LIGHTING

- 2x4 FLUORESCENT FIXTURE
- Ab — ASSOCIATED CONTROL DEVICE
- FIXTURE TYPE (SEE LIGHT FIXTURE SCHEDULE)
- 1x4 FLUORESCENT FIXTURE
- 2x2 FLUORESCENT FIXTURE
- FIXTURE WIRED TO UNSWITCHED NORMAL CIRCUIT
- FIXTURE WIRED TO UNSWITCHED EMERGENCY CIRCUIT
- FIXTURE WIRED TO SWITCHED EMERGENCY CIRCUIT
- DOWN LIGHT
- FLUORESCENT STRIP
- WALL MOUNTED FIXTURES
- TRACK LIGHTING
- POLE MOUNTED SITE LIGHTING FIXTURE
- ab — FIXTURE TYPE (SEE LIGHT FIXTURE SCHEDULE)
- FLOOD LIGHT
- WALL WASH LIGHT FIXTURE
- EXIT SIGN, CEILING MOUNTED ARROW INDICATES EGRESS DIRECTION SHADING INDICATES SIGN FACE
- EXIT SIGN, WALL MOUNTED SHADING INDICATES SIGN FACE
- TD — DUAL HEAD EMERGENCY LIGHT BATTERY PACK TD – TIME DELAY RESET
- REMOTE EMERGENCY LIGHTING HEAD
- WP — WALL PACK
- S_3 — 3–WAY TOGGLE SWITCH
- S_{3a} — SINGLE POLE TOGGLE SWITCH INDICATES CONTROLLED FIXTURE
- S_4 — 4–WAY TOGGLE SWITCH
- S_{II} — DUAL LEVEL SWITCHING
- S_D — DIMMER SWITCH. INCANDESCENT OR FLUORESCENT AS REQUIRED.
- S_P — TOGGLE SWITCH WITH PILOT LIGHT
- S_T — TIMER SWITCH, SPRING WOUND
- S_{DT} — SINGLE POLE DOUBLE THROW TOGGLE SWITCH, CENTER POSITION OFF
- S_{WP} — WEATHER PROOF
- S_{XP} — EXPLOSION PROOF
- UNSWITCHED CONTINUATION OF BRANCH CIRCUIT
- HOME RUN
- X — OCCUPANCY SENSOR
  - a. INDICATES CONTROLLED FIXTURE
  - INDICATES AIMING DIRECTION
- OSR — OCCUPANCY SENSOR RELAY
- DS x — DAYLIGHT SENSOR LIGHTS CONTROLLED BY SENSOR

COMMUNICATION & DATA SYSTEMS

- TELEPHONE SYSTEM WALL JACK
  W–INDICATES WALL MOUNTED AT 60" AFF
  P–INDICATES PAYPHONE
  (2)–INDICATES 2 OUTLETS, SINGLE BOX
- DATA SYSTEM OUTLET
- COMBINATION VOICE/DATA SYSTEM OUTLET
- UNDERFLOOR TELEPHONE SYSTEM OUTLET
- UNDERFLOOR DATA SYSTEM OUTLET
- UNDERFLOOR VOICE & DATA OUTLET
- CATV — CABLE TELEVISION SYSTEM OUTLET. MOUNT 18"AFF UNLESS OTHERWISE NOTED
- CCTV — CLOSED CIRCUIT TELEVISION OUTLET. MOUNT 18" AFF UNLESS OTHERWISE NOTED
- PA — PAGING SYSTEM CONTROL PANEL AND PAGING AMPLIFIER
- S — PAGING SYSTEM SPEAKER. CEILING MOUNTED
- S 1 — PAGING SYSTEM SPEAKER. WALL MOUNT AT 7'–6" AFF
  1. FLUSH, 2. SURFACE, 3. HORN, 4. DUAL HORN
- VC — VOLUME CONTROL
- HC — INTERCOM SYSTEM HAND KEY
- CS — CLOCK SPEAKER
- HS — INTERCOM SYSTEM HAND SET
- C — WALL MOUNTED CLOCK
- CEILING MOUNTED TELEPHONE SYSTEM OUTLET
- CEILING MOUNTED DATA SYSTEM OUTLET
- CEILING MOUNTED VOICE & DATA OUTLET

POWER

- 4 — NON–FUSED SAFETY SWITCH NEMA ENCLOSURE RATING AMPERE RATING
- F 60AS 40AF 4 — FUSED SAFETY SWITCH. TOP NUMBER INDICATES SWITCH AMPERE RATING. LOWER NUMBER INDICATES FUSE RATING NEMA ENCLOSURE
- 1 (4) — MAGNETIC MOTOR STARTER. FVNR UNLESS INDICATED OTHERWISE NEMA ENCLOSURE RATING NEMA SIZE (TYPICAL)
- CB 20/1 — COMBINATION CIRCUIT BREAKER/MAGNETIC MOTOR STARTER FIRST NUMBER INDICATES CIRCUIT BREAKER AMPERE RATING SECOND NUMBER INDICATES NEMA STARTER SIZE
- F 60/40/1 — COMBINATION FUSED DISCONNECT/MAGNETIC MOTOR STARTER NUMBERS INDICATE DISCONNECT AMPERE RATING/FUSE RATING/NEMA STARTER SIZE
- 30/1 — NON–FUSED DISCONNECT/MAGNETIC MOTOR STARTER FIRST NUMBER INDICATES CIRCUIT BREAKER AMPERE RATING SECOND NUMBER INDICATES NEMA STARTER SIZE
- M OL — MANUAL MOTOR STARTER. TOGGLE OPERATED, 1,2 OR 3 POLE AS REQUIRED. OVERLOAD PROTECTION
- M — MANUAL MOTOR SWITCH, TOGGLE OPERATED, SINBLE PHASE. 1 OR 2 POLE AS REQUIRED (NO OVERLOAD PROTECTION)
- CB 100A — ENCLOSED CIRCUIT BREAKER AMPERE RATING
- 5 — ELECTRIC MOTOR, NUMBER INDICATES HORSEPOWER RATING
- 5 — EXPLOSION PROOF MOTOR
- VAV — VARIABLE AIR VOLUME CONTROL ACTUATORS
- HS H/O/A — LOCAL SELECTOR SWITCH H/O/A – HAND/OFF/AUTO
- EMO — EMERGENCY OFF BREAK GLASS STATION
- PB — PUSHBUTTON STATION
- J — JUNCTION BOX
- T — TRANSFORMER
- P — POWER POLE
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- EY CONDUIT SEAL
- E — DUPLEX RECEPTACLE, NEMA 5–20R. INSTALLED ON EMERGENCY CIRCUIT (TYPICAL)
  GFI DUPLEX RECEPTACLE, NEMA 5–20R
- HOSPITAL GRADE DUPLEX RECEPTACLE, NEMA 5–20R
- HOSPITAL GRADE GFCI DUPLEX RECEPTACLE, NEMA 5–20R
- IG — HOSPITAL GRADE ISOLATED GROUND DUPLEX RECEPTACLE, NEMA 5–20R
- SINGLE RECEPTACLE, NEMA 5–20R
- DOUBLE DUPLEX (QUADRUPLEX) RECEPTACLE, NEMA 5–20R
- HOSPITAL GRADE DOUBLE DUPLEX RECEPTACLE NEMA 5–20R
- S — SWITCHED RECEPTACLE
- FLOOR OUTLET, DUPLEX RECEPTACLE, NEMA 5–20R
- POWER RECEPTACLE, 480 VOLT NEMA CONFIGURATION AS NOTED.
- POWER RECEPTACLE, 240 VOLT NEMA CONFIGURATION AS NOTED.
- PANELBOARD, NORMAL POWER
- PANELBOARD, EMERGENCY POWER
- MULTI OUTLET ASSEMBLY

GROUNDING

- GROUND ROD
- EXOTHERMIC WELD CONNECTION
- BOLTED CONNECTION
- G — BARE COPPER CONDUCTOR RUN EXPOSED
- G — BARE COPPER CONDUCTOR EMBEDDED IN CONCRETE OR BURIED

NURSE CALL SYSTEM

- CL — NURSE CALL CALL LIGHT
- PATIENT CALL BUTTON
- NURSE CALL PULL CORD
- N M — NURSE CALL MASTER STATION

FIRE ALARM

- FACP — FIRE ALARM CONTROL PANEL
- FAA — FIRE ALARM ANNUNCIATOR
- M — FIRE ALARM MASTER BOX
- F — FIRE ALARM MANUAL PULL STATION
- F — FIRE ALARM SPEAKER/STROBE UNIT
- F — FIRE ALARM AUDIBLE/VISIBLE NOTIFICATION APPLIANCE (GENERAL EVACUATION)
- FIRE ALARM AUDIBLE/VISIBLE NOTIFICATION APPLIANCE CLEAN ROOM NOTIFICATION (LOCAL)
- F (110) C — FIRE ALARM VISIBLE ONLY NOTIFICATION APPLIANCE
  - CANDELA INTENSITY–15/75 UNLESS OTHERWISE NOTED
  - CEILING MOUNTED
- P A — PHOTOELECTRIC SMOKE DETECTOR. CEILING MOUNTED INDICATES AUXILIARY CONTACT.
- H <TPP–1> — FIXED TEMPERATURE HEAT DETECTOR. CEILING MOUNTED.
  - INDICATES EQUIPMENT INTERLOCKED WITH THE DETECTOR
- P1 <RC–1> — CLEAN ROOM SMOKE DETECTOR
  - INDICATES EQUIPMENT INTERLOCKED WITH THE SMOKE DETECTOR
- H R — COMBINATION RATE–OF–RISE/FIXED TEMPERATURE HEAT DETECTOR. CEILING MOUNTED
- D — DUCT SMOKE DETECTOR, PHOTOELECTRIC WITH AUXILIARY CONTACT.
- FS — SPRINKLER SYSTEM FLOW SWITCH
- TS — SPRINKLER SYSTEM TAMPER SWITCH
- DH — FIRE ALARM SYSTEM MAGNETIC DOOR HOLDER
- INTERLOCK RELAY
- SD — SMOKE DAMPER
- RTI — DUCT SMOKE DETECTOR REMOTE TEST INDICATOR
- K — KNOX BOX

SECURITY SYSTEMS

- S 2–WAY — 2–WAY CEILING MOUNTED INTERCOM SPEAKER
- S — CEILING MOUNTED PAGING SPEAKER
- WALL MOUNTED PAGING HORN
- C — CEILING OR WALL MOUNTED FIXED CAMERA
- P — CEILING OR WALL MOUNTED PTZ CAMERA
- PAGE — PAGING CONTROL EQUIPMENT
- INT — INTERCOM MASTER STATION
- DOOR — DOOR CONTROL EQUIPMENT
- DC — MONITORED DOOR POSITION SWITCH AND CONTROLLED DOOR HARDWARE
- DPS — MONITORED DOOR POSITION SWITCH
- STANDARD INTERCOM STATION
- VISITATION TELEPHONE
- WALL MOUNTED DURESS BUTTON
- GP — GRAPHIC CONTROL PANEL
- TS — TOUCH SCREEN WORKSTATION
- TV — CCTV CONTROL OR DISPLAY EQUIPMENT
- ZONE — PERIMETER CONTROL EQUIPMENT
- DUR — DURESS CONTROL EQUIPMENT
- DURESS ALARM RECEIVER
- TEL — OFFICER CONTROLLED COLLECT–ONLY PUBLIC TELEPHONE
- DEL — OFFICER CONTROLLED FIRE SPRINKLER (DELUGE) HEAD
- MW+ — DUAL TECHNOLOGY VOLUMETRIC SENSOR
- DR — LOCAL DOOR RELEASE BUTTON
- WAT — OFFICER CONTROLLED SHOWER WATER SUPPLY
- L&E — OFFICER CONTROLLED LIGHTING AND ELECTRICAL OUTLETS
- D — DOOR CONTACT
- CR — CARD READER
- KP — KEY PAD
- CCTV — CLOSED CIRCUIT TELEVISION CAMERA
- ES — ELECTRIC STRIKE

ONE LINE DIAGRAM

- 52 — MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER
- LOW VOLTAGE DRAWOUT CIRCUIT BREAKER
  - AF — AF – AMP FRAME
  - AT — AT – AMP TRIP
  - EO — EO – ELECTICALLY OPERATED
- MOLDED CASE CIRCUIT BREAKER
- ST — ST – SHUNT TRIP
  GF – GROUND FAULT
  EO – ELECTRICALLY OPERATED
- DISCONNECT, ISOLATION OR SAFETY SWITCH
- FUSED CUTOUT
- FUSED LOAD BREAK SWITCH
- MEDIUM VOLTAGE MOTOR STARTER
- 1 — MAGNETIC MOTOR STARTER. NUMERAL INDICATES NEMA SIZE
  FVNR UNLESS OTHERWISE NOTED.
  FVR – FULL VOLTAGE REVERSING
  RVAT – REDUCING VOLTAGE AUTO TRANSFORMER
  2S – TWO SPEED
- CAPACITOR
- VFD — VARIABLE FREQUENCY DRIVE
- OA — POWER TRANSFORMER
  - OA – LIQUID TYPE SELF COOLED
  - AA – DRY TYPE SELF COOLED
  - FA – FAN COOLED
  - CONNECTION
- SHIELDED ISOLATION TRANSFORMER
- 2 480/120 — POTENTIAL TRANSFORMER
  - RATIO
  - NUMBER REQUIRED
- 3 600/5 — CURRENT TRANSFORMER
  - RATIO
  - NUMBER REQUIRED
- GROUND FAULT CURRENT TRANSFORMER
- 5 — MOTOR, NUMBER INDICATES HORSEPOWER
- GENERATOR
- N C L E ATS — ATS – AUTOMATIC TRANSFER SWITCH
  MTS – MANUAL TRANSFER SWITCH
- A — METER
  - A – AMMETER
  - V – VOLTMETER
  - W – WATTMETER
  - WH – WATT HOURMETER
  - KWH – KILOWATT HOUR
  - KVAR – KILOVAR METER
  - VAR – VAR METER
  - HZ – FREQUENCY METER
  - PF – POWER FACTOR METER
- DPM — DIGITAL POWER METER
- AS — METER TRANSFER SWITCH
  - AS – AMMETER SWITCH
  - VS – VOLTMETER SWITCH
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSOR
- LA — LIGHTNING ARRESTOR
- K — KEY INTERLOCK
- FUSE
- E F — ELECTRONIC POWER FUSE
- DRAWOUT DEVICE
- GROUND

ABBREVIATIONS

A,AMP	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
AWG	AMERICAN WIRE GAUGE
BFG	BELOW FINISHED GRADE
BOS	BOTTOM OF STEEL
C	CONDUIT, CONDUCTOR
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DACT	DIGITAL ALARM COMMUNICATOR TRANSMITTER
DB	DIRECT BURRIED
DISC	DISCONNECT
DN	DOWN
EMT	ELECTRICAL METALLIC TUBING
EWC	ELECTRIC WATER COOLER
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FU	FUSE
FWE	FURNISHED WITH EQUIPMENT
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HP	HORSEPOWER
HTR	HEATER
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
K	KILO
KCMIL	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT–AMPERE
KVAR	KILOVOLT AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT–HOUR
LA	LIGHTNING ARRESTER
LTG	LIGHTING
MC	METAL CLAD
MCB	MAIN CIRCUIT BREAKER
MFR	MANUFACTURER
MI	MINERAL INSULATED
MLO	MAIN LUG ONLY
MTD	MOUNTED
MV	MEDIUM VOLTAGE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEG	NEGATIVE
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
PF	POWER FACTOR
PH	PHASE
PVC	POLYVINYL CHLORIDE
RGS	RIGID STEEL CONDUIT
RSC	RIGID STEEL CONDUIT
RTD	RESISTANCE TEMPERATURE DETECTOR
SN	SOLID NEUTRAL
STP	SHIELDED TWISTED PAIR
STT	SHIELDED TWISTED TRIPLET
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TOS	TOP OF STEEL
TRANSF	TRANSFORMER
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
V	VOLT
VA	VOLT–AMPERE
VAR	VOLT–AMPERE REACTIVE
WM	WATT METER
WP	WEATHER PROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA–70, NATIONAL ELECTRICAL CODE (NEC).
2. ALL MOTOR SAFETY SWITCHES, DISCONNECTS AND MOTOR STARTERS ARE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED AS FURNISHED WITH EQUIPMENT (FWE).
3. UNLESS OTHERWISE NOTED CONVENIENCE RECEPTACLES SHALL BE MOUNTED 18–INCHES AFF, LIGHTING TOGGLE SWITCHES 48–INCHES AFF, DATA SYSTEM OUTLETS 18–INCHES AFF, FIRE ALARM NOTIFICATION DEVICES 80–INCHES AFF OR 6–INCHES BELOW CEILING WHICHEVER IS LOWER, AND FIRE ALARM MANUAL PULL STATIONS 48–INCHES AFF TO TOP OF DEVICE.
4. ALL PENETRATIONS THROUGH FLOORS, RATED WALLS AND PARTITIONS SHALL BE SEALED WITH UL APPROVED FIRE SEALANT MATERIAL TO MAINTAIN THE RATING OF THE SEPARATION.
5. ALL ENCLOSURES, CONDUIT BODIES AND THEIR COVERS CONTAINING FIRE ALARM SYSTEM CONDUCTORS SHALL BE PAINTED RED.
6. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED WITH EVERY FEEDER AND BRANCH CIRCUIT.
7. UNLESS OTHERWISE NOTED WIRING SHALL BE 2 #12 AWG CONDUCTORS & #12 GND. HOME RUNS FED FROM 20A–1P CIRCUITS IN EXCESS OF 100 FEET SHALL BE #10 AWG.
8. FLEXIBLE CONNECTIONS TO MOTORS SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT, UNLESS OTHERWISE NOTED.
9. LIGHTING TOGGLE SWITCHES SHALL BE COMMERCIAL SPECIFICATION GRADE 120 VOLT, SIDE WIRED AND PROVIDED WITH GROUNDING SCREW. LEVITON, PASS AND SEYMOUR OR APPROVED EQUAL. COORDINATE COLOR WITH ARCHITECT.
10. CONVENIENCE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE GROUNDING TYPE NEMA 5–20R, SIDE WIRED. LEVITON, PASS AND SEYMOUR OR APPROVED EQUAL. COORDINATE COLOR WITH ARCHITECT.
11. PROVIDE WALL PLATES FOR ALL WIRING DEVICES, NYLON SMOOTH TYPE IN FINISHED AREAS AND GALVANIZED IN UNFINISHED AREAS.
12. ALL WIRING SHALL BE 600V, COPPER WITH THHN/THWN INSULATION.
13. NEW PANELBOARD SHALL BE PROVIDED W/COPPER BUS, COPPER GROUND BUS, 100% NEUTRAL BUS, FULLY RATED BOLT ON CIRCUIT BREAKERS SIZED AS INDICATED ON PANEL SCHEDULES, HINGED DOOR ENCLOSURE AND METAL DIRECTORY FRAME W/PLASTIC COVER.
14. ALL EXPOSED WIRING SHALL BE RUN IN EMT, EXTERIOR WIRING TO BE RUN IN RIGID STEEL CONDUIT AND WIRING ABOVE CEILINGS AND IN STUD WALLS SHALL BE MC CABLE.

GENERAL NOTE

1. ALL GENERAL NOTES, SYMBOL LISTS, AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION IN THE DESIGN.

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INDIA STREET, PORTLAND

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REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	4–11–03

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