# 2012 NORTH CAROLINA **ENERGY CONSERVATION CODE**

COMMERCIAL ENERGY EFFICIENCY - ELECTRICAL SUMMARY

501.1 METHOD OF COMPLIANCE	NC SPECIFIC COMCHECK 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 WRED 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:

9,168 WATTS SPECIFIED

85 % 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 61,200 WATTS ALLOWED

505.6.1 - EXTERIOR BUILDING GROUNDS LIGHTING:

LAMPS OPERATING AT GREATER THAN 100 WATTS FOR EXTERIOR BUILDING GROUNDS LUMINARIES HAVE A MINIMUM EFFICACY OF 60 LUMENS PER WATT, EXCEPT WHERE EXEMPT.

☐ NOT APPLICABLE

505.6.2 - EXTERIOR BUILDING LIGHTING POWER (NON-EXEMPT): NOT APPLICABLE

TOTAL CONNECTED EXTERIOR LIGHTING POWER:

1,204 WATTS SPECIFIED TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:

2,040 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

PROJECT NOTES:

1. SEE DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.

OTHERWISE NOTED.

2. ALL DEVICES (SWITCHES AND RECEPTACLES) SHALL BE GRAY AND EMERGENCY SHALL BE ORANGE. COVER PLATE SHALL BE 302 STAINLESS STEEL ALL COVER PLATES IN MASONRY WALLS SHALL BE JUMBO PLATES.

3. DEVICE BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS UNLESS OTHERWISE NOTED.

4. ALL FIRE ALARM SHALL BE IN METALLIC CONDUIT INNESS OTHERWISE OF STAIL BY DEVELOPED STEED.

5. ALL LOW VOLTAGE CABING SHALL BE PLENUM \$10.00.

6. ALL PLAN DRAWINGS SHALL SUPERCEDE SPECIMON WHEN LANS SPECIFICATIONS ARE IN COMPILET.

9. ALL WALL MOUNTED OCCUPANC BE PROVIDED WITH A GROUNDEI 10. ALL PANELBOARDS SHALL BE PINEC 408.4. SPARE CIRCUIT BREAPOSITION.

**DEVICES AND PATHWAYS** 

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

 $\nearrow$  WIRING SYSTEM CONCEALED IN OR UNDER SLAB OR UNDERGROUND.

wiring system exposed

O CONDUIT TURNED UP TO FLOOR ABOVE.

CONDUST TURNED DOWN TO FLOOR BELOW.

BRANCH 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" SOUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING. DUPLEX RECEPTACLE, 20 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT.) HUBBELL 5352, OR EQUAL.

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

QUAD RECEPTACLE. TWO NEMA 5-20R DUPLEX RECEPTACLES.

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

GROUND FAULT RECEPTACLE. NEMA 5-20R DUPLEX. ALL RECEPTACLES 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 #WP1020 (CLEAR) OR EQUAL.

DUPLEX RECEPTACLE, 20 AMP, 120 VOLT (USE 20 AMP FOR SINGLE RECEPTACLE ON A CIRCUIT.) COOPER 5352, OR EQUAL. T.V. RECEPTACLE MOUNTED AT 88 AFF.

- SPD SURGE PROTECTION DEVICE (SPD); SEE DETAIL

SPECIAL OUTLET. SEE PLANS. <u>M</u>-

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

GROUNDING BAR PER DIAGRAM.

#### PANELS. DISCONNECTS

FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER, WITH OVERLOAD PROTECTIO

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/FUSE SIZE. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.

CIRCUIT BREAKER. NUMERALS INDICATE RATING. NEMA 1 ENCLOS UNLESS OTHERWISE NOTED.

PLYWOOD TELEPHONE BACKBOARD. SIZE AS INDICATED N RISER

PANELBOARD. SEE SCHEDULE FOR MOUNTING. TO

CONNECTION TO MOTOR. STARTER PROVIDE OTHERWISE NOTED.

CR

(DC)

CONDUIT TO LOCAL ACCESSIBLE

## **TELECOMMUNICATIONS**

TELE/DATA OUTLET ABOVE COUNTER OR HEIGHT SPECIFIED. 1" EC TO ABOVE NEAREST ACCESSIBLE CELLING 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 CEIUNG 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.

# SYMBOL SCHEDULE

#### FIRE ALARM

FACP FIRE ALARM CONTROL PANEL WITH LOCAL SMOKE DETECTOR

FIRE ALARM REMOTE ANNUNCIATOR, PROVIDE BOX AS REQUIRED PER MANUFACTURER RECOMMENDATION, PROVIDE 1°C CONDUIT FOR CABLING. RA

F FIRE ALARM MANUAL STATION.
PROVIDE PROTECTION DEVICE

(SD) CEILING MOUNTED SMOKE DETECTOR. FA VENDOR PROVIDED.

CEILING MOUNTED HEAT 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.

(CO) CEILING MOUNTED CARBON MONOXIDE DETECTOR (CENTRAL SYSTEM CONNECTED)

SPRINKLER SYSTEM FLOW SWITCH.

TS SPRINKLER SYSTEM TAMPER SWITCH.

FS

SD

 $\overline{\mathbb{M}}$ 

TVH

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

MAGNETIC DOOR HOLDER, PROVIDED BY GENERAL CONTR, INSTALLED BY ELEC. CONTR, PROVIDE A SMOKE DETECTOR WITHIN 5 FT. OF BOTH SIDES OF DOORS TO LOCALLY ACTIVATE DOOR WYDON SMOKE SIGNAL. DH

ADA COMPLIANT WALL MOUNT FIRE ALARM HORN WITH STROBE LIGHT, 15CD UNLESS OTHERWISE NOTED. WHITE FINISH.\*\* EX

Q

ADA COMPLIANT CEILING MOUNTED FIRE ALARM HORN STROPE UNLESS OTHERWISE NOTED. WHITE FINISH.\*\* 15cd, EXI

ADA COMPLIANT CEILING MOUNTED FIRE ALARM STROBE LIGHT, 1 OTHERWISE NOTED. WHITE FINISH. Ø

R DUCT DETECTOR REMOTE INDICATING LIGHT

ADA COMPLIANT FIRE ALARM MINI HORN. WH

ADA COMPLIANT CEILING MO (SPX)

TED FIRE ALARM SPEAF HITE FINISH.

IRE ALARM SPEAKER STROBE LIGHT, 15cd,

SLEEPING ROOMS SHALL BE SUBJECT TO LOW UARE WAVE 520HZ TONE COMPLATIBLE WITH NFPA 72 CODES AND REQUIREMENTS.

# SPECIAL SYSTEMS

FLUSH-MOUNTED CEILING SPEAKER.

WALL-MOUNTED SPEAKER.3/4" CONDUIT TO LOCAL CABLE TRAY

SEE TV DETAIL FOR TYPE AND REQUIREMENTS. MINIMUM 1"

#### **ARRREVIATIONS**

+42"	DIMENSION INDICATES HEIGHT ABOVE FINISHED FLOOR AT WHICH CENTER OF DEVICE IS TO MOUNTED. SEE PLANS.
3R	NEMA 3R
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLER UNIT
С	CONDUIT WITH PULL CORD

C.B. CIRCUIT BREAKER EMPTY CONDUIT WITH PHILL CORD ELECTRIC WATER COOLER ELECTRIC WATER HEATER FUSE PER NAMEPLATE LIGHTING CONTACTOR MECHANICAL CONTRACTOR

PLUMBING CONTRACTOR

UNDERGROUND S.E. SERVICE ENTRANCE

EMERGENCY FIXTURE WITH BATTERY OR GEN. BACK-UP EXISTING ITEM RELOCATED TO THIS LOCATION. EXISTING ITEM TO BE RELOCATED.

EXISTING ITEM TO REMAIN EXISTING ITEM TO BE REMOVED. RMS SYMMETRICAL SHORT CIRCUIT CURRENT

AMPERE INTERRUPTING CAPACITY (EQUIPMENT RATING)

# 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 

FLUORESCENT OR LED STRIP FIXTURE

0 FLUOR., LED OR H.I.D. LIGHTING FIXTURE.

Ю FLUORESCENT OR LED FIXTURE WITH EMERGENCY BATTERY BALLAST OR PROVIDE 1100 LUMEN INVERTER RATED FOR 90 MINUTE OPERATION. SEE SCHEDULE FOR FIXTURE TYPE, EMERGENCY DEVICE SHALL SUPPLEMENT

FLUORESCENT OR LED DOWNLIGHT WITH AN EMERGENCY BATTERY BAL DRIVER, BASED ON 1100 LUMEN INVERTER (SEE SCHEDULE FOR FIXTURE) MAXIMUM.) EMERGENCY DEVICE SHALL SUPPLEMENT

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

4

JP, SEE FIXTUR

TERIOR EMERGENCY LAST OR DRIVER, PROVIDE HEAD POLE FIXTUR AXTURE SCHEDULE.

HEAD POLE RE. SEE FIXTURE SCHEDULE.

LE TOP FIXTURE. SEE FIXTURE SCHEDULE.

BLE 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 & SYMOUR.

SWITCH, 20 AMP, 120/277 VOLT, COOPER AH 1221, OR EQUAL BY EVITON, AND PASS & SEYMOUR.

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

2-HR TIMER SWITCH, 20 AMP, 120/277 VOLT, EQUAL TO INTERMATIC FF SERIES 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 SRIGE GANG TIMM 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. TYPE DOUBLE POLE/DOUBLE THROW MOMENTARY-ON ACTUATION SWITCH, PROVIDE JUNCTION BOX AND JUMPER FROM LOCAL LIGHTING CIRCUIT TO LOW VOLTAGE TRANSFORMER/MOTOR ON TUBULAR SKYLIGHT. PROVIDE 20 GAUGE (4) CONDUCTOR CABLE IN 3/4°C FROM SWITCH TO BAFFLE CONTROLLER. PROVIDE 20 GAUGE JUMPER FROM EACH SUCCESSIVE CONTROL UNIT TO DAISY CHAIN MULTIPLE SKYLIGHT BAFFLES.

INDICATES TWO LEVEL SWITCHING. SWITCH OUTER TWO LAMPS OF FIXTURES TOGETHER AND THE INNER LAMP(S) TOGETHER.

CEILING MOUNTED OCCUPANCY SENSOR, DUAL TECHNOLOGY, SENSOR SWITCH CM PDT 10, WATT STOPPER #DT-300, COOPER OAC-DT OR EQUAL. ©от CEILING MOUNTED OCCUPANCY SENSOR. INFRARED TECHNOLOGY, WATT STOPPER #CI-300-1 OR EQUAL. OC)R

WALL MOUNTED OCCUPANCY SENSOR AND SWITCH. INFRARED TECHNOLOGY WITNEUTRAL, WATT STOPPER #WS-250, OR EQUAL BY SENSOR SWITCH, AND LEVITON.

LIGHT LEVEL SENSOR WATT STOPPER LS-101 OR APPROVED EQUAL

69 PHOTO CONTROL, EXTERIOR, MOUNT FACING NORTH.

CEILING MOUNTED OCCUPANCY SENSOR POWER PACK, SENSOR SWITCH PP-20, WATT STOPPER #BZ-100, COOPER SP-20, OR EQUAL. pp

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REVISIONS

PROJECT

electrical symbols & legend EO. 1