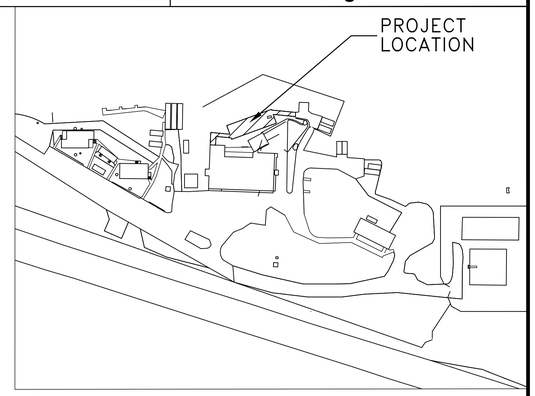
TA-XX-XXXX
OXYGEN MONITOR

BLDG XXXX TA-XX



LOCATION PLAN
NO SCALE PARTIAL TA-XX

LIST OF DRAWINGS

PROJECT DESIGN DATA	REVISION NUMBER	SHEET NUMBER	DISCIPLINE SHEET NUMBER	DRAWING TITLE
CODES AND STANDARDS				
A. GENERAL: INTERNATIONAL EXISTING BUILDING CODE, IEBC-2015	0	01	SK-G01	TITLE SHEET AND LOCATION PLAN
	0	02	SK-G02	ABBREVIATIONS
B. LANL ENGINEERING STANDARDS MANUAL STD-342-100 (ESM) SINCE MAY 1, 2015.	0	03	SK-G03	ABBREVIATIONS CONT.
	0	04	SK-E01	PARTIAL PLAN ROOM 108 INSTALL
C. STRUCTURAL: AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) 360-10	0	05	SK-E02	WALL MOUNTED EQUIPMENT DETAILS
	0	06	SK-E03	WALL PENETRATION DETAIL - CONDUIT
D. ELECTRICAL: N.E.C. 2020	0	07	SK-E04	PANEL AND COMPONENT SCHEDULES ROOM 108
E. MANAGEMENT LEVEL: ML-4. SEISMIC RISK CATEGORY: RCII.				
F. IEBC LEVEL 2A ALTERATION.	0	08	SK-J01	EQUIPMENT DETAIL DIAGRAM
	0	09	SK-J02	RM. 108 HORNS / STROBES RELOCATION WIRING DIAGRAM
	0	10	SK-J03	RM. 108 COMBINATION PANEL LAYOUT

EXAMPLE DESIGN

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This design is being made available to illustrate a package that met expectations (e.g., completeness, quality, formality, professionalism).

Please note that, while the package was acceptable when issued, one should not assume that all aspects of it would be acceptable today. Expectations change with time, including required codes and standards, title blocks, and other matters.

LBO-DESIGN PACKAGE REVIEWER	N/A		
APPROVED FOR RELEASE			
SUBMITTED			
VERIFIED			
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DRAWN	0	INITIAL ISSUE FOR DCF-XX-XX-XXXX-XXXX	XX/XX/XX
CLASSIFICATION [UNCLASSIFIED]	NO	REVISION DESCRIPTION	DATE

ENGINEERING SERVICES

TA-XX-XXXX
OXYGEN MONITOR

TITLE SHEET AND LOCATION PLAN

TA- XX BLDG XXXX

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET **SK-G01**
01 OF **XX**

PROJECT ID	DRAWING NO	REV
ESRXXXXX	**DCF-XX-XX-XXXX-XXXX-SK-G01**	**0**

ABBREVIATIONS (APPLY TO ENTIRE SET OF DRAWINGS AND NOT ALL APPLY TO THIS PROJECT)

CAUTION - ABBREVIATIONS AND ACRONYMS (A TYPE OF ABBREVIATION) ARE NOT TO BE CONFUSED, NOR USED INTERCHANGEABLY, WITH THE IDENTIFICATION NOMENCLATURE OF SYSTEMS, EQUIPMENT AND COMPONENTS FOUND IN ESM CHAPTER 1, SECTION 200, ITEM NUMBERING AND LABELING.
NOTE - APPARENT CONFLICTS OF ABBREVIATIONS/MEANINGS ARE TYPICALLY DUE TO DISCIPLINE SPECIFIC DIFFERENCES. ABBREVIATIONS SHOULD BE INTERPRETED WITHIN THE CONTEXT OF THE ASSOCIATED DISCIPLINE. IF UNCERTAIN CONTACT THE ARCHIECT OR ENGINEER OF RECORD FOR INTERPRETATION.

A	
@	AT
AH	AMP-HOUR
AD	ALGEBRAIC DIFFERENCE
AAC	AUTOCLAVED AERATED CONCRETE
AB	ANCHOR BOLT
ABA	ARCHITECTURAL BARRIERS ACT
ABW	ABANDONED WATER LINE
ACOUST	ACOUSTIC
AC	ASPHALTIC CONCRETE
AC	AIR CONDITIONING
ACP	ACOUSTIC CEILING PANEL
ACT	ACOUSTIC CEILING TILE
ACI	AMERICAN CONCRETE INSTITUTION
ACOUST TILE	ACOUSTICAL TILE
ADA	AMERICANS WITH DISABILITIES ACT
ADH	ADHESIVE
ADJSTBL	ADJUSTABLE
AE	ARCHITECT/ENGINEER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGG	AGGREGATE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AISC	AMERICAN SOCIETY OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALUM	ALUMINUM
ANC	ANCHOR(AGE)
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ANOD	ANODIZED
AO	ANALOG OUTPUT
AOR	ARCHITECT OF RECORD
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ARCNET	ASHRAE COMMUNICATION PROTOCOL USING RS-485 MULTI-DROP MEDIA USED BY ALC
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASD	ALLOWABLE STRESS DESIGN
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
ASV	AIR SWITCH VALVE
AW	ACID WASTE
AWG	AMERICAN WIRE GAUGE
AWS	AMERICAN WELDING SOCIETY
B	
BACNET IP	ASHRAE COMMUNICATION PROTOCOL USING ETHERNET MEDIA
BACNET MSTP	ASHRAE COMMUNICATION PROTOCOL USING RS-485 MULTI-DROP MEDIA
BAL	BALANCE
BAS	BUILDING AUTOMATION SYSTEM
BB	BOND BEAM
BD	BOARD
BF	BRACED FRAME
BFF	BELOW FINISH FLOOR
BH	BORE HOLE
BLDG	BUILDING
BLDG PRESS	BUILDING PRESSURE
BLKG	BLOCKING
BM	BEAM
BNDRY	BOUNDARY
BO	BOTTOM OF
BOC	BOTTOM OF CONCRETE
BOF	BOTTOM OF FOOTING
BOM	BILL OF MATERIALS
BOT	BOTTOM
BRDG	BRIDGING
BRG	BEARING
BU	BUILT-UP
C	
C	CONDUIT
CA	AIR COMPRESSOR
CAB	CABINET
CAE	COOLER, AIR EVAPORATIVE
CBE	CIRCUIT BREAKER ENCLOSED
CCP	CONCRETE CYLINDER PIPE
CD	CANDELA
CDD	CIRCUIT DISCONNECT DEVICE
CEM	CEMENT
CEN	CENTER
CER	CERAMIC
CFM	CUBIC FEET PER MINUTE
CH BD	CHALKBOARD
CHAN	CHANNEL
CHW	CONDENSER WATER
CI	CAST IRON
CIP	CAST-IN-PLACE
CTLJ	CONTROL JOINT
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR, CLEARANCE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMD	COMMAND - A SIGNAL FROM THE CONTROLLER TO THE CONTROLLED DEVICE
COMM	COMMUNICATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTD	CONTINUED
CONTR	CONTRACTOR
COOL 1 COMD	FIRST STAGE COOLING COMMAND
CPP	CORRUGATED PLASTIC PIPE
CR	CARD READER
CSK	COUNTER SINK (SUNK)
CT	CURRENT TRANSFORMER CTR CONTROL SYSTEM TRANSFORMER (<50V SECONDARY)
CTL	CONTROL
CTR	CENTER
Cu	COPPER
CW	COLD WATER
CW	CHILLED WATER
CWR	CHILLED WATER RETURN - WATER FLOWING AWAY FROM THE UTILIZATION DEVICE
CWS	CHILLED WATER SUPPLY - WATER FLOWING TOWARD THE UTILIZATION DEVICE
CY	CUBIC YARDS
D	
D	DAMPER
dB	DECIBEL
DAD	DESICCANT AIR DRYER
DACT	DIGITAL ALARM COMMUNICATION TRANSMITTER
DAMD	DUCT AIR MONITOR DEVICE
DEG	DEGREE
DET/DTL	DETAIL
DEMO	DEMOLITION
DF	DRINKING FOUNTAIN
DI	DIGITAL INPUT
DI	DUCTILE IRON
DIA. OR Ø	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFERENCE
DIM	DIMENSION
DL	DEAD LOAD
DMPR	DAMPER - AN AIR FLOW CONTROL DEVICE
DOE	DEPARTMENT OF ENERGY
DP	DEEP
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING
DWLS	DOWELS
DX	DIRECT EXPANSION - REFRIGERANT COOLING SYSTEM
DX TEMP	AIR TEMPERATURE DIRECTLY DOWN STREAM OF DX COOLING COIL
E	
EA	EACH
EA	EXISTING ASPHALT
ECONO	ECONOMIZER - COMBINATION OF RA AND OA DAMPERS USED FOR FREE COOLING
ECONO COMD	ECONOMIZER DAMPER POSITION COMMAND
EF	EACH FACE
EGC	EQUIPMENT GROUNDING CONDUCTOR
EH	ELECTRIC HEAT
EH MOD	ELECTRIC HEATER MODULATION SIGNAL
EIFS	EXTERIOR INSULATION FINISH SYSTEM
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ENGR	ENGINEER
EOL	END OF LINE RESISTOR
EOR	ENGINEER OF RECORD
EP	ELECTRICAL PANEL
EPO	EMERGENCY POWER OFF
EQ	EQUAL
EQUIP	EQUIPMENT
ER	ENERGY RECOVERY
ES	EXHAUST STACK
ETC	EXISTING TOP OF CONCRETE
EVSE	ELECTRICAL VEHICLE SUPPLY EQUIPMENT
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING DEVICE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EX P	EXPLOSION PROOF
EXT	EXTERIOR
F	
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FAB	FILTER AIR BOX
FACP	FIRE ALARM CONTROL PANEL
FACU	FIRE ALARM CONTROL UNIT
FAI	FAIL AS IS
FANE	FAN EVALUATOR
FAR	FILTER AIR REPLACEABLE
FB	FLAT BAR
FC	FAN CIRCULATING
FC	FAIL CLOSED
FCD	FLOW CONTROL DAMPER
FD	FIRE DAMPER
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FE	FAN EXHAUST
FE	FLOW ELEMENT
FE COMD	EXHAUST FAN RUN COMMAND
FEC	FIRE EXTINGUISHER CABINET
FEXT	FIRE EXTINGUISHER
FF	FINISHED FLOOR
FF	FAR FACE
FG	FINISH GRADE
FGL	FIBERGLASS
FHC	FIRE HOSE CABINET
FHY	FIRE HYDRANT
FI	FAIL INTERMEDIATE
FILTER DP	AIR FILTER DIFFERENTIAL PRESSURE
FIN	FINISH(ED)
FIN FLR	FINISH FLOOR
FIRE ALARM	FIRE PANEL OR LOCAL SMOKE DETECTOR SHUTDOWN STATUS
FL	FAIL LOCKED (POSITION DOES NOT CHANGE)
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FLRG	FLOORING
FLR SK	FLOOR SINK
FM	FIRE MARSHAL
FM	FACTORY MUTUAL
FO	FAIL OPEN
FO	FIBRE OPTIC
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FP	FIRE PROTECTION
FP	FLOOR PENETRATION
FPLR	POWER LIMITED FIRE ALARM RISER CABLE
FRA	FAN, RETURN AIR
FREEZE STAT	FREEZE PROTECTION THERMOSTAT STATUS
FRL	FILTER AIR ROLL
FS	FAN SUPPLY
FS	FAR SIDE
FS CURRENT	SUPPLY FAN MOTOR CURRENT
FS SPEED	SUPPLY FAN SPEED COMMAND
FT	FLOW TRANSMITTER
FT	FOOT, FEET
FTG	FOOTING
FV	FIELD VERIFY
G	
G	GAS
GA	GAUGE
GALV	GALVANIZED
GALVI	GALVANIZED IRON
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERAL
GFE	GOVERNMENT FURNISHED EQUIPMENT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GH	GAS HEAT
GH ENABLE	GAS HEATER ENABLE SIGNAL
GPM	GALLONS PER MINUTE
GND	GROUND
GP	GUSSET PLATE
GR	GRAD(E)(ING)
GRVL	GRAVEL
GTV	GATE VALVE
GWB	GYPSUM WALLBOARD
GYP	GYPSUM
GYP BD	GYPSUM BOARD
H	
H	HEIGHT OR HIGH
HC	HOSE CABINET
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDWD	HARDWOOD
HDWE	HARDWARE
HEPA	HIGH EFFICIENCY PARTICULATE AIR FILTER
HGT	HEIGHT
HM	HOLLOW METAL
HOR/HORIZ	HORIZONTAL
HP	HORSEPOWER
HPT	HIGH POINT
HR	HOUR
HS	HAND SWITCH
HSH	HUMIDITY SWITCH HIGH
HSS	HOLLOW STRUCTURAL STEEL
HT	HUMIDITY TRANSMITTER
HTG	HEATING
HUMD	HUMIDITY(%RH)
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HW VALVE	HOT WATER VALVE POSITION FEEDBACK SIGNAL STATUS
HWR	HEATING WATER RETURN - WATER FLOWING AWAY FROM THE UTILIZATION DEVICE
HWS	HEATING WATER SUPPLY - WATER FLOWING TOWARD THE UTILIZATION DEVICE
HX	HEAT EXCHANGER
I	
IAW	IN ACCORDANCE WITH
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IDC	INITIATING DEVICE CIRCUIT
IEBC	INTERNATIONAL EXISTING BUILDING CODE
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IFC	INTERNATIONAL FIRE CODE
IMC	INTERMEDIATE METAL CONDUIT
IN	INCH(ES)
INSUL	INSULATE(D), INSULATION
INT	INTERIOR
INV	INVERT
IS	CURRENT SWITCH
IT	CURRENT TRANSMITTER
J	
JB	JUNCTION BOX
JST	JOIST
JT	JOINT
K	
K	KIP(1000LBS)
K	KAPPA
KCJ	KEYED CONTROL JOINT
KO	KNOCK-OUT
KOBB	KNOCK OUT BOND BEAM
KPL	KICKPLATE
KSF	KIP PER SQUARE FOOT
KSI	KIP PER SQUARE INCH
KV	KILOVOLTS
KVA	KILOVOLT AMPS
KW	KILOWATT
L	
L	LENGTH
LAV	LAVATORY
LB(S)	POUND(S)
LC	LOCKED CLOSED
LED	LIGHT-EMITTING DIODE
LF	LINEAR FEET
LG	LONG
LL	LIVE LOAD
LLBB	LONG LEG BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LIGHTING PANEL
LO	LOCKED OPEN
LONG	LONGITUDINAL
LP	LOW POINT
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
LTD	LIMITED
LW	LIGHT WEIGHT
LWC	LIGHT WEIGHT CONCRETE
M	
MA	MIXED AIR - RETURN AIR MIXED WITH OUTSIDE AIR
MAINT	MAINTENANCE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MBJ	MAIN BONDING JUMPER
MBR	MEMBER
MCB	MAIN CIRCUIT BREAKER
MECH	MECHANICAL
MET	METAL
MFD	MANUFACTURED
MFG	MANUFACTURING
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MK	MARK
MLO	MAIN LUGS ONLY
MLV	MASS LOADED VINYL
MOD	MODULATION
MSL	MEAN SEA LEVEL
MT	MOISTURE TRAP
MTL	METAL
MTD	MOUNTED
MU	MECHANICAL UNIT
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	
N	NORTH
NAC	NOTIFICATION APPLIANCE CIRCUIT
NC	NORMALLY CLOSED - CHANGES TO A CLOSED POSITION UPON REMOVAL OF POWER
NO	NORMALLY OPEN - CHANGES TO AN OPEN POSITION UPON REMOVAL OF POWER
ND	NONRADIOACTIVE DRAIN
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NEAR FACE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO, #	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
N-S	NORTH/SOUTH
NTS	NOT TO SCALE
NW	NORMAL WASTE
NWC	NORMAL WEIGHT CONCRETE
O	
OA	OUTSIDE AIR - AIR ENTERING THE BUILDING
OA DMPR COMD	OUTSIDE AIR DAMPER POSITION COMMAND
OA DMPR COMD SWITCH	OUTSIDE AIR DAMPER POSITION SWITCH
OC	ON CENTER
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRIC
OF	OUTSIDE FACE
OIM	OPERATOR INTERFACE MODULE
OPNG	OPENING
OPP	OPPOSITE
OS	OCCUPANCY SENSOR
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
OW	OIL WASTE
P	
P	POLE
P&ID	PROCESS & INSTRUMENTATION DIAGRAM SHOWING RELATIONSHIP BETWEEN SENSORS OF CONTROL SYSTEM
PA	PUBLIC ADDRESS
PAM	POLYACRYLAMIDE
PAR	PARAGRAPH
PB	PANIC BAR
PB	PULL BOX
PC	POINT OF CURVATURE
PC	PILE CAP
PC	PRECAST CONCRETE
PCC	PORTLAND CEMENT COMPANY
PCF	POUNDS PER CUBIC FOOT
PDIT	PRESSURE DIFFERENTIAL INDICATING TRANSMITTER
PDS	PRESSURE DIFFERENTIAL SWITCH
PDSH	PRESSURE DIFFERENTIAL SWITCH HIGH
PDSL	PRESSURE DIFFERENTIAL SWITCH LOW
PDT	PRESSURE DIFFERENTIAL TRANSMITTER
PE	POLYETHYLENE
PED	PEDESTAL
PEMB	PRE-ENGINEERED METAL BUILDING
PERF	PERFORATE(D)
PERM	PERIMETER
PERP	PERPENDICULAR
Φ OR PH	PHASE
PH	PREHEAT
PHS	PHILIPS HEAD SCREW
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
PL	PILOT LIGHT
PL	PROPERTY LINE
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOD
PMBP	PLANT MIX BITUMINOUS PAVEMENT
PN	PART NUMBER
PNL	PANEL
POL	POLISHED
PP	POWER POLE
PRESS	PRESSURE
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT
PT	POINT OF TANGENCY
PTD	PAPER TOWEL DISPENSER
PTR	PAPER TOWEL RECEPTACLE
PVC	POLYVINYL CHLORIDE
PVC-C900	POLYVINYL CHLORIDE CLASS 900
PVC-SDR	POLYVINYL CHLORIDE STANDARD
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
Q	
QTY	QUANTITY

EXAMPLE DESIGN

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DRAWN	NO	REVISION DESCRIPTION	DATE
	0	INITIAL ISSUE FOR DCF-XX-XX-XXXX-XXXX	XX/XX/XX
CLASSIFICATION [UNCLASSIFIED]			

ENGINEERING SERVICES

TA-XX-XXXX
OXYGEN MONITOR

ABBREVIATIONS

TA- XX BLDG XXXX

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SHEET **SK-G02**
02 OF **XX**

PROJECT ID	DRAWING NO	REV
ESRXXXXX	DCF-XX-XX-XXXX-XXXX-SK-G02	0

ABBREVIATIONS (CONTINUED)

R	
R	RISER(S)
RA	RETURN AIR
RA PRESS	RETURN AIR DUCT PRESSURE
RAD	RADIUS
RCP	REFLECTED CEILING PLAN
RCP	REINFORCED CONCRETE PIPE
RD	RADIOACTIVE DRAIN TO DRAIN HEADER
RD	ROOF DRAIN
RE	REGARDING
REC	RECESSED
REF	REFERENC(ED)
REINF	REINFORCE(D)(ING)(MENT)
REQD	REQUIRED
REQMTS	REQUIREMENTS
RESIL	RESILIENT
REV	REVISION(S), REVISED
RF	ROOF
RM	ROOM
RMC	RIGID METAL CONDUIT
RND	ROUND
RO	RELAY OUTPUT
RO	ROUGH OPENING
RP	ROOF PENETRATION
RT	RIGHT
RWL	RAIN WATER LEADER
RXX	RELAY
S	
SA	SUPPLY AIR - AIR BEING SUPPLIED TO THE CONDITIONED SPACE
SA FLOW	SUPPLY AIR FLOW RATE
SA TEMP	SUPPLY AIR TEMPERATURE SENSOR
SBJ	SYSTEM BONDING JUMPER
SC	SHEAR CONNECTOR
SC	SOLID CORE
SCD	SEAT COVER DISPENSER
SCH	SCHEDULE
SCR	SOLID STATE ELECTRIC HEAT MODULATION DEVICE (SILICON CONTROLLED RECTIFIER)
SD	STORM DRAIN
SDI	STEEL DECK INSTITUTE
SEC	SECOND
SECT	SECTION
SF	STEP FOOTING
SFS	STEEL FRAMING SYSTEM
SHT	SHEET(ING)
SHTHG	SHEATING
SHV	SHELVES(ING)
SIM	SIMILAR
SJI	STEEL JOIST INSTITUTE
SK	SINK
SL	SPLICE LENGTH
SLC	SIGNALING LINE CIRCUIT
SLV	SHORT LEG VERTICAL
SM	SHEET METAL
SMS	SHEET METAL SCREWS
SND	SANITARY NAPKIN DISPENSER
SOG	SLAB ON GRADE
SOO	SEQUENCE OF OPERATIONS
SPA	SPACES
SPD	SPECIFIED DENSITY
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SQ FT, SF	SQUARE FOOT/FEET
SS	SANITARY SEWER
SSBJ	SUPPLY SIDE BONDING JUMPER
SSK	SERVICE SINK
SSMA	STEEL STUD MANUFACTURER'S ASSOCIATION
SST	STAINLESS STEEL
SST	SYSTEM STATIC TOTALIZER
STA	STATION
STATUS	STATUS - A SIGNAL FROM A CONTROLLED DEVICE TO THE CONTROLLER
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STOR	STORAGE
STR	SUBCONTRACT TECHNICAL REPRESENTATIVE
STRUCT	STRUCTURAL
SUCTION PRESS	SUCTION PRESSURE OF A DX COOLING COMPRESSOR
SUP	SUPPORT
SUSP	SUSPENDED
SW	SWITCH
SW	SANITARY WASTE
SW	SIDE WALK
SWBD	SWITCH BOARD
SWGR	SWITCHGEAR
SY	SQUARE YARD
SYM	SYMMETRY, SYMMETRICAL
T	
T	TOP
T	TREAD
T	TRAP
T	TELECOMMUNICATIONS
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TAN	TANGENT
TCA	TANK COMPRESSED AIR
TCV	TEMPERATURE CONTROL VALVE
TD	TOWEL DISPENSER
TD/R	TOWEL DISPENSER/RECEPTACLE
TECH	TECHNICAL
TELE	TELEPHONE
TEMP	TEMPERATURE
TEMP	TEMPERATURE ELEMENT
TEMP	TEMPORARY
THHN	THERMOPLASTIC HIGH-HEAT RESISTANT NYLON COATED WIRE
THWN	THERMOPLASTIC HEAT AND WATER RESISTANT NYLON COATED WIRE
THK	THICK(NESS)
THRU	THROUGH
TIT	TEMPERATURE INDICATING TRANSMITTER
TK	TANK
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING, TOP OF FOUNDATION
TOGB	TOP OF GRADE BEAM
TOL	TOLERANCE
TOP	TOP OF PEDESTAL
TOS	TOP OF STEEL
TOW	TOP OF WALL
TPH	TOILET PAPER HOLDER
TR	TRANSFORMER
TRANS	TRANSVERSE
TSL	TOP OF SLAB
TSL	TEMPERATURE SWITCH LOW
T-STAT	A THERMOSTAT - TYPICALLY A ZONE TEMPERATURE ZONE
TT	TEMPERATURE TRANSMITTERS
TYP	TYPICAL
U	
UBC	UNIFORM BUILDING CODE
UE	UNDERGROUND ELECTRIC
UF	UNDER FLOOR
UL	UNDERWRITERS LABORATORY
UNO/U.N.O	UNLESS NOTED OTHERWISE
UOS	UNLESS OTHERWISE SPECIFIED
UR	URINAL
V	
V	VOLTAGE
V	VALVE
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VAV	VARIABLE AIR VOLUME
VC	VERTICAL CURVE
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE/MOTOR CONTROLLER
VOL	VOLUME
VSD	VARIABLE SPEED DRIVE
VIF	VERIFY IN FIELD
VPI	VERTICAL POINT OF INTERSECTION
W	
W	WIDE FLANGE
W	WIRE
W	WIDTH OR WIDE
W/	WITH
W/O	WITHOUT
WD	WOOD
WDW	WINDOW
WL	WIND LOAD
WP	WEATHERPROOF
WP	WORKING POINT
WP	WALL PENETRATION
WR	WATER RESISTANT/WASTE RECEPTACLE
WS	WEATHER STRIPPING
WSCT	WAINSCOT
WT	WEIGHT
WTR	WATER
WV	WATER VALVE
WWF	WELDED WIRE FABRIC
X	
X-ING	CROSSING
XS	USER DEFINED SENSOR
Y	
YD	YARD
YS	DIGITAL POSITION SENSOR
YS	PLC CONTROL OUTPUT
Z	
ZONE	TEMPERATURE CONTROL ZONE - REFERS TO THE SMALLEST, INDIVIDUALLY CONTROL THERMAL ZONE
ZONE HUMD	CONTROLLED ZONE (ROOM) HUMIDITY SENSOR
ZS	ANALOG POSITION SENSOR

EXAMPLE DESIGN

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LBO-DESIGN PACKAGE REVIEWER	N/A		
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SUBMITTED			
VERIFIED			
DESIGNED			
DRAWN	0	INITIAL ISSUE FOR DCF-XX-XX-XXXX-XXXX	XX/XX/XX
CLASSIFICATION [UNCLASSIFIED]	**NO**	**REVISION DESCRIPTION**	**DATE**

ENGINEERING SERVICES

TA-XX-XXXX
OXYGEN MONITOR

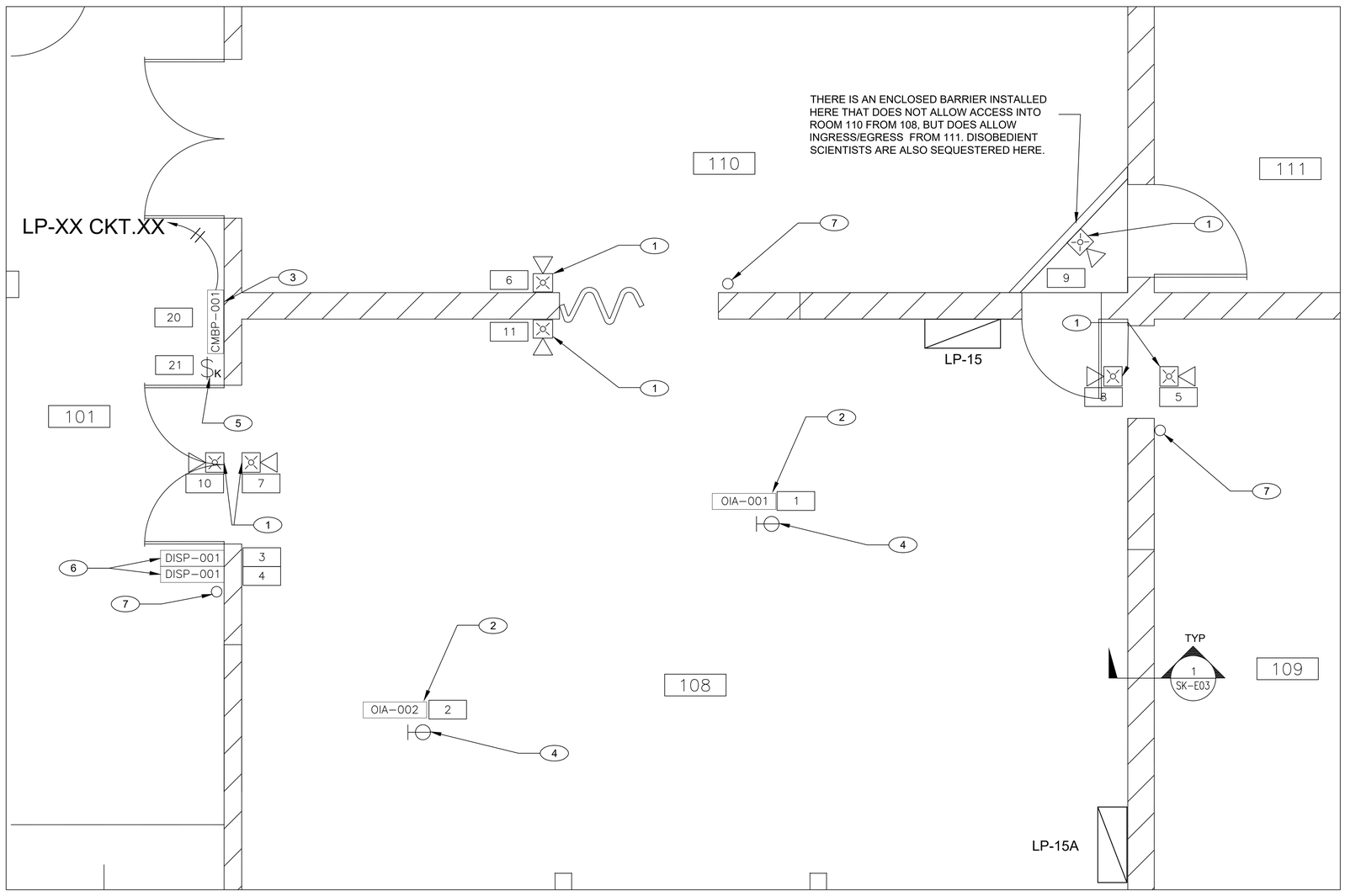
ABBREVIATIONS CONT.

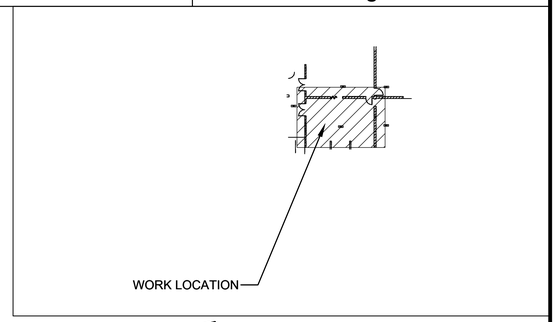
TA- XX BLDG XXXX

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET **SK-G03**
03 OF **XX**

PROJECT ID	DRAWING NO	REV
ESRXXXXX	**DCF-XX-XX-XXXX-XXXX-SK-G03**	**0**





KEY PLAN

SCALE: NONE

GENERAL NOTES:

1. PERFORM INSTALLATION OF NEW CONDUIT/WIRING/RACEWAYS AND/OR BOXES WITH NEW EQUIPMENT IN ACCORDANCE WITH:
   - 1.1. NFPA 70 2020
   - 1.2. MANUFACTURERS' DOCUMENTATION
   - 1.3. LANL MAS SPEC 26_0533 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
   - 1.4. LANL MAS SPEC 26_0519 LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
   - 1.5. LANL MAS SPEC 26_2726 WIRING DEVICES
   - 1.6. LANL MAS SPEC 26_0553 IDENTIFICATION FOR ELECTRICAL SYSTEMS.
2. REMOVE ANY EXISTING HORNS AND STROBES THAT ARE NOT APPROVED.
3. RACEWAY ROUTING AND ELECTRICAL COMPONENTS ARE SHOWN ON THE DRAWINGS IN APPROXIMATE LOCATIONS UNLESS DIMENSIONED. COORDINATE ROUTING WITH STRUCTURE AND WORK WITH CUSTOMER. ROUTE AS REQUIRED FOR A COMPLETE WIRING SYSTEM. USE EXISTING RACEWAYS AND CONDUCTORS AS MUCH AS POSSIBLE.
4. FOR LOW VOLTAGE WIRING, 1/2 TS RACEWAYS MAY BE USED FOR CONDUCTOR ROUTING AND PROTECTION. FINAL CONNECTION TO O2 MONITOR TO BE LFMC.
5. IF CIRCUIT CALLED OUT IS BEING UTILIZED, USE ANY AVAILABLE 1P/20A SPARE OR SPACE REFERENCED PANEL AND NOTIFY MODIFICATION ENGINEERING OF CHANGE.
6. EMT AND LFMC RACEWAYS MAY BE USED FOR ALL INTERIOR RUNS. ALL EXTERIOR RACEWAY RUNS SHALL BE IMC OR RMC AND LFMC.
7. FOR WALL MOUNTED EQUIPMENT REFER TO SHEET SK-E02 GENERAL NOTES.
8. REFER TO SHEET SK-E03 FOR CONDUIT PENETRATION DETAILS.
9. UNLESS NOTED, REFER TO SHEET SK-J02 FOR SPECIFIC WIRING DIAGRAMS AND SK-J03 BOM FOR PART NUMBERS.
10. **PLEASE SCHEDULE ALL ELECTRICAL INSPECTIONS ONE BUSINESS DAY IN ADVANCE. ROUGH-IN AND FINAL ELECTRICAL INSPECTIONS ARE REQUIRED PRIOR TO THE OFFICE OF THE CHIEF ELECTRICAL INSPECTORS GRANTING AUTHORIZATION TO ENERGIZE LANL ELECTRICAL EQUIPMENT.**

[#] TAG # FROM ROOM COMPONENT SCHEDULE - SK-E04

KEYED NOTES:

1. FIELD LOCATE HORN/STROBE COMBO UNIT. FIELD ROUTE A MINIMUM 1/2 TS RACEWAY WITH 18 AWG TWO CONDUCTOR CABLE BETWEEN UNITS. MOUNT NOT LESS THAN 80 INCHES AND NOT GREATER THAN 96 INCHES (PREFERABLY AT 84") AFF.
2. INSTALL NEW O2 SENSOR. RELOCATE AS NECESSARY WITH APPROVAL FROM IH AND ESH. FIELD ROUTE A 1/2 TS EMT RACEWAY TO CMBP.
3. PROVIDE AND INSTALL A COMBINATION PANEL (CMBP) FOR HORN/STROBE CONTROL. FIELD ROUTE A MINIMUM 3/4 TS WITH TWO 12 AWG AND ONE 12 AWG EGC TYPE THHN OR THWN-2 BETWEEN POWER PANEL AND COMBINATION PANEL. USE CIRCUIT INDICATED FOR POWER. SEE ASSOCIATED ROOM'S PANEL SCHEDULE FOR POWER PANEL LOCATION.
4. PROVIDE AND INSTALL A 4"X4"X1-1/2" METAL BOX WITH NEMA 5-20R (HUBBEL 5361). FIELD ROUTE A MINIMUM 3/4 TS WITH TWO 12 AWG AND ONE 12 AWG EGC TYPE THHN OR THWN-2 BETWEEN OUTLET BOX AND COMBINATION PANEL.
5. INSTALL KEY OPERATED RESET SWITCH FOR HORN/STROBES AT 44" AFF.

KEYED NOTES CONTINUED:

6. INSTALL NEW DISPLAY. FIELD ROUTE A MINIMUM 1/2 TS RACEWAY WITH SHIELDED CABLE BETWEEN MONITOR AND DISPLAY.
7. INSTALL A WALL MOUNTED RETRACTABLE BELT BARRIER ASSEMBLY AT EACH DOORWAY INDICATED. MOUNT NOT LESS THAN 32 INCHES AND NOT GREATER THAN 42 INCHES (PREFERABLY AT 36") AFF.

PARTIAL PLAN ROOM 108 INSTALL

SCALE: NONE

EXAMPLE DESIGN

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DESIGNED			
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CLASSIFICATION [UNCLASSIFIED]	NO	REVISION DESCRIPTION	DATE

ENGINEERING SERVICES

TA-XX-XXXX
OXYGEN MONITOR
ELECTRICAL
PARTIAL PLAN ROOM 108 INSTALL

TA- XX BLDG XXXX

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET **SK-E01**
04 OF **XX**

PROJECT ID	DRAWING NO	REV
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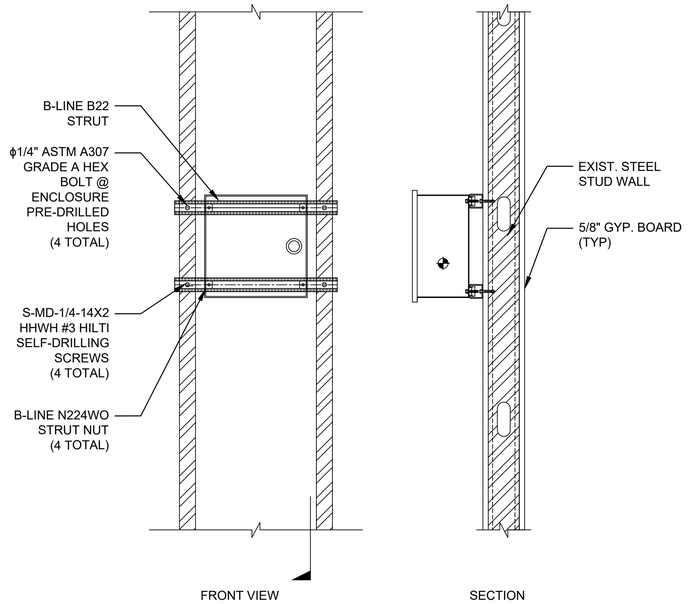
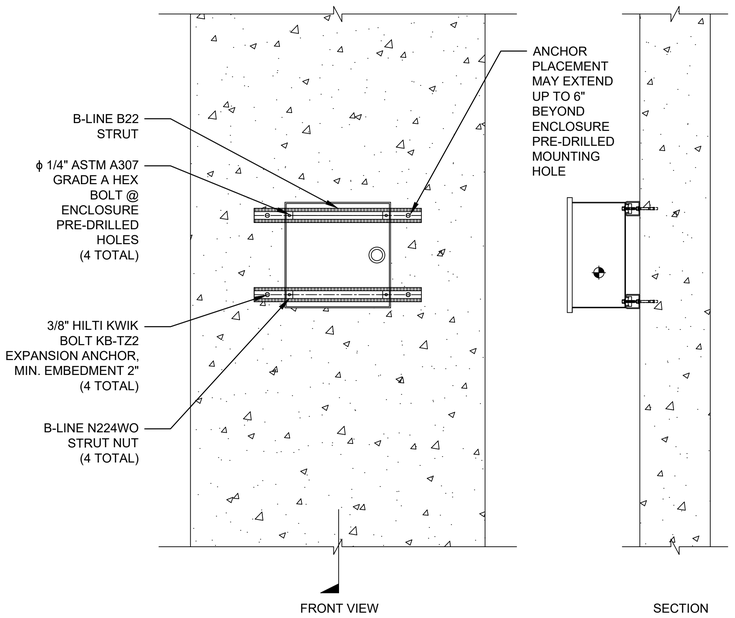


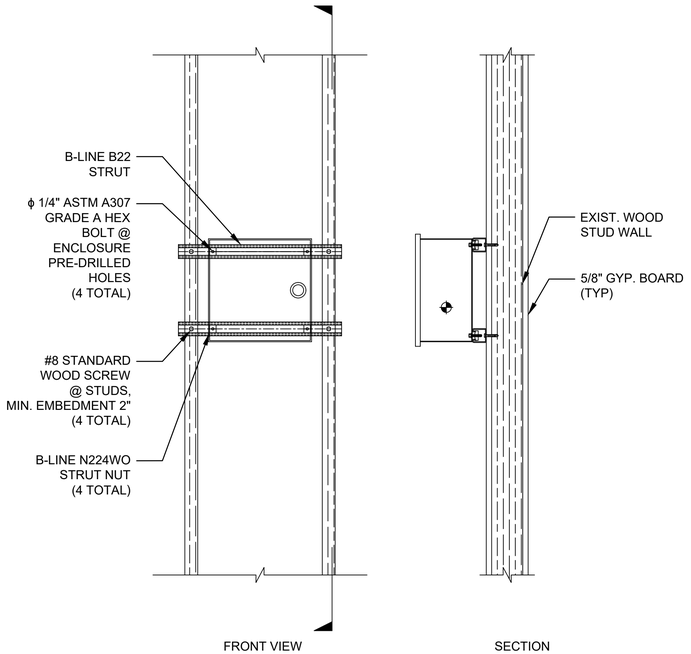
CFS STUD WALL DETAIL

SCALE: NONE



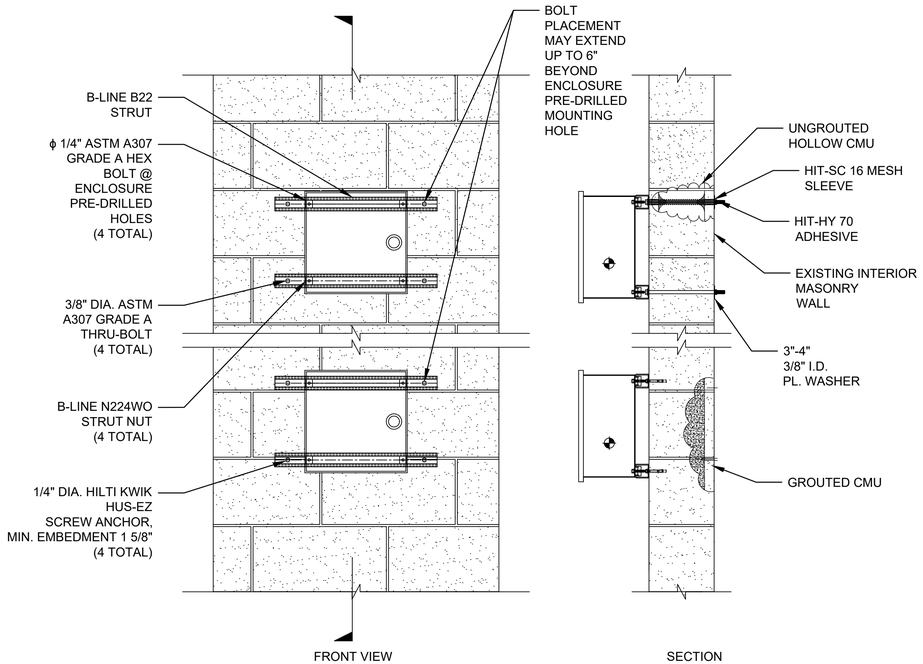
CONCRETE WALL DETAIL

SCALE: NONE



WOOD STUD WALL DETAIL

SCALE: NONE



MASONRY WALL DETAIL

SCALE: NONE

GENERAL NOTES:

THIS SHEET IS FOR USE WITH EQUIPMENT LESS THAN 100 LBS.

ALL WALL TYPES
1. MIN. REQUIRED HEX BOLT SIZE IS ϕ 1/4". LARGER DIAMETERS ARE PERMISSIBLE TO ACCOUNT FOR LARGER MOUNTING HOLE DIAMETER.
2. EMBEDMENT DEPTHS, FASTENER DIAMETERS, AND NUMBER OF FASTENERS ARE MINIMUMS AND MAY BE INCREASED.

CFS STUDS
1. EACH SELF-DRILLING SCREW MUST PENETRATE EXISTING STUD WITH A MIN. OF THREE THREADS PROTRUDING PAST THE BACK SIDE OF THE SUPPORTING STEEL.

WOOD STUD
1. MIN. REQUIRED SCREW PENETRATION INTO STUD IS 1.33".

CONCRETE WALL
POST-INSTALLED ANCHORS SHALL NOT DAMAGE EXISTING CONCRETE REBAR.
CONCRETE WALL
1. MIN. REQUIRED EMBEDMENT DEPTH IS 2".
2. MIN. REQUIRED SPACING BETWEEN ANCHOR IS 8".
3. MIN. REQUIRED WALL THICKNESS IS 4".

MASONRY WALL
1. THRU-BOLTING REQUIRED UNLESS MASONRY IS PROVEN TO BE UNCRACKED UNDER SERVICE LOADS.
2. PRE-DRILL MASONRY WITH A 7/16" DIA. HOLE FOR THRU-BOLT.
   A. THRU-BOLT WASHER:

WASHER O.D. (in.)	ENCL. WT. (LBS.)
4	≥ 145 LBS
3	< 145 LBS

   B. MIN. REQUIRED THRU-BOLT SPACING IS 2.5".
3. POST-INSTALLED ANCHOR IN UNCRACKED MASONRY CONDITION.
   A. MIN. REQUIRED EMBEDMENT FOR SCREW ANCHORS IS 1-5/8".
   B. MIN. REQUIRED SPACING BETWEEN SCREW ANCHORS IS 4". SCREW ANCHORS CAN BE STAGGERED TO SATISFY THIS REQUIREMENT.

EXAMPLE DESIGN

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APPROVED FOR RELEASE	
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DESIGNED	
DRAWN	
CLASSIFICATION	[UNCLASSIFIED]

NO	REVISION DESCRIPTION	DATE
0	INITIAL ISSUE FOR DCF-XX-XX-XXXX-XXXX	XX/XX/XX

ENGINEERING SERVICES

TA-XX-XXXX
OXYGEN MONITOR
ELECTRICAL
WALL MOUNTED EQUIPMENT DETAIL

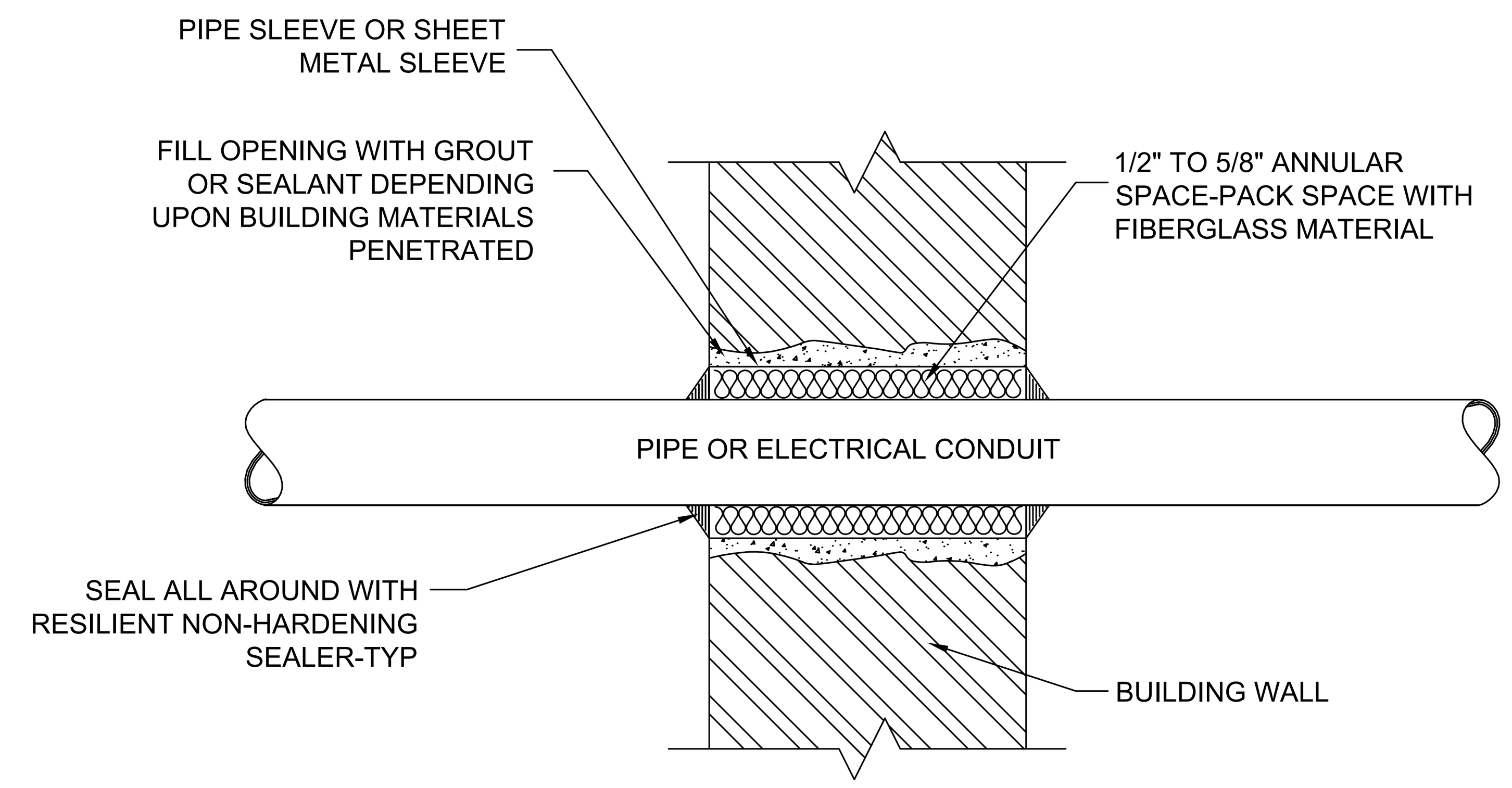
TA- XX BLDG XXXX

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET **SK-E02**
05 OF **XX**

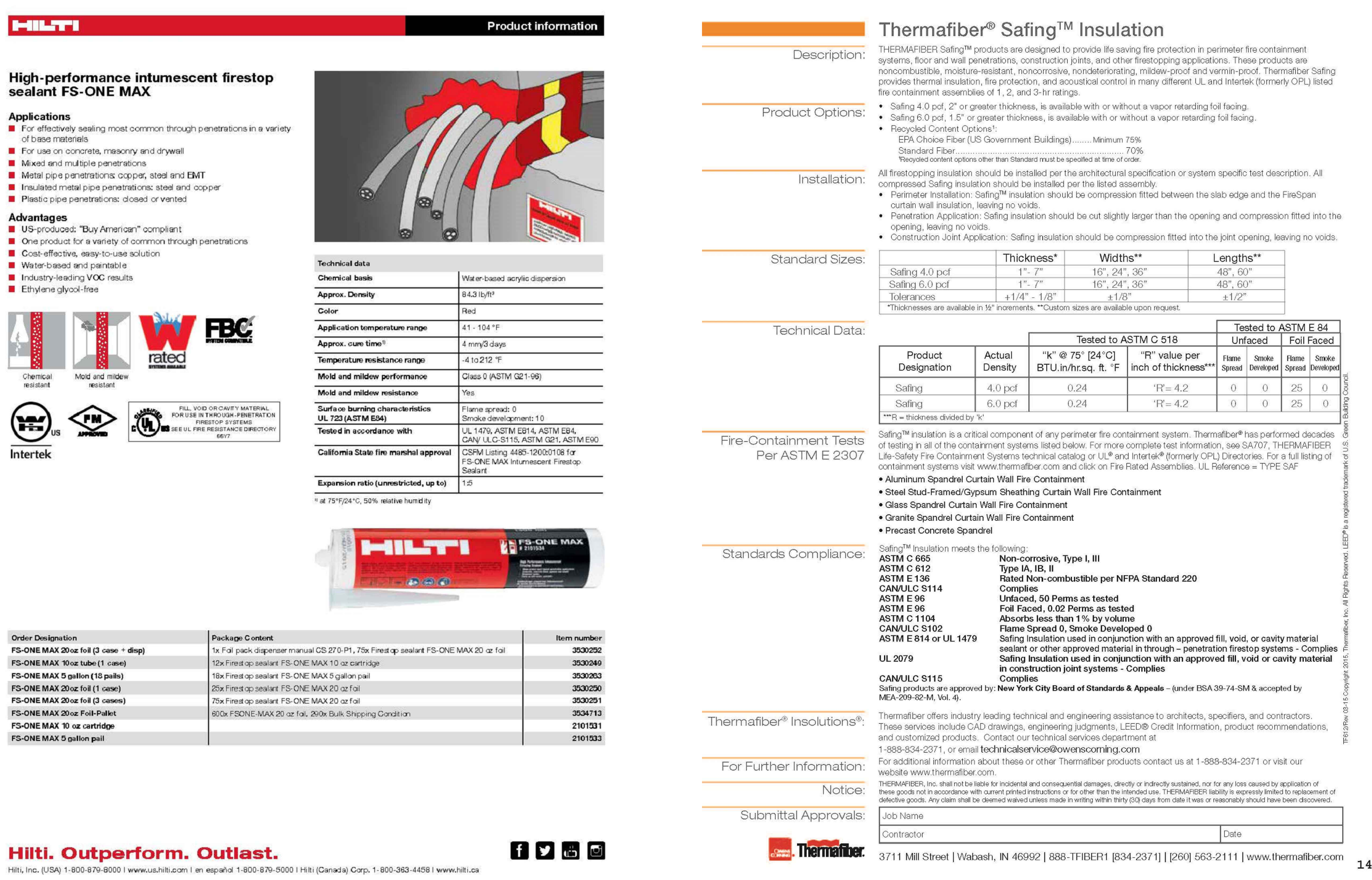
PROJECT ID	DRAWING NO	REV
ESRXXXXX	DCF-XX-XX-XXXX-XXXX-SK-E02	0

1	2	3	4	5	6



1 SK-EXX **NON RATED WALL PENETRATION DETAIL - CONDUIT**

SCALE: NONE



FIRESTOPPING PRODUCT DATA SHEETS

LABELS - IDENTIFY JOINT AND PENETRATION FIRESTOPPING WITH PREPRINTED METAL OR PLASTIC LABELS ON BOTH SIDES OF THE PENETRATED FIRE BARRIER. ATTACH LABELS PERMANENTLY TO SURFACES ADJACENT TO AND WITHIN 6 INCHES OF FIRESTOPPING EDGE SO LABELS WILL BE VISIBLE TO ANYONE SEEKING TO REMOVE PENETRATING ITEMS OR FIRESTOPPING. USE MECHANICAL FASTENERS OR SELF-ADHERING-TYPE LABELS WITH ADHESIVES CAPABLE OF PERMANENTLY BONDING LABELS TO SURFACES ON WHICH LABELS ARE PLACED.

INCLUDE THE WORDS "WARNING - 1 HOUR PENETRATION FIRESTOPPING - DO NOT DISTURB. NOTIFY FACILITY MANAGEMENT OF ANY DAMAGE.

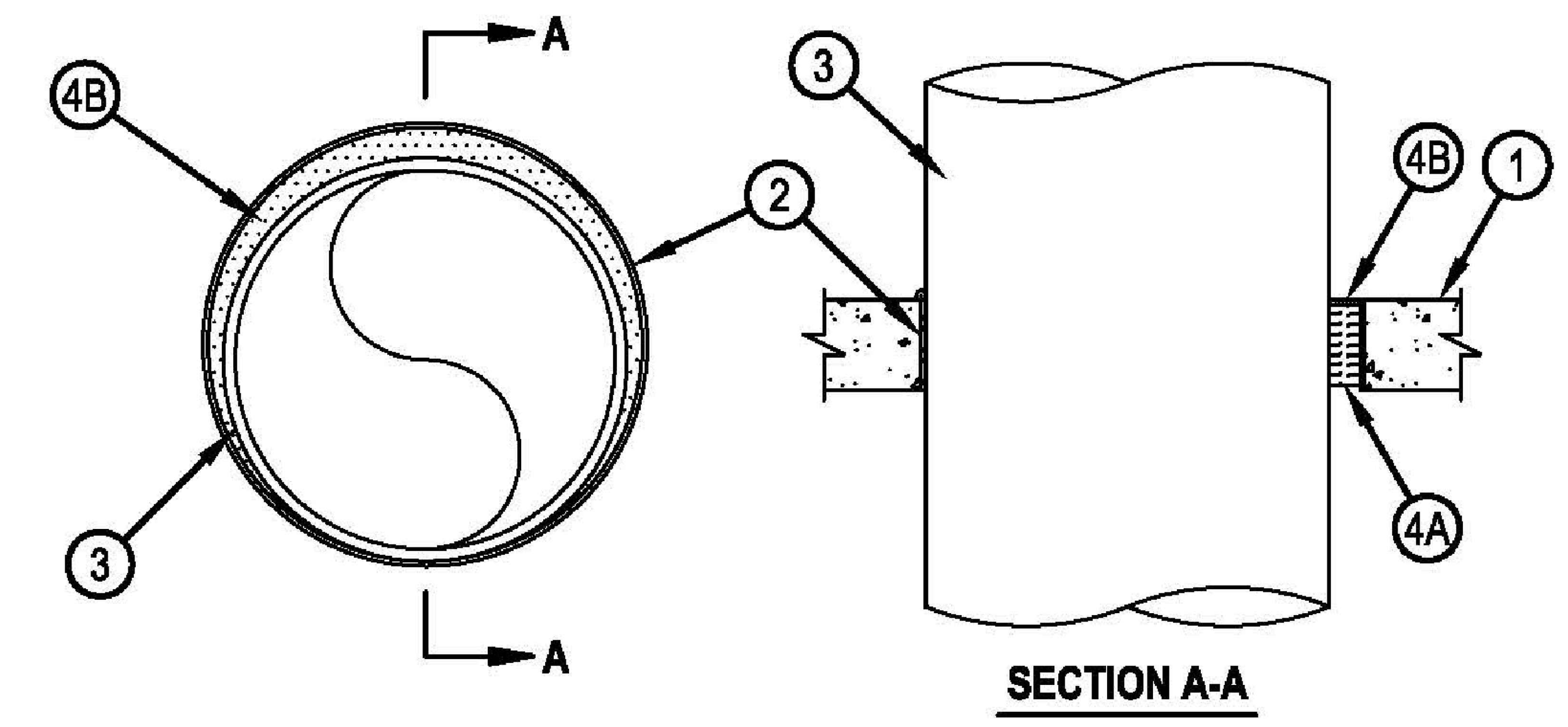
HILTI PRODUCT #P/N 00339611 OR APPROVED EQUAL.

CLASSIFIED c UL us — Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

System No. C-AJ-1226

CAJ 1226

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Rating — 0 Hr	FT Rating — 3 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 3 Hr
L Rating At 400 F — 4 CFM/sq ft	FTH Rating — 0 Hr
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — 4 CFM/sq ft



1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 32 in. (813 mm).
2. Metallic Sleeve — (Optional) Nom 32 in. (813 mm) diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max of 3 in. (76 mm) above floor or beyond both surfaces of wall.

2A. Sheet Metal Sleeve — (Optional) Max 6 in. (152 mm) diam, min 26 ga. galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.

2B. Sheet Metal Sleeve — (Optional) - Max 12 in. (305 mm) diam, min 24 ga galv steel provided with a 24 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.

3. Through-Penetrant — One metallic pipe, tube or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). Penetrant may be installed with continuous point contact. Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic penetrants may be used:
   - A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   - B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   - C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   - D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   - E. Conduit — Nom 6 in. (152 mm) diam (or smaller) steel conduit.
   - F. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT).

HILTI — Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 07, 2015

Page: 1 of 2

System No. C-AJ-1226

CAJ 1226

4. Firestop System — The firestop system shall consist of the following:
   - A. Packing Material — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall or sleeve as required to accommodate the required thickness of fill material.
   - B. Fill, Void or Cavity Material* — Sealant — Min 1/4 in. (6 mm) thickness of fill material applied within the annulus, flush with top surface of floor or sleeve or with both surfaces of wall or sleeve. At the point or continuous contact locations between penetrant and concrete or sleeve, a min 1/4 in. (6 mm) diam bead of fill material shall be applied at the concrete or sleeve/ pipe penetrant interface on the top surface of floor and on both surfaces of wall.
     HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

2 SK-EXX **FIRE RATED WALL PENETRATION DETAIL - CONDUIT**

SCALE: NONE

GENERAL NOTES:

NON FIRE RATED THROUGH PENETRATIONS

GYPSUM BOARD SYSTEMS -

1. REFER TO FLOOR PLANS FOR LOCATION OF PARTITIONS WITH ACOUSTICAL TREATMENT AND FOR WHICH DETAIL IS APPLICABLE.
2. INSTALL ACOUSTIC SEALANT AT JOINT BETWEEN GYPSUM BOARD AND FLOOR, AND TO SEAL PENETRATIONS OF PARTITIONS BY CONDUIT, PIPE, DUCTWORK, ETC. SEAL PENETRATIONS WITH ***PECORA CORPORATION; AC-20 FTR, AIS-919 OR USG CORPORATION; USG SHEETROCK ACOUSTICAL SEALANT OR USG FIRECODE SMOKE-SOUND SEALANT. CONTACT ENGINEERING FOR APPROVAL OF EQUIVALENT SEALANT IF SPECIFIED PRODUCTS ARE NOT AVAILABLE.***
3. PLACE ACOUSTIC INSULATION BETWEEN STUDS, AROUND CUT OPENINGS, BEHIND AND AROUND ELECTRICAL AND MECHANICAL ITEMS WITHIN OR BEHIND PARTITIONS, AND TIGHT TO ITEMS PASSING THROUGH PARTITIONS.

MASONRY WALL SYSTEMS-

4. AGGREGATE FOR GROUT ASTM C-404

FIRE RATED THROUGH PENETRATIONS - SEE DETAIL THIS SHEET.

ALL WALL TYPE SYSTEMS-

5. PIPE SLEEVES ARE NOT OPTIONAL AND SHALL BE USED ON ALL PENETRATIONS.
6. DETAILS ARE NOT APPLICABLE FOR RADIATION, EXPLOSIVE AND EMF SEALS.
7. SEAL ALL PENETRATIONS IN LEGACY RADIATION & RADIOLOGICAL FACILITIES.

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APPROVED FOR RELEASE	
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NO	REVISION DESCRIPTION	DATE
0	INITIAL ISSUE FOR DCF-XX-XX-XXXX-XXXX	XX/XX/XX

ENGINEERING SERVICES

TA-XX-XXXX
OXYGEN MONITOR

ELECTRICAL
WALL PENETRATION DETAIL - CONDUIT

TA- XX BLDG XXXX

Los Alamos NATIONAL LABORATORY — PO Box 1663, Los Alamos, New Mexico 87545

SHEET **SK-E03** **06** OF **XX**

PROJECT ID	DRAWING NO	REV
ESRXXXXX	DCF-XX-XX-XXXX-XXXX-SK-E03	0

D	C	B	A

GENERAL NOTES:

1. UPDATE PANEL SCHEDULES.
2. ONLY INSTALL AND LABEL EQUIPMENT IDENTIFIED ON ASSOCIATED FLOOR PLAN USING FLOOR PLANS SPECIFIC DESIGNATIONS FOR GENERIC "XXX/+1" ITEMS, OMIT OTHER PORTIONS. ADDITIONAL COMPONENTS LISTED HERE FOR LARGER SPACES.

LP-7 — MAINS: MLO — DATE: 3/6/2023
VOLTAGE: 208Y/120 — REV: 0
SERVED BY: PP-1 CKT 28 (350A) — FAULT CURRENT AVAILABLE:
LOCATION: XX-0161 — MOUNTING: Surface
WING - ROOM- 114A — MANF: ITE

SERVES	C/B	CONT	RCPT	PWR	NON-C	CKT	PHASE	CKT	CONT	RCPT	PWR	NON-C	C/B	SERVES
PLUGMOLD N.W. BLDG 161	1P20		720			1	A	2		720			1P20	PLUGMOLD N.W. BLDG 161
PLUGMOLD N.W. BLDG 161	1P20		720			3	B	4		720			1P20	PLUGMOLD N.W. BLDG 161
PLUGMOLD N.W. BLDG 161	1P20		720			5	C	6		720			1P20	PLUGMOLD N.W. BLDG 161
HEAT TAPE	1P20			1440		7	A	8		180			1P20	RECEPT NEAR CHILLER O.S.
HEAT TAPE	1P20			1440		9	B	10					1P20	SPARE JBOX OUTSIDE W.
SINK PUMP BLDG 161	1P20			1440		11	C	12					1P20	SPARE JBOX OUTSIDE W.
HEATER STAIRWAY	3P/			2162		13	A	14			2162		3P/	HEATER RM 113
	/			2162		15	B	16			2162		/	
	/30			2162		17	C	18			2162		/30	
SPARE (OFF)	1P20					19	A	20			7205		3P/	LP-11
SPARE (OFF)	1P20					21	B	22			7205		/	
SPARE (OFF)	1P20					23	C	24			7205		/100	
UNKNOWN	3P/			2162		25	A	26			4323		3P/	EPR STATION
	/			2162		27	B	28			4323		/	
	/30			2162		29	C	30			4323		/60	
PIN&SLEEVE 208V RECPT.	3P/			4323		31	A	32					2P/	YAGS STATION
	/			4323		33	B	34					/30	
	/60			4323		35	C	36					1P20	SPARE (ON)
PIN&SLEEVE 208V RECPT.	3P/			4323		37	A	38			4323		3P/	SPEX STATION
	/			4323		39	B	40			4323		/	
	/60			4323		41	C	42			4323		/60	

TOTAL CONNECTED PHASE VOLT AMPS: A: 34043 **B:** 33863 **C:** 33863

CONNECTED LOAD:		ESTIMATE DEMAND LOAD		FEEDER SELECTION LOAD	
CONTINUOUS LOAD(CONT):	0 VA	CONTINUOUS LOAD@100%:	0 VA	CONTINUOUS LOAD@125%:	0 VA
RECEPTACLE LOAD(RCPT):	4500 VA	RCPT LOAD PER NEC 220-44:	4500 VA	RCPT LOAD PER NEC 220-44:	4500 VA
NON-CONTINUOUS LOAD(PWR):	97269 VA	NON-CONTINUOUS LOAD@100%	97269 VA	NON CONTINUOUS LOAD@100%:	97269 VA
NON-COINCIDENT LOAD(NON-C):	0 VA			FUTURE LOAD GROWTH CAPACITY:	20353.8 VA
TOTAL CONNECTED LOAD:	101769 VA	**ESTIMATE DEMAND LOAD:**	##### VA	**FEEDER DESIGN LOAD:**	122122.8 VA
	282.69 AMPS		282.7 AMPS		339.23 AMPS

LP-7 - EXISTING

LP-7 — MAINS: MLO — DATE: 3/7/2023
VOLTAGE: 208Y/120 — REV: 0
SERVED BY: PP-1 CKT 28 (350A) — FAULT CURRENT AVAILABLE:
LOCATION: XX-0161 — MOUNTING: Surface
WING - ROOM- 114A — MANF: ITE

SERVES	C/B	CONT	RCPT	PWR	NON-C	CKT	PHASE	CKT	CONT	RCPT	PWR	NON-C	C/B	SERVES
PLUGMOLD N.W. BLDG 161	1P20		720			1	A	2		720			1P20	PLUGMOLD N.W. BLDG 161
PLUGMOLD N.W. BLDG 161	1P20		720			3	B	4		720			1P20	PLUGMOLD N.W. BLDG 161
PLUGMOLD N.W. BLDG 161	1P20		720			5	C	6		720			1P20	PLUGMOLD N.W. BLDG 161
HEAT TAPE	1P20			1440		7	A	8		180			1P20	RECEPT NEAR CHILLER O.S.
HEAT TAPE	1P20			1440		9	B	10					1P20	SPARE JBOX OUTSIDE W.
SINK PUMP BLDG 161	1P20			1440		11	C	12					1P20	SPARE JBOX OUTSIDE W.
HEATER STAIRWAY	3P/			2162		13	A	14			2162		3P/	HEATER RM 113
	/			2162		15	B	16			2162		/	
	/30			2162		17	C	18			2162		/30	
SPARE (OFF)	1P20					19	A	20			7205		3P/	LP-11
SPARE (OFF)	1P20					21	B	22			7205		/	
O2 MONITOR RM 101	**1P20**			**1440**		23	C	24			7205		/100	
UNKNOWN	3P/			2162		25	A	26			4323		3P/	EPR STATION
	/			2162		27	B	28			4323		/	
	/30			2162		29	C	30			4323		/60	
PIN&SLEEVE 208V RECPT.	3P/			4323		31	A	32					2P/	YAGS STATION
	/			4323		33	B	34					/30	
	/60			4323		35	C	36					1P20	SPARE (ON)
PIN&SLEEVE 208V RECPT.	3P/			4323		37	A	38			4323		3P/	SPEX STATION
	/			4323		39	B	40			4323		/	
	/60			4323		41	C	42			4323		/60	

(1)

TOTAL CONNECTED PHASE VOLT AMPS: A: 34043 **B:** 33863 **C:** 35303

CONNECTED LOAD:		ESTIMATE DEMAND LOAD		FEEDER SELECTION LOAD	
CONTINUOUS LOAD(CONT):	0 VA	CONTINUOUS LOAD@100%:	0 VA	CONTINUOUS LOAD@125%:	0 VA
RECEPTACLE LOAD(RCPT):	4500 VA	RCPT LOAD PER NEC 220-44:	4500 VA	RCPT LOAD PER NEC 220-44:	4500 VA
NON-CONTINUOUS LOAD(PWR):	98709 VA	NON-CONTINUOUS LOAD@100%	98709 VA	NON CONTINUOUS LOAD@100%:	98709 VA
NON-COINCIDENT LOAD(NON-C):	0 VA			FUTURE LOAD GROWTH CAPACITY:	20641.8 VA
TOTAL CONNECTED LOAD:	103209 VA	**ESTIMATE DEMAND LOAD:**	##### VA	**FEEDER DESIGN LOAD:**	123850.8 VA
	286.69 AMPS		286.7 AMPS		344.03 AMPS

LP-7 - NEW

COMPONENT ID SCHEDULE

TYPE	SUB-TYPE	EQUIPMENT/COMPONENT NAME	EQUIPMENT/COMPNENT TAG	EQUIPMENT ID	PRIMARY DISCIPLINE	I&C BOM NUMBER
ALARM	AA	ALARM, OXYGEN, INDICATING	1 O2R-OIA-XXX	OIA-XXX	I&C	22
ALARM	AA	ALARM, OXYGEN INDICATING	2 O2R-OIA-XXX+1	OIA-XXX+1	I&C	22
DISP	DISP	DISPLAY SCREEN	3 O2R-OIA-XXX-DISP-XXX	DISP-XXX	I&C	21
DISP	DISP	DISPLAY SCREEN	4 O2R-OIA-XXX+1-DISP-XXX	DISP-XXX	I&C	21
ALARM	NAAV	NOTIFICATION APPLIANCE, AUDIO VISUAL	5 O2R-OIA-XXX/OIA-XXX+1-NAAV-001A	NAAV-001A	I&C	16
ALARM	NAAV	NOTIFICATION APPLIANCE, AUDIO VISUAL	6 O2R-OIA-XXX/OIA-XXX+1-NAAV-001B	NAAV-001B	I&C	16
ALARM	NAAV	NOTIFICATION APPLIANCE, AUDIO VISUAL	7 O2R-OIA-XXX/OIA-XXX+1-NAAV-001C	NAAV-001C	I&C	16
ALARM	NAAV	NOTIFICATION APPLIANCE, AUDIO VISUAL	8 O2R-OIA-XXX/OIA-XXX+1-NAAV-001D	NAAV-001D	I&C	16
ALARM	NAAV	NOTIFICATION APPLIANCE, AUDIO VISUAL	9 O2R-OIA-XXX/OIA-XXX+1-NAAV-001E	NAAV-001E	I&C	16
ALARM	NAAV	NOTIFICATION APPLIANCE, AUDIO VISUAL	10 O2R-OIA-XXX/OIA-XXX+1-NAAV-001F	NAAV-001F	I&C	16
ALARM	NAAV	NOTIFICATION APPLIANCE, AUDIO VISUAL	11 O2R-OIA-XXX/OIA-XXX+1-NAAV-001G	NAAV-001G	I&C	16
PANEL	CMBP	COMBINATION PANEL	20 O2R-OIA-XXX/OIA-XXX+1-CMBP-001	CMBP-001	I&C	13
SWITCH	SW	SWITCH	21 O2R-OIA-XXX/OIA-XXX+1-SW-001	SW-001	I&C	10

PANEL AND COMPONENT SCHEDULES ROOM 108

KEYED NOTES:

(1) USE EXISTING SPARE 1P 20A BREAKER FOR O2 MONITOR.

(#) ITEM FROM BILL OF MATERIAL - SK-J03

EXAMPLE DESIGN

NOT FOR REPLICATION OR CONSTRUCTION

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Please note that, while the package was acceptable when issued, one should not assume that all aspects of it would be acceptable today. Expectations change with time, including required codes and standards, title blocks, and other matters.

DESIGNED			
DRAWN	0	INITIAL ISSUE FOR DCF-XX-XX-XXXX-XXXX	XX/XX/XX
CLASSIFICATION [UNCLASSIFIED]	NO	REVISION DESCRIPTION	DATE

ENGINEERING SERVICES

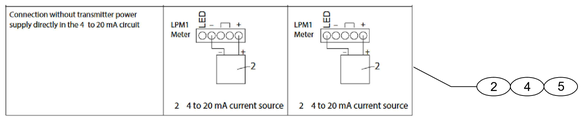
TA-XX-XXXX
OXYGEN MONITOR
ELECTRICAL
PANEL AND COMPONENT SCHEDULES ROOM 108

TA- XX — BLDG XXXX

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET SK-E04
07 OF XX

PROJECT ID: ESRXXXXX
DRAWING NO: DCF-XX-XX-XXXX-XXXX-SK-E04
REV: 0



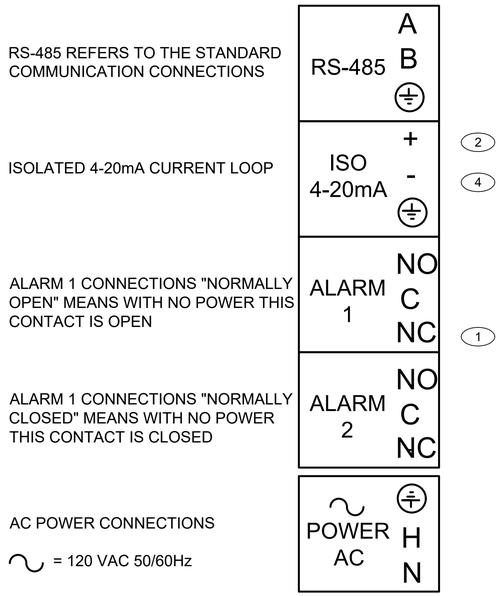
Expert menu (EXPRT); a code must be entered				
In addition to all the parameters in the Setup menu, the Expert menu also contains the parameters described in this table. If you call up the Expert menu, you will be asked to enter the user code (UCODE, default: 0000).				
Parameters		Values	visible at	Description
SYSTM				
	UCODE	Numerical value 0000 to 9999 Default: 0000		4-digit user code With the user code it is possible to protect the device setup from unauthorized modifications. If the setup is disabled, a padlock symbol appears on the display when an operating parameter is selected. The user code is not active with the default setting "0000". This means that setup parameters can be changed without entering the code. The code must always be entered for the Expert menu, even for the default setting.
	FRSET	NO YES		Resets the device setup. The values are reset to the preset values for preconfigured devices, and to the default values for all other devices. Select "YES" and press "E" by way of confirmation to reset the device.
INPUT				The following parameters are available in addition to the parameters from the Setup menu.
	CURV	LINAR SQRT		Use this to select the calculation function for the process value LINAR (scaling with SC__4 and SC_20): Process value = (mA value - 4)/16 * (SC_20 - SC__4) + SC__4 + OFFST SQRT (square root extraction and scaling): Process value = Square root((mA value - 4)/16) * (SC_20 - SC__4) + SC__4 + OFFST Negative values when calculating the square root are set to 0. Example for SQRT: • mA value = 8.0 • SC__4 = 0.0 • SC_20 = 100.0 • OFFST = 0.0 Display value = 50.0
	NAMUR	NO YES		Use this function to define the error limits in accordance with standard NAMUR NE 43
	RNGLO	Numerical value	NAMUR = NO	Lower range limit. An error message is displayed if the measured current falls below this limit.
	RNGHI	Numerical value	NAMUR = NO	Upper range limit. An error message is displayed if the measured current exceeds this limit.
	OFFST	Numerical value –19 999 to 99 999		Use this function to enter an offset value to display the measured value.

Setup menu (SETUP)			
Parameters	Values	visible at	Description
DECIM	0 DEC 1 DEC 2 DEC 3 DEC 4 DEC		Number of decimal places for display
SC__4	Numerical value –19 999 to 99 999 Default: 0.0		5-digit value (number of decimal places as configured under DECIM) for scaling the measured value at 4 mA Example: SC__4 = 0.0 displays 0.0 at 4 mA measuring current The unit selected under UNIT is used to display the value.
SC_20	Numerical value –19 999 to 99 999 Default: 100.0		5-digit value (number of decimal places as configured under DECIM) for scaling the measured value at 20 mA Example: SC_20 = 100.0 displays 100.0 at 20 mA measuring current The unit selected under UNIT is used to display the value.
UNIT	% °C °F K USER		Use this function to select the unit for displaying the value. If "USER" is selected, a user-defined unit can be entered in the TEXT parameter.
TEXT	Customized text, 5-digit		User-defined unit, only visible if the "USER" option has been selected under UNIT.

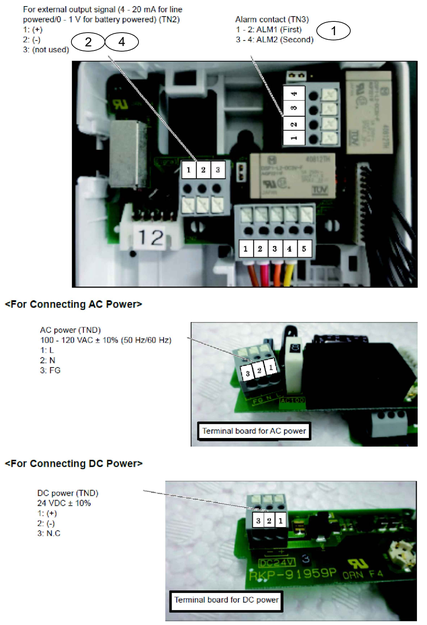
REMOTE DISPLAY SETUP

SCALE: NONE (3)

AMI 221R



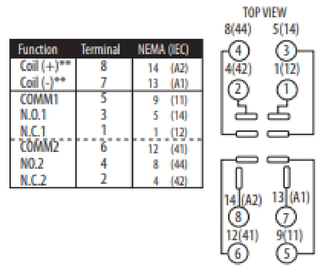
RKI OX-600



OXYGEN MONITOR WIRING DETAIL DIAGRAMS

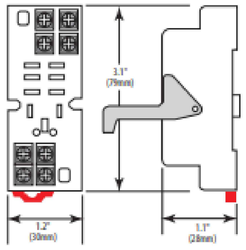
SCALE: NONE

VBD2B SOCKET
Wiring Diagram

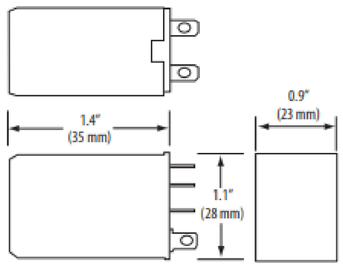


Function	Terminal	NEMA (IEC)
Coil (+)**	8	14 (A2)
Coil (-)**	7	13 (A1)
COMM1	5	9 (11)
N.O.1	3	5 (14)
N.C.1	1	1 (12)
COMM2	6	12 (41)
NO.2	4	8 (44)
N.C.2	2	4 (42)

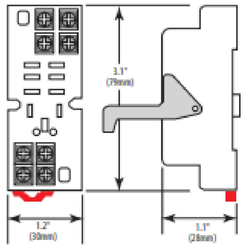
VBD2B-F SOCKET
Dimensional Drawing



VMD2B RELAY
Wiring Diagram



VBD2B-F SOCKET
Dimensional Drawing



DPDT RELAY WIRING DETAIL DIAGRAM

SCALE: NONE

GENERAL NOTES

1. TWO OXYGEN MONITORS DISPLAYED ARE BOTH WIDELY USED AND INSTALLED. A COMBINATION OF BOTH OR JUST ONE TYPE CAN BE USED IN A BUILDING, REFER TO FLOOR PLANS AND BOM FOR INDICATION OF MONITOR TO BE USED. WHEN INSTALLING O2 MONITORS USE APPROPRIATE WIRING DIAGRAM FOR ASSOCIATED MONITOR.

2. CABLES USED IN THIS DESIGN SHALL BE COMPLIANT WITH ARTICLE 725 REQUIREMENTS AND NO LESS THAN 18AWG UNLESS OTHERWISE INDICATED. ALL CONDUCTORS ARE TO BE INSTALLED AS PER:
   2.1 MANUFACTURER DOCUMENTATION;
   2.2 LANL MASTER SPECIFICATION 25-0519 LOW VOLTAGE ELECTRICAL CONDUCTORS AND CABLES FOR BAS ELECTRICAL SYSTEMS;
   2.3 LANL MASTER SPECIFICATION 25-0529 HANGERS AND SUPPORTS FOR BUILDING AUTOMATION SYSTEMS;
   2.4 LANL MASTER SPECIFICATION 25-0553 IDENTIFICATION FOR BAS ELECTRICAL SYSTEMS;
   2.5 LANL MASTER SPECIFICATIONS 25-0533 RACEWAYS AND BOXES FOR BAS ELECTRICAL SYSTEMS.

(#) ITEM FROM BILL OF MATERIAL - SK-J03

KEYED NOTES:

(1) ALARM1 WILL BE USED TO COMMUNICATE AN UNSAFE OXYGEN LEVEL USING THE N.C. OF THE FORM C RELAY.

(2) LOCATION OF TERMINATIONS TO WIRE DISPLAYS.

(3) REMOTE DISPLAY SETUP:
- 1.1. SETUP MENU (SETUP)
  - 1.1.1. PARAMETERS
    - SC_4 SET TO '0',
    - SC_20 SET TO '25'
    - UNIT SET TO '%',
- 1.2. EXPERT MENU (EXPRT)
  - 1.2.1. INPUT:
    - 1.2.1.1. CURV SET TO LINEAR,
    - 1.2.1.2. OFFST SET 0

(4) THE REMOTE DISPLAY WILL BE CONNECTED WITH AN 18AWG, 2 CONDUCTORS SHIELDED INSTRUMENTATION CABLE. (20)

(5) ALL WIRING TO REMOTE DISPLAYS WILL BE DAISY CHAINED.

EXAMPLE DESIGN

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VERIFIED			
DESIGNED			
DRAWN	0	INITIAL ISSUE FOR DCF-XX-XX-XXXX-XXXX	XX/XX/XX
CLASSIFICATION [UNCLASSIFIED]	NO	REVISION DESCRIPTION	DATE

ENGINEERING SERVICES

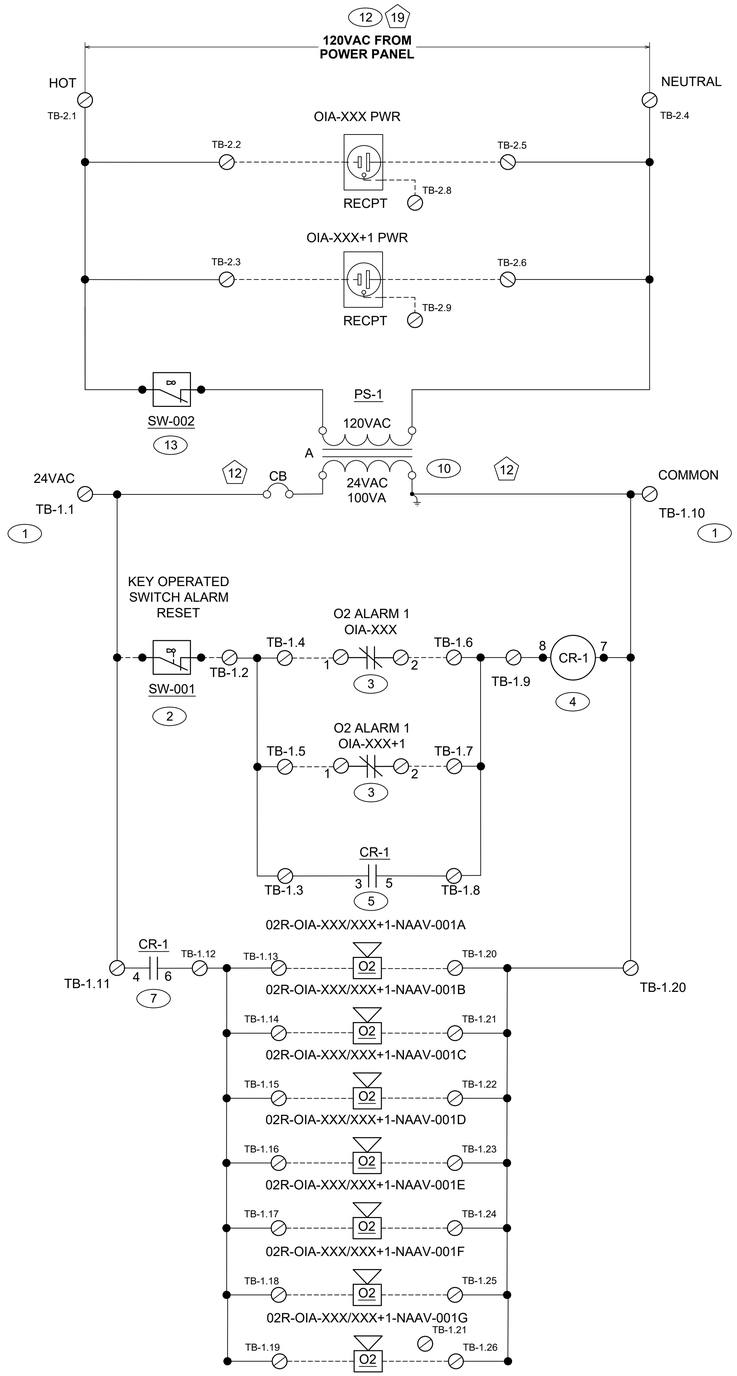
TA-XX-XXXX
OXYGEN MONITOR
I&C
EQUIPMENT DETAIL DIAGRAM

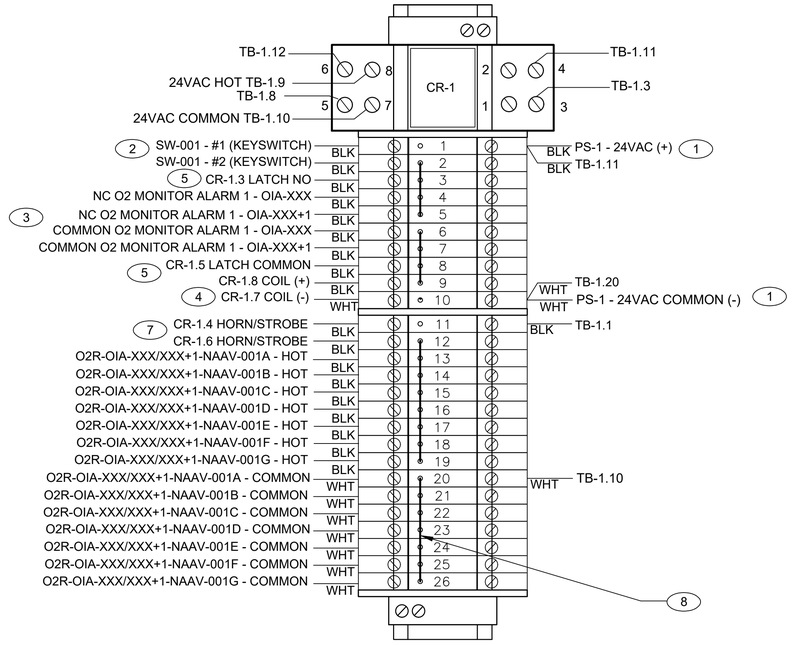
TA- XX BLDG XXXX

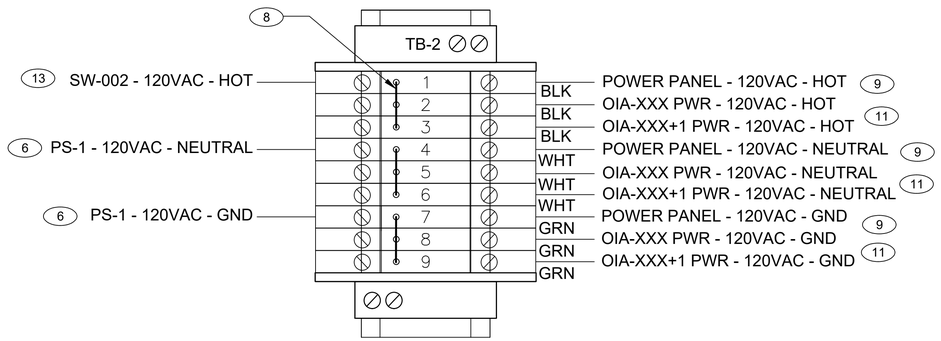
Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET SK-J01
08 OF XX

PROJECT ID	DRAWING NO	REV
ESRXXXXX	DCF-XX-XX-XXXX-XXXX-SK-J01	0







GENERAL NOTES

1. REFER TO ROOM'S SK-E PANEL SCHEDULE FOR ASSOCIATED POWER PANEL AND CIRCUIT SOURCE.
2. ONLY WIRE THOSE UNITS INDICATED ON THE SK-E FLOOR PLAN. ADDITIONAL POINTS LISTED HERE FOR REFERENCE FOR LARGER SPACES.
3. NAAV UNITS MAY DAISY CHAIN POWER TOGETHER. REMOVE UNUSED TERMINAL BLOCKS AND REDLINE WIRING DIAGRAMS ACCORDINGLY.

(#) ITEM FROM BILL OF MATERIAL - SK-J03

KEYED NOTES:

(1) CONNECT THE 24VAC POWER SUPPLY TO TERMINAL BLOCK TB-1.

(2) CONNECT THE KEYED RESET SWITCH TO THE TERMINAL BLOCK TB-1.

(3) CONNECT THE OXYGEN MONITOR NORMALLY CLOSED ALARMS 1 (OIA) TO TERMINAL BLOCK TB-1.

(4) CONNECT THE COIL SIDE OF CR-1 TO TB-1.

(5) CONNECT THE FIRST NORMALLY OPEN DRY CONTACT TO THE TERMINAL BLOCK TB-1.

(6) CONNECT RESPECTIVELY THE NEUTRAL AND GROUND TO PS-1.

(7) CONNECT THE SECOND NORMALLY OPEN DRY CONTACT TO THE TERMINAL BLOCK TB-1.

(8) INSTALL JUMPERS ON TB-1/TB-2, BREAKING AND SPACING ACCORDINGLY (TYPICAL).

(9) CONNECT RESPECTIVELY THE HOT, NEUTRAL AND GROUND TO TB-2 FROM POWER PANEL.

(10) VERIFY THE PS-1 GROUND IS TIED TO THE COMBINATION PANEL.

(11) CONNECT RESPECTIVELY THE HOT, NEUTRAL AND GROUND TO TB-2 FOR THE OXYGEN MONITOR OUTLET.

(12) USE TWO 12 AWG AND ONE 12 AWG EGC TYPE THHN OR THWN-2 FOR ALL 120VAC CIRCUIT GOING IN AND OUT OF TB-2.

(13) CONNECT THE HOT TO THE KEYED POWER SUPPLY SWITCH WHICH FEEDS PS-1.

EXAMPLE DESIGN

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LBO-DESIGN PACKAGE REVIEWER	N/A		
APPROVED FOR RELEASE			
SUBMITTED			
VERIFIED			
DESIGNED			
DRAWN	0	INITIAL ISSUE FOR DCF-XX-XXXX-XXXX	XX/XX/XX
CLASSIFICATION [UNCLASSIFIED]	NO	REVISION DESCRIPTION	DATE

HORNS / STROBES RELOCATION WIRING DIAGRAM

SCALE: NONE

ENGINEERING SERVICES

TA-XX-XXXX
OXYGEN MONITOR

I&C

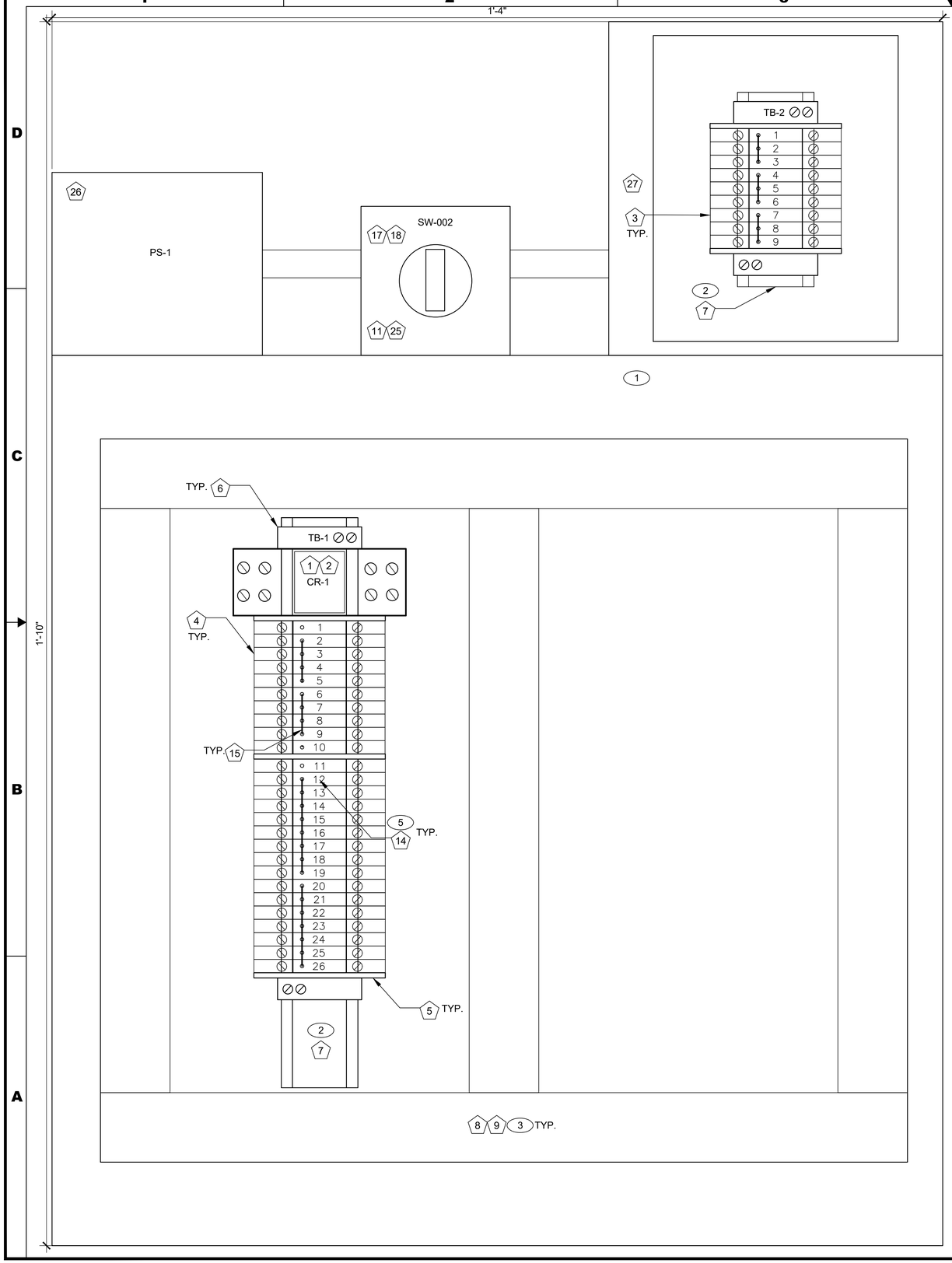
RM. 108 HORNS / STROBES RELOCATION WIRING DIAGRAM

TA- XX BLDG XXXX

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET **SK-J02**
09 OF **XX**

PROJECT ID	DRAWING NO	REV
ESRXXXXX	DCF-XX-XXXX-XXXX-SK-J02	0



DID	ITEM	QTY.	UNIT	DESCRIPTION	MANUFACTURER	MANUFACTURER ITEM NO.
1	RELAY	1	EA	DPDT Relay	VERIS	VMD2B-F24A
2	SOCKET	1	EA	Socket Relay	VERIS	VBD2B-F
3	TERMINAL BLOCK	3	EA	Terminal Block - Green	ALLEN BRADLEY	1492-J4-G
4	TERMINAL BLOCK	32	EA	Terminal Block - Grey	ALLEN BRADLEY	1492-J4
5	END CAP	5	EA	End Cap	ALLEN BRADLEY	1492-EBJ3
6	END BLOCK	4	EA	End Block	ALLEN BRADLEY	1492-ERL35
7	DIN RAIL	1	EA	Din Rail - 1 meter	ALLEN BRADLEY	199-DR1
8	PANDUIT	1	EA	Panduit - 6' (1" x 2" x6')	PANDUIT	F1X2LG6
9	PANDUIT CAP	1	EA	Panduit - 6' (1" x 2" x6')	PANDUIT	C1LG6
10	KEY OPERATED SWITCH	1	EA	2 POSITIONS KEY OPERATED BUTTON SPRING RETURN	SCHNEIDER ELECTRIC	ZB5AG6
11	ENCLOSURE	2	EA	Harmoney, enclosure, Dark grey lid	SCHNEIDER ELECTRIC	XALD01H7
12	WIRE	1	EA	18 AWG 2 Conductor Bare Copper, Non-Shielded Plenum UL Listed C(UL)US CMP	WINDY CITY WIRE	002360-500, (or any 2 conductor bare copper 18AWG wire, Black/White),
13	ENCLOSURE W/ KEY	1	EA	Medium Hinged-Cover Type 1 (16" x 16" x 6.62"), with Perforated Panel and Keyed Latch Kit for Type 1 Enclosure	HOFFMAN	A16N16ALP/A16N16MPP/AL12AR
14	TERMINAL BLOCK MARKER	1	EA	Preprinted marker for Terminal Block	ALLEN BRADLEY	1492-M5X10-H-1-20S
15	TERMINAL BLOCK JUMPERS	1	EA (Per package)	Screwless Center Jumper	ALLEN BRADLEY	1492-CJLJ6-2-R (Or any color available)
16	HORN/STROBES - INT	7	EA	Electronic Horn/Strobe Combination Signaling Devices	EDWARDS SIGNALING	867STRA-AQ
17	BODY FIXING COLLAR	2	EA	BODY/FIXING COLLAR FOR ELECTRICAL BLOCK, PLASTIC	SCHNEIDER ELECTRIC	ZB5AZ009
18	CONTACT BLOCK	2	EA	Harmony, 22mm Push Button, add on contact block, 1 NC, screw clamp terminal	SCHNEIDER ELECTRIC	ZBE102
19	WIRE	1	EA	12 AWG THHN OR THWN-2		
20	WIRE	1	EA	18 AWG 2 Twisted Conductor Bare Copper, Shielded Plenum UL Listed C(UL)US CMP	WINDY CITY WIRE	002320, (or any 2 Twisted conductor bare copper, shielded 18AWG wire, Black/White),
21	REMOTE DISPLAY	2	EA	Digital Panel Meter, Field Mount,	PROSENSE	LPM1-A-ENC
22	O2 MONITOR	2	EA	OXYGEN MONITOR	AMI	AMI-221R
23	HORN/STROBES - EXT	0	EA	Electronic Horn/Strobe Combination Signaling Devices	EDWARDS SIGNALING	868STRA-AQ
24	O2 MONITOR	0	EA	OXYGEN MONITOR	RKI	OX-600
25	KEY OPERATED SWITCH	1	EA	2 POSITIONS KEY OPERATED BUTTON STAY PUT	SCHNEIDER ELECTRIC	XB5AD21
26	TRANSFORMER	1	EA	Transformer, 120 to 24 VAC, Circuit Breaker, 96VA	FUNCTIONAL DEVICES, INC.	TR100VA001US
27	TERMINAL BLOCK ENCLOSURE	1	EA	Pull box, Screw Cover (8" x 8" x 4") / KO's, NEMA Type 1 / Perforated Panel	HOFFMAN	ASE8X8X4 / PB88PP

SEQUENCE OF OPERATION:

1. DURING NORMAL OPERATION OR WHEN OXYGEN LEVEL ABOVE 19.5%:
   - 1.1. THE HORNS AND STROBES WILL REMAIN DE-ENERGIZED,
2. IN THE EVENT OF OXYGEN ALARM BELOW 19.5%:
   - 2.1. THE HORNS AND STROBES WILL BE ENERGIZED AND REMAIN ENERGIZED EVEN IF THE OXYGEN LEVEL HAS RETURNED TO NORMAL.
   - 2.2. THE AUTHORIZED PERSONNEL WILL BE ABLE TO RESET THE HORNS AND STROBES WITH THE KEY OPERATED SWITCH.

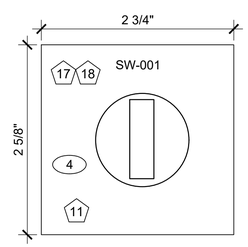
GENERAL NOTES

1. REFER TO ROOM'S SK-E PANEL SCHEDULE FOR ASSOCIATED POWER PANEL AND CIRCUIT SOURCE.
2. ONLY WIRE THOSE UNITS INDICATED ON THE SK-E FLOOR PLAN. ADDITIONAL POINTS LISTED HERE FOR REFERENCE FOR LARGER SPACES.
3. NAAV UNITS MAY DAISY CHAIN POWER TOGETHER. REMOVE UNUSED TERMINAL BLOCKS AND REDLINE WIRING DIAGRAMS ACCORDINGLY.

KEYED NOTES:

(1) NEW COMBINATION PANEL LAYOUT CMBP-001.
(2) INSTALL DIN RAIL AND TERMINAL BLOCK TB-1 AND TB-2.
(3) INSTALL PANDUIT AND PANDUIT CAP.
(4) INSTALL THE KEY OPERATED RESET SWITCH/ENCLOSURE AS PER FLOOR PLAN.
(5) INSTALL THE TERMINAL BLOCK MARKERS ON TB-1 AND TB-2..

(#) ITEM FROM BILL OF MATERIAL - SK-J03



COMBINATION PANEL LAYOUT

EXAMPLE DESIGN

NOT FOR REPLICATION OR CONSTRUCTION

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[UNCLASSIFIED]

ENGINEERING SERVICES

TA-XX-XXXX
OXYGEN MONITOR
I&C
RM. 108 COMBINATION PANEL LAYOUT

TA- XX | BLDG XXXX

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET **SK-J03**
10 OF **XX**

PROJECT ID **ESRXXXXX**
DRAWING NO **DCF-XX-XXXX-XXXX-SK-J03**
REV **0**