


EXISTING ELECTRICAL FOR ROOF TOP UNITS (ROOF PLAN)
 SCALE: 1/8" = 1'-0"

CERTIFICATE OF AUTHORIZATION #: 26074
 P.E. #: 14170
 12355 SW 129 CT, SUIT 4
 MIAMI, FLORIDA 33186
 PHONE: (305) 251-9177
 FAX: (305) 251-8372

ALFREDO M. CARBONELL, P.E. Inc.

Reviews:

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Client: **TOWN OF SURFSIDE**
 Project: **TOWN HALL BUILDING NEW CHILLED WATER SYSTEM**
 9293 HARDING AVE. SURFSIDE, FL 33154
 PROPERTY FOLIO NUMBER:

Plan Description:
**ELECTRICAL PLAN
 ROOF PLAN
 EXISTING RTU'S**

Seal:
 FLA. REG. P.E. # 14170

Designed by: **ALFREDO M. CARBONELL**
 Drawn by: **ERICK FLORIDO**
 Revised & Stamped: **ALFREDO M. CARBONELL**
 Date: **MAY. 25 . 2014**
 Scale:
 Job No.: **2014-05.25**

Sheet:
E1
 1 of 5 Sheets

SCOPE OF WORK

- EXISTING RTU'S TO BE REPLACED BY A CHILLED WATER SYSTEM AND 5 FAN COIL UNITS(FCU).
- INSTALL NEW 450 AMP SERVICE FOR THE CHILLER WITH DISCONNECT IN ELECTRICAL ROOM
- POWER TO BE PROVIDED TO NEW FAN COIL UNITS ON ROOF AND CHILLER.
- EXISTING WIRES FROM PANEL M TO EXISTING RTU'S TO BE REUSED WITH NEW DISCONNECTS ON THE ROOF FOR EACH NEW FCU.
- ALL SHOWN LOADS X NAMEPLATE RATING OF GIVEN EQUIPMENT AND LIGHTING. EQUIPMENT SCHEDULE IS PROVIDED ON FLOOR PLAN SHEET (A2).
- ALL WORK TO BE DONE BY NEC 2008 IN WORKMAN LIKE MANNERS USING EMT. ENT MC CABLE OR OTHER APPROVED METHOD.
- NO MORE THAN 3 CURRENT CARRYING CONDUCTORS IN ANY BRANCH CIRCUIT RACEWAY.
- NO COMMON NEUTROS ALLOWED.
- SYSTEM 120/240V - 3Ø - 4 WIRES. USE COLOR CODE BLACK-RED-BLUE.
- LIGHTING FIXTURES AND SWITCHES ARE EXISTING IN OFFICE AREA AND NEW ON BAKERY AREA. NEW EM'S & EXIT SIGNS. SEE PLAN.

NOTES ADDRESSING COMMENTS:

- SWITCHBOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS LOCATED INTO THIS FACILITY SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF "POTENTIAL ELECTRIC ARC FLASH HAZARD". THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT. REFER TO ANSI Z535.4-1998. PRODUCT SAFETY SIGNS AND LABELS FOR GUIDELINES ON THE DESIGN OF THE SIGN OR LABEL.
- FLUORESCENT LUMINARIES (FIXTURES) THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAINS BALLAST(S) THAT CAN BE SERVICED IN PLACE OR BALLASTED LUMINARIES THAT SUPPLIED FROM MULTIWIRED BRACH CIRCUITS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE SHALL HAVE A DISCONNECTING MEANS EITHER INTERNAL OR EXTERNAL TO EACH LUMINAIRE, TO DISCONNECT SIMULTANEOUSLY FROM THE SOURCE OF SUPPLY ALL CONDUCTORS OF THE BALLAST, INCLUDING THE GROUNDED CONDUCTOR IF ANY. THE LINE SIDE TERMINALS OF THIS DISCONNECTING MEANS SHALL BE GUARDED. THE DISCONNECTING MEANS SHALL BE LOCATED SO AS TO BE ACCESSIBLE TO QUALIFIED PERSONS BEFORE SERVICING OR MAINTAINING THE BALLAST.
- WITHIN 30 DAYS OF ACCEPTANCE RECOD DRAWINGS OF INSTALLATIONS SHALL BE PROVIDED TO THE OWNER.
- ALL OPERATION AND MAINTENANCE MANUALS INCLUDING NAMES AND ADDRESSES OF AT LEAST ONE QUALIFIED SERVICE AGENCY SHALL BE PROVIDED TO THE OWNER.
- ALL OUTLETS IN WET LOCATIONS SHALL BE WEATHER RESISTANT GFCI

TYPE: GE TL4242C
 SERVICE: 120/208 VOLTS, 3Ø, 4 WIRES
 MOUNTING: FLUSH MOUNTED, + INDICATES DEMAND NEC 220.20
 POLES: [2] x 24 POLES = 48 POLES

MAIN BUS: 200 AMPS
 NEUTRAL: FULL
 A.I.C: 10'000 AMP

EXISTING PANEL M

| O.K.T. N° | REMARKS | POLE TRIP | WIRING RACEWAYS | LOAD IN KW. | | | | LOAD IN KW. | | | | WIRING RACEWAYS | POLE TRIP | REMARKS | O.K.T. N° | | | | |
|-------------|---------------------|-----------|-----------------|-------------|-----|-----|----|-------------|-----|-----|-----|-----------------|-----------|---------------------------------|-----------|------------|--|--|--|
| | | | | A Ø | B Ø | C Ø | ØN | ØN | C Ø | B Ø | A Ø | | | | | | | | |
| 1 | | | | 8.5 | | | | | | | | | | | 2 | | | | |
| 3 | RTU 1 | 3P-100 | #2-1½" | 8.5 | | | | | | 5.6 | | #4-1½" | 3P-70 | RTU 2 12 TON | 4 | | | | |
| 5 | | | | | 8.5 | | | | 5.6 | | | | | | 6 | | | | |
| 7 | | | | 5.6 | | | | | | 11 | | | | | 8 | | | | |
| 9 | RTU 3 12 TON | 3P-70 | #4-1½" | 5.6 | | | | | 11 | | | #2-1½" | 3P-125 | RTU 4 21 TON | 10 | | | | |
| 11 | | | | | 5.6 | | | | | | | | | | 12 | | | | |
| 13 | | | | 4 | | | | 1.5 | | 1.5 | | #10-¾" | 1P-20 | VAV CONTROL CKT 1 ST FL | 14 | | | | |
| 15 | RTU 5 8 TON | 3P-60 | #6-1" | 4 | | | | 1.5 | | 1.5 | | #10-¾" | 1P-20 | VAV CONTROL CKT 1 ND FL | 16 | | | | |
| 17 | | | | | 4 | | | | 2 | | | #10-¾" | 2P-30 | I.W.H. MANAGER'S OFFICE 2ND FL. | 18 | | | | |
| 19 | | | | 3 | | | | | | 2 | | #10-¾" | 1P-30 | JANITOR BY ELEVATOR | 20 | | | | |
| 21 | JANITOR UNDER STAIR | 3P-30 | #10-¾" | 3 | | | | 1.5 | | 1.5 | | #10-¾" | 1P-30 | | 22 | | | | |
| 23 | | | | | 3 | | | 0.5 | | 0.5 | | #10-¾" | 1P-20 | | EF-2 | | | | |
| 25 | EF-1 | 1P-20 | #10-¾" | .7 | | | | .7 | | .7 | | #10-¾" | 1P-20 | | EF-4 | | | | |
| 27 | EF-3 | 1P-20 | #10-¾" | .7 | | | | .7 | | .7 | | #10-¾" | 1P-20 | | EF-11 | | | | |
| 29 | EF-10 | 1P-20 | #10-¾" | .7 | | .7 | | .7 | | .7 | | #10-¾" | 1P-20 | | EF-8 | | | | |
| 31 | EF-12 | 1P-20 | #10-¾" | .7 | | .7 | | .7 | | 1.5 | | #10-¾" | 1P-20 | | 30 | | | | |
| 33 | EF-9 | 1P-20 | #10-¾" | .7 | | .7 | | .7 | | 1.5 | | #10-¾" | 2P-20 | AC-1 NON CONCURRENT 1.5 KW HTR | 34 | | | | |
| 35 | | | | | 1.9 | | | | | | | | | | 36 | | | | |
| 37 | C.U.-1 | 2P-20 | #10-¾" | 1.9 | | | | | | | | | | | 38 | | | | |
| 39 | | | | | | | | | | | | | | | 40 | | | | |
| 41 | | | | | | | | | | | | | | | 42 | | | | |
| 43 | | | | | | | | | | | | | | | 44 | | | | |
| 45 | SPACE | | | | | | | | | | | | | SPACE | 46 | | | | |
| 47 | SPACE | | | | | | | | | | | | | SPACE | 48 | | | | |
| TOTAL LOAD: | | | | Aø: 46.7 KW | | | | Bø: 44.3 KW | | | | Cø: 43.5 KW | | | | N: 10.6 KW | | | |

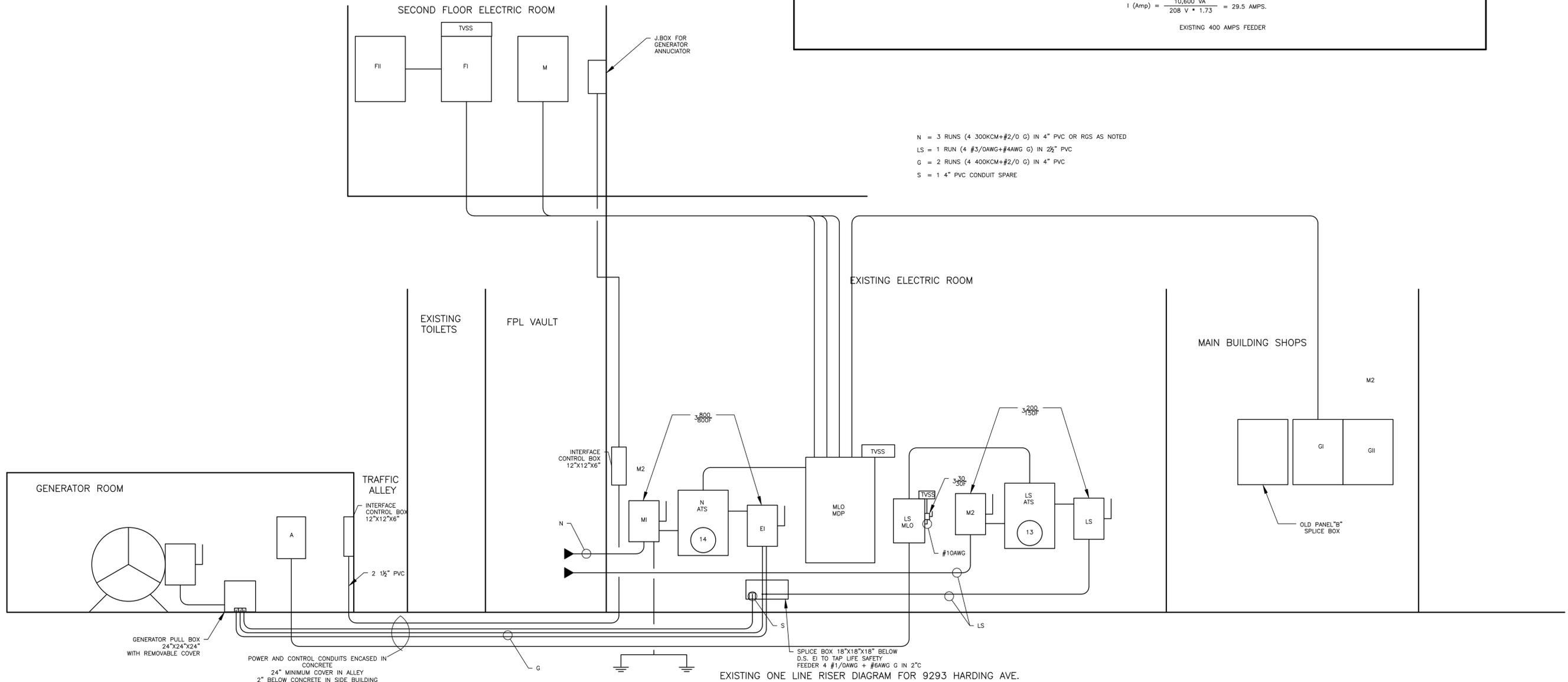
FED BY 4 #500KCM IN 3½" CONDUIT AND 1 #3AWG G EXISTING FROM MDP

LOAD CALCULATION
 TOTAL LOAD: 134,500 VA

NEUTRAL LOAD CALCULATION
 TOTAL NEUTRAL LOAD: 10,600 VA

EXISTING 400 AMPS FEEDER

NOTES:
 1. SHUNT TRIP CIRCUIT BREAKER WITH RELAY AT 120V OR PER DETERMINE BY ANSUL KITCHEN FIRE SUPPRESSION EQUIPMENT INSTALLER.
 2. ALL UNDER COUNTER CONVENIENCE RECEPTACLES USED FOR SMALL BLENDERS, MIXERS, SHAKERS, ETC.
 3. ALL CEILING RECEPTACLES ON FRONT WINDOWS USED FOR POSSIBLE SMALL/COMPACT NEON SIGNS BEER-WINE, ETC.



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 FAX: (305) 251-6372

ALFREDO M. CARBONELL, P.E., INC.

Reviews:

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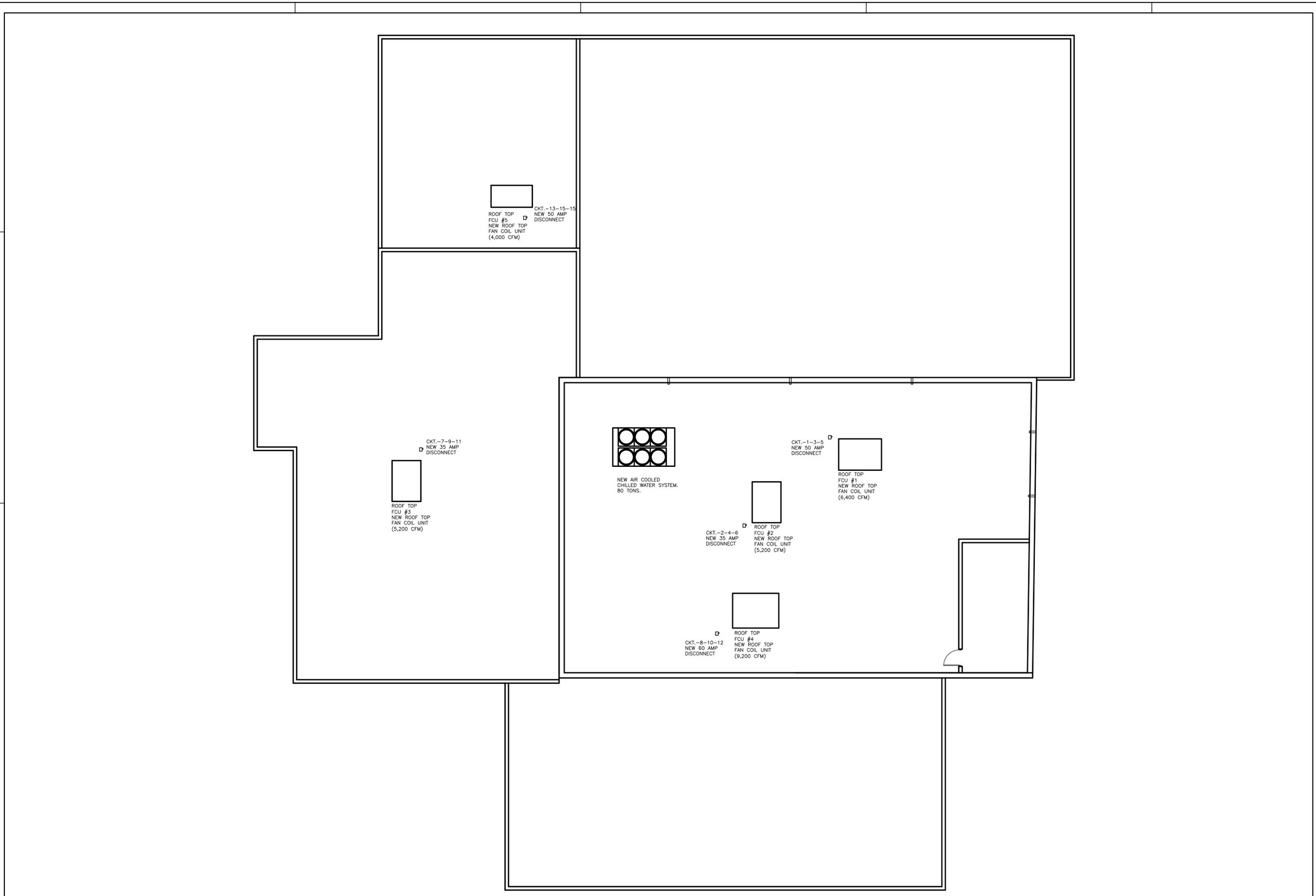
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 Project: TOWN HALL BUILDING NEW CHILLED WATER SYSTEM
 9293 HARDING AVE. SURFIDE, FL 33154
 PROPERTY FOLIO NUMBER:

Plan Description:
 EXISTING ELECTRIC PANEL SCHEDULES, RISER DIAGRAM AND NOTES

FLA. REG. P.E. # 14170

Designed by: ALFREDO M. CARBONELL
 Drawn by: ERICK FLORIDO
 Revised & Stamped: ALFREDO M. CARBONELL
 Date: MAY. 25 . 2014
 Scale: NOT TO SCALE
 Job N°: 2014-05.25

Sheet:
E2
 2 of 5 Sheets



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Plan Description:
**ELECTRICAL PLAN
 NEW UNITS ROOF PLAN**

Seal:
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Designed by: ALFREDO M. CARBONELL
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 Revised & Stamped: ALFREDO M. CARBONELL
 Date: MAY. 25 . 2014
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Sheet:
 3 of 5 Sheets

ELECTRICAL AIR COOLED CHILLED WATER SYSTEM NEW UNITS ROOF PLAN
 SCALE: 1/8" = 1'-0".

SCOPE OF WORK

- EXISTING RTU'S TO BE REPLACED BY A CHILLED WATER SYSTEM AND 5 FAN COIL UNITS(FCU).
- INSTALL NEW 450 AMP SERVICE FOR THE CHILLER WITH DISCONNECT IN ELECTRICAL ROOM
- POWER TO BE PROVIDED TO NEW FAN COIL UNITS ON ROOF AND CHILLER.
- EXISTING WIRES FROM PANEL M TO EXISTING RTU'S TO BE REUSED WITH NEW DISCONNECTS ON THE ROOF FOR EACH NEW FCU.
- ALL SHOWN LOADS X NAMEPLATE RATING OF GIVEN EQUIPMENT AND LIGHTING. EQUIPMENT SCHEDULE IS PROVIDED ON FLOOR PLAN SHEET (A2).
- ALL WORK TO BE DONE BY NEC 2008 IN WORKMAN LIKE MANNERS USING EMT. ENT MC CABLE OR OTHER APPROVED METHOD.
- NO MORE THAN 3 CURRENT CARRYING CONDUCTORS IN ANY BRANCH CIRCUIT RACEWAY.
- NO COMMON NEUTROS ALLOWED.
- SYSTEM 120/240V - 3Ø - 4 WIRES. USE COLOR CODE BLACK-RED-BLUE.
- LIGHTING FIXTURES AND SWITCHES ARE EXISTING IN OFFICE AREA AND NEW ON BAKERY AREA. NEW EMS & EXIT SIGNS. SEE PLAN.

NOTES ADDRESSING COMMENTS:

- SWITCHBOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS LOCATED INTO THIS FACILITY SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF "POTENTIAL ELECTRIC ARC FLASH HAZARD". THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT. REFER TO ANSI Z535.4-1998. PRODUCT SAFETY SIGNS AND LABELS FOR GUIDELINES ON THE DESIGN OF THE SIGN OR LABEL.
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 POLES: [2] x 24 POLES = 48 POLES

EXISTING PANEL M WITH NEW FCU'S

NOTE: REFER TO EQUIPMENT SCHEDULE ON SHEET A2.
 MAIN BUS: 200 AMPS NEUTRAL: FULL
 A.I.C: 10'000 AMP

| OCT. N° | REMARKS | POLE TRIP | WIRING RACEWAYS | LOAD IN KW. | | | | LOAD IN KW. | | | | WIRING RACEWAYS | POLE TRIP | REMARKS | OCT. N° |
|---------|---------------------|-----------|-----------------|-------------|-----|-----|----|-------------|-----|-----|-----|-----------------|-----------|---------------------------------|---------|
| | | | | A Ø | B Ø | C Ø | ØN | ØN | C Ø | B Ø | A Ø | | | | |
| 1 | | | | 3.3 | | | | | | | 2.3 | | | 2 | |
| 3 | NEW FCU 1 | 3P-50 | #2-1½" | | 3.3 | | | | | 2.3 | | #4-1½" | 3P-35 | NEW FCU 2 12 TON | 4 |
| 5 | | | | | | 3.3 | | | | | 4.4 | | | 6 | |
| 7 | | | | 2.3 | | | | | | | | | | 8 | |
| 9 | NEW FCU 3 12 TON | 3P-35 | #4-1½" | | 2.3 | | | | | 4.4 | | #2-1½" | 3P-60 | NEW FCU 4 21 TON | 10 |
| 11 | | | | | | 2.3 | | | 4.4 | | | | | 12 | |
| 13 | | | | 3.3 | | | | 1.5 | | 1.5 | | #10-¾" | 1P-20 | VAV CONTROL CKT 1 ST FL | 14 |
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| 17 | | | | | | 3.3 | | | | 2 | | #10-¾" | 2P-30 | I.W.H. MANAGER'S OFFICE 2ND FL. | 18 |
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| 29 | EF-10 | 1P-20 | #10-¾" | .7 | | .7 | | .7 | | .7 | | #10-¾" | 1P-20 | EF-8 | 30 |
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| 35 | C.U.-1 | 2P-20 | #10-¾" | 1.9 | | 1.9 | | | | | | | | | 36 |
| 37 | | | | | | | | | | | | | | | 38 |
| 39 | | | | | | | | | | | | | | | 40 |
| 41 | | | | | | | | | | | | | | | 42 |
| 43 | | | | | | | | | | | | | | | 44 |
| 45 | SPACE | | | | | | | | | | | | | SPACE | 46 |
| 47 | SPACE | | | | | | | | | | | | | SPACE | 48 |

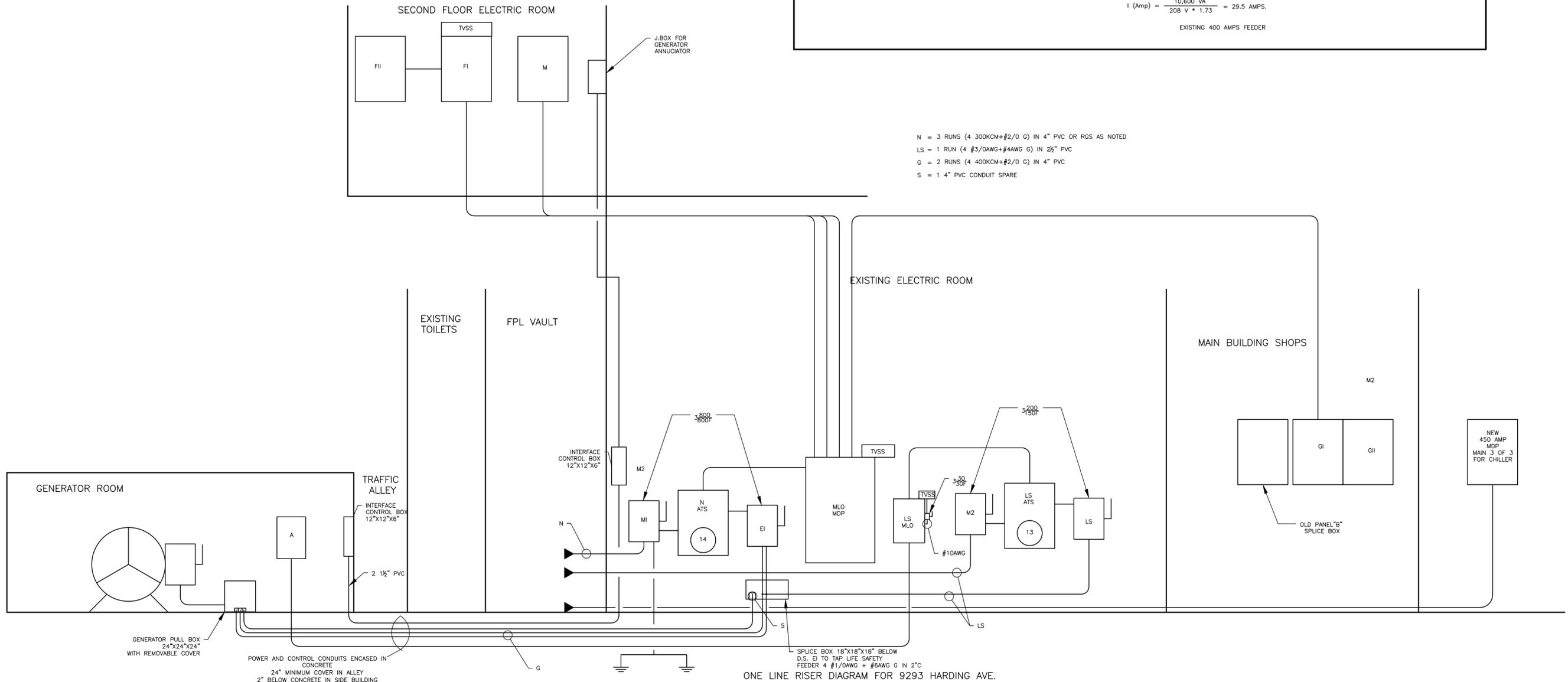
TOTAL LOAD: Aø: 27.6 KW Bø: 25.2 KW Cø: 24.4 KW N: 10.6 KW

FED BY 4 #500KCM IN 3½" CONDUIT AND 1 #3AWG G EXISTING FROM MDP

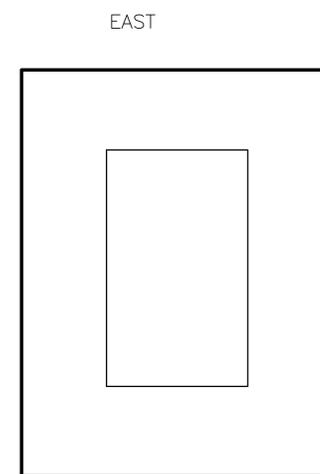
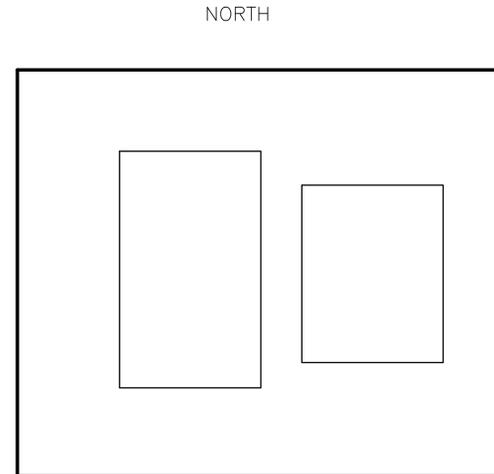
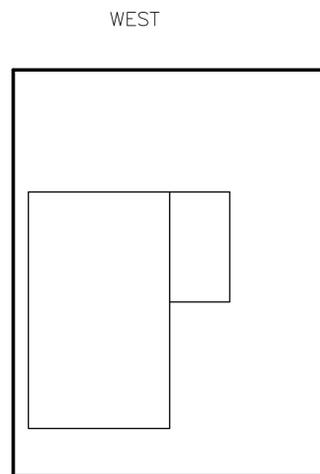
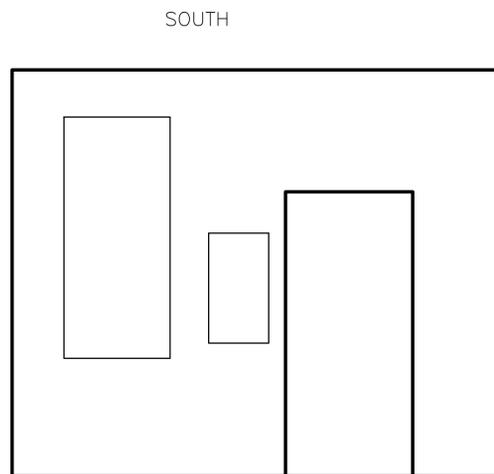
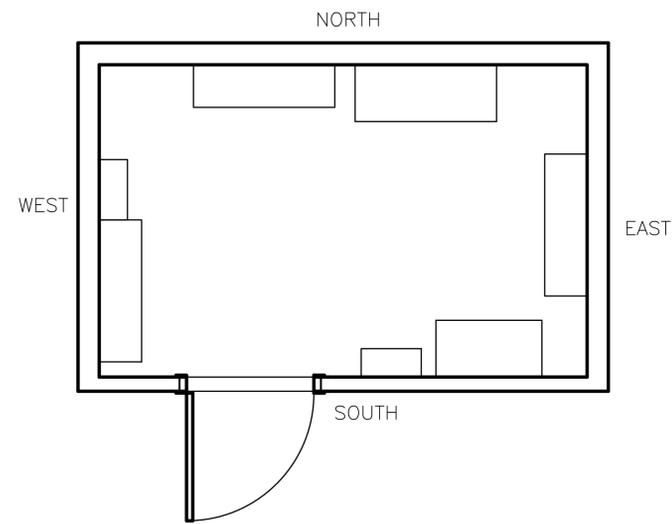
LOAD CALCULATION
 TOTAL LOAD: 77,200 VA
 $I (Amp) = \frac{77,200 VA}{208 V \times 1.73} = 214.5 AMPS.$

NEUTRAL LOAD CALCULATION
 TOTAL NEUTRAL LOAD 10,600 VA
 $I (Amp) = \frac{10,600 VA}{208 V \times 1.73} = 29.5 AMPS.$

EXISTING 400 AMPS FEEDER



ELECTRICAL



ELECTRICAL METER ROOM
 SCALE: 1/2" = 1'-0"

CERTIFICATE OF AUTHORIZATION #: 26074
 P.E. #: 14170
 12355 SW 129 CT, SUIT 4
 MIAMI, FLORIDA 33186
 PHONE: (305) 251-9177
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ALFREDO M. CARBONELL, P.E., Inc.

Reviews:

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Client: **TOWN OF SURFSIDE**
 Project: **TOWN HALL BUILDING NEW CHILLED WATER SYSTEM**
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 NEW UNITS ROOF PLAN**

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Designed by: **ALFREDO M. CARBONELL**
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 5 of 5 Sheets