Attitude On Food Commercial - Catering Kitchen

7758 Cass Street Omaha, NE 68114

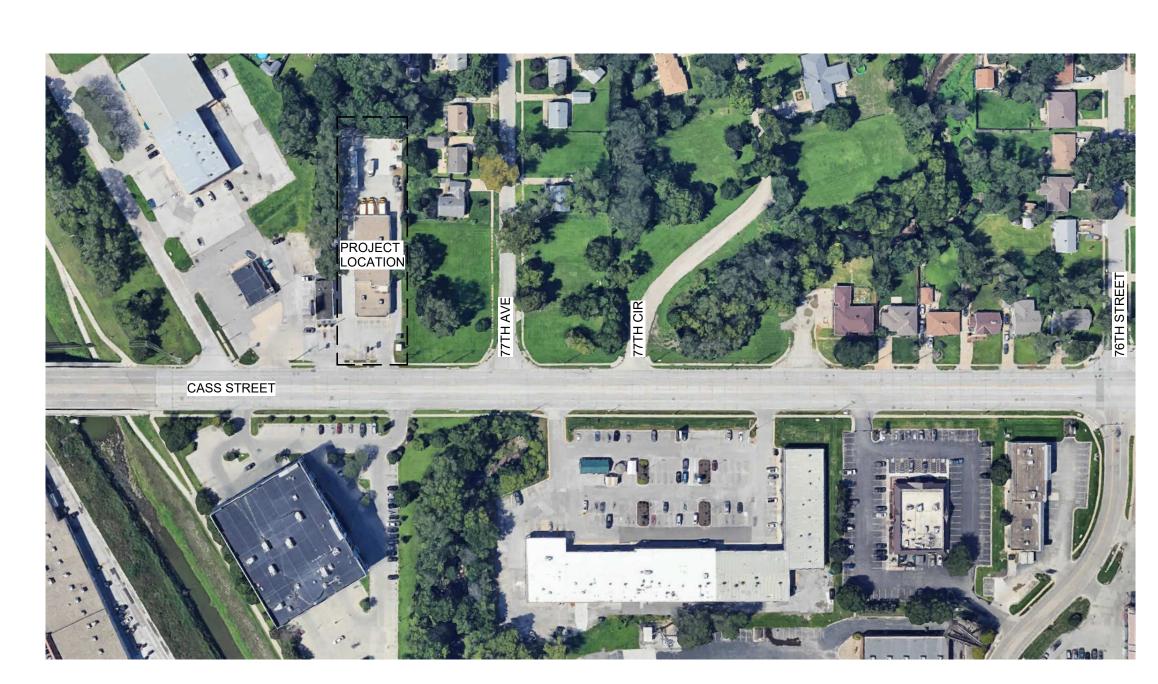
"KITCHEN RANGES, GRILLS, AND DEEP **FAT FRYERS SHALL BE PROTECTED ACCORDING TO NFPA NO. 96.**





BLD-24-03012





VICINITY MAP



SHEET INDEX

PROJECT GENERAL INFORMATION

G002 G100	ACCESSIBILITY NOTES & DETAILS LIFE SAFETY PLAN								
ARCHITE	G100 LIFE SAFETY PLAN ARCHITECTURAL AD100 DEMOLITION PLANS								
AD100	DEMOLITION PLANS								
A101	FLOOR PLANS								
A 102	EOLIDMENT DLAN								

REFLECTED CEILING PLAN FLOOR AND FINISH PLAN **ENLARGED PLANS, ELEVATIONS EXTERIOR ELEVATIONS EXTERIOR ELEVATIONS**

INTERIOR PARTITION INFORMATION DOOR SCHEDULE, DETAILS

GENERAL PROJECT INFORMATION - PLUMBING PLUMBING DEMOLITION PLANS FIRST FLOOR - PLUMBING PLANS SECOND FLOOR/ROOF & PARTIAL - PLUMBING PLANS DETAILS - PLUMBING SCHEDULES - PLUMBING

GENERAL PROJECT NOTES & SYMBOLS - HVAC DEMOLITION PLANS - HVAC FLOOR PLANS - HVAC **DETAILS - HVAC** M301 SCHEDULES - HVAC

GENERAL PROJECT NOTES & SYMBOLS - ELECTRICAL FIRST FLOOR PLAN - LIGHTING DEMO SECOND FLOOR PLAN - LIGHTING DEMO FIRST FLOOR PLAN - POWER DEMO SECOND FLOOR PLAN - POWER DEMO FIRST FLOOR PLAN - LIGHTING SECOND FLOOR PLAN - LIGHTING FIRST FLOOR PLAN - POWER SECOND FLOOR PLAN - POWER **ELECTRICAL SCHEDULES ELECTRICAL DETAILS ELECTRICAL DETAILS** LIGHTING SCHEDULES LIGHTING SCHEDULES

ELECTRICAL SPECIFICATIONS

STRUCTURAL ROOF FRAMING PLAN

00011 - FIRE (Kurt Urkoski) Occupant load shall be calculated at the most restrictive. Per LSC Business 100:1 Kitchen 100:1 Industrial 100:1 Break room/Coffee 15:1

CODE REVIEW

WALL RATING EXHIBIT

2 HOUR RATED **BEARING WALL**

> - 2 HOUR RATED **BEARING WALL**

2 HOUR RATED

BEARING WALL

7758 Cass Street Omaha, NE 68114 Location: CULLINGHAMS SUB DIV LOT B BLOCK 0 Legal Description: Architecture by: Architect's Project Number: 2240002640

Date of Review: International Building Code - 2018 International Energy Conservation Code - 2018 International Fire Code - 2012 International Mechanical Code - 2018

PER IBC TABLE 601 TYPE III-B **EXTERIOR BEARING WALLS 2 HF**

PER TABLE 601 TYPE III-B

INTERIOR NON-BEARING WALLS

Omaha Plumbing Code - 2018 Nebraska Electrical Code - 2017 NFPA 101 - Life Safety Code 2012 edition

Other Mandatory Requirements: 2010 ADA Standards for Accessible Design

Occupancy Type: F-1 Construction Type: III-B Analyşis: Analyzed as non-şeparated design

Automatic Sprinkler System: No Standpipe: Not Required (905.3.1) Portable Fire Extinguishers: Required to be equally distributed. Maximum Travel distance = 75'-0". (906.3(1)) Manual Fire Alarm: Not Required (907.4.2)

Table 503: Allowable Area: 12,000sf (506.2) Allowable Height: 55'-0" (504.3) Allowable Stories: 2 (504.4)

Actual Stories: 2 Actual Area: First Floor: 6,703 SF

8,203 SF

Second Floor: 1,500 SF

Occupant Load, IBC (Table 1004.5) Business Areas = 73 sf/150 = 1 occupants (@ lobby behind desk)

= 75 sf/7 = 11 occupants (@ lobby remaining space) = 300sf/15 = 20 occupants (@ conference room) Kitchen Areas = 2,276 sf/200 = 12 occupants Accessory Areas = 3,979sf/300 = 13 occupants Total First Floor = 57 Occupants

Business Areas = 1,420/150 = 10 Occupants (@ office space) 75sf/15 = 5 Occupants (@ coffee) Total Occupants Building = 72

Door Opening: 32 inches min. (1010.1.1) Stair Width: 36 inches min. (1011.2 Exception 1)

Exit signs: Required (1013.1) Exit Illumination: Required (1008.2) Common Path of Travel: 75'-0" (1006.2.1) Exit Access Travel Distance: (B): 75'-0" (1006.3.3(2))

SEE LIFE SAFETY PLAN Omaha Plumbing Code

Required Fixtures per 49-722 (2):

WC Male: 1 Lav Male: 1

Second Floor:

WC Female: 2 Lav Female: 1 Service Sink: 1 DF: not required per Exception Note 1: Drinking fountains will not be required if water is provided to the customer of the business without

PER 2018 IEBC SECTION 301.3

COMPLIANCE

Change of use shall require new

Certificate of Occupancy.

PER TABLE 602

RATING

F-1 OCCUPANCY EXT.

NON-BEARING >30, SO 0

F-1 OCCUPANCY EXT. NON-BEARING >30, SO 0

2 HOUR RATED BEARING

PER IEBC TABLE 1011.4 M OCCUPANCY = CATEGORY 3 F-1 OCCUPANCY = CATEGORY 4 CATEGORY 4 LESS RESTRICTIVE THAN

"CHANGE OF OCCUPANCY" METHOD OF

THERFORE, FRONT ENTRY VESTIBULE DOORS PER IEBC TABLE 1011.5 M AND F-1 ARE BOTH CATEGORY 3

HEIGHT AND AREA ARE IN COMPLIANCE WITH

PER IEBC TABLE 1011.6 M AND F-1 ARE BOTH CATEGORY 2 NO CHANGE REQUIRED.

PER 2012 LSC 43.1.1 "CHANGE OF USE OR OCCUPANCY" CLASSIFICATION

PER 2012 LSC TABLE 43.7.3 EXISTING MERCANTILE AND PROPOSED ARE BOTH HAZARD CATEGORY 3.

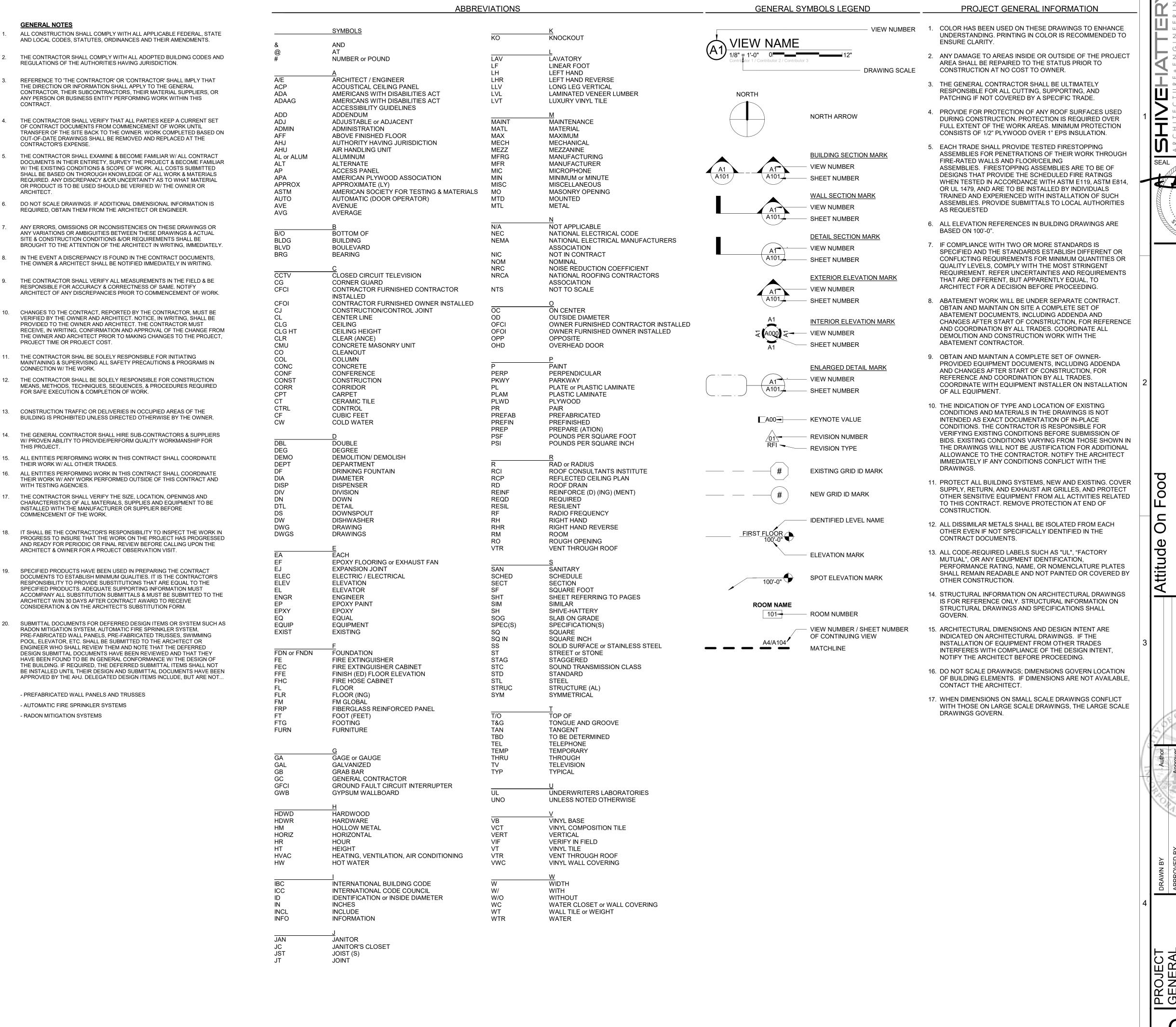
2012 LSC TABLE 7.3.1.2

Business Areas = 4,427sf/100 = 45 occupants Kitchen Areas = 2,276sf/100 = 23 occupants

Second Floor: Business Areas = 1,420sf/100 = 15 occupants Break/Coffee = 75sf/100 = 1 occupant

Total Occupants Building = 84

(PAGE REVIEWED-ZON



Autodesk Revit 2023

REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION.

CONTRACT

CONTRACTOR'S EXPENSE.

PROJECT TIME OR PROJECT COST.

FOR SAFE EXECUTION & COMPLETION OF WORK.

THEIR WORK W/ ALL OTHER TRADES.

WITH TESTING AGENCIES.

COMMENCEMENT OF THE WORK.

THE DIRECTION OR INFORMATION SHALL APPLY TO THE GENERAL

REQUIRED, OBTAIN THEM FROM THE ARCHITECT OR ENGINEER.

RESPONSIBLE FOR ACCURACY & CORRECTNESS OF SAME, NOTIFY

THE CONTRACTOR SHAL BE SOLELY RESPONSIBLE FOR INITIATING

INSTALLED WITH THE MANUFACTURER OR SUPPLIER BEFORE

ARCHITECT & OWNER FOR A PROJECT OBSERVATION VISIT.

ARCHITECT W/IN 30 DAYS AFTER CONTRACT AWARD TO RECEIVE

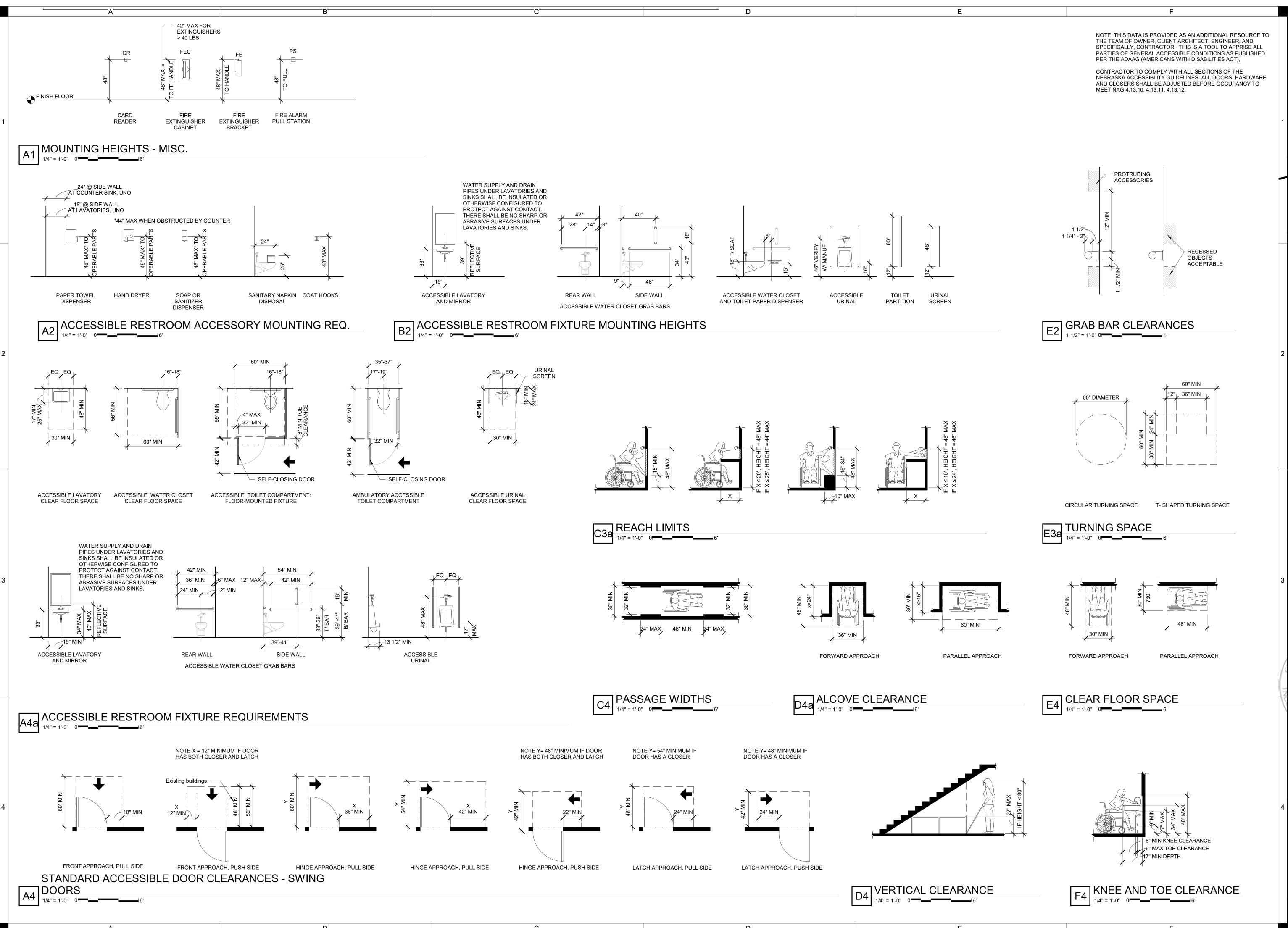
RADON MITIGATION SYSTEM, AUTOMATIC FIRE SPRINKLER SYSTEM,

CONSIDERATION & ON THE ARCHITECT'S SUBSTITUTION FORM.

- PREFABRICATED WALL PANELS AND TRUSSES

- AUTOMATIC FIRE SPRINKLER SYSTEMS

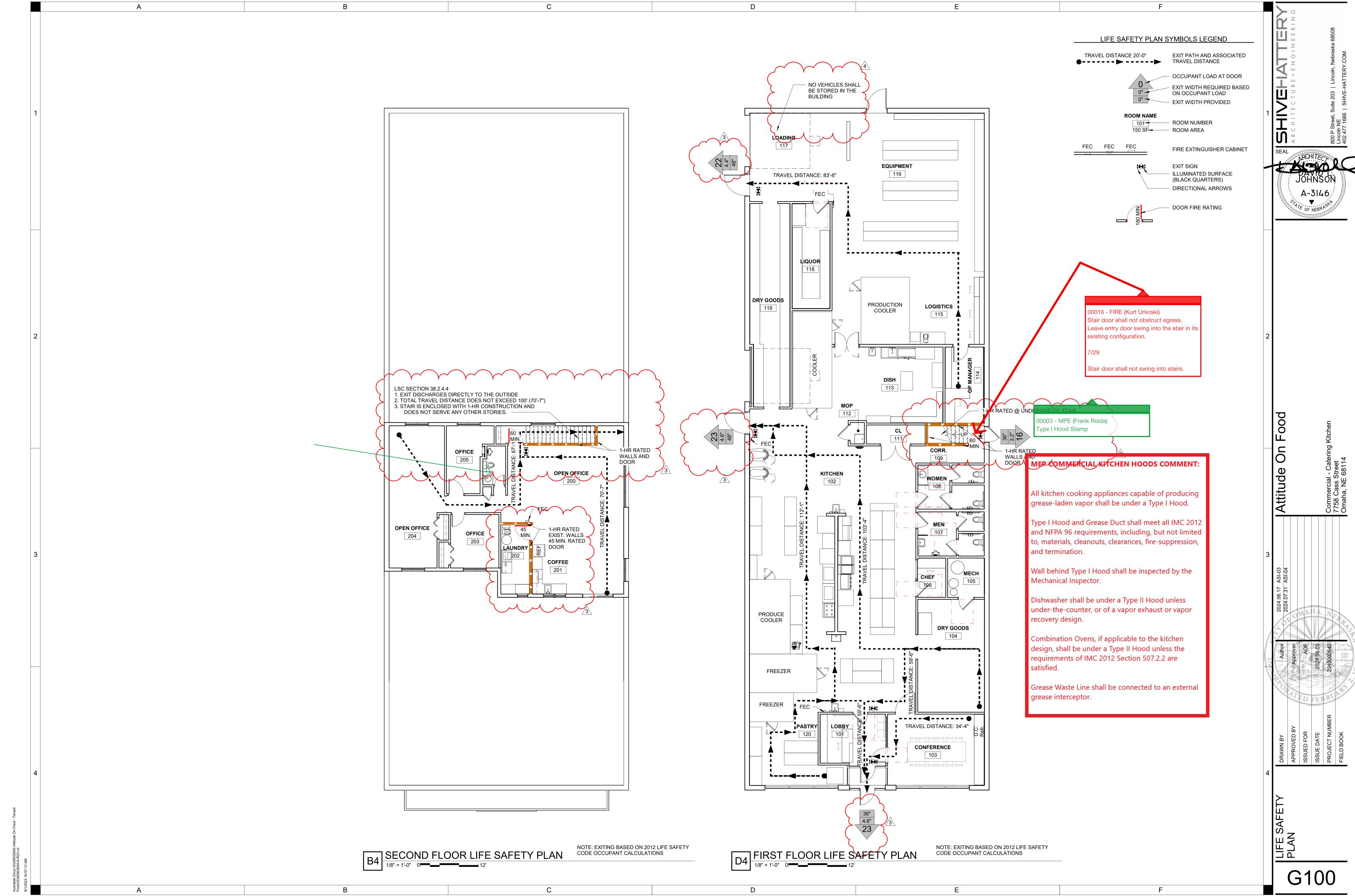
- RADON MITIGATION SYSTEMS



Autodesk Do*cs.//22*40002640 Attitude On Food - 1 Finish/2240002640-A-R23.rvt

Autodesk Rev

G002



Autodesk Rev

D13

21'-10 1/4" D3 — _ _ _ -______D7 D5

ARCHITECTURAL DEMOLITION NOTES

ON PHOTOGRAPHIC DOCUMENTATION.

- 1. FIELD VERIFY EXISTING CONDITIONS PRIOR TO START OF DEMOLITION WORK. NOTIFY ARCHITECT IN WRITING OF DISCREPANCIES BETWEEN WORK SHOWN IN THE DRAWINGS AND FIELD CONDITIONS ENCOUNTERED.
- 2. TO PROTECT OWNER AND CONTRACTOR, PHOTOGRAPHICALLY DOCUMENT EXISTING CONDITIONS TO REMAIN, PRIOR TO START OF DEMOLITION AND CONSTRUCTION ACTIVITIES. COPY ARCHITECT AND OWNER
- 3. OPEN FLAME EQUIPMENT IS NOT PERMITTED FOR REMOVAL OF EXISTING WORK WITHOUT SPECIFIC WRITTEN PERMISSION FROM THE OWNER.
- 4. COORDINATE WITH OWNER ANY ITEMS TO BE SALVAGED.
- 5. MAINTAIN BUILDING IN A WEATHER-TIGHT CONDITION. DO NOT PERFORM WORK ON EXTERIOR OPENINGS THAT CANNOT BE COMPLETED OR MADE WEATHER-TIGHT WHEN INCLEMENT WEATHER IS POSSIBLE.
- 6. REMOVE FLOOR MATERIALS TO THE EXTENT SHOWN OR DESCRIBED IN THE DRAWINGS. REMOVAL INCLUDES ADHESIVES, GROUTING BEDS, ANCHORING DEVICES, ASSOCIATED WALL BASE, ETC. CLEAN AND PREPARE SURFACES FOR INSTALLATION OF NEW FLOOR MATERIALS.
- 7. COORDINATE WITH OTHER TRADES CUTTING AND PATCHING REQUIRED FOR DEMOLITION OR NEW CONSTRUCTION.
- 8. ANY DEMOLITION OR REMOVAL INDICATED IS SHOWN IN GENERAL TO PROVIDE THE EXTENT OF DEMOLITION AND IS NOT TO BE CONSIDERED AS A RECORD DRAWING OF EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR IN FIELD VERIFICATION AND COORDINATION WITH THE ARCHITECT PRIOR TO COMMENCING WITH STATED WORK.
- 9. ALL CONSTRUCTION TO REMAIN WHICH IS AFFECTED BY DEMOLITION SHALL BE PATCHED, BE PROPERLY ALIGNED AND FINISHED SO AS TO LEAVE NO EVIDENCE OF PATCHING OR REPAIR. REPAIR OR REPLACE ANY EXISTING CONSTRUCTION, MATERIALS, OR EQUIPMENT DAMAGED DURING DEMOLITION TO LIKE NEW CONDITION.
- 10. THE CONTRACTOR IS TO RETURN SALVAGEABLE MATERIALS, INCLUDING BUT NOT LIMITED TO DOORS, FRAMES, HARDWARE, MARBLE, EQUIPMENT, AND LIGHTING FIXTURES TO THE OWNER AND STOCKPILE THEM IN AN APPROVED CONSTRUCTION AREA. DISPOSE OF THESE MATERIALS AFTER OWNER'S REVIEW AND APPROVAL.
- 11. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL FINISHES (TO REMAIN) IN THE PROJECT AREA. COORDINATE WITH ARCHITECT AND OWNER PRIOR TO DEMOLITION.
- 12. CONTRACTOR SHALL ENSURE THAT DUST AND DEBRIS ARE PREVENTED FROM ENTERING THE EXISTING HVAC SYSTEM AND ADJOINING SPACES WITH TEMPORARY BARRIERS AS REQUIRED PER THE BUILDING.
- 13. INDICATION OF NEW MATERIALS SHALL INFER ALL REMOVAL OR DEMOLITION AND PATCHING REQUIRED OF EXISTING MATERIALS AND SUBSTRATES FOR PROPER ALIGNMENT. MATCH EXISTING FINISHES.
- 14. ALL NEW AND EXISTING PENETRATIONS IN EXISTING WALLS, FLOORS AND CEILING DECKS SHALL BE THE RESPONSIBILITY OF THE PRIME CONTRACTOR AND SHALL RECEIVE UL AND FACILITY APPROVED FIRE SEALANT MATERIALS TO MATCH RATING REQUIREMENT OF AREA BEING PENETRATED.

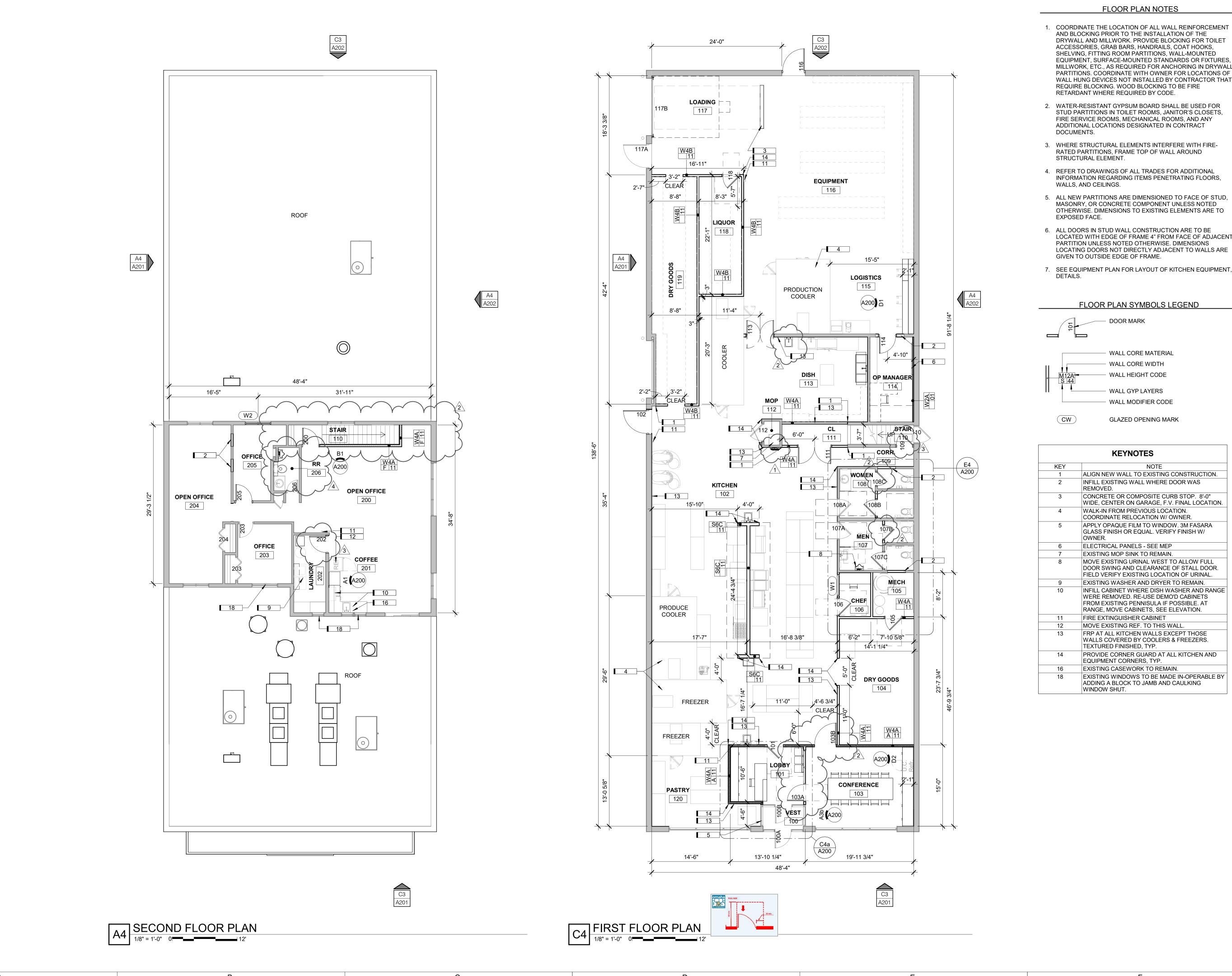
DEMOLITION PLAN SYMBOLS LEGEND

EXISTING WALL PARTITIONS TEMPORARY WALL PARTITIONS DEMOLISHED WALL PARTITIONS

EXISTING DOOR

DEMOLISHED DOOR

	KEYNOTES
KEY	NOTE
D1	REMOVE EXISTING FLOOR TILE AS REQUIRED, PATCH AND REPAIR AS NEEDED.
D2	REMOVE EXISTING WALL.
D3	REMOVE EXISTING DOOR, PATCH AND REPAIR AS NEEDED.
D4	REMOVE EXISTING CASEWORK
D5	REMOVE PEG BOARD ON WALL, PATCH/REPAIR GWB AS NEEDED.
D6	EXISTING URINAL TO BE MOVED WEST 1'-0". SEE A101.
D7	REMOVE EXISTING LIGHT FIXTURES
D8	REMOVE EXISTING RANGE AND DISHWASHER.
D9	REMOVE EXISTING SINK, TOILET, BATHTUB. PREP FOR NEW FLOORING.
D10	REMOVE EXISTING CARPET, PREP FOR NEW FLOORING.
D11	REMOVE EXISTING PENNINSULA COUNTERTOP AND CASEWORK. SALVAGE IF POSSIBLE ONE BASE CABINET TO INFILL DISHWASHER LOCATION.
D12	REMOVE EXISTING HOOD/EQUIPMENT
D13	REMOVE EXISTING DECK/DECK RAILINGS, PATCH ROOF AS REQUIRED.
D14	MOVE EXISTING REFRIGERATOR TO WEST WALL. SEE FLOOR PLAN FOR NEW LOCATION.
D15	DEMO EXISTING TUB/SHOWER. PATCH/REPAIR WALL AND FLOOR AS NEEDED.



D

С

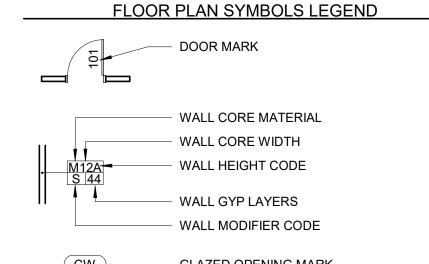
1. COORDINATE THE LOCATION OF ALL WALL REINFORCEMENT AND BLOCKING PRIOR TO THE INSTALLATION OF THE DRYWALL AND MILLWORK. PROVIDE BLOCKING FOR TOILET ACCESSORIES, GRAB BARS, HANDRAILS, COAT HOOKS, SHELVING, FITTING ROOM PARTITIONS, WALL-MOUNTED EQUIPMENT, SURFACE-MOUNTED STANDARDS OR FIXTURES, MILLWORK, ETC., AS REQUIRED FOR ANCHORING IN DRYWALL PARTITIONS. COORDINATE WITH OWNER FOR LOCATIONS OF WALL HUNG DEVICES NOT INSTALLED BY CONTRACTOR THAT REQUIRE BLOCKING. WOOD BLOCKING TO BE FIRE

2. WATER-RESISTANT GYPSUM BOARD SHALL BE USED FOR STUD PARTITIONS IN TOILET ROOMS, JANITOR'S CLOSETS, FIRE SERVICE ROOMS, MECHANICAL ROOMS, AND ANY ADDITIONAL LOCATIONS DESIGNATED IN CONTRACT

INFORMATION REGARDING ITEMS PENETRATING FLOORS,

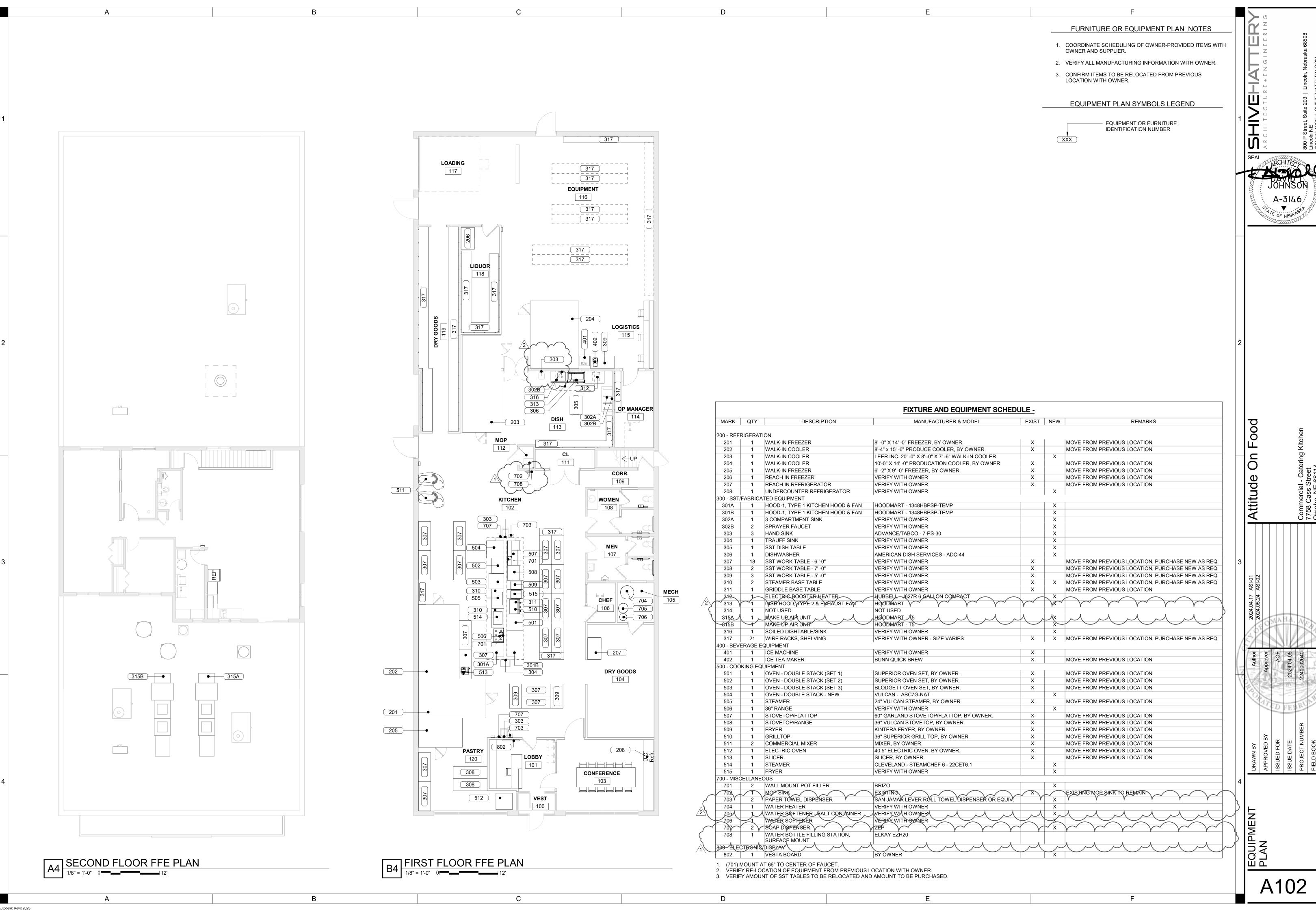
MASONRY, OR CONCRETE COMPONENT UNLESS NOTED OTHERWISE. DIMENSIONS TO EXISTING ELEMENTS ARE TO

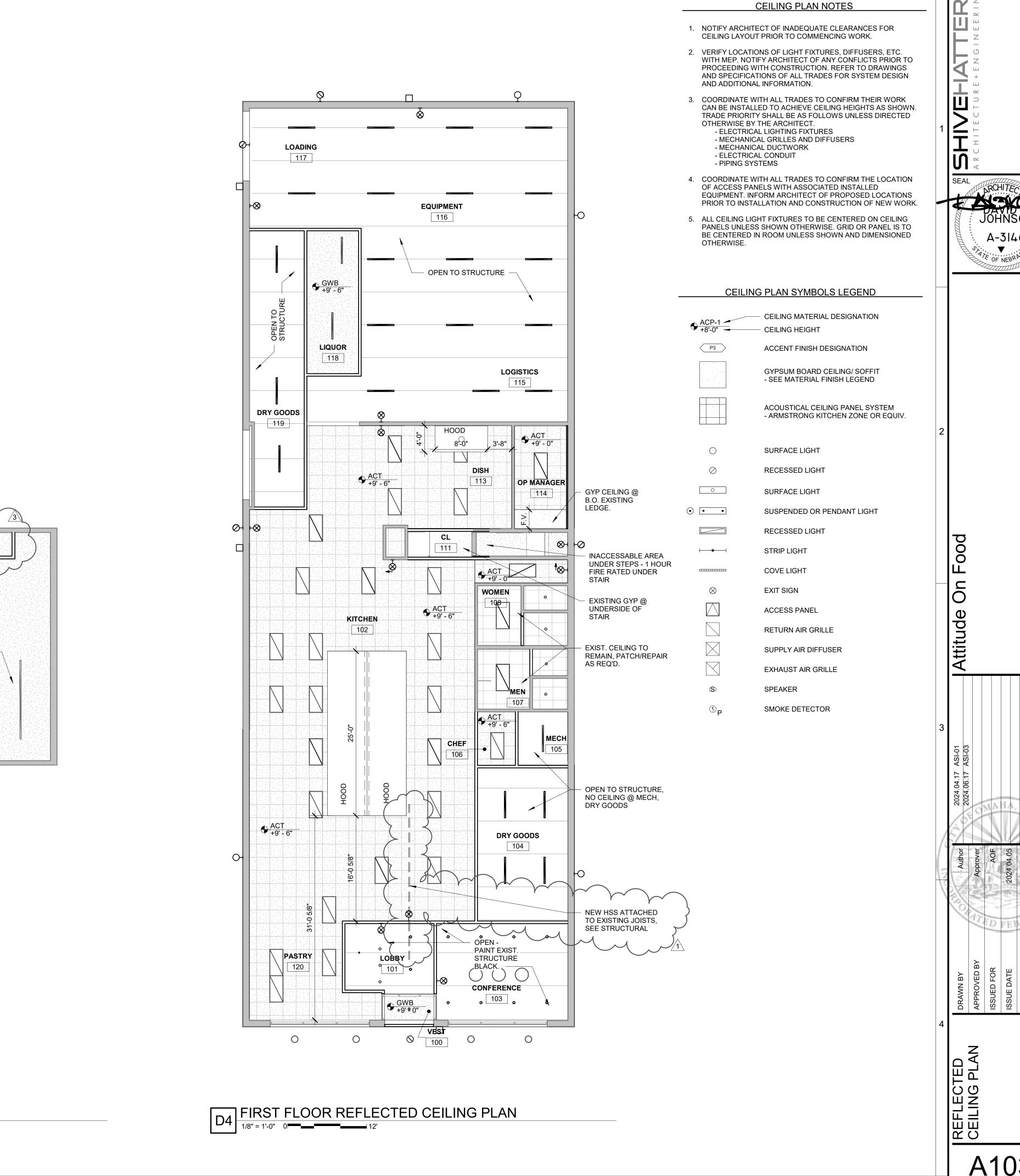
LOCATED WITH EDGE OF FRAME 4" FROM FACE OF ADJACENT PARTITION UNLESS NOTED OTHERWISE. DIMENSIONS LOCATING DOORS NOT DIRECTLY ADJACENT TO WALLS ARE



	KEYNOTES
KEY	NOTE
1	ALIGN NEW WALL TO EXISTING CONSTRUCTION.
2	INFILL EXISTING WALL WHERE DOOR WAS REMOVED.
3	CONCRETE OR COMPOSITE CURB STOP. 8'-0" WIDE, CENTER ON GARAGE, F.V. FINAL LOCATION.
4	WALK-IN FROM PREVIOUS LOCATION. COORDINATE RELOCATION W/ OWNER.
5	APPLY OPAQUE FILM TO WINDOW. 3M FASARA GLASS FINISH OR EQUAL. VERIFY FINISH W/OWNER.
6	ELECTRICAL PANELS - SEE MEP
7	EXISTING MOP SINK TO REMAIN.
8	MOVE EXISTING URINAL WEST TO ALLOW FULL DOOR SWING AND CLEARANCE OF STALL DOOR. FIELD VERIFY EXISTING LOCATION OF URINAL.
9	EXISTING WASHER AND DRYER TO REMAIN.
10	INFILL CABINET WHERE DISH WASHER AND RANGE WERE REMOVED. RE-USE DEMO'D CABINETS FROM EXISTING PENNISULA IF POSSIBLE. AT RANGE, MOVE CABINETS, SEE ELEVATION.
11	FIRE EXTINGUISHER CABINET
12	MOVE EXISTING REF. TO THIS WALL.
13	FRP AT ALL KITCHEN WALLS EXCEPT THOSE WALLS COVERED BY COOLERS & FREEZERS. TEXTURED FINISHED, TYP.
14	PROVIDE CORNER GUARD AT ALL KITCHEN AND EQUIPMENT CORNERS, TYP.
16	EXISTING CASEWORK TO REMAIN.
18	EXISTING WINDOWS TO BE MADE IN-OPERABLE BY ADDING A BLOCK TO JAMB AND CAULKING WINDOW SHUT.

A101





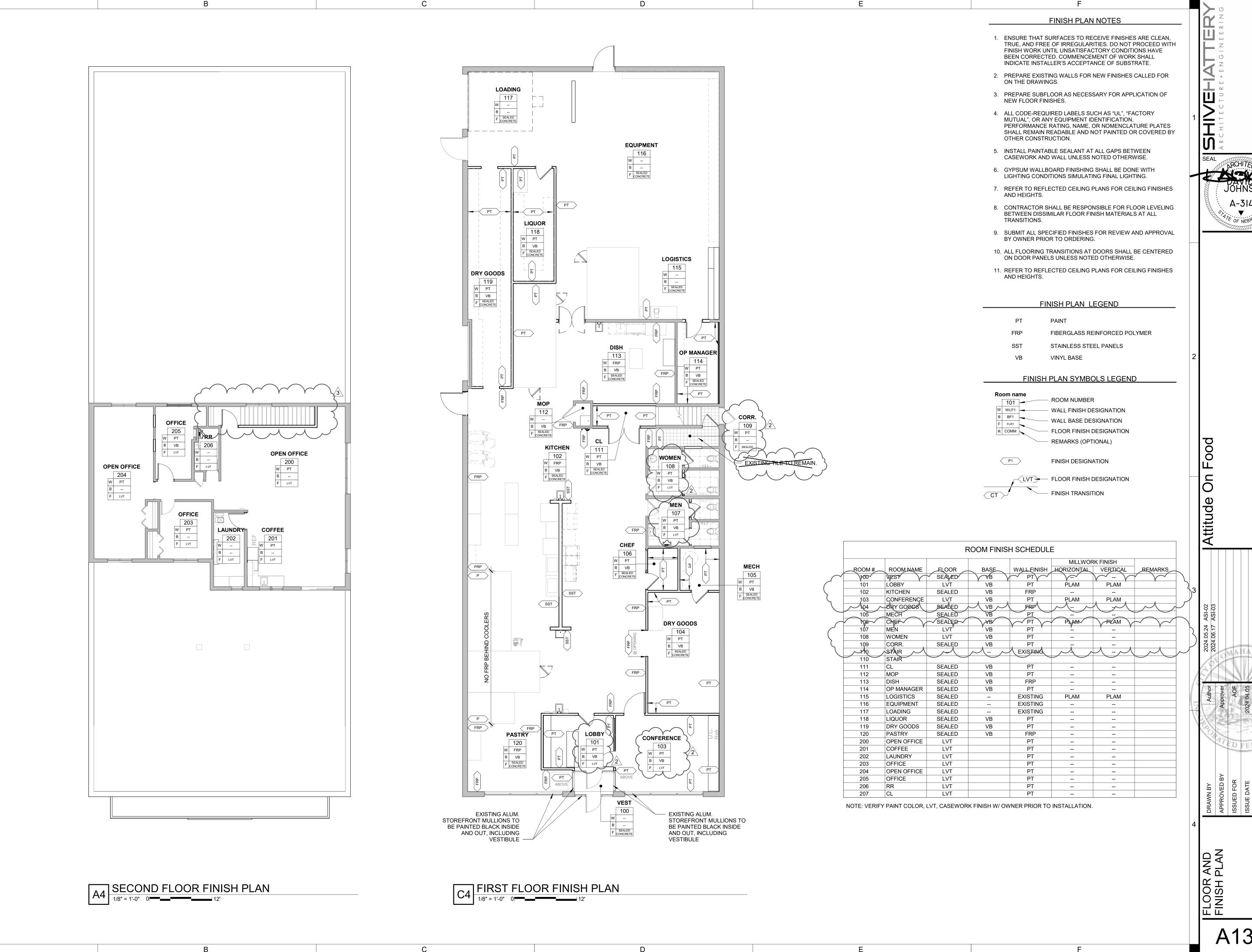
OFFICE 206 OPEN OFFICE 204 PATCH/REPAIR EXISTING CEILING AS REQD. OFFICE 203 COFFEE LAUNDRY 202

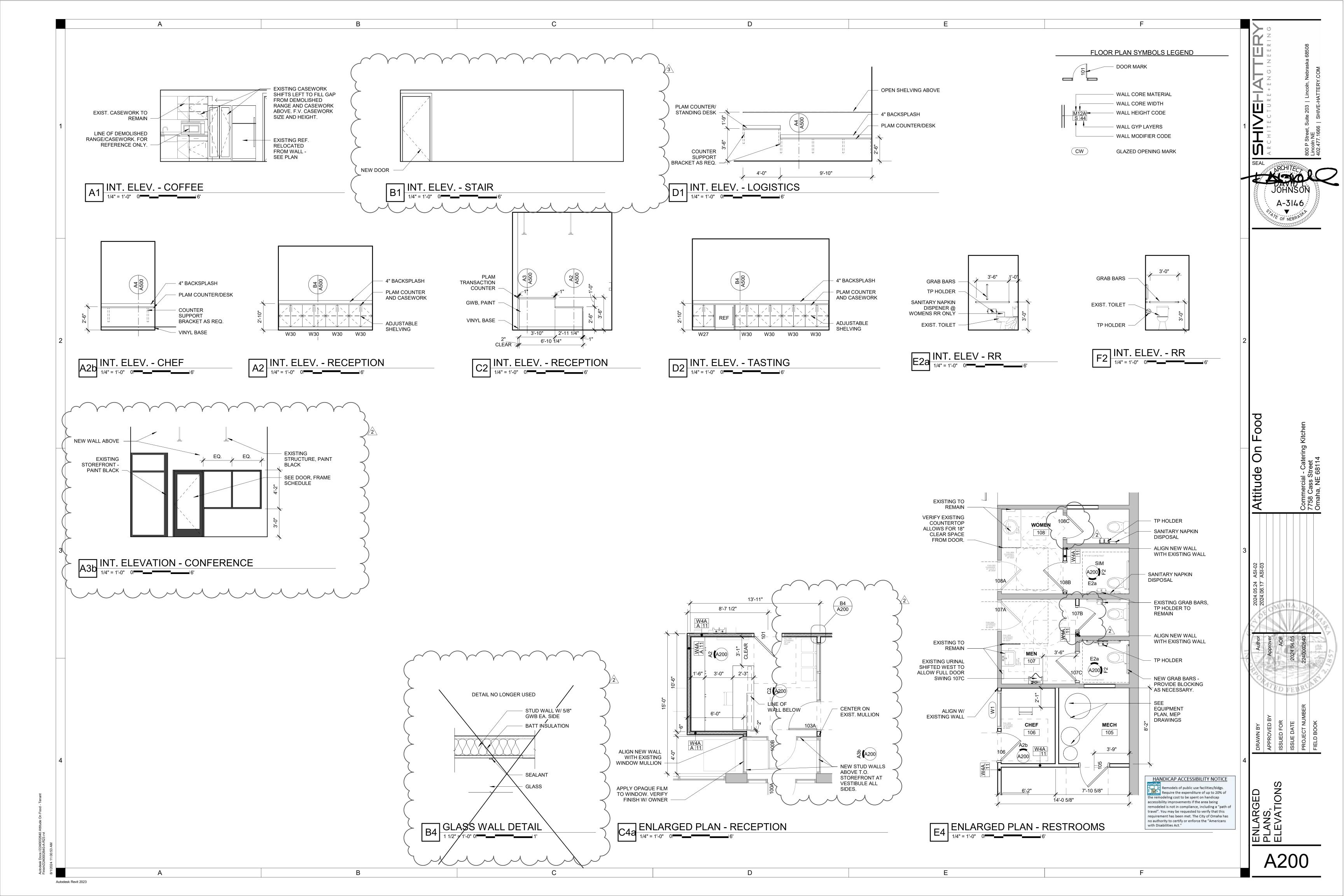
С

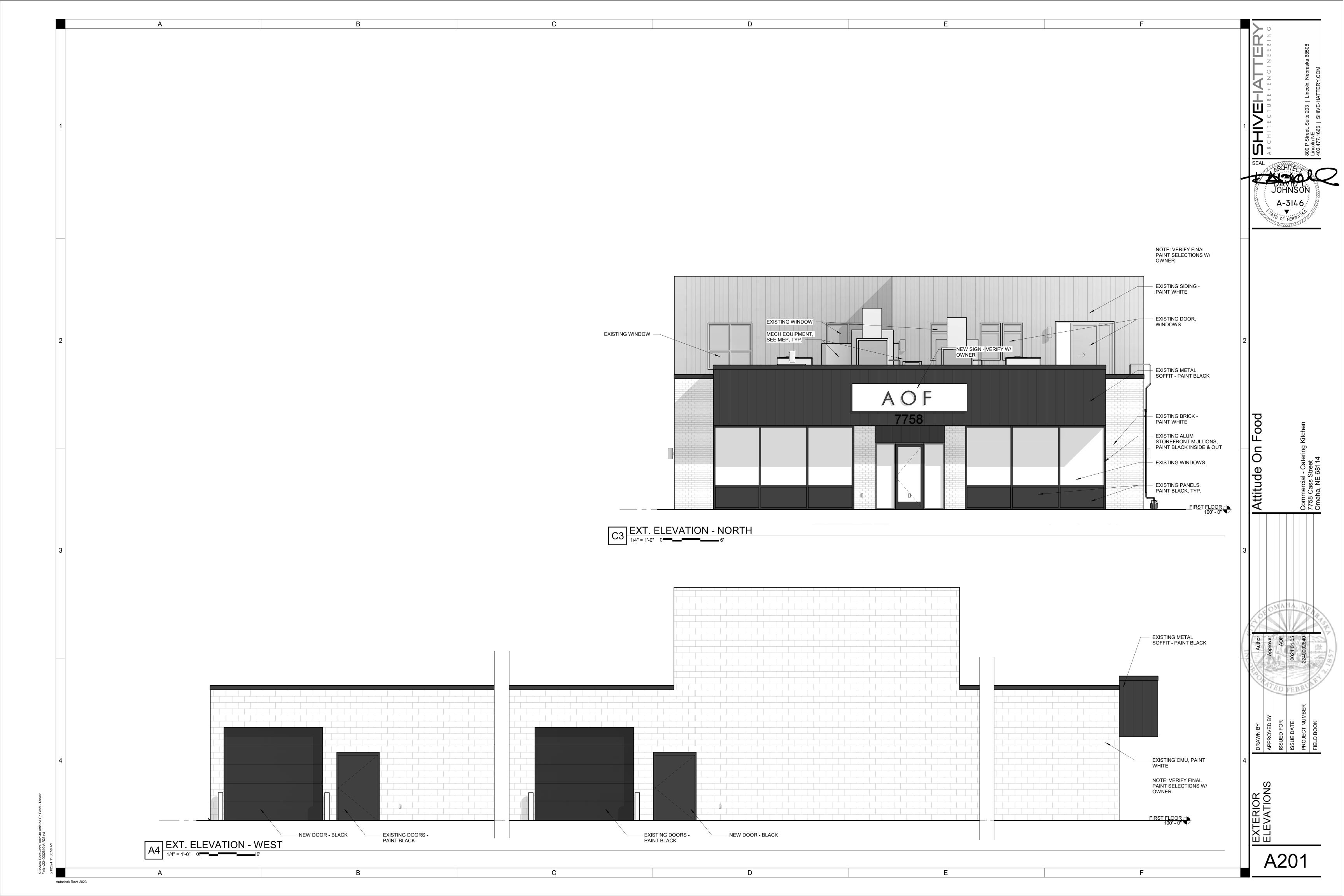
D

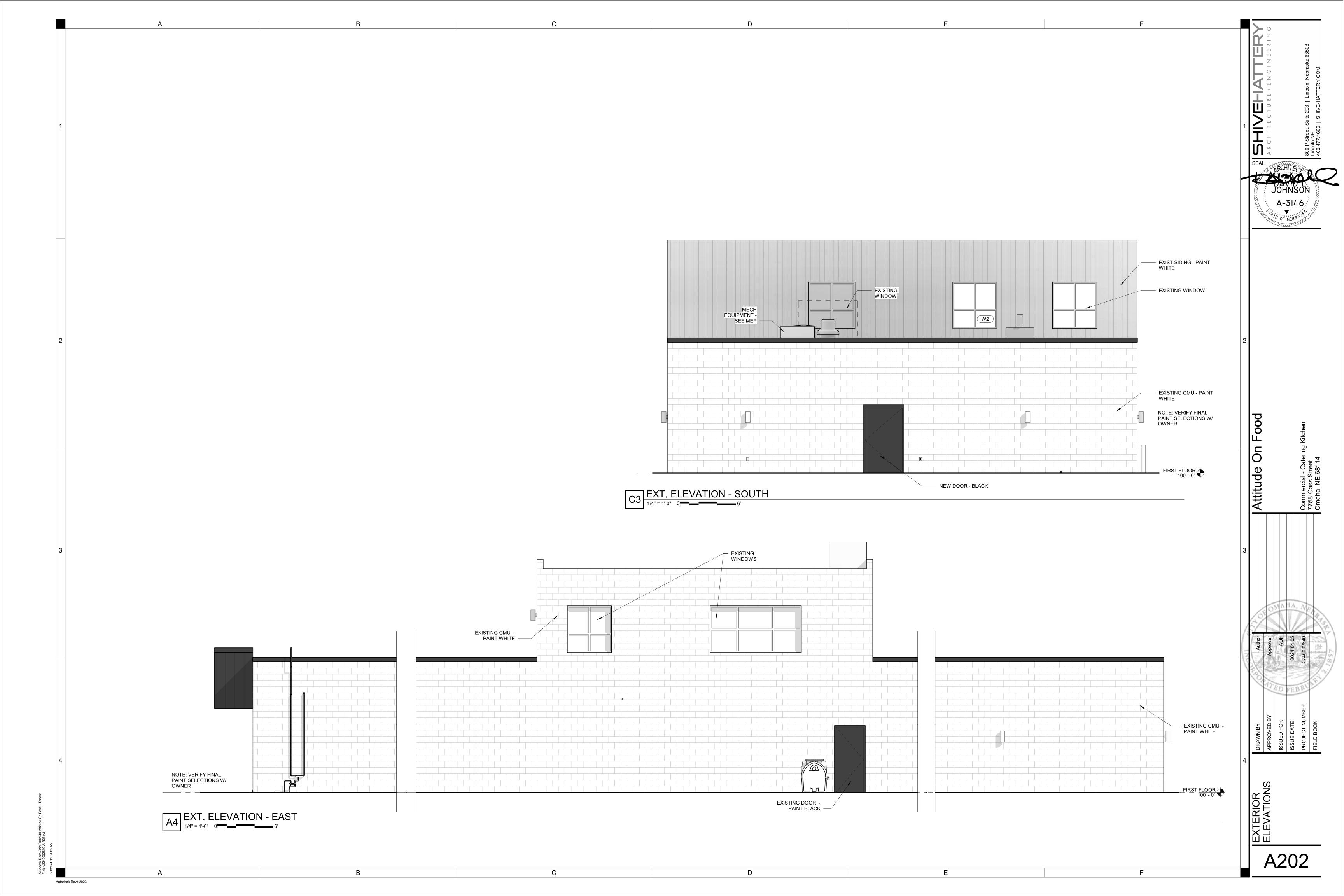
B4 SECOND FLOOR

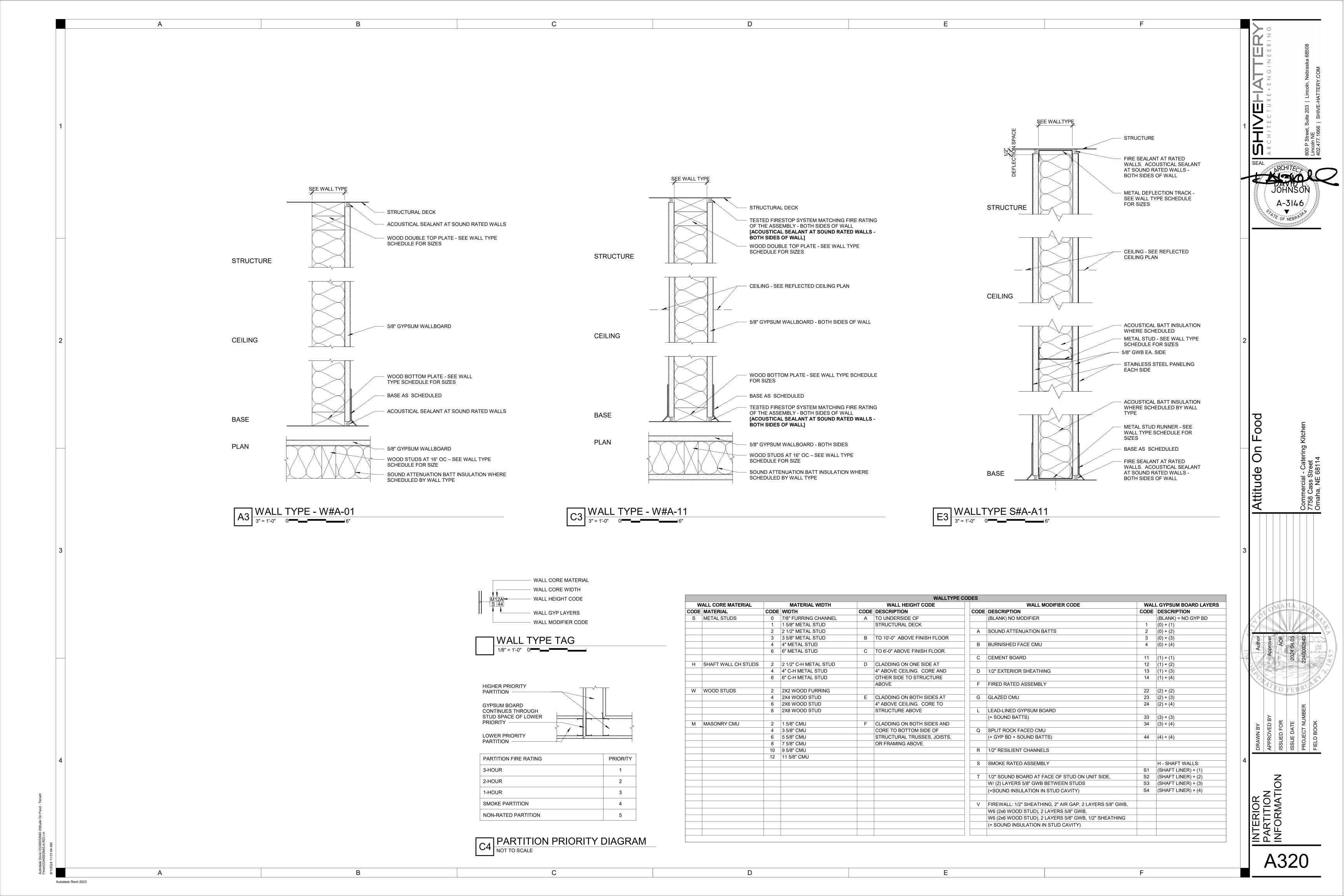
1/8" = 1'-0" 0 - - - 12'

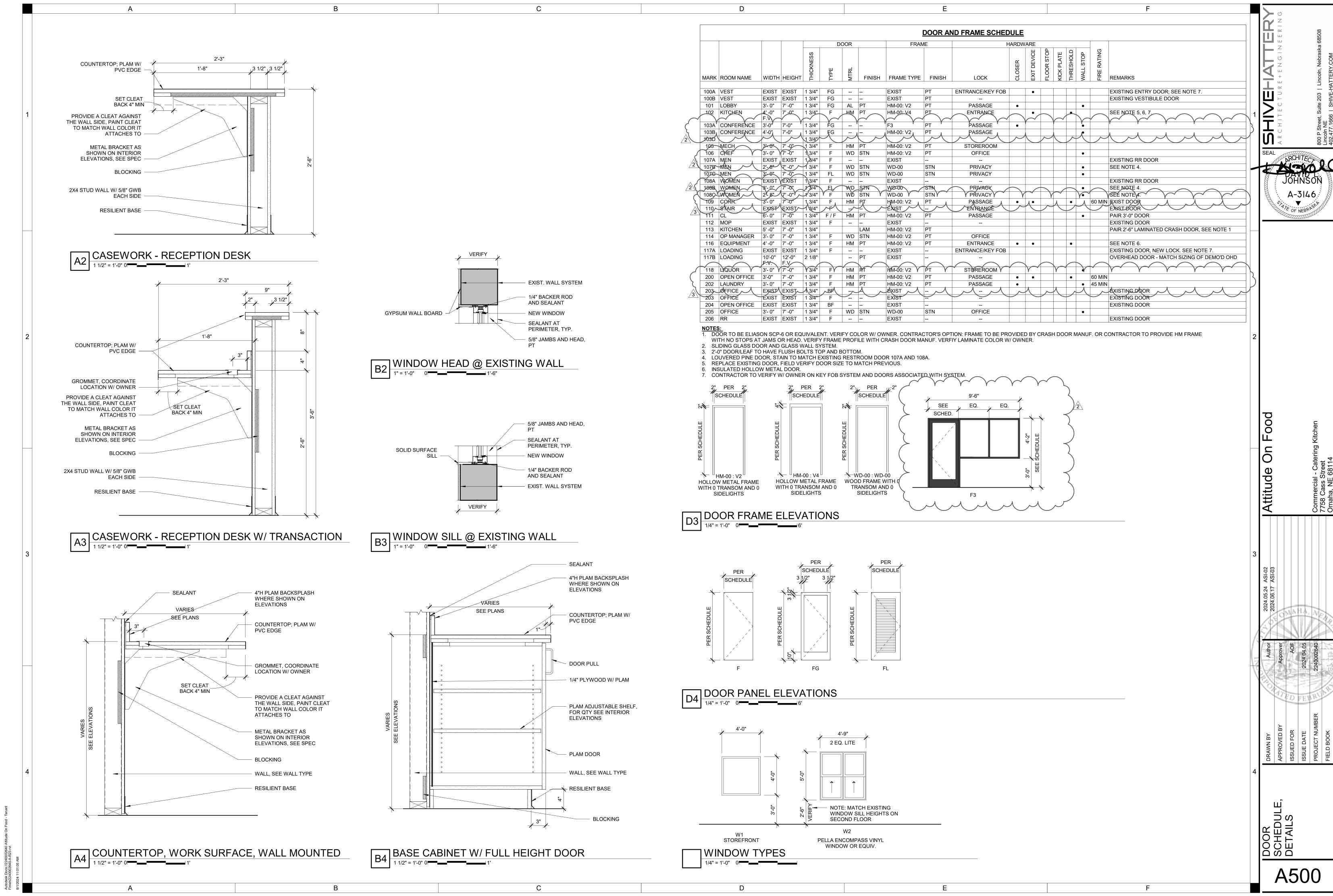








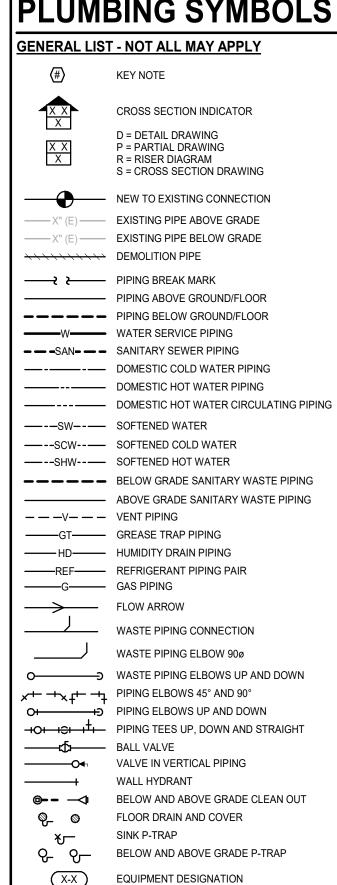




Autodesk Revit 2023

<u>GENERA</u>	L LIST - NOT ALL MAY APPLY		
(5)	EVIOTINO	l morn	INOLILATION
(E)	EXISTING	INSUL	INSULATION
(R)	RELOCATED	KW	KILOWATT
(D)	DEMOLISHED	LAT	LEAVING AIR TEMPERATURE
ACH	AIR CHANGES PER HOUR	LBS	POUNDS
ADJ	ADJACENT, ADJUSTABLE	LWT	LEAVING WATER TEMPERATURE
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
AHJ	AUTHORITY HAVING JURISDICTION	MBH	THOUSAND BTU'S PER HOUR
ALT	ALTERNATE	MECH	MECHANICAL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MC	MECHANICAL CONTRACTOR
APPROX	APPROXIMATELY	MCA	MINIMUM CIRCUIT AMPACITY
ARCH	ARCHITECT, ARCHITECTURE	MFR	MANUFACTURER
ASHRAE	AMERICAN SOCIETY OF HEATING AND REFRIGERATION ENGINEERS	MIN	MINIMUM
		MISC	MISCELLANEOUS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	MOP	MAXIMUM OVER CURRENT PROTECTION
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	MTL	METAL
AVG	AVERAGE	NC	NORMALLY CLOSED
BAS	BUILDING AUTOMATION SYSTEM	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
BFP	BACKFLOW PREVENTER	NO	NORMALLY OPEN
BJS	BELOW JOIST SPACE	NTS	NOT TO SCALE
BLDG	BUILDING	OPNG	OPENING
BTU	BRITISH THERMAL UNITS	PC	PLUMBING CONTRACTOR
BTUH	BRITISH THERMAL UNITS PER HOUR		
CAP	CAPACITY	PD	PRESSURE DROP
CFM	CUBIC FEET PER MINUTE	PH, Ø	PHASE
CLG	COOLING	PIV	POST INDICATOR VALVE
CUFT	CUBIC FEET	PLBG	PLUMBING
		PRV	PRESSURE REDUCING VALVE
DB	DRY BULB	PSI	POUNDS PER SQUARE INCH
DCW	DOMESTIC COLD WATER	PSIG	POUNDS PER SQUARE INCH, GAUGE
DECO	DOUBLE EXTERIOR CLEANOUT	QTY	QUANTITY
DEG, °	DEGREE(S)	RCP	REFLECTED CEILING PLAN
DEMO	DEMOLITION	RECIRC	RECIRCULATION
DFU	DRAINAGE FIXTURE UNITS	REQD	REQUIRED
DIA, \emptyset	DIAMETER	REV	REVISION
DHW	DOMESTIC HOT WATER	RH	RELATIVE HUMIDITY
DN	DOWN	RPM	REVOLUTIONS PER MINUTE
DWG	DRAWING	RPZ	REDUCED PRESSURE ZONE
EAT	ENTERING AIR TEMPERATURE	SCHED	SCHEDULE
ECO	EXTERIOR CLEANOUT	SENS	SENSIBLE
EER	ENERGY EFFICIENCY RATIO		
EFF	EFFICIENCY	SEER	SEASONAL ENERGY EFFICIENCY RATIO SHEET METAL AND AIR CONDITIONING
EQUIP	EQUIPMENT	SMACNA	CONTRACTORS NATIONAL ASSOCIATION
ESP	EXTERNAL STATIC PRESSURE	SPEC	
EWT	ENTERING WATER TEMPERATURE		SPECIFICATION
EXIST	EXISTING	SQFT, FT ²	SQUARE FEET
	FAHRENHEIT	STD	STANDARD
F		SURF	SURFACE
FDC	FIRE DEPARTMENT CONNECTION	SUSP	SUSPENDED
FPM	FEET PER MINUTE	TD	TEMPERATURE DIFFERENTIAL
FSC	FOOD SERVICE CONTRACTOR	TEMP	TEMPERATURE
FT	FOOT, FEET	TJS	THROUGH JOIST SPACE
FUT	FUTURE	TSP	TOTAL STATIC PRESSURE
GAL	GALLON(S)	TYP	TYPICAL
GALV	GALVANIZED	UF	UNDER FLOOR
GC	GENERAL CONTRACTOR	UL	UNDERWRITERS LABORATORIES
GPH	GALLONS PER HOUR	UMC	UNIFORM MECHANICAL CODE
GPM	GALLONS PER MINUTE	UPC	UNIFORM PLUMBING CODE
HORIZ	HORIZONTAL	W	WATTS
HP	HORSEPOWER	WB	WET BULB
HTG	HEATING	WC	WATER COLUMN
HVAC	HEATING, VENTILATION, & AIR CONDITIONING	WG	WATER GAUGE
IBC	INTERNATIONAL BUILDING CODE		
IE	INVERT ELEVATION	WGHT	WEIGHT
IECC	INTERNATIONAL ENERGY CONSERVATION CODE	WPD	WATER PRESSURE DROP
		WSFU	WATER SUPPLY FIXTURE UNITS
IFC	INTERNATIONAL FIRE CODE	V	VOLT
IJS	IN JOIST SPACE	VERT	VERTICAL
IN	INCH(ES)	VFD	VARIABLE FREQUENCY DRIVE
IMC	INTERNATIONAL MECHANICAL CODE	VTR	VENT THRU ROOF
IPC	INTERNATIONAL PLUMBING CODE		

PLUMBING SYMBOLS



PLUMBING SPECIFICATIONS

GENERAL CONSTRUCTION METHODS

- ALL WORK SHALL BE PER ALL APPLICABLE CODES, ORDINANCES, RULES & REGULATIONS, AS WELL AS PER LOCAL UTILITY REQUIREMENTS AND THOSE OF OTHER AUTHORITIES HAVING JURISDICTION: THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH CURRENT MODERN INDUSTRY STANDARDS USING FIRST GRADE EQUIPMENT & MATERIALS NEW & PREVIOUSLY UNUSED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, LICENSES, FEES & INSPECTIONS.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VISIT THE JOB SITE AND BECOME INTIMATELY FAMILIAR WITH EXISTING CONDITIONS AS WELL AS WITH CONSTRUCTION DOCUMENTS. PLANS ARE SCHEMATIC IN NATURE AND SHOW GENERAL ARRANGEMENT OF SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL LABOR & MATERIALS TO PROVIDE THE ENTIRE PROJECT AS A READY TO OPERATE INSTALLATION.
- ALL SPACES MUST BE KEPT COMPLETELY CLEAN. A DUST BARRIER AND NEGATIVE AIR PRESSURE IN WORK AREA IS RESPONSIBILITY OF CONTRACTOR. COORDINATE WITH OWNER (EXHAUST DUCT OUTDOORS) ALL CUTTING & PATCHING IS THE RESPONSIBILITY OF THE CONTRACTOR ALL WORK
- SHALL BE DONE IN A NEAT & WORKMANLIKE MANNER BY SKILLED CRAFTSMEN. PIPE OPENINGS THROUGH FLOORS SHALL BE DRILLED (UP TO 1" IN SIZE) OR CORED THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGE CAUSED TO THE PROJECT WITHOUT COST TO THE OWNER.
- ANY CONFLICTS BETWEEN CONSTRUCTION DOCUMENTS, CODES & MANUFACTURER'S INSTALLATION RECOMMENDATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION AS SOON AS POSSIBLE AND BEFORE INSTALLATION. THE CONTRACTOR SHALL BID THE LARGER QUANTITY OR BETTER QUALITY OF WORK, IF THERE ARE CONFLICTS.
- FIRE & SMOKE INTEGRITY OF ALL WALLS, FLOORS, CEILINGS, ETC. SHALL BE MAINTAINED; BARRIERS SHALL BE PROVIDED AS REQUIRED . MATERIALS USED SHALL BE UL CLASSIFIED & FACTORY MUTUAL APPROVED. INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS & UL STANDARDS. CONTRACTOR SHALL SUBMIT ELECTRONIC COPIES OF SHOP DRAWINGS DETAILING
- CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT & LABOR FOR A MINIMUM PERIOD OF ONE YEAR UNLESS A LONGER PERIOD IS SPECIFIED ELSEWHERE FROM DATE OF SUBSTANTIAL COMPLETION & FINAL ACCEPTANCE OF CONTRACTOR SHALL PROVIDE "AS-BUILT" RECORD DRAWINGS AT END OF PROJECT
- <u> 220500 GENERAL REQUIREMENTS PLUMBING</u>

ALL MATERIALS & FOUIPMENT PROPOSED TO BE USED

- PRODUCT DATA: FOR THE FOLLOWING: 1. ALL SCHEDULED EQUIPMENT AND PIPING. WELDING CERTIFICATES.
- 3 WARRANTIFS
 - 2 DELIVERY, STORAGE, AND HANDLING DELIVER PIPES AND TUBES WITH FACTORY-APPLIED END CAPS. MAINTAIN END CAPS THROUGH SHIPPING, STORAGE, AND HANDLING TO PREVENT PIPE END DAMAGE AND TO PREVENT ENTRANCE OF DIRT, DEBRIS, AND MOISTURE. STORE PLASTIC PIPES PROTECTED FROM DIRECT SUNLIGHT. SUPPORT TO PREVENT SAGGING AND BENDING.
- ARRANGE FOR PIPE SPACES, CHASES, SLOTS, AND OPENINGS IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR PLUMBING
- INSTALLATIONS. COORDINATE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED
- COORDINATE REQUIREMENTS FOR ACCESS PANELS AND DOORS FOR PLUMBING ITEMS REQUIRING ACCESS THAT ARE CONCEALED BEHIND FINISHED SURFACES. ACCESS PANELS AND DOORS ARE SPECIFIED IN DIVISION 08 SECTION "ACCESS DOORS AND FRAMES.
- 4 PLUMBING DEMOLITION DISCONNECT, DEMOLISH, AND REMOVE PLUMBING SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED TO BE REMOVED.
- PIPING TO BE REMOVED: REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP OR PLUG REMAINING PIPING WITH SAME OR COMPATIBLE PIPING TO BE ABANDONED IN PLACE: DRAIN PIPING AND CAP OR PLUG PIPING
- WITH SAME OR COMPATIBLE PIPING MATERIAL. 3. EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE
- IF PIPE, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE. REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF FOUAL CAPACITY AND QUALITY PIPING SYSTEMS - COMMON REQUIREMENTS
- DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED LOCATIONS AND ARRANGEMENTS WERE USED TO SIZE PIPE AND CALCULATE FRICTION LOSS, EXPANSION, PUMP SIZING, AND OTHER DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS. PROVIDE PIPE LABELING ON ALL NEW PIPING WITH PRE-PRINTED, COLOR-CODED DIRECTION. LETTERING MUST BE A MINIMUM OF 1-1/2" IN SIZE. PIPE LABELS SHALL BE
- ON ALL PIPING ABOVE ACCESSIBLE CEILINGS, EXPOSED AREAS, TUNNELS AND IN MECHANICAL ROOMS EVERY 30' AND AT ALL ACCESS DOORS, VERIFY LABEL COLORING SCHEME WITH ENGINEER AND OWNER PRIOR TO ORDERING INSTALL PIPING IN CONCEALED LOCATIONS. UNLESS OTHERWISE INDICATED AND
- EXCEPT IN FOUIPMENT ROOMS AND SERVICE AREAS INSTALL PIPING INDICATED TO BE EXPOSED AND PIPING IN FOUIPMENT ROOMS AND SERVICE AREAS AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED UNI ESS SPECIFICALLY INDICATED OTHERWISE
- INSTALL PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL INSTALL PIPING TO PERMIT VALVE SERVICING & TO ALLOW FOR APPLICATION OF
- INSTALL PIPING ADJACENT TO EQUIPMENT AND SPECIALTIES TO ALLOW FOR PROPER SERVICE AND MAINTENANCE INSTALL PIPING AT INDICATED SLOPES, FREE OF SAGS AND BENDS. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS
- INSTALL UNIONS AND SHUT-OFF VALVES AT FINAL CONNECTIONS TO EACH PIECE OF EQUIPMENT, MACHINE, AND SPECIALTY. SELECT SYSTEM COMPONENTS WITH PRESSURE RATING EQUAL TO OR GREATER THAN SYSTEM OPERATING PRESSURE.
- INSTALL ESCUTCHEONS FOR PENETRATIONS OF WALLS, CEILINGS, AND FLOORS. SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED HOLES PERMANENT SLEEVES ARE NOT REQUIRED FOR HOLES FORMED BY REMOVABLE PE
- INSTALL SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS AND CONCRETE FLOOR AND ROOF SLABS INSTALL SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS.
- GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR AND ROOF SLABS. EXTERIOR-WALL PIPE PENETRATIONS: SEAL PENETRATIONS USING SLEEVES AND MECHANICAL SLEEVE SEALS.
- FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS.
- VERIFY FINAL EQUIPMENT LOCATIONS FOR ROUGHING-IN. JOIN PIPE AND FITTINGS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. INSTALL EQUIPMENT LEVEL AND PLUMB AND TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS ARE NOT INDICATED. ALI FOUIPMENT SHALL BE INSTALLED TO ALLOW FOR PROPER MAINTENANCE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS
- INSTALL HANGERS SUPPORTS CLAMPS AND ATTACHMENTS AS REQUIRED TO PROPERLY SUPPORT PIPING FROM THE BUILDING STRUCTURE. PROVIDE SHEET METAL SADDLES AT ALL HANGERS ON INSULATED PIPING TO PROTECT INSULATION SUPPORTS SHALL BE ADJUSTED ACCORDINGLY.
- ALL PIPING SHALL BE LABELED WITH PRE-COILED (NON-ADHESIVE) TYPE PLASTIC LABELS. LABELS SHALL INCLUDE PIPING SYSTEM TYPE WITH DIRECTIONAL ARROWS. PIPING IN EXPOSED PUBLIC AREAS SHALL NOT BE LABELED.

GENERAL PROJECT NOTES

1.6 INSULATION GENERAL INSTALLATION REQUIREMENTS

SPECIFIED IN INSULATION SYSTEM SCHEDULES.

EXTENDED, OR REPAIRED BEFORE USING.

DOES NOT APPEAR AT OUTLETS.

AND ALLOW TO STAND FOR 24 HOURS.

TO STAND FOR THREE HOURS.

1.7 INSPECTIONS & TESTING

DESCRIBED BELOW:

CONTAMINATION.

231123 GAS PIPING

1.1 COMMON REQUIREMENTS

B. FOR GAS PIPING INSTALLATION:

REQUIREMENTS

PIPING INCLUDING FITTINGS, VALVES, AND SPECIALTIES.

A. INSTALL INSULATION MATERIALS, ACCESSORIES, AND FINISHES WITH SMOOTH.

JACKETS, AND THICKNESSES REQUIRED FOR EACH ITEM OF PIPE SYSTEM AS

INSTALL INSULATION WITH TIGHT LONGITUDINAL SEAMS AND END JOINTS. BOND

SEAMS AND JOINTS WITH ADHESIVE RECOMMENDED BY INSULATION MATERIAL

MANUFACTURER. INSTALL INSULATION WITH LEAST NUMBER OF JOINTS PRACTICAL. INSTALL PVC ELBOW PROTECTORS ON ALL INSULATED FITTINGS IN ALL EXPOSED

B. INSTALL INSULATION MATERIALS, FORMS, VAPOR BARRIERS OR RETARDERS,

PUBLIC AREAS INCLUDING MECHANICAL, JANITOR AND STORAGE ROOMS.

A. DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT HAS BEEN

B. TEST ALL NEW PIPING WITNESSED BY ARCHITECT/ OWNER/ ENGINEER AT HIS OPTION

(PROVIDE MINIMUM 72 HOURS NOTICE). DRAINAGE & VENT LINES SHALL BE TESTED

WITH 10' HEAD FOR MINIMUM 30 MINUTES WITHOUT DROP. WATER PIPING SHALL BE

TESTED WITH 125 PSI WATER TO HOLD THIS PRESSURE FOR A PERIOD OF 24 HOURS.

PURGE NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED,

. USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES

HAVING JURISDICTION; IF METHODS ARE NOT PRESCRIBED, USE PROCEDURES

a. FLUSH PIPING SYSTEM WITH CLEAN. POTABLE WATER UNTIL DIRTY WATER

1. FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION

2. FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION

c. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL NO CHLORINE IS IN

d. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITIES HAVING

JURISDICTION. REPEAT PROCEDURES IF BIOLOGICAL EXAMINATION SHOWS

WATER COMING FROM SYSTEM AFTER THE STANDING TIME.

PREPARE AND SUBMIT REPORTS OF PURGING AND DISINFECTING ACTIVITIES.

A. ALL GAS PIPING COMPONENTS SHALL COMPLY WITH ANSI Z21 OR ASTM B 584

INSTALLATION AND PURGING OF NATURAL-GAS PIPING.

CONDENSATE IS SUBJECT TO FREEZING.

TERMINATE WITH WEATHERPROOF VENT CAP.

FINAL CONNECTION TO EACH PIECE OF FOUIPMENT

COMPLY WITH [NFPA 54] THE INTERNATIONAL FUEL GAS CODE! FOR

3. EXTEND RELIEF VENT CONNECTIONS FOR SERVICE REGULATORS, LINE

. CONNECT BRANCH PIPING FROM TOP OR SIDE OF HORIZONTAL PIPING.

5. INSTALL UNIONS IN PIPES NPS 2 AND SMALLER, ADJACENT TO EACH VALVE, AT

6. CONNECT TO UTILITY'S GAS MAIN ACCORDING TO UTILITY'S PROCEDURES AND

. DRIPS AND SEDIMENT TRAPS: INSTALL DRIPS AT POINTS WHERE CONDENSATE

ACCESSIBLE TO PERMIT CLEANING AND EMPTYING. DO NOT INSTALL WHERE

REGULATORS, AND OVERPRESSURE PROTECTION DEVICES TO OUTDOORS AND

MAY COLLECT, INCLUDING SERVICE-METER OUTLETS. LOCATE WHERE

CLEAN INTERIOR OF ALL PIPING SYSTEMS. REMOVE DIRT AND DEBRIS AS WORK

WITH AT LEAST 50 PPM (50 MG/L) OF CHLORINE. ISOLATE WITH VALVES

WITH AT LEAST 200 PPM (200 MG/L) OF CHLORINE. ISOLATE AND ALLOW

b. FILL AND ISOLATE SYSTEM ACCORDING TO EITHER OF THE FOLLOWING:

DESCRIBED IN EITHER AWWA C651 OR AWWA C652 OR FOLLOW PROCEDURES

INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTIONS

C. ALL GAS PIPING SHALL BE TESTED WITH SOAPY WATER UNDER OPERATING

A. CLEAN AND DISINFECT POTABLE DOMESTIC WATER PIPING AS FOLLOWS:

STRAIGHT, AND EVEN SURFACES; FREE OF VOIDS THROUGHOUT THE LENGTH OF

GENERAL NOTES

- ALL PIPING SHALL BE CUT TO LENGTH AND REAMED TO FULL INSIDE DIAMETER WITH THE PROPER TOOLS, SPRINGING OR RUBBING OF PIPES ARE NOT ALLOWED.
- NO BUSHINGS ARE BE ALLOWED, ONLY ECCENTRIC FITTINGS ARE
- ALL PIPE PENETRATIONS THROUGH: WALLS, CEILINGS, FLOORS, AND STRUCTURE SHALL BE COMPLETELY SEALED. FIRE CAULK SHALL BE USED IN FIRE RATED WALLS AND ESCUTCHEONS (LARGE ENOUGH TO COVER OPENING IN WALL) SHALL BE USED IN ALL EXPOSED LOCATIONS (MECHANICAL ROOMS AND JANITORS CLOSET NOT INCLUDED).
- CONTRACTOR IS RESPONSIBLE FOR ALL TRANSITIONS, ELBOWS, OFFSETS IN PIPING TO MAKE SYSTEMS FIT WITHIN SPACE AND STRUCTURE PROVIDED.
- ALL PIPE, FIXTURES, AND EQUIPMENT (INSTALLED AND NOT INSTALLED) SHALL BE PROTECTED DURING CONSTRUCTION AND CLEANED BEFORE USE. PIPING SHALL BE COVERED AND HAVE THE ENDS TAPED SHUT WHILE BEING STORED.
- NO PIPING EXCLUDING PLUMBING VENT AND GAS PIPING SHALL BE INSTALLED IN AN UNCONDITIONED SPACE.
- THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, CITY, STATE AND NATIONAL CODES, LAWS, ACTS AND ORDINANCES AND ALL AUTHORITIES HAVING JURISDICTION. THE OWNERS INSURANCE COMPANY REQUIREMENTS. UTILITY COMPANY REQUIREMENTS, APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE AND SAFETY, THE MANUFACTURER'S STRICTEST REQUIREMENTS AND RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION.
- DRAWINGS ARE LARGELY SCHEMATIC IN NATURE. THOUGH A LOT OF DETAILS MAY BE SHOWN THEY ARE NOT INTENDED TO SHOW EVERY DETAIL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH ALL OTHER TRADES AND EXISTING/SITE CONDITIONS TO PROVIDE A FULLY FUNCTIONAL SYSTEM PER THE INTENT OF DESIGN. ALL REQUIRED PIPING. SUPPORTS AND DUCTS SHALL BE PROVIDED FOR A FULLY FUNCTIONAL SYSTEM PER THE DESIGN INTENT. IF ROUTING IS NOT SHOWN ON THE PLANS, COORDINATE WITH THE ENGINEER PRIOR TO BIDDING.
- IF ANY CONFLICTING INFORMATION IS PROVIDED ON THE DRAWINGS, THE MORE STRINGENT/EXPENSIVE SHOULD BE BID UNLESS A ADDENDUM CAN BE ISSUED IN TIME TO CORRECT THE SITUATION.

SENERAL COORDINATION

- ALL WORK SHALL BE COORDINATED BETWEEN TRADES BEFORE ANY CONSTRUCTION/ FABRICATING BEGINS IN A "KICK-OFF" MEETING. CONTACT ENGINEER/ ARCHITECT FOR QUESTIONS.
- IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE WITH THE FLECTRICAL CONTRACTOR ON ALL FLECTRICAL REQUIREMENTS FOR THE EQUIPMENT PRIOR TO ORDERING, ALL REQUIREMENT CHANGES SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR / SUPPLIER AT NO ADDITIONAL COST TO THE PROJECT.
- NO PIPING SHALL BE INSTALLED ABOVE ANY ELECTRICAL PANEL. EXACT LOCATION OF ALL PIPING AND SUPPORTS SHALL BE COORDINATED WITH STRUCTURE, LIGHTS, CEILING GRID, HVAC, PLUMBING FIXTURES. COORDINATE LOCATION WITH FIRE SPRINKLER PIPING IF APPLICABLE. SEE ELECTRICAL LIGHTING PLANS AND ARCHITECTURAL REFLECTED CEILING PLANS FOR COORDINATION.
- EXACT ROUTING OF ALL PIPING THROUGH THE ROOF/CEILING SHALL BE COORDINATED WITH STRUCTURE. VERIFY LOCATION WITH GC/ ARCHITECT PRIOR TO CUTTING HOLES. WHEN ALL WORK IS COMPLETED NO MATERIALS SHALL BE LEFT ON
- SITE UNLESS SPECIFICALLY REQUESTED BY THE OWNER. ALL MATERIALS TO BE DISPOSED OF PROPERLY.
- CONTRACTOR TO FIRE SEAL WALLS, CEILINGS AS REQUIRED AND MAINTAIN ALL FIRE RATINGS.

PRIOR APPROVALS AND FILE SHARING

- ALL SHEETS REQUESTED IN CAD (.DWG) FORMAT SHALL BE PROVIDED AT A CHARGE OF \$25/SHEET (MINIMUM \$250). FOR FIRE ALARM AND FIRE SPRINKLER CONTRACTORS. ALL OTHERS REQUESTING CAD FILES SHALL BE CHARGED \$50/SHEET (MINIMUM MUST SIGN AND RETURN "DOCUMENT DISCLAIMER" TO AES.
- PRIOR APPROVAL OF MECHANICAL, ELECTRICAL AND PLUMBING SUBSTITUTION PRODUCTS IS NOT REQUIRED.
- PROPOSED SUBSTITUTIONS OF MECHANICAL, ELECTRICAL AND PLUMBING PRODUCTS MAY BE SUBMITTED FOR REVIEW DURING THE SHOP DRAWING/ PRODUCT DATA SUBMITTAL STAGE.
- PROPOSED SUBSTITUTIONS SHALL BE EQUAL TO OR SUPERIOR IN ALL RESPECTS TO THE SPECIFIED PRODUCT.
- PROPOSED SUBSTITUTIONS SHALL HAVE THE SAME WARRANTY AS THE SPECIFIED PRODUCT.
- PROPOSED SUBSTITUTIONS WILL HAVE NO ADVERSE EFFECT ON THE PROPOSED SUBSTITUTION WILL NOT AFFECT DIMENSIONS AND
- FUNCTIONAL CLEARANCES.
- PRODUCT DATA AND SHOP DRAWING FOR PROPOSED SUBSTITUTIONS MUST BE PROJECT SPECIFIC AND INCLUDING ALL COMPONENTS IDENTIFIED FOR COMPARISON TO THE ORIGINAL
- THE BURDEN OF PROOF OF THE EQUIVALENCE ON THE PROPOSED SUBSTITUTION IS ON THE PROPOSER.

- A. A 10'-0" MINIMUM CLEARANCE MUST BE KEPT BETWEEN ALL PLUMBING VENTS AND EXHAUST VENTS AND ALL MECHANICAL FRESH AIR INTAKES, DOORS, AND OTHER OPERABLE OPENINGS INTO THE
- SHUT-OFF VALVES SHALL BE PROVIDED IN HOT AND/OR COLD WATER PIPING AT CONNECTION TO PLUMBING FIXTURE AT AN ACCESSIBLE

- A. ALL EQUIPMENT SHALL BE SUPPORTED BY: A HOUSEKEEPING PAD. METAL STAND, OR SUPPORTED FROM THE STRUCTURE. NO
- EQUIPMENT SHALL SIT DIRECTLY ON THE FLOOR. SHUT-OFF VALVES SHALL BE PROVIDED IN HOT AND/OR COLD WATER
- PIPING AT CONNECTION TO EQUIPMENT AT AN ACCESSIBLE PROVIDE APPROVED MANUFACTURER'S ACCESS DOOR IN ALL HARD CEILINGS ADJACENT TO ANY EQUIPMENT/CONTROLS THAT IS NOT ACCESSIBLE FROM BELOW BY ITSELF. COORDINATE FINISH COLOR
- WITH ARCHITECT PRIOR TO ORDERING. D. THE MINIMUM MANUFACTURER RECOMMENDED CLEARANCE OR 36" CLEARANCE, WHICHEVER IS GREATER MUST BE MAINTAINED FOR ALL EQUIPMENT/VALVING NEEDING ACCESS. ALL ACCESS PANELS SHALL
- HAVE ADEQUATE CLEARANCE. CONSULT THE ENGINEER IF THIS IS
- E. IT IS THE RESPONSIBILITY OF THE MANUFACTURER / SUPPLIER TO MAKE SURE ALL UNITS FIT IN THE REQUIRED SPACE INTENDED WITH RECOMMENDED MAINTENANCE AND ACCESS CLEARANCES. ANY CHANGES NEEDED WILL BE THE RESPONSIBILITY OF THE

MANUFACTURER AT NO ADDITIONAL COST TO THE PROJECT

- ALL PIPING CONNECTING TO EQUIPMENT SHALL HAVE FLEXIBLE CONNECTIONS INSTALLED AT CONNECTION TO EQUIPMENT.
- ALL EQUIPMENT SHALL BE THOROUGHLY CLEANED AND ALL BARE, SCRATCHED OR MARRED AREAS SHALL BE PAINTED WITH FACTORY PAINT OR AN OWNER APPROVED EQUAL.
- H. ALL EQUIPMENT SHALL BE PROPERLY ALIGNED. LUBRICATED AND OILED BEFORE START UP AND FINAL ACCEPTANCE BY OWNER.
- ANY SPECIAL TOOL NEEDED FOR ASSEMBLY, MAINTENANCE OR ADJUSTMENT OF ANY EQUIPMENT SHALL BE SUPPLIED TO THE OWNER AT NO ADDITIONAL COST.
- PROVIDE A PREVENTATIVE/ PREDICTIVE MAINTENANCE SCHEDULE IN MICROSOFT WORD FORMAT FOR ALL EQUIPMENT TO OWNER/

JURISDICTION, OWNER AND DESIGN TEAM UPON COMPLETION.

ENGINEER AT THE COMPLETION OF THE PROJECT K ALL EQUIPMENT WITH ELECTRICAL HARD WIRED CONNECTIONS MUST BE UL LISTED ASSEMBLIES OR THE PROPER FIELD TESTING FOR FIELD RATINGS TO A UL LISTED ASSEMBLY MUST BE INCLUDED WITH DOCUMENTATION PROVIDED TO THE AUTHORITY HAVING

EXISTING PROJECT

- A. CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BIDDING TO SEE SPECIFIC JOB SITE CONDITIONS FOR THIS PROJECT.
- B. FIELD VERIFY EXACT LOCATION OF EXISTING PIPING AND DUCT BEFORE BEGINNING CONSTRUCTION.
- IF HAZARDOUS MATERIALS ARE ENCOUNTERED. STOP WORK IMMEDIATELY AND INFORM THE OWNER'S REPRESENTATIVE IN WRITING. THE OWNER'S REPRESENTATIVE WILL THEN BE RESPONSIBLE TO TAKE THE APPROPRIATE ACTIONS
- AND HANGERS FOR ALL EXISTING PIPING, CABLING AND WIRING (HIGH AND LOW VOLTAGE) THAT ARE TO REMAIN. THIS INCLUDES RESUPPORTING ANYTHING THAT IS SUPPORTED BY ANY ITEM SCHEDULED TO BE REMOVED. ANY DAMAGE TO THE EXISTING SYSTEMS TO REMAIN MUST BE REPAIRED AND TESTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

D. THE CONTRACTOR SHALL PROVIDE AND INSTALL NEW SUPPORTS

- DURING SMOKE/DUST PRODUCING OPERATIONS, SMOKE DETECTORS SHALL BE COVERED AND TEMPORARY FANS SHALL BE USED TO EXHAUST AREA OF SMOKE/DUST. COORDINATE WITH OWNER.
- F. MAINTAIN ALL EXISTING ROOF WARRANTIES AS APPLICABLE

- A. PRIOR TO ROUGH-IN SEE FOOD SERVICE DRAWINGS AND APPROVED EQUIPMENT SHOP DRAWINGS FOR EXACT REQUIREMENTS.
- B. VERIFY EXACT LOCATION OF KITCHEN EQUIPMENT WITH EQUIPMENT SUPPLIER AND ARCHITECTURAL PLANS PRIOR TO BEGINNING CONSTRUCTION.

CHEET LICT DI LIMBING

SUEEI	LIST - PLUMBING
SHEET NUMBER	SHEET NAME
P000	GENERAL PROJECT INFORMATION - PLUMBING
PD101	PLUMBING DEMOLITION PLANS
P101	FIRST FLOOR - PLUMBING PLANS
P102	SECOND FLOOR/ROOF & PARTIAL- PLUMBING PLANS
P201	DETAILS - PLUMBING
P301	SCHEDULES - PLUMBING



SYSTEMS 4630 ANTELOPE CREEK RD SUITE 200

> LINCOLN, NE 68506 F: (402) 488-0272 www.a-e-sys.com

(C) ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800

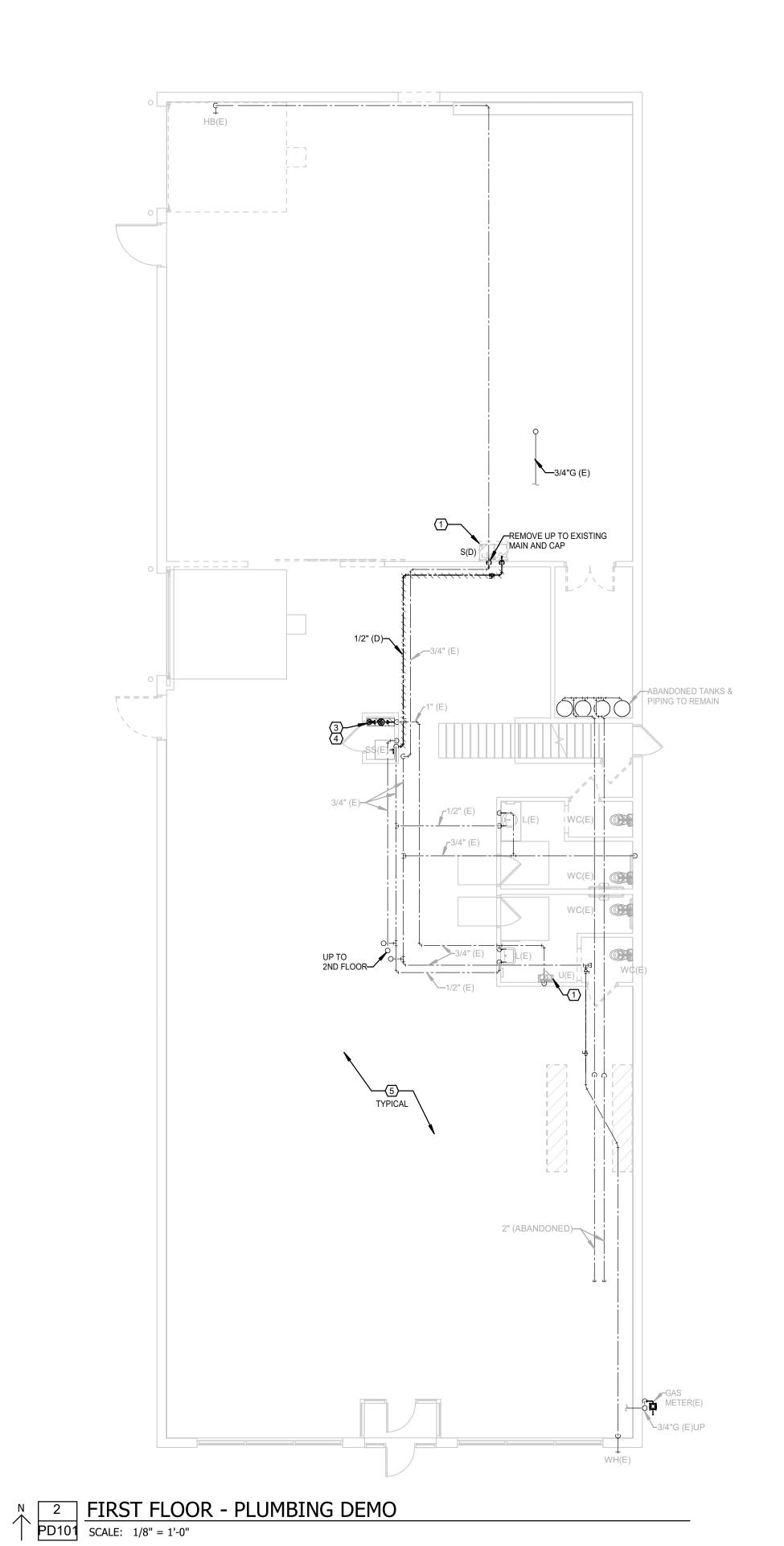
PROJECT # 24-027

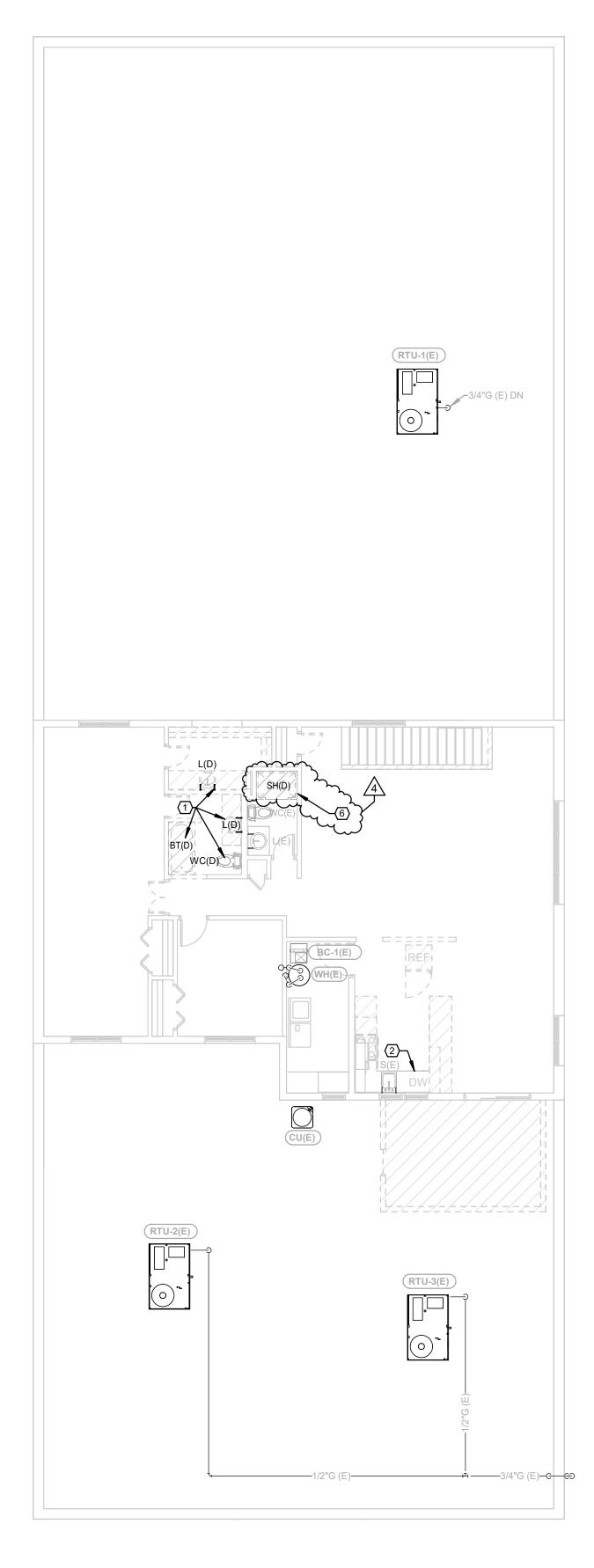




GENERAL PROJECT *INFORMATION* **PLUMBING**







SECOND FLOOR - PLUMBING DEMO

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

KEY NOTES

SYMBOL = X

- 1 REMOVE EXISTING PLUMBING FIXTURE, REMOVE ASSOCIATED PIPING AND ACCESSORIES TO EXTENTS POSSIBLE OR AS SHOWN
- 2 EXISTING DISHWASHER TO BE REMOVED, REMOVE ASSOCIATED WATER AND WASTE PIPING BACK TO CONNECTION AT SINK AND
 - VE EXISTING WATER SERVICE ASSEMBLY AND ALL
- 3 REMOVE EXISTING WATER SERVICE ASSEMBLY AND ALL ASSOCIATED PIPING AND ACCESSORIES, CAP SERVICE PIPING ABOVE FLOOR AND ABANDON. DISTRIBUTION PIPING TO BE BACK FED BY NEW SERVICE.
- 4 EXISTING WATER SERVICE PIPING TO BE ABANDONED, CAP AND ABANDON PIPING AT EXISTING CONNECTION TO CITY MAIN. COORDINATE EXACT REQUIREMENTS WITH WATER COMPANY. CONTRACTOR TO FIELD LOCATE WATER SERVICE PIPE CONNECTION TO CITY MAIN.
- 5 REMOVE EXISTING ABANDONED HD PIPING AS NECESSARY FOR INSTALLATION OF NEW SYSTEMS.

 6 EXISTING FIXTURE TO BE REMOVED, REMOVE ASSOCIATED PIPING BACK TO WALL/FLOOR AND CAP.

ADVANCED ENGINEERING SYSTEMS

4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

LINCOLN, NE 68506 P: (402) 488-0075 F: (402) 488-0272

<u>WWW.a-e-sys.com</u>
© ADVANCED ENGINEERING SYSTEMS
CERTIFICATE OF
AUTHORIZATION # CA1800

PROJECT # 24-027

TERING KITCHEN REET OMAHA, NE

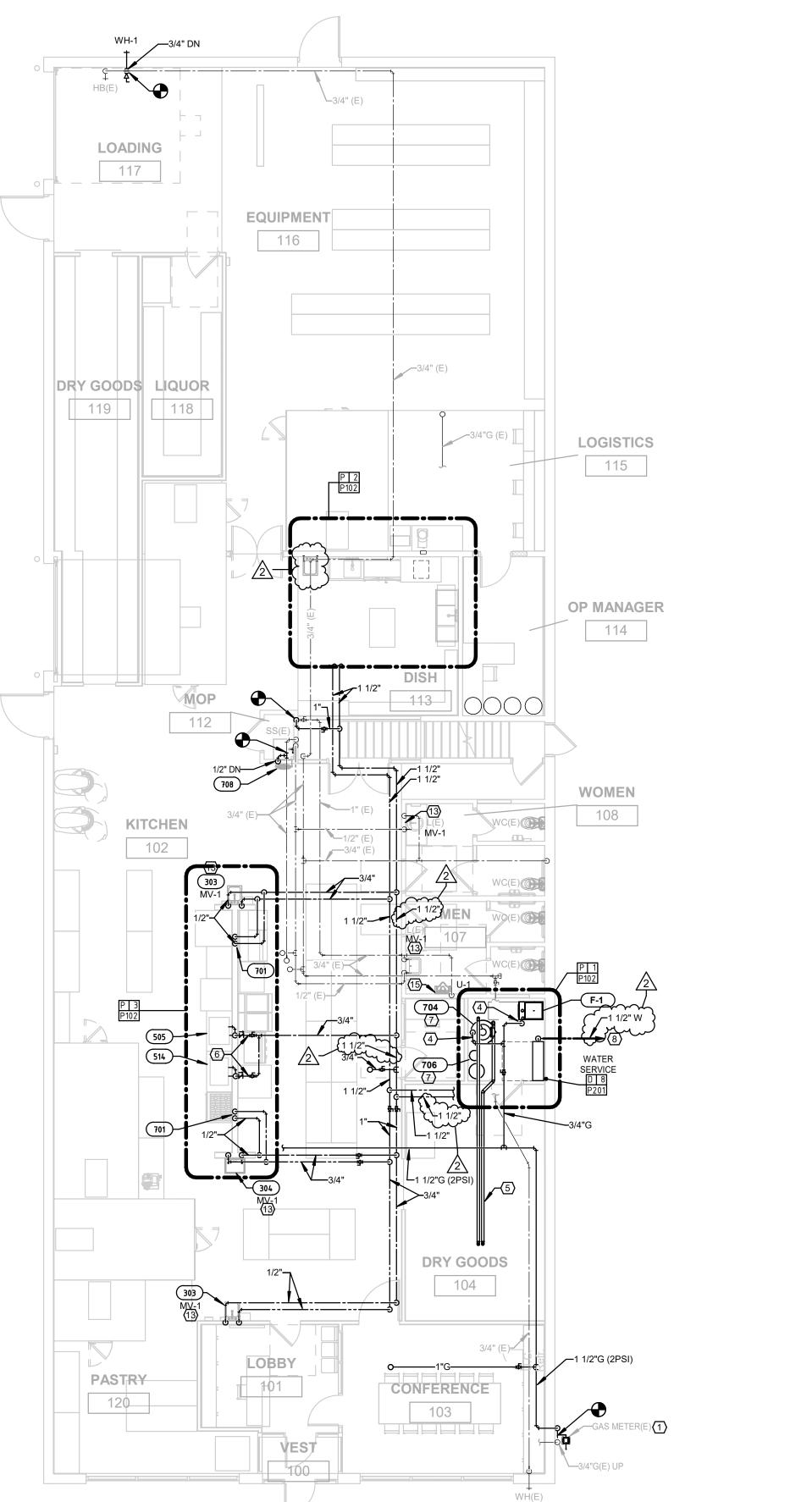
No. Issued For Date
4 ASI #4 7-31-2024

DATE: 04/05/2024

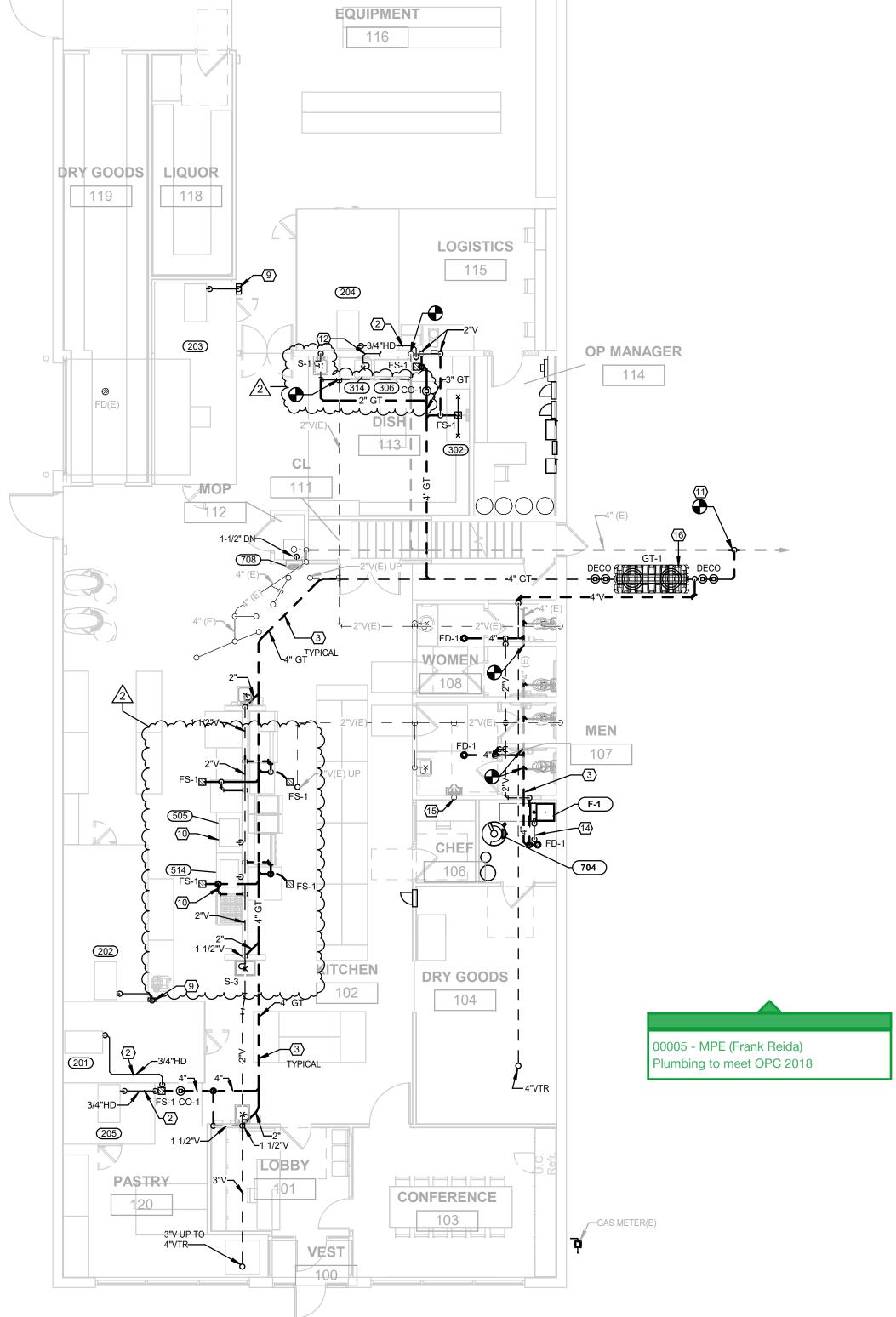


PLUMBING DEMOLITION PLANS

PD101



N T P101 FIRST FLOOR PLUMBING - DOMESTIC WATER & GAS SCALE: 1/8" = 1'-0"



N 3 P101 FIRST FLOOR PLUMBING - SANITARY WASTE & VENT SCALE: 1/8" = 1'-0"

LOADING

117 -

CONTRACTOR TO COORDINATE WITH GAS COMPANY TO REPLACE METER/PRESSURE REGULATOR AS REQUIRED.

- EXTEND HUMIDITY DRAINS FROM COOLER AND FREEZER EVAPORATOR COIL TO FLOOR SINK. INSTALL PIPING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. ZIP TIE DRAINS PIPE TO FLOOR SINK. PROVIDE P-TRAP IN PIPING OUTSIDE OF FREEZER/COOLER.
- SAWCUT FLOOR AS REQUIRED FOR INSTALLATION OF NEW BELOW GRADE WASTE AND VENT PIPING. PATCH AND REPAIR TO MATCH EXISTING. (TYPICAL)
- PROVIDE UNION, 3 INCH MINIMUM DIRT LEG, SHUT-OFF VALVE AND PRESSURE REGULATOR IN GAS PIPING AT CONNECTION TO EQUIPMENT. VENT PRESSURE REGULATOR TO OUTSIDE IF REQUIRED. PROVIDE A UNION ON BOTH SIDES OF REGULATOR. REGULATOR MUST BE INSTALLED IN HORIZONTAL POSITION DOWN STREAM OF DIRT LEG.
- EXTEND PVC INTAKE AND EXHAUST PIPING UP THROUGH ROOF. TERMINATE PIPING WITH CONCENTRIC TERMINATION KIT. INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- (2) 1/2" DCW CONNECTIONS TO UNIT, INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE SHUT-OFF VALVE ANC CHECK VALVE IN PIPING PRIOR TO CONNECTION TO EQUIPMENT (LOCATED IN AN ACCESSIBLE LOCATION).
- EQUIPMENT TO BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- EXTEND TO CITY MAIN, FIELD COORDINATE EXACT LOCATION AND ROUTING PRIOR TO INSTALLATION.
- EXTEND 3/4"HD PIPING TO CONDENSATE EVAPORATOR (BY OWNER).
- 0 EXTEND 1-1/2" DRAIN PIPING FROM STEAMER TO OVER FLOOR SINK BELOW AND TERMINATE, ALL ROUTING, SIZING TO BE PER MANUFACTURER'S RECOMMENDATIONS.
- 1 EXTEND GREASE TRAP OUTLET PIPING TO EXISTING SANITARY MAIN LEAVING BUILDING, FIELD COORDINATE EXACT LOCATION AND ROUTING PRIOR TO INSTALLATION.
- 2 EXTEND 2" WASTE FROM DISPOSAL (314) AND CONNECT TO EXISTING WASTE PIPING IN WALL FROM DEMO SINK.
- INSTALL MIXING VALVE (MV-1) UNDER HAND SINK IN THE ONE FIXTURE CONFIGURATION. SEE MIXING VALVE DETAIL ON THIS SHEET.
- 4 EXTEND 3/4" HUMIDITY DRAIN PIPING TO NEAREST FLOOR DRAIN. PROVIDE CLEAN OUT IN DRAIN. SECURE PIPING TO FLOOR DRAIN COVER WITH ZIP TIE.
- NEW URINAL TO TIE IN TO EXISTING PIPING FROM REMOVED URINAL.



4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272 <u>www.a-e-sys.com</u> (C) ADVANCED ENGINEERING SYSTEMS

CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

- 16 COORDINATE EXACT LOCATION AND ORIENTATION OF GREASE TRAP WITH EXISTING CONDITIONS PRIOR TO INSTALLATION.

2 ASI #2 DATE:04/05/2024



FIRST FLOOR - PLUMBING *PLANS*

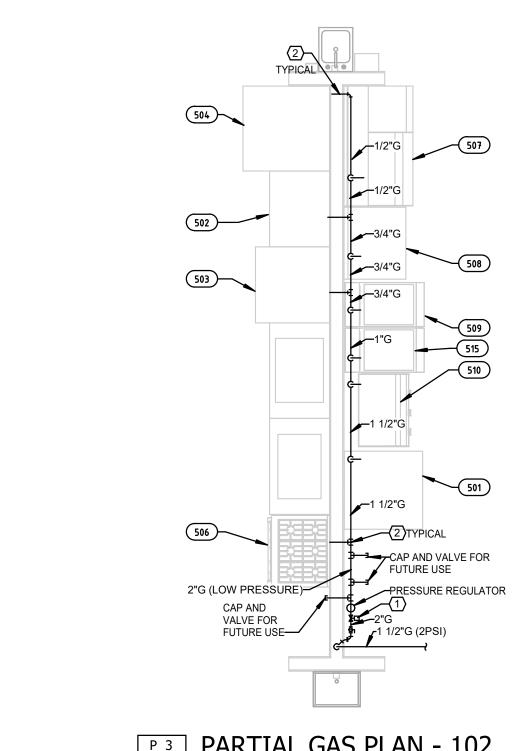
SECOND FLOOR - PLUMBING

P102 SCALE: 1/8" = 1'-0"

2"V UP TO 4"VTR —

P102 NO SCALE

WASTE RISER DETAIL



KEY NOTES

POSITION DOWN STREAM OF DIRT LEG.

PROVIDE SOLENOID VALVE AND PRESSURE REGULATOR (2PSI -7"WC) IN GAS PIPING. SOLENOID VALVE TO BE INTERLOCKED WITH HOOD FIRE SUPPRESSION SYSTEM. VENT PRESSURE REGULATOR TO OUTSIDE IF REQUIRED. PROVIDE A UNION ON BOTH SIDES OF SOLENOID VALVE AND REGULATOR. REGULATOR MUST BE INSTALLED IN HORIZONTAL

PROVIDE UNION, 3 INCH MINIMUM DIRT LEG, SHUT-OFF VALVE AND FLEXIBLE CONNECTION IN GAS PIPING AT CONNECTION TO EQUIPMENT.

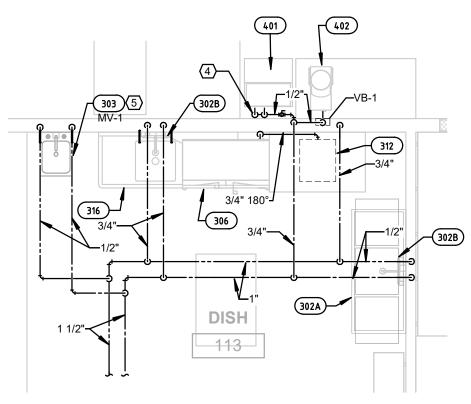
PROVIDE CHECK VALVE/BACKFLOW PREVENTER IN PIPING PRIOR TO

INSTALL MIXING VALVE (MV-1) UNDER HAND SINK IN THE ONE FIXTURE CONFIGURATION. SEE MIXING VALVE DETAIL ON THIS SHEET.

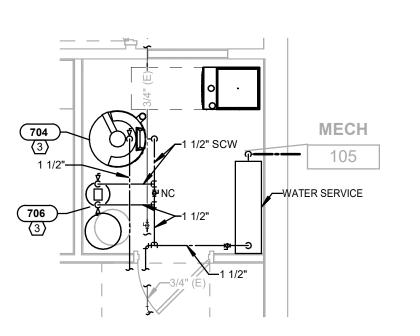
INSTALL NEW URINAL (U-1) IN PLACE OF PREVIOUS BATHTUB, EXTEND DOMESTIC WATER, WASTE & VENT TO PIPING IN WALL/BELOW FLOOR AND CONNECT AS REQUIRED.

EQUIPMENT TO BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

PARTIAL GAS PLAN - 102 P102 SCALE: 1/4" = 1'-0"



P 2 PARTIAL DOMESTIC PLAN - 113 P102 SCALE: 1/4" = 1'-0"



PARTIAL DOMESTIC PLAN - 105 P102 SCALE: 1/4" = 1'-0"



4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272

<u>www.a-e-sys.com</u> (C) ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF

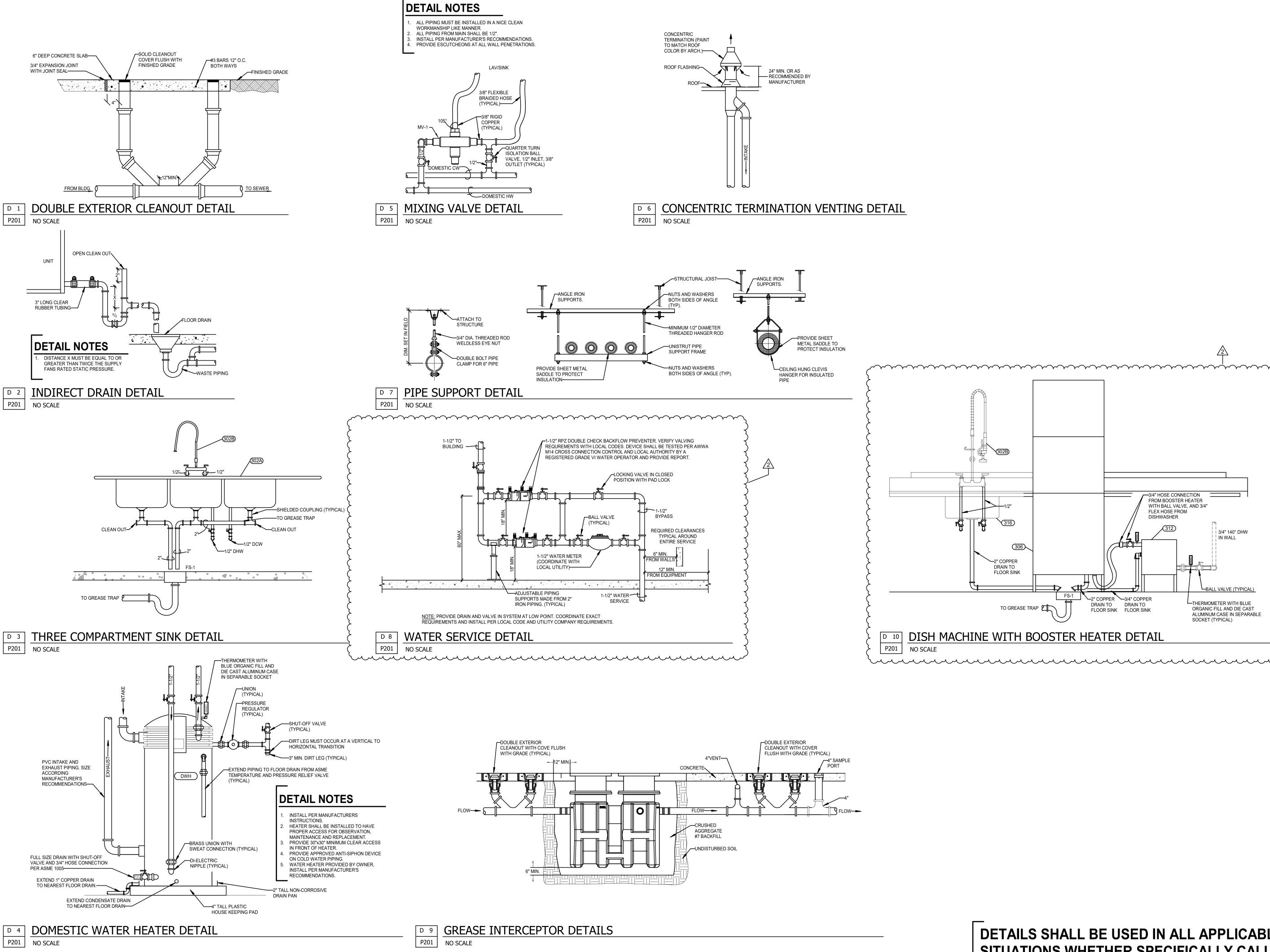
AUTHORIZATION # CA1800

PROJECT # 24-027

Issued For 7-31-2024 4 ASI #4 DATE:04/05/2024



SECOND FLOOR/ROOF & PARTIAL- PLUMBING *PLANS*



DETAILS SHALL BE USED IN ALL APPLICABLE SITUATIONS WHETHER SPECIFICALLY CALLED OUT OR NOT



4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

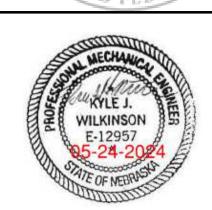
> P: (402) 488-0075 F: (402) 488-0272 www.a-e-sys.com

CERTIFICATE OF AUTHORIZATION # CA1800

(C) ADVANCED ENGINEERING SYSTEMS

PROJECT # 24-027

Issued For 2 ASI #2 5-24-2024 DATE:04/05/2024



DETAILS - PLUMBING

(XX)			COLD WATER	F	OT WATER	t	w	ASTE	G	AS	EXHA	AUST	 	ВУ	
DESIGNATION	QUANTITY	DESCRIPTION	SIZE	SIZE	TEMP.	GPM	DIRECT	INDIRECT	SIZE	MBH	SIZE	CFM	PROVIDED BY	INSTALLED B	REMARKS
201	1	WALK-IN FREEZER	-	-	-	-	-	3/4"	-	-	-	-	0	MC	ROUTE HD PIPING FROM E TO NEARBY FLOOR SINK A ON PLANS
202	1	WALK-IN COOLER	-	-	-	-	-	3/4"	-	-	-	-	0	MC	ROUTE HD PIPING FROM E TO CONDENSATE EVAPOR
203	1	WALK-IN COOLER	-	-	-	-	-	3/4"	-	-	-	-	0	MC	ROUTE HD PIPING FROM E TO CONDENSATE EVAPOR
204	1	WALK-IN COOLER	-	-	-	-	-	3/4"	-	-	-	-	0	MC	ROUTE HD PIPING FROM E TO NEARBY FLOOR SINK A ON PLANS
205	1	WALK-IN FREEZER	-	-	-	-	-	3/4"	-	-	-	-	0	MC	ROUTE HD PIPING FROM E TO NEARBY FLOOR SINK A ON PLANS
301A	1	HOOD-1, TYPE 1 KITCHEN HOOD	-	-	-	-	-	-	-	-	(4)14x8	12500	0	MC	-
301B	1	HOOD 1, TYPE 1 KITCHEN HOOD	-	-	-	-	-	-	-	-	(4)14x8	12500	0	МС	-
302A	1	3 COMPARTMENT SINK	1/2"	1/2"	140°	-	-	(3)2"	-	-	-	-	0	MC	-
302B	~~~	SPRAYER FAUCET	1/2"	1/2"	140°	-	-	-	-	-	-	-	0	MC	-
303	3	HAND SINK	1/2"	1/2"	110°	-	1-1/2"	-	-	-	-	-	0	MC	PROVIDE WITH MIXING VA
304	1	TRAUFF SINK	1/2"	1/2"	140°	-	1-1/2"	-	-	-	-	-	0	MC	-
306	1	DISHWASHER	-	3/4"	180°	-	-	2"	-	-	-	-	0	MC	HW SUPPLY FROM ITEM 3
312	1	ELECTRIC BOOSTER HEATER	-	(2)3/4"	140°(IN) 180°(OUT)	-	_	-	_	-	_	_	0	MC	-
313	1			-	-	-	_	_	_	-	_		0	MC	-
314	\sim	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	\sim	\sim	~~~	~~	NOT	T USED	~~	~~~	~~		\sim	~~~	~~~~~
ر مريد مريد	Ψ,	~ SOILED DISHTABLE SINK	سيس	ىيى	سير	مِب	_	2"	ىبو	ىرىر	ىرىر	حيت	w	THE T	mmm
401	1	ICE MACHINE	(2)1/2	_	_	_ {	سير	3/4"	}	_	_		0	MC	-
402	1	ICE TEA MAKER	1/2"	_	_	_	_			_	_		0	MC	-
501	1	OVEN - DOUBLE STACK (SET 1)		_	_	_		_	3/4"	60	_		0	MC	_
502	1	OVEN - DOUBLE STACK (SET 2)			_	_		_	3/4"	60			0	MC	
	-	·			-		-	-			-				-
503	1	OVEN - DOUBLE STACK (SET 3)	-	-	-	-	-	-	3/4"	60	-	-	0	MC	-
504	1	OVEN - DOUBLE STACK (SET 4)	-	-	-	-	-	-	3/4"	80	-	-	0	MC	-
505	1	STEAMER	(2)1/2"	-	-	-	-	1-1/2"	-	-	-	-	0	MC	-
506	1	36" RANGE	-	-	-	-	-	-	3/4"	360	-	-	0	MC	-
507	1	STOVETOP/FLATTOP	-	-	-	-	-	-	3/4"	60	-	-	0	MC	-
508	1	STOVETOP/RANGE	-	-	-	-	-	-	3/4"	180	-	-	0	MC	_
509	1	FRYER	-	-	-	-	-	-	3/4"	150	-	-	0	MC	_
510	1	GRILLTOP	-	-	-	-	-	-	3/4"	120	-	-	0	MC	_
514	1	STEAMER	(2)1/2"	-	-	-	-	1-1/2"	-	-	-	-	0	MC	-
515	1	FRYER	-	-	-	-	-	-	3/4	150	-	-	0	MC	-
701	2	WALL MOUNT POT FILLER	1/2"	1/2"	140°	-	-	-	-	-	-	-	0	MC	-
704	1	DOMESTIC WATER HEATER	1-1/2"	1-1/2"	140°	-	-	-	3/4"	100	-	-	0	MC	-
706	1	WATER SOFTENER	(2)1-1/2"	-	-	-	-	-	-	-	-	-	0	MC	-
708	1	WATER BOTTLE FILLING STATION	1/2"	-	-	-	-	1-1/2"	-	-	-	-	0	MC	-
• RE	FER TO	RVICE MECHANICAL CONN O APPROVED SHOP DRAWING SUBN NT AS RECOMMENDED BY MANUFA KACT LOCATION OF EQUIPMENT WI CAL CONTRACTOR SHALL FURNISH	MITTALS FOI CTURER. TH SUPPLIE	R EXACT	REQUIREM	MENTS URAL F	- PRIOR 1 PLANS P	RIOR TO IN	ISTALLA ⁻	TION.		ONS TO	ALL		

PLUMBING SCHEDULES

PIPE SUPPORT SCHEDULE

1/2"-1-1/4" | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" | 8" | 10" | 12"-UP | MAX. | ROD | PIPE MATERIAL SPACING SIZE SPACING STEEL 8' 3/8" 9' 3/8" 10' 3/8" 11' 1/2" 12' 1/2" 12' 5/8" 12' 3/4" 12' 7/8"

POLYETHYLENE 3' 3/8" 3' 3/8" 3' 3/8" NA 3/8" 4.5' 3/8" 6' 1/2" 6' 5/8" 6' 3/4" 6' 7/8" 1,2,3

PIPE SUPPORT SCHEDULE NOTES

- PIPING SUPPORT VERTICALLY EVERY 12' OR EVERY LEVEL WHICH EVER IS LESS. SPACING SCHEDULED IS THE MAXIMUM DISTANCE, SUPPORTS CAN BE INSTALLED IN SMALLER INTERVALS AND MAY NEED TO BE IF THE STRUCTURE CAN NOT HANDLE THE LOAD AT THE MAXIMUM SPACING, VERIFY WITH STRUCTURAL. A MINIMUM OF ONE SUPPORT FOR EVERY BRANCH OR PIPE SEGMENT IN EACH DIRECTION CHANGE SHALL BE PROVIDED. TWO (2) HANGERS MUST BE PROVIDED ON ALL
- LENGTH OF PIPE LONGER THAN 10'.
 ALL SUPPORTS SHOULD BE ANCHORED SECURELY TO THE STRUCTURE BUT NOT THE PIPING. THE SUPPORT SHOULD ALLOW FREE MOVEMENT CAUSED BY THERMAL EXPANSION. PIPING STRAPS AND CLAMPS THAT HOLD THE PIPING TIGHT TO THE STRUCTURE WILL NOT BE ALLOWED. TYPICAL ACCEPTABLE SUPPORTS INCLUDE BUT ARE NOT LIMITED TO CLEVIS HANGERS, ADJUSTABLE SWIVEL RING

PIPE MATERIAL AND INSULATION

SUPPORT, ROLLER HANGER AND DOUBLE BOLT PIPE CLAMP.

				PIPING	PIPING INSULATION					ALUE"				
PIPE	PIPE SIZE	RELATION TO GRADE	MATERIAL	FITTING TYPE	MIN. SLOPE	VALVES	COMPLY WITH	INSULATION TYPE	INSULATION MATERIAL	INSULATION THICKNESS	DENSITY LBS/FT^3	MIN.	AT TEMP	NOTES
DOMESTIC COLD WATER	1/2"-1-1/2"	ABOVE	TYPE "L" COPPER	LEAD FREE SOLDER	-	BALL	ASTM B 88	MOLDED SECTION	JACKETED FIBERGLASS	1/2"	3	.22	75	1,3
DOMESTIC COLD WATER	2"-UP	ABOVE	TYPE "L" COPPER	BRAZED	-	BALL, BUTTERFLY	ASTM B 88	MOLDED SECTION	JACKETED FIBERGLASS	1"	3	.22	75	1,3
DOMESTIC HOT WATER	1/2"-1-1/2"	ABOVE	TYPE "L" COPPER	LEAD FREE SOLDER	-	BALL	ASTM B 88	MOLDED SECTION	JACKETED FIBERGLASS	1"	3	.22	75	1,3
DOMESTIC HOT WATER	2"-UP	ABOVE	TYPE "L" COPPER	BRAZED	-	BALL, BUTTERFLY	ASTM B 88	MOLDED SECTION	JACKETED FIBERGLASS	1-1/2"	3	.22	75	1,3
DOMESTIC WATER	1/2"-UP	BELOW	TYPE "K" SOFT COPPER	NONE	-	NONE	ASTM B 88	-	-	-	-	-	-	2
EXPOSED KITCHEN WATER	1/2"-UP	ABOVE	TYPE "L" COPPER	BRAZED	-	BALL, BUTTERFLY	ASTM B 88	-	-	-	-	-	-	2
GAS (<5 PSI)	1/2"-1-1/2"	ABOVE	SCHEDULE 40 BLACK STEEL	THREADED	-	BALL	ASTM A 53	-	-	-	-	-		2
GREASE TRAP WASTE	2"-3"	BELOW	SERVICE WEIGHT CAST IRON	GASKETED	1/4"/12"	-	ASTM A 74 ASTM C564	-	-		-	-	-	2,4
GREASE TRAP WASTE	4"-UP	BELOW	SERVICE WEIGHT CAST IRON	GASKETED	1/8"/12"	-	ASTM A 74 ASTM C564	-	-		-	-		2,4
GREASE TRAP WASTE	1-1/2"-3"	ABOVE	CAST IRON	NO-HUB CISPI 310/NSF	1/4"/12"	-	ASTM A 888, CISPI 301	-	-		-	-	-	2,4
GREASE TRAP WASTE	2"-UP	BELOW	SCHEDULE 40 PVC	PRIMED AND GLUED	1/4"/12"	-	ASTM A 74 ASTM C564	-	-		-	-	-	2,4
SANITARY WASTE	2"-3"	BELOW	SERVICE WEIGHT CAST IRON	GASKETED	1/4"/12"	-	ASTM A 74 ASTM C564	-	-	-	-	-	-	2,4
SANITARY WASTE	4"-UP	ABOVE	CAST IRON	NO-HUB CISPI 310/NSF	1/8"/12"	-	ASTM A 888, CISPI 301	-	-	-	-	-	-	2,4
SANITARY WASTE	4"-UP	ABOVE	SCHEDULE 40 PVC	PRIMED AND GLUED	1/4"/12"	-	ASTM A 74 ASTM C564	-	-	-	-	-	-	2,4
EXPOSED KITCHEN WASTE	1-1/2"-UP	ABOVE	TYPE "L" COPPER	LEAD FREE SOLDER	1/8"/12"	-	ASTM A 88	-	-	-	-	-	-	2
WASTE VENT	2"-UP	BELOW	SERVICE WEIGHT CAST IRON	GASKETED	-	-	ASTM A 74	-	-	-	-	-	-	2,4
WASTE VENT	1-1/2"-UP	ABOVE	CAST IRON	NO-HUB CISPI 310/NSF	-	-	ASTM A 88, CISPI 301	-	-	-	-	-	-	2,4
HUMIDITY CONDENSATE	ALL	ABOVE	SCHEDULE 40 PVC	PRIMED AND GLUED	1/8"/12"	-	ASTM B 88	NON-SPLIT CLOSED CELL	FLEXIBLE ELASTOMERIC	1/2"	3	.25	75	1,4
REFRIGERANT (SPLIT SYSTEMS)	ALL	ABOVE	TYPE "L" COPPER	BRAZED	-	-	ASTM B 88	NON-SPLIT CLOSED CELL	FLEXIBLE ELASTOMERIC	1/2"	3	.22	75	,5

PIPE MATERIAL AND INSULATION GENERAL NOTES

- A. DOMESTIC WATER INSULATION REQUIREMENTS:
- 1. HOT WATER RECIRCULATION PIPING SHALL BE INSULATED PER INTERNATIONAL ENERGY
- 2. DOMESTIC COLD-WATER MAINS SHALL BE INSULATED WITH 1" THICK, HINGED WITH SELF SEALING LAP FIBERGLASS PIPE INSULATION. 3. NO INSULATION ON ANY OF THE PIPING SERVING APARTMENTS (UNITS) UNLESS REQUIRED
- B. INSTALL ALL PIPING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- ALL PIPING SHALL BE TESTED, CLEANED AND CERTIFIED FOR INTENDED USE. ALL PIPING LESS THAN 4 HOURS. PIPING TO BE CLEANED AND FLUSHED WITH CRITICAL CONTROL VALVES
- D. ALL FITTINGS CONNECTING TO DI-ELECTRIC FITTINGS SHALL BE SOFT SOLDERED TO THE
- PIPING. NO DI-ELECTRIC UNIONS SHALL BE USED. E. ALL WELDED PIPE AND FUSION WELDED SHALL BE WELDED BY A CERTIFIED WELDER/FUSION CONTRACTOR. ALL WELDING SHALL BE DONE BY A CERTIFIED WELDER (CERTIFICATED MUST BE SUBMITTED) AND ALL WORK SHALL BE STAMPED. BOLTED FLANGES SHALL BE INSTALLED ON 2" AND LARGER PIPE TO SECTIONALIZE SYSTEM INTO WORKABLE SECTIONS, INSULATION SHALL
- PROVIDE PIPE LABELING ON ALL NEW PIPING WITH PRE-PRINTED, COLOR-CODED WITH LETTERING MATCHING DRAWING DESIGNATIONS AND SHOWING FLOW DIRECTION. LETTERING MUST BE A MINIMUM OF 1-1/2" IN SIZE. PIPE LABELS SHALL BE ON ALL PIPING ABOVE ACCESSIBLE CEILINGS, EXPOSED AREAS, TUNNELS AND IN MECHANICAL ROOMS EVERY 30' AND AT ALL ACCESS DOORS. VERIFY LABEL COLORING SCHEME WITH ENGINEER AND OWNER PRIOR

PIPE MATERIAL AND INSULATION SCHEDULE NOTES

GO AROUND FLANGES.

- PROPERLY SEALED TO KEEP INTEGRITY OF VAPOR BARRIER INTACT. ALL INSULATION SHALL HAVE PVC JACKETS ON ALL ELBOWS AND THE ENTIRE PIPING SHALL BE JACKETED WITH PVC
- SCHEDULE 40 PVC DWV PIPING WITH PRIMED AND GLUED FITTINGS IS AN ACCEPTABLE ALTERNATIVE ONLY IF PIPING IS NOT SERVING ANY DRAINS THAT MAY HAVE WATER HOTTER THAN 140° IN IT OR EXPOSED IN ANY KITCHEN AND ALLOWED BY LOCAL CODES. ALL EXPOSED PIPING IN KITCHENS SHALL BE COPPER. INSTALL INSULATION ON PIPING IN A CEILING PLENUM RETURN ACCORDING TO REQUIREMENTS OF LOCAL JURISDICTION - 1 HOUR FIRE WRAP SHALL BE USED UNLESS LOCAL JURISDICTION ALLOWS ALTERNATIVE PRODUCTS. ALL
- ALL OUTDOOR REFRIGERANT PIPING SHALL BE PAINTED WITH UV RESISTANT PAINT AND SHALL BE CLEARLY LABELED WITH PLASTIC/PVC PIPE TAGS TO WHICH UNIT THE PIPING SERVES.

				PIP	ING SI	ZE TO FIX	(TURE		
MARK	FIXTURE	MANUFACTURER	MODEL#	CW	HW	WASTE	VENT	ACCESSORIES	FIXTURE DESCRIPTION AND OPTIONS
CO-1	CLEAN OUT	JAY R. SMITH	4020	-	-	4"	-	-	CAST IRON FIXTURE, PROVIDE NICKEL BRONZE ROUND ADJUSTABLE TOP, VERIFY TYPE OF FLOORING FOR TYPE OF TOP REQUIRED. FOR CARPET MARKER USE SUFFIX X
FD-1	FLOOR DRAIN	JAY R. SMITH	2005	. }	<u>.</u>	2"	1-1/2"	WITH 2'X2' CHLORALOY MEMBRANE (NOT REQUIRED FOR SLAB ON GRADE INSTALLATION)	PROVIDE FLASHING COLLAR, SEEPAGE OPENING AND NICKEL BRONZE ROUND ADJUSTABLE STRAINER. CAST IRON 12"X12"X6" DEEP, WHITE PORCELAIN COATED INTERIOR.
FS-1	FLOOR SINK	JAY R. SMITH	345-Y02	-	-	2"	1-1/2"	FOR SLAB ON GRADE INSTALLATION)	ALUMINUM DOME STRAINER, SEEPAGE OPENINGS, CLAMPING DEVICE AND WHITE ACID RESISTANT ENAMEL GRATE.
GT-1	GREASE INTERCEPTOR 100 GPM	SCHIER PRODUCTS	GB-250		-	4"	4		MOLDED POLYETHYLENE, CAPACITIES LIQUID: 277 GAL., GREASE; 1895 LBS, SOLIDS; 69 GAL., HIGHWAY TRAFFIC LOAD RATED, GAS/WATER TIGHT COMPOSITE COVERS WITH PUMPOUT PORT.
MV-1	MIXING VALVE	POWERS	LFE480	1/2"	1/2"	-	-	-	3/8" CONNECTIONS. ROUGH BRONZE CONSTRUCTION, MINIMUM FLOW 0.25 GPM AND MAXIMUM FLOW 4 GPM. SET AT 105° OUTLET TEMPERATURE WITH INTEGRAL CHECKS TO PREVENT CROSS FLOW AND INLET SCREENS.
U-1	URINAL	AMERICAN STANDARD	"WASHBR OOK" 6590.001	3/4"	-	2"	1-1/2"	SLOAN ROYAL 186-0.5 FLUSH VALVE, CONCEALED WALL CARRIER.	VITREOUS CHINA, WALL HUNG, TOP SPUD, 0.5 GPF, VERIFY ROUGH-IN HEIGHT TO LIP WITH ARCHITECTURAL ELEVATIONS.
VB-1	VALVE BOX	SIOUX CHIEF	696-G1000 MF	1/2"	-	-	-		WHITE SOLID PLAST OUTLET BOX WITH FRAME.
WH-1	WALL HYDRANT	WOODFORD	67 WITH C INLET	3/4"	-	-	-	-	CHROME PLATE WITH ANTI-SIPHON VACUUM BREAKER, AUTOMATIC DRAINING

PLUMBING FIXTURE SCHEDULE NOTES

- A. ALL VENT/WASTE PIPING UNDERGROUND MUST BE 2" OR LARGER IF NOT SHOWN ON DRAWINGS. B. FOLLOW PIPING SIZES AS SHOWN ON SCHEDULE UNLESS INDICATED OTHERWISE ON DRAWINGS.
- (H) INDICATES HANDICAP FIXTURE.
- . HAVE ALL PLUMBING FIXTURES APPROVED BY OWNER, ARCHITECT PRIOR TO ORDERING.
- TURN BALL VALVES UNDER ALL SINKS, COUNTER AND WALL HUNG LAVATORIES.

VALVE SCHEDULE

A. CALIBRATED BALANCE VALVES: SHALL BE A BRONZE OR BRASS BALL VALVE WITH A SET SCREW STOP.

PROVIDE SPECIFIED OR APPROVED EQUA

- B. BALL VALVE: SHALL BE NSF RATED FOR POTABLE WATER, BRASS OR BRONZE BODY WITH CHROME PLATED BRONZE BALL. C. BUTTERFLY VALVE: SHALL BE CAST IRON BODY WITH FLANGED ENDS, WAFFER
- STYLE VALVES ARE NOT ALLOWED. D. GATE VALVE: SHALL BE A BRONZE OR CAST IRON BODY WITH A RISING STEM AND
- SOLID BRONZE WEDGE E. GLOBE VALVE: SHALL BE A BRONZE OR CAST IRON BODY WITH A BRONZE DISC SYSTEMS SHALL BE PRESSURE TESTED WITH 1-1/2 TIMES THE OPERATING PRESSURE FOR NO F. ALL VALVES SHALL BE LINE SIZE FULL PORT INSTALLED WITH FULL STEM/HANDLE MOVEMENT. HANDLES SHALL NEVER BE INSTALLED VERTICALLY DOWN.

- 1. INSULATION & ADHESIVE SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS ACCORDING TO ASTM STANDARD AND NFPA 255. INSULATION SHALL BE INSTALLED BY A SKILLED INSTALLER IN A CLEAN WORKMANSHIP LIKE MANNER AFTER THE SYSTEM HAS BEEN PROPERLY TESTED. ALL JOINTS SHALL BE WHERE EXPOSED IN PUBLICLY ACCESSIBLE AREAS.
- NO INSULATION IS REQUIRED UNLESS PIPING IS A PLASTIC MATERIAL NOT MEETING 25 / 50 FLAME AND SMOKE RATING IN A RETURN AIR PLENUM (SEE NOTE 1 IF INSULATION IS
- 3. CROSS-LINKED POLYETHYLENE (PEX) PIPING WITH CRIMPED FITTINGS IS AN ACCEPTABLE ALTERNATIVE ONLY IF ALLOWED BY LOCAL CODES. INSULATION WILL STILL BE REQUIRED.
- UNDERGROUND PIPING SHALL BE INSTALLED PER ASTM D2321. 5. AFTER PIPING HAS BEEN INSTALLED, ENDS MUST BE CAPPED TO ENSURE THAT DEBRIS DOES NOT ENTER PIPING. PIPING MUST BE BRAZED WITH NITROGEN FLOWING IN THE SYSTEM.

PLUMBING FIXTURES

				PIP	ING SI	ZE TO FIX	KTURE		
MARK	FIXTURE	MANUFACTURER	MODEL#	CW	HW	WASTE	VENT	ACCESSORIES	FIXTURE DESCRIPTION AND OPTIONS
CO-1	CLEAN OUT	JAY R. SMITH	4020	-	-	4"	-	-	CAST IRON FIXTURE, PROVIDE NICKEL BRONZE ROUND ADJUSTABLE TOP, VERIFY TYPE OF FLOORING FOR TYPE OF TOP REQUIRED. FOR CARPET MARKER USE SUFFIX X
FD-1	FLOOR DRAIN	JAY R. SMITH	2005		<u>.</u>	2"	1-1/2"	WITH 2'X2' CHLORALOY MEMBRANE (NOT REQUIRED FOR SLAB ON GRADE INSTALLATION)	PROVIDE FLASHING COLLAR, SEEPAGE OPENING AND NICKEL BRONZE ROUND ADJUSTABLE STRAINER CAST IRON 12"X12"X6" DEEP, WHITE PORCELAIN COATED INTERIOR.
FS-1	FLOOR SINK	JAY R. SMITH	345-Y02	-	-	2"	1-1/2"	FOR SLAB ON GRADE INSTALLATION)	ALUMINUM DOME STRAINER, SEEPAGE OPENINGS, CLAMPING DEVICE AND WHITE ACID RESISTANT ENAMEL GRATE.
GT-1	GREASE INTERCEPTOR 100 GPM	SCHIER PRODUCTS	GB-250	-	-	4"	4		MOLDED POLYETHYLENE, CAPACITIES LIQUID: 277 GAL., GREASE; 1895 LBS, SOLIDS; 69 GAL., HIGHWAY TRAFFIC LOAD RATED, GAS/WATER TIGHT COMPOSITE COVERS WITH PUMPOUT PORT.
MV-1	MIXING VALVE	POWERS	LFE480	1/2"	1/2"	-	-	-	3/8" CONNECTIONS. ROUGH BRONZE CONSTRUCTION, MINIMUM FLOW 0.25 GPM AND MAXIMUM FLOW 4 GPM. SET AT 105° OUTLET TEMPERATURE WITH INTEGRAL CHECKS TO PREVENT CROSS FLOW AND INLET SCREENS.
U-1	URINAL	AMERICAN STANDARD	"WASHBR OOK" 6590.001	3/4"	-	2"	1-1/2"	SLOAN ROYAL 186-0.5 FLUSH VALVE, CONCEALED WALL CARRIER.	VITREOUS CHINA, WALL HUNG, TOP SPUD, 0.5 GPF, VERIFY ROUGH-IN HEIGHT TO LIP WITH ARCHITECTURAL ELEVATIONS.
VB-1	VALVE BOX	SIOUX CHIEF	696-G1000 MF	1/2"	-	-	-		WHITE SOLID PLAST OUTLET BOX WITH FRAME.
WH-1	WALL HYDRANT	WOODFORD	67 WITH C INLET	3/4"	-	-	-	-	CHROME PLATE WITH ANTI-SIPHON VACUUM BREAKER, AUTOMATIC DRAINING

- PROVIDE TRUEBRO LAV GUARD 2 INSULATION KIT ON ALL EXPOSED WASTE, HOT AND COLD WATER PIPING AND QUARTER
- F. PROVIDE QUARTER TURN BALL VALVE AT SUPPLY CONNECTION TO EACH PLUMBING FIXTURE.

ADVANCED ENGINEERING SYSTEMS

4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272 <u>www.a-e-sys.com</u>

(C) ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

Issued For DATE:04/05/2024



SCHEDULES - PLUMBING

HVAC SPECIFICATIONS

GENERAL CONSTRUCTION METHODS

- ALL WORK SHALL BE PER ALL APPLICABLE CODES, ORDINANCES, RULES & REGULATIONS AS WELL AS PER LOCAL UTILITY REQUIREMENTS AND THOSE OF OTHER AUTHORITIES HAVING JURISDICTION: THE ENTIRE INSTAULATION SHALL BE IN ACCORDANCE WITH CURRENT MODERN INDUSTRY STANDARDS USING FIRST GRADE FOLIPMENT & MATERIALS NEW & PREVIOUSLY UNUSED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS. LICENSES. FEES & INSPECTIONS.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VISIT THE JOB SITE AND BECOME INTIMATELY FAMILIAR WITH EXISTING CONDITIONS AS WELL AS WITH CONSTRUCTION DOCUMENTS. PLANS ARE SCHEMATIC IN NATURE AND SHOW GENERAL ARRANGEMENT OF SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL LABOR & MATERIALS TO PROVIDE THE ENTIRE PROJECT AS A READY TO OPERATE
- ALL SPACES MUST BE KEPT COMPLETELY CLEAN. A DUST BARRIER AND NEGATIVE AIR PRESSURE IN WORK AREA IS RESPONSIBILITY OF CONTRACTOR. COORDINATE WITH OWNER (EXHAUST DUCT OUTDOORS) ALL CUTTING & PATCHING IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK
- SHALL BE DONE IN A NEAT & WORKMANLIKE MANNER BY SKILLED CRAFTSMEN. PIPE OPENINGS THROUGH FLOORS SHALL BE DRILLED (UP TO 1" IN SIZE) OR CORED THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGE CAUSED TO THE
- PROJECT WITHOUT COST TO THE OWNER. ANY CONFLICTS BETWEEN CONSTRUCTION DOCUMENTS. CODES & MANUFACTURER'S INSTALLATION RECOMMENDATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION AS SOON AS POSSIBLE AND
- BEFORE INSTALLATION. THE CONTRACTOR SHALL BID THE LARGER QUANTITY OR BETTER QUALITY OF WORK, IF THERE ARE CONFLICTS. FIRE & SMOKE INTEGRITY OF ALL WALLS, FLOORS, CEILINGS, ETC. SHALL BE MAINTAINED: BARRIERS SHALL BE PROVIDED AS REQUIRED. MATERIALS USED SHALL
- BE UL CLASSIFIED & FACTORY MUTUAL APPROVED. INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS & UL STANDARDS CONTRACTOR SHALL SUBMIT ELECTRONIC COPIES OF SHOP DRAWINGS DETAILING ALL MATERIALS & EQUIPMENT PROPOSED TO BE USED.
- CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT & LABOR FOR A MINIMUM PERIOD OF ONE YEAR UNLESS A LONGER PERIOD IS SPECIFIED ELSEWHERE FROM DATE OF SUBSTANTIAL COMPLETION & FINAL ACCEPTANCE OF
- CONTRACTOR SHALL PROVIDE "AS-BUILT" RECORD DRAWINGS AT END OF PROJECT. CONTRACTOR SHALL PROVIDE OPERATION & MAINTENANCE MANUALS AND OWNER TRAINING TO OWNER AND/OR OWNER'S REPRESENTATIVE ON OPERATION AND MAINTENANCE PROCEDURES. TRAINING SESSIONS SHALL PROVIDE OWNER WITH TRAINING ON FOLIPMENT AND OVERALL SYSTEM

230500 GENERAL REQUIREMENTS - HVAC

- I.1 SUBMITTALS A. PRODUCT DATA: FOR THE FOLLOWING:
- ALL SCHEDULED FOUIPMENT AND PIPING WEI DING CERTIFICATES WARRANTIFS
- COMPLETE CERTIFIED TAB REPORTS THREE (3) COPIES OF O&M MANUALS
- 1.2 DELIVERY, STORAGE, AND HANDLING DUCTWORK AND EQUIPMENT MUST BE COVERED WHEN BEING STORED ON SITE TO PREVENT ENTRANCE OF DIRT, DEBRIS, AND MOISTURE. DUCTWORK MUST BE CLEAN ON THE INSIDE BEFORE INSTALLATION.
- ARRANGE FOR DUCT SPACES, CHASES, SLOTS, AND OPENINGS IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR HVAC
- COORDINATE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY
- ARE CONSTRUCTED COORDINATE REQUIREMENTS FOR ACCESS PANELS AND DOORS FOR HVAC ITEMS REQUIRING ACCESS THAT ARE CONCEALED BEHIND FINISHED SURFACES
- 1.4 HVAC DEMOLITION
- DISCONNECT, DEMOLISH, AND REMOVE HVAC SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED TO BE REMOVED. DUCTS TO BE REMOVED: REMOVE PORTION OF DUCTS INDICATED TO BE
- REMOVED AND PLUG REMAINING DUCTS WITH SAME OR COMPATIBLE DUCTWORK MATERIAL. 2. DUCTS TO BE ABANDONED IN PLACE: CAP OR PLUG DUCTS WITH SAME OR
- COMPATIBLE DUCTWORK MATERIAL. 3. EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE **FQUIPMENT**
- B. IF DUCT, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.
- 1.5 COMMON REQUIREMENTS A. DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED LOCATIONS AND ARRANGEMENTS
- NERE USED TO SIZE PIPE AND CALCULATE FRICTION LOSS, EXPANSION, PUMP SIZING, AND OTHER DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS. PROVIDE LABELING ON ALL NEW DUCT WITH PRE-PRINTED, COLOR-CODED WITH LETTERING MATCHING DRAWING DESIGNATIONS AND SHOWING FLOW DIRECTION. LETTERING MUST BE A MINIMUM OF 1-1/2" IN SIZE. PIPE LABELS SHALL BE ON ALL
- PIPING ABOVE ACCESSIBLE CEILINGS, EXPOSED AREAS, TUNNELS AND IN MECHANICAL ROOMS EVERY 30' AND AT ALL ACCESS DOORS. VERIFY LABEL COLORING SCHEME WITH ENGINEER AND OWNER PRIOR TO ORDERING. INSTALL DUCTWORK IN CONCEALED LOCATIONS. UNLESS OTHERWISE INDICATED
- AND EXCEPT IN FOUIPMENT ROOMS AND SERVICE AREAS INSTALL DUCTWORK ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE
- FOR CEILING PANEL REMOVAL INSTALL DUCTWORK TO ALLOW FOR APPLICATION OF INSULATION
- INSTALL ESCUTCHEONS FOR PENETRATIONS OF WALLS, CEILINGS, AND FLOORS.
- SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED HOLES. PERMANENT SLEEVES ARE NOT REQUIRED FOR HOLES FORMED BY REMOVABLE PE
- INSTALL SLEEVES FOR DUCTS PASSING THROUGH CONCRETE AND MASONRY WALLS AND CONCRETE FLOOR AND ROOF SLABS. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS. PARTITIONS, CEILINGS, AND FLOORS AT DUCT PENETRATIONS. INSTALL REQUIRE
- DAMPERS AND SEAL PENETRATIONS WITH FIRESTOP MATERIALS. VERIFY FINAL EQUIPMENT LOCATIONS FOR ROUGHING-IN. INSTALL EQUIPMENT LEVEL AND PLUMB AND TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS ARE NOT INDICATED. ALL FOLJIPMENT SHALL BE INSTALLED TO ALLOW FOR PROPER MAINTENANCE
- ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. M INSTALL HANGERS SUPPORTS AND ATTACHMENTS AS REQUIRED TO PROPERLY SUPPORT DUCTWORK FROM THE BUILDING STRUCTURE . IF DUCT IS GOING TO BE PAINTED. THOROUGHLY CLEAN AND DRY OUTSIDE OF DUCT
- WITH A WARM SOAPY SOLUTION CONSISTING OF "SIMPLE GREEN" CLEANER AND WATER PRIOR TO BEING PAINTED. THIS SHALL BE WITNESSED BY THE GENERAL CONTRACTOR AND PAINTER ALL TURNING VANES SHALL BE DOUBLE WALL GALVANIZED STEEL CONSTRUCTION
- VANES SET INTO A VANE RUNNER WITH SUPPORTS PERPENDICULAR TO VANE. RUNNER SHALL BE MOUNTED TO DUCT. VANES SHALL BE PROVIDED IN ALL SQUARE FLEXIBLE DUCT CONNECTIONS SHALL BE MADE FROM FLAME-RETARDANT OR
- NONCOMBUSTIBLE FABRICS, ANY COATINGS MUST COMPLY WITH UL 181, CLASS 1. CONNECTOR SHALL BE FACTORY FABRICATED WITH A 3-1/2" OR 5-3/4" FABRIC STRIP BETWEEN 2 STRIPS OF GALVANIZED SHEET STEEL. HIGH EFFICIENCY TAKE OFFS SHALL BE SINGLE PIECE CONSTRUCTION OR PRE-
- SEALED BY THE FACTORY, DAMPER HANDLE STANDOFFS SHALL BE PROVIDED WHEN DUCT IS TO BE WRAPPED. DAMPER HANDLES MUST BE LOCKABLE AT ANY POSITION TAKEOFF SHALL BE PRE-SFALED ON BOTTOM FLANGE TO CONNECT TO MAIN DUCT ALL JOINTS SEAMS AND CONNECTIONS (LONGITUDINAL AND TRANSVERSE) EXCEP
- CONTINUOUSLY WELDED OR LOCKING JOINTS ON DUCTS OPERATING AT LESS THAN 2" WG PRESSURE, AND CONNECTIONS BETWEEN DUCT AND EQUIPMENT SHALL BE SECURELY SEALED USING:
- MECHANICAL FASTENERS WITH SEALS, GASKETS OR MASTICS MESH AND MASTIC SEALING SYSTEM (MUST BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OF UL 181B)
- TAPE (MUST BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OF UL 181B) HVAC CONTRACTOR TO PROVIDE AND INSTALL ALL REQUIRED THERMOSTAT AND CONTROL WIRING TO THERMOSTATS, MOTORIZED DAMPERS, TRANSFORMERS, TIME-
- CLOCKS, ETC. ALL MOTORIZED DAMPERS TO BE 24 VOLT. ALL PIPING AND DUCTWORK SHALL BE LABELED WITH PRE-PRINTED, COLOR-CODED WITH LETTERING MATCHING DRAWING DESIGNATIONS AND SHOWING FLOW DIRECTION, PIPING AND DUCTWORK IN EXPOSED PUBLIC AREAS SHALL NOT BE LABELED. LABELS SHALL BE INSTALLED AT A MINIMUM OF EVERY 20' AND EACH
- PIECE OF EQUIPMENT ALL EQUIPMENT SHALL BE LABELED WITH ALUMINUM. STAINLESS STEEL OR PLASTIC (ABLE TO WITHSTAND 160°F) EQUIPMENT TAGS. LABELS MUST BE A MINIMUM OF 3" WIDE BY 2" TALL AND SECURED TO THE EQUIPMENT WITH RIVETS OR PERMANENT ADHESIVES.

230700 HVAC INSULATION

VAPOR-BARRIER MASTIC

1.1 GENERAL INSULATION REQUIREMENTS

- A. INSTALL INSULATION MATERIALS, ACCESSORIES, AND FINISHES WITH SMOOTH. STRAIGHT AND EVEN SURFACES FREE OF VOIDS THROUGHOUT THE LENGTH O DUCTS AND FITTINGS INSTALL INSULATION MATERIALS VAPOR BARRIERS OR RETARDERS, JACKETS, AND THICKNESSES REQUIRED FOR EACH ITEM OF DUCT SYSTEM AS SPECIFIED IN INSULATION SYSTEM SCHEDULES.
- B. INSTALL INSULATION WITH LONGITUDINAL SEAMS AT TOP AND BOTTOM OF HORIZONTAL RUNS. INSTALL MULTIPLE LAYERS OF INSULATION WITH LONGITUDINAL AND END SEAMS STAGGERED. INSTALL INSULATION WITH TIGHT LONGITUDINAL SEAMS AND END JOINTS. BOND SEAMS AND JOINTS WITH ADHESIVE RECOMMENDED BY INSULATION MATERIAL MANUFACTURER.
- INSTALL INSULATION WITH LEAST NUMBER OF JOINTS PRACTICAL. WHERE VAPOR BARRIER IS INDICATED, SEAL JOINTS, SEAMS, AND PENETRATIONS IN INSULATION AT HANGERS, SUPPORTS, ANCHORS, AND OTHER PROJECTIONS WITH
- INSTALL INSULATION CONTINUOUSLY THROUGH HANGERS AND AROUND ANCHOR ATTACHMENTS. F. FOR INSULATION APPLICATION WHERE VAPOR BARRIERS ARE INDICATED, EXTEND INSULATION ON ANCHOR LEGS FROM POINT OF ATTACHMENT TO SUPPORTED ITEM TO POINT OF ATTACHMENT TO STRUCTURE. TAPER AND SEAL ENDS AT ATTACHMEN
- TO STRUCTURE WITH VAPOR-BARRIER MASTIC. G. INSTALL INSERT MATERIALS AND INSTALL INSULATION TO TIGHTLY JOIN THE INSERT SEAL INSULATION TO INSULATION INSERTS WITH ADHESIVE OR SEALING COMPOUND
- RECOMMENDED BY INSULATION MATERIAL MANUFACTURER. H. INSTALL INSULATION WITH FACTORY-APPLIED JACKETS AS SPECIFIED IN INSULATION SYSTEM SCHEDULE.
- CUT INSULATION IN A MANNER TO AVOID COMPRESSING INSULATION MORE THAN 75 PERCENT OF ITS NOMINAL THICKNESS. FINISH INSTALLATION WITH SYSTEMS AT OPERATING CONDITIONS. REPAIR JOINT SEPARATIONS AND CRACKING DUE TO THERMAL MOVEMENT.
- K. REPAIR DAMAGED INSULATION FACINGS BY APPLYING SAME FACING MATERIAL OVER DAMAGED AREAS. EXTEND PATCHES AT LEAST 4 INCHES (100 MM) BEYOND DAMAGED AREAS. ADHERE, STAPLE, AND SEAL PATCHES SIMILAR TO BUTT JOINTS. INSTALL INSULATION CONTINUOUSLY THROUGH ALL ROOF, WALL, AND FLOOR PENETRATIONS
- 1.2 FIRE-RATED INSULATION SYSTEM INSTALLATION
- A. WHERE FIRE-RATED INSULATION SYSTEM IS INDICATED, SECURE SYSTEM TO DUCTS AND DUCT HANGERS AND SUPPORTS TO MAINTAIN A CONTINUOUS FIRE RATING. B. INSULATE DUCT ACCESS PANELS AND DOORS TO ACHIEVE SAME FIRE RATING AS
- C. INSTALL FIRESTOPPING AT PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES.

230593 TESTING, ADJUSTING, AND BALANCING FOR HVAC

- 1.1 SUBMITTALS A. SUBMIT 3 COPIES OF CERTIFIED TAB WRITTEN REPORTS. REPORTS MUST BE
- APPROVED BY DESIGN TEAM B. DESIGN TEAM HAS THE RIGHT TO SPOT CHECK AND CONFIRM BALANCED SYSTEMS ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BALANCING CONTRACTOR AND ANY REBALANCING SHALL BE DONE AT NO ADDITIONAL COST
- 1.2 ONLY APPROVED CONTRACTORS ALLOWED
- . AIR AND FLUID MANAGEMENT, 217 S WILSON STREET, WILBER NE 68465 BALCON AIR AND WATER BALANCING, 7905 L STREET, OMAHA NE 68358 SYSTEMS MANAGEMENT AND BALANCING, 925 SE OLSON DR, WAUKEE IA 50263
- . MMC TESTING AND BALANCING, 9751 S 142ND STREET, OMAHA NE 68138
- 1.3 GENERAL PROCEDURES FOR BALANCING SYSTEMS A. PREPARE TEST REPORTS FOR BOTH FANS AND OUTLETS. OBTAIN MANUFACTURER'S OUTLET FACTORS AND RECOMMENDED TESTING PROCEDURES. CROSSCHECK THE
- SUMMATION OF REQUIRED OUTLET VOLUMES WITH REQUIRED FAN VOLUMES. BALANCING CONTRACTOR SHALL BALANCE ALL AIR AND WATER FLOW RATES AS
- REQUIRED TO BE WITHIN A TOLERANCE OF -10% TO +5% OF DESIGN DOCUMENTS BALANCER SHALL WORK WITH ENGINEER TO ADJUST SYSTEMS AND CALIBRATE TO ACHIEVE SPECIFIED PRESSURE DIFFERENTIALS
- D. COORDINATE WITH MANUFACTURER ON MINIMUM AND MAXIMUM WITH SET POINTS FOR EQUIPMENT, DAMPERS, AND VALVES. WORK WITH CONTROLS TO SET VALUES
- 1.4 FINAL REPORT A. GENERAL: PREPARE A CERTIFIED WRITTEN REPORT; TABULATE AND DIVIDE THE REPORT INTO SEPARATE SECTIONS FOR TESTED SYSTEMS AND BALANCED
- 1. INCLUDE A CERTIFICATION SHEET AT THE FRONT OF THE REPORT'S BINDER, SIGNED AND SEALED BY THE CERTIFIED TESTING AND BALANCING ENGINEER. INCLUDE A LIST OF INSTRUMENTS USED FOR PROCEDURES. ALONG WITH PROOF OF CALIBRATION.

235000 HVAC EQUIPMENT

- A. INSTALL GAS-FIRED FURNACES AND ASSOCIATED FUEL AND VENT FEATURES AND SYSTEMS ACCORDING TO NFPA 54 AND MANUFACTURER'S RECOMMENDATIONS.
- B. COMPLETE INSTALLATION AND STARTUP CHECKS AND START UNITS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. C. SET CONTROLS. BURNER. AND OTHER ADJUSTMENTS FOR OPTIMUM HEATING
- PERFORMANCE AND FEELCIENCY ADJUST HEAT-DISTRIBUTION FEATURES. INCLUDING SHUTTERS, DAMPERS, AND RELAYS, TO PROVIDE OPTIMUM HEATING PERFORMANCE AND SYSTEM FEFICIENCY
- D. INSTALL NEW FILTERS IN EACH UNIT WITHIN 14 DAYS AFTER SUBSTANTIAL COMPLETION E. INSTALL UNITS LEVEL AND PLUMB, FIRMLY ANCHORED IN LOCATIONS INDICATED;
- MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES. F. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.

233300 HVAC AIR DUCT ACCESSORIES

- 1.1 COMMON REQUIREMENTS
- A. FIRE DAMPERS SHALL BE DYNAMIC TYPE RATED AND LABELED ACCORDING TO UL 555. DAMPERS SHALL BE RATED UP TO 2" WG STATIC PRESSURE AND MINIMUM 2000. FPM VELOCITY FIRE RATING SHALL BE 1-1/2 HOUR FRAME SHALL BE A CURTAIN TYPE WITH BLADES OUTSIDE OF THE AIR STREAM MOUNTING SLEEVE SHALL BE FACTORY INSTALLED. ALL DAMPERS SHALL BE RATED TO BE INSTALLED IN THE HORIZONTAL OR VERTICAL POSITION. COORDINATE MOUNTING ORIENTATION WITH PLANS. REPLACEABLE 165°F FUSIBLE LINK SHALL BE USED. DAMPER MUST BE INSTALLED
- ACCORDING TO MANUFACTURER INSTALLATION INSTRUCTIONS. B. SMOKE DAMPERS SHALL BE LEAKAGE CLASS I RATED AND LABELED ACCORDING TO UL 555S. FRAME SHALL BE CONSTRUCTED WITH NO WELDING AND HAVE MOUNTING FLANGES. DAMPERS SHALL BE OF THE SAME MATERIAL AS THE CONNECTING DUCT. BLADE SEALS SHALL BE RATED FOR 350°F. DAMPER SHALL BE A FAIL CLOSE UNLESS SPECIFIED OTHERWISE. ACTUATOR SHALL BE TWO-POSITION UNLESS SPECIFIED AS MODULATING WITH POSITION INDICATING AND MOMENTARY TEST SWITCH.
- ACTUATOR TO BE MOUNTED OUTSIDE OF DUCT. DAMPER MUST BE INSTALLED ACCORDING TO MANUFACTURER INSTALLATION INSTRUCTIONS. COMBINATION FIRE-SMOKE DAMPERS SHALL MEET REQUIREMENTS FOR FIRE AND
- SMOKE DAMPERS. D. FLANGE CONNECTIONS SHALL BE ADD OR ROLL FORM TO MATCH CONNECTING
- DUCTWORK NO FOAM TAPE OR PLASTIC CLEATS ARE ALLOWED. TURNING VANES SHALL BE DOUBLE WALL CONSTRUCTION AND BE CONSTRUCTED
- ACCORDING TO SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS ACCESS DOORS SHALL BE CONSTRUCTED ACCORDING TO SMACNA'S HVAC DUCT
- CONSTRUCTION STANDARDS. PROVIDE FOAM GASKETING. G. FLEXIBLE CONNECTORS SHALL COMPLY WITH UL 181, CLASS 1. CONNECTORS MUST BE INSTALLED WITH 1" OF SLACK.

MECHANICAL ABBREVIATIONS

GENERAL LIST - NOT ALL MAY APPLY EXISTING INSUL RELOCATED

(E)

(R)

(D)

ACH

ADJ

AHJ

ALT

ANSI

APPROX

ARCH

ASHRAE

ASME

ASTM

AVG

BAS

BFP

BJS

BLDG

BTU

BTUH

CAP

CFM

CLG

CUFT

DB

DCW

DECO

DEG, °

DEMO

DFU

DIA, Ø

DHW

DN

DWG

EAT

ECO

EER

EFF

EQUIP

ESP

EWT

EXIST

FDC

FPM

FSC

FUT

GAL

GALV

DEMOLISHED

ALTERNATE

BUILDING

CAPACITY

COOLING

CUBIC FEET

DRY BULB

DEGREE(S)

DEMOLITION

DIAMETER

DOWN

DRAWING

EFFICIENCY

EQUIPMENT

EXISTING

DOMESTIC COLD WATER

DRAINAGE FIXTURE UNITS

ENTERING AIR TEMPERATURE

ENERGY EFFICIENCY RATIO

EXTERNAL STATIC PRESSURE

ENTERING WATER TEMPERATURE

DOMESTIC HOT WATER

EXTERIOR CLEANOUT

DOUBLE EXTERIOR CLEANOUT

KILOWATT LEAVING AIR TEMPERATURE AIR CHANGES PER HOUF LBS POUNDS ADJACENT, ADJUSTABLE LWT LEAVING WATER TEMPERATURE ABOVE FINISHED FLOOR MAXIMUM **AUTHORITY HAVING JURISDICTION** MBH THOUSAND BTU'S PER HOUF MECH MECHANICAL AMERICAN NATIONAL STANDARDS INSTITUTE MECHANICAL CONTRACTOR **APPROXIMATELY** MINIMUM CIRCUIT AMPACITY ARCHITECT, ARCHITECTURE AMERICAN SOCIETY OF HEATING AND MANUFACTURER MINIMUM REFRIGERATION ENGINEERS MISC MISCELLANEOUS AMERICAN SOCIETY OF MECHANICAL ENGINEERS MAXIMUM OVER CURRENT PROTECTION MOP AMERICAN SOCIETY OF TESTING AND MATERIALS MTL METAL NORMALLY CLOSED BUILDING AUTOMATION SYSTEM NATIONAL FIRE PROTECTION ASSOCIATION **BACKFLOW PREVENTER** NORMALLY OPEN **BELOW JOIST SPACE** NOT TO SCALE OPNG OPENING **BRITISH THERMAL UNITS** PLUMBING CONTRACTOR BRITISH THERMAL UNITS PER HOUR PRESSURE DROP PH, Ø **CUBIC FEET PER MINUTE** POST INDICATOR VALVE PLUMBING

PRESSURE REDUCING VALVE POUNDS PER SQUARE INCH POUNDS PER SQUARE INCH, GAUGE **PSIG** QTY RCP REFLECTED CEILING PLAN RECIRC RECIRCULATION REQD REQUIRED REV REVISION RELATIVE HUMIDITY REVOLUTIONS PER MINISTE

INSULATION

REDUCED PRESSURE ZONE SCHED SCHEDULE SENS SENSIBLE SEASONAL ENERGY EFFICIENCY RATIO SEER SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION SPEC **SPECIFICATION** SQFT, FT2 SQUARE FEE STD STANDARD SURFACE SURF

WATER SUPPLY FIXTURE UNITS

VARIABLE FREQUENCY DRIVE

FAHRENHEI^T FIRE DEPARTMENT CONNECTION SUSPENDED FEET PER MINUTE TEMPERATURE DIFFERENTIAL FOOD SERVICE CONTRACTOR TEMPERATURE TEMP FOOT FEET THROUGH JOIST SPACE **FUTURE** TOTAL STATIC PRESSURE GALLON(S) GALVANIZED UNDER FLOOR GENERAL CONTRACTOR UNDERWRITERS LABORATORIES UNIFORM MECHANICAL CODE UNIFORM PLUMBING CODE

WSFU

VERT

VFD

VOLT

VERTICAL

VENT THRU ROOF

GC GPH GALLONS PER HOUF GPM **GALLONS PER MINUTE** HORIZ HORIZONTAL WATTS HP HORSEPOWER WET BULB WB HTG HEATING WATER COLUMN HEATING, VENTILATION, & AIR CONDITIONING WATER GAUGE INTERNATIONAL BUILDING CODE WEIGHT WGHT WATER PRESSURE DROP WPD

INVERT ELEVATION INTERNATIONAL ENERGY CONSERVATION CODE IECC IFC INTERNATIONAL FIRE CODE IJS IN JOIST SPACE INCH(ES) INTERNATIONAL MECHANICAL CODE IMC

INTERNATIONAL PLUMBING CODE

SENERAL LIST - NOT ALL MAY APPLY KEY NOTE CROSS SECTION INDICATOR D = DFTAIL DRAWING P = PARTIAL DRAWING R = RISER DIAGRAM S = CROSS SECTION DRAWING NEW TO EXISTING CONNECTION (E) XX EXISTING DUCT ZZZZZ DEMOLITION DUCT DUCT BREAK MARK — ■FD FIRE DAMPER IN DUCT SMOKE DAMPER IN DUCT

FIRE/SMOKE DAMPER IN DUCT MOTORIZED MECHANICAL DAMPER IN DUCT MANUAL VOLUME DAMPER IN DUCT BACK DRAFT DAMPER IN DUCT TURNING VANES IN ELBOW =INSIDE AND OUTSIDE RADIUS ELBOW \boxtimes SUPPLY AIR DUCT CROSS SECTION

RETURN AND FRESH AIR DUCT CROSS SECTION EXHAUST AIR DUCT CROSS SECTION SPIRAL SINGLE WALL SPIRAL DUCT Ø DWS DOUBLE WALL INSULATED SPIRAL DUCT

SUPPLY DIFFUSER SUPPLY REGISTER RETURN GRILLE

RETURN GRILLE **EXHAUST GRILLE**

SQUARE TO ROUND FITTING HIGH EFFICIENCY DUCT TAKE OFF ROUND TO ROUND FITTING

X"Ø SD(E) EXISTING SUPPLY DIFFUSER

X"Ø SD(R) RELOCATED EXISTING SUPPLY DIFFUSER

EXISTING RETURN GRILLE RELOCATED EXISTING RETURN GRILLE

SUPPLY AIR DUCT RETURN AIR DUCT FRESH AIR DUCT FA

MUA MAKE UP AIR DUCT

XXXX S = SENSOR T = THERMOSTAT (X-X) EQUIPMENT DESIGNATION

GENERAL PROJECT NOTES

- THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, CITY, STATE AND NATIONAL CODES, LAWS, ACTS AND ORDINANCES AND ALL AUTHORITIES HAVING JURISDICTION, THE OWNERS INSURANCE COMPANY REQUIREMENTS, LITHLITY COMPANY REQUIREMENTS APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE AND SAFETY THE MANUFACTURER'S STRICTEST REQUIREMENTS AND RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION
- DRAWINGS ARE LARGELY SCHEMATIC IN NATURE. THOUGH A LOT OF DETAILS MAY BE SHOWN THEY ARE NOT INTENDED TO SHOW EVERY DETAIL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH ALL OTHER TRADES AND EXISTING/SITE CONDITIONS TO PROVIDE A FULLY FUNCTIONAL SYSTEM PER THE INTENT OF DESIGN ALL REQUIRED PIPING, SUPPORTS AND DUCTS SHALL BE PROVIDED FOR A FULLY FUNCTIONAL SYSTEM PER THE DESIGN INTENT. IF ROUTING IS NOT SHOWN ON THE PLANS, COORDINATE WITH THE ENGINEER PRIOR TO BIDDING.
- IF ANY CONFLICTING INFORMATION IS PROVIDED ON THE DRAWINGS, THE MORE STRINGENT/EXPENSIVE SHOULD BE BID UNLESS A ADDENDUM CAN BE ISSUED IN TIME TO CORRECT THE SITUATION
- **SENERAL COORDINATION** ALL WORK SHALL BE COORDINATED BETWEEN TRADES BEFORE ANY
- CONSTRUCTION/ FABRICATING BEGINS IN A "KICK-OFF" MEETING. CONTACT ENGINEER/ ARCHITECT FOR QUESTIONS IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE WITH THE ELECTRICAL CONTRACTOR ON ALL ELECTRICAL REQUIREMENTS FOR THE EQUIPMENT PRIOR TO

RESPONSIBILITY OF THE MECHANICAL CONTRACTOR / SUPPLIER AT

NO ADDITIONAL COST TO THE PROJECT. NO DUCT OR PIPING SHALL BE INSTALLED ABOVE ANY ELECTRICAL

ORDERING, ALL REQUIREMENT CHANGES SHALL BE THE

- EXACT LOCATION OF ALL PIPING DUCTS DIFFUSERS GRILLES AND SUPPORTS SHALL BE COORDINATED WITH STRUCTURE, LIGHTS. CEILING GRID. HVAC. PLUMBING FIXTURES. COORDINATE LOCATION WITH FIRE SPRINKLER PIPING IF APPLICABLE. SEE ELECTRICAL LIGHTING PLANS AND ARCHITECTURAL REFLECTED CEILING PLANS FOR COORDINATION.
- EXACT ROUTING OF ALL DUCT AND PIPING THROUGH THE ROOF/WALLS SHALL BE COORDINATED WITH STRUCTURE. VERIFY LOCATION WITH GC/ ARCHITECT PRIOR TO CUTTING HOLES
- WHEN ALL WORK IS COMPLETED NO MATERIALS SHALL BE LEFT ON SITE UNLESS SPECIFICALLY REQUESTED BY THE OWNER. ALL MATERIALS TO BE DISPOSED OF PROPERLY
- CONTRACTOR TO FIRE SEAL WALLS, CEILINGS AS REQUIRED AND MAINTAIN ALL FIRE RATINGS.

PRIOR APPROVALS AND FILE SHARING

- ALL SHEETS REQUESTED IN CAD (.DWG) FORMAT SHALL BE PROVIDED AT A CHARGE OF \$25/SHEET (MINIMUM \$250). FOR FIRE ALARM AND FIRE SPRINKLER CONTRACTORS. ALL OTHERS REQUESTING CAD FILES SHALL BE CHARGED \$50/SHEET (MINIMUM \$250). PRIOR TO TRANSMISSION OF FILES, THE REQUESTING PARTY MUST SIGN AND RETURN "DOCUMENT DISCLAIMER" TO AES.
- PRIOR APPROVAL OF MECHANICAL, ELECTRICAL AND PLUMBING SUBSTITUTION PRODUCTS IS NOT REQUIRED.
- PROPOSED SUBSTITUTIONS OF MECHANICAL, ELECTRICAL AND PLUMBING PRODUCTS MAY BE SUBMITTED FOR REVIEW DURING THE SHOP DRAWING/ PRODUCT DATA SUBMITTAL STAGE
- PROPOSED SUBSTITUTIONS SHALL BE EQUAL TO OR SUPERIOR IN ALL RESPECTS TO THE SPECIFIED PRODUCT
- PROPOSED SUBSTITUTIONS SHALL HAVE THE SAME WARRANTY AS THE SPECIFIED PRODUCT PROPOSED SUBSTITUTIONS WILL HAVE NO ADVERSE EFFECT ON THE
- PROPOSED SUBSTITUTION WILL NOT AFFECT DIMENSIONS AND FUNCTIONAL CLEARANCES.
- PRODUCT DATA AND SHOP DRAWING FOR PROPOSED SUBSTITUTIONS MUST BE PROJECT SPECIFIC AND INCLUDING ALL COMPONENTS IDENTIFIED FOR COMPARISON TO THE ORIGINAL PRODUC1
- THE BURDEN OF PROOF OF THE EQUIVALENCE ON THE PROPOSED SUBSTITUTION IS ON THE PROPOSER.
- ONLY BE 3'-0" MIN 5'-0" MAX NEAR THE DIFFUSER AS SHOWN IN THE SUPPLY DIFFUSER DETAIL. DUCT RUNNING IN THE WEBBING OF THE JOISTS MUST ALSO BE HARD DUCT.

ALL ROUND DUCT SHOWN MUST BE HARD DUCT, FLEX DUCT MAY

ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS. DUCT SIZE TO DIFFUSERS, REGISTERS, GRILLES, ETC. SHALL BE SIZE

OF NECK UNLESS OTHERWISE STATED.

- ALL DUCT ELBOWS SHALL BE RADIUS-RADIUS OR SQUARE WITH TURNING VANES. CONTRACTOR IS RESPONSIBLE FOR ALL TRANSITIONS, ELROWS
- STRUCTURE PROVIDED. HIGH EFFICIENCY DUCT TAKE-OFFS (HET) WITH INTEGRAL DAMPERS MUST BE INSTALLED AT EACH TAKE-OFF ON ALL DUCTS (SA,RA,XA,OA...). HET SHALL BE A ONE PIECE OR FACTORY SEALED FITTING WITH PRE-INSTALLED GASKETED FLANGE TO CONNECT TO DUCT. WHERE A HIGH EFFICIENCY TAKE-OFF WILL NOT FIT BECAUSE OF STRUCTURE A SIMPLE DUCT COLLAR MAY BE USED ALONG WITH AN OPPOSED BLADE DAMPER AT THE DIFFUSER. EVERY LOCATION WITH AN OPPOSED BLADE DAMPER IN THE DIFFUSER MUST BE APPROVED BY ENGINEER BEFORE INSTALLATION. ALL DAMPERS

OFFSETS IN DUCT TO MAKE SYSTEMS FIT WITHIN SPACE AND

SUPPORT FOR INSULATED DUCT. ALL DAMPERS SHALL BE INSTALLED AT AN EASILY ACCESSIBLE

SHALL HAVE A LONG STEM (THROUGH DUCT) AND A STAND-OFF

- LOCATION IN THE DUCT. ALL BLADES ON RETURN GRILLES SHALL BE PARALLEL TO THE FLOOR AND THE GRILLE SHALL BE ORIENTED SO THAT THE BLADES POINT TO THE CEILING IF MOUNTED ABOVE 5'-0" AFF AND POINT TO THE FLOOR IF MOUNTED BELOW 5'-0" AFF.
- PAINTED BLACK ON THE INSIDE INCLUDING INSULATION AND PINS BEHIND ALL GRILLES AND DIFFUSERS. ALL FILTERS AND FILTER RACKS SHALL BE 2" AND ONE OF NOMINAL (WHOLE NUMBER DIVISIBLE BY 1) SIZES AVAILABLE AT BIG BOX

ALL VISIBLE RETURN, EXHAUST AND RELIEF AIR DUCTS SHALL BE

RETAIL STORES.

- HVAC CONTRACTOR TO PROVIDE AND INSTALL ALL REQUIRED THERMOSTAT AND CONTROL WIRING TO THERMOSTATS, MOTORIZED DAMPERS, TIME-CLOCKS, ETC. ALL MOTORIZED DAMPERS TO BE 24
- ALL THERMOSTATS SHALL BE WALL MOUNTED UNLESS OTHERWISE NOTED. EXACT LOCATION SHALL BE COORDINATED WITH OWNER ENGINEER / ARCHITECT PRIOR TO INSTALLATION.

- A. ALL DUCT AND DUCT CONNECTION TO EQUIPMENT SHALL BE SEALED WITH EITHER FOIL TAPE OR DUCT SEAL COMPOUND ON ALL JOINTS INCLUDING LONG TRANSVERSE JOINTS IN SQUARE DUCT.
- B. ALL DUCT. CONDUIT. AND PIPING CONNECTING TO EQUIPMENT SHALL HAVE ELEXIBLE CONNECTIONS INSTALLED AT CONNECTION TO EQUIPMENT. FLEXIBLE DUCT WITH 1" SLACK SHALL BE INSTALLED IN

DOCUMENTATION PROVIDED TO THE AUTHORITY HAVING

- BOTH THE SUPPLY AND RETURN DUCTS C. ALL EQUIPMENT WITH ELECTRICAL HARD WIRED CONNECTIONS MUST BE UL LISTED ASSEMBLIES OR THE PROPER FIELD TESTING FOR FIELD RATINGS TO A UL LISTED ASSEMBLY MUST BE INCLUDED WITH
- ALL MOTORS BEING CONTROLLED BY VFDS ON PUMPS, FANS, ETC. SHALL BE COMPATIBLE FOR USE WITH A VFD, SHALL BE INVERTER DUTY RATED AND PROVIDED WITH A SHAFT GROUNDING KIT.

JURISDICTION, OWNER AND DESIGN TEAM UPON COMPLETION

- A 10'-0" MINIMUM CLEARANCE MUST BE KEPT BETWEEN ALL MECHANICAL FRESH AIR INTAKES AND ALL PLUMBING VENTS EXHAUST VENTS AND EXHAUST FANS A 3'-0" MINIMUM CLEARANCE MUST BE KEPT BETWEEN ALL ENVIRONMENTAL AIR EXHAUST (RESTROOMS, ETC.) AND ALL OPERABLE OPENINGS INTO BUILDING
- F. ALL REFRIGERANT PIPING MUST BE SIZED ACCORDING TO MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS.
 - PROVIDE APPROVED MANUFACTURER'S ACCESS DOOR IN ALL HARD CEILINGS ADJACENT TO ANY EQUIPMENT/CONTROLS THAT IS NOT ACCESSIBLE FROM BELOW BY ITSELF. COORDINATE FINISH COLOR WITH ARCHITECT PRIOR TO ORDERING.
- H. IT IS THE RESPONSIBILITY OF THE MANUFACTURER / SUPPLIER TO MAKE SURE ALL UNITS FIT IN THE REQUIRED SPACE INTENDED WITH RECOMMENDED MAINTENANCE AND ACCESS CLEARANCES. ALL COILS INSTALLED SHALL HAVE PROPER CLEARANCE FOR REMOVAL WITHOUT INTERFERENCE ANY CHANGES NEEDED WILL BE THE RESPONSIBILITY OF THE MANUFACTURER AT NO ADDITIONAL COST TO THE PROJECT.
- THE MINIMUM MANUFACTURER RECOMMENDED CLEARANCE OR 36" CLEARANCE. WHICHEVER IS GREATER MUST BE MAINTAINED FOR ALI EQUIPMENT / VALVING NEEDING ACCESS. ALL ACCESS PANELS SHALL HAVE ADEQUATE CLEARANCE. CONSULT THE ENGINEER IF THIS IS
- ALL EQUIPMENT SHALL BE SUPPORTED BY: A HOUSE KEEPING PAD, METAL STAND, OR SUPPORTED FROM THE STRUCTURE. NO EQUIPMENT SHALL SIT DIRECTLY ON THE FLOOR.
- K. ALL EQUIPMENT SHALL BE PROPERLY ALIGNED, LUBRICATED AND OILED BEFORE START UP AND FINAL ACCEPTANCE BY OWNER.
- L. ALL DUCT AND EQUIPMENT SHALL BE PROTECTED DURING CONSTRUCTING AND CLEANED AS NEEDED BEFORE ANY FAN IS TURNED ON FILTERS OF THE SPECIFIED FEFICIENCY MUST BE IN PLACE WHEN FANS ARE RUNNING AND CHANGED AS NECESSARY THROUGHOUT CONSTRUCTION. NEW FILTERS SHALL BE INSTALLED JUST PRIOR TO OWNERS ACCEPTANCE, EQUIPMENT MUST BE TESTE AND COMPLETED PRIOR TO SUBSTANTIAL COMPLETION AND TURNING OVER TO OWNER.
- M. ALL BARE, SCRATCHED OR MARRED AREAS ON EQUIPMENT SHALL BE PAINTED WITH FACTORY PAINT OR AN OWNER APPROVED EQUAL.
- N. ANY SPECIAL TOOL NEEDED FOR ASSEMBLY, MAINTENANCE OR ADJUSTMENT OF ANY EQUIPMENT SHALL BE SUPPLIED TO THE OWNER AT NO ADDITIONAL COST PROVIDE A PREVENTATIVE/ PREDICTIVE MAINTENANCE SCHEDULE IN

MICROSOFT WORD FORMAT FOR ALL EQUIPMENT TO OWNER/

ENGINEER AT THE COMPLETION OF THE PROJECT **EXISTING PROJECT**

- A CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BIDDING TO SEE SPECIFIC JOB SITE CONDITIONS FOR THIS PROJECT
- B. FIELD VERIFY EXACT LOCATION OF EXISTING DUCT AND PIPING BEFORE BEGINNING CONSTRUCTION. C. IF HAZARDOUS MATERIALS ARE ENCOUNTERED. STOP WORK
- WRITING THE OWNER'S REPRESENTATIVE WILL THEN BE RESPONSIBLE TO TAKE THE APPROPRIATE ACTIONS. D. DURING SMOKE/DUST PRODUCING OPERATIONS. SMOKE DETECTORS SHALL BE COVERED AND TEMPORARY FANS SHALL BE USED TO

IMMEDIATELY AND INFORM THE OWNER'S REPRESENTATIVE IN

- EXHAUST AREA OF SMOKE/DUST. COORDINATE WITH OWNER. F THE CONTRACTOR SHALL PROVIDE AND INSTALL NEW SUPPORTS AND HANGERS FOR ALL EXISTING PIPING, CABLING AND WIRING (HIGH AND LOW VOLTAGE) THAT ARE TO REMAIN THIS INCLUDES RESUPPORTING ANYTHING THAT IS SUPPORTED BY ANY ITEM SCHEDULED TO BE REMOVED. ANY DAMAGE TO THE EXISTING. SYSTEMS TO REMAIN MUST BE REPAIRED AND TESTED BY THE
- CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. F. MAINTAIN ALL EXISTING ROOF WARRANTIES AS APPLICABLE.

DATE:04/05/2024



GENERAL PROJECT NOTES & SYMBOLS - HVAC

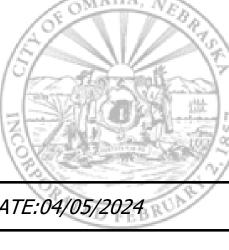
Autodesk Docs://2240002640 Attitude On Food - Tenant Finish/24027-AES Central R23.rvt

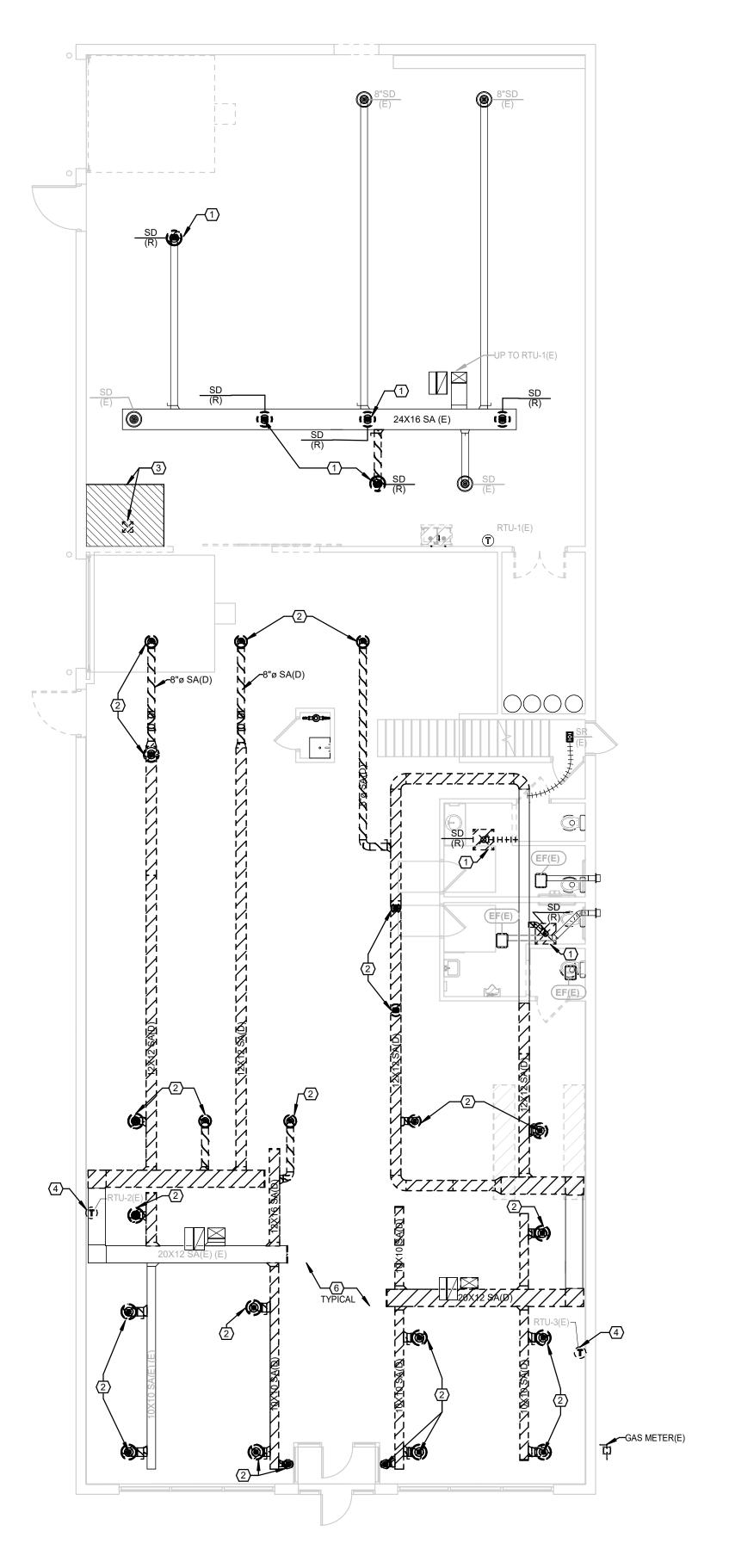
SHEET LIST - HVAC GENERAL PROJECT NOTES & SYMBOLS - HVAC MD101 DEMOLITION PLANS - HVAC FLOOR PLANS - HVAC DETAILS - HVAC M301 SCHEDULES - HVAC

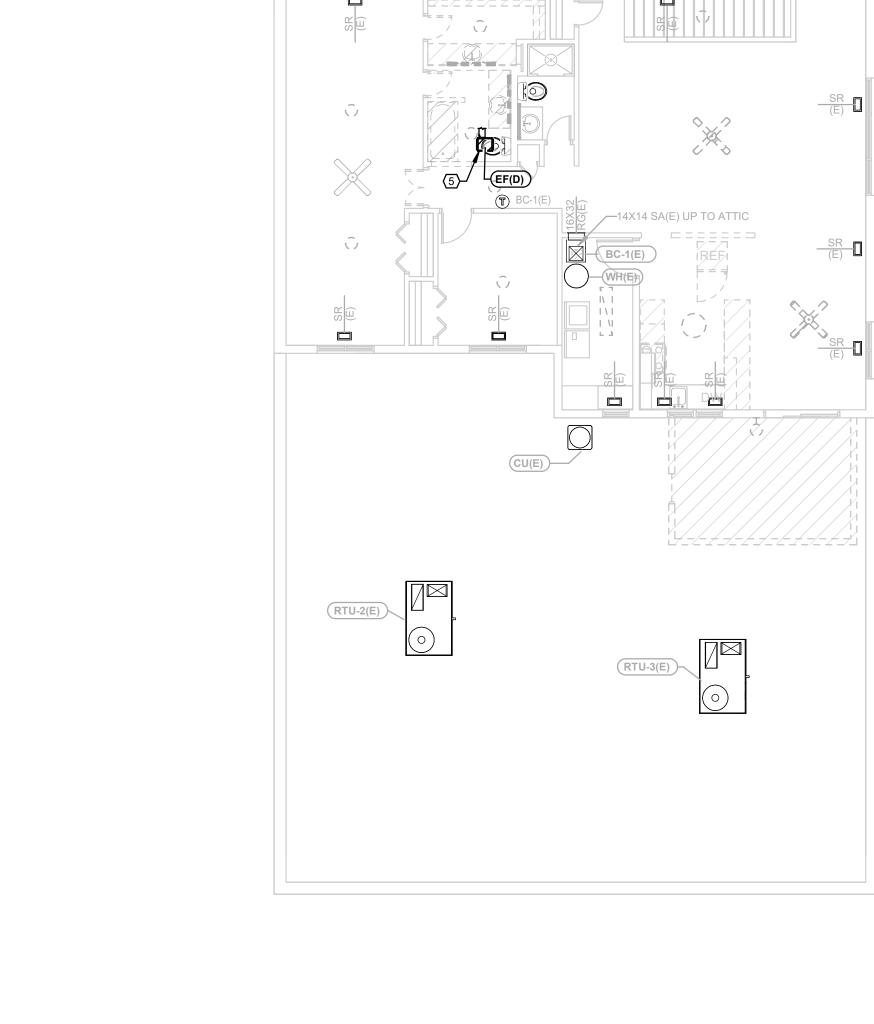
ENGINEERING SYSTEMS 4630 ANTELOPE CREEK RD

C ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027



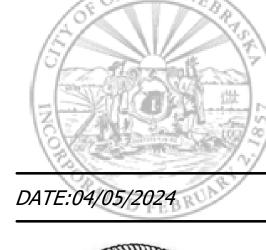




KEY NOTES

- EXISTING DIFFUSERS TO BE RELOCATED. SEE M101 FOR NEW LOCATION. REMOVE ASSOCIATED DUCT TO EXTENTS SHOWN.
- EXISTING DIFFUSERS TO BE REMOVED, REMOVE ASSOCIATED DUCT TO EXTENTS SHOWN.
- REMOVE EXISTING HOOD, DUCT AND FAN. PATCH ROOF AS REQUIRED.
- EXISTING THERMOSTAT TO BE RELOCATED, SEE M101 FOR NEW LOCATION.
- REMOVE EXISTING EXHAUST FAN, CAP AND ABANDON ASSOCIATED DUCTWORK.
- CONTRACTOR TO SALVAGE DEMO DUCTWORK AND RE-USE TO EXTENTS POSSIBLE WITH NEW DUCTWORK LAYOUT. (TYPICAL)

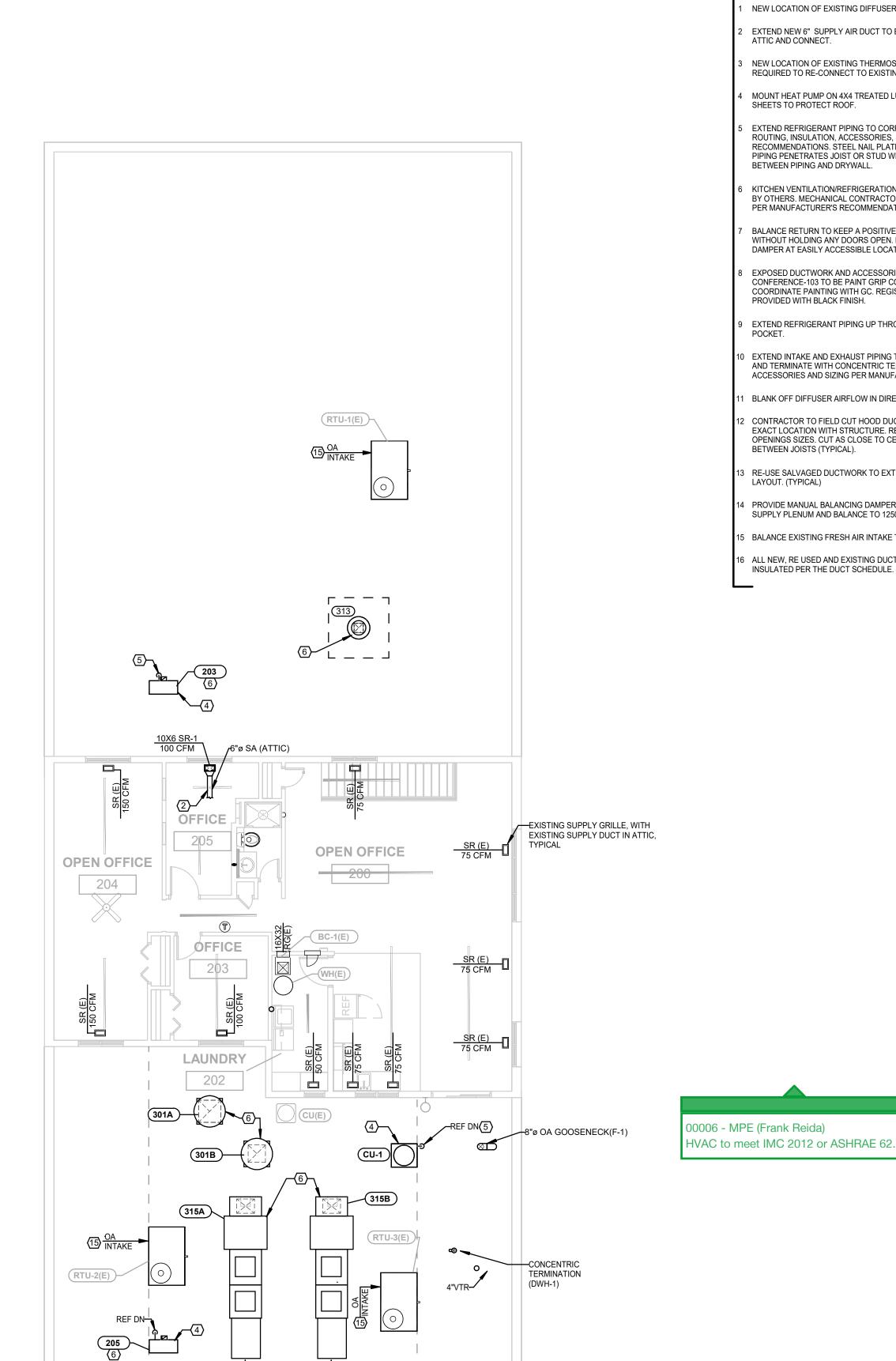
ADVANCED ENGINEERING <u>SYSTEMS</u> 4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506 P: (402) 488-0075 F: (402) 488-0272 www.a-e-sys.com © ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800 PROJECT # 24-027





DEMOLITION PLANS -HVAC





 $\begin{array}{c|c}
N & 2 \\
\hline
M101 & SECOND FLOOR - HVAC \\
\hline
SCALE: 1/8" = 1'-0"
\end{array}$

BETWEEN PIPING AND DRYWALL.

- NEW LOCATION OF EXISTING DIFFUSER, EXTEND NEW DUCT AS SHOWN.
- EXTEND NEW 6" SUPPLY AIR DUCT TO EXISTING SUPPLY AIR DUCT IN ATTIC AND CONNECT.
- NEW LOCATION OF EXISTING THERMOSTAT, EXTEND NEW WIRING AS REQUIRED TO RE-CONNECT TO EXISTING ASSOCIATED UNIT.
- MOUNT HEAT PUMP ON 4X4 TREATED LUMBER. PROVIDE RUBBER SLIP SHEETS TO PROTECT ROOF.
- EXTEND REFRIGERANT PIPING TO CORRESPONDING INDOOR UNIT. ALL ROUTING, INSULATION, ACCESSORIES, SIZING PER MANUFACTURER'S RECOMMENDATIONS. STEEL NAIL PLATES MUST BE USED WHERE

PIPING PENETRATES JOIST OR STUD WITH LESS THAN 2" OF DISTANCE

- KITCHEN VENTILATION/REFRIGERATION EQUIPMENT TO BE PROVIDED BY OTHERS. MECHANICAL CONTRACTOR TO RECEIVE, SET AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- BALANCE RETURN TO KEEP A POSITIVE PRESSURE IN VESTIBULE WITHOUT HOLDING ANY DOORS OPEN. PROVIDE MANUAL BALANCING DAMPER AT EASILY ACCESSIBLE LOCATION.
- EXPOSED DUCTWORK AND ACCESSORIES IN LOBBY-101 AND CONFERENCE-103 TO BE PAINT GRIP CONSTUCTION, PAINTED BLACK. COORDINATE PAINTING WITH GC. REGISTERS/GRILLES IN ROOMS TO BE PROVIDED WITH BLACK FINISH.
- EXTEND REFRIGERANT PIPING UP THROUGH ROOF IN METAL PITCH
- EXTEND INTAKE AND EXHAUST PIPING TO THE EXTERIOR AS REQUIRED AND TERMINATE WITH CONCENTRIC TERMINATION KIT. ALL ROUTING, ACCESSORIES AND SIZING PER MANUFACTURER'S RECOMMENDATIONS.
- BLANK OFF DIFFUSER AIRFLOW IN DIRECTION TOWARDS HOOD.
- CONTRACTOR TO FIELD CUT HOOD DUCT CONNECTIONS, COORIDINATE EXACT LOCATION WITH STRUCTURE. REFER TO HOOD CUTSHEET FOR OPENINGS SIZES. CUT AS CLOSE TO CENTER AS POSSIBLE IN SPACES BETWEEN JOISTS (TYPICAL).
- RE-USE SALVAGED DUCTWORK TO EXTENTS POSSIBLE FOR NEW LAYOUT. (TYPICAL)
- PROVIDE MANUAL BALANCING DAMPER IN BRANCH DUCT TO HOOD SUPPLY PLENUM AND BALANCE TO 1250 CFM.
- 5 BALANCE EXISTING FRESH AIR INTAKE TO 350 CFM.
- 6 ALL NEW, RE USED AND EXISTING DUCTWORK TO BE SEALED AND INSULATED PER THE DUCT SCHEDULE.

00006 - MPE (Frank Reida)

ADVANCED

<u>SYSTEMS</u>

ENGINEERING

4630 ANTELOPE CREEK RD

SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075

F: (402) 488-0272

<u>www.a-e-sys.com</u>

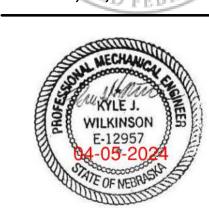
(C) ADVANCED ENGINEERING SYSTEMS

AUTHORIZATION # CA1800

CERTIFICATE OF

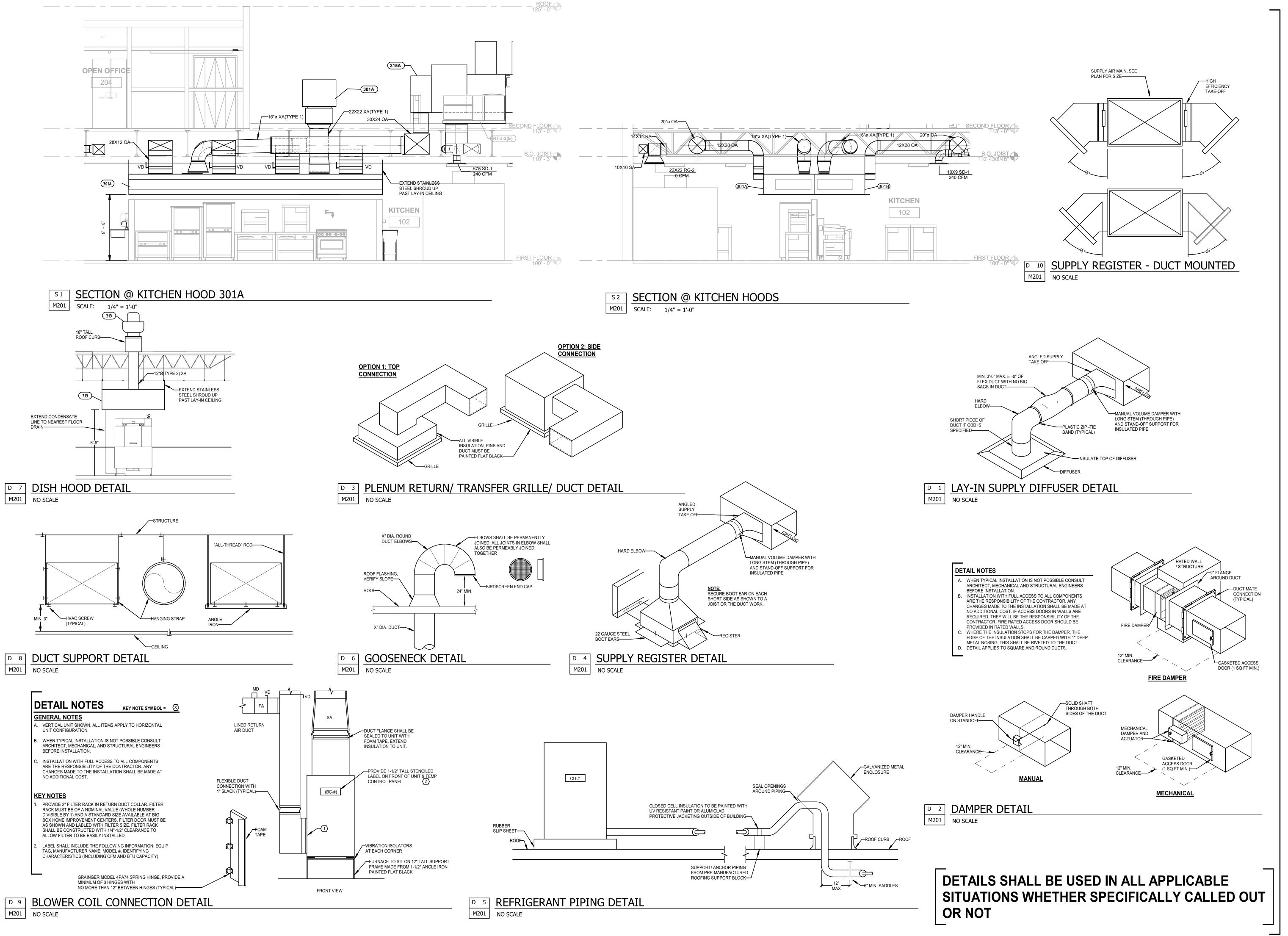
PROJECT # 24-027





FLOOR PLANS - HVAC





ADVANCED ENGINEERING <u>SYSTEMS</u>

4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506 P: (402) 488-0075

F: (402) 488-0272 www.a-e-sys.com (C) ADVANCED ENGINEERING SYSTEMS

CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

DATE:04/05/2024



DETAILS - HVAC

FIRST FLOOR AIR BALANCE SCHEDULE

MARK	EXHAUST AIR (CFM)	OUTSIDE AIR (CFM)
RTU-1(E)	-	350
RTU-2(E)	-	350
RTU-3(E)	-	350
F-1	-	180
EXHAUST AIR FROM RESTROOMS	350	-
KITCHEN HOOD EXHAUST FANS 301	12500	-
KITCHEN MAKE-UP AIR UNIT 315A	-	5800
KITCHEN MAKE-UP AIR UNIT 315B	-	5800
DISH HOOD EXHAUST FAN 313	1600	-
AIR TOTALS WITH ALL EQUIPMENT RUNNING	14450	12830
FIRST FLOOR BUILDING PRESSURE	-1620	CFM
AIR BALANCE SCH	IEDULE N	OTES

BUILDING FRESH AIR AND EXHAUST FOR RESTROOMS ARE TO RUN WHEN BUILDING IS

OCCUPIED. KITCHEN HOOD IS TO BE INTERLOCKED WITH MAU 315A, MAU 315B. MAKE-UP AIR UNITS SHALL TURN ON WHEN KITCHEN HOOD EXHAUST FANS ARE RUNNING.

OUTSIDE AIR SCHEDULE

ROOM NAME	ROOM SQUARE FEET	NUMBER OF PEOPLE	OUTSIDE AIR (CFM/PERSON)	OUTSIDE AIR (CFM/SQ.FT)	REQUIRED OUTSIDE AIR (CFM)	NOTES
RTU-1(E)	1177	5	7.5	.18	250	1,2
RTU-2(E)	1177	5	7.5	.18	250	1,2
RTU-3(E)	2549	8	5	.06	193	1,2
F-1	831	5	5	.06	75	1,2
BC-1(E)	350	5	5	.06	46	1,2

OUTSIDE AIR SCHEDULE NOTES

OUTSIDE AIR CALCULATIONS ARE BASED ON ASHRAE-62.1 2004.
OCCUPANT LOAD DETERMINED BY ACTUAL SEAT COUNT AND ANTICIPATED OCCUPANCY BY THE OWNER AT PEAK TIMES.

HVAC SCHEDULES

PROVIDE SPECIFIED OR APPROVED EQUAL

DUCT MATERIAL AND INSULATION

•			DUC	T CONSTRUCTIO	Ņ		DUCT INSULATION						
DUCT	DUCT LOCATION	SPACE	MATERIAL	TYPE	CONNECTION	TYPE	MATERIAL	SKIN TYPE	THICKNESS	DENSITY LB/FT^3	MIN. R VALUE	NOTE	
FLUE	CONCEALED / EXPOSED	SAME FOR ALL CONDITION TYPES	SCHEDULE 40 PVC	PVC PIPE	PRIMED AND GLUED	-	-	-	-	-	-	1,10	
FRESH AIR	CONCEALED	PARTIALLY CONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	WRAP	FIBERGLASS	ALUMINUM FSK JACKET	2"	3/4	3	1,2,3,1	
FRESH AIR	CONCEALED	CONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	WRAP	FIBERGLASS	ALUMINUM FSK JACKET	1"	3/4	3	1,2,3,1	
FRESH AIR	CONCEALED	UNCONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	WRAP	FIBERGLASS	ALUMINUM FSK JACKET	3"	3/4	8	1,2,3	
RETURN / TRANSFER AIR	CONCEALED	PARTIALLY CONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	LINER	FIBERGLASS	ACRYLIC POLYMER ANIT-MICROBIAL COATING	1-1/2"	1-1/2	4	1,2,4	
RETURN / TRANSFER AIR	CONCEALED	CONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	LINER	FIBERGLASS	ACRYLIC POLYMER ANIT-MICROBIAL COATING	1/2"	2	2	1,2,4	
RETURN / TRANSFER AIR	EXPOSED	CONDITIONED	PAINT GRIP STEEL	SINGLE WALL	SLIP & DRIVE	LINER	FIBERGLASS	ACRYLIC POLYMER ANIT-MICROBIAL COATING	1"	1-1/2	3	1,2,4,0	
RETURN / TRANSFER AIR	CONCEALED	UNCONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	LINER	FIBERGLASS	ACRYLIC POLYMER ANIT-MICROBIAL COATING	1-1/2"	1-1/2	5	1,2,4	
SUPPLY AIR	CONCEALED	PARTIALLY CONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	WRAP	FIBERGLASS	ALUMINUM FSK JACKET	2"	3/4	5	1,2,3	
SUPPLY AIR	CONCEALED	CONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	WRAP	FIBERGLASS	ALUMINUM FSK JACKET	1"	3/4	3	1,2,3	
SUPPLY AIR	EXPOSED	CONDITIONED	PAINT GRIP STEEL	SINGLE WALL	SLIP & DRIVE	LINER	FIBERGLASS	ACRYLIC POLYMER ANIT-MICROBIAL COATING	1"	1-1/2	3	1,2,4,	
SUPPLY AIR	CONCEALED	UNCONDITIONED	GALVANIZED STEEL	SINGLE WALL	SLIP & DRIVE	WRAP	FIBERGLASS	ALUMINUM FSK JACKET	3"	3/4	8	1,2,3	
TYPE I HOOD EXHAUST	EXPOSED	SAME FOR ALL CONDITION TYPES	STAINLESS STEEL	SINGLE WALL	FULLY WELDED	WRAP	FIBER MATERIAL	FULLY ADHERED FOIL FACING	1-1/2"	6	NA	6,7,9	
TYPE II HOOD EXHAUST	CONCEALED / EXPOSED	SAME FOR ALL CONDITION TYPES	ALUMINUM	SINGLE WALL	SLIP & DRIVE	-	-	-	-	-	-	1,8,9	

SPACE DEFINITION

- PARTIALLY CONDITIONED SPACE: A SPACE THAT HAS A TEMPERATURE DIFFERENTIAL BETWEEN THE AIR IN DUCT AND HTE SURROUNDING GREATER THAN 15°. EXAMPLES INCLUDE ATTIC SPACE (WITH INSULATION ON ROOF), CRAWL SPACE, GARAGE,
- MECHANICAL/ELECTRICAL ROOM, NON PLENUM RETURN CEILING SPACE.
- CONDITIONED SPACE: A SPACE THAT HAS A TEMPERATURE DIFFERENTIAL BETWEEN THE AIR IN THE DUCT AND THE SURROUNDING LESS THAN 15°. EXAMPLES INCLUDE: ABOVE CEILING RETURN PLENUM SPACE, HEATED AND COOLED SPACE.
- <u>UNCONDITIONED SPACE:</u> A SPACE WHOSE TEMPERATURE IS THE SAME AS OUTDOORS OR WORSE (FURTHER FROM ROOM SET POINT) OR IS THE OUTDOORS. EXAMPLES INCLUDE ATTIC WITH INSULATION AT CEILING, DUCT CHASES.

EXTERIOR (OUTSIDE): LOCATED OUTSIDE OF THE BUILDING ENVELOPE. EXPOSED TO THE WEATHER.

WHERE DUCT INSULATION IS SPECIFIED:

- ALL DUCTS SHALL BE COMPLETELY INSULATED ON ALL SIDES ENCOMPASSING DUCT SUPPORTS/ HANGERS WITH INSULATION SEALED TO SUPPORTS AS THEY PENETRATE INSULATION.
- ALL SUPPLY AND FRESH AIR DIFFUSERS AND REGISTERS INCLUDING DUCT BOOTS SHALL BE COMPLETELY WRAPPED IN INSULATION DOWN TO THE CEILING TO PREVENT CONDENSATION.
 - ALL INSULATION HOLES FROM TESTING AND BALANCING SHALL BE RE-SEALED.

- ALL DUCTWORK SHALL BE CONSTRUCTED, REINFORCED AND SUPPORTED ACCORDING TO CURRENT MECHANICAL CODE, SMACNA STANDARDS, AND PER REQUIREMENTS OF CURRENT EDITION OF BOLTS MUST BE USED.
- TAPPED WITH FACED TAPE (MEETING UL181 STANDARD) TO MATCH INSULATION AND COMPLETELY SEAL INSULATION PER MANUFACTURER'S RECOMMENDATIONS. DUCT LINER INSULATION: INSULATION SHALL COMPLY WITH ASTM C 1071. PROVIDE MANUFACTURER'S SEALANT FOR COATING OF ALL EXPOSED EDGES, CONNECTIONS, OR MINOR SURFACE DAMAGE. WELD PINS OF SUFFICIENT LENGTH AND GLUE OR STAPLES WITH SHEET METAL DISCS SHALL BE USED TO FASTEN LINER TO DUCT. ALL BUTT EDGES SHALL BE COATED WITH ADHESIVE
- WRAP INSULATION OF AN EQUAL INSTALLED "R" VALUE SCHEDULED LINER.
- PAINTED. THIS SHALL BE WITNESSED BY THE GENERAL CONTRACTOR AND PAINTER.
- SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS WITH A MINIMUM OF 3" OVERLAP AT ALL JOINTS. WRAP DUCT WITH THE REQUIRED NUMBER OF LAYERS TO MEET CODE. PROVIDE
- MEETING ALL CODE REQUIREMENTS IS AN ACCEPTABLE ALTERNATE. ENTIRE DUCTWORK SYSTEM SHALL BE FULLY SEALED AND WATER-TIGHT.
- 1. DUCT SHALL BE WRAPPED WITH FLEXIBLE ELASTOMERIC WRAP WITH SAME R VALUE UP TO FIRST UNIT FROM LOUVER/HOOD.

<u>DIFFUSERS, GRILLES, REGISTERS AND LOUVERS SCHEDULE NOTES</u>

- A. COORDINATE FINISH COLOR WITH ARCHITECT, LOCATION AND MOUNTING TYPE FOR ALL REGISTER, GRILLES AND DIFFUSERS WITH GENERAL CONTRACTOR PRIOR TO ORDERING.
- PROVIDE SIZE AND SHAPE AS SHOWN ON THE DRAWING. PROVIDE INSULATION BLANKET ON THE BACK OF DIFFUSERS.

FURNACES

MARK	MANUFACTURER	MODEL#	TOTAL MBH	SENS. MBH	STAGES	AHRI	VOLT	PHASE	MCA	МОР	
CU-1	TRANE	4TTA4036	36.7	27.6	1	13	208	3	12	20	
FURNA	CF AND COND	FNSING UNIT	SCHEDUL	F NOTES							

FURNACE AND CONDENSING UNIT SCHEDULE NOTES

- I. ALL CAPACITIES BASED ON ARI STANDARDS, 95 F DB/74 F WB AMBIENT AIR & 80 F WB RETURN AIR
- CONCENTRIC TERMINATION KIT SHALL BE PROVIDED WITH UNIT FOR INTAKE AND EXHAUST PIPING.

A. <u>CONCEALED:</u> ANY NON VISIBLE DUCT. EXAMPLES INCLUDE: MECHANICAL ROOMS, JANITORS ROOMS, ATTICS AND CRAWL

- B. <u>EXPOSED:</u> ANY VISIBLE DUCT IN ANY PUBLIC OR OCCUPIABLE SPACE. EXAMPLES INCLUDE: STORAGE ROOMS, CLOSETS

- . ALL BALANCING DAMPERS SHALL HAVE THE HANDLES OUTSIDE THE INSULATION, WITH A PROPER STANDOFF/ SHAFT LENGTH TO ALLOW PROPER DAMPER ADJUSTMENT.

DUCT MATERIAL AND INSULATION SCHEDULE NOTES

- INTERNATIONAL ENERGY CODES. DUCTS SHALL BE CONSTRUCTED BASED ON THE TOTAL FAN PRESSURE THE DUCTS ARE CONNECTED TO (A MINIMUM OF 2") AND BE TAKEN AS POSITIVE ON THE FAN DISCHARGE SIDE AND NEGATIVE ON THE FAN SUCTION SIDE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE FAN PRESSURE'S BEFORE BIDDING AND CONSTRUCTION. SINGLE WALL DUCT SHALL BE SEALED WITH EITHER FOIL TAPE OR DUCT SEAL COMPOUND ON ALL JOINTS INCLUDING LONG TRANSVERSE JOINTS. FOR LOW PRESSURE (< 2" W.C.) NON SPIRAL DUCT, ADJUSTABLE 1xRADIUS ELBOWS AND SNAPLOCK PIPE ARE ACCEPTABLE. FOR DUCT MATE/TDC CONNECTIONS FOAM TAPE, PLASTIC CLEATS ARE NOT ACCEPTABLE, BUTYL TAPE, METAL CLEATS AND NUT &
- INSULATION SHALL HAVE A FHC OF 25/50 AND BE CLASSIFIED AS MEETING THE REQUIREMENTS OF LIMITED COMBUSTIBILITY. DUCT WRAP INSULATION: INSULATION SHALL COMPLY WITH ASTM C 553. TAPE AND SEAL INSULATION ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. EVERY JOINT SHALL BE COMPLETELY
- AND PRESSED TOGETHER. DUCT LINER SHALL HAVE PERMACOTE ANTI FUNGI AND BACTERIA GROWTH AGENT APPLIED TO THE LINER. ALL ROUND RETURN DUCT MUST BE WRAPPED WITH DUCT IF DUCT IS GOING TO BE PAINTED, THOROUGHLY CLEAN AND DRY OUTSIDE OF DUCT WITH A WARM SOAPY SOLUTION CONSISTING OF "SIMPLE GREEN" CLEANER AND WATER PRIOR TO BEING
- WRAP SHALL HAVE A ZERO CLEARANCE TO COMBUSTIBLES AND BE IN COMPLIANCE WITH NFPA 96 1998 EDITION, INTERNATIONAL MECHANICAL CODE, AND UNIFORM MECHANICAL CODE. WRAP
- TWO LAYERS OF FIRE WRAP ON TOP OF KITCHEN HOOD(S) AS REQUIRED PER CODE.

 DUCT / HOODS SHALL BE COMPLETELY GRINDED AND POLISHED ON ALL EXPOSED SURFACES TO A 4B FINISH, CONCEALED DUCT SHALL BE FINISHED TO 2B STANDARD. PRE-MANUFACTURED DUCT SLOPE DUCT TOWARDS HOOD AT 1/4" OF FALL PER FOOT.
- 0. ANY FLUE PIPING RUNNING THROUGH AN OPEN PLENUM RETURN SHALL BE INSULATED WITH FHC 25150 RATED INSULATION.

DIFFUSERS, GRILLES, REGISTERS AND LOUVERS

MARK	FIXTURE	MANUFACTURER	MODEL#	DAMPER	FINISH	MOUNTING TYPE	DESCRIPTION AND OPTIONS
RG-1	RETURN GRILLE	NAILOR	5145	-	WHITE	SURFACE MOUNT	ALUMINUM, 45° BLADE DEFLECTION, 3/4" BLADE SPACING, BLADES PARALLEL TO FLOOR, PROVIDE SIZE AS SHOWN ON DRAWINGS.
RG-2	RETURN GRILLE	NAILOR	4660A	-	WHITE	LAY-IN	ALUMINUM, 24" X 24" OR 12" X 24" PANEL PROVIDE NECK SIZE S SHOWN ON DRAWINGS
RG-3	RETURN GRILLE	NAILOR	5145	-	BY ARCHITECT	SURFACE MOUNT	ALUMINUM, 45° BLADE DEFLECTION, 3/4" BLADE SPACING, BLADES PARALLEL TO FLOOR, PROVIDE SIZE AS SHOWN ON DRAWINGS.
SD-1	SUPPLY DIFFUSER	NAILOR	ARNS	-	WHITE	LAY-IN	ALUMINUM, 24" X 24" PANEL, PROVIDE NECK SIZE AS SHOWN ON DRAWINGS
SR-1	SUPPLY REGISTER	NAILOR	61DV	-	WHITE	SURFACE MOUNT	24 GAUGE STEEL, 3/4" BLADE SPACING, INDIVIDUALLY ADJUSTABLE BLADES, DOUBLE DEFLECTION, PROVIDE SIZE AS SHOWN ON DRAWINGS
SR-2	SUPPLY REGISTER	NAILOR	61DV	-	BY ARCHITECT	SURFACE MOUNT	24 GAUGE STEEL, 3/4" BLADE SPACING, INDIVIDUALLY ADJUSTABLE BLADES, DOUBLE DEFLECTION, PROVIDE SIZE AS SHOWN ON DRAWINGS

MARK	MANUFACTURER	MODEL #	#	CFM	W.C.	HP	INPUT (MBH)	VOLT	PHASE	MCA	MOP	OA CFM/SIZE	NOTES
F-1	TRANE	S9V2B080U3PSA	4TXCB006DS	3 1200	0.50	0.5	80.0	120	1	8	15	180/8"Ø	2,3,4
CON	IDENSING	3 UNITS											
				R410A DX (COOLING			ELECT	RICAL				
MARK	MANUFACTURER	MODEL #	TOTAL MBH	SENS MBH	STAGES	EER @	VOLT	PHASE	MCA	MOP		NOTES	

E.S.P. IN BLOWER GAS HEATING

- FILTER AND FILTER RACK SHALL BE PROVIDED WITH UNIT.
- THERMOSTAT SHALL BE 7 DAY PROGRAMMABLE THERMOSTAT WITH HEAT-OFF-COOL-AUTO SYSTEM SELECTION AND AUTO-ON FAN SWITCH.
- THERMOSTAT SHALL HAVE BATTERY BACK-UP POWER. CONDENSING UNIT SHALL HAVE LOW AMBIENT CONTROLS, A HIGH PRESSURE SWITCH AND LOW PRESSURE SWITCH.

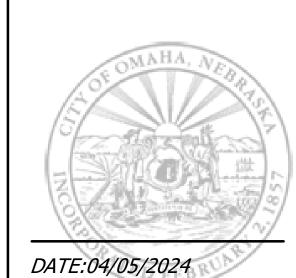
ADVANCED ENGINEERING SYSTEMS

4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272 <u>www.a-e-sys.com</u> (C) ADVANCED ENGINEERING SYSTEMS

CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027



SCHEDULES - HVAC

ECTRICAL CVARROLO C ARRESTATIONS

THIS LEG	NOTES END IS GENERAL IN NATURE, NOT ALL SYMBOLS SHOWN ARE USED IG HEIGHTS ARE FROM ABOVE FINISHED FLOOR TO CENTER OF BOX, UNLES	S NOTED OT	THERWISE		
(1)	KEY NOTE DESIGNATION	B	BELL - STAND ALONE DEVICE OR CONNECTED TO MASTER CLOCK	A	AMPERES
XXX-X	FEEDER TAG - SEE BRANCH CIRCUIT AND FEEDER SCHEDULE	©	CLOCK - STAND ALONE DEVICE OR CONNECTED TO MASTER CLOCK	AFF	ABOVE FINISHED FLOOR
XXX-#)	EQUIPMENT DESIGNATION, REFER TO EQUIPMENT CONNECTION	(DUCT SMOKE DETECTOR	AFG	ABOVE FINISHED GRADE
	SCHEDULE / FOOD SERVICE EQUIPMENT CONNECTION SCHEDULE SEQUENCE OF OPERATION TAG - REFER TO LIGHTING CONTROL	00	DOOR CONTACT	AFI	ARC FAULT CIRCUIT INTERRUPTER
XXX	SEQUENCE OF OPERATION	M	MOTOR CONNECTION	ATS	AUTOMATIC TRANSFER SWITCH
	LOW VOLTAGE SWITCH - TAG INDICATES TYPE, REFER TO LOW VOLTAGE SWITCH SCHEDULE	P	PUSH BUTTON @ 48" AFF	AWG	AMERCAN WIRE GAUGE
s ^x	LINE VOLTAGE SWITCH @ 48" AFF - TAG INDICATES TYPE (2 = DOUBLE POLE, 3 = THREE WAY, 4 = FOUR WAY, D = DIMMER, K = KEY, M = MOMENTARY, O = OCCUPANT SENSING, P = PILOT, T = TIMER). WHERE	S	CEILING MOUNT SPEAKER	BFG	BELOW FINISH GRADE
5	DOUBLE POLE SWITCHES SERVE MECHANICAL EQUIPMENT, LOCATE SWITCH ADJACENT TO UNIT. WHERE NO TYPE IS INDICATED PROVIDE	\bigcirc	TELEVISION OUTLET @ 18" AFF - ROUTE 1" CONDUIT TO ABOVE ACCESSIBLE CEILING, UNLESS NOTED OTHERWISE	BOF	BOTTOM OF FIXTURE
TE	SINGLE POLE SWITCH. MANUAL STARTER WITH TOGGLE - PROVIDE THERMAL	©	WALL MOUNT CLOCK OUTLET @ 90" AFF - ROUTE 3/4" CONDUIT TO ABOVE ACCESSIBLE CEILING, UNLESS NOTED OTHERWISE	С	CONDUIT
	ELEMENT IF MOTOR IS NOT INTERNALLY PROTECTED START/STOP SWITCH @ 48" AFF	e P	PHOTO CONTROLLER	CATV	CABLE TELEVISION
: >#	CEILING MOUNT LIGHT FIXTURE - NUMBER INDICATES	_	WALL MOUNT SPEAKER. FOR SPACES WITH 12' OR LOWER CEILING HEIGHTS, MOUNT @ 84" AFF TO BOTTOM OF SPEAKER OR WIRE GUARD,	CCTV	CLOSED-CIRCUIT TELEVISION
ر #	DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE CEILING MOUNT LIGHT FIXTURE WITH EMERGENCY/ LIFE SAFETY POWER	<u></u>	WHICHEVER IS LOWER. FOR SPACES WITH CEILING HEIGHTS GREATER THAN 12', MOUNT AT 120" AFF TO BOTTOM OR SPEAKER OR WIREGUARD,	CLG	CEILING
)″ 	SOURCE - NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE		WHICHEVER IS LOWER. ROUTE 3/4" CONDUIT TO ABOVE ACCESSIBLE CEILING UNLESS NOTED OTHERWISE.	CO	CARBON MONOXIDE
)	WALL MOUNT LIGHT FIXTURE - NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE	В	BOILER SHUTDOWN SWITCH @ 48" AFF	COF	CENTER OF FIXTURE
#	WALL MOUNT LIGHT FIXTURE WITH EMERGENCY/LIFE SAFETY POWER SOURCE - NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE	C	CARD READER @ 40" AFF	CU	COPPER
;	SCHEDULE #	ES	ELECTRIC STRIKE	D	INDICATES ITEM TO BE DEMOLISHED
	# LIGHT FIVELIDE NUMBER INDICATES RESIGNATION REFER TO	H	MAGNETIC DOOR HOLDER	DW	DISHWASHER
; ;	# LIGHT FIXTURE - NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE		INTERCOM CALL-IN SWITCH @ 48" AFF	Е	INDICATES EXISTING ITEM
#	#	J	JUNCTION BOX @ 18" AFF - ROUTE 3/4" CONDUIT TO ABOVE ACCESSIBLE CEILING, UNLESS NOTED OTHERWISE	EM	EMERGENCY
	_ #]	K	KEYPAD @ 48" AFF	EMD	ESTIMATED MAXIMUM DEMAND
7	# LIGHT FIXTURE WITH EMERGENCY/LIFE SAFETY POWER SOURCE -	M	MICROPHONE OUTLET @ 18" AFF	EMT	ELECTRICAL METALLIC TUBING
	* NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE	ML	MAGNETIC LOCK	ERCES	EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM
#	#	N	NURSE CALL @ 48" AFF	ERRCS	EMERGENCY RESPONDER RADIO COMMUNICATIONS SYSTEM
	CEILING MOUNT, SINGLE FACE EXIT SIGN - ARROW INDICATES DIRECTION -	P	PANIC BUTTON	EXP	EXPLOSION PROOF
	NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE	IP	TELE-POWER POLE	F	FRACTIONAL
	CEILING MOUNT, DOUBLE FACE EXIT SIGN - ARROW INDICATES DIRECTION NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE	- R	RELAY	FA	FIRE ALARM
	WALL MOUNT EXIT SIGN - ARROW INDICATES DIRECTION - NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE	RE	REQUEST TO RELEASE ACTUATOR	FAAP	FIRE ALARM ANNUNCIATOR PANEL
	COMBINATION EXIT SIGN AND EMERGENCY LIGHTING UNIT - NUMBER	V	VOLUME CONTROL @ 48" AFF	FACP	FIRE ALARM CONTROL PANEL
	INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE	•	FIRE ALARM PULL STATION @ 48" AFF TO TOP	FMC	FLEXIBLE METAL CONDUIT
, #	EMERGENCY LIGHTING UNIT - NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE		FIRE ALARM FLASHING STROBE LIGHT @80"AFF TO BOTTOM OR 6" BELOW CEILING	FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
#	TRACK LIGHTING - NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTURE SCHEDULE	Ø	CEILING MOUNT FIRE ALARM FLASHING STROBE LIGHT	GD	GARBAGE DISPOSAL
7	CEILING FAN - NUMBER INDICATES DESIGNATION, REFER TO LIGHT FIXTUR SCHEDULE	e 🗸	FIRE ALARM HORN AND FLASHING STROBE LIGHT @80"AFF TO BOTTOM OR 6" BELOW CEILING	GFI	GROUND FAULT CIRCUIT INTERRUPTER
\# #	POLE MOUNT LIGHT FIXTURE - NUMBER INDICATES TYPE, REFER TO LIGHT	∇	CEILING MOUNT FIRE ALARM HORN AND FLASHING STROBE LIGHT	GND	GROUND
_	FIXTURE SCHEDULE CEILING MOUNT OCCUPANT SENSOR - TAG INDICATES TYPE (D = DUAL	♦	FIRE ALARM SPEAKER AND FLASHING STROBE LIGHT @80"AFF TO BOTTOM OR 6" BELOW CEILING	НА	HIGH ABUSE/SECURITY CAST WALL PLATE
	TECH, H = HIGH BAY, P = PASSIVE INFRARED, T = LOW TEMP/HIGH HUMIDITY). REFER TO SEQUENCE OF OPERATION FOR REQUIRED		CEILING MOUNT FIRE ALARM SPEAKER AND FLASHING STROBE LIGHT	HG	HOSPITAL GRADE
	FUNCTIONALITY. WALL MOUNT OCCUPANT SENSOR - SUBSCRIPT INDICATES TYPE (D = DUAI	∇	FIRE ALARM HORN @80"AFF TO BOTTOM OR 6" BELOW CEILING	HVAC	HEATING, VENTILATION & AIR CONDITIONING
	TECH, H = HIGH BAY, P = PASSIVE INFRARED, T = LOW TEMP/HIGH HUMIDITY). REFER TO SEQUENCE OF OPERATION FOR REQUIRED	- 口 分	FIRE ALARM BELL @ 80" AFF TO BOTTOM OR 6" BELOW CEILING	KAIC	THOUSAND AMPS INTERRUPTING CAPACITY
	FUNCTIONALITY.	$_{\rm s}$	SMOKE DETECTOR	KVA	KILOVOLT AMPERES
	SIMPLEX RECEPTACLE @ 18" AFF	①	THERMAL HEAT DETECTOR	KW	KILOWATTS
	DUPLEX RECEPTACLE @ 18" AFF	\$	WATER FLOW SWITCH	LED	LIGHT EMITTING DIODE
	SPECIAL RECEPTACLE @ 18" AFF	N N	TAMPER SWITCH	MCA	MINIMUM CIRCUIT AMPACITY
	QUADPLEX RECEPTACLE @ 18" AFF	PIV	POST INDICATOR VALVE	MCM	THOUSAND CIRCULAR MILS
	HORIZONTAL DUPLEX RECEPTACLE @ 44" AFF	lacksquare	SINGLE BED CALL LIGHT	MOCP	MAXIMUM OVER CURRENT PROTECTION
	ISOLATED GROUND DUPLEX RECEPTACLE @ 18" AFF	$leftondown^{D}$	DOUBLE BED CALL LIGHT	MW	MICROWAVE
	SPLIT DUPLEX RECEPTACLE @ 18" AFF		CLOSED CIRCUIT TELEVISION CAMERA	NEC	NATIONAL ELECTRIC CODE
	CEILING MOUNT OR SUSPENDED DUPLEX RECEPTACLE	\Box	DOOR CHIME @ 80" AFF	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
	FLOOR RECEPTACLE	'A'	SURFACE MOUNT, LIGHTING AND APPLIANCE PANELBOARD @ 72" AFF TO TOP - LETTER INDICATES DESIGNATION - HATCHING INDICATES	NL	NIGHT LIGHT
	COMBINATION FLOOR BOX TELEPHONE OUTLET @ 18" AFF - REFER TO LOW VOLTAGE ROUGH-IN		REQUIRED CLEARANCE FLUSH MOUNT, LIGHTING AND APPLIANCE PANELBOARD @ 72" AFF TO	Р	POLE
	DETAIL	J.B.	TOP - LETTER INDICATES DESIGNATION - HATCHING INDICATES REQUIRED CLEARANCE	PVC	POLYVINYL CHLORIDE NON METALLIC RACEWA
	DATA OUTLET @ 18" AFF - REFER TO LOW VOLTAGE ROUGH-IN DETAIL	'MDP'	POWER DISTRIBUTION PANELBOARD - LETTER INDICATES	R	INDICATES ITEM TO BE RELOCATED
	COMBINATION TELEPHONE/DATA OUTLET @ 18" AFF - NUMBERS INDICATE JACKS REQUIRED (NO NUMBER INDICATES ONE (1) JACK) - REFER TO LOW VOLTAGE ROUGH-IN DETAIL		DESIGNATION - HATCHING INDICATES REQUIRED CLEARANCE HOMERUN - LETTER INDICATES PANELBOARD - NUMBER INDICATES	RGS	RIGID GALVANIZED STEEL CONDUIT
	FUSIBLE DISCONNECT SWITCH @ 54" AFF	A-1	CIRCUIT CONDUIT IN WALL OR CEILING - SYMBOL REPRESENTS UNSWITCHED	RSC	RIGID STEEL CONDUIT
	NON-FUSIBLE DISCONNECT SWITCH @ 54" AFF		CIRCUIT	SPD	SURGE PROTECTION DEVICE
			DATA RACEWAY	SS	STAINLESS STEEL
	MOTOR STARTER @ 54" AFF		DATA & TELEPHONE RACEWAY	TEL	TELEPHONE
	COMBINATION STARTER @ 54" AFF		EMERGENCY CIRCUIT	TOF	TOP OF FIXTURE
	ENCLOSED CIRCUIT BREAKER		FIBER OPTICS RACEWAY	TR	TAMPER RESISTANT
		O . O	GENERATOR POWER OUTPUT	TV	TELEVISION
		_	OVERHEAD SECONDARY ELECTRICAL SERVICE	V	VOLTS
			TELEPHONE RACEWAY	VA	VOLT-AMPERES
			TELEVISION RACEWAY	VFD	VARIABLE FREQUENCY DRIVE
		O.	CONDUIT TO BE CONCEALED UNDER FLOOR	W	WATTS
	WIRELESS ACCESS POINT	——UG——	UNDERGROUND ELECTRICAL	WG	WIRE GUARD
ļ					
7		—UPE—	UNDERGROUND PRIMARY ELECTRICAL SERVICE	WP	WEATHERPROOF

ELECTRICAL GENERAL NOTES

DEMOLITION GENERAL NOTES

- THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE DURING ON-SITE INVESTIGATION AND/OR EXISTING DRAWINGS. THERE MAY BE MORE DEVICES TO BE REMOVED THAN SHOWN. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOBSITE PRIOR TO SUBMITTING A BID. THE BUILDING NEEDS TO REMAIN FUNCTIONAL DURING ALL PHASES OF CONSTRUCTION. COORDINATE ALL REQUIREMENTS WITH THE OWNER AND ARCHITECT. MAINTAIN THE INTEGRITY OF ALL DEVICES NOT REQUIRED TO BE REMOVED.
- ALL DASHED ITEMS AND ITEMS NOTED WITH 'D' SHALL BE REMOVED IN THEIR ENTIRETY. THIS INCLUDES WIRING DEVICES, CONDUIT/RACEWAY, J-BOXES, AND ALL ASSOCIATED WIRING/CABLING TO EXTENT POSSIBLE.
- EXISTING ITEMS SHOWN IN LIGHT SHADE ARE TO REMAIN AND SHALL BE PROTECTED. ALL DEVICES SHOWN WITH 'R' ARE TO BE REMOVED AND RELOCATED. RETEST ALL AFFECTED DEVICES TO MAINTAIN CIRCUIT INTEGRITY OF ALL EXISTING CIRCUITS AND CONNECTIONS.
- EXISTING ELECTRICAL CONDUIT WHICH IS NOT CONCEALED IN WALLS OR FLOOR SLAB AND WHICH IS NOT BEING REUSED SHALL BE REMOVED WIRING SHALL BE REMOVED AND ABANDONED CONDUIT SHALL BE CUT OFF FLUSH WHERE IT ENTERS THE FLOOR OR WALL AND SEALED. EXISTING CONDUIT TO REMAIN SHALL BE SUPPORTED.
- WHERE DEVICES ARE TO BE REMOVED FROM EXISTING SURFACES OR ABANDONED, THE CONTRACTOR SHALL INSTALL BLANK WALL PLATES. EXTRA CARE SHOULD BE TAKEN NOT TO DAMAGE EXISTING SURFACES OR FINISHES. ALL REPAIR COSTS SHALL BE AT THE EXPENSES OF THE CONTRACTOR. REPAIR ALL HOLES FROM THE REMOVAL OF ELECTRICAL ITEMS AND PATCH/PAINT TO MATCH EXISTING.
- ALL NEW WIRING/CONDUITS SHALL BE CONCEALED IN NEW WALLS AND ALSO IN EXISTING WALLS WHERE POSSIBLE EVERY FEFORT SHALL BE MADE TO CONCEAL WIRING IN EXISTING WALLS, 3/4" FLEXIBLE METALLIC CONDUIT MAY BE USED AND ROUTED THROUGH EXISTING WALLS BOXES SHALL BE CUT IN AND RECESSED WHERE POSSIBLE SURFACE MOUNT CONDUIT INSTALLATIONS ARE ACCEPTABLE ONLY IN UNFINISHED AREAS (I.E. MECHANICAL AND ELECTRICAL ROOMS).
- SURFACE INSTALLATIONS IN FINISHED AREAS SHALL BE PERMITTED ONLY IF ABSOLUTELY NECESSARY. IF IT IS NOT PHYSICALLY POSSIBLE OR PRACTICAL TO CONCEAL RACEWAYS, THE CONTRACTORS SHALL BE PREPARED TO FURNISH AND INSTALL ONE-PIECE STEEL SURFACE RACEWAY, WIREMOLD 700 SERIES OR EQUAL, WITH COLOR SELECTED BY ARCHITECT. FOR NEW DEVICES SHOWN ON EXISTING GYP-BOARD WALLS, CONTRACTOR SHALL BE CUT NEW RECESSED REMODEL J-BOX INTO WALL AND ROUTE 3/4" FLEXIBLE METALLIC CONDUIT INSIDE WALL FROM J-BOX TO ABOVE CEILING TO ACCESSIBLE AREA. CONDUIT ENDS SHALL BE REAMED AND FREE OF BURRS. SURFACE MOUNT EMT IS ACCEPTABLE IN UNFINISHED AREAS
- NEW BOXES SHALL BE CUT IN & RECESSED WHERE POSSIBLE. ELECTRICAL CONTRACTOR SHALL MAKE EVERY EFFORT TO CONCEAL NEW RACEWAYS IN EXISTING WALLS [3/4" FMC WILL BE PERMITTED] EXPOSED RACEWAYS WILL BE PERMITTED IN UNFINISHED AREAS ONLY.
- IF IT IS NOT PHYSICALLY POSSIBLE OR PRACTICAL TO CONCEAL RACEWAYS, ELECTRICAL CONTRACTOR SHALL BE PREPARED TO FURNISH/INSTALL ONE-PIECE STEEL SURFACE RACEWAY, WIREMOLD 700 SERIES OR EQUAL. COLOR TO BE APPROVED BY OWNER.
- PATCH, REPAIR, PAINT WALLS WHERE DEVICES HAVE BEEN REMOVED. PROVIDE COVERPLATES OVER UNUSED OR ABANDONED J-BOXES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED CUTTING, PATCHING AND REPAIRING OF EXISTING WALLS WHERE NEW DEVICES/CONDUIT ARE TO BE INSTALLED RECESSED
- ALL ABANDONED AND UNUSED CABLING SHALL BE REMOVED UNLESS LABELED FOR FUTURE USE AND SUPPORTED BACK TO SOURCES. CONTRACTOR TO VISIT SITE PRIOR TO BIDDING FOR FIELD CONDITIONS.
- SITE PLAN GENERAL NOTES IN COMPLIANCE WITH STATE AND LOCAL JURISDICTIONS, CONTACT THE UTILITY LOCATING SERVICE/DIGGERS HOTLINE. THIS SHOULD BE DONE A MINIMUM OF 48 HOURS (FXCLUDING SATURDAYS SUNDAYS AND HOLIDAYS) PRIOR TO ACTUAL NEED TO ARRANGE FOR LOCATION OF UNDERGROUND UTILITY CABLES AND EQUIPMENT. ACTUAL LOCATING OF THE CABLES AND EQUIPMENT WILL THEN BE DONE BY EACH UTILITY. GENERAL SERVICE OR RESIDENTIAL CUSTOMERS MUST MAKE SEPARATE ARRANGEMENTS FOR LOCATION OF THEIR NON-UTILITY-OWNED UNDERGROUND FACILITIES SITUATED UPON THEIR OWN
- UTILITY LOCATIONS ARE SUBJECT TO INTERPRETATION, LOCATIONS ARE ACCURACY. FURTHER VERIFICATION MAY BE REQUIRED TO IDENTIFY UTILITIES. CONTACT LOCAL UTILITY COMPANIES FOR REQUIREMENTS. COORDINATION ON CONDUIT AND/OR CABLE SHALL BE DONE PRIOR TO INSTALLATION. ALL INSTALLATIONS MUST BE INSTALLED PER LOCAL UTILITY STANDARDS AND INSPECTED PRIOR TO BEING COVERED.
- CONTRACTOR SHALL INCUR ALL COSTS FOR CLEARING FITHER OVERHEAD OR UNDERGROUND ROUTES. INCLUDING TREE REMOVAL. BUILDING AND/OR FOUNDATION OR RUBBLE REMOVAL ANY OTHER OBSTACLES ENCOUNTERED, AND ALL SITE WORK REQUIRED BY LOCAL
- CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS WITH LOCAL UTILITY COMPANY REGARDING AID TO CONSTRUCTION COSTS. AID TO CONSTRUCTION COSTS SHALL BE INCLUDED AS AN ALLOWANCE AND NOT PART OF THE CONTRACTOR BID.
- IF HAZARDOUS MATERIALS ARE ENCOUNTERED, STOP WORK IMMEDIATELY AND INFORM THE OWNER'S REPRESENTATIVE IN WRITING AND VERBALLY. THE OWNER'S REPRESENTATIVE WILL THEN BE RESPONSIBLE TO TAKE APPROPRIATE ACTIONS.
- REFER TO ELECTRICAL/TELECOM RISER DIAGRAMS FOR ADDITIONAL INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE WORK REQUIRED BY LOCAL UTILITIES.
- PROVIDE #10 AWG CONDUCTORS AND 1" CONDUIT FOR SITE LIGHTING
- CIRCUITS UNLESS OTHERWISE NOTED.
- LIGHT FIXTURE LOCATIONS SHALL BE COORDINATED WITH ALL LANDSCAPE FEATURES INCLUDING EXPANSION JOINTS, PAVEMENT PATTERNS, AND LANDSCAPE PLANTINGS AS INDICATED ON PLANS. REFER TO SITE PAVING AND PLANTING SHEETS FOR EXACT LOCATIONS AND DIMENSIONS OF JOINTS, PATTERNS, AND PLANTINGS.
- SEE ARCHITECTURAL BUILDING ELEVATIONS FOR LOCATION OF BUILDING MOUNTED EXTERIOR LIGHT FIXTURES.
- EQUIPMENT GROUNDING TERMINAL IN LIGHT POLES IN ACCORDANCE WITH NEC. CONDUIT ROUTES SHALL BE FIELD VERIFIED AND ADJUSTED AS NEEDED

PROVIDE A CONNECTION OF EQUIPMENT GROUNDING CONDUCTOR TO

- BURIAL DEPTH OF CONDUITS UNDER PAVEMENT SHALL BE 24" BELOW GRADE MINIMUM. BURIAL DEPTH OF CONDUITS IN GRASS AREA SHALL BE 18" BELOW GRADE MINIMUM. BURIAL DEPTH MAY BE REQUIRED TO BE GREATER THAN THE MINIMUMS INDICATED HERE, COORDINATE WITH OTHER UTILITIES AND CIVIL.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN(S) FOR EXACT LOCATION OF ALL CEILING MOUNTED DEVICES.

CLOSER THAN THE MINIMUM DISTANCE RECOMMENDED BY THE

- ALL LIGHT FIXTURES SHALL HAVE 0'-3" MINIMUM CLEARANCE FROM
- PIPING, DUCTWORK, ETC. COORDINATE WITH ALL TRADES. WHERE INFRARED HEATERS ARE PRESENT, LOCATE LIGHT FIXTURES NO
- INFRARED HEATER MANUFACTURER. COORDINATE REQUIREMENTS TAKE STEPS TO COVER AND PROTECT PERIMETER AND ARCHITECTURAL POCKET LIGHT FIXTURES FROM PAINTING AND PAINT SPRAY. REMOVING LENSES IS NOT ADEQUATE PROTECTION. LENSES OR DIODES WITH

PAINT ON THEM SHALL BE REPLACED AT NO ADDITIONAL COST TO

ALL COVE LIGHT FIXTURES SHALL BE INSTALLED AFTER PAINTING HAS BEEN COMPLETED.

- F. MOUNT 2X2 LIGHT FIXTURES WITH CENTER BASKETS SUCH THAT THE CENTER BASKET IS PERPENDICULAR TO THE LONG DIMENSION OF THE
- G. LIGHT FIXTURES RECESSED IN CEILINGS, FLOORS, OR WALLS SHALL NOT BE USED TO ACCESS OUTLET, PULL, OR JUNCTION BOXES OR CONDUIT BODIES, UNLESS THE BOX OR CONDUIT BODY IS AN INTEGRAL PART OF THE LISTED LIGHT FIXTURE
- H. PROVIDE ENCLOSURES OVER RECESSED LIGHT FIXTURES INSTALLED IN RATED CEILINGS SO ALL CODE REQUIRED RATINGS ARE MAINTAINED. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND RATINGS. FULLY COORDINATE ALL REQUIREMENTS WITH THE GENERAL CONTRACTOR.
- I. THE CANOPY PORTION OF SUSPENDED LIGHT FIXTURES INSTALLED IN A FINISHED SPACE WITH AN EXPOSED-TO-STRUCTURE CEILING SHALL BE INSTALLED DIRECTLY TO THE BOTTOM OF THE STRUCTURAL DECK OR BOTTOM OF STRUCTURAL MEMBER UNLESS OTHERWISE NOTED. SUSPENDING THE BOX/CANOPY AT A LOWER MOUNTING HEIGHT VIA UNISTRUT, ALL-THREAD, OR SIMILAR MEANS IS NOT ACCEPTABLE. NOTIFY ENGINEER IMMEDIATELY IF ON-SITE CONDITIONS WILL RESULT IN A MOUNTING CONFLICT.
- J. FOR SUSPENDED LIGHT FIXTURES WITH ROUND CANOPIES IN EXPOSED CEILING AREAS, ENSURE THAT THE ELECTRICAL CONNECTION BOX IS COMPLETELY COVERED. PARTIALLY COVERED ELECTRICAL BOXES ARE NOT ACCEPTABLE. PROVIDE ROUND DEVICE RING COVERS AS
- K. FOR SUSPENDED LIGHT FIXTURES WITH SEPARATE MOUNTING AND POWER CORD CABLES PROVIDE ZIP TIES OR SIMILAR TO KEEP MULTIPLE CARLES COMING OUT OF THE SAME LIGHT FIXTURE LOCATION TIGHTLY GROUPED TOGETHER. UTILIZE A COMMON SCUTCHEON PLATE FOR MULTIPLE CABLES COMING OUT OF THE SAME LIGHT FIXTURE LOCATION TO THE GREATEST EXTENT POSSIBLE. WHERE PROJECT CONDITIONS DO NOT ALLOW A COMMON SCUTCHEON PLATE. THE SEPARATE SCUTCHEON PLATES SHALL BE LOCATED AS CLOSE TO EACH OTHER AS POSSIBLE AND ALIGNED WITH THE LIGHT FIXTURE.
- SUSPENDED LIGHT FIXTURES COORDINATE EXACT LOCATION AND MOUNTING ELEVATION WITH ARCHITECTURAL DETAILS. M. WHERE SUBJECT TO SWAYING, BRACE SUSPENDED FIXTURES AND/OR
- DEVICES AS REQUIRED TO PREVENT SWAYING. COORDINATE REQUIREMENTS WITH VENDOR. N. INSTALL UNDERCABINET LIGHT FIXTURES IN SUCH A MANNER THAT FLEX
- CONDUIT SHALL BE CONCEALED AND NOT VISIBLE FROM THE FRONT OF THE LIGHT FIXTURE NO DROOP OR COILED LOOPS OF WIRE SHALL BE ACCEPTABLE FOR POWER FEEDS OR JUMPER CABLES BETWEEN UNDERCABINET LIGHT FIXTURES.
- O. WALL MOUNTED LIGHT FIXTURES COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS. COORDINATE FRAMING AND BOX SUPPORTS PRIOR TO ROUGH-IN FOR EXACT PLACEMENT OF BOX TO ACHIEVE CENTERING AND ALIGNMENT WITH FINAL ARCHITECTURAL FINISHES.
- P. WALL MOUNTED EXIT SIGNS: MOUNT SO BOTTOM OF SIGN IS 6" ABOVE TOP OF DOOR/WINDOW FRAME, AND CENTERED HORIZONTALLY ON DOOR/WINDOW, UNLESS NOTED OTHERWISE.
- <u>LIGHTING CONTROL GENERAL NOTES</u> A. LOWER-CASE SUBSCRIPT(S) ADJACENT LUMINAIRES AND MANUAL

AND ZONE SUBSCRIPTS.

- LIGHTING CONTROL DEVICES ON THE LIGHTING PLAN(S) INDICATE THE APPLICABLE LIGHTING CONTROL ZONE(S).
- B. CIRCUITING IS NOT SHOWN BETWEEN MANUAL LIGHTING CONTROL DEVICES AND LUMINAIRES CONTROLLED. a. WHERE A SPACE INCLUDES A SINGLE ZONE OF CONTROL, THE
- LIGHTING CONTROL DEVICE(S) WITHIN THAT SPACE SHALL CONTROL ALL OF THE LIGHTING WITHIN THE SPACE. . WHERE A SPACE INCLUDES MULTIPLE ZONES OF CONTROL, CONNECT LIGHTING CONTROL DEVICES AS INDICATED BY ZONE SUBSCRIPTS INDICATED ON LIGHTING PLAN(S). CONTROL AS INDICATED ON LOW VOLTAGE SWITCH SCHEDULE LIGHTING CONTROL PLAN, LIGHTING CONTROL SEQUENCE OF OPERATION,
- DIMMING PERCENTAGES INDICATED ON PLANS REPRESENT THE PERCENTAGE OF DELIVERED LUMENS WITH RESPECT TO FULL OUTPUT DELIVERED LUMENS.
- D. PROVIDE A SEPARATE NEUTRAL WIRE FOR DIMMED LIGHTING CIRCUITS AND DIMMED ZONES SHARING THE SAME CIRCUIT AS REQUIRED. COORDINATE REQUIREMENTS WITH VENDOR.

F WHEN LOCATED UNDERNEATH LIPPER CARINETS SWITCHES SERVING

- UNDERCABINET TASK LIGHTING SHALL MATCH ADJACENT ABOVE COUNTER RECEPTACLE HEIGHT F GROUPED SWITCHES OF 2 OR MORE SHALL SHARE THE SAME BACK BOX
- PROVIDE BARRIER(S) BETWEEN NORMAL AND EMERGENCY/LIFE SAFETY G. PROVIDE UNSWITCHED CONNECTION FROM LOCAL EMERGENCY/LIFE
- SAFETY CIRCUIT TO ALL EXIT SIGNS TO ENSURE THAT THEY REMAIN ENERGIZED AT ALL TIMES. REFERENCE UL-924 LIGHTING CONTROL RELAY DETAIL FOR FURTHER INFORMATION.
- H. PROVIDE EMERGENCY/LIFE SAFETY LIGHTING CONTROL RELAYS FOR EMERGENCY/LIFE SAFETY LIGHTING OVERRIDE AS INDICATED IN UL-924 LIGHTING CONTROL RELAY DETAIL.
- PHOTOCELL(S) CONTROLLING EXTERIOR LIGHTING SHALL BE LOCATED ON THE ROOF AND AIMED NORTH UNLESS NOTED OTHERWISE. CONCEAL PHOTOCELL(S) FROM VIEW OF GROUND-LEVEL PEDESTRIANS.
- J. ALL LIGHTING CONTROL DEVICES SHALL BE INSTALLED BEFORE THE FACTORY STARTUP AND PROGRAMMING AGENT IS ON-SITE. WHERE PHASED CONSTRUCTION/PROGRAMMING IS IMPLEMENTED, ALL LIGHTING CONTROL DEVICES FOR THE APPLICABLE PHASE OF CONSTRUCTION SHALL BE INSTALLED BEFORE THE FACTORY STARTUP AND
- PROGRAMMING AGENT IS ON-SITE FOR THAT PHASE OF CONSTRUCTION. K. WHEN INSTALLED IN SPACES WITH EXPOSED-TO-STRUCTURE CEILINGS. OCCUPANT SENSORS SHALL BE MOUNTED DIRECTLY TO BOTTOM OF STRUCTURAL DECK OR BOTTOM OF STRUCTURAL MEMBER. SUSPENDING THE BOX/CANOPY AT A LOWER MOUNTING HEIGHT VIA UNISTRUT, ALL-THREAD, OR SIMILAR MEANS IS NOT ACCEPTABLE UNLESS APPROVED BY ENGINEER. NOTIFY ENGINEER IMMEDIATELY IF ON-SITE CONDITIONS WILL RESULT IN A MOUNTING CONFLICT OR
- I PLACE OCCUPANT SENSORS TO AVOID THE SENSOR HAVING A VIEW OUTSIDE OF THE SPACE BEING CONTROLLED. CEILING MOUNTED SENSORS SHALL BE PLACED CLOSE TO THE WALLS CONTAINING DOORS WALL-MOUNTED SENSORS SHALL BE MOUNTED ON WALLS CONTAINING THE DOORS TO AVOID VIEWS OUTSIDE OF THE ROOM. OCCUPANT SENSOR'S VIEW OF THE ROOM AND ROOM ENTRANCE SHALL NOT BE BLOCKED BY AN OPEN DOOR.

NEGATIVELY IMPACT THE SENSOR COVERAGE PATTERN.

- M. MOUNT OCCUPANT SENSORS A MINIMUM OF THREE FEET AWAY FROM
- <u>LIGHTING CONTROL COMMISSIONING GENERAL NOTES</u> A. START-UP, PROGRAM, AND COMMISSION LIGHTING CONTROLS PER CONSTRUCTION DOCUMENTS. THE SYSTEM SHALL BE PROGRAMMED TO MEET ENERGY CODE, SEQUENCE OF OPERATIONS, AND THE INTENT SHOWN ON THE DRAWINGS.
- B. PROVIDE NOTICE TO COMMISSIONING AGENT OF REQUIRED SITE VISITS/MEETINGS ON SITE A MINIMUM OF SEVEN DAYS IN ADVANCE

COMPLETE LIGHTING CONTROL COMMISSIONING CONSTRUCTION

C FLECTRICAL CONTRACTOR AND LIGHTING CONTROL VENDOR SHALL

CHECKLISTS ATTACHED TO CONSTRUCTION DOCUMENTS PRIOR TO PASSING FINAL INSPECTION.

- POWER/SPECIAL SYSTEMS GENERAL NOTES A PROVIDE A 4"x4"x2 1/8" DEEP J-BOX WITH 1"C. STUBBED TO ABOVE CEILING TO ACCESSIBLE AREA FOR ALL TELECOMMUNICATION OUTLET
- LOCATIONS SHOWN, PROVIDE A PULLSTRING IN EACH CONDUIT. CABLING AND TERMINATIONS ARE BY OWNER. B. SECURITY SYSTEM, NURSE CALL SYSTEM, ALL RESPECTIVE DEVICES,
- ALL RECEPTACLES IN LIVING UNITS & COMMON AREAS SHALL BE HOSPITAL GRADE.

CABLING, & EQUIPMENT BY OTHERS.

NOISE BETWEEN LIVING SPACES.

- COORDINATE DEVICES TO BE INSTALLED IN MILLWORK WITH MILLWORK CONTRACTOR.
- VERIFY LOCATION AND COORDINATE REQUIREMENTS OF ALL EQUIPMENT WITH PROCESSING EQUIPMENT, MANUFACTURING
- ASSEMBLIES, SUPPLIES, ETC. PRIOR TO INSTALLATION. FACH BRANCH CIRCUIT SHALL HAVE A SEPARATE NEUTRAL WIRE. ONE GREEN EQUIPMENT GROUND WIRE SHALL BE INSTALLED IN EACH
- CONDUIT WITH (3) OR LESS BRANCH CIRCUITS. WIRING DEVICES IN LIVING UNITS SHALL BE INSTALLED OFFSET IN ADJACENT UNIT WALLS AND NOT BACK TO BACK, IN ORDER TO MINIMIZE
- H. FIRE ALARM CONTRACTOR SHALL FURNISH AND INSTALL DUCT SMOKE DETECTORS AND SHUTDOWN RELAYS FOR EACH SUPPLY DUCT 2,000 CFM OR GREATER, EACH RETURN DUCT 2,000 CFM OR GREATER, AND EACH COMBINED PLENUM RETURN SYSTEM 2,000 TOTAL CFM OR GREATER. FOR RETURN AIR SYSTEMS 15,000 CFM OR GREATER. PROVIDE DUCT SMOKE DETECTOR AND SHUTDOWN RELAY AT EACH LEVEL. SUCH SMOKE DETECTORS SHALL BE LOCATED UPSTREAM OF THE CONNECTION RETWEEN THE RETURN AIR RISER AND ANY AIR DUCTS OR PLENUMS. COORDINATE ALL EQUIPMENT REQUIREMENTS AND LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO BIDDING CONNECT TO FIRE ALARM SYSTEM AS REQUIRED. COORDINATE REQUIREMENTS WITH VENDOR
- PROVIDE SMOKE DETECTOR AT EVERY FIRE ALARM CONTROL PANEL PAD EXTENDER (WITHIN 5-FT.). CONTRACTOR TO DETERMINE LOCATIONS BASED ON POWER REQUIREMENTS AND VOLTAGE DROP.
- FIRE ALARM CONTRACTOR TO INCLUDE COST AND TIME OF PERFORMING A RADIO FREQUENCY (RF) TEST FOR THE BUILDING AFTER THE CORE, SHELL, WINDOWS, AND DOORS ARE COMPLETED, TO DETERMINE IF AN ERCES IS NEEDED, AS REQUIRED BY THE LOCAL AHJ. ERCES SHALL BE DESIGNED BY AN RF SYSTEM DESIGNER AND INSTALLED ACCORDING TO THE LATEST NFPA AND IFC REQUIREMENTS AND APPROVED BY THE AJH AND FREQUENCY LICENSE HOLDER.
- K. THE CONTROLS CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COORDINATION WITH THE MECHANICAL AND ELECTRICAL CONTRACTORS TO PROVIDE AND INSTALL SYSTEMS AS SPECIFIED. THE CONTROLS CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT AND WIRE NOT SHOWN ON MECHANICAL AND ELECTRICAL DOCUMENTS BUT THAT ARE REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR ON ALL ELECTRICAL REQUIREMENTS PERTAINING TO MECHANICAL EQUIPMENT AND CONNECTIONS PRIOR TO ORDERING OF EQUIPMENT AND INSTALLATION. CHANGES AND MODIFICATIONS TO THIS EQUIPMENT THAT MAY REQUIRE CIRCUIT BREAKER AND WIRE/CONDUIT CHANGES SHALL BE COMMUNICATED TO ALL PARTIES WITH THE CONTRACTOR(S) INCLUDING THIS IN THEIR RESPECTIVE SCOPE OF WORK, THERE SHALL BE NO ADDITIONAL COST TO THE OWNER FOR THESE MODIFICATIONS
- M. ALL 120V KITCHEN RECEPTACLES SHALL BE GFI PROTECTED.
- N. PROVIDE GFI RECEPTACLES AT OTHER LOCATIONS AS REQUIRED BY
- O. PROVIDE TAMPER PROOF RECEPTACLES IN LOCATIONS REQUIRED BY

PROJECT GENERAL NOTES

- A. ALL SHEETS REQUESTED IN CAD (.DWG) FORMAT SHALL BE PROVIDED IN ACAD 2018 AT A CHARGE OF \$25/SHEET (MINIMUM \$250) FOR FIRE ALARM, TELECOMMUNICATIONS, AND SECURITY EQUIPMENT CONTRACTORS AND FOR LIGHTING FIXTURE MANUFACTURER REPRESENTATIVES. ALL OTHERS REQUESTING CAD FILES SHALL BE CHARGED \$50/SHEET (MINIMUM \$250). PRIOR TO TRANSMISSION OF FILES, THE REQUESTING PARTY MUST SIGN AND RETURN "DOCUMENT DISCLAIMER" TO AES.
- B THE ENTIRE INSTALLATION SHOWN IN THE CONSTRUCTION DOCUMENTS. (CDS) SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, CITY. STATE AND NATIONAL CODES, LAWS, ACTS AND ORDINANCES AND ALL AUTHORITIES HAVING JURISDICTION. THE OWNERS INSURANCE COMPANY REQUIREMENTS, UTILITY COMPANY REQUIREMENTS, APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE AND SAFETY, THE MANUFACTURER'S STRICTEST REQUIREMENTS AND RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION. IN THE EVENT OF CONFLICT BETWEEN THESE CONTRACT DOCUMENTS AND GOVERNING LAWS, THE MORE STRICT SHALL APPLY. ALL COSTS REQUIRED SHOULD BE INCLUDED IN THE BIDS.
- DRAWINGS ARE LARGELY SCHEMATIC IN NATURE AND SHALL BE ADAPTED TO ACTUAL SITE CONDITIONS AND OWNER'S REQUIREMENTS AT NO ADDITIONAL COST, THE DRAWINGS ARE NOT INTENDED TO INDICATE EVERY DETAIL APPLICABLE TO PROJECT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONTRACT DOCUMENTS AND TO COORDINATE WITH ALL OTHER TRADES AND EXISTING/SITE CONDITIONS TO PROVIDE A FULLY FUNCTIONAL SYSTEM PER THE INTENT OF DESIGN. ALL REQUIRED SUPPORTS AND SYSTEMS SHALL BE PROVIDED FOR A FULLY FUNCTIONAL SYSTEM PER THE
- DESIGN INTENT, AS DETERMINED BY THE ARCHITECT AND ENGINEER. D. ALL EQUIPMENT SHALL BE PROPERLY ALIGNED, LUBRICATED AND OILED BEFORE START UP AND FINAL ACCEPTANCE BY OWNER. OIL/GREASE FILL PORTS SHALL BE VERTICAL AND EXTENSION FITTINGS SHALL BE
- PROVIDED AS REQUIRED FOR ACCESS FROM EXTERIOR OF UNIT. ALL EQUIPMENT SHALL BE THOROUGHLY CLEANED AND ALL BARE, SCRATCHED OR MARRED AREAS SHALL BE PAINTED WITH FACTORY PAINT OR AN OWNER APPROVED EQUAL.
- F. IN A MANNER SATISFACTORY TO THE OWNER'S REPRESENTATIVE, TOUCH-UP OR REFINISH FACTORY-APPLIED PAINTS OR FINISHES WHICH ARE CHIPPED DEFACED. SCRATCHED. OR IN ANY OTHER WAY DISTURBED DUE TO HANDLING, INSTALLATION, OR GENERAL CONSTRUCTION WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP DURING AND AT CONCLUSION OF CONSTRUCTION PERIOD. NO MATERIALS SHALL BE LEFT ON SITE WHEN WORK IS COMPLETED, UNLESS REQUESTED BY OWNER'S REPRESENTATIVE. ALL MATERIALS SHALL BE DISPOSED OF
- H. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING ANY HOLES IN EXISTING/NEW BEAMS THAT ARE REQUIRED FOR ROUTING PIPING/DUCT/CONDUIT. ALL HOLES TO BE MADE IN THE MIDDLE THIRD (HEIGHT AND WIDTH WISE) OF THE BEAMS, COORDINATE WITH STRUCTURAL ENGINEER/GENERAL CONTRACTOR BEFORE CUTTING

- I. COORDINATE ALL ROOF AND WALL PENETRATIONS WITH EXISTING/NEW STRUCTURAL CONDITIONS. MAINTAIN ALL ROOF WARRANTIES. ALL PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS SHALL BE CAULKED AND SEALED WITH APPROVED FIRE RATED CAULKING
- J. INSTALL RACEWAYS AND ELECTRICAL EQUIPMENT, WHICH PENETRATE FIRE-RATED OR SMOKE BARRIER SURFACES, IN A MANNER, WHICH MAINTAINS THE SURFACE RATING OR BARRIER INTENT. DRILL WALL AND

FLOOR OPENINGS FOR PENETRATIONS AS NEEDED. THE CONTRACTOR

K. PROVIDE PERMANENT TYPED LABELS PER NEC 110 AND AHJ.

PATCHING, AND PLACING ROOF PENETRATIONS.

L. THE CONTRACTOR SHALL COORDINATE SERVICE INTERRUPTIONS WITH OWNER, MINIMUM OF 10 DAYS NOTICE IN ADVANCE.

SHALL BE RESPONSIBLE FOR PLACING SLEEVES, CUTTING AND

- M ALL DUCT CONDUIT AND PIPING CONNECTING TO VIBRATING EQUIPMENT SHALL HAVE FLEXIBLE CONNECTIONS INSTALLED AT
- CONNECTION TO EQUIPMENT. N. ALL EQUIPMENT ON THE FLOOR SHALL SIT ON A 3-1/2" HIGH CONCRETE
- HOUSE KEEPING PAD. PAD SHALL BE SEALED AND OR PAINTED TO MATCH SURROUNDING FLOOR.
- O. ALL NON-FIRE ALARM CONDUIT IN EXPOSED CEILING AREAS SHALL BE PAINTED TO MATCH CEILING
- P. ALL CONDUIT IN EXPOSED CEILING AREAS SHALL BE RUN IN STRAIGHT LINES PARALLEL TO OR AT RIGHT ANGLES TO BUILDING LINES
- Q. COORDINATE FINAL LOCATIONS OF FIXTURES AND DEVICES IN UNFINISHED AREAS WITH PIPING DUCTWORK EQUIPMENT CABLE TRAY ETC. TO AVOID CONFLICTS. MAKE MINOR ADJUSTMENTS TO FIXTURE AND/OR DEVICE LOCATIONS AS REQUIRED.

E - SHEET LIST - ELECTRICAL

SHEET NUMBER	SHEET NAME
E000	GENERAL PROJECT NOTES & SYMBOLS - ELECTRICAL
ED101	FIRST FLOOR PLAN - LIGHTING DEMO
ED102	SECOND FLOOR PLAN - LIGHTING DEMO
ED201	FIRST FLOOR PLAN - POWER DEMO
ED202	SECOND FLOOR PLAN - POWER DEMO
E101	FIRST FLOOR PLAN - LIGHTING
E102	SECOND FLOOR PLAN - LIGHTING
E201	FIRST FLOOR PLAN - POWER
E202	SECOND FLOOR PLAN - POWER
E301	ELECTRICAL SCHEDULES
E302	ELECTRICAL DETAILS
E303	ELECTRICAL DETAILS
E401	LIGHTING SCHEDULES
E402	LIGHTING SCHEDULES
E501	ELECTRICAL SPECIFICATIONS

ENGINEERING SYSTEMS

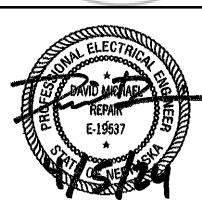
4630 ANTELOPE CREEK RD *SUITE 200* LINCOLN, NE 68506 P: (402) 488-0075 F: (402) 488-0272

www.a-e-sys.com C ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027



DATE:04/05/2024



GENERAL PROJECT NOTES & SYMBOLS - ELECTRICAL



9

¹ FIRST FLOOR - LIGHTING DEMO

ED101 SCALE: 1/8" = 1'-0"



ADVANCED

<u>SYSTEMS</u>

ENGINEERING

4630 ANTELOPE CREEK RD

SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272

www.a-e-sys.com

© ADVANCED ENGINEERING SYSTEMS

AUTHORIZATION # CA1800

CERTIFICATE OF

PROJECT # 24-027

DATE: 04/05/2024

DAVID MEMAEL BERNELLE BERNELLE



N ED102 SECOND FLOOR - LIGHTING DEMO
SCALE: 1/8" = 1'-0"

EXISTING FAN CONTROLS TO REMAIN. REMOVE EXISTING LIGHTING CONTROLS.

CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

DATE:04/05/2024

SYMBOL = X

REMOVE EXISTING LOW VOLTAGE HEAD END EQUIPMENT THAT IS NO LONGER NEEDED. COORDINATE WITH OWNER. FIELD VERIFY EQUIPMENT SERVED BY DISCONNECT. IF EQUIPMENT SERVED IS NOT EXISTING TO REMAIN, REMOVE DISCONNECT. PROVIDE NEC COMPLIANT ENCLOSURE AND COVER FOR ANY EXISTING TO REMAIN PULL BOXES.

ADVANCED ENGINEERING <u>SYSTEMS</u>

4630 ANTELOPE CREEK RD

SUITE 200 LINCOLN, NE 68506 P: (402) 488-0075

F: (402) 488-0272 <u>www.a-e-sys.com</u>

© ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

 No.
 Issued For
 Date

 2
 ASI #2
 5-24-2024

DATE:04/05/2024

FIRST FLOOR PLAN -POWER DEMO

SYMBOL = X

REPLACE EXISTING RECEPTACLE WITH NEW IN SAME LOCATION.
REUSE EXISTING WIRING AND CONDUIT TO THE EXTENT POSSIBLE.
REFERENCE NEW POWER PLAN FOR FURTHER INFORMATION.

ADVANCED ENGINEERING

4630 ANTELOPE CREEK RD

SUITE 200 LINCOLN, NE 68506 P: (402) 488-0075 F: (402) 488-0272

<u>www.a-e-sys.com</u>

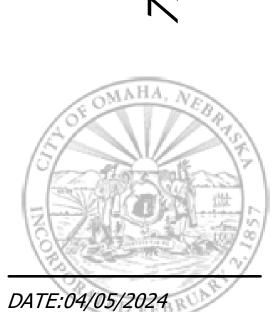
© ADVANCED ENGINEERING SYSTEMS

AUTHORIZATION # CA1800

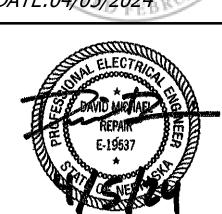
CERTIFICATE OF

PROJECT # 24-027

<u>SYSTEMS</u>

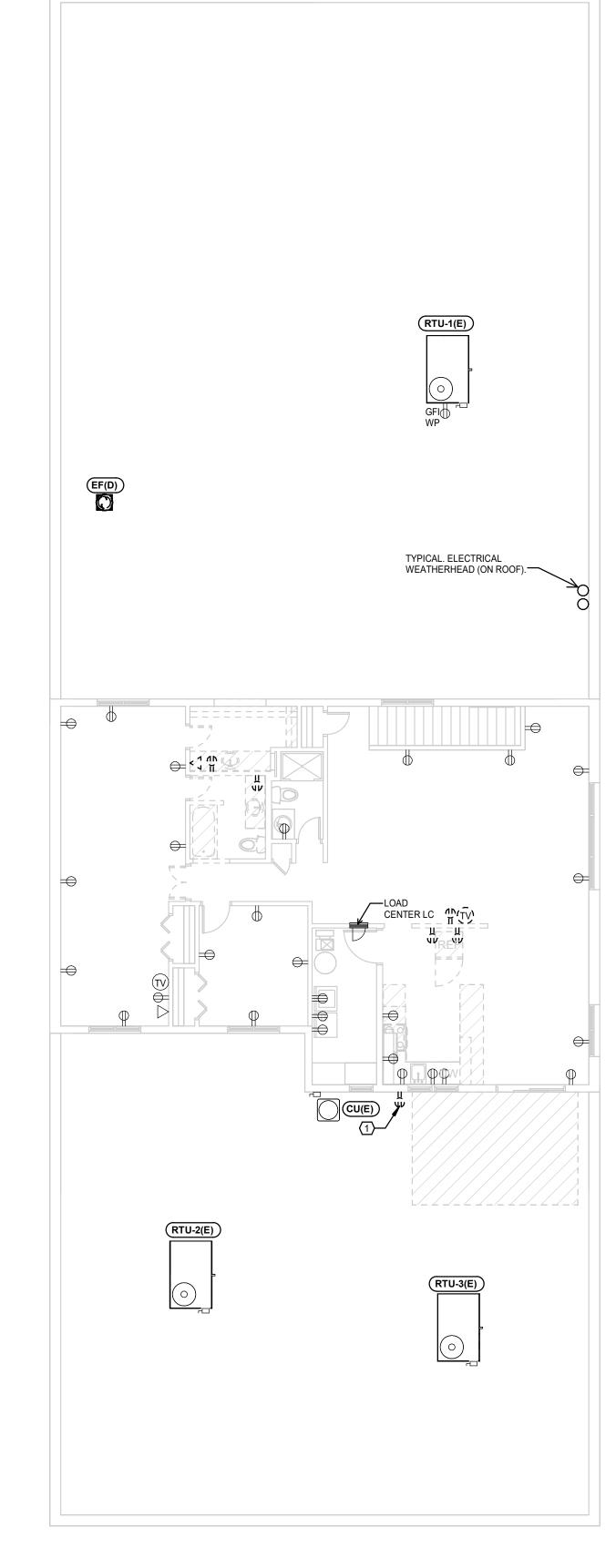


DATE:04/05/2024



SECOND FLOOR PLAN -POWER DEMO



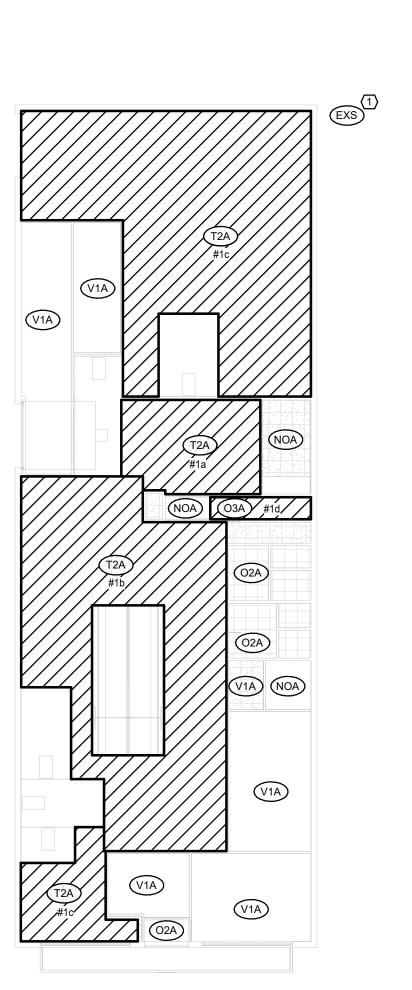


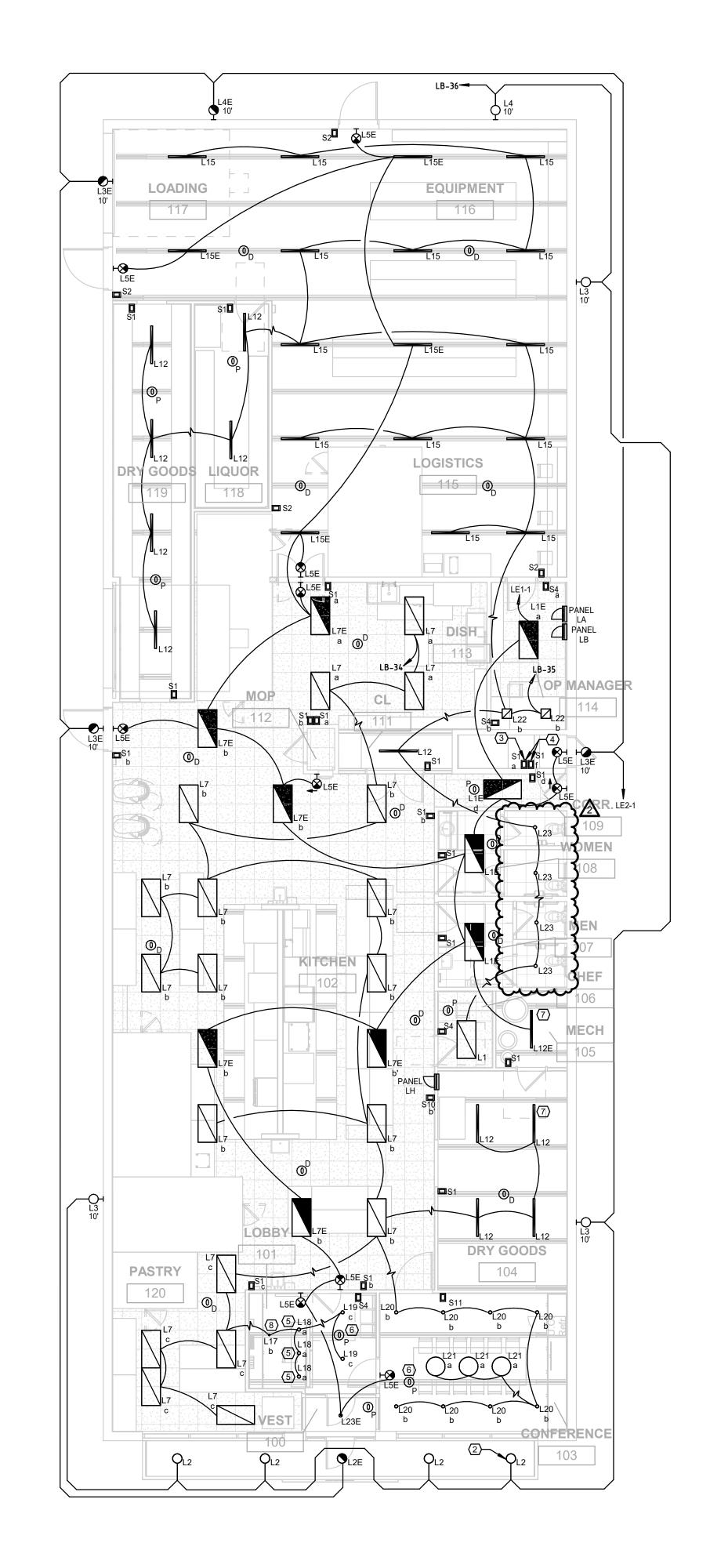
N 1 SECOND FLOOR - ELECTRICAL DEMO
SCALE: 1/8" = 1'-0"

- PROVIDE NEW LIGHT FIXTURE IN EXISTING LIGHT FIXTURE LOCATION. UTILIZE EXISTING ELECTRICAL CONNECTION TO THE EXTENT POSSIBLE.
- SWITCH SHALL CONTROL UPPER STAIRWELL FIXTURE, REFERENCE SHEET E102 FOR FURTHER INFORMATION.
- PROVIDE NEW WIRELESS SWITCH WITH INDICATED FUNCTIONALITY IN EXISTING SWITCH LOCATION. REFERENCE WIRELESS LIGHTING CONTROL DETAIL ON SHEET E102 FOR FURTHER INFORMATION.
- MOUNT AT 6'-8" B.O.F. FIELD CUT STEM AS REQUIRED.
- THIS ROOM: PROVIDE BLACK OCCUPANT SENSOR(S).
- TYPICAL THIS ROOM: MOUNT SUSPENDED FIXTURE SO THAT BOTTOM OF FIXTURE IS FLUSH WITH ADJACENT STRUCTURAL MEMBER. PROVIDE MOUNTING HARDWARE AND ACCESSORIES AS REQUIRED. COORDINATE REQUIREMENTS WITH VENDOR.
- FIELD ADJUST FIXTURE TO EVENLY ILLUMINATE LOGO ON BACK

LIGHTING CONTROL **PLAN**

- A. REFERENCE LIGHTING PLAN(S), LOW VOLTAGE SWITCH SCHEDULE, AND LIGHTING CONTROL SEQUENCE OF OPERATION FOR FURTHER INFORMATION.
- B. HATCHED AREAS INDICATE INDIVIDUAL LIGHTING CONTROL AREAS. IN SPACES WHERE NO HATCH IS PRESENT, THE LIGHTING CONTROL AREA BOUNDARY SHALL MATCH THE AREA ENCLOSED BY FLOOR-TO-CEILING WALLS.
- C. WHERE PRESENT, TAGS BEGINNING WITH "#" INDICATE THE LIGHTING CONTROL AREA NUMBER.
- D. WHERE MULTIPLE LIGHTING CONTROL ZONES ARE CONTAINED WITHIN A SINGLE LIGHTING CONTROL AREA, THE INDICATED LIGHTING CONTROL SEQUENCE OF OPERATION TYPE SHALL BE APPLICABLE FOR THE ENTIRETY OF THE LIGHTING CONTROL AREA.
- E. UNLESS OTHERWISE NOTED, THE OCCUPANT SENSOR AND/OR TIME SWITCH AREA(S) OF COVERAGE SHALL MATCH THE LIGHTING CONTROL AREAS.
- F. REFER TO LIGHTING CONTROL SEQUENCE OF OPERATION FOR AUTOMATIC LIGHTING CONTROL DEVICES REQUIRED BASED ON LIGHTING CONTROL TAGS. PROVIDE ALL NECESSARY DEVICES AND ACCESSORIES AS REQUIRED TO PROVIDE THE LEVEL OF CONTROL SPECIFIED WITHIN SEQUENCE OF OPERATION FOR EACH GIVEN CONTROL TYPE.





00007 - MPE (Frank Reida) Lighting to meet IECC 2018

ADVANCED

SYSTEMS

ENGINEERING

4630 ANTELOPE CREEK RD

SUITE 200

LINCOLN, NE 68506

P: (402) 488-0075

F: (402) 488-0272

© ADVANCED ENGINEERING SYSTEMS

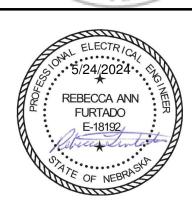
AUTHORIZATION # CA1800

CERTIFICATE OF

PROJECT # 24-027

<u>www.a-e-sys.com</u>

DATE:04/05/2024

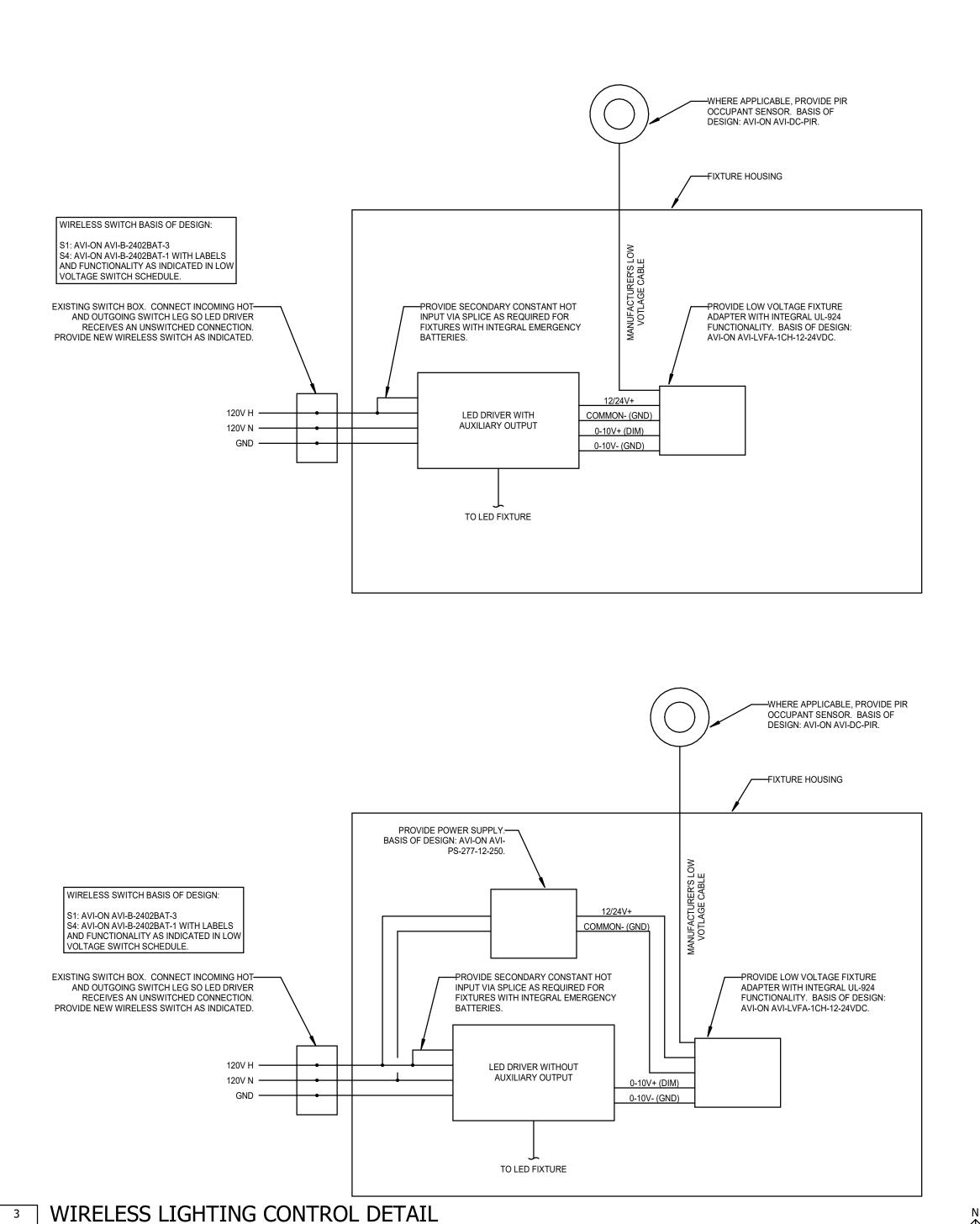


FIRST FLOOR PLAN -LIGHTING

Autodesk Docs://2240002640 Attitude On Food - Tenant Finish/24027-AES Central_R23.rvt

E101 FIRST FLOOR - LIGHTING

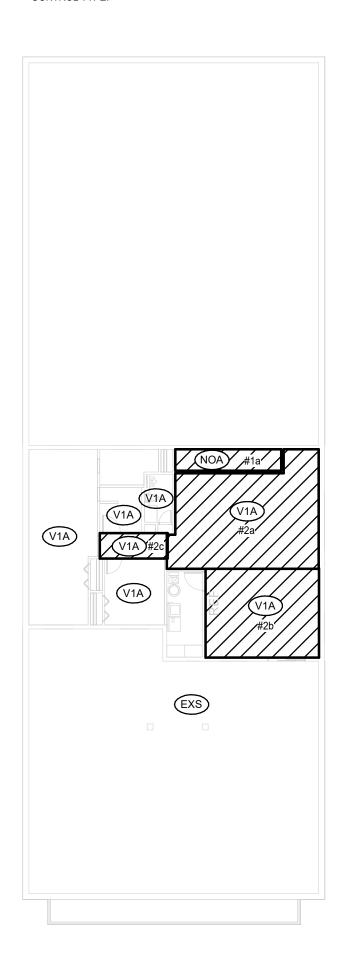
SCALE: 1/8" = 1'-0"



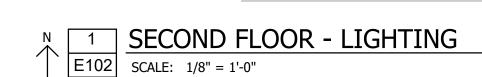
E102 NO SCALE

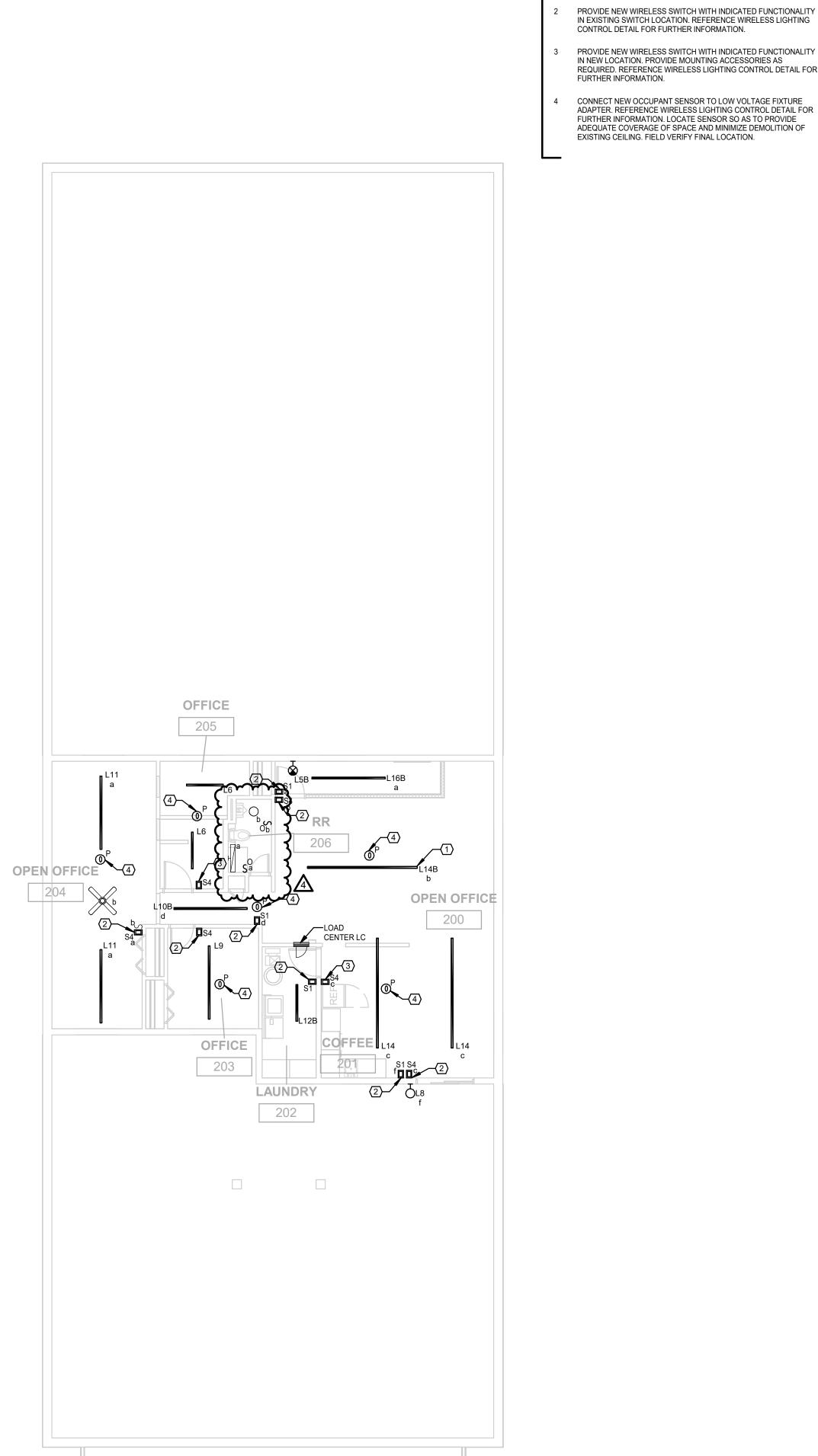
LIGHTING CONTROL **PLAN**

- A. REFERENCE LIGHTING PLAN(S), LOW VOLTAGE SWITCH SCHEDULE, AND LIGHTING CONTROL SEQUENCE OF OPERATION FOR FURTHER INFORMATION.
- B. HATCHED AREAS INDICATE INDIVIDUAL LIGHTING CONTROL AREAS. IN SPACES WHERE NO HATCH IS PRESENT, THE LIGHTING CONTROL AREA BOUNDARY SHALL MATCH THE AREA ENCLOSED BY FLOOR-TO-
- C. WHERE PRESENT, TAGS BEGINNING WITH "#" INDICATE THE LIGHTING CONTROL AREA NUMBER.
- D. WHERE MULTIPLE LIGHTING CONTROL ZONES ARE CONTAINED WITHIN A SINGLE LIGHTING CONTROL AREA, THE INDICATED LIGHTING CONTROL SEQUENCE OF OPERATION TYPE SHALL BE APPLICABLE FOR THE ENTIRETY OF THE LIGHTING CONTROL AREA.
- E. UNLESS OTHERWISE NOTED, THE OCCUPANT SENSOR AND/OR TIME SWITCH AREA(S) OF COVERAGE SHALL MATCH THE LIGHTING CONTROL AREAS.
- F. REFER TO LIGHTING CONTROL SEQUENCE OF OPERATION FOR AUTOMATIC LIGHTING CONTROL DEVICES REQUIRED BASED ON LIGHTING CONTROL TAGS. PROVIDE ALL NECESSARY DEVICES AND ACCESSORIES AS REQUIRED TO PROVIDE THE LEVEL OF CONTROL SPECIFIED WITHIN SEQUENCE OF OPERATION FOR EACH GIVEN



N 2 E102 SCALE: 1/16" = 1'-0" SCALE: 1/16" = 1'-0"





ADVANCED ENGINEERING SYSTEMS

TYPICAL NEW LIGHT FIXTURES THIS PLAN. UTILIZE EXISTING ELECTRICAL CONNECTION TO ENERGIZE NEW LIGHT FIXTURE. MINIMIZE DAMAGE TO EXISTING CEILING TO THE EXTENT POSSIBLE.

IN EXISTING SWITCH LOCATION. REFERENCE WIRELESS LIGHTING

IN NEW LOCATION. PROVIDE MOUNTING ACCESSORIES AS REQUIRED. REFERENCE WIRELESS LIGHTING CONTROL DETAIL FOR

PATCH, REPAIR, AND PAINT CEILING AS REQUIRED.

4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272 <u>www.a-e-sys.com</u>

(C) ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

Issued For 4 ASI #4 DATE:04/05/2024

SECOND FLOOR PLAN -

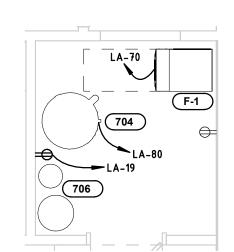
LIGHTING

AG	DESCRIPTION			DA	ATA				w	IRING				CON	NECTION		N
##)		KILOWATTS	HORSEPOWER	FLA	MCA	МОСР	VOLTAGE	PHASE	CONDUCTORS	GROUND	RACEWAY	PLUG	NEMA CONFIG.	DIRECT	DISCONNECT SWITCH	MOTOR STARTER	
201	WALK-IN FREEZER - REFRIG	-	-	10	13.4	15	208	1	(2)#12	(1)#12	3/4"	-	-	X	HEAVY DUTY NON-FUSED	-	-
01	WALK-IN FREEZER - DEFROST	-	-	10.19	13.4	15	208	1	(2)#12	(1)#12	3/4"	_	-	Х	HEAVY DUTY NON-FUSED	-	+
01	WALK-IN FREEZER - LIGHTS	-	-	1.63	-	15	120	1	(2)#12	(1)#12	3/4"	_	_	Х	STE	-	+
02	PRODUCE WALK-IN COOLER - COMPRESSOR	-	-	12.3	-	20	208	1	(2)#12	(1)#12	3/4"	_	-	Х	HEAVY DUTY NON-FUSED	-	
02	PRODUCE WALK-IN COOLER - LIGHTS	-	-	12	-	15	120	1	(2)#12	(1)#12	3/4"	_	-	Х	HEAVY DUTY NON-FUSED	-	\dagger
03	LIQUOR ROOM WALK-IN COOLER - LIGHTS	-	-	-	12	15	120	1	(2)#12	(1)#12	3/4"	_	-	Х	STE	-	+
03	LIQUOR ROOM WALK-IN COOLER - COMPRESSOR	-	1-1/2	6.6	8.25	15	208	3	(3)#12	(1)#12	3/4"	_	-	Х	HEAVY DUTY NON-FUSED	-	
4	PRODUCTION WALK-IN COOLER -	_	_	7.7	9.6	15	208	1	(2)#12	(1)#12	3/4"	_	_	X	HEAVY DUTY	_	
	COMPRESSOR	-	-						. ,			_	_		NON-FUSED	-	
)4	PRODUCTION WALK-IN COOLER - LIGHTS	-	-	7.7	-	15	120	1	(2)#12	(1)#12	3/4"	-	-	X	STE HEAVY DUTY	-	4
5	PASTRY WALK-IN COOLER - COMPRESSOR	1.7	-	7.2	9	15	208	1	(2)#12	(1)#12	3/4"	-	-	X	NON-FUSED	-	4
)5	PASTRY WALK-IN COOLER - LIGHTS	-	-	12	-	20	120	1	(2)#12	(1)#12	3/4"	-		X	STE	-	_
6	REACH-IN FREEZER	-	-	12	-	20	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG	-	\dashv
7	REACH-IN REFRIGERATOR	-	-	12	-	20	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG	-	\dashv
3	UNDERCOUNTER REFRIGERATOR	-	-	5	-	20	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG	-	_
4	GREASE HOOD 1 - LIGHTS	0.8	-	-	-	15	120	1	(2)#12	(1)#12	3/4"	-	-	X	INTEGRAL	-	
Α	GREASE HOOD 1 - EF	-	2	7.6	9.5	15	208	3	(3)#12	(1)#12	3/4"	-	-	X	INTEGRAL	-	
В	GREASE HOOD 2 - LIGHTS	0.8	-	-	-	15	120	1	(2)#12	(1)#12	3/4"	-	-	X	INTEGRAL	-	
В	GREASE HOOD 2 - EF	-	2	7.6	9.5	15	208	3	(3)#12	(1)#12	3/4"	-	-	X	INTEGRAL HEAVY DUTY	-	
5	DISHWASHER	-	-	-	60	60	208	3	(3)#4	(1)#10	1"	-	-	X	NON-FUSED HEAVY DUTY	-	
!	COMPACT BOOSTER HEATER	27	-	75	93.8	100	208	3	(3)#1	(1)#8	1-1/2"	-	-	X	NON-FUSED	-	_
	DISH HOOD - EXHAUST FAN	-	-	1/2	12.3	15	120	1	(2)#12	(1)#12	3/4"	-	-	X	STE	-	_
3	DISH HOOD - LIGHTS	-	-	4	-	20	120	1	(2)#12	(1)#12	3/4"	-	-	X	STE	-	_
1	DISPOSAL	-	-	-	12	20	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG	- BY	
A	MAKE-UP AIR UNIT 1 - UNIT MAIN	-	-	-	25	40	208	3	(3)#8	(1)#10	3/4"	-	-	X	INTEGRAL	MECHANICA BY	۱L
A	MAKE-UP AIR UNIT 1 - CONDENSER #1	-	-	-	21.4	30	208	3	(3)#10	(1)#10	3/4"	-	-	X		MECHANICA BY	۱L
A	MAKE-UP AIR UNIT 1 - CONDENSER #2	-	-	-	21.4	30	208	3	(3)#10	(1)#10	3/4"	-	-	X		MECHANICA BY	۱L
В	MAKE-UP AIR UNIT 2 - UNIT MAIN	-	-	-	25	40	208	3	(3)#8	(1)#10	3/4"	-	-	X	INTEGRAL	MECHANICA BY	۱L
В	MAKE-UP AIR UNIT 2 - CONDENSER #1	-	-	-	21.4	30	208	3	(3)#10	(1)#10	3/4"	-	-	Х	INTEGRAL	MECHANICA BY	۱L
В	MAKE-UP AIR UNIT 2 - CONDENSER #2	-	-	-	21.4	30	208	3	(3)#10	(1)#10	3/4"	-	-	X		MECHANICA	۱L
1	WATER COOLED ICE MACHINE	-	-	10	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
2	BUNN ICED TEA MAKER	-	-	14.4	-	20	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
1	OVEN - DOUBLE STACK (SET 1) - FAN 1	-	1/3	7.6	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
	OVEN - DOUBLE STACK (SET 1) - FAN 2	-	1/3	7.6	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
2	OVEN - DOUBLE STACK (SET 2) - FAN 1	-	1/3	7.6	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
<u> </u>	OVEN - DOUBLE STACK (SET 2) - FAN 2	-	1/3	7.6	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
3	OVEN - DOUBLE STACK (SET 3) - FAN 1	-	1/3	7.6	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
3	OVEN - DOUBLE STACK (SET 3) - FAN 2	-	1/3	7.6	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
1	VULCAN ABC7G-NAT COMBI OVEN	-	-	1	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	_
5	VULCAN STEAMER	-	-	15	-	20	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
	36" RANGE	-	-	1	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	_
'	STOVETOP/FLATTOP	-	-	1	-	15	120	1	(2)#12	(1)#12	3/4"	Х	5-20R	-	CORD AND PLUG	-	
3	STOVETOP/RANGE	-	-	1	-	15	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG	-	_
)	FRYER	-	-	1	-	15	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG	-	
)	GRILLTOP	-	-	1	-	15	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG	-	
	COMMERICAL MIXER	-	3/4	13.8	17.25	20	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG HEAVY DUTY	-	_
<u>2</u> 3	ELECTRIC OVEN	-	1/2	- 10	2.8	15	208	1	(2)#12	(1)#12	3/4"	-	-	X	NON-FUSED	-	_
	SLICER CLEVELAND STEAMER	-	-	12	27.2	20	120	1 - 3 -	(2)#12	(1)#12	3/4"	X	5-20R		CORD AND PLUG HEAVY_DUTY	-	
~	FRYER	~~~	$\sim\sim$	~ ²⁹ *\ 1	₽ ₹.3~	15	120	1	(3)# ₁₂	(1)#12	3/4"	X	5-20R	~~~	CORD AND PLUG	~~	_
	FRYER	- I	- · · · ·		بير	10	120	Lu'u	(2)#12 (2)#12	(1)#12 (1)#12	3/4	ئير	0-2UK	-	CORD AND PLUG	بىرىپ	て
) 		-		-	7	20	120	1			3/4"		5_20P	^ -	0.1		_
	WATER SOFTENER	-	-	-	7	20	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUC	-	
}	WATER BOTTLE FILLING STATION	-	-	2.5	7	20	120	1	(2)#12	(1)#12	3/4"	X	5-20R	-	CORD AND PLUG	-	- 1

GENERAL NOTES:

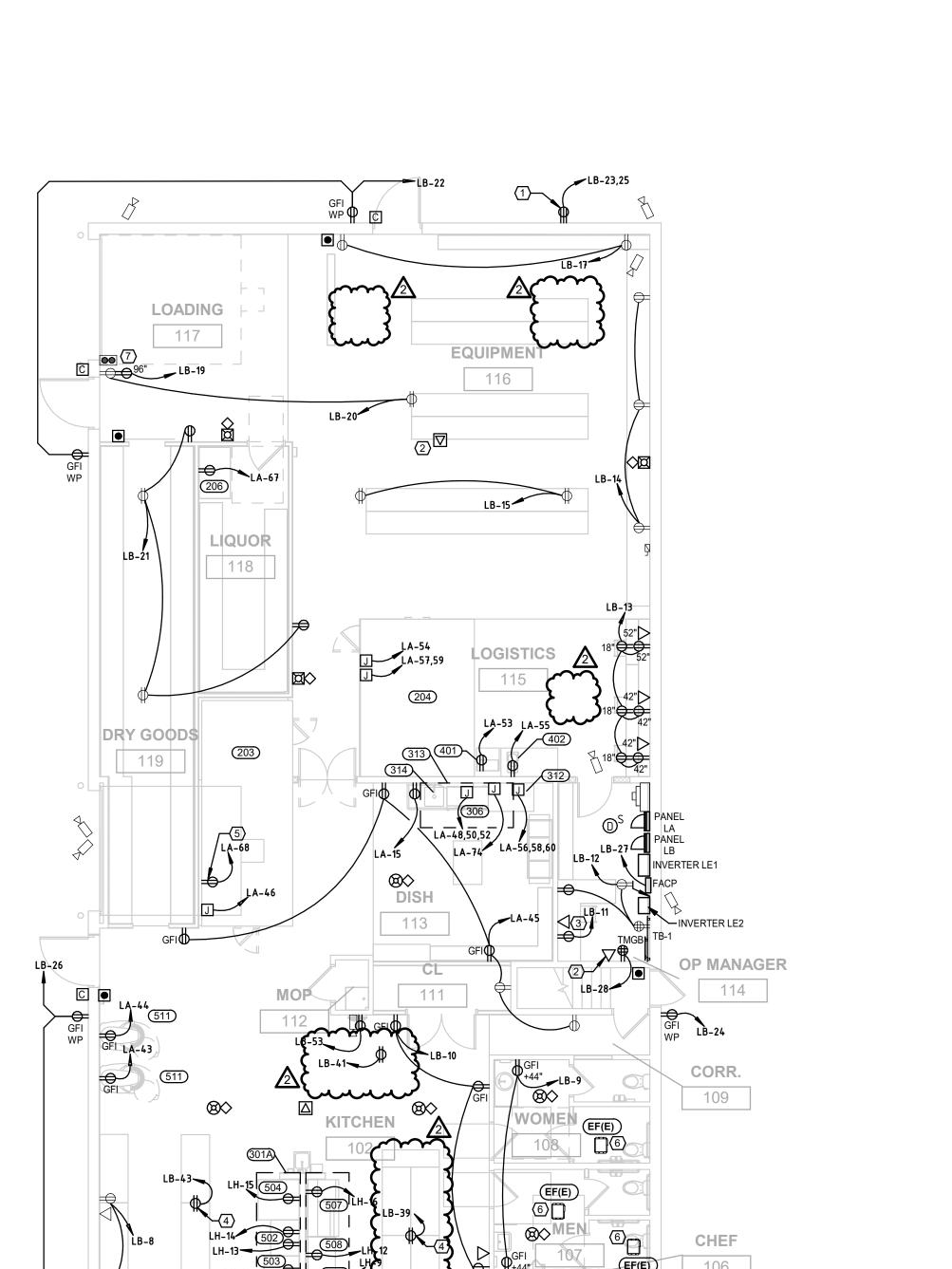
- A. ABBREVIATION FSEC = FOOD SERVICE EQUIPMENT CONTRACTOR; EC = ELECTRICAL CONTRACTOR; MC = ELECTRICAL CONTRACTOR; AHJ = AUTHORITY HAVING JURISDICTION.
- B. SEE APPROVED SUBMITTALS FOR EXACT REQUIREMENTS/ACTUAL LOCATIONS. . SUBSTITUTIONS SHALL BE AT THE EXPENSE OF THE EQUIPMENT SUPPLIER AT NO ADDITIONAL COST TO OWNER.
- D. EQUIPMENT SHALL BE SET IN PLACE BY FSEC. EC TO PROVIDE POWER FEEDS & FINAL CONNECTIONS/INTERCONNECTIONS. E. LOW VOLTAGE CONTROL WIRE BY OTHERS.
- EC TO PROVIDE ALL NECESSARY DISCONNECT SWITCHES INSTALLED AHEAD OF EQUIPMENT CONTROL. G. ALL DISCONNECT CONNECTIONS TO FSE SHALL BE MADE USING SEAL-TITE FLEXIBLE CONDUIT.

KITCHEN EQUIPMENT IS OWNER FURNISHED, CONTRACTOR INSTALLED. VERIFY FINAL REQUIREMENTS WITH EQUIPMENT AND OWNER.



ENLARGED FIRST FLOOR - POWER SCALE: 1/4" = 1'-0"

N 1 FIRST FLOOR - POWER



104

KEY NOTES

REQUIREMENTS WITH VENDOR.

- PROVIDE 30A 208V/3PH IEC 60309 4-PIN 3-WIRE PIN AND SLEEVE CONNECTOR WITH 25' SEOOW CORD FOR CONNECTION TO REFRIGERATED VAN. CONNECT VIA 30-3G FEEDER. PROVIDE HARDWARE, COMPONENTS, ACCESSORIES, ETC. AS REQUIRED TO
- 2 TYPICAL. REFERENCE LOW-VOLTAGE ROUGH-IN DETAIL.

ACHIEVE A FULLY FUNCTIONING SYSTEM. COORDINATE

- CONNECT PRINTER AS REQUIRED. COORDINATE REQUIREMENTS WITH VENDOR.
- PROVIDE 120V WITH GROUND RETRACTABLE CORD REEL WITH #12 CONDUCTORS AND MINIMUM 40' CORD LENGTH CONNECTED TO
- CEILING RECEPTACLE. BASIS OF DESIGN: ULINE H-5644.
- CONNECT CONDENSATION EVAPORATOR AS REQUIRED. COORDINATE REQUIREMENTS AND FINAL LOCATION WITH VENDOR.
- CONNECT EXHAUST FAN TO LIGHTING CIRCUIT IN ROOM. CONTROL FAN VIA LIGHTING CONTROLS IN ROOM. PROVIDE HARDWARE AND ACCESSORIES AS REQUIRED.
- CONNECT GARAGE DOOR OPENER AS REQUIRED. COORDINATE REQUIREMENTS WITH EXISTING CONDITIONS AND VENDOR. FIELD VERIFY FINAL MOUNTING HEIGHT.
- PROVIDE DOUBLE GANG JUNCTION BOX WITH BLANK FACE PLATE AND 1" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING. LABEL FACE PLATE "FUTURE USE".
- 120V CONTROL INPUT FOR FIRE SUPPRESSION SYSTEM. REFERENCE FIRE SUPPRESSION SYSTEM DETAIL.
- CONNECT POWERED SIGN. COORDINATE FINAL LOCATION WITH EXISTING CONDITIONS AND SIGN VENDOR. IF SIGN IS NOT PROVIDED WITH INTEGRAL DISCONNECT, PROVIDE LOCKABLE CIRCUIT BREAKER. CONTROL VIA LIGHTING CONTROL SYSTEM PHOTOCELL. REFERENCE LIGHTING CONTROL SEQUENCE OF OPERATION, EXTERIOR

PHOTOCELLS NOTES FOR FURTHER INFORMATION.

RECESSED FLOORBOX - WIREMOLD RFB4-CI OR EQUAL, WITH TWO NEMA 5-2D RECEPTACLES, COMMUNICATION BRACKETS, AND BLANK COVER. VERIFY LOCATION AND FINISH WITH ARCHITECT. ROUTE 1-1 1/4"C. TO NEAREST WALL AND TO ABOVE ACCESSIBLE CEILING FOR TELECOMM CABLING. 2 thuman



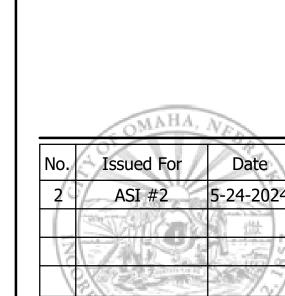
4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272 <u>www.a-e-sys.com</u>

(C) ADVANCED ENGINEERING SYSTEMS

PROJECT # 24-027

CERTIFICATE OF





FIRST FLOOR PLAN -

POWER

SECOND FLOOR INTERIOR AREA: FIELD VERIFY EXISTING POWER AND LIGHTING BRANCH CIRCUIT WIRING. ANY ROMEX MUST BE REMOVED OR ABANDONED AND REPLACED WITH WIRING IN CONDUIT. IT IS ACCEPTABLE TO UTILIZE MC CABLING PENDING AHJ APPROVAL.

KEY NOTES

 $SYMBOL = \langle X \rangle$

- CIRCUIT VIA 40-3G FEEDER. REUSE EXISTING WIRE AND CONDUIT TO THE EXTENT POSSIBLE REPLACE AS REQUIRED.
- 2 CIRCUIT VIA 30-2G FEEDER. REUSE EXISTING WIRE AND CONDUIT TO THE EXTENT POSSIBLE REPLACE AS REQUIRED.
 - TO THE EXTENT POSSIBLE REPLACE AS REQUIRED.

 TYPICAL NEW DEVICES ON EXTERIOR WALLS THIS PLAN: MINIMIZE DAMAGE TO SECOND FLOOR INTERIOR WALLS AND CEILINGS. IT IS ACCEPTABLE TO SURFACE MOUNT CONDUIT ON THE EXTERIOR OF
- TYPICAL WIRING DEVICES THIS FLOOR. ENSURE ALL EXISTING TO REMAIN WIRING DEVICES HAVE THE FINISHES INDICATED IN SHEET SPEC SECTION 262726 FOR DEVICE AND COVER PLATE. IT IS ACCEPTABLE TO REUSE THE EXISTING DEVICE AND/OR COVER PLATE TO THE EXTENT POSSIBLE. PROVIDE NEW AS REQUIRED.

THE BUILDING AS REQUIRED. SEAL ANY PENTRATIONS AS

- TYPICAL INTERIOR EXISTING TO REMAIN RECEPTACLES THIS PLAN. REUSE EXISTING CIRCUITING TO THE EXTENT POSSIBLE. CONNECT TO NEAREST AVAILABLE CIRCUIT IN LOAD CENTER LC AS REQUIRED.
- MINIMIZE EXTENT OF DAMAGE TO WALLS AND CEILINGS.
 CIRCUITING INDICATED IS SCHEMATIC IN NATURE. IT IS
 ACCEPTABLE TO CONNECT TO NEAREAST AVAILABLE CIRCUIT IN
 LOAD CENTER LC IN LIEU OF INDICATED CIRCUIT NUMBER AS
 REQUIRED.

ADVANCED ENGINEERING SYSTEMS

4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506 P: (402) 488-0075

F: (402) 488-0272

<u>www.a-e-sys.com</u>

© ADVANCED ENGINEERING SYSTEMS

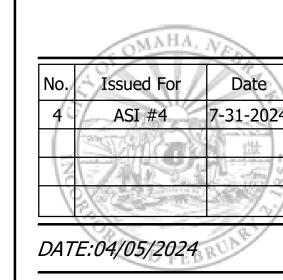
CERTIFICATE OF

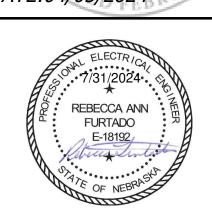
AUTHORIZATION # CA1800

PROJECT # 24-027

8114

AOF CATERING KITCHEN 7758 CASS STREET OMAHA, NE 681.





SECOND FLOOR PLAN -POWER



(E) PANEL 'A'	2	208Y/120	V,3PH,4V	1	400A MLO
LOAD	СВ	PC)LE	СВ	LOAD
MIRCOWAVE	20	1	2	20	SPARE
WEST BREAK ROOM OUTLETS	20	3	4	90	LOAD CENTER LC
BREAK ROOM LIGHTS	20	5	6	90	LOAD GENTER LO
COFFEE POT RECEPTACLES	20	7	8		
DISHWASHER	20	9	10	40	SOUTHWEST AC UNIT / RTU EAST
UTILITY ROOM LIGHTS	20	11	12		
UTILITY ROOM LIGHTS	20	13	14		
HEATER / WAREHOUSE (OFF)	40	15	16	30	WAREHOUSE AC UNIT (OFF)
HEATER / WAREHOUSE (OFF)	40	17	18		
HEATER - APT	60	19	20	30	APARTMENT AC UNIT
HEALENSALI	00	21	22	00	A ANTWENT AS SNIT
HEATER / WAREHOUSE (OFF)	60	23	24		SPACE
TEATER/ WAREHOOSE (OTT)		25	26		
HEATER / SHO EAST (OFF)	40	27	28	40	SOUTHEAST AC UNIT / RTU WEST
		29	30		
		31	32		
HEATER/RTU NORTH	40	33	34	20	AC UNIT (OFF)
		35	36		
HEATER / ROOF TOP OUTLET	20	37	38		
HEATER / PARTS ROOM (OFF)	40	39	40	20	NORTHWEST AC UNIT (OFF)
		41	42		

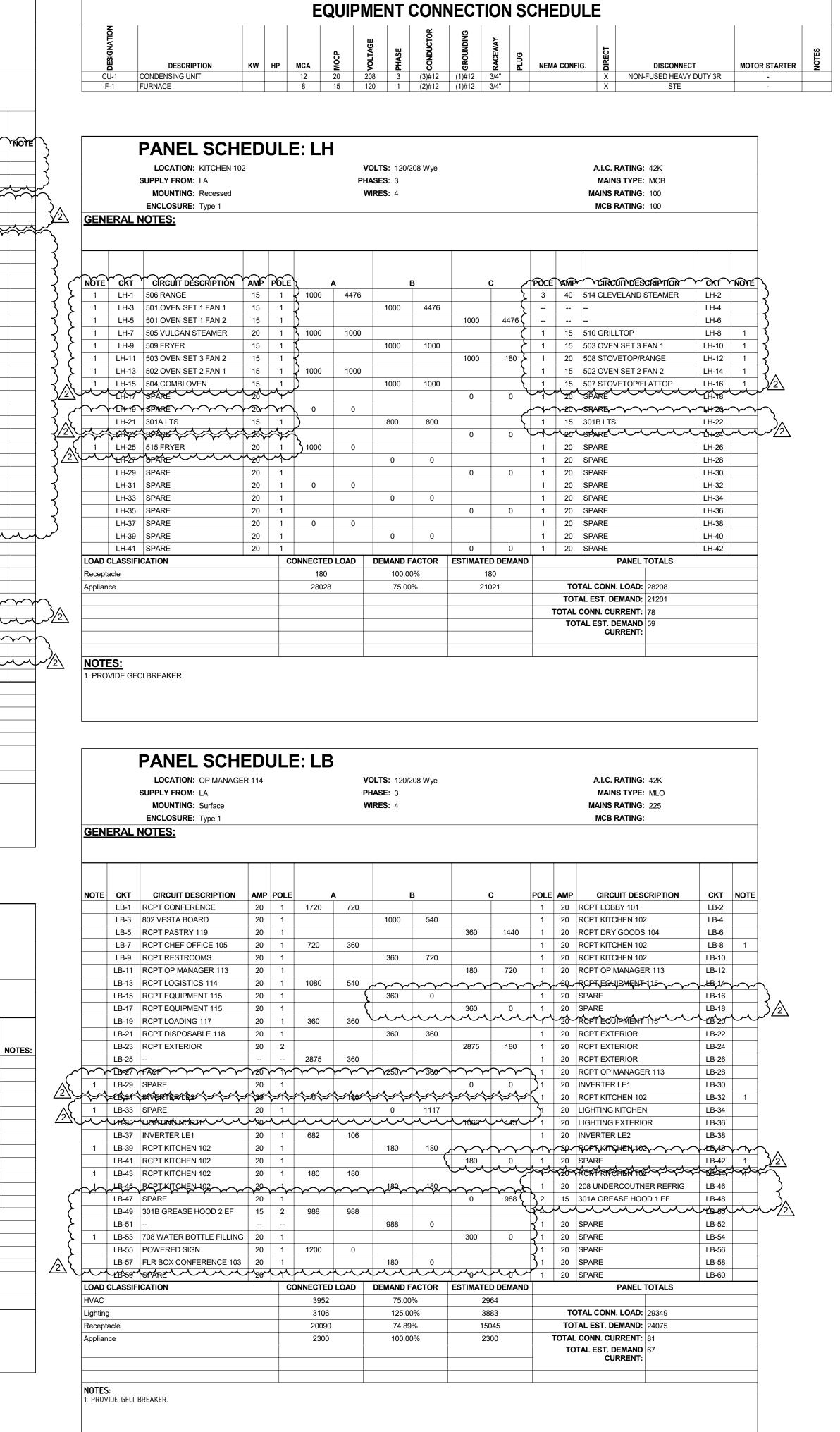
(E) PANEL 'B'	2	208Y/120\	V,1PH,3W	1	100A MCB
LOAD	СВ	PC	DLE	СВ	LOAD
WAREHOUSE PLUGS	20	1	2	20	SPARE
SALES OUTLETS	20	3	4	20	RECEPTION OUTLETS
OFFICE FURN W.	20	5	6	20	SALES OUTLET EAST
GRILL RM EXH FAN	20	7	8	20	COPIER
BACK RM LIGHTS	20	9	10	20	SHOW RM OUTLETS
HALL LIGHTS	20	11	12	20	SPARE
WALL PACKS	20	13	14	20	OFFICE FURN E.
WEST PLUGS	20	15	16	20	SHOP AND QA LIGHTS
SALES LIGHTS	20	17	18	20	WEST WALL OUTLETS
SPARE	20	17	10	30	APT.
PURCHASE LIGHTS	20	19	20	30	WATER HEATER
1 ONO INCLEIOTTO		19	20	20	SPARE

(E) PANEL 'C'	2	208Y/120	V,1PH,3W	/	100A MCI
LOAD	СВ	PC	DLE	СВ	LOAD
SPARE	20	1	2	30	STOVE/SIGN POST OUTLET
BREAK ROOM OUTLETS	20	3	4	30	310VE/SIGN FOST OUTLET
SPARE	20	5	6	20	STORE ROOM "QA" OUTLETS
RECEPTIONS RECEPTACLES AND LIGHTS/WASHER	20	7	8	20	STORE ROOM "QA" OUTLETS
PHONES	20	9	10	20	SHIPPING OUTLETS
DRYER	30	11	12	20	EAST AND NORTH WALL OUTLETS
BRIER	30	13	14	20	BATHROOM LIGHTS
SHOW ROOM LIGHTS	20	15	16	20	SPARE
SPARE	20	17	18	20	SPARE
SNACK MACHINE	20	17	10	20	SPARE
WEST QA PLUGS	20	19	20	20	POP MACHINE
SHOP PLUGS	20	19	20	20	FRIDGE

(E) LOAD CENTER		208Y/120	V,1PH,3V	V	90A MLO					
LOAD	СВ	PC	DLE	СВ	LOAD					
LINIZALOWAL	40	1	2	20	HARAIOMAI					
UNKNOWN	40	3	4	30	UNKNOWN					
RANGE	15	5	6	15	UNKNOWN					
UNKNOWN	15	7	8	20	DRYER					
UNKNOWN	20	9	10	15	KITCHEN AND OUTSIDE LITES					
BATHROOM RECPT	20	11	12	15	GFI JACUZZI					
SPARE	20	13	14	15	KITCHEN					
SPARE	20	15	16	15	BEDROOM					
SPARE	20	17	18	15	MASTER BEDROOM					
REFRIGERATOR	20	19	20	15	DISPOSAL					
KITCHEN PLUGS	20	21	22	15	DISHWASHER					
CLOTHES WASHER	20	23	24	15	UTILITY ROOM LITES					

		LOCATION: OP MANAGER PPLY FROM: MOUNTING: Surface ENCLOSURE: Type 1	114			F	VOLTS: 120/2 PHASE: 3 WIRES: 4	08 Wye					A.I.C. RATING: MAINS TYPE: MAINS RATING: MCB RATING:	MCB 600	
GEN	ERAL NO	OTES:													
	0 0														
NOTE		CIRCUIT DESCRIPTION		POLE		ά Υ Υ	, L, L, F	\$	7 77 77	טא א	POLE	-		RIPTION Y	∀CKY
	LA-1	201 W.I. REFRIG	15	2	1394	2600					2		CU(E)		LA-2
	LA-3						1394	2600		201					LA-4
لب	LA-5	313 DISH HODD EF PANEL LH	15		10476	291	سسر	سسا	60	291	$\frac{2}{\sqrt{2}}$		512 ELEC OVEN	w	LA-6
	LA-7	PANEL LH	100	-3	10476	291	44070	4440			77	ر محر		$\frac{1}{2}$	1 A 46
	LA-9						11076	1440	0050		1	20	205 PASTRY W.I. LTS		LA-10
	LA-11					- 740			6656	749	2	15 	205 PASTRY W.I. CO	MPRSSUR	LA-12
\sim			~~	$\lambda \lambda \lambda$	\sim	~749~		1004 1004	\sim	\sim	~ ~~	45		~~~~	**
2	LA-15	314 DISPOSAL	20	1			1000	1394	400	4204	2	15	201 W.I. DEFROST		LA-16
_	LA-17	201 W.I. LTS	15	1	400	4000			196	1394					LA-18
2	LA-19	706 WATER SOFTNER	20	1	180	1000	4000	2000			1	20	513 SLICER	VINI	LA-20
	LA-21	207 REACH-IN REFRIG	20	1			1000	3000	2000	2000	3	40	315A MAU 1 UNIT MA	AIIN	LA-22
	LA-23	315B MAU 2 UNIT MAIN	40	3	0000	0000			3000	3000					LA-24
	LA-25				3000	3000	2000	0500						NCED 4	LA-26
	LA-27						3000	2568	0500	0500	3	30	315A MAU 1 CONDE	NSER 1	LA-28
	LA-29	315B MAU 2 CONDENSER 1	30	3	0500	0500			2568	2568					LA-30
	LA-31				2568	2568	0500	0500					0454 MALL4 CONDE	NOED 0	LA-32
	LA-33	045D MALLO CONDENIOED C					2568	2568	0500	0500	3	30	315A MAU 1 CONDE	NSER 2	LA-3
	LA-35	315B MAU 2 CONDENSER 2	30	3	0500	0500			2568	2568			-		LA-30
	LA-37				2568	2568	2-00	40=0							LA-3
	LA-39						2568	1279	1110	1070	2	20	202 PRODUCE W.I. O	COMP	LA-4
	LA-41	202 PROD W.I. LTS	15	1	4000	4000			1440	1279					LA-4:
	LA-43	511 COMERCIAL MIXER	20	1	1000	1000					1	20	511 COMMERCIAL M		LA-44
	LA-45	RCPT KITCHEN 102	20	1			900	1440			1	15	203 LIQUOR RM W.I.	LIS	LA-46
	LA-47	203 LIQUOR RM W.I. COMP	15	3	700	7000			792	7200	3	60	306 DISHWASHER		LA-48
	LA-49				792	7200	700	7000							LA-50
	LA-51						792	7200	1000	201					LA-5
	LA-53	401 ICE MACHINE	15	1	4000				1000	924	1		204 PROD W.I. LTS		LA-5
	LA-55	402 ICED TEA MAKER	20	1	1000	11256	1000				3		312 COMPACT BOOS	STER HEAT	LA-5
	LA-57	204 PROD W.I. COMP	15	2			1000	11256	4000	11050					LA-5
	LA-59				40.40.4	10014			1000	11256					LA-6
		RAUH(E)~~~~	~40×	131	~3840\ 	~384Q		2010	\sim		₩.		RIW2(E)	~~~	<u> </u>
	LA-63	-	-				3840	3840	0040	0040					LA-6
ΥΥ	^\/A -6 5 ~^ LA-67		20	4	1000	1000			3840	3840			PODT 202 LIQUOD D	NA	LA-6
سب	-LA-07 -LA-69	206 REACH IN FREEZER	20	1 بر کمار	1000	1000	2040	1600			1		RCPT 203 LIQUOR R F-1	IVI VV.I.	
	LA-71	(Π Ο- 3(Ε)	40				3840	1680	3840	180	1				LA-7
	LA-71				3840	480			3040	100	<u>~~</u> ~		313 DISH HOOD LTS		LA-74
	LA-75	SPARE	20	1	3040	460	0	0		}			SPARE SPARE		- LA-7
	LA-73	SPARE	20	1			0	0	0	0 ~	1 0 1 0		SPARE		LA-71
1	LA-79	PANEL LB	200	3	13570	15			0		1		704 DOMESTIC WAT		LA-8
'	LA-73				13370	10	7238	2160		\ \	ر جار		CHALL CHALL		
	LA-83						7230	2100	8750	2160				/- O- O- (LA-8
I OAD	CLASSIFICA	TION			NNECTED	LOAD	DEMAND F	ACTOR		D DEMAND				TOTALS	LA-0
HVAC	CLASSII ICA	ATION .		- 00	44572		75.00°			429			FAILL	TOTALS	
Lighting	7				3106		125.00			383	+	٦	TOTAL CONN. LOAD:	238336	
Motor	1				5200		125.00			500	+		OTAL EST. DEMAND:		
Other					52705		100.00			705	+		AL CONN. CURRENT:		
					0					0	+		OTAL EST. DEMAND		
Power	acle						0.00%				+		CURRENT:	072	
Recept					23010 109852		71.73°			505 389	+				
Applian															

LOCATION: LAUNDRY 202 VOLTS: 120/240 Single A.I.C. RATING: 10K SUPPLY FROM: MOUNTING: Recessed WIRES: 3 MAINS RATING: 100 ENCLOSURE: Type 1 GENERAL NOTES: * PANEL IS EXISTING TO REMAIN.											MLO 100			
NOTES:	СКТ	CIRCUIT DESCRIPTION	AMP	POLE		A		В	POLE	AMP	CIRCUIT DESCRIP	rion c	кт	NOTES:
TOTEO.	LC-1	RCPT KITCHEN 120	20	1	180	0			1	20	SPARE		C-2	HOTES.
	LC-3	SPARE	20	1			0	0	1	20	SPARE		C-4	
	LC-5	SPARE	20	1	0	0			1	20	SPARE	L	C-6	1
	LC-7	SPARE	20	1			0	0	1	20	SPARE	Lo	C-8	
	LC-9	SPARE	20	1	0	900			1	20	RCPT OFFICE 205	LC	C-10	
	LC-11	SPARE	20	1			0	0	1	20	SPARE	LC-12		
	LC-13	SPARE	20	1	0	180			1	20	RCPT EXTERIOR	LC	C-14	
	LC-15	SPARE	20	1			0	0	1	20	SPARE	LC	C-16	
	LC-17	SPARE	20	1	0	0			1	20	SPARE	LC	C-18	
	LC-19	SPARE	20	1			0	0	1	20	SPARE	LC	C-20	
	LC-21	SPARE	20	1	0	0			1	20	SPARE	LC	C-22	
	LC-23	SPARE	20	1			0	0	1	20	SPARE	LC	C-24	
OAD CL	ASSIFICAT	TION	CC	ONNECTE	D LOAD	DEMAND I	FACTOR	ESTIMATED	DEMAND		PANEL	TOTALS		
eceptacle	Э			1260)	100.0	00%	126	0					
											TOTAL CONN. LOAD:			
											TOTAL EST. DEMAND:			
										1	TOTAL CONN. CURRENT:			
											TOTAL EST. DEMAND CURRENT:	5		





4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506 *P: (402) 488-0075*

F: (402) 488-0272 www.a-e-sys.com (C) ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF

AUTHORIZATION # CA1800

PROJECT # 24-027

Issued For 2 ASI #2 DATE:04/05/2024



ELECTRICAL SCHEDULES

GENERAL NOTES

A. THIS DETAIL IS GENERIC IN NATURE AND IS NOT INTENDED TO SHOW

B. WHEN THE FIRE SUPPRESSION SYSTEM IS ACTIVATED, ALL ELECTRIC

C. ANY AND ALL ELECTRICAL CONNECTIONS, INTERLOCK WIRING AND CONDUIT REQUIRED TO SHUT DOWN FANS, ELECTRIC COOKING

D. IF THE RELEASE MECHANISM IS NOT ACCESSIBLE FOR MANUAL

BY CERTIFIED DISTRIBUTOR.

BUILDING FIRE ALARM SYSTEM.

EQUIPMENT, ACTIVATE AN ALARM SYSTEM, ETC. SHALL BE BY THIS

ACTUATION, A REMOTE MANUAL PULL STATION SHALL BE PROVIDED BY

JURISDICTION AND COORDINATE TYPE OF JUNCTION BOX REQUIRED WITH

THIS CONTRACTOR. ROUTE 1/2"C STRAIGHT UP TO ABOVE CEILING LINE

(NO OFFSETS OR BEND). MOUNT AND HOOK-UP OF REMOTE MANUAL PULL

THE SUPPLIER AS THE PRIMARY MEANS OF MANUAL ACTUATION. THE

SUPPLIER SHALL VERIFY LOCATION WITH AUTHORITIES HAVING

E. INTERCONNECT SWITCH THAT INDICATES SYSTEM ACTUATION TO

UPON ACTIVATION OF FIRE SUPPRESSION SYSTEM.

COOKING EQUIPMENT BELOW HOOD SHALL BE DISCONNECTED FROM POWER SOURCE AND FUEL (SOLENOID GAS VALVE SHALL CLOSE). THE

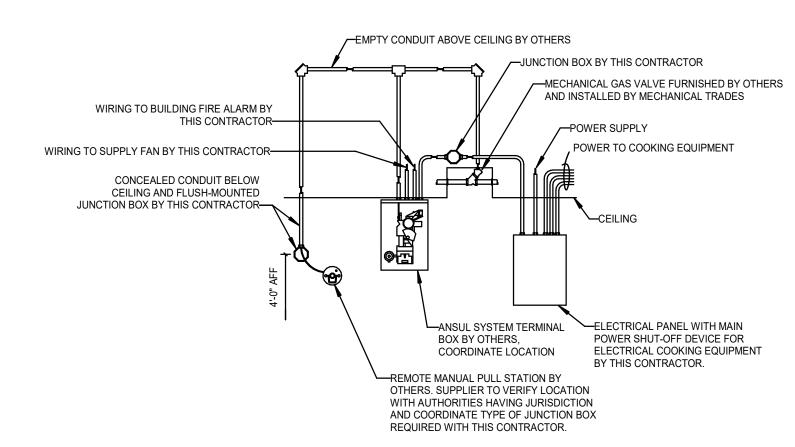
EXHAUST FANS SHALL CONTINUE TO OPERATE AND SHALL BE CONTROLLED

BY THE FIRE SUPPRESSION SYSTEM. MAKEUP AIR UNITS SHALL SHUT DOWN

EVERY DETAIL. THE INTENT IS TO DEFINE A GENERAL SCOPE OF WORK. IT

IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH ACTUAL

TYPICAL ANSUL SYSTEM LAYOUT



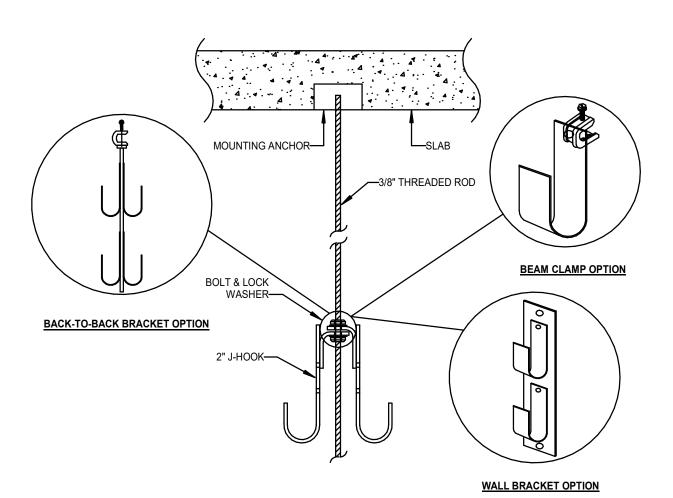
INSTALLATION DETAIL

FIRE SUPPRESSION SYSTEM

E302 NO SCALE

GENERAL DETAIL NOTES

- A. J-HOOKS ARE ALLOWED ON STRUCTURAL BEAMS, STRUCTURAL BRACES, MASONRY WALL, & FULL HEIGHT STUD WALLS. USE APPROPRIATE FASTENERS AS REQUIRED.
- B. J-HOOKS SHALL NOT BE ON CEILING SUPPORTED HARDWARE, DUCT HANGERS, ETC.
- C. NO MORE THAN 24 CABLES SHALL BE PLACED IN A 2" HOOK.
- D. UTILIZE 650 LBS (MIN) ANCHORS ON THREADED ROD. MAXIMUM LOAD ON ASSEMBLY NOT TO EXCEED 150 LBS.
- E. THREADED ROD MOUNTING IS SHOWN FOR FREE-STANDING CONDITIONS.

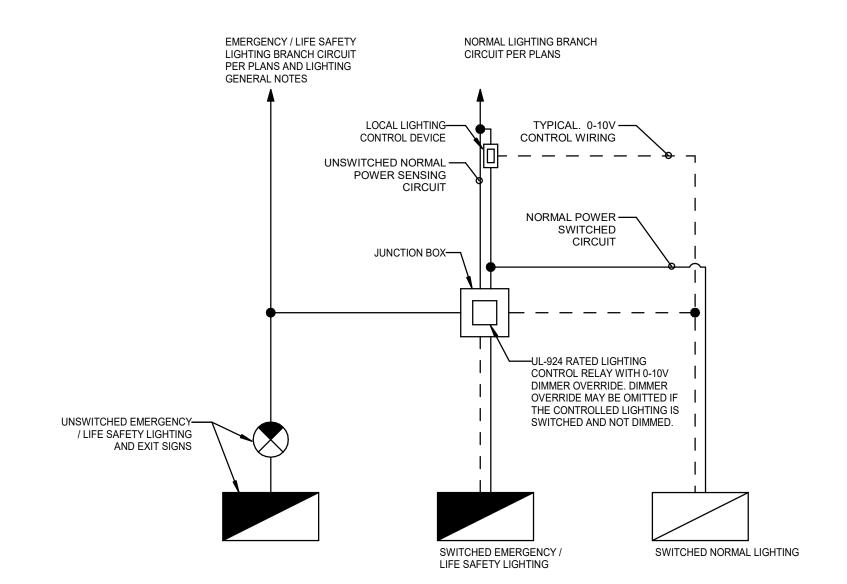


³ J-HOOK SUPPORTS E302 NO SCALE

BOLT TO WALL 2" HIGH INSULATORS (TYP FOR 2)-COPPER GROUND BAR-—COPPER GROUND BAR SOMETRIC VIEW GROUND BAR SCHEDULE MOUNTING BOLT WITH NOMINAL SIZE ERICO CAT# LOCK WASHER (TYP) TMGB 1/4" X 4" X 20" TMGBA20L27PT WALL MOUNTING BRACKET— 1/4" X 2" X 17-3/4" TGBA18L10PT ANCHOR BOLTS-

E302 NO SCALE

GROUND BAR

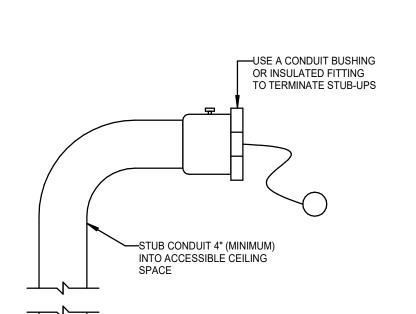


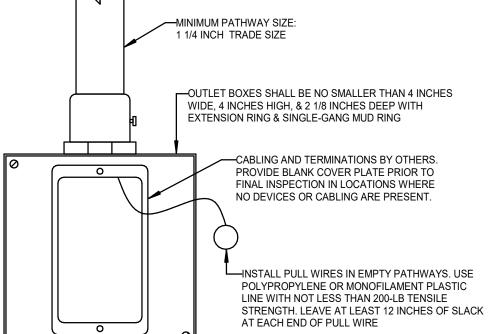
GENERAL NOTES:

- A. PROVIDE (1) UL-924 RATED LIGHTING CONTROL RELAY FOR EVERY CONTROLLED LIGHTING ZONE WHERE SWITCHED LIGHTING IS INDICATED TO BE FED FROM AN ALTERNATE POWER SOURCE.
 B. SEE MANUFACTURER'S WIRING DIAGRAMS FOR WIRING UL-924 LIGHTING CONTROL RELAY AS A CONTROL
- REFER TO LIGHTING GENERAL NOTES FOR EMERGENCY / LIFE SAFETY BRANCH CIRCUIT INFORMATION.
- D. DURING NORMAL POWER CONDITIONS, CONTROLLED EMERGENCY / LIFE SAFETY LIGHTING SHALL BE CONTROLLED WITH NORMAL POWER LIGHTING IN SHARED CONTROL ZONE.
- E. UPON NORMAL POWER LOSS, UL-924 DEVICE SHALL OVERRIDE EMERGENCY / LIFE SAFETY LIGHTING TO
- FULL BRIGHTNESS REGARDLESS OF LIGHTING CONTROL STATE. F. INTEGRATE UL-924 DEVICE WITH FIRE ALARM SYSTEM. IN THE EVENT OF A FIRE ALARM, THE UL-924
- DEVICE SHALL OVERRIDE THE CONTROLLED LIGHTING TO FULL BRIGHTNESS. COORDINATE ALL REQUIREMENTS FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM WITH FIRE ALARM MANUFACTURER.
- G. UNLESS OTHERWISE NOTED, UL-924 DEVICES SHALL BE SELF-TESTING. WHEN INDICATED ON PLANS TO BE PROVIDED WITHOUT SELF-TESTING FUNCTIONALITY, PROVIDE REMOTE TEST BUTTON LOCATED ABOVE

UL-924 CONTROL RELAY DETAIL

E302 NO SCALE





LOW VOLTAGE ROUGH-IN

E302 NO SCALE

ADVANCED ENGINEERING <u>SYSTEMS</u> 4630 ANTELOPE CREEK RD

SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272 <u>www.a-e-sys.com</u>

(C) ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

ELECTRICAL DETAILS

FEEDER SCHEDULE TAG COPPER ALUMINUM 2 WIRE + GROUND 20-2G (2)#12, (1)#12 GND IN 3/4"C NOT ALLOWED 30-2G (2)#10, (1)#10 GND IN 3/4"C NOT ALLOWED 40-2G (2)#8, (1)#10 GND IN 3/4"C NOT ALLOWED 50-2G (2)#6, (1)#10 GND IN 3/4"C NOT ALLOWED 60-2G (2)#4, (1)#10 GND IN 1"C NOT ALLOWED 70-2G (2)#4, (1)#8 GND IN 1"C NOT ALLOWED 80-2G (2)#3, (1)#8 GND IN 1"C NOT ALLOWED 90-2G (2)#2, (1)#8 GND IN 1"C (2)#1/0, (1)#8 CU GND IN 1-1/4"C 100-2G (2)#1, (1)#8 GND IN 1-1/4"C (2)#1/0, (1)#8 CU GND IN 1-1/4"C 3 WIRE + GROUND 20-3G (3)#12, (1)#12 GND IN 3/4"C NOT ALLOWED 30-3G (3)#10, (1)#10 GND IN 3/4"C NOT ALLOWED 40-3G (3)#8, (1)#10 GND IN 3/4"C NOT ALLOWED 50-3G (3)#6, (1)#10 GND IN 1"C NOT ALLOWED 60-3G (3)#4, (1)#10 GND IN 1"C NOT ALLOWED 70-3G (3)#4, (1)#8 GND IN 1-1/4"C NOT ALLOWED 80-3G (3)#3, (1)#8 GND IN 1-1/4"C NOT ALLOWED 90-3G (3)#2, (1)#8 GND IN 1-1/4"C (3)#1/0, (1)#8 CU GND IN 1-1/2"C 100-3G (3)#1, (1)#8 GND IN 1-1/2"C (3)#1/0, (1)#8 CU GND IN 1-1/2"C 110-3G (3)#1, (1)#6 GND IN 1-1/2"C (3)#1/0, (1)#6 CU GND IN 1-1/2"C 125-3G (3)#1/0, (1)#6 GND IN 1-1/2"C (3)#2/0, (1)#6 CU GND IN 2"C 150-3G (3)#1/0, (1)#6 GND IN 1-1/2"C (3)#3/0, (1)#6 CU GND IN 2"C 175-3G (3)#2/0, (1)#6 GND IN 2"C (3)#4/0, (1)#6 CU GND IN 2"C 200-3G (3)#3/0, (1)#6 GND IN 2"C (3)250 KCMIL, (1)#6 CU GND IN 2-1/2"C 225-3G (3)#4/0, (1)#4 GND IN 2"C (3)300 KCMIL, (1)#4 CU GND IN 2-1/2"C 250-3G (3)250 KCMIL, (1)#4 GND IN 2-1/2"C (3)350 KCMIL, (1)#4 CU GND IN 3"C 300-3G (3)350 KCMIL, (1)#4 GND IN 3"C (3)500 KCMIL, (1)#4 CU GND IN 3"C 350-3G (3)500 KCMIL, (1)#3 GND IN 3"C 2 SETS OF (3)#4/0, (1)#3 CU GND IN 2"C 400-3G 2 SETS OF (3)#3/0, (1)#3 GND IN 2"C 2 SETS OF (3)250 KCMIL, (1)#3 CU GND IN 2-1/2"C 4 WIRE + GROUND 20-4G (4)#12, (1)#12 GND IN 3/4"C NOT ALLOWED 30-4G (4)#10, (1)#10 GND IN 3/4"C NOT ALLOWED 40-4G (4)#8, (1)#10 GND IN 1"C NOT ALLOWED 50-4G (4)#6, (1)#10 GND IN 1"C NOT ALLOWED 60-4G (4)#4, (1)#10 GND IN 1-1/4"C NOT ALLOWED 70-4G (4)#4, (1)#8 GND IN 1-1/4"C NOT ALLOWED 80-4G (4)#3, (1)#8 GND IN 1-1/4"C NOT ALLOWED 90-4G (4)#2, (1)#8 GND IN 1-1/2"C (4)#1/0, (1)#8 CU GND IN 2"C 100-4G (4)#1, (1)#8 GND IN 1-1/2"C (4)#1/0, (1)#8 CU GND IN 2"C 110-4G (4)#1, (1)#6 GND IN 1-1/2"C (4)#1/0, (1)#6 CU GND IN 2"C 125-4G (4)#1/0. (1)#6 GND IN 2"C (4)#2/0. (1)#6 CU GND IN 2"C 150-4G (4)#1/0, (1)#6 GND IN 2"C (4)#3/0, (1)#6 CU GND IN 2"C 175-4G (4)#2/0, (1)#6 GND IN 2"C (4)#4/0, (1)#6 CU GND IN 2-1/2"C 200-4G (4)#3/0, (1)#6 GND IN 2"C (4)250 KCMIL, (1)#6 CU GND IN 2-1/2"C 225-4G (4)#4/0, (1)#4 GND IN 2-1/2"C (4)300 KCMIL, (1)#4 CU GND IN 3"C 250-4G (4)250 KCMIL, (1)#4 GND IN 3"C (4)350 KCMIL, (1)#4 CU GND IN 3"C 300-4G (4)350 KCMIL, (1)#4 GND IN 3"C (4)500 KCMIL, (1)#4 CU GND IN 3-1/2"C 2 SETS OF (4)#4/0, (1)#3 CU GND IN 2-1/2"C 350-4G (4)500 KCMIL, (1)#3 GND IN 3-1/2"C

GENERAL NOTES:

4 WIRE - NO GROUND

A. THIS IS A MASTER SCHEDULE. ALL SIZES MAY NOT OCCUR IN ALL PROJECTS.

400-4G 2 SETS OF (4)#3/0, (1)#3 GND IN 2-1/2"C

600-4 2 SETS OF (4)350 KCMIL IN 3"C

B. ALUMINIMUM CONDUCTORS (LINE, NEUTRAL, OR GROUND) SMALLER THAN #1/0 ARE NOT ALLOWED. WHEN ALUMINUM FEEDERS ARE ALLOWED, FOR ALUMINÙM FEEDERS WHERE THE ALÚMINUM GROUND CONDUCTOR SIZE WOULD BE SMALLER THAN #1/0, PROVIDE COPPER GROUND CONDUCTOR AS INDICATED.

2 SETS OF (4)250 KCMIL, (1)#3 CU GND IN 3"C

2 SETS OF (4)500 KCMIL IN 3-1/2"C

C. FIELD VERIFY CABLE SIZES DO NOT RESULT IN TOTAL CIRCUIT VOLTAGE DROP GREATER THAN 5% AFTER ACCOUNTING FOR INTENDED CABLE ROUTING.

GENERAL NOTES:

A. PHASE CONDUCTORS NOT SHOWN FOR CLARITY. B. THIS DETAIL IS SCHEMATIC IN NATURE. ALL COMPONENTS MAY NOT BE PRESENT FOR ALL PROJECTS.

KEY NOTES:

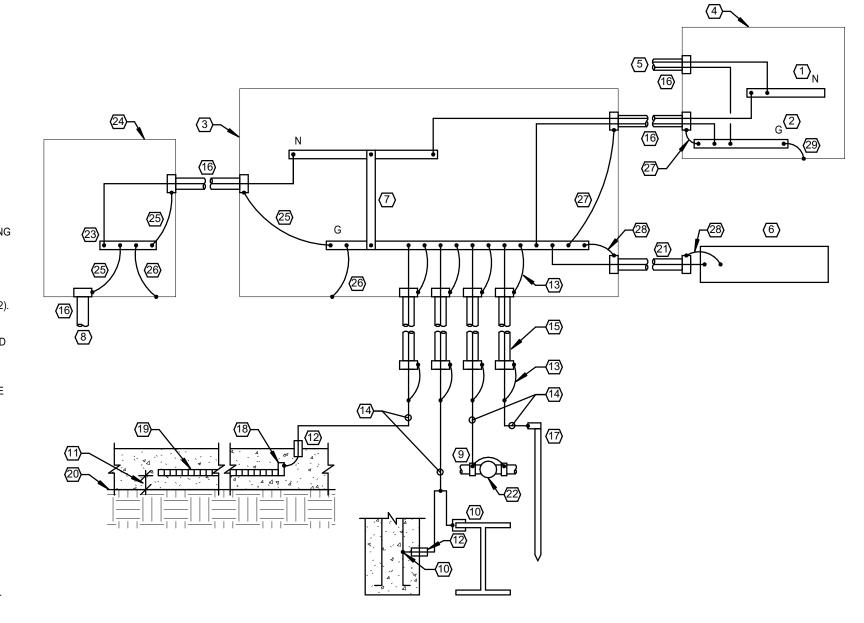
- TYPICAL. NEUTRAL BUS TYPICAL. GROUND BUS.
- SERVICE ENTRANCE ELECTRICAL EQUIPMENT. NON-SERVICE ENTRANCE ELECTRICAL EQUIPMENT.
- TYPICAL BRANCH CIRCUIT. PRIMARY BUS BAR AS REQUIRED. WHERE PRESENT, REFERENCE GROUND
- BAR DETAIL FOR FURTHER INFORMATION. MAIN BONDING JUMPER (FACTORY INSTALLED STRAP).
- SERVICE ENTRANCE CONDUIT FROM UTILITY.

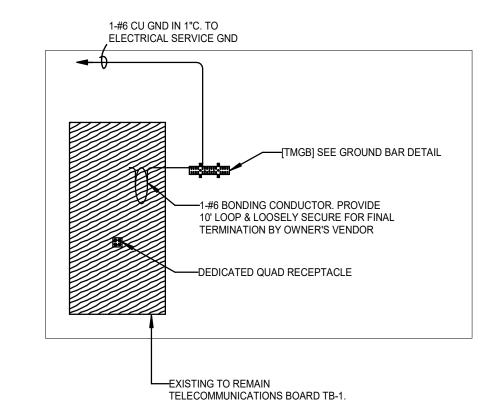
 CONNECT TO INTERIOR METAL WATER PIPING THAT IS ELECTRICALLY CONTINUOUS WITH METAL WATER PIPING THAT HAS DIRECT CONTACT WITH THE EARTH FOR 10' OR MORE. CONNECTION SHALL BE LOCATED WITHIN THE FIRST 5' OF POINT OF ENTRANCE TO THE BUILDING. PROVIDE #3/0 CU BONDING CONNECTION AROUND WATER METER. NEC 250.52(A)(1) AND 250.68(C)(1).
- 10. CONNECT TO STRUCTURAL METAL THAT HAS DIRECT CONTACT WITH THE EARTH VERTICALLY FOR 10' OR MORE, WITH OR WITHOUT CONCRETE ENCASEMENT. IF MULTIPLE METAL IN-GROUND SUPPORT STRUCTURES ARE PRESENT, IT IS ONLY REQUIRED TO BOND ONE METAL SUPPORT STRUCTURE INTO THE GROUNDING ELECTRODE SYSTEM. NEC 250.52(A)(2) AND 250.68(C)(2).
- 11. 2" MINIMUM. 12. NONMETALLIC PROTECTIVE SLEEVE.
- 13. TYPICAL GROUNDING ELECTRODE CONDUCTOR RACEWAYS. BOND EACH END OF RACEWAY VIA #3/0 CU. NEC 250.64(E)(1).
- 14. #3/0 CU GROUNDING ELECTRODE CONDUCTOR IN 1" CONDUIT.

 15. TYPICAL. 1" CONDUIT FOR GROUNDING ELECTRODE CONDUCTOR. 16. CONDUCTOR / CONDUIT SIZE AS INDICATED ON ELECTRICAL RISER / ONE-LINE DIAGRAM AND FEEDER SCHEDULE.
- 17. 3/4"X10' COPPER CLAD GROUND ROD OR COUNTERPOISE. 18. CONNECTION LISTED FOR THE INDICATED PURPOSE. 19. 20' LONG #4 CU BARE CONDUCTOR OR STEEL REINFORCING BAR / ROD NOT
- LESS THAN 1/2" DIAMETER. 20. FOUNDATION IN DIRECT CONTACT WITH EARTH.
- 21. #3/0 CU CONDUCTOR IN 1" CONDUIT.
- 22. WATER METER. 23. BONDED TERMINAL BLOCK.
- 24. CT CABINET. 25. BOND SERVICE ENTRANCE CONDUIT VIA #3/0 CU. NEC 250.92(B)(4). 26. BOND SERVICE ENTRANCE ENCLOSURE VIA #3/0 CU. NEC 250.92(A)(2). 27. BOND BRANCH CIRCUIT CONDUIT VIA #3/0 CU WHERE BRANCH CIRCUIT IS
- GREATER THAN 250V TO GROUND AND CONCENTRIC OR ECCENTRIC KNOCKOUTS ARE USED. IF THE BOX/ENCLOSURE WITH CONCENTRIC OR ECCENTRIC KNOCKOUTS IS LISTED TO PROVIDE A RELIABLE BONDING CONNECTION, A SEPARATE BONDING JUMPER BONDING THE CONDUIT IS NOT REQUIRED. NEC 250.97.
- 28. BOND CONDUIT TO GROUND BAR. REFERENCE GROUND BAR DETAIL FOR FURTHER INFORMATION.
- 29. BOND ENCLOSURE VIA #3/0 CU

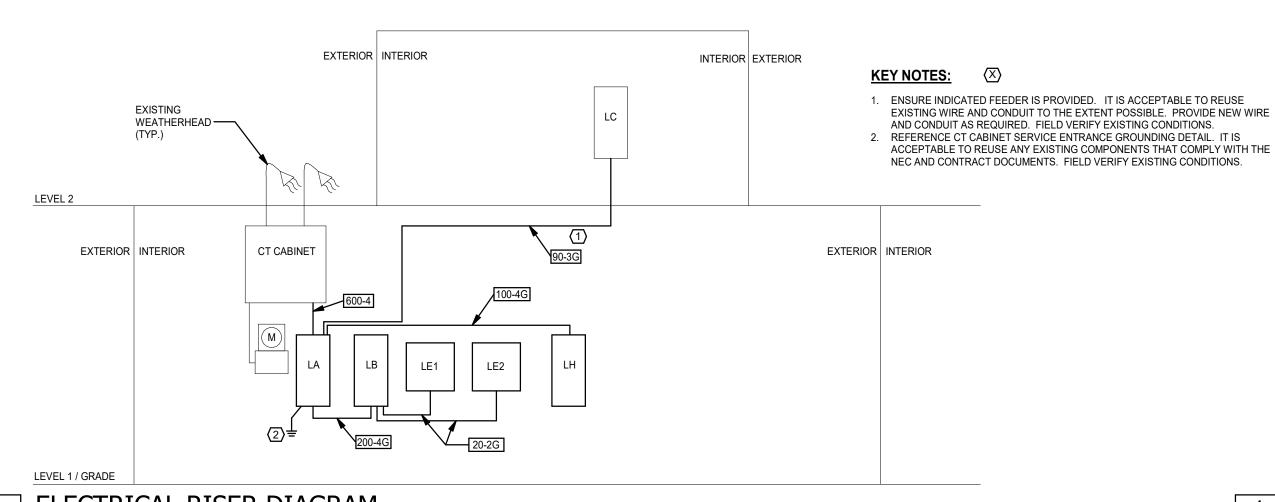
SERVICE ENTRANCE GROUNDING DETAIL (CT CABINET)

E303 NO SCALE





TELECOMMUNICATIONS RISER DIAGRAM E303 NO SCALE



ELECTRICAL RISER DIAGRAM

E303 NO SCALE

EXTERIOR INTERIOR INTERIOR EXTERIOR EXISTING WEATHERHEAD —— (TYP.) LEVEL 2 EXTERIOR INTERIOR EXTERIOR INTERIOR CT CABINET LEVEL 1 / GRADE

DEMOLITION ELECTRICAL RISER DIAGRAM

E303 NO SCALE

ENGINEERING SYSTEMS

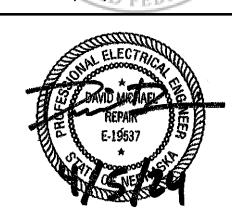
4630 ANTELOPE CREEK RD SUITE 200 LINCOLN, NE 68506

P: (402) 488-0075 F: (402) 488-0272 www.a-e-sys.com (C) ADVANCED ENGINEERING SYSTEMS

CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027





ELECTRICAL DETAILS

LIGH	ITING CONTROL SEC	UENCE O	F OPERATI	ON							
TAG	DESCRIPTION		AUTO ON			AUTO DIM/OFF		AUX	REC	NWK	REMARKS
		OCCUPANCY	TIME SWITCH	PHOTOCELL	VACANCY	TIME SWITCH	PHOTOCELL				
EXD	EXTERIOR DECORATIVE	-	SEE REMARK(S)	100%	-	SEE REMARK(S)	0%	-	-	-	3
EXS	EXTERIOR SETBACK	-	SEE REMARK(S)	100%	-	SEE REMARK(S)	0%	-	-	-	2
NOA	NO AUTOMATIC CONTROLS	-	-	-	-	-	-	-	-	-	1
O1A	OCCUPANCY SENSOR - PARTIAL ON	50%	-	-	0%	-	-	-	-	-	
O2A	OCCUPANCY SENSOR - FULL ON	100%	-	-	0%	-	-	-	-	-	
ОЗА	OCCUPANCY SENSOR - PARTIAL OFF	100%	-	-	10%	-	-	-	-	-	
OPN	OPEN OFFICE	SEE REMARK(S)	-	-	SEE REMARK(S)	-	-	-	-	-	4
T1A	TIME SWITCH - MANUAL AFTER HOURS	-	100%	-	-	0%	-	-	-	-	
T2A	TIME SWITCH - AUTOMATIC AFTER HOURS	50%	100%	-	0%	0%	-	-	-	-	
T3A	TIME SWITCH - AUTOMATIC OFF ONLY	-	-	-	-	0%	-	-	-	-	
V1A	VACANCY SENSOR - FULL OFF	-	-	-	0%	-	-	-	-	-	
V2A	VACANCY SENSOR - PARTIAL OFF	-	-		50%	-	-	-	-	-	

GENERAL NOTES:

A. THIS IS A MASTER SCHEDULE. ALL CONTROL TYPES, DEVICE TYPES, ETC. MAY NOT BE USED ON ALL PROJECTS. B. REFERENCE LIGHTING PLANS AND LOW VOLTAGE SWITCH SCHEDULE FOR FURTHER INFORMATION.

CONTROL SYSTEM:

- A. INTEGRATE UL-924 DEVICES OR RELAYS WITH FIRE ALARM SYSTEM. IN THE EVENT OF A FIRE ALARM, EMERGENCY/LIFE SAFETY LIGHTING SHALL ENERGIZE TO FULL BRIGHTNESS REGARDLESS OF PREVIOUS LIGHTING CONTROL STATE.
- REFERENCE UL-924 DETAIL FOR FURTHER INFORMATION. B. REFER TO LIGHTING PLAN(S) FOR DEVICE TYPES, QUANTITIES, AND LOCATIONS. REFER TO LOW VOLTAGE SWITCH SCHEDULE FOR LIGHTING CONTROL CONFIGURATION, OPERATION, AND BUTTON LABELING. PROVIDE TYPE AND QUANTITY
- OF DEVICES AS REQUIRED TO PROVIDE COMPLETE COVERAGE OF SPACE AND INTENDED SYSTEM OPERATION. C. UNLESS NOTED OTHERWISE, DIMMED INTERIOR AND BUILDING MOUNTED LIGHTING SHALL UTILIZE CONTINUOUS DIMMING. COORDINATE DIMMER TYPE (FORWARD PHASE, REVERSE PHASE, 0-10V, ETC.) AND DIMMER COMPATIBILITY WITH
- SUBMITTED LIGHT FIXTURE AND LIGHTING CONTROL MANUFACTURER. D. PROVIDE ALL LIGHTING CONTROL SYSTEM COMPONENTS, CONTROL WIRING, AND SYSTEM PROGRAMMING FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM THAT CONTROLS AND DIMS LIGHT FIXTURES AS SPECIFIED IN THE LIGHTING

OCCUPANT SENSORS:

CONTROL SEQUENCE OF OPERATION.

- A. PROVIDE OCCUPANT SENSORS AS REQUIRED TO PROVIDE COMPLETE COVERAGE OF SPACE AND INTENDED SYSTEM OPERATION AS INDICATED ON LIGHTING PLANS AND LIGHTING CONTROL SEQUENCE OF OPERATION. OCCUPANT SENSORS SHALL BE INSTALLED SO THAT NO POSSIBILITY EXISTS WHERE THE SENSORS MAY BE COVERED OR COVERAGE BLOCKED DURING ROUTINE USE. ADD ADDITIONAL SENSORS AS REQUIRED TO PROVIDE COMPLETE COVERAGE OF
- B. PROVIDE 20 MINUTE TIMEOUT FOR OCCUPANT SENSORS UNLESS INDICATED OTHERWISE.
- UNLESS INDICATED OTHERWISE OCCUPANT SENSOR(S) SHALL CONTROL ALL LIGHTING WITHIN THE LIGHTING CONTROL AREA THAT SENSOR IS LOCATED IN (INCLUDING UNDERCABINET LIGHTING). IF TWO OR MORE OCCUPANT SENSORS ARE LOCATED IN THE SAME LIGHTING CONTROL AREA, OCCUPANCY DETECTED BY ANY SENSOR SHALL RESET SENSOR TIMEOUT FOR ALL SENSORS IN THÉ LIGHTING CONTROL AREA.
- E. WHEN LIGHTING CONTROLLED BY AN OCCUPANCY SENSOR IS MANUALLY SWITCHED OFF, THE LIGHTING SHALL REMAIN OFF FOR AS LONG AS MOVEMENT IS DETECTED. AFTER SENSOR TIMEOUT HAS EXPIRED, OCCUPANCY SENSOR OPERATION SHALL REVERT TO ON UPON MOVEMENT DETECTION.
- F. MICROWAVE TYPE OCCUPANT SENSORS ARE NOT ALLOWED UNLESS OTHERWISE NOTED.
- G. UNLESS SPECIFICALLY IDENTIFIED ON THE LIGHTING PLANS, OCCUPANCY WALL SWITCHES ARE NOT ALLOWED.

TIME SWITCH CONTROL:

- A. WHEN TIME SWITCH CONTROL IS INDICATED, THE HOURS BELOW SHALL BE IN EFFECT UNLESS OTHERWISE NOTED. COORDINATE FINAL HOURS OF OPERATION WITH OWNER PRIOR TO SYSTEM COMMISSIONING. HOURS OF OPERATION SHALL BE ABLE TO BE ADJUSTED IN THE FUTURE AS REQUIRED BY OWNER. a. HOURS OF OPERATION SHALL BE FROM 4:30AM TO 1:30AM, MONDAY - FRIDAY.
- B. LIGHT FIXTURES SHALL BE ENERGIZED TO THE LEVEL INDICATED ON THE LIGHTING CONTROL SEQUENCE OF OPERATION DURING HOURS OF OPERATION. C. WHERE INDICATED, OCCUPANT SENSOR-BASED AUTOMATIC ON AND AUTOMATIC OFF FUNCTIONALITY SHALL APPLY OUTSIDE OF HOURS OF OPERATION. OCCUPANT SENSORS SHALL NOT OVERRIDE INDICATED TIME SWITCH FUNCTIONALITY
- PROVIDE DIM AND/OR BLINK WARNING FIVE MINUTES PRIOR TO TIME SWITCH AUTOMATICALLY DE-ENERGIZING LIGHTS.
- THE TIME SWITCH CONTROL EQUIPMENT SHALL HAVE A MINIMUM SEVEN DAY CLOCK AND BE CAPABLE OF BEING SET FOR SEVEN DIFFERENT DAY TYPES PER WEEK.
- TIME SWITCH CONTROLLED INTERIOR LIGHTING SHALL BE SHUT OFF FOR NOT LESS THAN 24 HOURS ON FACILITY-OBSERVED HOLIDAYS. COORDINATE APPLICABLE HOLIDAYS WITH OWNER PRIOR TO SYSTEM COMMISSIONING. G. TIME SWITCH CONTROLLED EXTERIOR LIGHTING SHALL BE DIMMED TO 70% DURING TIMES WHEN NORMAL OPERATION WOULD BE AT 100% ON FACILITY-OBSERVED HOLIDAYS. COORDINATE APPLICABLE HOLIDAYS WITH OWNER PRIOR TO
- SYSTEM COMMISSIONING
- H. THE TIME SWITCH CONTROL EQUIPMENT SHALL HAVE PROGRAM BACKUP CAPABILITIES PREVENTING THE LOSS OF PROGRAM AND TIME SETTINGS DURING POWER OUTAGES OF AT LEAST 10 HOURS.

 I. PROVIDE STANDALONE TIME SWITCH DEVICE(S) AS REQUIRED TO ACHIEVE THE INDICATED TIME SWITCH CONTROL FUNCTIONALITY. WHERE TIME SWITCH CONTROL FUNCTIONALITY IS INHERENT TO DEVICES/EQUIPMENT PROVIDED BY THE SUBMITTED LIGHTING CONTROL MANUFACTURER, SEPARATE TIME SWITCH CONTROL DEVICES ARE NOT REQUIRED. COORDINATE REQUIREMENTS WITH VENDOR.
- J. PROVIDE NETWORKED CONNECTION TO LIGHTING CONTROL SYSTEM HEAD END EQUIPMENT AS REQUIRED BY SUBMITTED LIGHTING CONTROL MANUFACTURER TO ACHIEVE THE INDICATED TIME SWITCH CONTROL FUNCTIONALITY. COORDINATE REQUIREMENTS WITH VENDOR.

EXTERIOR PHOTOCELLS:

- A. PROVIDE PHOTOCELL ON/OFF CONTROL OF EMERGENCY LIGHTING ALONG EXTERIOR EGRESS PATHS. WHEN EXTERIOR EGRESS ILLUMINATION IS ACTIVE, LIGHTING CONTROLS SHALL MAINTAIN 1 FC MINIMUM ALONG PATH OF EGRESS. B. PHOTOCELL SHALL SWITCH ON CONTROLLED LIGHTING WHEN PHOTOCELL MEASURED LIGHT LEVEL DROPS BELOW 10 FC FOR 5 MIN OR MORE AND SHALL SWITCH OFF CONTROLLED LIGHTING WHEN PHOTOCELL MEASURED LIGHT LEVEL
- C. PROVIDE QUANTITY OF PHOTOCELL(S) AS REQUIRED TO ACHIEVE INDICATED DESIGN INTENT. COORDINATE REQUIREMENTS WITH VENDOR. REFERENCE LIGHTING CONTROL GENERAL NOTES FOR LOCATION INFORMATION.

CONNECTIVITY:

- A. AUX INTEGRATE LIGHTING CONTROL SYSTEM WITH AUXILIARY SYSTEM:
- a. A/V = INTEGRATE LIGHTING CONTROL SYSTEM WITH A/V SYSTEM. LIGHTING CONTROL SYSTEM SHALL BE CAPABLE OF RECALLING PRESET SCENES, ACTIVATING LIGHTING ZONES, AND RAISING / LOWERING LIGHTING LEVELS BASED ON SIGNALS RECEIVED FROM THE A/V SYSTEM.
- b. PART = PROVIDE PARTITION SENSOR TO SEPARATE OR COMBINE OPERATION OF SEPARATE AREAS.
- c. SHADE = LIGHTING CONTROL SYSTEM SHALL RAISE/LOWER AND/OR STOP AUTOMATED SHADES WITHIN SPACE. a. TIME SWITCH SHALL BE PROGRAMMED TO TURN RECEPTACLES OFF AT PREDETERMINED TIMES. AN INDEPENDENT PROGRAM SCHEDULE SHALL BE PROVIDED FOR CONTROLLED AREAS OF NO MORE THAN 5000 SQ FT AND NOT MORE THAN ONE FLOOR. PROVIDE LIGHTING CONTROL SWITCH AT THE ENTRANCE TO TIME SWITCH CONTROLLED AREA FOR MANUAL ON OVERRIDE OUTSIDE OF SCHEDULED HOURS OF OPERATION. MANUAL ON OVERRIDE SHALL TIMEOUT
- AFTER TWO HOURS OUTSIDE OF SCHEDULED HOURS OF OPERATION. C. NWK - NETWORK CONTROL a. CONNECT CONTROL TYPE TO BUILDING-WIDE NETWORKED LIGHTING CONTROL SYSTEM.

REMARKS:

- I. NO AUTOMATIC DIM/OFF CONTROLS SHALL BE PROVIDED.
- SITE LIGHTING: LIGHTING SHALL DIM BY 30% FROM MIDNIGHT TO 6AM.
- 3. FACADE AND DECORATIVE LIGHTING: BUILDING DECORATIVE FACADE AND LANDSCAPE LIGHTING SHALL AUTOMATICALLY SHUT OFF FROM NOT LATER THAN ONE HOUR AFTER BUSINESS CLOSING TO NOT EARLIER THAN ONE HOUR BEFORE BUSINESS OPENING.
- OPEN OFFICE:
- A. CONFIGURE SENSOR(S) IN OPEN PLAN OFFICE AREAS SO THAT GENERAL LIGHTING IS CONTROLLED IN SEPARATE CONTROL ZONES THAT DO NOT EXCEED AN AREA OF 600 SQUARE FEET EACH.
- B. AUTO ON: UPON OCCUPANT DETECTION, LIGHTING IN ZONE(S) OF DETECTION TO 100%, LIGHTS IN ADJACENT ZONE(S) OF DETECTION TO 20%. C. AUTO OFF: WHEN OCCUPANCY IS NOT DETECTED IN ADJACENT ZONE(S), LIGHTING TO 20% IN THOSE ZONE(S). WHEN NO OCCUPANCY IS DETECTED IN THE OPEN PLAN OFFICE AREA, LIGHTING TO 0%.

TAG	BUTTON#	LABEL	DESCRIPTION	REMARKS
S1	1	ON/OFF	ADJUSTS LIGHTS TO 100% OR 0%	
S2	1	ON/OFF	ADJUSTS LIGHTS TO 100% OR 0%	
-	2	50%	ADJUSTS LIGHTS TO 50%	
S3	1	ON/OFF	ADJUSTS LIGHTS TO 100% OR 0%	
-	2	50%	ADJUSTS LIGHTS TO 50%	
	3	1	RAISES LIGHTS	
	4	↓	LOWERS LIGHTS	
S4	1	ON/OFF	ADJUSTS LIGHTS TO 100% OR 0%	
	2	50%	ADJUSTS LIGHTS TO 50%	
	3	25%	ADJUSTS LIGHTS TO 25%	
	4	10%	ADJUSTS LIGHTS TO 10%	
S5	1	ON/OFF	ADJUSTS LIGHTS TO 100% OR 0%	
	2	50%	ADJUSTS LIGHTS TO 50%	
	3	25%	ADJUSTS LIGHTS TO 25%	
	4	10%	ADJUSTS LIGHTS TO 10%	
	5	1	RAISES LIGHTS	
	6	↓	LOWERS LIGHTS	
S6	1	ON/OFF	ADJUSTS ZONE "a" LIGHTS TO 100% OR 0%	
	2	ON/OFF	ADJUSTS ZONE "b" LIGHTS TO 100% OR 0%	
S7	1	ON/OFF	ADJUSTS ZONE "a" LIGHTS TO 100% OR 0%	
	2	50%	ADJUSTS ZONE "a" LIGHTS TO 50%	
	3	ON/OFF	ADJUSTS ZONE "b" LIGHTS TO 100% OR 0%	
	4	50%	ADJUSTS ZONE "b" LIGHTS TO 50%	
S8	1	ON/OFF	ADJUSTS ZONE "a" LIGHTS TO 100% OR 0%	
	2	50%	ADJUSTS ZONE "a" LIGHTS TO 50%	
-	3	1	RAISES ZONE "a" LIGHTS	
-	4	↓	LOWERS ZONE "a" LIGHTS	
-	5	ON/OFF	ADJUSTS ZONE "b" LIGHTS TO 100% OR 0%	
-	6	50%	ADJUSTS ZONE "b" LIGHTS TO 50%	
	7	1	RAISES ZONE "b" LIGHTS	
	8	↓	LOWERS ZONE "b" LIGHTS	
S9	1	ON/OFF	ADJUSTS ZONE "a" LIGHTS TO 100% OR 0%	
-	2	50%	ADJUSTS ZONE "a" LIGHTS TO 50%	
	3	25%	ADJUSTS ZONE "a" LIGHTS TO 25%	
-	4	10%	ADJUSTS ZONE "a" LIGHTS TO 10%	
-	5	ON/OFF	ADJUSTS ZONE "b" LIGHTS TO 100% OR 0%	
	6	50%	ADJUSTS ZONE "b" LIGHTS TO 50%	
	7	25%	ADJUSTS ZONE "b" LIGHTS TO 25%	
	8	10%	ADJUSTS ZONE "b" LIGHTS TO 10%	
S10	1	NORMAL	OCCUPANT SENSOR(S) / TIME SWITCH SHALL CONTROL LIGHTS IN SPACE AS INDICATED ON PLAN(S) AND SCHEDULES LIGHT(S) CLOSEST TO ELECTRICAL PANEL(S) ENERGIZED TO	
	2	PNL MAINT	100%, OCCUPANT SENSOR(S) / TIME SWITCH SHALL NOT CONTROL THE INDICATED LIGHT(S)	
S11	1	TASTING	ACTIVATE "TASTING" SCENE, REFERENCE TASK LEVEL TUNING SHEDULE.	
_	2	ALL ON	ACTIVATE "ALL ON" SCENE, REFERENCE TASK LEVEL TUNING SCHEDULE.	
	3	ALL OFF	ACTIVATE "ALL OFF" SCENE, REFERENCE TASK LEVEL TUNING SCHEDULE.	

GENERAL NOTES:

- A. THIS IS A MASTER SCHEDULE. NOT ALL SWITCH TYPES WILL BE USED ON ALL PROJECTS. REFERENCE LIGHTING PLAN(S) FOR SWITCH TYPES ASSOCIATED WITH THIS PROJECT.
- B. SEE LIGHTING CONTROL SEQUENCE OF OPERATION FOR ADDITIONAL INFORMATION.
- C. ZONE "a" AND ZONE "b" NOMENCLATURE INDICATED IN THIS SCHEDULE IS SCHEMATIC IN NATURE. REFERENCE LIGHTING PLAN(S) FOR APPLICABLE LIGHTING CONTROL ZONE(S) AND/OR AREA(S)
- D. SUBMIT PROPOSED LIGHTING CONTROL SWITCH BUTTON CONFIGURATIONS FOR ALL LIGHTING CONTROL SWITCHES FOR REVIEW. CLEARLY IDENTIFY ANY DEVIATIONS THAT NEED TO BE MADE DUE TO SWITCH CONFIGURATION OR ENGRAVING CONSTRAINTS. IF SUBMITTED BUTTON CONFIGURATIONS DO NOT MEET DESIGN INTENT, ADDITIONAL LIGHTING CONTROL
- SWITCHES MAY BE REQUIRED. E. UNLESS SPECIFICALLY IDENTIFIED, MANUAL DIMMING SHALL BE PERFORMED BY DEDICATED BUTTONS. COMBINATION
- ZONE/SCENE SELECT AND HOLD TO DIM BUTTONS ARE NOT ALLOWED. F. REFERENCE LIGHTING PLAN(S) FOR SWITCH COVER PLATE LABELING INFORMATION.
- G. DIMMER SWITCHES COORDINATE LINEAR VS. LOGARITHMIC DIMMING REQUIREMENTS WITH DIMMING DRIVER. FOR ANY GIVEN CONTROL ZONE, IT IS NOT ACCEPTABLE FOR THE SWITCH AND DRIVER TO BOTH UTILIZE LINEAR DIMMING, OR TO BOTH UTILIZE LOGARITHMIC DIMMING. REFERENCE LUMINAIRE SCHEDULE FOR FURTHER INFORMATION.

REMARKS:

1. XXX



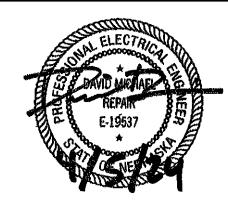
SUITE 200 LINCOLN, NE 68506 P: (402) 488-0075 F: (402) 488-0272

<u>www.a-e-sys.com</u> (C) ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF

AUTHORIZATION # CA1800

PROJECT # 24-027





LIGHTING SCHEDULES



		SUBS	3		L	LED SOURCE		APPARENT		DIMMING %			
TAG	DESCRIPTION	N P	Y MANUFACTURER	MODEL NUMBER	DELIVERED LUMENS	сст (к)	MIN. CRI	LOAD (VA)	VOLTAGE	(TYPE)	FINISH	MOUNTING	REMARKS
L1	2X4 TROFFER	X	METALUX	24CZLD5-40UNV*CD-1%	3920	3500	80	31	120	1% (0-10V)	WHITE	CEILING - RECESSED	
L1E	2X4 TROFFER - EMERGENCY	X	METALUX	24CZLD5-40UNV*CD-1%	3920	3500	80	31	120	1% (0-10V)	WHITE	CEILING - RECESSED	1
L2	6" RETROFIT DOWNLIGHT	X	LITHONIA	LDN6RV-*/-10-LR-6-WRMVOLT-GZ10	966	3000	80	13	120	10% (0-10V)	BLACK	CEILING - RECESSED	2
L2E	6" RETROFIT DOWNLIGHT - EMERGENCY	X	LITHONIA	LDN6RV-*/-10-LR-6-WRMVOLT-GZ10	966	3000	80	13	120	10% (0-10V)	BLACK	CEILING - RECESSED	1,2
L3	VISUAL COMFORT EXTERIOR TYPE 2 SCONCE	X	GARDCO	PWS-196L-450-WW-G2-2UNV-DD-WH	2040	3000	80	21	120	10% (0-10V)	BLACK	WALL - SURFACE	
L3E	VISUAL COMFORT EXTERIOR TYPE 2 SCONCE - EMERGENCY	X	GARDCO	PWS-196L-450-WW-G2-2UNV-DD-WH	2040	3000	80	21	120	10% (0-10V)	BLACK	WALL - SURFACE	1
L4	VISUAL COMFORT EXTERIOR TYPE 4 SCONCE	X	GARDCO	PWS-196L-650-WW-G2-4UNV-DD-WH	2908	3000	80	30	120	10% (0-10V)	BLACK	WALL - SURFACE	
L4E	VISUAL COMFORT EXTERIOR TYPE 4 SCONCE - EMERGENCY	X	GARDCO	PWS-196L-650-WW-G2-4UNV-DD-WH	2908	3000	80	30	120	10% (0-10V)	BLACK	WALL - SURFACE	1
L5B	THERMOPLASTIC RED LETTER EXIT SIGN WITH INTEGRAL BATTERY		X COMPASS	CER	-	-	-	3	120	-	WHITE	UNIVERSAL	
L5E	THERMOPLASTIC RED LETTER EXIT SIGN - EMERGENCY		X COMPASS	CAR	-	-	-	3	120	-	WHITE	UNVIVERSAL	
L6	4' LINEAR	Х	LUX ILLUMINAIRE	EOS 3.0-S-BAT-500-4-*-*-UNV-S1-*-HC	1903	3500	80	19	120	1%	WHITE	CEILING - SURFACE	3
L7	2X4 FLAT PANEL		X LITHONIA	CPX-2X4-6000LM-*-*-SWL-MIN10-EZT-MVOLT	5983	3500	90	44	120	10% (0-10V)	WHITE	CEILING - RECESSED	
L7E	2X4 FLAT PANEL - EMERGENCY		X LITHONIA	CPX-2X4-6000LM-*-*-SWL-MIN10-EZT-MVOLT	5983	3500	90	42	120	10% (0-10V)	WHITE	CEILING - RECESSED	1
L8	EXTERIOR SCONCE	X	LITON	WD1340-*UE-D10P1-*	1000	3000	90	7	120	1% (0-10V)	WHITE	WALL - SURFACE	
L9	8' LINEAR	Х	LUX ILLUMINAIRE	EOS 3.0-S-BAT-500-8-*-*-UNV-S1-*-HC	3903	3500	80	38	120	1%	WHITE	CEILING - SURFACE	3
L10B	8' LINEAR WITH INTEGRAL BATTERY	X	LUX ILLUMINAIRE	EOS 3.0-S-LAM-375-8-*-*-UNV-S1-*-HC-EB	2903	3500	80	30	120	1%	WHITE	CEILING - SURFACE	3
L11	8' LINEAR	X	LUX ILLUMINAIRE	EOS 3.0-S-BAT-750-8-*-*-UNV-S1-*-HC	5903	3500	80	58	120	1%	WHITE	CEILING - SURFACE	3
D42~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	/	X- Y-LILHONIDY-Y-	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~3906~	Y-3500~	~60~	~~86~~	~186~	~70%(0\10V)~		VSURFACEVSUSPENDED	~~~
L12B	4' STRIP WITH INTEGRAL BATTERY		X LITHONIA	ZL1D-L483000LM-FST-MVOLT-*-*-E7W-*	3966	3500	80	30	120	10% (0-10V)	WHITE	SURFACE/SUSPENDED	
L12E	4' STRIP - EMERGENCY		X LITHONIA	ZL1D-L483000LM-FST-MVOLT-*-**	3966	3500	80	30	120	10% (0-10V)	WHITE	SURFACE/SUSPENDED	
L14	12' LINEAR	X	LUX ILLUMINAIRE	EOS 3.0-S-LAM-375-12-*-*-UNV-S1-*-HC	4403	3500	80	44	120	1%	WHITE	CEILING - SURFACE	3
L14B	12' LINEAR WITH INTEGRAL BATTERY	X	LUX ILLUMINAIRE	EOS 3.0-S-LAM-375-12-*-*-UNV-S1-*-HC-EB	4403	3500	80	44	120	1%	WHITE	CEILING - SURFACE	3
<u> 1</u> 45~1			A CHIPHONIA COL	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	7480~	~3500~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		1201	~10%(td.40V)\	MHITE WHITE WAS A STATE OF THE	SURPACE/SUSPENDED	
L15E	4' STRIP - EMERGENCY		X LITHONIA	ZL1D-L487000LM-FST-MVOLT-35K-80CRI-E7W-WH	7480	3500	80	59	120	10% (0-10V)	WHITE	SURFACE/SUSPENDED	
L16B	8' LINEAR WITH INTEGRAL BATTERY	X	LUX ILLUMINAIRE	EOS 3.0-S-LAM-500-8-*-*-UNV-S1-*-HC-EB	3903	3500	80	38	120	1%	WHITE	CEILING - SURFACE	3
L17	2" SPOTLIGHT	X	ECOSENSE	F080-1R-HO-*-*-60-*-X-A	1,120	3500	80	12	120	5% (ELV)	BLACK	SURFACE/SUSPENDED	
L18	4" PENDANT	X	GOTHAM	EVO4PC-*-02-AR-LSS-MD-MVOLT-EZ10-JBXCC-PCAN-S6 *	271	3500	85	3	120	10% (0-10V)	MATTE BLACK	SURFACE/SUSPENDED	
L19	4" CYLINDER	X	GOTHAM	EVO4SC-*-15-AR-LSS-WD-MVOLT-EZ10-JBXCC	1527	3500	85	14	120	10% (0-10V)	MATTE BLACK	CEILING - SURFACE	
L20	4" CYLINDER	X	GOTHAM	EVO4SC-*-05-AR-LSS-WD-MVOLT-EZ10-JBXCC*	573	3500	85	7	120	10% (0-10V)	MATTE BLACK	CEILING - SURFACE	
L21	OWNER FURNISHED, CONTRACTOR INSTALLED FIXTURE	X	-	-	1900	3000	90	21	120	10% (ELV)	WHITE/APRICOT	SUSPENDED	4
122	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	\X\~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~400Q~~	₹3500	1907	~~~~	~120~	~ (0-104) ~	→ WHITE- → →	YEILHWGYSORFACEY	$\wedge \sim$
L23	4" DOWNLIGHT		X GOTHAM	EV04-*-10-ARLSS-MD-MVOLT-EZ10*	1001	3500	85	9	120	10% (0-10V)	WHITE TRIM	CEILING - RECESSED	

- a. WHERE INDICATED WITH 'N' (NO), NO SUBSTITUTIONS WILL BE ACCEPTED.
- b. WHERE INDICATED WITH 'P' (PRÍOR APPROVAL), SUBSTITUTIONS MUST BE APPROVED PRIOR TO BID. c. WHERE INDICATED WITH 'Y' (YES), IT IS ACCEPTABLE TO SUBMIT LIGHT FIXTURES FROM EQUIVALENT MANUFACTURERS, PROVIDED THE EQUIVALENT LIGHT FIXTURE IS OF THE SAME BUILD QUALITY, EFFICACY, OUTPUT, COLOR TEMPERATURE, DISTRIBUTION, FINISH, AND
- AESTHETIC AS THE SCHEDULED LIGHT FIXTURE.
- d. IF A LIGHT FIXTURE IS SUBMITTED AS EQUIVALENT WITHOUT PRIOR APPROVAL AND IS NOT ACCEPTED DURING THE SHOP DRAWING REVIEW PROCESS, ANY ADDITIONAL COSTS INCURRED AS A RESULT OF PROVIDING A LIGHT FIXTURE THAT MATCHES THE SCHEDULED SPECIFICATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE OWNER SHALL NOT INCUR ANY ADDITIONAL COSTS RESULTING FROM PROVIDING A LIGHT FIXTURE THAT MATCHES THE SCHEDULED SPECIFICATIONS.
- B. MODEL NUMBER VERIFICATION CONTRACTOR SHALL VERIFY LIGHT FIXTURE INSTALLATION REQUIREMENTS AND MODEL NUMBER PRIOR TO ORDERING. REFERENCE THE BELOW LEGEND FOR MODEL NUMBER SPECIFICATION SYMBOLS. a. ## - LENGTH TAKEN FROM DRAWINGS
- * REFERENCE LIGHT FIXTURE SCHEDULE COLUMN(S) FOR ORDERING INFORMATION. _ - "BLANK" OPTION IS SPECIFIED OR NO OPTION IS RÉQUIRED.
- d. $\overline{\ \ }$ CONTRACTOR IS RESPONSIBLE FOR COORDINATING SPECIFICATION OPTION SELECTION WITH INSTALLATION CONDITIONS. C. DIMMING %: INDICATES DIMMING PROTOCOL (FORWARD PHASE, REVERSE PHASE, 0-10V, DMX, DALI, ETC.) AND REQUIRED MINIMUM DIMMING % (10%, 1%, 0.1%, DIM TO DARK, ETC.). COORDINATE EXACT DIMMING PROTOCOL AND DRIVER COMPATIBILITY WITH SUBMITTED
- LUMINAIRE AND LIGHTING CONTROL MANUFACTURER(S).
- D. DIMMING DRIVERS COORDINATE LINEAR VS. LOGARITHMIC DIMMING REQUIREMENTS WITH LIGHTING CONTROL DIMMING RELAY/DIMMER SWITCH. FOR ANY GIVEN CONTROL ZONE, IT IS NOT ACCEPTABLE FOR THE RELAY/SWITCH AND DRIVER TO BOTH UTILIZE LINEAR DIMMING, OR TO BOTH UTILIZE LOGARITHMIC DIMMING. REFERENCE LOW VOLTAGE SWITCH SCHEDULE FOR FURTHER INFORMATION. E. CEILING COORDINATION:
- a. ALL CEILING MOUNTED LIGHT FIXTURE TYPES SHALL HAVE LIGHT FIXTURE MOUNTING COORDINATED WITH GRID TYPE OR CEILING MATERIAL TYPE. PROVIDE GYP. MOUNTING FRAMES AS REQUIRED DUE TO CEILING CONSTRUCTION.
 b. REFER TO ARCHITECTURAL SHEETS FOR GRID TYPE USED IN EACH AREA. LIGHT FIXTURES INSTALLED IN 9/16" GRID SHALL BE PROVIDED WITH MOUNTING CLIPS IF RECOMMENDED BY LIGHT FIXTURE MANUFACTURER.
- c. VERIFY TRIM COMPATIBILITY WITH CEILING TYPE INDICATED IN ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ORDERING LIGHT FIXTURES. WHERE LIGHT FIXTURES ARE MOUNTED IN GYP. CEILING USE MUD-IN FLANGE OPTION. F. LINEAR LIGHT FIXTURES - LIGHT FIXTURES IDENTIFIED WITH NORMAL, EMERGENCY/LIFE SAFETY, AND/OR DAYLIGHT ZONE SECTIONS SHALL BE PROVIDED WITH DEDICATED EMERGENCY/LIFE SAFETY AND/OR DAYLIGHT ZONE DRIVER(S) SEPARATED FROM NORMAL DRIVER(S) BY
- BARRIER(S). PROVIDE LABEL READING "WARNING LIGHT FIXTURE SUPPLIED WITH MULTIPLE CIRCUITS NORMAL, EMERGENCY/LIFE SAFETY, AND/OR DAYLIGHT ZONE". PLACE LABEL ON DRIVER COVER(S).

 G. LINEAR AND LINEAR PATTERN LIGHT FIXTURES COORDINATE EXACT PATTERN AND SECTION LENGTHS WITH LIGHTING PLAN(S). PROVIDE DETAILED SHOP DRAWINGS OF EMERGENCY/LIFE SAFETY AND/OR DAYLIGHT ZONE SECTIONS, POWER/CONTROL CONNECTIONS,
- INTEGRAL OR REMOTE DRIVER LOCATIONS (POWER ENTRY LOCATIONS SHALL BE COORDINATED WITH THE PLANNED POWER ROUTING PATH), END PLATES, AND MOUNTING REQUIREMENTS. WHERE PRESENT, LIGHT FIXTURE SHALL BE PROVIDED WITH ILLUMINATED CORNERS, INTERSECTIONS, AND FIELD ADJUSTABLE EXTENSIONS. SHOP DRAWINGS SHALL INDICATE PENDANT OR MOUNTING BRACKET LOCATIONS.
- H. LINEAR WALL-TO-WALL MOUNTING PROVIDE LIGHT FIXTURE WITH CONTINUOUS ILLUMINATION FROM WALL TO WALL COORDINATE EXACT WALL DIMENSIONS WITH GENERAL CONTRACTOR AND ARCHITECTURAL DETAILS. PROVIDE MANUFACTURER'S WALL-TO-WALL MOUNTING ACCESSORY(S) AS REQUIRED FOR A COMPLETE INSTALLATION. WHEN LIGHT FIXTURE IS NOT PROVIDED WITH FIELD ADJUSTABLE EXTENSIONS, COORDINATE FIELD MEASURED OVERALL DIMENSIONS FOR WALL TO WALL, WALL TO CORNER, AND RECESSED ARCHITECTURAL
- I. COVE DRAWINGS PROVIDE GENERAL ILLUSTRATION OF COVE LAYOUT. COORDINATE EXACT UNIT LENGTHS AND QUANTITIES WITH ARCHITECTURAL DETAILS TO PROVIDE CONTINUOUS ILLUMINATION FOR THE ENTIRE LENGTH OF COVE. COVE LIGHT FIXTURES SHALL BE
- INSTALLED END TO END WITH NO GAP BETWEEN LIGHT FIXTURES. A MAXIMUM GAP OF 6" MAY BE PROVIDED AT ENDS AND CORNERS OF COVE. PROVIDE UNIT LENGTHS AND QUANTITIES TO ACHIEVE THE COVE LAYOUT SHOWN ON PLANS.
- J. TRACK PROVIDE SINGLE CIRCUIT TRACK SYSTEM WITH ALL NECESSARY COMPONENTS FOR A COMPLETE INSTALLATION, INCLUDING, BUT NOT LIMITED TO: CURRENT LIMITERS, POWER FEEDS, STAND OFFS, CONNECTORS, END CAPS, AND TRANSFORMERS. TRACKS AND ACCESSORY FINISH SHALL MATCH FINISH OF SPECIFIED TRACK HEAD. PROVIDE TRACK LENGTHS AND TRACK HEAD QUANTITIES PER PLANS. COORDINATE TRACK TYPE FOR COMPATIBILITY WITH SPECIFIED TRACK HEADS. PROVIDE REMOTE TRANSFORMER QUANTITIES AND
- SIZES TO ACCOMMODATE LOAD OF TRACK HEADS INDICATED. MOUNT REMOTE TRANSFORMER ABOVE NEAREST ACCESSIBLE CEILING.
- K. UNDERCABINET LIGHT FIXTURES PROVIDE ALL NECESSARY MANUFACTURER'S ACCESSORIES TO ACCOMMODATE INSTALLATION, INCLUDING BUT NOT LIMITED TO: SPLICE BOXES, END CONNECTORS, AND JUMPER/DAISY CHAIN CONNECTORS. EXIT SIGNS: PROVIDE QUANTITY AND TYPE OF FACES AND EXIT DIRECTION CHEVRONS AS INDICATED ON PLANS. PROVIDE MOUNTING TYPE AS INDICATED ON PLANS. M. PENDANT/SUSPENSION MOUNTED LIGHT FIXTURE(S) - REFERENCE MOUNTING HEIGHT(S) INDICATED ON PLAN(S) AND/OR SCHEDULE. PROVIDE DEVICES, CATALOG NUMBER OPTIONS, ACCESSORIES, ETC. AS REQUIRED TO PROVIDE INDICATED MOUNTING HEIGHT(S).
- COORDINATE REQUIREMENTS WITH VENDOR.

REMARKS:

- 1. CONNECT TO INVERTER CIRCUIT. REFERENCE LIGHTING PLANS FOR FURTHER INFORMATION. MATCH EXISTING APERTURE SIZE. FIELD VERIFY EXISTING APERTURE SIZE PRIOR TO ORDERING.
- PROVIDE CONNECTION POINT ON FIXTURE SO THAT EXISTING ELECTRICAL CONNECTION LOCATION CAN ACCOMMODATE THE INDICATED LAYOUT. FIELD VERIFY EXISTING CONNECTION LOCATIONS AND COORDINATE WITH VENDOR. 4. MOUNT AT 6'-8" B.O.F. PROVIDE MOUNTING HARDWARE AND ACCESSORIES AS REQUIRED.

TASK LEVEL TUNING SCHEDULE														
TA	.G				TARGET									
SWITCH	SOO	LIGHTING CONTROL AREA(S)	SCENE	ZONE(S)	DIM				ILLUMINANCE					
SCHEDULE	300				%	FC	AVG / MIN / MAX	H/V	CALC PT PLANE	CALC PT LOCATION(S)				
			T.07110	а	15	-	-	-	-	-				
			TASTING	b	10	-	-	-	-	-				
S11			ALL ON	а	100	-	-	-	-	-				
511	-	-	ALL ON	b	100	-	-	-	-	-				
			ALL OFF	а	0	-	-	-	-	-				
			ALL OFF	b	0	-	-	-	-	-				

GENERAL NOTES:

- A. NOT ALL LIGHTING CONTROL AREAS AND ZONES MAY UTILIZE TASK LEVEL TUNING. REFERENCE LIGHTING PLANS, LIGHTING CONTROL SEQUENCE OF OPERATIONS, AND LIGHTING CONTROL SWITCH SCHEDULE FOR FURTHER INFORMATION. B. UNLESS NOTED OTHERWISE, THE FOLLOWING ABBREVIATIONS ARE APPLICABLE TO THIS SCHEDULE:
- b. FC: FOOTCANDLES
- d. LV: LOW VOLTAGE e. SOO: LIGHTING CONTROL SEQUENCE OF OPERATION
- V: VERTICAL g. WP: WORKPLANE (30" AFF)
- C. UNLESS OTHERWISE NOTED, PROVIDE A MINIMUM OF TWO CALCULATION POINT MEASUREMENT LOCATIONS FOR EACH CONTROL ZONE.
- 1. XXX

LIGH	HTING INVERTER SCH	IEDULE									
TAG	MANUFACTURER	MODEL NUMBER	N	SUBS	Υ	WATTS	INPUT VOLTAGE	OUTPUT VOLTAGE	CIRCUIT BREAKERS	WxDxH [IN]	REMARKS
LE1	INVERTER SYSTEMS	LPS-*-OCB2	X			1150	120	120	(2) 20A	23X10X25	
LE2	INVERTER SYSTEMS	ABC2-*-S	X			220	120	120	-	17X7X12	

GENERAL NOTES:

- a. WHERE INDICATED WITH 'N' (NO), NO SUBSTITUTIONS WILL BE ACCEPTED.
- b. WHERE INDICATED WITH 'P' (PRIOR APPROVAL), SUBSTITUTIONS MUST BE APPROVED PRIOR TO BID.
- c. WHERE INDICATED WITH 'Y' (YES), IT IS ACCEPTABLE TO SUBMIT AN INVERTER FROM AN EQUIVALENT MANUFACTURER, PROVIDED THE EQUIVALENT INVERTER IS OF THE SAME BUILD QUALITY, WATTAGE, INPUT VOLTAGE, OUTPUT VOLTAGE, CIRUIT BREAKER QUANTITY, CIRCUIT BREAKER AMPACITY(IES), AND PHYSICAL SIZE AS THE SCHEDULED INVERTER. d. IF AN INVERTER IS SUBMITTED AS EQUIVALENT WITHOUT PRIOR APPROVAL AND IS NOT ACCEPTED DURING THE SHOP DRAWING REVIEW PROCESS, ANY ADDITIONAL COSTS INCURRED AS A RESULT OF PROVIDING AN INVERTER
- THAT MATCHES THE SCHEDULED SPECIFICATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE OWNER SHALL NOT INCUR ANY ADDITIONAL COSTS RESULTING FROM PROVIDING AN INVERTER THAT MATCHES THE SCHEDULED SPECIFICATIONS.
- B. MODEL NUMBER VERIFICATION CONTRACTOR SHALL VERIFY LIGHT FIXTURE INSTALLATION REQUIREMENTS AND MODEL NUMBER PRIOR TO ORDERING. REFERENCE THE BELOW LEGEND FOR MODEL NUMBER SPECIFICATION
- a. *- REFERENCE LIGHTING INVERTER SCHEDULE COLUMN(S) FOR ORDERING INFORMATION.
- "BLANK" OPTION IS SPECIFIED OR NO OPTION IS REQUIRED. c. % - CONTRACTOR IS RESPONSIBLE FOR COORDINATING SPECIFICATION OPTION SELECTION WITH INSTALLATION CONDITIONS.

REMARKS: 1. XXX



4630 ANTELOPE CREEK RD *SUITE 200* LINCOLN, NE 68506 P: (402) 488-0075

F: (402) 488-0272 <u>www.a-e-sys.com</u> (C) ADVANCED ENGINEERING SYSTEMS

CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

Issued For



LIGHTING SCHEDULES

RULES & REGULATIONS: THE WORK COVERED UNDER THESE SPECIFICATIONS IS INTENDED TO INCLUDE THE FURNISHING OF ALL EQUIPMENT, MATERIALS & LABOR OR REASONABLY INCIDENTAL TO THE COMPLETE OPERATING INSTALLATION OF SYSTEMS. ALL WORK/MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION & SHALL COMPLY WITH ALL FEDERAL/STATE/LOCAL CODES & AUTHORITY HAVING JURISDICTION. THOROUGHLY FAMILIARIZE ONESELF WITH THE PLANS, SPECIFICATIONS & CONDITIONS COVERING THE JOB & REVIEW ALL SHEETS FOR EXTENT OF WORK. NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY IF ANY DISCREPANCIES/UNUSUAL CONDITIONS ARE ENCOUNTERED. IN THE EVENT OF CONFLICT, THE MORE STRINGENT/EXPENSIVE SHOULD BE BID UNLESS AN ADDENDUM CAN BE ISSUED TO CORRECT THE SITUATION. THESE PLANS ARE SCHEMATIC IN NATURE & ARE NOT INTENDED TO SHOW EVERY DETAIL

APPLICATIONS: THE CONTRACTOR SHALL ARRANGE TO COMPLY WITH ALL PERMITS/LICENSES/FEES/INSPECTIONS REQUIRED FOR WORK UNDER THIS CONTRACT & SHALL BE OBTAINED/PAID FOR BY THE CONTRACTOR.

OUTAGES: ALL WORK SHALL BE ARRANGED SO THAT POWER IS AVAILABLE TO THE EXISTING BUILDING AT ALL TIMES, EXCEPT FOR SHORT PERIODS NECESSARY TO COMPLETE WORK, THE CONTRACTOR SHALL COORDINATE SERVICE INTERRUPTIONS WITH OWNER/MAINTENANCE STAFF. SERVICE TO EXISTING AREAS SHALL NOT BE DISCONNECTED UNTIL NEW OR TEMPORARY CONNECTIONS ARE MADE.

TEMPORARY POWER: THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARILY SUPPLYING POWER PRIOR TO PERMANENT INSTALLATION OF SERVICE EQUIPMENT. ALL TEMPORARY INSTALLATIONS SHALL BE REMOVED AT THE END OF THE PROJECT.

DEMOLITION: THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE DURING SITE INVESTIGATION/EXISTING DRAWINGS. THEY MAY NOT IDENTIFY EVERY ITEM, THE CONTRACTOR IS RESPONSIBLE FOR ALL FLECTRICAL ITEMS WHICH MUST BE REMOVED FOR NEW CONSTRUCTION EXTRA CARE SHOULD BE TAKEN NOT TO DAMAGE EXISTING FINISHES, ALL REPAIRS SHALL BE AT THE EXPENSE OF THE CONTRACTOR RACEWAYS THAT ARE NOT CONCEALED IN WALLS/FLOOR SLAB & ARE NOT TO BE REUSED. SHALL BE REMOVED. WIRE SHALL BE REMOVED TO SOURCE, ABANDONED CONDUIT SHALL BE CUT OFF FLUSH WHERE IT ENTERS THE WALL/FLOOR & SEALED. EXISTING RACEWAYS SHALL BE SUPPORTED IF NOT CODE COMPLIANT, PROVIDE BLANK WALL PLATE FOR DEVICES REMOVED FROM EXISTING WALLS, PATCH ALL HOLES FROM THE REMOVAL OF ELECTRICAL ITEMS & PAINT, RECONNECT EXISTING ELECTRICAL ITEMS TO THE NEW ELECTRICAL SYSTEM. ELECTRICAL SYSTEMS IN UNAFFECTED AREAS ARE NOT TO BE DISTURBED. OWNER SHALL HAVE FIRST SALVAGE RIGHTS ON ALL ITEMS. REMOVE ALL MATERIALS, NOT CLAIMED AS SALVAGE, FROM PREMISES. ALL MATERIALS TO BE DISPOSED OF PROPERLY

QUALITY ASSURANCE: ELECTRICAL COMPONENTS, DEVICES, & ACCESSORIES: LISTED & LABELED AS DEFINED IN NFPA 70. BY A QUALIFIED TESTING AGENCY. & MARKED FOR INTENDED LOCATION & APPLICATION.

CLEANUP: THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP DURING & AT CONCLUSION OF CONSTRUCTION PERIOD. NO MATERIALS SHALL BE LEFT ON SITE WHEN WORK IS COMPLETED. ALL MATERIALS SHALL BE DISPOSED OF PROPERLY OWNER SHALL HAVE SALVAGE RIGHTS ON ALL ITEMS.

WARRANTY: THE CONTRACTOR SHALL WARRANT ALL WORK & MATERIALS UNDER THIS CONTRACT FOR A PERIOD OF ONE-1 YEAR FROM FINAL ACCEPTANCE. THE CONTRACTOR SHALL AGREE TO REPAIR/REPLACE. FREE OF CHARGE, ANY ITEM WHICH IS DEFECTIVE DUE TO FAULTY WORKMANSHIP

SHOP DRAWINGS: THE CONTRACTOR SHALL STAMP, DATE & SIGN EACH SUBMITTAL TO INDICATE CONFORMANCE WITH CONTRACT DOCUMENTS. THE ARCHITECT/ENGINEER SHALL BE THE FINAL JUDGE OF

ITEMS SUBSTITUTED FOR THOSE SPECIFIED. CLOSEOUT DOCUMENTS: AN O&M MANUAL SHALL BE PROVIDED WITHIN 90 DAYS OF CERTIFICATE OF

OCCUPANCY AND SHALL INCLUDE THE FOLLOWING: NAME AND ADDRESS OF NOT LESS THAN ONE SERVICE AGENCY FOR INSTALLED EQUIPMENT. VERBIAGE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING RECOMMENDED SETPOINTS.

SUBMITTAL OF O&M DATA INCLUDING ALL SELECTED OPTIONS OF EACH PIECE OF LIGHTING EQUIPMENT AND LIGHTING CONTROLS. REQUIRED ROUTINE MAINTENANCE, CLEANING AND RECOMMENDED RELAMPING D. A SCHEDULE FOR INSPECTING AND RECALIBRATING ALL LIGHTING CONTROLS.

CLOSEOUT REPORT: A CLOSEOUT REPORT SHALL BE PROVIDED FOR ALL PROJECTS THAT REQUIRE COMMISSIONING, THE REPORT SHALL INCLUDE THE FOLLOWING: A FUNCTIONAL PERFORMANCE TEST RESULTS.

B. LIST OF ALL DEFICIENCIES FOUND DURING TESTING ALONG WITH PROPOSED OR USED CORRECTIVE

260500 COMMON WORK RESULTS

COORDINATION: COORDINATE ARRANGEMENT, MOUNTING, & SUPPORT OF ELECTRICAL EQUIPMENT SO CONNECTING RACEWAYS, CABLES, WIREWAYS, CABLE TRAYS, & BUSWAYS WILL BE CLEAR OF OBSTRUCTIONS & OF THE WORKING & ACCESS SPACE OF OTHER EQUIPMENT.

COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION: COMPLY WITH NECA 1

FOLIPMENT INSTALL TO FACILITATE SERVICE MAINTENANCE & REPAIR OR REPLACEMENT OF COMPONENTS OF BOTH ELECTRICAL EQUIPMENT & OTHER NEARBY INSTALLATIONS, CONNECT IN SUCH A WAY AS TO FACILITATE FUTURE DISCONNECTING WITH MINIMUM INTERFERENCE OF OTHER ITEMS IN THE VICINITY

SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS: FIRE-RATED ASSEMBLIES: INSTALL SLEEVES FOR PENETRATIONS OF FIRE-RATED FLOOR & WALL ASSEMBLIES UNLESS OPENINGS COMPATIBLE WITH FIRESTOP SYSTEM USED ARE FABRICATED DURING CONSTRUCTION OF

CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES OF WALLS EXTEND SLEEVES INSTALLED IN FLOORS 2 INCHES ABOVE FINISHED FLOOR LEVEL. SEAL SPACE OUTSIDE OF SLEEVES WITH GROUT FOR PENETRATIONS OF CONCRETE AND MASONRY. INTERIOR PENETRATIONS OF NON-FIRE-RATED WALLS & FLOORS: SEAL ANNULAR SPACE BETWEEN SLEEVE & RACEWAY OR CABLE, USING JOINT SEALANT APPROPRIATE FOR SIZE, DEPTH, & LOCATION OF JOINT. FIRE-RATED-ASSEMBLY PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, &

FLOORS AT RACEWAY & CABLE PENETRATIONS. INSTALL SLEEVES & SEAL RACEWAY & CABLE PENETRATION SI FEVES WITH FIRESTOP MATERIALS ROOF-PENETRATION SLEEVES: SEAL PENETRATION OF INDIVIDUAL RACEWAYS AND CABLES WITH FLEXIBLE BOOT-TYPE FLASHING UNITS APPLIED IN COORDINATION WITH ROOFING WORK.

INSTALL TO SEAL EXTERIOR WALL PENETRATIONS. USE TYPE & NUMBER OF SEALING ELEMENTS RECOMMENDED BY MANUFACTURER FOR RACEWAY OR CABLE

260519 LOW VOLTAGE CONDUCTORS AND CABLES

SUMMARY: BUILDING WIRES & CABLES RATED 600 V & LESS.

CONDUCTORS & CABLES: COPPER CONDUCTORS: COMPLY WITH NEMA WC 70. CONDUCTOR INSULATION: COMPLY WITH NEMA WC 70 FOR TYPE THHN-THWN.

SLEEVE-SEAL INSTALLATION:

CONDUCTOR MATERIAL APPLICATIONS:

FEEDERS: COPPER. SOLID FOR NO. 10 AWG & SMALLER, STRANDED FOR NO. 8 AWG & LARGER. BRANCH CIRCUITS: COPPER, SOLID FOR NO. 10 AWG & SMALLER, STRANDED FOR NO. 8 AWG & LARGER.

STRANDED FOR NO. 10 AWG & SMALLER IS ACCEPTABLE. CONDUCTOR INSULATION & MULTICONDUCTOR CABLE APPLICATIONS & WIRING METHODS: TYPE THHN-THWN,

SINGLE CONDUCTORS IN RACEWAY. NO. 12 AWG, UNLESS OTHERWISE INDICATED.

INSTALLATION OF CONDUCTORS & CABLES: CONCEAL CABLES IN FINISHED WALLS, CEILING, & FLOORS, UNLESS OTHERWISE INDICATED. INSTALL EXPOSED CABLES PARALLEL & PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS, & FOLLOW SURFACE CONTOURS WHERE POSSIBLE, LOW VOLTAGE CABLES NOT INSTALLED IN RACEWAY SHALL BE PLENUM RATED. ALL BRANCH CIRCUITS SHALL HAVE A SEPARATE GREEN GROUND WIRE & SEPARATE NEUTRAL WIRE.

IDENTIFICATION: IDENTIFY & COLOR-CODE CONDUCTORS & CABLES ACCORDING TO NEC, ARTICLE 210.5.

FIELD QUALITY CONTROL: AFTER INSTALLING CONDUCTORS & CABLES & BEFORE ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, TEST FOR COMPLIANCE WITH REQUIREMENTS. PERFORM EACH VISUAL & MECHANICAL INSPECTION & ELECTRICAL TEST STATED IN NETA ACCEPTANCE TESTING SPECIFICATION. CERTIFY COMPLIANCE WITH TEST PARAMETERS.

260526 GROUNDING AND BONDING

QUALITY ASSURANCE: COMPLY WITH UL 467 FOR GROUNDING & BONDING MATERIAL & EQUIPMENT.

EQUIPMENT GROUNDING: INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDERS & BRANCH CIRCUITS. INSTALL INSULATED EQUIPMENT GROUND CONDUCTORS WITH THE FOLLOWING ITEMS, IN ADDITION TO THOSE REQUIRED BY NFPA 70: FEEDERS & BRANCH CIRCUITS, LIGHTING CIRCUITS, RECEPTACLE CIRCUITS, SINGLE/THREE-PHASE MOTOR & APPLIANCE BRANCH CIRCUITS, FLEXIBLE RACEWAY RUNS, COMPUTER & RACK-MOUNTED ELECTRONIC EQUIPMENT CIRCUITS.

INSTALLATION: GROUNDING CONDUCTORS: ROUTE ALONG SHORTEST & STRAIGHTEST PATHS POSSIBLE, UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE, AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, DAMAGE.

260529 HANGERS AND SUPPORTS

CONDUIT & CABLE SUPPORT DEVICES: STEEL HANGERS, CLAMPS, & ASSOCIATED FITTINGS, DESIGNED FOR TYPES & SIZES OF RACEWAY OR CABLE TO BE SUPPORTED.

EXECUTION: COMPLY WITH NECA 1 AND NECA 101 FOR APPLICATION OF HANGERS & SUPPORTS FOR ELECTRICAL EQUIPMENT & SYSTEMS. SPACE SUPPORTS FOR EMT, IMC, RMC AS REQUIRED BY NFPA 70. MINIMUM ROD SIZE SHALL BE 1/4 INCH IN DIAMETER.

INSTALLATION: COMPLY WITH NECA 1 & NECA 101 FOR INSTALLATION REQUIREMENTS. ANCHOR & FASTEN ELECTRICAL ITEMS & THEIR SUPPORTS TO BUILDING STRUCTURAL ELEMENTS. CUT, FIT, & PLACE MISCELLANEOUS METAL SUPPORTS ACCURATELY IN LOCATION, ALIGNMENT, & ELEVATION TO SUPPORT & ANCHOR ELECTRICAL MATERIAL & EQUIPMENT

CONCRETE BASES: CONSTRUCT BASES OF DIMENSIONS INDICATED BY NOT LESS THAN 4 INCHES LARGER IN BOTH DIRECTIONS THAN SUPPORTED UNIT; AND SO ANCHORS WILL BE A MINIMUM OF 10 BOLT DIAMETERS FROM EDGE OF THE BASE. ANCHOR EQUIPMENT TO CONCRETE BASE. CHAMFER EDGES OF CONCRETE.

260533 RACEWAYS AND BOXES

SUMMARY: RACEWAYS, FITTINGS, BOXES, ENCLOSURES, & CABINETS FOR ELECTRICAL WIRING. RACEWAYS SHALL BE LOCATED & ROUTED SUCH THAT THEY ARE PERPENDICULAR & PARALLEL TO WALLS, CEILINGS & STRUCTURES. THEY SHALL NOT BE RUN DIAGONALLY OR AT OBTUSE ANGLES IF AT ALL POSSIBLE. ENGINEER SHALL BE NOTIFIED & MADE AWARE OF POSSIBLE UNFORESEEN SITUATIONS DEVIATING FROM THIS

QUALITY ASSURANCE: COMPLY WITH NFPA 70.

RACEWAY APPLICATIONS:

OUTDOORS: EXPOSED CONDUIT: RIGID STEEL CONDUIT

CONCEALED CONDUIT, ABOVEGROUND: RIGID STEEL CONDUIT UNDERGROUND CONDUIT: RNC, TYPE EPC-40-PVC, DIRECT BURIED CONNECTION TO VIBRATING EQUIPMENT: LFMC BOXES & ENCLOSURES, ABOVEGROUND: NEMA 250, TYPE 3R OR 4

RACEWAYS FOR OPTICAL FIBER OR COMMUNICATIONS CABLE: EMT

EXPOSED. NOT SUBJECT TO PHYSICAL DAMAGE: EMT CONCEALED IN CEILINGS & INTERIOR WALLS & PARTITIONS: EMT CONNECTION TO VIBRATING EQUIPMENT: FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS DAMP OR WET LOCATION: RIGID STEEL CONDUIT

DAMP OR WET LOCATIONS RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS & SUITABLE FOR USE & LOCATION. STEEL, SET-SCREW OR

BOXES & ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4 STAINLESS STEEL OR NONMETALLIC IN

WIRING SHALL BE INSTALLED IN RACEWAYS, UNLESS OTHERWISE INDICATED.

RUNS ARE DIAGRAMMATIC, ACTUAL LOCATIONS SHALL BE DETERMINED IN THE FIELD. RACEWAYS IN GENERAL (EXCEPT WHERE OTHERWISE INDICATED) SHALL BE ELECTRICAL METALLIC TUBING, 3/4" IN THE RARE OCCASIONS THAT A DEVICE DOES NOT ACCEPT A 3/4" CONDUIT A 1/2" CONDUIT IS ACCEPTABLE AS

LONG AS THE 1/2" CONDUIT IS KEPT TO A LENGTH NO LONGER THAN 6'-0" IN LENGTH AT NO TIME SHALL THE NATIONAL ELECTRICAL CODE CONDUIT FILL REQUIREMENTS BE EXCEEDED. INSTALL ATION:

CONCEAL CONDUIT & EMT WITHIN FINISHED WALLS, CEILING, & FLOORS, UNLESS OTHERWISE INDICATED. INSTALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES OF SLACK AT EACH END OF PULL WIRE. EQUIPMENT SUBJECT TO VIBRATION. NOISE TRANSMISSION. OR MOVEMENT & FOR TRANSFORMERS & MOTORS. SHALL HAVE A MAXIMUM LENGTH OF 30 INCHES FOR FLEXIBLE CONDUIT APPLY FIRESTOPPING TO ELECTRICAL PENETRATIONS OF FIRE-RATED FLOOR & WALL ASSEMBLIES TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY.

260553 IDENTIFICATION

QUALITY ASSURANCE: COMPLY WITH ANSI A13.1, COMPLY WITH NFPA 70, ADHESIVE-ATTACHED LABELING MATERIALS, INCLUDING LABEL STOCKS, LAMINATING ADHESIVES, & INKS USED BY LABEL PRINTERS, SHALL

INSTALLATION: INSTALL IDENTIFICATION MATERIALS AT LOCATIONS FOR MOST CONVENIENT VIEWING WITHOUT INTERFERENCE WITH OPERATION & MAINTENANCE OF EQUIPMENT

EQUIPMENT IDENTIFICATION LABELS: APPLY LABELS TO DISCONNECT SWITCHES & PROTECTION EQUIPMENT, CENTRAL OR MASTER UNITS, CONTROL PANELS, CONTROL STATIONS, TERMINAL CABINETS, & RACKS OF EACH SYSTEM. SYSTEMS INCLUDE POWER, LIGHTING, CONTROL, COMMUNICATION, SIGNAL, MONITORING, & ALARM

SYSTEMS UNLESS EQUIPMENT IS PROVIDED WITH ITS OWN IDENTIFICATION. LABEL SWITCHBOARDS &

PANELBOARDS WITH DESIGNATION, VOLTAGE, & PHASE. INDOOR EQUIPMENT: SELF-ADHESIVE, ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABEL. PROVIDE A SINGLE LINE OF TEXT WITH 1/2" HIGH LETTERS ON 1-1/2" HIGH LABEL; WHERE TWO-2 LINES OF TEXT ARE REQUIRED, USE LABELS 2 INCHES HIGH. WHITE LETTERS ON DARK-GRAY BACKGROUND.

OUTDOOR FOUIPMENT: ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABE ELEVATED COMPONENTS: INCREASE SIZES OF LABELS & LETTERS TO THOSE APPROPRIATE FOR VIEWING FROM

260943 ADDRESSABLE LIGHTING CONTROL SYSTEM

EMERGENCY OPERATION SHALL BE UL 924 LISTED.

SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING MANUFACTURERS:

- LUTRON ENCELIUM
- nl IGHT
- DIM BY WATTSTOPPER 5. NX BY HUBBELL CONTROL SOLUTIONS
- CRESTRON FLECTRONICS INTELLIGENT LIGHTING CONTROLS
- WAVFI INX 9. AVI-ON
- 10. TOUCHE LIGHTING CONTROLS

PROVIDE LIGHTING CONTROL SYSTEM THAT IS DESIGNED, TESTED, MANUFACTURED, AND WARRANTED BY A

PROVIDE AN ADDRESSABLE LIGHTING CONTROL SYSTEM COMPLETE WITH ALL NECESSARY ENCLOSURES, WIRING, AND SYSTEM COMPONENTS TO PROVIDE A COMPLETE AND PROPERLY FUNCTIONING SYSTEM AS INDICATED ON THE DRAWINGS AND HEREIN. IF A CONFLICT IS IDENTIFIED BETWEEN THE DRAWING AND THIS SPECIFICATION, CONTACT THE ENGINEER FOR CLARIFICATION.

- ROOM CONTROLLERS/POWER PACKS SHALL BE: PI FNUM-RATED
- DUAL VOLTAGE LISTED FOR 120/277V.
- 3. CAPABLE OF MOUNTING TO STANDARD JUNCTION BOX. 4. UL LISTED FOR LOAD TYPE INDICATED ON DRAWINGS, AND CAPABLE OF CONNECTING TO LOCAL SYSTEM DEVICES SUCH AS MANUAL CONTROL DEVICES, OCCUPANT SENSORS, OR PHOTOCELL SENSORS.
- 5. WHERE DIMMING IS BEING UTILIZED, COORDINATE DIMMING PROTOCOL WITH FINAL LUMINAIRE SELECTIONS TO ENSURE COMPATIBILITY WITH LUMINAIRES AND DRIVERS.

WHERE AUXILIARY INPUT DEVICES ARE PRESENT, INPUTS SHALL BE PROGRAMMABLE TO SUPPORT MAINTAINED OR MOMENTARY INPUTS THAT CAN ACTIVATE LOCAL OR GLOBAL (WHERE FULLY NETWORKED) SCENES AND

PROFILES, RAISE OR LOWER LIGHT LEVELS, OR TOGGLE LIGHTS ON/OFF. MANUAL CONTROL DEVICES SHALL ALLOW FOR THE FOLLOWING MANUAL CONTROL FUNCTIONS AS INDICATED ON PLANS:

- ON/OFF
- SCENE CONTROL

WIRING INSTALLATION:

4. INTERACTION WITH OTHER BUILDING SYSTEMS, SUCH AS INTEGRATED SHADE OR AUDIO-VISUAL

PROVIDE OCCUPANT SENSORS AS INDICATED ON PLANS.

RESPONSE OF DAYLIGHTING SENSORS SHALL BE CONFIGURABLE TO ADJUST PHOTOCELL SETPOINTS AND

- ENCLOSURE SHALL BE NEMA 1, SIZED TO ACCOMMODATE REQUIRED NUMBER OF RELAYS. EACH RELAY SHALL BE RATED TO MEET THE FOLLOWING ELECTRICAL REQUIREMENTS:
- . DUAL VOLTAGE 120/277V
- 20A TOTAL LOAD 3. EACH RELAY SHALL BE CAPABLE OF PERFORMING ON/OFF SWITCHING AND CONTINUOUS DIMMING, AND GENERAL PURPOSE PLUG LOAD CONTROL

4 WHERE A RELAY PANEL CONTROLS LOADS SERVED FROM DIFFERENT BRANCHES (NORMAL, CRITICAL, LIFE SAFETY, EMERGENCY, ETC.) WITHIN THE SAME PANEL, PANEL SHALL INCLUDE MECHANICAL BARRIER PROVIDING PHYSICAL SEPARATION BETWEEN LOADS OF DIFFERENT VOLTAGES.

REVIEW SEQUENCE OF OPERATIONS AND ALL MANUFACTURER'S REQUIREMENTS PRIOR TO BEGINNING

PROCEED WITH INSTALLATION ONLY AFTER ANY UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. SYSTEM STARTUP: UPON COMPLETION OF INSTALLATION BY THE INSTALLER, THE SYSTEM SHALL BE STARTED UP AND PROGRAMMED BY A MANUFACTURER-AUTHORIZED SERVICE REPRESENTATIVE.

- COMPLY WITH NECA 1 . USE MANUFACTURER PRE-TERMINATED CABLING OR TEST EACH FIELD-TERMINATED CABLE. COMPLY
- WITH APPLICABLE ANSLAND BICSLSTANDARDS FOR ANY FIELD-TERMINATED CABLING 3 SPLICES TAPS AND TERMINATIONS MAKE CONNECTIONS ONLY ON NUMBERED TERMINAL STRIPS IN JUNCTION, PULL, AND OUTLET BOXES; TERMINAL CABINETS; AND EQUIPMENT ENCLOSURES.

ENGAGE A MANUFACTURER-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT COMPONENTS, ASSEMBLIES, AND EQUIPMENT INSTALLATIONS, INCLUDING CONNECTIONS, AND TO ASSIST IN SYSTEM TESTING. AFTER INSTALLING TIME SWITCHES AND SENSORS, AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED. START UNITS TO CONFIRM PROPER UNIT OPERATION. MAKE ANY CORRECTIONS REQUIRED TO ENSURE PROPER

DURING THE START-UP PROCEDURES. THE MANUFACTURER-AUTHORIZED SERVICE REPRESENTATIVE SHALL TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST AND OPERATE LIGHTING CONTROL SYSTEM.

SUMMARY: DISTRIBUTION & LIGHTING & APPLIANCE BRANCH-CIRCUIT PANELBOARDS. LOAD CENTERS ARE NOT ACCEPTABLE, UNLESS OTHERWISE INDICATED.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE SQUARE D OR A COMPARABLE

QUALITY ASSURANCE: COMPLY WITH NEMA PB 1 & NFPA 70.

INDOOR DRY & CI FAN LOCATIONS: NEMA 250, TYPE 1.

OUTDOOR LOCATIONS: NEMA 250, TYPE 3R

PRODUCTS: ENCLOSURES: FLUSH- & SURFACE-MOUNTED CABINETS. RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.

WASH-DOWN AREAS: NEMA 250, TYPE 4X, STAINLESS STEEL OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250, TYPE 4. INDOOR LOCATIONS SUBJECT TO DUST, FALLING DIRT, & DRIPPING NONCORROSIVE LIQUIDS: NEMA 250, 12, DIRECTORY CARD: INSIDE PANELBOARD DOOR, MOUNTED IN TRANSPARENT CARD HOLDER, CREATE A DIRECTORY TO INDICATE INSTALLED CIRCUIT LOADS & INCORPORATING OWNERS' FINAL ROOM DESIGNATIONS.

USE A COMPUTER OR TYPEWRITER TO CREATE DIRECTORY; HANDWRITTEN DIRECTORIES ARE NOT PANELBOARD SHORT-CIRCUIT CURRENT RATING: FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS.

DISTRIBUTION PANELBOARDS: NEMA PB 1, POWER & FEEDER DISTRIBUTION TYPE.

MAINS: CIRCUIT BREAKER OR LUGS ONLY.

DOORS: SECURED WITH VAULT-TYPE LATCH WITH TUMBLER LOCK; KEYED ALIKE. MAIN: CIRCUIT BREAKER OR LUGS ONLY BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS.

DOORS: CONCEALED HINGES; SECURED WITH FLUSH LATCH WITH TUMBLER LOCK; KEYED ALIKE.

BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS, REPLACEABLE WITHOUT

LIGHTING & APPLIANCE BRANCH-CIRCUIT PANELBOARDS: NEMA PB 1. LIGHTING & APPLIANCE BRANCH-CIRCUIT TYPE

DISTURBING ADJACENT UNITS DISCONNECTING & OVERCURRENT PROTECTIVE DEVICES: MOLDED-CASE CIRCUIT BREAKER (MCCB); COMPLY WITH UL 489, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS

COMPLY WITH NECA 1 MOUNT TOP OF TRIM 72 INCHES ABOVE FINISHED FLOOR. MOUNT PANELBOARD CABINET PLUMB & RIGID WITHOUT DISTORTION OF BOX. MOUNT RECESSED PANELBOARDS WITH FRONTS UNIFORMLY FLUSH WITH WALL FINISH & MATING WITH BACK BOX INSTALL OVERCURRENT PROTECTIVE DEVICES & CONTROLLERS NOT ALREADY FACTORY INSTALLED. SET FIELD-ADJUSTABLE CIRCUIT-BREAKER TRIP RANGES

INSTALL FILLER PLATES IN UNUSED SPACES STUB FOUR 1-INCH EMPTY CONDUITS FROM PANELBOARD INTO ACCESSIBLE CEILING SPACE OR SPACE DESIGNATED TO BE CEILING SPACE IN THE FUTURE. STUB FOUR 1-INCH EMPTY CONDUITS INTO RAISED FLOOR SPACE OR BELOW SLAB NOT ON GRADE. ARRANGE CONDUCTORS IN GUTTERS INTO GROUPS & BUNDLE & WRAP WITH WIRE TIES.

TESTS & INSPECTIONS: PERFORM EACH VISUAL & MECHANICAL INSPECTION & ELECTRICAL TEST STATED IN NETA ACCEPTANCE TESTING SPECIFICATIONS. CERTIFY COMPLIANCE WITH TEST PARAMETERS

ADJUSTING: AFTER SUBSTANTIAL COMPLETION, BUT NOT MORE THAN 60 DAYS AFTER FINAL ACCEPTANCE, MEASURE LOAD BALANCING & MAKE CIRCUIT CHANGES. DIFFERENCE EXCEEDING 20 PERCENT BETWEEN PHASE LOADS, WITHIN A PANELBOARD, IS NOT ACCEPTABLE.

262726 WIRING DEVICES

QUALITY ASSURANCE: COMPLY WITH NFPA 70.

STRAIGHT BI ADE RECEPTACLES: CONVENIENCE RECEPTACLES, 125V, 20A: COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, & UL 498. SPECIFICATION GRADE. PASS & SEYMOUR 5362 OR EQUAL.

GFCI RECEPTACLES: STRAIGHT BLADE, FEED-THROUGH TYPE. COMPLY WITH NEMA WD 1, NEMA WD 6, UL 498, & UL 943, CLASS A, & INCLUDE INDICATOR LIGHT THAT IS LIGHTED WHEN DEVICE IS TRIPPED. DUPLEX GFCI CONVENIENCE RECEPTACLES, 125V, 20A. PASS & SEYMOUR 2095 OR EQUAL.

TOGGLE SWITCHES: COMPLY WITH NEMA WD 1 & UL 20. SPECIFICATION GRADE. SWITCHES: 120/277V, 20A. PASS & SEYMOUR PS20AC1 OR EQUAL.

WALL PLATES:

SINGLE & COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES. MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC [0.035-INCH-THICK. SATIN-

FINISHED STAINLESS STEEL] MATERIAL FOR UNFINISHED SPACES: GALVANIZED STEEL

MATERIAL FOR DAMP LOCATIONS: CAST ALUMINUM WITH SPRING-LOADED LIFT COVER, & LISTED & LABELED FOR WET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R WEATHER-RESISTANT. DIE-CAST ALUMINUM WITH LOCKABLE COVER

FIRST FLOOR: GRAY DEVICES WITH STAINLESS STEEL COVER PLATES.

SECOND FLOOR: WHITE DEVICES WITH COVER PLATES INSTALLATION: COMPLY WITH NECA 1, INCLUDING MOUNTING HEIGHTS LISTED IN THAT STANDARD, UNLESS OTHERWISE INDICATED. TAKE STEPS TO INSURE THAT DEVICES & THEIR BOXES ARE PROTECTED. INSTALL WIRING DEVICES AFTER ALL WALL PREPARATION. INCLUDING PAINTING. IS COMPLETE. UNLESS OTHERWISE INDICATED, MOUNT FLUSH, WITH LONG DIMENSION VERTICAL & WITH GROUNDING TERMINAL OF RECEPTACLES ON BOTTOM. GROUP ADJACENT SWITCHES UNDER SINGLE, MULTIGANG WALL PLATES. INSTALL THE RECEPTACLES & TELEPHONE/DATA BOXES AT 18" AFF, & THE WALL SWITCHES AT 48" AFF UNLESS OTHERWISE INDICATED. DO NOT INSTALL/LOCATE OUTLETS BACK-TO-BACK EVEN IF ASSOCIATED WITH DIFFERENT SYSTEMS.

FIELD QUALITY CONTROL: PERFORM TESTS & INSPECTIONS. VERIFY THAT DEVICE & OUTLET BOX ARE SECURELY

MOUNTED. CORRECT CIRCUIT CONDITIONS, REMOVE MALFUNCTIONING UNITS & REPLACE WITH NEW, & RETEST.

KITCHEN AREAS: NEMA 250, TYPE 4X, STAINLESS STEEL

OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250, TYPE 4

262816 ENCLOSED SWITCHES/CIRCUIT BREAKERS MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE SQUARE D OR A COMPARABLE PRODUCT. OBTAIN ENCLOSED SWITCHES & CIRCUIT BREAKERS, OVERCURRENT PROTECTIVE DEVICES, COMPONENTS, & ACCESSORIES, WITHIN SAME PRODUCT CATEGORY, FROM SINGLE SOURCE FROM SINGLE

COORDINATION: COORDINATE LAYOUT & INSTALLATION OF SWITCHES, CIRCUIT BREAKERS, & COMPONENTS WITH EQUIPMENT SERVED & ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES & REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS & PANELS.

FUSIBLE SWITCHES: TYPE HD, HEAVY DUTY, SINGLE THROW, 600-V AC, 1200 A & SMALLER. UL 98 & NEMA KS 1, HORSEPOWER RATED. WITH CLIPS OR BOLT PADS TO ACCOMMODATE INDICATED FUSES. LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADI OCKS. & INTERLOCKED WITH COVER IN CLOSED POSITION. NONFUSIBLE SWITCHES: TYPE HD. HEAVY DUTY. SINGLE THROW. 600-V AC. 1200 A & SMALLER UL 98 & NEMA KS 1 HORSEPOWER RATED, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, & INTERLOCKED WITH COVER IN CLOSED POSITION SHUNT TRIP SWITCHES: COMPLY WITH UL 50. & UL 98. THREE-POLE. HORSEPOWER RATED. WITH INTEGRAL SHUNT TRIP MECHANISM & CLASS J FUSE BLOCK; LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS; INTERLOCKED WITH COVER IN CLOSED POSITION.

CAPACITY TO COMPLY WITH AVAILABLE FAULT CURRENTS. ENCLOSURES: NEMA AB 1, NEMA KS 1, NEMA 250, & UL 50, TO COMPLY WITH ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION. DRY & CLEAN INDOOR LOCATIONS: NEMA 250, TYPE 1 OUTDOOR LOCATIONS: NEMA 250, TYPE 3R

MOLDED-CASE CIRCUIT BREAKERS: COMPLY WITH UL 489, NEMA AB 1, & NEMA AB 3, WITH INTERRUPTING

265100 INTERIOR LIGHTING

GENERAL REQUIREMENTS FOR LIGHTING FIXTURES & COMPONENTS. RECESSED FIXTURES: COMPLY WITH NEMA LE 4 FOR CEILING COMPATIBILITY FOR RECESSED FIXTURES. METAL PARTS: FREE OF BURRS & SHARP CORNERS & EDGES.

SHEET METAL COMPONENTS: STEEL, UNLESS OTHERWISE INDICATED. FORM & SUPPORT TO PREVENT WARPING DOORS, FRAMES, & OTHER INTERNAL ACCESS: SMOOTH OPERATING, FREE OF LIGHT LEAKAGE UNDER OPERATING CONDITIONS, & DESIGNED TO PERMIT RELAMPING WITHOUT USE OF TOOLS. DESIGNED TO PREVENT DOORS, FRAMES, LENSES, DIFFUSERS, & OTHER COMPONENTS FROM FALLING ACCIDENTALLY DURING RELAMPING & WHEN SECURED IN OPERATING POSITION.

DIFFUSERS & GLOBES: ACRYLIC LIGHTING DIFFUSER: 100 PERCENT VIRGIN ACRYLIC PLASTIC. HIGH RESISTANCE TO YELLOWING &

OTHER CHANGES DUE TO AGING, EXPOSURE TO HEAT, & UV RADIATION. LENS THICKNESS: AT LEAST 0.125-INCH MINIMUM, UNLESS OTHERWISE INDICATED. UV STABILIZED GLASS: ANNEALED CRYSTAL GLASS, UNLESS OTHERWISE INDICATED.

EXIT SIGNS: GENERAL REQUIREMENTS FOR EXIT SIGNS: COMPLY WITH UL 924; FOR SIGN COLORS, VISIBILITY, LUMINANCE, & LETTERING SIZE, COMPLY WITH AUTHORITIES HAVING JURISDICTION.

LAMPS FOR AC OPERATION: LEDs, 50,000 HOURS MINIMUM RATED LAMP LIFE. SELF-POWERED EXIT SIGNS (BATTERY TYPE): INTEGRAL AUTOMATIC CHARGER IN A SELF-CONTAINED POWER

LIGHTING FIXTURE SUPPORT COMPONENTS: COMPLY WITH DIVISION 26 SECTION "HANGERS & SUPPORTS FOR ELECTRICAL SYSTEMS" FOR CHANNEL- & ANGI F-IRON SUPPORTS & NONMETALLIC CHANNEL & ANGLE SUPPORTS. SINGLE-STEM HANGERS: 1/2-INCH STEEL TUBING WITH SWIVEL BALL FITTINGS & CEILING CANOPY. FINISH SAME

TWIN-STEM HANGERS: TWO, 1/2-INCH STEEL TUBES WITH SINGLE CANOPY DESIGNED TO MOUNT A SINGLE

GENERAL REQUIREMENTS FOR EMERGENCY LIGHTING UNITS: SELF-CONTAINED UNITS COMPLYING WITH UL 924.

EMERGENCY LIGHTING UNITS:

FIXTURE. FINISH SAME AS FIXTURE.

COMPLY WITH NECA 1 INSTALL LUMINAIRES LEVEL, PLUMB AND SQUARE WITH CEILINGS AND WALL UNLESS OTHERWISE INDICATED.

SIZED AND RATED FOR LUMINAIRE WEIGHT. ABLE TO MAINTAIN LUMINAIRE POSITION AFTER CLEANING AND RELAMPING. PROVIDE SUPPORT FOR LUMINAIRE WITHOUT CAUSING DEFLECTION OF CEILING OR WALL. LUMINAIRE MOUNTING DEVICES SHALL BE CAPABLE OF SUPPORTING A HORIZONTAL FORCE OF 100% OF

LUMINAIRE WEIGHT AND VERTICAL FORCE OF 400% OF LUMINAIRE WEIGHT

SUSPENDED LIGHTING FIXTURE SUPPORT: 1. PENDANTS AND RODS: WHERE LONGER THAN 48 INCHES, BRACE TO LIMIT SWINGING. 2. STEM-MOUNTED. SINGLE UNIT FIXTURES: SUSPEND WITH TWIN STEM HANGERS. 3. CONTINUOUS ROWS: USE TUBING OR STEM FOR WIRING AT ONE POINT AND TUBING OR ROD FOR SUSPENSION

FOR EACH UNIT LENGTH OF FIXTURE CHASSIS INCLUDING ONE AT EACH END OR AIRCRAFT CABLE AS

SPECIFIED IN LIGHT FIXTURE SCHEDULE. LIGHT FIXTURES RECESSED IN SUSPENDED CEILINGS SHALL BE ATTACHED TO GRID AND HAVE TWO (2) WIRES MINIMUM INSTALLED AT DIAGONAL CORNERS TO STRUCTURE.

265119 INTERIOR LED LIGHTING PROVIDE PRODUCT DATA FOR EACH TYPE OF LIGHTING FIXTURE. USE SAME DESIGNATIONS INDICATED ON

RECESSED FIXTURE: COMPLY WITH NEMA LE 4 FOR CEILING COMPATIBILITY FOR RECESSED FIXTURES. COMPLY WITH NFPA 70, IEEE C2, AND CALIFORNIA TITLE 24 (WHERE REQUIRED)

COMPLY WITH UL 1598 AND UL 8750 EACH LUMINAIRE SHALL BE RATED FOR A MINIMUM OPERATIONAL LIFE (L70) OF 50,000 HOURS AS DEFINED BY ABSOLUTE PHOTOMETRICS SHALL BE AVAILABLE FOR EACH LUMINAIRE BASED ON IES LM-79.

INDIVIDUAL LEDS WITHIN THE LUMINAIRE SHALL BE CONNECTED SUCH THAT LOSS OR FAILURE OF A

SINGLE LED WILL NOT RESULT IN THE LOSS OF THE ENTIRE ARRAY.

LUMINAIRE POWER FACTOR: 0.90 OR HIGHER TOTAL HARMONIC DISTORTION RATING: LESS THAN 20 PERCENT.

REQUIRE ADDITIONAL CONDUCTORS FOR LIGHTING CONTROL. TEST EMERGENCY LIGHTING, INTERRUPT POWER SUPPLY TO DEMONSTRATE PROPER OPERATION. VERIFY TRANSFER FROM NORMAL POWER TO BATTERY AND RETRANSFER TO NORMAL. TEST SHALL BE 90 MINUTE ON

BATTERY SOURCE ONLY AND SHALL MAINTAIN ILLUMINATION. REPLACE UNITS/BATTERIES THAT FAIL TESTING

ADJUST AIMABLE LUMINAIRES IN THE PRESENCE OF ARCHITECT. COORDINATE CONDUCTOR QUANTITY WITHIN

FIXTURE WHIPS WITH FIXTURE SELECTION AND LIGHTING CONTROL REQUIREMENTS, 0-10V DIMMING FIXTURES

265600 EXTERIOR LIGHTING

GENERAL REQUIREMENTS FOR LUMINAIRES: LUMINAIRES SHALL COMPLY WITH UL 1598 & BE LISTED & LABELED FOR INSTALLATION IN WET LOCATION BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION. METAL PARTS: FREE OF BURRS & SHARP CORNERS & EDGES.

SHEET METAL COMPONENTS: CORROSION-RESISTANT ALUMINUM UNLESS OTHERWISE INDICATED. FORM & SUPPORT TO PREVENT WARPING & SAGGING HOUSINGS: RIGIDLY FORMED, WEATHER- & LIGHT-TIGHT ENCLOSURES THAT WILL NOT WARP, SAG, OR DEFORM IN USE, PROVIDE FILTER/BREATHER FOR ENCLOSED LUMINAIRES. DOORS, FRAMES, & OTHER INTERNAL ACCESS: SMOOTH OPERATING, FREE OF LIGHT LEAKAGE UNDER OPERATING CONDITIONS. & DESIGNED TO PERMIT RELAMPING WITHOUT USE OF TOOLS. DESIGNED TO PREVENT DOORS, FRAMES, LENSES, DIFFUSERS, & OTHER COMPONENTS FROM FALLING ACCIDENTALLY DURING RELAMPING & WHEN SECURED IN OPERATING POSITION. DOORS SHALL BE REMOVABLE FOR CLEANING OR REPLACING LENSES. DESIGNED TO DISCONNECT BALLAST WHEN DOOR OPENS.

PLASTIC PARTS: HIGH RESISTANCE TO YELLOWING & OTHER CHANGES DUE TO AGING, EXPOSURE TO HEAT, & UV LENSES AND REFRACTORS GASKETS: USE HEAT- & AGING-RESISTANT RESILIENT GASKETS TO SEAL & CUSHION LENSES & REFRACTORS IN LUMINAIRE DOORS. LUMINAIRE FINISH: MANUFACTURER'S STANDARD PAINT APPLIED TO FACTORY-ASSEMBLED &-TESTED LUMINAIRE BEFORE SHIPPING. WHERE INDICATED, MATCH FINISH PROCESS & COLOR OF POLE OR SUPPORT MATERIALS. FACTORY-APPLIED FINISH FOR ALUMINUM LUMINAIRES: CLASS I, COLOR ANODIC FINISH: AA-M32C22A42/A44 (MECHANICAL FINISH: MEDIUM SATIN: CHEMICAL FINISH: FTCHED, MEDIUM MATTE: ANODIC COATING ARCHITECTURAL CLASS I. INTEGRALLY COLORED OR ELECTROLYTICALLY DEPOSITED COLOR COATING 0.018 MM OR THICKER) COMPLYING WITH AAMA 611.

FACTORY-APPLIED LABELS: COMPLY WITH UL 1598. INCLUDE RECOMMENDED LAMPS & BALLASTS. LABELS SHALL BE LOCATED WHERE THEY WILL BE READILY VISIBLE TO SERVICE PERSONNEL, BUT NOT SEEN FROM NORMAL VIEWING ANGLES WHEN LAMPS ARE IN PLACE.

COLOR: NATURAL ALUMINUM

EXPOSED HARDWARE MATERIAL: STAINLESS STEEL

PROVIDE PRODUCT DATA FOR EACH TYPE OF LIGHTING FIXTURE. USE SAME DESIGNATIONS INDICATED ON

LUMINAIRE REQUIREMENTS ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

LUMINAIRES SHALL BE LISTED AND LABELED FOR INDICATED CLASS AND DIVISION OF HAZARD BY AN NRTL.

UL COMPLIANCE: COMPLY WITH UL 1598 170 I AMP LIFE OF 50,000 HOURS

NRTL COMPLIANCE:

INTERNAL DRIVER MATERIAL HOUSINGS: RIGIDLY FORMED, WEATHER- AND LIGHT-TIGHT ENCLOSURE THAT WILL NOT WARP, SAG, OR DEFORM IN USE. PROVIDE FILTER/BREATHER FOR ENCLOSED LUMINAIRES.

EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE EXAMINE ROUGHING-IN FOR LUMINAIRE ELECTRICAL CONDUIT TO VERIFY ACTUAL LOCATIONS OF CONDUIT CONNECTIONS BEFORE LUMINAIRE INSTALLATION.

GENERAL INSTALLATION REQUIREMENTS:

VERIFY OPERATION OF PHOTOELECTRIC CONTROLS.

COMPLY WITH NECA 1

FIFI D QUALITY CONTROL: INSPECT EACH INSTALLED LUMINAIRE FOR DAMAGE. REPLACE DAMAGED LUMINAIRES AND COMPONENTS. PERFORM THE FOLLOWING TEST AND INSPECTIONS: OPERATIONAL TEST: AFTER INSTALLING LUMINAIRES, SWITCHES, AND ACCESSORIES, AND AFTER

ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, TEST UNITS TO CONFIRM PROPER OPERATION.

WIRING METHOD: INSTALL CABLES IN RACEWAYS. CONCEAL RACEWAYS AND CABLES.

COORDINATE LAYOUT AND INSTALLATION OF LUMINAIRES WITH OTHER CONSTRUCTION.

RIGIDLY FORMED, WEATHER- AND LIGHT-TIGHT ENCLOSURE THAT WILL NOT WARP, SAG, OR DEFORM IN USE. PROVIDE FILTER/BREATHER FOR ENCLOSED LUMINAIRES.

EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE

EXAMINE ROUGHING-IN FOR LUMINAIRE ELECTRICAL CONDUIT TO VERIFY ACTUAL LOCATIONS OF CONDUIT CONNECTIONS BEFORE LUMINAIRE INSTALLATION

GENERAL INSTALLATION REQUIREMENTS:

COMPLY WITH NECA 1 WIRING METHOD: INSTALL CABLES IN RACEWAYS. CONCEAL RACEWAYS AND CABLES COORDINATE LAYOUT AND INSTALLATION OF LUMINAIRES WITH OTHER CONSTRUCTION.

ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, TEST UNITS TO CONFIRM PROPER OPERATION.

FIELD QUALITY CONTROL: INSPECT EACH INSTALLED LUMINAIRE FOR DAMAGE. REPLACE DAMAGED LUMINAIRES AND COMPONENTS. PERFORM THE FOLLOWING TEST AND INSPECTIONS: OPERATIONAL TEST: AFTER INSTALLING LUMINAIRES, SWITCHES, AND ACCESSORIES, AND AFTER

270528 PATHWAYS FOR COMMUNICATIONS SYSTEMS

VERIFY OPERATION OF PHOTOELECTRIC CONTROLS.

SUMMARY: ALL WALL MOUNTED COMMUNICATIONS LOCATIONS, AT A MINIMUM, SHALL HAVE A BOX & CONDUIT STUB-UP TO ABOVE ACCESSIBLE CEILING. CABLING, CONNECTORS & EQUIPMENT BY OWNER.

GENERAL REQUIREMENTS: COMPLY WITH TIA/EIA-569-A. CABLE SUPPORT: NRTL LABELED. CABLE SUPPORT BRACKETS SHALL BE DESIGNED TO PREVENT DEGRADATION OF CABLE PERFORMANCE & PINCH POINT THAT COULD DAMAGE CABLE.

BACKBOARDS: PLYWOOD, FIRE-RETARDANT TREATED, 3/4 BY 48 BY 96 INCHES. INSTALL BACKBOARDS WITH 96-INCH DIMENSION VERTICAL. BUTT ADJACENT SHEETS TIGHTLY, & FORM SMOOTH GAP-FREE CORNERS & JOINTS. ENTRANCE FACILITIES: CONTACT TELECOMMUNICATIONS SERVICE PROVIDER & ARRANGE FOR INSTALLATION OF

DEMARCATION POINT, PROTECTED ENTRANCE TERMINALS, & A HOUSING WHEN SO DIRECTED BY SERVICE

PROVIDER. INSTALL UNDERGROUND PATHWAYS. COMPLYING WITH TIA/EIA-569-A IN "ENTRANCE FACILITIES" INSTALLATION: COMPLY WITH NECA 1. NECA 101. & TIA-569-B FOR INSTALLATION REQUIREMENTS EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR THIS ARTICLE ARE STRICTER COMPLY WITH TIA/EIA-569-A FOR PULL-BOX SIZING & LENGTH OF CONDUIT & NUMBER OF BENDS BETWEEN PULL

POINT. INSTALL NO MORE THAN THE EQUIVALENT OF TWO 90-DEGREE BENDS IN ANY PATHWAY RUN.

CONCEAL CONDUIT & EMT WITHIN FINISHED WALLS, CEILINGS, & FLOORS UNLESS OTHERWISE INDICATED. INSTALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES. SUPPORT CONDUIT WITHIN 12 INCHES OF ENCLOSURES TO WHICH ATTACHED. USE A CONDUIT BUSHING OR INSULATED FITTING TO TERMINATE STUB-UPS NOT TERMINATED IN HUBS OR IN AN INSTALL PULL WIRES IN EMPTY PATHWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES OF SLACK AT EACH END OF PULL WIRE. SURFACE PATHWAYS: INSTALL SURFACE PATHWAYS ONLY WHERE INDICATED ON DRAWINGS. TWO- OR THREE-PIECE CONSTRUCTION, COMPLYING WITH UL 5A, & MANUFACTURED OF RIGID PVC WITH TEXTURE & COLOR

SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS. SUBJECT TO COMPLIANCE WITH REQUIREMENTS PROVIDE PRODUCTS BY WIREMOLD/LEGRAND OR EQUAL COMPLY WITH BICSI TDMM FOR LAYOUT. & INSTALLATION OF COMMUNICATIONS EQUIPMENT ROOMS. COORDINATE LAYOUT & INSTALLATION OF COMMUNICATIONS EQUIPMENT WITH OWNER'S TELECOMMUNICATIONS & LAN EQUIPMENT & SERVICE SUPPLIERS. COORDINATE SERVICE ENTRANCE ARRANGEMENT WITH LOCAL EXCHANGE CARRIER. COORDINATE LOCATION OF POWER RACEWAYS & RECEPTACLES WITH LOCATIONS OF COMMUNICATIONS

GROUNDING: INSTALL GROUNDING ACCORDING TO BICSI TDMM, "GROUNDING, BONDING, & ELECTRICAL

IDENTIFICATION: IDENTIFY SYSTEM COMPONENTS, WIRING, & CABLING COMPLYING WITH TIA/EIA-606-A. LABELS

SUMMARY: SUMMARY: LOCATIONS & QUANTITIES SHALL BE VERIFIED BY FIRE ALARM SYSTEMS CONTRACTOR &

SHALL BE PREPRINTED OR COMPUTER-PRINTED TYPE.

EQUIPMENT REQUIRING ELECTRICAL POWER TO OPERATE.

UNITS REQUIRED FOR THIS PROJECT.

INCLUDING PLENUM CEILINGS.

283111 DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

SHALL BE PER ALL APPLICABLE CODES & SUBJECT TO STATE FIRE MARSHAL REVIEW. CONTRACTOR SHALL SUBMIT DRAWINGS (WITH ADDED DEVICES WHERE NECESSARY) TO AHJ FOR APPROVAL & THEN TO ENGINEER FOR FINAL REVIEW

TRANSMISSION & VOICE/STROBE EVACUATION. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. SYSTEM SHALL BE SIEMENS. NOTIFIER OR A COMPARABLE PRODUCT. OBTAIN FIRE-ALARM SYSTEM FROM SINGLE SOURCE FROM SINGLE MANUFACTURER. QUALITY ASSURANCE: PERSONNEL SHALL BE TRAINED & CERTIFIED BY MANUFACTURER FOR INSTALLATION OF

SYSTEM DESCRIPTION: NONCODED, UL-CERTIFIED ADDRESSABLE SYSTEM, WITH MULTIPLEXED SIGNAL

SHOP DRAWINGS: SUBMITTALS SHALL BE APPROVED BY AUTHORITIES HAVING JURISDICTION PRIOR TO SUBMITTING THEM TO ARCHITECT. INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS, & ATTACHMENTS TO OTHER WORK. INCLUDE VOLTAGE DROP CALCULATIONS FOR NOTIFICATION-APPLIANCE CIRCUITS. INCLUDE BATTERY-SIZE CALCULATIONS FIRE ALARM CONTROL UNIT

FIELD-PROGRAMMABLE. MICROPROCESSOR-BASED, MODULAR, POWER-LIMITED DESIGN WITH ELECTRONIC MODULES COMPLYING WITH UL 864 & LISTED & LABELED BY AN NRTI PROVIDE COMMUNICATION BETWEEN THE FACP & REMOTE CIRCUIT INTERFACE PANELS, ANNUNCIATORS, & THE FACP SHALL BE LISTED FOR CONNECTION TO A CENTRAL-STATION SIGNALING SYSTEM SERVICE.

PRIMARY POWER: 24-V DC OBTAINED FROM 120-V AC SERVICE & A POWER-SUPPLY MODULE. INITIATING DEVICES,

COMMUNICATOR TRANSMITTERS SHALL BE POWERED BY 24-V DC SOURCE. SECONDARY POWER: 24-V DC SUPPLY SYSTEM WITH BATTERIES, AUTOMATIC BATTERY CHARGER, & AUTOMATIC TRANSFER SWITCH. BATTERIES: SEALED LEAD CALCIUM. DIGITAL ALARM COMMUNICATOR TRANSMITTER SHALL BE ACCEPTABLE TO THE REMOTE CENTRAL STATION &

NOTIFICATION APPLIANCES, SIGNALING LINES, TROUBLE SIGNALS, SUPERVISORY & DIGITAL ALARM

SHALL COMPLY WITH UL 632 AND BE LISTED & LABELED BY AN NRTL. EQUIPMENT INSTALLATION: COMPLY WITH NFPA 72, NFPA 101, & REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION FOR INSTALLATION & TESTING OF FIRE-ALARM EQUIPMENT. INSTALL ALL ELECTRICAL WIRING TO COMPLY WITH REQUIREMENTS IN

WIRING METHOD: COMPLY WITH NECA 1 & NFPA 72. INSTALL PLENUM CABLE IN ENVIRONMENTAL AIR SPACES,

PATHWAYS: PROVIDE RECESSED BACKBOXES AND CONDUIT STUB-UPS TO ABOVE ACCESSIBLE CEILINGS AT ALI FINISHED AREAS. AT UNFINISHED AREAS - BACKBOXES AND CONDUIT SHALL BE INSTALLED SURFACE MOUNTED

ACCESSIBLE CEILINGS SHALL BE IN CONDUIT. ALL CONDUIT SHALL BE 3/4" WITH RED COLOR.

IDENTIFICATION: IDENTIFY SYSTEM COMPONENTS, WIRING, CABLING, & TERMINALS. INSTALL FRAMED INSTRUCTIONS IN A LOCATION VISIBLE FROM FIRE-ALARM CONTROL UNIT. FIELD QUALITY CONTROL: COMPLY WITH "TEST METHODS" TABLE IN THE "TESTING" SECTION OF THE

"INSPECTION, TESTING & MAINTENANCE" CHAPTER IN NFPA 72. FIELD TESTS SHALL BE WITNESSED BY

AUTHORITIES HAVING JURISDICTION. INSPECTION SHALL BE COORDINATED BY ELECTRICAL CONTRACTOR.

MAINTFNANCE SERVICE: BEGINNING AT SUBSTANTIAL COMPLETION. MAINTENANCE SERVICE SHALL INCLUDE 12

DEMONSTRATION: TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, & MAINTAIN FIRE-ALARM

WITH CONDUIT UP TO STRUCTURAL CEILING AND THROUGHOUT EXPOSED CEILING AREA. WIRING IS NOT

REQUIRED TO BE IN CONDUIT WHERE INSTALLED ABOVE ACCESSIBLE CEILINGS. WIRING INSTALLED ABOVE NON

ORGANIZATION. INCLUDE PREVENTIVE MAINTENANCE. REPAIR OR REPLACEMENT OF WORN OR DEFECTIVE COMPONENTS, LUBRICATION, CLEANING, & ADJUSTING AS REQUIRED FOR PROPER OPERATION.

MONTHS' FULL MAINTENANCE BY SKILLED EMPLOYEES OF MANUFACTURER'S DESIGNATED SERVICE

PROVIDE RED FACEPLATES FOR NOTIFICATION APPLIANCES.

ENGINEERING SYSTEMS

> 4630 ANTELOPE CREEK RD LINCOLN, NE 68506

C) ADVANCED ENGINEERING SYSTEMS CERTIFICATE OF AUTHORIZATION # CA1800

PROJECT # 24-027

DATE:04/05/2024

ELECTRICAL

1. CODE: References to the "code" in each section shall be as follows:

IBC 2018 with local amendments Risk Category:

Other Applicable Codes as Referenced in the Building Code:
Steel Code:
AISC 360, Specification for steel buildings,

AISC 341 Seismic Provisions Minimum Design Loads for Building: ASCE 7

2. STRUCTURAL DESIGN LOADS:

ROOF LIVE LOADS: Flat and Sloped Roofs: 25 PSF

Ground Snow Load: Flat-Roof Snow Load (Pf): 17.5 PSF Snow Exposure Factor: $C_{E} = 1.0$ Thermal Factor: $C_T = 1.0$ Importance Factor: I = 1.0

WIND: Wind Speed (Ultimate): 111 MPH Exposure Category: Internal Pressure Coefficient: ± 0.18

SEISMIC: $S_S = 0.073$; $S_1 = 0.045$ Spectral Response Accelerations: Site Class: Importance Factor: 1.00 Seismic Design Category:

GENERAL NOTES:

A. All work shall comply with requirements of the Building Code, with recommendations of manufacturers, and with recognized workmanship and material standards.

B. Comply with all applicable codes, ordinances, and regulations including those promulgated and enforced by OSHA. The structural design represented by the drawings and specifications is based on interaction of the various components, materials, and systems shown or required by the drawings and specifications. The contractor shall determine the need for and provide all required bracing, shoring, or other means to ensure stability and safety until all work required by the contract documents is complete. When and where necessary to comply with these requirements, the contractor shall provide appropriate additional temporary or permanent connections, shoring, and/or bracing or, in the alternative, shall make appropriate modifications of specified connections and/or members. Where additions to or modifications of specified requirements are proposed, they shall be submitted to the Architect for review and approval. Such review and approval will be only for compliance with the structural and architectural design intent for the work. The adequacy for construction phase stability and safety is the responsibility of the contractor.

C. Adapt requirements of details, sections, plans, and notes at all locations of which conditions are similar.

D. The structural drawings are to be read in view of all other drawings and all specifications. Coordinate all work shown with all other work.

E. Shop drawings for any part of the work shall show the interface with and provisions for related other work including such adaptations of requirements given as may be necessary.

F. Contractor shall cross check dimensions and elevations between architectural, mechanical, and structural plans and notify Architect of any variance before contractor begins work.

G. Lateral shoring of existing utilities and tunnels is the responsibility of the Contractor. See Site and AR plans for locations of existing utilities and tunnels and minimum locations of shoring. Notify Architect immediately if existing conditions conflict with drawings.

4. MECHANICAL, ELECTRICAL, AND PIPING SYSTEMS WORK:

A. Secondary framing, bridging, or other means shall be provided to distribute loads to structural members. Such framing, bridging, or other means shall be shown on the shop drawings for the work of the mechanical, electrical and piping systems.

B. Location and design weight of Mechanical Units are indicated on the Framing Plans. If the units are heavier or located differently than indicated, notify the Architect/Engineer. Revisions to the framing may

5. SPECIAL INSPECTION:

A. Special Inspection in accordance with the Building Code will be performed per the special inspection

B. Special Inspections shall be hired and paid for by the owner. Retest expenses for failed inspections will be charged to the contractor.

C. The Contractor shall provide the Special Inspector sufficient notification to allow the required inspections to be made without delaying the construction schedule. The Contractor shall confirm that all inspections have been completed and approved by the Special Inspector prior to proceeding with Work.

6. ABBREVIATIONS

ABBREVIA	ATIONS:				
ARCH. B.O.	Architect Bottom Of	E.O.R.	Structural Engineer of Record	PL REINF.	Plate Reinforcing
B.O.S.	Bottom of Steel	EA.	Each	REQ'D	Required
BOTT.	Bottom	EXIST.	Existing	S.O.G.	Slab on Grade
BRG.	Bearing	EXP.	Expansion	SIM.	Similar
BTWN.	Between	F.V.	Field Verify	STD.	Standard
CLR.	Clear	FTG.	Footing	T.O.	Top Of
COL.	Column	H.D.G.	Hot-Dipped	T.O.F.	Top of Footing
CONC.	Concrete		Galvanized	T.O.S.	Top fo Steel
CONT.	Continuous	H.S.	Headed Studs	T.O.W.	Top of Wall
COORD.	Coordinate	HORIZ.	Horizontal	TYP.	Typical
D.B.A.	Deformed Bar Anchor	JST.	Joist	U.N.O.	Unless Noted
DBL.	Double	JT.	Joint		Otherwise
DET.	Detail	N.W.	Normal Weight	V.W.A.	Verify with Archite

On Center

STRUCTURAL STEEL WORK

1. MATERIALS:

Wide Flange Beams and Tee Shapes: ASTM A992, Grade 50 ASTM A36 Angles, Channels, Plates, and Bars: ASTM A500, Grade C Steel Tubes: Steel Pipes: ASTM A53, Type E or S, Grade B ASTM A108, Grade 1015 Headed Studs: ASTM F1554 [Gr. 36], Headed Type, U.N.O. Anchor Bolts: ASTM A307 Non-High Strength Bolts: ASTM F3125 [Gr. A325] bearing type connections, U.N.O. High Strength Bolts: Welding Electrodes: ASTM A496, with a minimum tensile strength of 80 ksi. Deformed Bar Anchors:

2. STRUCTURAL STEEL:

A. All steel work shall comply with the Building Code and Steel Code.

B. Provide structural steel work as shown on the drawings and submit shop drawings for the same. Where the design of members or connections are not specifically noted, provide such in accordance with the latest AISC specifications and submit the design with the shop drawings for approval.

C. Steel shall be fabricated to achieve the elevations, slopes, and geometry shown on the Architectural and Structural Drawings. Structural steel shall provide a uniform surface for the attachment of metal deck.

D. All structural steel shapes, plates, bolts, etc. exposed to weather shall be galvanized.

1. Touch-up all field welding work of galvanized members w/ ZRC Cold Galvanizing.

E. All bolted connections shall be "snug-tight" unless noted otherwise on structural details

EXISTING CONSTRUCTION NOTES

1. Field verify vertical and horizontal location of existing construction prior to proceeding with work.

2. Existing conditions shown on the drawings were obtained from existing plans, field observations, or were assumed. If conditions other than those shown exist, immediately notify Architect before proceeding with the work at that location; alternate methods of construction may need to be used.

3. Use appropriate construction methods and equipment to support existing structures and to avoid overstressing the existing structures.

4. Where existing construction shows signs of deterioration or damage, notify Engineer for observation to determine if corrective work is required.

5. Where specifically noted on the drawings, notify engineer after existing structural items have been exposed to view. Allow (1) week from notification for engineer to observe existing conditions and issue requirements for new construction.

STEEL FRAMING PLAN NOTES:

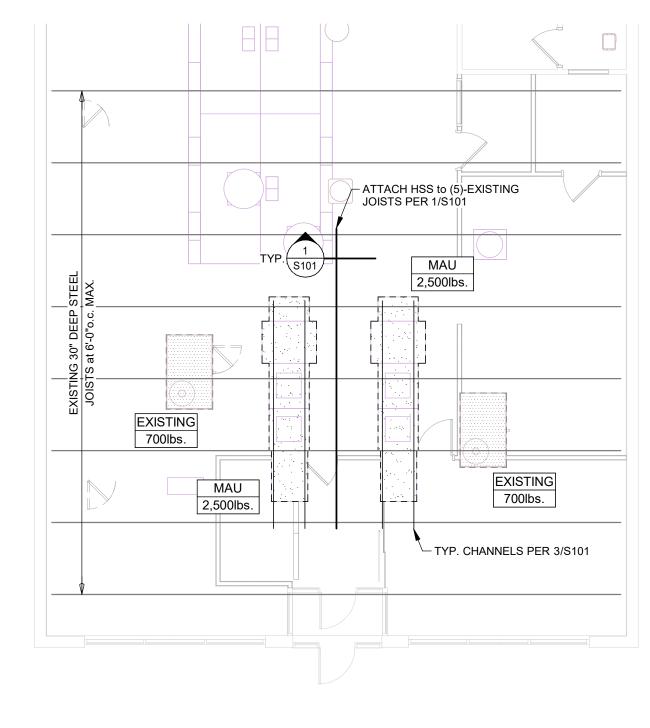
SEE STRUCTURAL NOTES ON THIS SHEET. COORDINATE AND VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND EXIST. CONDITIONS.

ROOF TOP EQUIPMENT NOTES:

---- ROOF TOP EQUIPMENT DESIGNATION x,xxx LBS ---- TOTAL MAXIMUM WEIGHT OF UNIT, CURB, AND ACCESSORIES; POUNDS

NOTE: SIZE, WEIGHT, AND LOCATION OF ALL ROOF TOP EQUIPMENT SHALL BE CONFIRMED BY CONTRACTOR.

b. REFER TO MECH. DWGS. FOR ACTUAL LOCATION OF ROOF TOP UNITS. c. ALL ROOF FRAMING SHALL BE COORDINATED w/ MECHANICAL WORK. FRAME OPENINGS IN EXISTING ROOF DECK PER DETAIL 2/S101





Inspection Tasks Prior to Welding	QC	QA
Welder qualification records and continuity records	Р	0
WPS available	Р	Р
Manufacturer certifications for welding consumables available	Р	Р
Material identification (type/grade)	0	0
Welder identifications system (1)	0	0
Fit-up of groove welds (including joint geometry) - Joint preperation - Dimensions (alignment, root opening, root face, bevel) - Cleanliness (condition of steel surfaces) - Backing type and fit (if applicable)	0	0
Fit-up of CJP groove welds of HSS T-, Y- and K-joints without backing (Including joint geometry) - Joint preparations - Dimensions (alignment, root opening, root face, bevel) - Cleanliness (condition of steel surfaces) - Tacking (tack weld quality and location)	Р	0
Configuration and finish of access holes	0	0
Fit-up of fillet welds - Dimensions (alignment, gaps at root) - Cleanliness (condition of steel surfaces) - Tacking (tack weld quality and location)	0	0
Check welding equipment	0	

(a) The fabricator or erector, as applicable, shall maintain a system by which a welder who has welded a joint or member can be identified. Stamps, if used, shall be the low-stress type.

HSS3x3x3/16 x 0'-4", —

TYP. (CLIP CORNER AS

STEEL JOIST, TYP. ---

NECESSARY to FIT

HSS TO JOIST, ∖

- HSS3x3 OR L3x3, SEE NOTE -

HSS3x3 OR L3x3 EACH SIDE

OF OPENING, SEE NOTE 2.

NOTES: 1. FOR OPENING SIZE < 4'-0", USE L3x3x1/4. USE

2. FOR DECK SPAN < 4'-0", USE L3x3x1/4. USE

HSS3x3x1/4 FOR ALL DECK SPANS > 4'-0"

DECK SPAN, SEE NOTE 2

+SS3x3x1/4 FOR ALL OPENINGS > 4'-0".

1 FOR REQUIREMENTS

Inpsection Tasks During Welding	QC	QA
Control and handling of welding consumables - Packaging - Exposure control	0	0
No welding over cracked tack welds	0	0
Environmental conditions - Wind speed within limits - Precipitation and temperature	0	0
WPS followed - Settings on welding equipment - Travel speed - Selected welding materials - Shielding gas type/flow rate - Preheat applied - Interpass temperature maintained (min./max.) - Proper position (F, V, H, OH)	0	0
Welding techniques - Interpass and final cleaning - Each pass within profile limitations - Each pass meets quality requirements	0	0
Placement and installation of steel headed stud anchors	Р	Р

Inspection Tasks After Welding	QC	QA
Welds cleaned	0	0
Size, length and location of welds	Р	Р
Welds meet visual acceptance criteria - Crack prohibition - Weld/base-metal fusion - Crater cross section - Weld profiles - Weld size - Undercut - Porosity	Р	Р
Arc strikes	Р	Р
k-area (1)	Р	Р
Backing removed and weld tabs removed (if required)	Р	Р
Repair activities	Р	Р
Document acceptance or rejection of welded joint or member	Р	Р
No prohibited welds have been added without the approval of the EQR	0	0

k-area, visually inspect the web k-area for cracks within 3 in. (75 mm) of the weld.

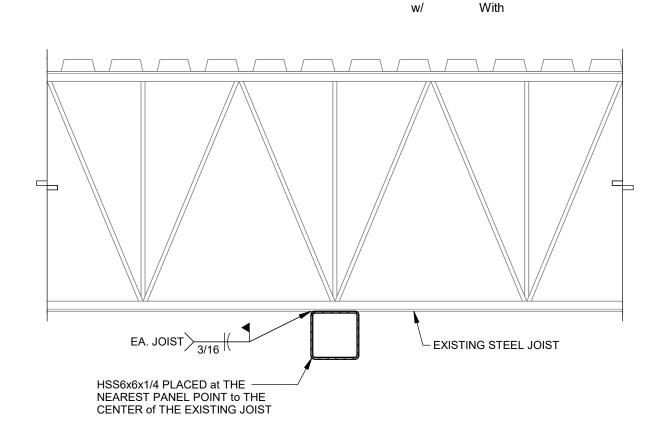
are welded, visually inspect the weld access hole for cracks.

(b) After rolled heavy shapes (see Section A3.1c) and built-up heavy shapes (see Section A3.1d)

AISC SPECIAL INSPECTION NOTES: O - Observe these items on a random basis. Operations need not be delayed pending these inspections.

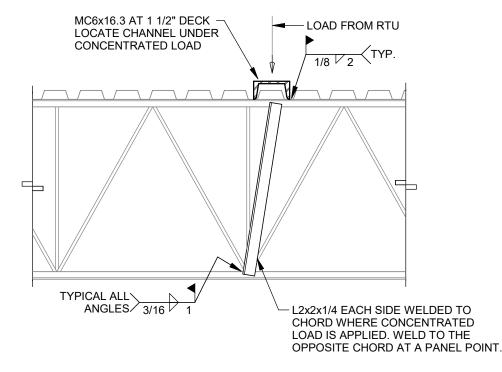
P - Perform these tasks for each steel element.

QC - Quality Control performed by the Steel Fabricator and Erector. QA - Quaility Assurance performed by the Special Inspector.





CENTERLINE



JOIST REINFORCING DETAIL



hompson, Dreessen & Dorner, Inc. 0836 Old Mill Rd Omaha, NE 68154 www.td2co.com

TD2 Project #1560-103 NE CA-0199

Autodesk Revit 2023

Vertical

- ROOF DECK

STEEL JOIST, TYP.

-JOIST CENTERLINE

Attitude