWNER'S REPRESENTATIVE AT LEAST 72 HOURS

ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE

CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT DIRECTORY

LUMINARIES: REMOVE EXISTING LUMINARIES FOR CLEANING, AS INDICATED ON

SURFACES; RINSE WITH CLEAN WATER AND WIPE DRY. REPLACE LAMPS, BALLASTS

DISCONNECT EXISTING ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE

REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION

AND EXTENSION WORK, ANY DAMAGE TO BUILDING, PIPING OR EQUIPMENT SHALL BE

REPAIRED BY SKILLED MECHANICS OF THE TRADES INVOLVED AT NO ADDITIONAL COST

CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY CEILING TILES OR

260519 - LOW VOLTAGE ELECTRICAL POWER CONDUCTORS

I. ALL CONDUCTORS SHALL BE COPPER AND SOLID FOR #12 AWG AND STRANDED FOF

. NO MORE THAN THREE CIRCUITS IN A RACEWAY, UNLESS SPECIFICALLY SHOWN

PROVIDE THE FOLLOWING MINIMUM SIZES FOR DISTANCES LISTED ON 20A BRANCH

CIRCUITS TO PREVENT EXCESSIVE VOLTAGE DROP. THE CIRCUIT LENGTH SHALL BE

MEASURED ALONG THE LENGTH OF THE CONDUCTOR FORM THE CIRCUIT BREAKER

8. ALL FEEDERS WILL BE LOADED TO APPROXIMATELY 80% OF CONNECTED LOAD PER

IN THE PANELBOARD TO THE LAST DEVICE ON THE CIRCUIT. INCREASE RACEWAY

A. REFER TO BRANCH CIRCUIT CONDUCTOR AND CONDUIT SIZING TABLE IN

260526 - GROUNDING AND BONDING FOR ELECTRICAL

3. PROVIDE GROUND BUS IN ALL ELECTRICAL AND TELECOM ROOMS. PROVIDE

SWITCHBOARDS, 600 V AND SHALL BE LEXAN OR PVC, IMPULSE TESTED AT 5000 V.

SECTION, WITH 9/32-INCH HOLES SPACED 1-1/8 INCHES APART. STAND-OFF

. ALL METALLIC RACEWAYS SHALL BE PROPERLY GROUNDED AND BONDED.

). CONNECTORS TO BE LISTED AND LABELED BY AN NRTL ACCEPTABLE TO

RACEWAYS USED FOR SINGLE OR MULTIPLE BRANCH CIRCUITS SHALL INCLUDE A

INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDERS

AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED AND FOR

SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS

CONNECTED. TIGHTEN GROUNDING AND BONDING CONNECTORS AND TERMINALS, IN

ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES OR

B. GROUND ELECTRICAL SYSTEM AND EQUIPEMNT IN ACCORDANCE WITH NEC ARTICLE

INSULATORS FOR MOUNTING SHALL COMPLY WITH UL 891 FOR USE IN

PREDRILLED RECTANGULAR BARS OF ANNEALED COPPER, 1/4 BY 4 INCHES IN CROSS

SOLID CONDUCTOR FOR #8 AWG AND SMALLER; STRANED FOR #6 AWG AND LARGER

SIZE TO COMPLY WITH CONDUCTOR FILL REQUIREMENTS OF NFPA 70.

NEC, SO UP TO 20% ADDITIONAL CAPACITY WILL BE AVAILABLE.

A. BURNDY; PART OF HUBBELL ELECTRICAL SYSTEMS.

E. O-Z/GEDNEY; A BRAND OF THE EGS ELECTRICAL GROUP.

F. SIEMENS POWER TRANSMISSION & DISTRIBUTION, INC.

GROUND RODS: COPPER-CLAD; 3/4 INCH BY 10 FEET.

CODE SIZED GREEN INSULATED GROUND CONDUCTOR.

OTHERWISE. PROVIDE ONE NEUTRAL FOR EACH PHASE CONDUCTOR, SHARED

PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF

DRAWINGS. USE MILD DETERGENT TO CLEAN ALL EXTERIOR AND INTERIOR

B. MATERIALS AND EQUIPMENT TO BE SALVAGED: REMOVE, DEMOUNT, AND

LOCATION DESIGNATED FOR STORAGE. COORDINATE WITH OWNER FOR

0. REMOVAL AND REPLACEMENT OF CEILING TILE(S) TO PERFORM WORK

OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE

FRAMEWORK THAT MAY BECOME DAMAGED AT NO COST TO THE OWNER.

A. ALCAN PRODUCTS CORPORATION; ALCAN CABLE DIVISION.

A. BRANCH CIRCUITS AND CONTROL CIRUITS: THHN - THWN-2.

E. GENERAL CABLE TECHNOLOGIES CORPORATION.

REMOVED AND SALVAGED, AND DELIVER MATERIALS AND EQUIPMENT TO THE

BEFORE PARTIALLY OR COMPLETELY DISABLING ANY SYSTEM.

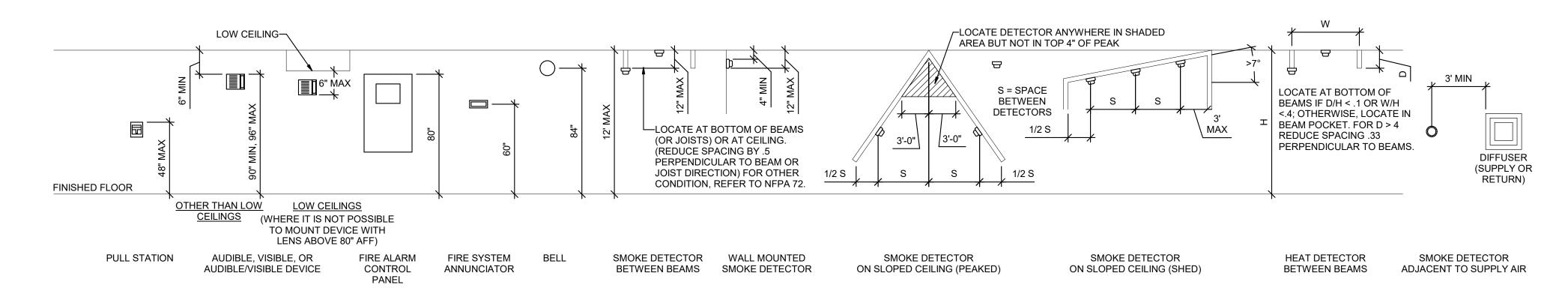
. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXISTING SYSTEMS

0

OFFICE

COUNTER TOP-—COMMUNICATIONS /-MOUNT DUPLEX DO NOT LOCATE-RECEPTACLE √
 □ OUTLET BEHIND BACKSPLASH-ABOVE SINK -COUNTER TOP WATER COOLER —DUPLEX RECEPTACLE **MIRROR** —GROMMET WINDOW IN TILE DUPLEX--COORDINATE LOCATION COMMUNICATIONS RECEPTACLE OF DUPLEX OUTLET RECEPTACLE WITH EQUIPMENT DUPLEX RECEPTACLE SUPPLIER FINISHED FLOOR WITHOUT BACKSPLASH WITH BACKSPLASH DEDICATED REGULAR ADA **GENERAL USE:** RECEPTACLE FOR SPECIAL RECEPTACLES ABOVE COUNTER RECEPTACLES BELOW COUNTER TILE WALLS DRINKING FOUNTAIN - SIDE ELEVATIONS NO SPECIAL REQUIREMENTS WALL BRACKET TV **EQUIPMENT**

RECEPTACLE MOUNTING DETAILS 6



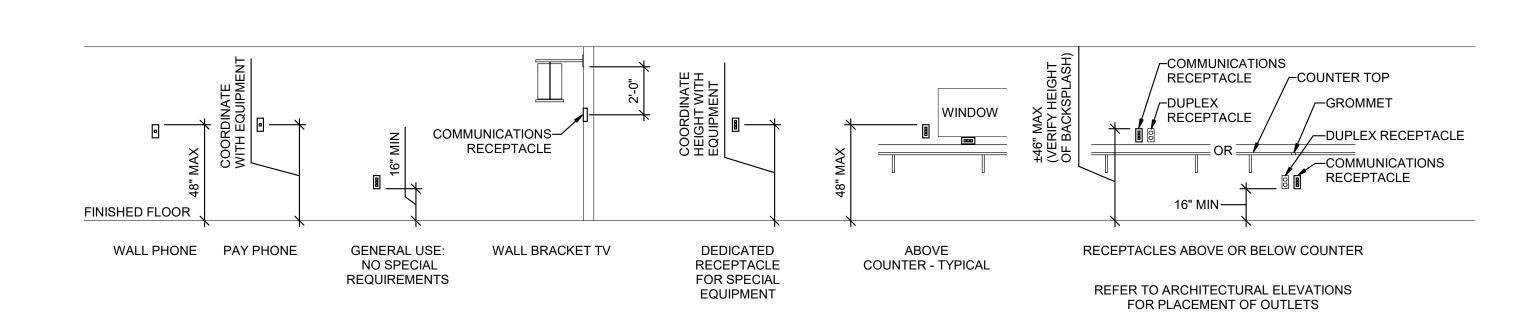
COMBINATION 48" MAX

PLATE FOR SWITCH AND

RECEPTACLE IN

RESIDENTIAL BATHROOM

FIRE ALARM MOUNTING DETAILS 5

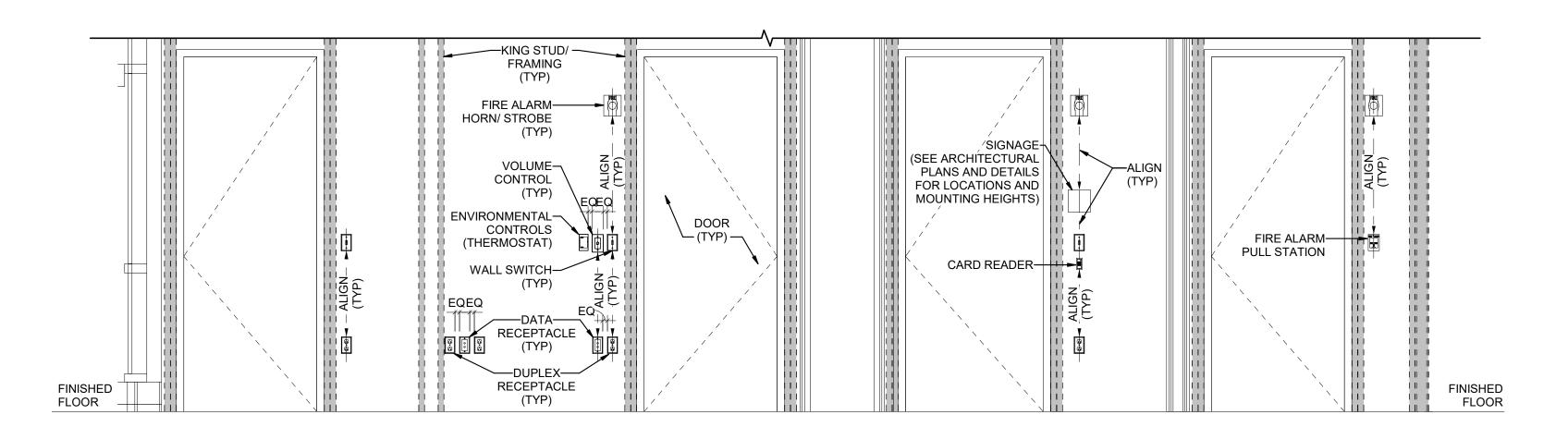


SWITCH MOUNTING DETAILS **9**

00

LIGHTING

CONTROL STATION



FINISHED FLOOR

GENERAL

USE: ADA

SIDELIGHT-

LESS THAN 2'

^LSWITCH

STANDARD DOOR

LOCATION

SIDELIGHT-

GREATER

THAN 2'

SWITCH-

DOOR WITH SIDELIGHT

GREATER THAN 2'

LOCATION

FRAME

CABINETS

SWITCH-

DOOR WITH NO

PLACE FOR SWITCH

AT LATCH SIDE

LOCATION

FRAME

LOCATION

DOOR WITH SIDELIGHT

LESS THAN 2'

TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL •

Marlene Imirzian & Associates Architects

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

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Revisions

77612

NICHOLAS KNAUS

Designed By: NAK

Drawn By:

HAN

Checked By:

Date:

NAK

04/19/23

MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE A - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).

C - FIELD INSTRUCTIONS. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.

MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.

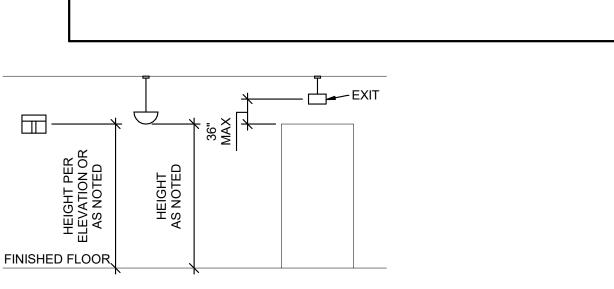
SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.

GENERAL SHEET NOTES

FOLLOWING ORDER OF PRIORITY:

B - EQUIPMENT SHOP DRAWINGS.

- LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
- VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
- LOCATE WIRING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.
- WHERE DEVICES ARE LOCATED IN CLOSE PROXIMITY OF THE SAME VERTICAL PLANE, ALIGN DEVICES VERTICALLY PER THE TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL, UNLESS OTHERWISE INDICATED.



PENDANT EXIT SIGNS WALL MOUNTED PENDANT LIGHT FIXTURE LIGHT FIXTURE

LIGHTING MOUNTING DETAILS A

COMMUNICATIONS MOUNTING DETAILS 3





Project No. 230066 SDEV#

Sheet 43 of 50

KIVA#

Revisions

 5 77612 7 NICHOLAS

Designed By:

NAK

HAN

Checked By: NAK

04/19/23

Date:

Drawn By:

KIVA# Project No. 230066

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480-621-3444 www.spectrum-engineers.com

SDEV# Sheet 44 of 50

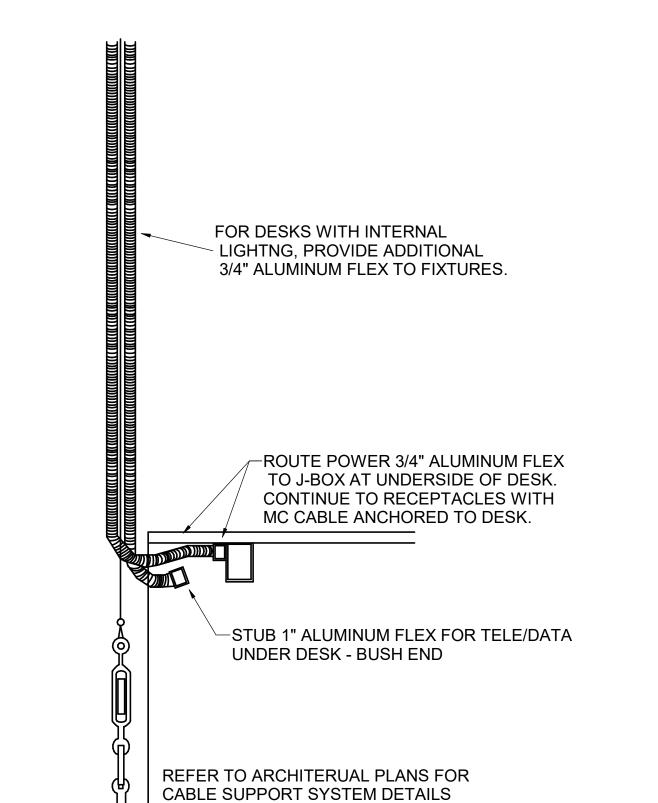
—ARC FLASH LABEL LOCATED HERE

8906 North Central Ave Phoenix, AZ 85020 602 943 5279 v

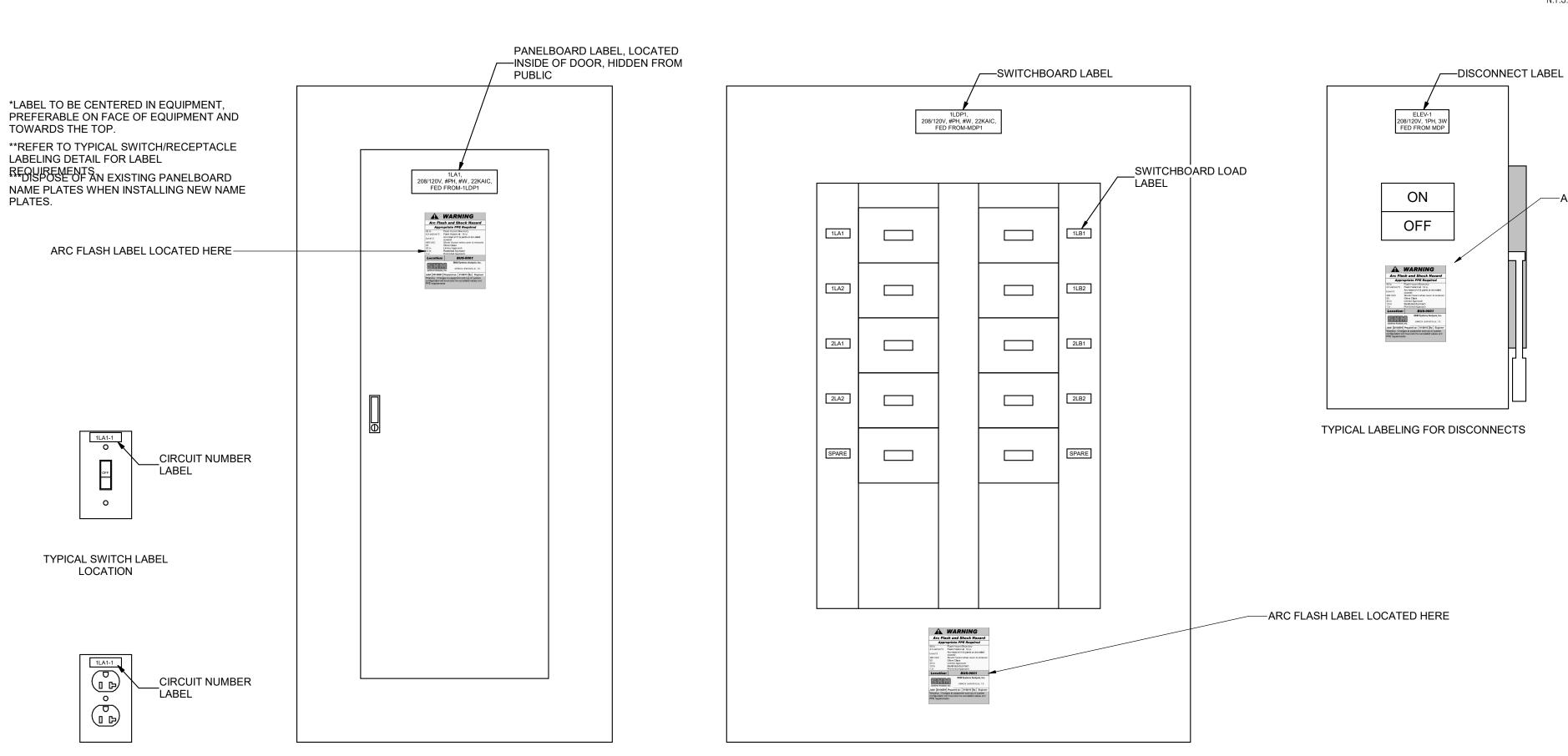
Marlene Imirzian & Associates Architects

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TYPICAL POWER/DATA DROP AT DESK 2



TYPICAL LABELING FOR SWITCHBOARDS

TYPICAL LABELING FOR PANELBOARDS

IN NON-PUBLIC LOCATIONS

TYPICAL RECEPTACLE LABEL

LOCATION



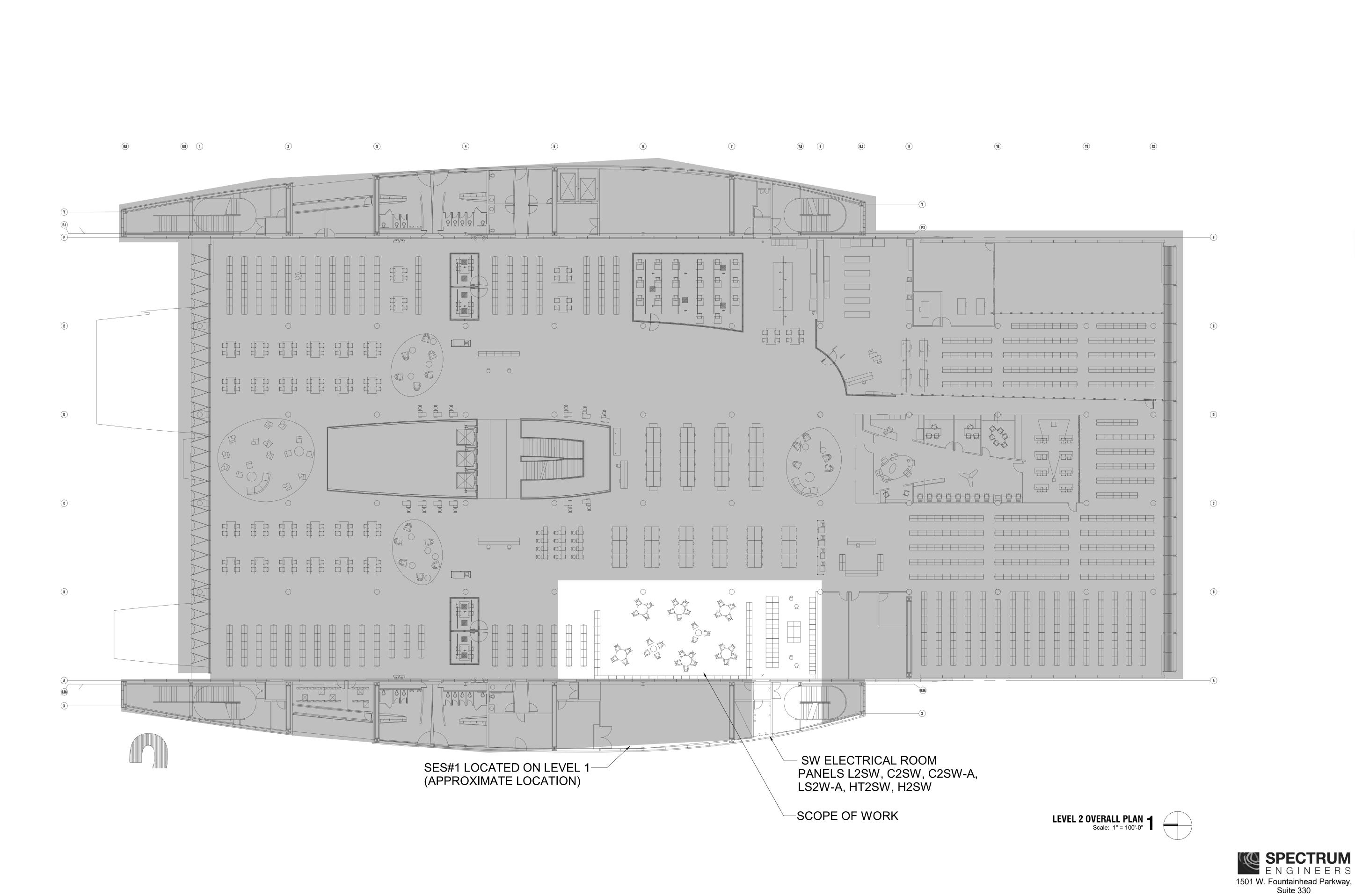
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KIVA# SDEV# Sheet EE8.00 45 of 50



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OFFICE

77612

NICHOLAS

KNAUS

NAK

Drawn By:

HAN

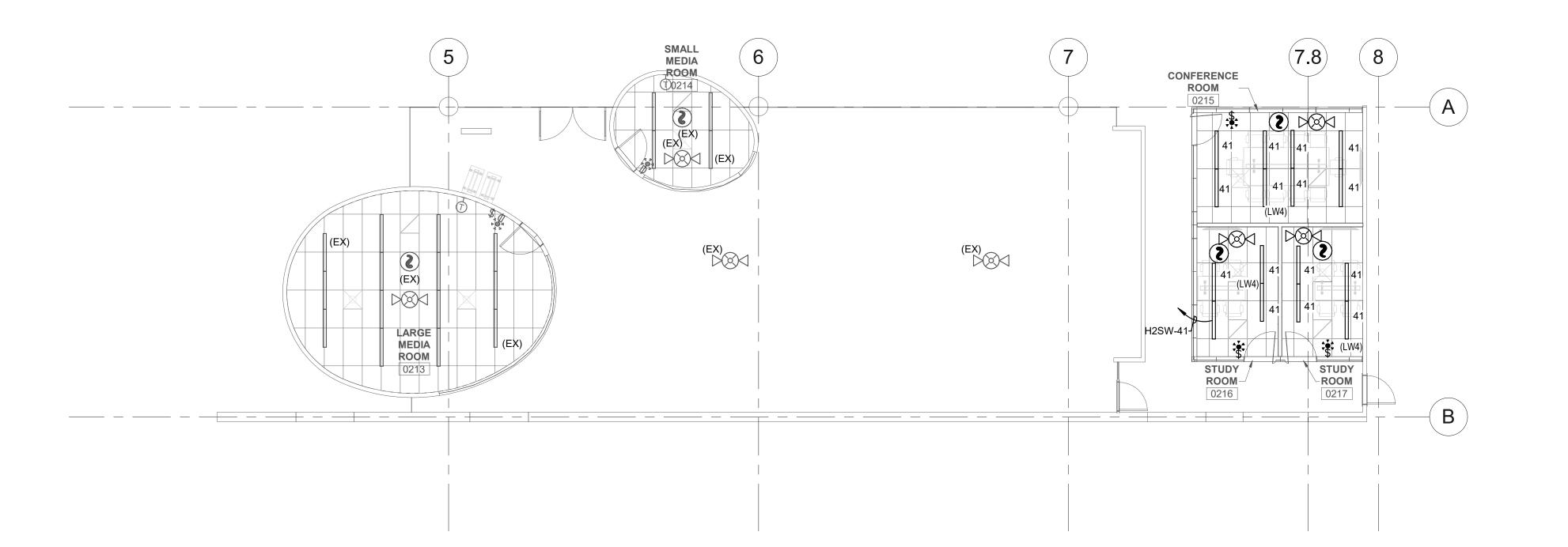
Checked By:

NAK

Date:

Revisions

INTERIOR LIGHTING FIXTURE SCHEDULE **GENERAL NOTES** SUBSTITUTIONS AND/OR EQUAL FIXTURES MUST RECEIVE APPROVAL PRIOR TO BIDDING, THEY MUST BE SUBMITTED TO THE ENGINEER NO LESS THAN 2 WEEKS PRIOR TO BID OPENING. 2. SAMPLES MUST BE PROVIDED FOR ANY AND ALL FIXTURES UPON A/E REQUEST PRIOR TO RELEASING FIXTURES. 3. ALL FIXTURES SHALL BE LISTED AND APPROVED FOR THEIR INTENDED USE AND LOCATION. DIAMETER 4. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS. 5. COMPLY WITH THE "INTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS. 6. ALL LIGHT FIXTURES TO BE EITHER "DLC" OR "LIGHTING FACTS" LISTED OR TO BE APPROVED BY ARCHITECT/ENGINEER AND OWNER. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES. LUMINAIRE DRIVER DELIVERED DELIVERED MANUFACTURER (CATALOG INDIRECT COLOR DESCRIPTION SIZE (NOMINAL) LUMENS LUMENS TEMP CRI TYPE VOLTAGE WATTS (LW4) DESCRIPTION: LINEAR, INDIRECT/DIRECT MOUNTING: CEILING SURFACE MOUNTED, MATCH EXISTING CONDITONS WIDTH: 4" 2,886 3500K 90 LED (0-10V 120/277V 28 DELRAY (SLT7-4-HO-W35-D-SAC) APPROVÈD MANUFACTURER EQUA OPTICS: FLUSH LENS, LOW GLOSS WHITE REFLECTOR OPTIONS: FLAT END CAP, FIXED WALL BRACKET



LEVEL 2 LIGHTING PLAN Scale: 1/8" = 1'-0"

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GENERAL SHEET NOTES

OTHER TRADES PRIOR TO ROUGH-IN.

ARCHITECTURAL DRAWINGS AND DETAILS

FOR A COMPLETE AND OPERATIONAL SYSTEM.

○ SHEET KEYNOTES

CEILINGS PRIOR TO ROUGH-IN.

OF EACH SPACE.

OPEN AREA SPACES.

ALLOW A MINIMUM OF 4" CLEARANCE ABOVE ALL CEILING MOUNTED RECESSED LIGHT FIXTURES. COORDINATE LOCATIONS AND LIGHT FIXTURE DEPTHS WITH ALL

2 COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHT FIXTURES WITH MECHANICAL EQUIPMENT, DUCT, PIPE, PLUMBING, ETC. IN SPACES WITH OPEN

3 DIGITAL LIGHTING CONTROL DIMMING/ROOM CONTROLLERS SHALL BE LOCATED ON THE WALL ABOVE THE DOOR FOR THE SPACE THEY SERVE WHERE POSSIBLE AND NEAR THE DOOR WHERE THIS IS NOT POSSIBLE. FOR LARGE COMMON SPACES OR EXTERIOR LIGHTING, THEY SHALL BE CENTRALLY LOCATED WITH THE

4 REFER TO LIGHTING/SPACE CONTROL TYPE SCHEDULES FOR WIRING DIAGRAMS

6 EXISTING EMERGENCY EGRESS AND EXIT LIGHTING EXISTING TO REMAIN IN ADJACNET

7 FIRE ALARM DEVICES ARE SHOWN FOR DESIGN INTENT ONLY. PROVIDE A COMPLETE AND FUNCTIONAL ADDITION TO THE EXISTING FIRE ALARM SYSTEM, COMPATIBLE WITH EXISTING SYSTEM AND DEVICES. PROVIDE A DEFERRED SUBMITTAL INDICATING

AUTHORITY HAVING JURISDICTION FOR APPROVAL. BID SHALL INCLUDE COMPLETE

PROGRAMMING, POWER SUPPLIES, MODULES AND ALL APPURTENANCES NECESSARY

COMPLETE INSTALLATION REQUIREMENTS AND CALCULATIONS AND SUBMIT TO

DESIGN AND INSTALLATION, INCLUDING ALL DEVICES, CONDUIT, WIRING,

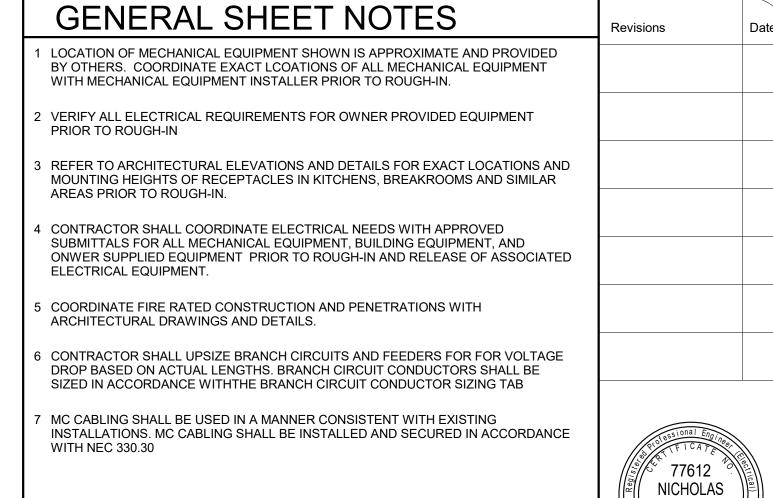
5 COORDINATE FIRE RATED CONSTRUCTION AND PENETRATIONS WITH

SDEV#

Sheet

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○ SHEET KEYNOTES

- DEMOLISH EXISTING RECEPTACLE, DEMOLISH ALL RACEWAY AND CONDUIT BACK TO NEAREST ACTIVE SOURCE. ENSURE CONTINUITY OF EXISTING CIRCUIT TO ALL EXISTING DEVICES ON THIS CIRCUIT.
- 2 NO DEMOLITION OF ELECTRICAL DEVICES IN THIS AREA.
- PROVIDE (2) QUAD RECEPTACLES AT THIS LOCATION FOR COMPUTER STATIONS AND MOBILE MONITOR.

Designed By: NAK

KNAUS

Drawn By:

Checked By: NAK

Date: 04/19/23

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B

LEVEL 2 POWER PLAN
Scale: 1/8" = 1'-0"

MEDIA

FB2A FB2A

SMALL MEDIA ROOM

FB2A FB2A

(EX)

(((•))) C (EX)

(EX) ≺

CONFERENCE **ROOM** 0215

L2SW-A-21-

L2SW-A-19-

STUDY ROOM 0216

LARGE **MEDIA** ROOM

L2SW-A-23

LARGE (EX)

ROOM

Marlene Imirzian & Associates Architects

Revisions

77612

NICHOLAS

KNAUS

NAK

HAN

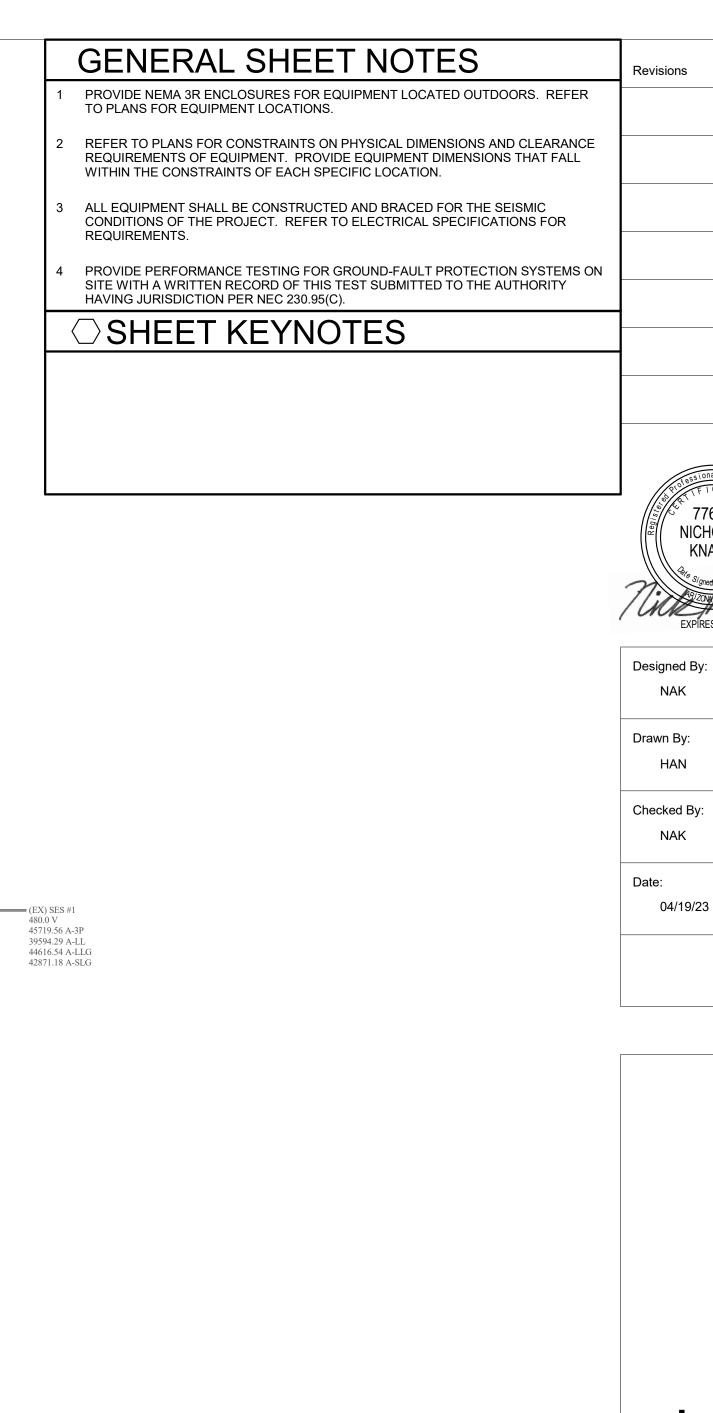
NAK

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Project No. 230066 SDEV#



12470.0 V 46299136.00 A-3P 40096208.00 A-LL 46299124.00 A-LLG 46299140.00 A-SLG (EX) APS XFMR 2500 kVA 12470.0 V / 480 V 5.7500 % (EX) SEC APS UTILITY XFMR 480.0 V 52293.69 A-3P 45287.64 A-LL 52294.10 A-LLG 52294.45 A-SLG CBL-0001 500 kcmil Copper 8 Cbl/Ph 150.0 ft CBL-0009
1 AWG
Copper
1 Cbl/Ph
60.0 ft CBL-0002 350 kemil 3/0 AWG Copper 2 Cbl/Ph 15.0 ft Copper 2 Cbl/Ph 20.0 ft (EX) PNL H2SW 480.0 V 20174.78 A-3P (EX) SWBD DB3W 17471.86 A-LL (EX) PRI XFMR T4 (EX) PRI XFMR T1 19010.84 A-LLG 480.0 V 42730.73 A-3P 42730.73 A-3P 36823.32 A-LL 41111.93 A-LLG 37005.88 A-LL 37005.88 A-LL 41493.48 A-LLG 38844.60 A-SLG 39182.80 A-SLG 39182.80 A-SLG 225 kVA 480.0 V / 208 V 5.0000 % 225 kVA 480.0 V / 208 V 5.0000 % (EX) SEC XFMR T4 (EX) SEC XFMR T1 208.0 V 11086.36 A-3P 208.0 V 11086.36 A-3P 9601.06 A-LL 11318.59 A-LLG 9601.06 A-LL 11318.59 A-LLG CBL-0010 3/0 AWG 11518.00 A-SLG 11518.00 A-SLG Copper 1 Cbl/Ph 65.0 ft CBL-0007 CBL-0005 300 kcmil Copper 3 Cbl/Ph 20.0 ft 300 kcmil Copper 3 Cbl/Ph (EX) PNL HT2SW 480.0 V 25014.88 A-3P 21663.51 A-LL 23608.64 A-LLG (EX) SWBD DB2W (EX) SWBD DB1W 208.0 V 10757.25 A-3P 208.0 V 10757.25 A-3P 9316.05 A-LL 10917.99 A-LLG 11013.55 A-SLG 9316.05 A-LL 10917.99 A-LLG 11013.55 A-SLG (EX) PNL L2SW 208.0 V 7615.18 A-3P 208.0 V 7615.18 A-3P 6594.94 A-LL 6594.94 A-LL 7367.88 A-LLG 7367.88 A-LLG 6933.43 A-SLG 6933.43 A-SLG

208.0 V 6811.24 A-3P

6547.10 A-LLG

(EX) APS UTILITY 12470.0 V

3P 999999.9 MVA

SLG 333333.3 MVA

(EX) PRI APS UTILITY XFMR

ONE-LINE DIAGRAM N.T.S.

FROM (EX) APS UTILITY

 $^{\mathsf{I}}$ (EX) METERING SWITCHBOARD "SES #1"

600A

600A LPS-R

W/OTHER

EXISTING LOADS

400A

300A FSR

(EX) XFMR T4

480-208Y/120V C

225kVA

3Ø, 4W

800/3

SCOPE OF WORK-

480/277V, 3Ø, 4W

3000 A, 65000AIC

W/OTHER

EXISTING LOADS

(EX) SWITCHBOARD "DB3W"

200A LPS-R

(EX) SWITCHBOARD "DB2W"

208/120V, 3Ø, 4W 800 A MCB, 42000AIC

SCOPE OF WORK-

W/OTHER

EXISTING LOADS

| 480/277V, 3Ø, 4W

600 A, 42000AIC

| GROUND BUS

(EX) UTILITY XFMR

12470-480Y/277V

PAD MOUNTED

3Ø, 4W

3000A

(EX) SWITCHBOARD "DB1W"

208/120V, 3Ø, 4W 800 A MCB, 42000AIC

W/OTHER

EXISTING LOADS

225A

W/OTHER

EXISTING LOADS

100A

100/3

(EX)

"H2SW"

100A LPS-R

400A

300A FSR

(EX) XFMR T3

480-208Y/120V

225kVA

3Ø, 4W

SKM SHORT CIRCUIT 2

208.0 V 6811.24 A-3P 5898.70 A-LL

6547.10 A-LLG

6081.02 A-SLG

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ELECTRIC	AL FIXTURE SCHEDULE	
ONTROL INSTALLER	NOTES: 1. NEMA 3R 2. TOGGLE SWITCH W/ THERMAL OVERLOAD 3. PROVIDE FUSED DISCONNECT ELEVATOR POWER MODULE WITH SHUNT TRIP 4. CONTRACTOR TO PERFOM FINAL CONNECTION TO LINE VOLTAGE THERMOSTATS 5. TOGGLE SWITCH W/BACNET INTERFACE. 6. INDOOR UNITS FED FROM OUTDOOR UNIT. PROVIDE DISCONNECTS FOR BOTH. 7. PROVIDE SWITCH WITH BACNET MS/TP CAPABILITY. 8. PROVIDE LABEL ON DISCONNECT "DISCONNECT OUTDOOR UNIT PRIOR TO INDOOR." 9. LINE VOLTAGE THERMOSTAT ON WALL. 10. PROVIDE EXPLOSION PROOF DEVICES AND WIRING METHODS. 11. PROVIDE DUAL-REDUNDANT 100% RATED VFD'S FOR AIR HANLDER. 12. PROVIDE MANUAL STARTER WITH THERMAL OVERLOAD AND RELAY FOR ATC/BAS CONTROL.	

ITEM NO.	QTY	DECSRIPTION	MOUNTING HEIGHT (AFF)	VOLT	LOAD	DATA AMPS	kW	LOAD DATA HP	WIRE AND CONDUIT SIZE	FURN	ECTION TYPE DEVICE	ELECTRICAL REMARKS
			MOUNTING		LOAD	DATA		_		CONNI	ECTION TYPE	
** - AUTOM	ATIC C	ONTROL WIRING BY DIVISION 23				5 6 7 8 9 1 1	. TOGGLE . INDOOR . PROVIDE . PROVIDE . LINE VOI 0. PROVICE 1. PROVICE	SWITCH VUNITS FEESWITCHELABELOUTAGE THEESTHOOLE	W/BACNET INTEID FROM OUTDO WITH BACNET MODISCONNECT WITH BACNET MODISCONNECT WITH BACNET ON NOTEIN ON NOTEIN OF THE MODISCON TOOM TOOM TOOM TOOM TOOM TOOM TOOM TO	RFACE. OR UNIT. IS/TP CAF "DISCONI WALL. VICES ANI % RATED	PROVIDE DISCO PABILITY. NECT OUTDOOR D WIRING METH VFD'S FOR AIR I	ONNECTS FOR BOTH. R UNIT PRIOR TO INDOOR." ODS.
		WITH THE DIVISION 23 TEMPERATURE CON	NIKULINSIALLE	R		4	CONTRA		PERFOM FINAL			DLTAGE THERMOSTATS

EQUIPMENT	SCHEDIILE
EQUIPMENT	SCHEDULE

EQUIPMENT SCHEDULE KEY

E - DIVISION 26 Q - FURNISHED WITH EQUIPMENT

- COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER ** - AUTOMATIC CONTROL WIRING BY DIVISION 23

1. VAV TO INCLUDE INTEGRAL DISCONNECT. 2. TOGGLE SWITCH W/ THERMAL OVERLOAD.

3. PROVIDE FUSED DISCONNECT ELEVATOR POWER MODULE WITH SHUNT TRIP. 9. LINE VOLTAGE THERMOSTAT ON WALL. 4. CONTRACTOR TO PERFORM FINAL CONNECTION TO LINE VOLTAGE THERMOSTATS. 10. PROVIDE EXPLOSION PROOF DEVICES AND WIRING METHODS. 5. TOGGLE SWITCH W/BACNET INTERFACE.

EQUIPMENT SCHEDULE KEY

Q - FURNISHED WITH EQUIPMENT

E - DIVISION 26

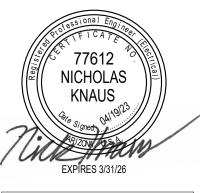
7. PROVIDE SWITCH WITH BACNET MS/TP CAPABILITY. 8. PROVIDE LABEL ON DISCONNECT "DISCONNECT OUTDOOR UNIT PRIOR TO INDOOR."

11. PROVIDE DUAL-REDUNDANT 100% RATED VFD'S FOR AIR HANDLER. 6. INDOOR UNITS FED FROM OUTDOOR UNIT. PROVIDE DISCONNECTS FOR BOTH. 12. PROVIDE MANUAL STARTER WITH THERMAL OVERLOAD AND RELAY FOR ATC/BAS CONTROL.

GENERAL NOTES: 1. WHERE DISCONNECTS, STARTERS, OR VFCs ARE BEING PROVIDED BY ELECTRICAL CONTRACTOR, LOCATE EQUIPMENT IN ACCESSIBLE LOCATION, SUCH THAT IT IS WITHIN SITE OF THE MECHANICAL EQUIPMENT IT IS SERVING, AND COMPLIES WITH N.E.C. REQUIRED CLEARANCES.

					LOAD	DATA						OVERCURI PROTECT			DISCONN	IECT			•	STARTE	R				
										WIRE AND	FURN			FURN			FURN		SELECTOR			CLOSED	FAILURE		
MARK	QTY	ITEM DESCRIPTION	HP	kW	MCA F	A VC	DLT	PH	Hz	CONDUIT SIZE	BY	DEVICE	LOCATION	BY	DEVICE	LOCATION	BY	DEVICE SIZES	SWITCH	LAMP	CONTACT	CONTACT	RELAY	NOTES	MARK
(7-9)	1	VAV	-	3.5	- 1	3 2	77	1	60	2 #12, #12GR 0.75" CND	E	20/1 CB	HT2SW	Q		ADJ TO EQUIP	-		-	-	-	-	-	1	(7-9)

LOAD SUMMA SERVICE ENTRANCE (PHXWORKS & ST	SECTION "SES"					
EXISITNG LOAD AS REPORTED ON SEALED DRAWINGS FROM WOODWARD ENGINEERING 11/09/09	804.6 KVA 2235.1 AMPS					
NEW LOAD: PANEL C2SE	6.48 KVA 18 AMPS					
NEW LOAD: PANEL L2SE	2.20 KVA 6.11 AMPS					
NEW LOAD: PANEL HT2SE	7.80 KVA 21.6 AMPS					
NEW LOAD: PANEL L2SW-A	2.70 KVA 7.5 AMPS					
NEW LOAD: PANEL H2SW	0.40 KVA 1.11 AMPS					
NEW LOAD: PANEL HT2SW	3.90 KVA 10.83 AMPS					
TOTAL NEW + EXISTING LOAD	828.1 KVA 2300.22 AMPS					
SERVICE ENTRANCE SECTION "SES" CAPACITY:	3000 AMPS					
PERCENT LOAD %	76.7 %					



Revisions

Designed By: Drawn By: HAN Checked By: 04/19/23

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SDEV# Sheet

PHASE LOAD

0.9

- 100% CONNECTED LOAD PLUS 25%

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER.

AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH

LARGEST MOTOR CALCULATED @ 125% PER NEC

L2SW

225 AMPERE MAIN LUGS

PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR

(EX) HIVE PROJECTOR

(EX) HIVE WIREMOLD

(EX) HIVE WIREMOLD

(EX) RECEPTS N WALL

(EX) PROJECTOR COMP RM

SPACE

(EX) SPACE

(EX) SPACE

. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL. MATCH EXISTING MANUFACTURER TYPE AND AIC RATING.

CONNECTED kVA PER PHASE

RECEPTACLES: 2.340 kVA @ 100% = 2.340 kVA - FIRST 10kVA @ 100%, REMAINDER @ 50%

CONNECTED AMPS PER PHASE

0.0... 0.000 0.000 (EX) COMPUTER SERVICE DESK

0.0... 0.000 0.000 (EX) COMPUTER SERVICE DESK

0.0... 0.000 0.000 (EX) WEST WALL RCPTS COMP.

0.0... 0.360 0.540 PWR: RM 0215 (NOTE 1)

0.0... 0.000 0.720 PWR: MEDIA RM 0213 (NOTE 1)

0.0... 0.000 1.080 CO: RM 0217, 0216 (NOTE 1) 1.1

PANEL SIZE & TYPE:

22" W x 6" D, BOLT-ON

LOAD (kVA)

0.0... 0.000 0.000

VOLTS/PHASE/WIRE

ACCESSORIES:

СКТ

120/208V. 3 PH 4 WIRE

OCP

NO AMP POLE BKR LTG PWR CO

11 | 20 | 1 | -- |0.0...|0.000|0.000|

25 - 1 - 0.0...|0.000|0.000|

29 | -- | 1 | -- | 0.0... | 0.000 | 0.000

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:

-- | 1 | -- | 0.0... | 0.000 | 0.000

ALL OTHER LOADS @ 100%: 0.360 kVA

DESCRIPTION

(EX) SPARE

(EX) SPARE

(EX) LCP POWER

(EX) UNKNOWN LOAD

(EX) UNKNOWN LOAD

(EX) UNKNOWN LOAD

(EX) UNKNOWN LOAD

NOTES:

OCP

AIC RATING: 10,000

LOAD (kVA)

0.000 0.000 0.0...

0.000 0.000 0.0.

0.000 0.000 0.0...

0.000 0.000 0.0...

0 000 0 000 0

0.000 0.000 0.0...

DIVERSIFIED TOTAL kVA = 24

AVERAGE AMPS PER PHASE = 66

CONNECTED TOTAL kVA =

AVERAGE CONNECTED AMPS PER PHASE =

-- | -- | -- | -- | 30

Revisions

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Project

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Burton

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Checked By: Approver

04/19/23

KIVA# SDEV#

Marlene Imirzian & Associates Architects

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Sheet

50 of 50

(EX) PANEL: "C2SW-A" VOLTS/PHASE/WIRE: PANEL SIZE & TYPE: **MAIN SIZE AND TYPE:** LOCATION: NOTES: 120/208V, 3 PH 4 WIRE SURFACE 22" W x 6" D, BOLT-ON 225 AMPERE MAIN LUGS C2SW ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 10,000 СКТ OCP LOAD (kVA) PHASE LOAD LOAD (kVA) OCP СКТ NO AMP POLE BKR LTG PWR CO **DESCRIPTION DESCRIPTION** CO PWR LTG BKR POLE AMP NO 1 20 1 -- 0.0... 0.000 0.000 (EX) UNKNOWN LOAD 1.0 | 1.0 | (EX) COMPUTERS CENTER AREA | 0.000 | 0.000 | 0.0. 20 1 -- 0.0... 0.000 0.000 (EX) UNKNOWN LOAD (EX) COMPUTERS CENTER AREA (EX) COMPUTERS CENTER AREA 5 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 | (EX) UNKNOWN LOAD 0.000 0.000 0.0... (EX) UNKNOWN LOAD (EX) UNKNOWN LOAD 9 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 | 0.000 0.000 0.0. (EX) UNKNOWN LOAD (EX) UNKNOWN LOAD 11 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 0.000 0.000 0.0... (EX) UNKNOWN LOAD (EX) UNKNOWN LOAD 13 20 1 -- 0.0... 0.000 0.000 (EX) COMPUTERS CENTER AREA (EX) UNKNOWN LOAD 0.000 0.000 0.0. 15 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 | (EX) COMPUTERS CENTER AREA (EX) UNKNOWN LOAD 0.000 0.000 0.0. 0.000 0.000 0.0. 17 | 20 | 1 | -- |0.0...|0.000|0.000| (EX) COMPUTERS CENTER AREA (EX) UNKNOWN LOAD 19 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 | (EX) COMPUTERS CENTER AREA (EX) POWERDROP IN TRAINING RM | 0.000 | 0.000 | 0.0. 21 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 | (EX) COMPUTERS CENTER AREA (EX) POWERDROP IN TRAINING RM | 0.000 | 0.000 | 0.0... 23 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 | (EX) COMPUTERS CENTER AREA 25 | 20 | 1 | -- |0.0...|0.000|0.000| (EX) COMPUTERS CENTER AREA | (EX) POWERDROP IN TRAINING RM | 0.000 | 0.000 | 0.0. 27 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 | (EX) COMPUTERS CENTER AREA (EX) POWERDROP IN TRAINING RM | 0.000 | 0.000 | 0.0... 29 | 20 | 1 | -- | 0.0... | 0.000 | 0.000 | (EX) COMPUTERS CENTER AREA (EX) POWERDROP IN TRAINING RM | 0.000 | 0.000 | 0.0... | -- | 1 | 20 | 30 TOTALS: CONNECTED kVA PER PHASE CONNECTED TOTAL kVA = CONNECTED AMPS PER PHASE AVERAGE CONNECTED AMPS PER PHASE = NEC DIVERSIFIED LOAD CALCULATIONS LIGHTING & CONTINUOUS LOADS: 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = 30

RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = 83

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER, AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

MAIN SIZE AND TYPE:

225 AMPERE MAIN LUGS

MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH

LARGEST MOTOR CALCULATED @ 125% PER NEC

FED FROM:

VOLTS/PHASE/WIRE:

480/277 V, 3 PH 4 WIRE

ALL OTHER LOADS @ 100%: 0.000 kVA

PANEL SIZE & TYPE:

22" W x 6" D, BOLT-ON

BRANCH CIRCUIT CONDUCTOR

AND CONDUIT SIZING TABLE

1. WIRE SIZING IS BASED ON COPPER CONDUCTORS SUPPLYING A 20A, 120V

2. DOWN-SIZED WIRE AT DEVICE/LOAD AS REQUIRED AND TERMINATE

CIRCUIT AT THE INDICATED VOLTAGE, ASSUMED TO BE 80% LOADED (16A),

3. CONDUIT SIZE IS BASED ON A MAXIMUM OF 3 CIRCUITS PER CONDUIT, EACH

CONDUCTOR SIZE

#10 AWG

#6 AWG

#12 AWG

#10 AWG

#8 AWG

#6 AWG

(PHASE, NEUTRAL AND GR) | CONDUIT SIZE

0.75" Ø

0.75" Ø

1" Ø

1.25" Ø

0.75" Ø

0.75" Ø

1" Ø

1.25" Ø

CIRCUIT

LENGTH

0' - 60'

60' - 95'

95' - 150'

150' - 240'

0' - 140'

140' - 220'

220' - 350'

350' - 550'

WITH MAXIMUM VOLTAGE DROP OF 3% AT THE LOAD.

WITH A SEPARATE NEUTRAL CONDUCTOR.

CONDUCTORS IN A SAFE AND CODE COMPLIANT MANNER.

AMPACITY/VOLTAGE

20A/120V

20A/120V

20A/120V

20A/120V

20A/277V

20A/277V

20A/277V

20A/277V

NOTES:

(EX) PANEL: "HT2SW" LOCATION: NOTES: SURFACE

CONNECTED TOTAL kVA = 12

AVERAGE CONNECTED AMPS PER PHASE =

700/21	7 V, O	1 11 7 V	VIII		22 VV X O I	D, BOLT-ON ZZO AIVII LIKL IVII	AIIV LO	00					OUN AOL									
ACCE	SSORI	ES:		PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR									AIC RATING: 22,000									
СКТ	OCP AMP POLE BKR		LOAD (kVA)			PHASE LOAD							L	OAD	AD (kVA)		ОСР			С		
NO			BKR	LTG	PWR CO	DESCRIPTION	Α		В		С		DESCRIPT	TION CO) PV	PWR LTG		BKR	POLE	AMP		
1	20	1		0.0	3.900 0.000	PWR: VAV 7-9 (NOTE 1)	3.9	2.8					(EX) DUCT H	EATER 0.00	00 8.3	304	0.0		3	20		
3		1		0.0	0.000 0.000	(EX) SPACE				2.8					-							
5		1		0.0	0.000 0.000	(EX) SPACE						2.8			-	-						
7		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
9		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
11		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
13		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
15		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
17		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
19		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
21		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
23		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
25		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	CE 0.00	0.0	000	0.0		1			
27		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
29		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	CE 0.00	0.0	000	0.0		1			
31		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1			
33		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1		Ι,	
35		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	0.00	0.0	000	0.0		1		Τ,	
37		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	O.00	0.0	000	0.0		1		Τ,	
39		1		0.0	0.000 0.000	(EX) SPACE							(EX) SPA	O.00	0.0	000	0.0		1		-	
41		1			0.000 0.000	(EX) SPACE							(EX) SPA	0.00	00 0.0	000	0.0		1		T.	

NEC DIVERSIFIED LOAD CALCULATIONS LIGHTING & CONTINUOUS LOADS: 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = 13 **RECEPTACLES:** FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = 16 MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH ALL OTHER LOADS @ 100%: 13.179 kVA

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER, AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

LARGEST MOTOR CALCULATED @ 125% PER NEC

TOTALS:

. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL. MATCH EXISTING MANUFACTURER TYPE AND AIC RATING.

CONNECTED kVA PER PHASE 7

CONNECTED AMPS PER PHASE 24

(EX) PANEL "H2SW" VOLTS/PHASE/WIRE LOCATION: PANEL SIZE & TYPE: MAIN SIZE AND TYPE: FED FROM: CABINET: NOTES: 480/277 V, 3 PH 4 WIRE 22" W x 6" D, BOLT-ON 225 AMPERE MAIN LUGS SURFACE PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR ACCESSORIES: **AIC RATING: 22,000** OCP OCP LOAD (kVA) PHASE LOAD LOAD (kVA) CKT CKT CKT NO AMP POLE BKR LTG PWR CO **DESCRIPTION** DESCRIPTION CO PWR LTG BKR POLE AMP NO (EX) SPACE (EX) RELAYS R2SW 2A,2B 0.000 0.000 1.5. (EX) SPACE (EX) RELAYS R2SW 4A,4B 0.000 0.000 1.4... 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 6A,6B 0.000 0.000 2.3 1 -- 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 8A.8B 0 000 0 000 2 0 -- 0.0... 0.000 0.000 (EX) SPACE 0.000 0.000 1.6. (EX) RELAYS R2SW 10A,10B (EX) SPACE (EX) RELAYS R2SW 12A,12B 0.000 0.000 2.0. (EX) SPACE 13 | -- | 1 | -- | 0.0... | 0.000 | 0.000 (EX) RELAYS R2SW 14A.14B 0.000 0.000 1.2 -- 1 -- 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 16A,16B 0.000 0.000 2.0. (EX) SPACE (EX) RELAYS R2SW 18A,18B 0.000 0.000 1.8... (EX) RELAYS R2SW 20A,20B -- | 1 | -- |0.0...|0.000|0.000 (EX) SPACE 0.000 0.000 2.0. 1 -- 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 22A,22B 1 -- 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 24A,24B 0.000 0.000 1.8.. 1 -- 0.0... 0.000 0.000 (EX) SPACE 0.000 0.000 1.1 (EX) RELAYS R2SW 26A,26B 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 28A,28B 0.000 0.000 2.0 -- | 1 | -- |0.0...|0.000|0.000 (EX) SPACE (EX) RELAYS R2SW 30A,30B 0.000 0.000 1.7 1 -- 0.0... 0.000 0.000 0.000 0.000 1.5 (EX) SPACE (EX) RELAYS R2SW 32A,32B 1 -- 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 34A,34B 0.000 0.000 1.5... 1.6 1 -- 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 36A,36B 0.000 0.000 1.3. 1 -- 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 38A,38B 0.000 0.000 1.6. 39 -- 1 -- 0.0... 0.000 0.000 (EX) SPACE (EX) RELAYS R2SW 0.000 0.000 1.2... 1 20 40 (EX) RELAYS R2SW 0.000 0.000 1.2... 1 20 42 CONNECTED kVA PER PHASE CONNECTED TOTAL kVA = 12

NEC DIVERSIFIED LOAD CALCULATIONS LIGHTING & CONTINUOUS LOADS: 35.195 kVA @ 125% = 43.994... - 100% CONNECTED LOAD PLUS 25% - FIRST 10kVA @ 100%, REMAINDER @ 50%

CONNECTED AMPS PER PHASE 37

MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH ALL OTHER LOADS @ 100%: 0.000 kVA LARGEST MOTOR CALCULATED @ 125% PER NEC

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER. AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL. MATCH EXISTING MANUFACTURER TYPE AND AIC RATING.

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Project No. 230066

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AVERAGE CONNECTED AMPS PER PHASE =

DIVERSIFIED TOTAL kVA = 44 AVERAGE AMPS PER PHASE = 53