

**2012 NORTH CAROLINA
ENERGY CONSERVATION CODE
COMMERCIAL ENERGY EFFICIENCY - ELECTRICAL SUMMARY**

501.1 METHOD OF COMPLIANCE NO SPECIFIC CHECKED PROVIDED
 2012 NCECC CHAPTER 5 20% IMPROVEMENT OVER ASHRAE 90.1-2007
 NOT APPLICABLE BASED ON PROJECT SCOPE

501.2 APPLICATION COMPLIANCE
 506.2.1 EFFICIENT MECH EQUIPMENT 506.2.4 HI EFFICIENCY DOMESTIC HW
 506.2.2 REDUCED LTG DENSITY 506.2.5 ONSITE RENEWABLE ENERGY
 506.2.3 ENERGY RECOVERY SYSTEMS 506.2.6 DAYLIGHTING CONTROLS
 NOT APPLICABLE BASED ON PROJECT SCOPE

505.2 - INTERIOR LIGHTING CONTROLS (MANDATORY REQUIREMENTS):
 INTERIOR LIGHTING SYSTEMS ARE PROVIDED WITH CONTROLS AS REQUIRED PER SECTION 505.2, EXCEPT WHERE EXEMPT.
 NOT APPLICABLE

505.3 - TANDEM WIRING (MANDATORY REQUIREMENTS):
 FLUORESCENT LUMINARIES LOCATED WITHIN THE SAME AREA ARE TANDEM WIRED AS REQUIRED PER SECTION 505.3, EXCEPT WHERE EXEMPT.
 NOT APPLICABLE

505.4 - EXIT SIGNS (MANDATORY REQUIREMENTS):
 INTERNALLY ILLUMINATED EXIT SIGNS DO NOT EXCEED 5 WATTS PER SIDE.
 NOT APPLICABLE

505.5 - INTERIOR LIGHTING POWER REQUIREMENTS (PRESCRIPTIVE) (NON-EXEMPT):
 NOT APPLICABLE PER 2012 NCECC 101.4.3, EXCEPTION 1.G.
 505.5.1 - TOTAL CONNECTED INTERIOR LIGHTING POWER:
 13,652 WATTS SPECIFIED
 21% REDUCTION OF SPECIFIED VS. ALLOWED (APPLICABLE IF 506.2.2 IS SELECTED)
 505.5.2 - TOTAL ALLOWABLE INTERIOR LIGHTING POWER:
 METHOD OF COMPLIANCE: BUILDING AREA METHOD SPACE-BY-SPACE METHOD
 17,368 WATTS ALLOWED

505.6.1 - EXTERIOR BUILDING GROUNDS LIGHTING:
 LAMPS OPERATING AT GREATER THAN 100 WATTS FOR EXTERIOR BUILDING GROUNDS LUMINAIRES HAVE A MINIMUM EFFICACY OF 80 LUMENS PER WATT, EXCEPT WHERE EXEMPT.
 NOT APPLICABLE

505.6.2 - EXTERIOR BUILDING LIGHTING POWER (NON-EXEMPT):
 NOT APPLICABLE
 TOTAL CONNECTED EXTERIOR LIGHTING POWER:
 N/A WATTS SPECIFIED
 TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:
 N/A WATTS ALLOWED

505.6.3 - SHIELDING OF EXTERIOR BUILDING LIGHTING FIXTURES:
 ONLY FULLY SHIELDED EXTERIOR BUILDING LIGHTING FIXTURES ARE PROVIDED, EXCEPT WHERE EXEMPT.
 ALTERNATIVE EXTERIOR BUILDING LIGHTING FIXTURES ARE PROVIDED FOR GREATER ENERGY EFFICIENCY OVER FULLY SHIELDED EXTERIOR BUILDING LIGHTING FIXTURES.
 NOT APPLICABLE

505.7 - ELECTRICAL ENERGY CONSUMPTION (DWELLING UNITS):
 SEPARATE TENANT METERING TO DETERMINE ELECTRICAL ENERGY CONSUMPTION HAS BEEN PROVIDED FOR BUILDINGS HAVING INDIVIDUAL DWELLING UNITS.
 NOT APPLICABLE

DEVICES AND PATHWAYS

WIRING SYSTEM CONCEALED IN WALL OR CEILING. WHEN SHOWN, CROSS LINES INDICATE NUMBER OF WIRES. (GROUND WIRES ARE NOT SHOWN)

WIRING SYSTEM CONCEALED IN OR UNDER SLAB OR UNDERGROUND.

WIRING SYSTEM EXPOSED

CONDUIT TURNED UP TO FLOOR ABOVE.

CONDUIT TURNED DOWN TO FLOOR BELOW.

BURIED CIRCUIT HOMERUN TO PANEL.

JUNCTION BOX WITH CONNECTION TO EQUIPMENT SERVED. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.

JUNCTION BOX FOR HAND DRYER CONNECTION: SEE MOUNTING HEIGHTS DETAIL FOR EXACT HEIGHT; SEE ARCH. SHEETS FOR COORDINATION. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING. PROVIDE WITH MANUAL TOGGLE SWITCH (DISCONNECT) MOUNTED ABOVE CEILING. IF MOUNTED IN HARD CEILING SPACE AN ACCESS DOOR SHALL BE PROVIDED AT TOGGLE SWITCH LOCATION.

WHITE COPR REEL WITH 50' CABLE AND OUTLETS. CONDUCTIX INSUL B PART # 12120305016 RB-5-20R, OR APPROVED EQUAL.

DUPLEX RECEPTACLE, 20 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT). HUBBELL 5352, OR EQUAL.

DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER BACKSPASH, OR AT HEIGHT NOTED.

QUAD RECEPTACLE, TWO NEMA 5-20R DUPLEX RECEPTABLES.

STANDARD NEMA 5-20R DUPLEX RECEPTACLE FOR ELECTRIC WATER COOLER. COORDINATE LOCATION WITH PLUMBING CONTRACTOR.

GROUND FAULT RECEPTACLE, NEMA 5-20R DUPLEX. ALL RECEPTABLES INSTALLED OUTSIDE, WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.

ISOLATED GROUND RECEPTACLE, NEMA 5-20R DUPLEX.

WEATHERPROOF RECEPTACLE, NEMA 5-20R GFI DUPLEX. COVER SHALL BE INTERMATIC #HP1020 (CLEAR) OR SPECIFICATION EQUAL.

DUPLEX RECEPTACLE, 20 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT). HUBBELL 5352, OR EQUAL. 1.V. RECEPTACLE MOUNTED AT 66" AFF.

DUPLEX RECEPTACLE, 20 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT). HUBBELL 5352, OR EQUAL. MOUNTED ABOVE CEILING.

ONE (1) STANDARD DUPLEX 5-20R RECEPTACLE WITH (1) QUAD USB INSIDE A 4" DOUBLE GANG BOX. LEGRAND #IMBUS8WCCB OR EQUAL. COORDINATE MOUNTING WITH ARCHITECT.

SURGE PROTECTION DEVICE (SPD): SEE DETAIL.

MOTOR OPERATED DAMPER, INTERLOCK WITH FAN AS INDICATED. (DAMPER BY M.C.)

PANELS + DISCONNECTS

CONNECTION TO MOTOR. STARTER PROVIDED BY OTHERS UNLESS OTHERWISE NOTED.

FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER, WITH OVERLOAD PROTECTION.

NON-FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.

FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING/VOLTAGE SIZE. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.

CIRCUIT BREAKER. NUMERALS INDICATE RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.

PLYWOOD TELEPHONE BACKBOARD. SIZE AS INDICATED ON RISER.

PANELBOARD. SEE SCHEDULE FOR MOUNTING. TOP OF PANEL AT 6'-8" AFF.

FIRE ALARM

FIRE ALARM CONTROL PANEL WITH LOCAL SMOKE DETECTOR

FIRE ALARM REMOTE ANNUNCIATOR. PROVIDE BOX AS REQUIRED PER MANUFACTURER RECOMMENDATION. PROVIDE 1/2" CONDUIT FOR CABLING.

FIRE ALARM MANUAL STATION. PROVIDE PROTECTION DEVICE.

CEILING MOUNTED SMOKE DETECTOR. FA VENDOR PROVIDED.

CEILING MOUNTED SMOKE DETECTOR.

DUCT MOUNTED SMOKE DETECTOR. FURNISHED AND CONNECTED BY ELECTRICAL CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR. CUTTING OF DUCT, INSTALLATION OF DETECTOR, AND DETERMINATION OF SAMPLING TUBE LENGTH SHALL BE THE MECHANICAL CONTRACTOR. PROVIDE REMOTE INDICATING LIGHT WITH EACH DETECTOR.

CEILING MOUNTED CARBON MONOXIDE DETECTOR (CENTRAL SYSTEM CONNECTED)

SMOKE DAMPER. FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. CONNECTED TO FIRE ALARM SYSTEM BY ELECTRICAL CONTRACTOR.

ADA COMPLIANT WALL MOUNT FIRE ALARM HORN WITH STROBE LIGHT, 150D UNLESS OTHERWISE NOTED. WHITE FINISH.**

ADA COMPLIANT CEILING MOUNTED FIRE ALARM HORN STROBE LIGHT, 150d, UNLESS OTHERWISE NOTED. WHITE FINISH.**

ADA COMPLIANT CEILING MOUNTED FIRE ALARM STROBE LIGHT, 150d, UNLESS OTHERWISE NOTED. WHITE FINISH.**

DUCT DETECTOR REMOTE INDICATING LIGHT.

MAGNETIC DOOR HOLDER. PROVIDED BY ELECTRICAL CONTR. INSTALLED BY ELEC. COOLER. PROVIDE A SMOKE DETECTOR WITHIN 5 FT. OF BOTH SIDES OF DOORS TO LOCALLY ACTIVATE DOOR UPON SMOKE SIGNAL.

SPECIAL SYSTEMS

SEE TV DETAIL FOR TYPE AND REQUIREMENTS. MINIMUM 1" CONDUIT FOR CABLING AND 3/4" CONDUIT FOR POWER. PROVIDE PULL STRING FOR LOW VOLTAGE CABLING TO ACCESSIBLE CEILING.

TELECOMMUNICATIONS

TELE/DATA OUTLET ABOVE COUNTER OR HEIGHT SPECIFIED. 1" EC TO ABOVE NEAREST ACCESSIBLE CEILING FOR J-HOOK SYSTEM OR TO LOCAL CABLE TRAY (WITHIN 6") AS APPLICABLE WITH PULL STRING. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.

TELE/DATA OUTLET. 1" EC TO ABOVE NEAREST ACCESSIBLE CEILING FOR J-HOOK SYSTEM OR TO LOCAL CABLE TRAY (WITHIN 6") AS APPLICABLE WITH PULL STRING. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.

ABOVE CEILING, STRUCTURE MOUNTED JUNCTION BOX FOR WIRELESS ACCESS LOW VOLTAGE CABLING. 4" SQUARE BOX WITH A TWO-GANG OPENING. STUB 1" EC FROM BOX TO J-HOOKS OR CABLERAY ABOVE ACCESSIBLE CEILING. PROVIDE CABLING, TERMINATIONS, AND FACEPLATE PER SPECIFICATIONS.

SECURITY

CARD READER, MINIMUM 1/2" CONDUIT. PROVIDE SINGLE GANG JUNCTION BOX AND PULL STRING. SEE CARD READER DETAIL FOR ADDITIONAL REQUIREMENTS OF PATHWAYS AND CABLING.

DOOR CONTACT, MINIMUM 1/2" CONDUIT. PROVIDE SINGLE GANG JUNCTION BOX AND PULL STRING. SEE CARD READER DETAIL FOR ADDITIONAL REQUIREMENTS OF PATHWAYS AND CABLING.

SECURITY CAMERA. PROVIDE 3/4" CONDUIT TO LOCAL ACCESSIBLE CEILING. PROVIDE DOUBLE GANG JUNCTION BOX WITH DOUBLE GANG OPENING PLATE. PROVIDE PULL STRING.

LIGHTING (SEE FIXTURE SCH.)

FLUORESCENT OR LED LIGHTING FIXTURE. SEE FIXTURE SCHEDULE. SUSPEND FOUR CORNERS WITH WIRE TO STRUCTURE. DO NOT ALLOW GRID ALONE TO SUPPORT FIXTURE.

FLUORESCENT OR LED STRIP FIXTURE.

FLOOR-, LED OR H.I.D. LIGHTING FIXTURE.

WALL MOUNTED INCANDESCENT, FLOOR-, LED OR H.I.D. LIGHTING FIXTURE.

FLUORESCENT OR LED FIXTURE WITH EMERGENCY BATTERY BALLAST OR DRIVER. PROVIDE 110D LUMEN INVERTER RATED FOR 90 MINUTE OPERATION. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE. EMERGENCY DEVICE SHALL SUPPLEMENT FIXTURE.

FLUORESCENT OR LED DOWNLIGHT WITH AN EMERGENCY BATTERY BALLAST OR DRIVER. BASED ON 110D LUMEN INVERTER (SEE SCHEDULE FOR FIXTURE LUMEN MAXIMUM) EMERGENCY DEVICE SHALL SUPPLEMENT FIXTURE.

EXIT LIGHT WITH ARROWS AND NUMBERS OF FACES AS INDICATED ON PLANS. 90 MIN BATTERY BACKUP. SEE LIGHTING FIXTURE SCHEDULE.

EMERGENCY BATTERY PACK FIXTURE. 90 MINUTE EMERGENCY INTEGRAL BATTERY. SEE LIGHTING FIXTURE SCHEDULE.

EMERGENCY BATTERY PACK/EXIT COMBO FIXTURE WITH 90 MINUTE BATTERY BACKUP. SEE FIXTURE SCHEDULE.

EXTERIOR EMERGENCY FIXTURE WITH EMERGENCY BALLAST OR DRIVER. PROVIDE 110D LUMEN INVERTER RATED FOR 90 MINUTE OPERATION. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE. EMERGENCY DEVICE SHALL SUPPLEMENT FIXTURE.

SINGLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER AH 1221, OR EQUAL BY HUBBELL, LEVITON, AND PASS & SEIMOUR.

DOUBLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER 1222, OR EQUAL.

THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, OR EQUAL BY HUBBELL, LEVITON, AND PASS & SEIMOUR.

FOUR WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1224, OR EQUAL. KEY OPERATED SWITCH.

DIMMER SWITCH. LUTRON SERIES, OR EQUAL. VERIFY LOAD ON CIRCUIT AND MATCH DIMMER SIZE TO LOAD AND DEVICE QUANTITY. PROVIDE DOUBLE GANG J-BOX WITH SINGLE GANG TRIM PLATE. PROVIDE DIMMING SWITCH AS RECOMMENDED BY LIGHTING MANUFACTURER. MATCH SWITCH TYPE TO SOURCE (LED, FLUORESCENT, OR INCANDESCENT), WATTAGE, AND QUANTITY.

LOW VOLTAGE DIMMER SWITCH MOUNTED IN FLUSH JUNCTION BOX. 1" EC TO JUNCTION BOX AND JUMPER FROM LOCAL LIGHTING CIRCUIT. LOW VOLT TRANSFORMER/MOTOR ON TUBULAR SKYLIGHT. PROVIDE 20 GAUGE JUMPER FROM EACH SUCCESSIVE CONTROL UNIT TO JUNCTION BOX AND CONDUIT CABLE IN 3/4" EC FROM SWITCH TO BAFFLE CONTROLS. PROVIDE 20 GAUGE JUMPER FROM EACH SUCCESSIVE CONTROL UNIT TO JUNCTION BOX MULTIPLE SKYLIGHT BAFFLES.

INDICATES TWO LEVEL SWITCHING. SWITCH PULLER THROUGH TOP OF FIXTURES TOGETHER, AND THE INNER LAMP'S SEPARATE.

CEILING MOUNTED OCCUPANCY SENSOR. DIMMER PACK, SENSOR SWITCH WITH WATT STOPPER #J2-100, COOPER SP, OR EQUAL.

CEILING MOUNTED OCCUPANCY SENSOR. TECHNOLOGY. SENSOR SWITCH CM PDT 10, WATT STOPPER #J2-100, COOPER SP, OR EQUAL.

WALL MOUNTED OCCUPANCY SENSOR. DUAL TECHNOLOGY. SENSOR SWITCH W1-PDT, WATT STOPPER #J2-100, COOPER SP, OR EQUAL. CONICAL PATTERN. MOUNT ABOVE TO CORNERS OF ROOMS. AS POSSIBLE MOUNT 10' AFF OR 6' BELOW CEILING (IF LOWER THAN 10').

WALL MOUNTED OCCUPANCY SENSOR. INFRARED TECHNOLOGY WITH CENTRAL WATT STOPPER #J2-100, COOPER SP, OR EQUAL BY SENSOR SWITCH, AND SWITCH.

WALL MOUNTED OCCUPANCY SENSOR AND SWITCH. INFRARED TECHNOLOGY. WATT STOPPER #J2-100, COOPER SP, OR EQUAL. CONICAL PATTERN. MOUNT ABOVE TO CORNERS OF ROOMS. AS POSSIBLE MOUNT 10' AFF OR 6' BELOW CEILING (IF LOWER THAN 10').

ABBREVIATIONS

+42" DIMENSION INDICATES HEIGHT ABOVE FINISHED FLOOR AT WHICH CENTER OF DEVICE IS TO BE MOUNTED. SEE PLANS.

3R NEMA 3R

AFF ABOVE FINISHED FLOOR

AHU AUTHORITY HAVING JURISDICTION

AHU AIR HANDLER UNIT

CONDUIT WITH PULL CORD

C.B. CIRCUIT BREAKER

EC EMPTY CONDUIT WITH PULL CORD

E.C. ELECTRICAL CONTRACTOR

EWC ELECTRIC WATER COOLER

DWH ELECTRIC WATER HEATER

FACP FIRE ALARM CONTROL PANEL

FPM FUSE PER NAMEPLATE

LC LIGHTING CONTRACTOR

M.C. MECHANICAL CONTRACTOR

P.C. PLUMBING CONTRACTOR

U.G. UNDERGROUND

WP WEATHERPROOF

S.E. SERVICE ENTRANCE

EM EMERGENCY FIXTURE WITH BATTERY OR GEN. BACK-UP

ER EXISTING ITEM RELOCATED TO THIS LOCATION.

RL EXISTING ITEM TO BE RELOCATED.

RM EXISTING ITEM TO REMAIN.

RP EXISTING ITEM TO BE REPLACED.

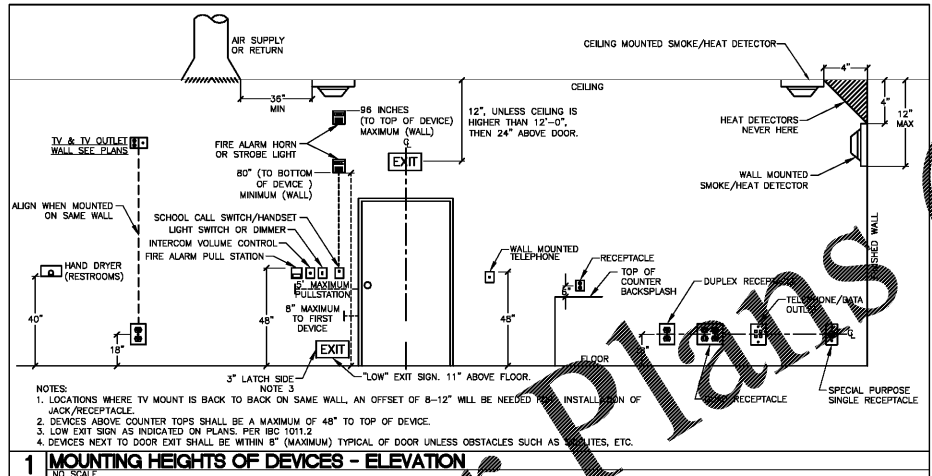
RV EXISTING ITEM TO BE REMOVED.

ISC RMS SYMMETRICAL SHORT CIRCUIT CURRENT RATING

AIC AMPERE INTERRUPTING CAPACITY (EQUIPMENT RATING)

ELECTRICAL SHEET INDEX

NUMBER	PLAN NAME
E001	ELECTRICAL SYMBOLS, LEGENDS, & NOTES
E002	ELECTRICAL SPECIFICATIONS
E003	ELECTRICAL PENETRATION DETAILS
E004	ELECTRICAL DETAILS
E005	ELECTRICAL DETAILS
E006	POWER RISER DIAGRAM
E007	ELECTRICAL PANEL SCHEDULES
E008	LIGHT FIXTURE SCHEDULE & NOTES
E010	SITE PLAN - ELECTRICAL
E011	DEMO PLAN - LIGHTING
E011	CEILING PLAN - LIGHTING
E011	DEMO PLAN - LIGHTING
E011	CEILING PLAN - LIGHTING
E011	DEMO PLAN - POWER
E011	FLOOR PLAN - POWER
E202	ROOF PLAN - POWER
E301	DEMO PLAN - SYSTEMS
E301	CEILING PLAN - SYSTEMS



adwarchitects
 environmentsforlife
 architecture planning interiors
 8 coliseum centre,
 2815 coliseum drive, suite 600
 charlotte, north carolina 28217
 tj 704 379 1919
 fj 704 379 1920
 www.adwarchitects.com



1927 South Tryon St., Suite 300, Charlotte, NC 28203
 150 Fayetteville St., Suite 520, Raleigh, NC 27601
 Phone: 704-399-1252 www.optimaengineering.com



SCO #16-15889-02A

**RICHMOND
COMMUNITY
COLLEGE**

LEE BUILDING
STUDENT SERVICES &
CAREER CENTER
VOL.2

BID DOCUMENTS

ELECTRICAL SYMBOLS,
LEGENDS, & NOTES

DATE 4-5-2019
 PROJECT NO 16063

REVISIONS

NO	DATE	DESCRIPTION:

THIS DRAWING IS THE PROPERTY OF ADW ARCHITECTS, P.A. AND SHALL NOT BE REPRODUCED OR COPIED IN WHOLE OR IN PART. IT SHALL NOT BE USED ON ANY OTHER PROJECT OR GIVEN TO ANY OTHER COMPANY OR AGENCY WITHOUT THE CONSENT OF ADW ARCHITECTS, P.A.



SEAL DATE 04/29/19

SHEET NUMBER **E001**
 1 OF 16
 OPTIMA # 17-0017

Order Plans

@

WWW