Forsyth County Procurement

Donna Kukarola, CPPO, CPPB, Procurement Director

September 5, 2018

ADDENDUM #1

Bid 18-117-1500

For: **Providing all equipment, materials and labor to renovate various suites within the Forsyth County Administration Building.**

This addendum supersedes and supplements all portions of the bidding documents and becomes part of the contract documents for the above-referenced project.

Where any item called for in the specifications or indicated on the drawings is supplemented hereby, the original requirements shall remain in effect.

Where any original item is amended, voided or superseded hereby, the provision of such item not so specifically amended, voided or superseded shall remain in effect.

Clarifications from Mandatory Pre-Bid 8/30/18:

1. Sign-in sheet from pre-bid is posted.
2. Premise for the bid is that the Voter Registration department moved out to a standalone location thus providing the County the opportunity to revise space to allow more daylight for staff and to improve flow of offices / conference room. The County Commissioner offices are not moving, they of course, are aware of this work but at times will still be on site.
3. Work hours to be coordinated with Capital Projects Manager, following are guidelines:

- Normal work hours will be permitted between 7am to 7pm Monday through Friday. All work hours must be coordinated by the general contractor with Capital Projects Manager the on a weekly basis, one week in advance. Work schedule outside of normal work hours must be approved by the Capital Projects Manager. Changes to the schedule need to be coordinated by the general contractor with Capital Projects Manager at least 24 in advance. Early/Late work hours and Saturday work may be scheduled pending approved by the Capital Projects Manager. No regular work on Sundays (exceptions may be made for highly critical activities).
- All work must be performed while an approved representative of the county is present in the building. Construction personnel are not permitted in the building alone. The general contractor will not leave the work area unattended unless the work area has been secured from access by others and is responsible to communicate early completion of a given days activities with the Capital Projects Manager. From time to time, the Capital Projects Manager may approve an alternate county employee to be the point of contact and be present in the building during work activities.
- Any work penetrating the floor or walls or performed from outside of the Board of Commissioners Suite renovation must be completed on nights and/or Saturdays and must be cleaned/restored to the original condition upon completion of each shift. The owner reserves the right to deduct the cost of

cleaning services pertaining to these activities from the general contractor's contract, as determined necessary by the owner's sole discretion.

- The general contractor is responsible to coordinate its work schedule with the county meeting calendar. No work permitted after 5pm on day that public meetings are held in the Administration Building. The county meeting calendar is available on the County web site. The county meeting calendar is updated from time to time and the general contractor is responsible to review the county calendar as frequently as necessary to coordinate the work schedule.

4. Mock up for millwork requirement has been removed.
5. The new ceilings are to match existing ceiling heights.
6. One elevator may be used during construction, it must be protected if used to transport equipment/materials
7. General Contractor will be required to pull and pay for the permit (City of Cumming)
8. General Contractor to provide conduit and junction boxes for low voltage, County will contract separately for the low voltage requirements.
9. Construction dumpster can be place on site, final location to be coordinated with Capital Projects Manager.
10. Any work creating dust is to be closed off and HVAC return are to be protected.
11. Office trailer is not required.
12. The existing ceiling is a diagonal ceiling grid, this will need to be terminated and then new ceiling grid started (for new office spaces)
13. Current deck height: floor to deck clearance is 16' on each level. Plenum space above the ceiling appears to be 6' to 8' in height.
14. It is anticipated work to be completed in two phases, Phase 1 being the currently empty space to be built out, and then Phase 2 the existing large conference room demolition and renovation.
15. Attached are the electrical plan revisions to be used in submitting a bid.
16. Specification Section 09 3000 Tiling is attached.

End of Addendum #1

SECTION 09 3000

TILING

PART 1 - GENERAL

1.1 SUBMITTALS:

A. Shop drawings: Submit for tile pattern work indicated. Indicate control and expansion joint locations. Include tile layout, setting bed thicknesses, joint widths, control and expansion joint sizes and sections.

B. Product data: Submit manufacturer's printed product description and installation instructions for each type of tile and for use of manufactured mortars, grouts, adhesives, sealants, latex/polymer additives, waterproofing membrane, crack isolation membrane and accessory products. Include mortar and grout proportioning and mixing instructions for latex/polymer additives.

C. Samples; submit the following:

1. 1'-0" by 1'-0" panel of each type and color tile selected, grouted as specified.
2. Samples of each trim shape required.
3. 1'-0" length of threshold.
4. Samples of each accessory required.
5. Submit color samples of sealant materials for Architect's approval.

D. Master grade certificates: Indicate that materials conform to ANSI A137.1, ANSI A137.2, and ANSI A137.3. Certificates shall indicate grade, kind of tile, identification for tile packages and name and location of project. Tile manufacturer shall issue certificates at time of shipping.

E. Submit written certification that waterproofing and crack isolation membranes are approved for use with specified mortars.

1.2 QUALITY ASSURANCE:

A. Applicable standards:

1. Standards of the following, as referenced herein:

a. American National Standards Institute (ANSI).
b. ASTM International (ASTM).
c. Marble Institute of America, Version VII (MIA).

2. Tile Council of North America (TCNA), "Handbook for Ceramic, Glass, and Stone Tile Installation," 2016 Edition.

B. Sole source: For each type of setting material and grouting material specified, only one brand shall be used throughout project.

1.3 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials in original containers with labels legible and intact, identifying brand name and contents.

1. Tile cartons shall be grade-sealed by manufacturer in accord with ANSI A137.1, ANSI A137.2 and ANSI A137.3, with grade seals unbroken.
2. Manufactured mortars, adhesives and grouts shall bear hallmarks certifying compliance with specified standards.

1.4 JOB CONDITIONS:

A. Environmental requirements:

1. For field-mixed mortar and grout, set and grout tile when ambient temperature is between 50EF. and 90EF. For temperatures outside of this range, contact manufacturer for written recommendations.
2. For manufactured mortar, adhesive and grout, comply with minimum temperature recommendations of manufacturer’s product data.

1.5 WARRANTY:

A. Setting/grouting system warranty: Provide setting/grouting manufacturer’s system warranty against bond failure, cracking and installation/material defects. Warranty period shall be 10 years, beginning at Date of Substantial Completion. Form of warranty shall be as included in Division 00.

B. Membrane warranty: Warrant waterproofing membrane and crack isolation membrane from defects in materials and workmanship, including leakage, for a period of five years, beginning at Date of Substantial Completion. Form of warranty shall be as included in Division 00.

1.6 MAINTENANCE:

A. Extra materials:

1. Provide 5% of installed total of each type, size and color of tile specified and 5% of each type, size and color of accessory, for Owner's maintenance.
2. Store tile and accessory units where indicated by Owner.

PART 2 - PRODUCTS

2.1 TILE, GENERAL:

A. Factory blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

B. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

C. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

D. Factory-applied temporary protective coating: Where indicated under tile type, protect exposed surfaces of tile against adhesion of mortar and grout by precoating with continuous film of release agent as recommended by mortar and grout manufacturer or a hot-applied petroleum paraffin wax. Do not coat backs or sides of tile surfaces.

E. FloorScore compliance: Tile for floors shall comply with requirements of FloorScore Standard.

2.2 TILE:

A. The basis of design for each type of tile is scheduled on drawings. Tile of similar characteristics, as manufactured by other acceptable manufacturers, may be submitted for Architect's acceptance. Acceptance is subject to compliance with specified requirements and Architect’s approval, as evidenced by specified submittals.

B. Ceramic tile; basis of design: As scheduled on drawings.

C. Porcelain tile; basis of design: As scheduled on drawings.

D. Porcelain tile:

1. Meeting ANSI A137.1, Section 4.1 Impervious Class, and Section 6.1 Table 10, Standard Grade.
2. Colors, sizes, finishes and thicknesses: As scheduled on the drawings.
3. Dynamic coefficient of friction (DCOF) for floor tile:

    a. Tested in accord with the DCOF AccuTest, and meeting ANSI A137.1 and recommendations of ADA Accessibility Guidelines.
    b. DCOF minimum: 0.42.

4. Trim shapes: Matching tile in color and size. Include coved base, coved bullnose base, bullnose caps, beads and corner units, as required.

E. Glazed wall tile:

1. Meeting ANSI A137.l, Section 4.1 Non-Vitreous Class P4, and Section 6.1 Table 9, Standard Grade; glaze as selected by Architect.
2. Colors, sizes, finishes and thicknesses: As scheduled on the drawings.
3. Furnish tile with edge spacer lugs.
4. Trim shapes: Matching tile in color and size. Include coved base, coved bullnose base, bullnose caps, beads and corner units, as required.

F. Accessories: Match wall tile in color and glaze; for thinset application. Include soap dishes without handles.

2.3 SETTING MATERIALS AND ACCESSORIES:

A. Portland cement mortar:

1. Materials:

a. Field-mixed mortar:

1) Portland cement: Meeting ASTM C150-12, Type I.
2) Sand: Meeting ASTM C144-11, clean and graded.
3) Latex/polymer additives: Undiluted polymer additives for field mixing. Additives shall be manufactured by or approved in writing by mortar and grout manufacturers.

b. Factory-blended mortar: Provide factory-blended mortar bed mix meeting ANSI A108.1 for thickset applications. Factory mix shall contain Portland cement, sand and latex/polymer additives.
c. Water: Clean, potable.
d. Mortar bed reinforcement: Welded wire mesh meeting ASTM A182-14b and ASTM A1064-14 (replaces A185-07), 2" by 2" by 16/16 wire.
e. Subdrainage: Stone aggregate meeting ASTM D1863-05(2011).

2. Proportions: Mix materials in accord with specified standards and ANSI A108.1.

B. Premium polymer-modified thinset mortar for floor tile with all dimensions less than 15":

1. Acceptable products:

a. Custom Building Products, ProLite Premium Mortar.
b. H.B. Fuller Construction Products, TEC IsoLight Crack Isolation Mortar.
c. Mapei Corp., UltraFlex 3.

2. Characteristics: Pre-sanded, polymer-modified Portland cement and additives meeting ANSI A118.4 and ANSI A118.11, minimum 200 psi shear strength for porcelain tile at 28 days.

C. LHT large and heavy tile (medium bed) premium polymer-modified Portland cement mortar for floor tile with any dimension 15" or larger:

1. Acceptable products:

a. Custom Building Products, ProLite Premium Mortar.
b. H.B. Fuller Construction Products, TEC 3N1 Performance Mortar.
c. Mapei Corp., Ultraflex LFT Mortar.

2. Characteristics: Pre-sanded, polymer-modified Portland cement and additives meeting ANSI A118.4, ANSI A118.11 and ANSI A118.15, minimum 400 psi shear strength for porcelain tile at 28 days.

D. Premium polymer-modified thinset mortar for walls:

1. Acceptable products:

a. Custom Building Products, Prolite Premium Mortar.
b. H.B. Fuller Construction Products, TEC 3N1 Performance Mortar.
c. Mapei Corp., UltraFlex LFT.

2. Characteristics: Non-sag, pre-sanded, polymer-modified Portland cement and additives meeting ANSI A118.4, ANSI A118.11 and ANSI A118.15, non-sag, minimum 400 psi shear strength for porcelain tile at 28 days.

E. Membrane waterproofing for thickset tile applications:

1. Acceptable product:

a. The Noble Co., Chloraloy.
b. Compotite Corporation, Blue Vinyl 40.
c. Custom Building Products, 40 Mil Vinyl Shower Pan Liner.
d. Oatey SCS, Oatey CPE Shower Pan Liner.

2. Characteristics: Minimum 40 mil thickness chlorinated polyethylene or PVC sheet.
3. Provide manufacturer's standard solvents, adhesives and accessories as required for complete installation with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

F. Crack isolation membrane for cracks and relocated joints:

1. Acceptable products:

a. The Noble Co., NobleSeal TS.
b. Compotite Corporation, Composeal Gold.
c. Custom Building Products, Crack Buster Pro Crack Prevention Mat Underlayment.
d. H.B. Fuller Construction Products, TEC Crack Isolation Sheet Membrane.

e. Mapei Corp., Mapeguard 2.

2. Characteristics: Minimum 30 mil thickness self-adhering, fabric reinforced, membrane meeting ANSI A118.12 High Performance; suitable for both full and partial coverage applications.
3. Provide manufacturer's standard solvents, adhesives and accessories as required for complete installation with a VOC content of 65 g/L or less.

2.4 GROUTING MATERIALS:

A. Epoxy grout for all floor tile and for wall tile in wet areas:

1. Acceptable products; standard epoxy grout:

a. Custom Building Products, CEG-Lite 100% Solids Commercial Epoxy Grout.
b. H. B. Fuller Construction Products, TEC AccuColor EFX Epoxy Special Effects Grout.
c. Mapei Corp., Kerapoxy or Kerapoxy CQ.

2. Characteristics: Two- or three-component, water-cleanable, 100% solids epoxy grout meeting ANSI A118.3, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D; standard colors selected by Architect.
3. Grout release agent: Provide grout manufacturer’s recommended grout release agent, for application prior to grouting tile to receive epoxy grout.

B. Premium rapid-setting high performance grout for joints from 1/16" to 1/2" wide:

1. Acceptable products:

a. Custom Building Products, Prism Color Grout.
b. H.B. Fuller Construction Products, TEC Power Grout.
c. Mapei Corp., Ultracolor Plus FA.

2. Characteristics:

a. Type: Cementitious grout meeting ANSI A118.7; sanded or unsanded as required by joint size.
b. Applications: Suitable for interior and exterior applications.
c. Compressive strength: Minimum 3,000 psi at 28 days.
d. Water absorption: Less than 5%.
e. Colors: Standard colors selected by Architect;

2.5 CONTROL AND EXPANSION JOINT MATERIALS:

A. Acceptable products:

1. BASF Building Systems, MasterSeal NP-2.
2. Custom Building Products, 100% Silicone Sealant.
3. Mapei Corp., Mapesil T.
4. Pecora Corp., Dynatrol II.
5. Tremco, Inc., Dymeric.

B. Characteristics:

1. Type; Contractor's option:

   a. Urethane: Two-part, polyurethane-based sealant with separate pre-packaged color agent; meeting ASTM C920-14a, Type M, Grade NS, Class 25, for use NT. VOC Content of not more than 250 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
   b. Silicone: One-part 100% silicone sealant meeting ASTM C920- 14, Shore A Hardness of 35+, Type S, Grade NS, Class 25, Use T, I, M, NT and G and ASTM C794-10 properties.

2. Colors: Standard colors selected by Architect;
3. Low-emitting interior sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Primer: Types recommended by sealant manufacturer's product data:

1. Sealant primers for nonporous substrates: 250 g/L.
2. Sealant primers for porous substrates: 775 g/L.

D. Backup material: Flexible, non-compressive foam type as recommended by sealant manufacturer's product data.

2.6 ACCESSORY MATERIALS:

A. Leveling compound:

1. Acceptable products:

   a. Custom Building Products, LevelQuik RS.
   b. H.B. Fuller Construction Products, TEC Level Set 200.
   c. Mapei, Ultraplan 1 Plus.

2. Characteristics: Fast-setting, self-leveling underlayment, minimum 28-day compressive strength of 4,000 psi.
3. Provide primers for leveling compound as recommended or required by leveling compound manufacturer's product data.

B. Marble thresholds: Meeting MIA Group A, honed finish, in sizes and shapes indicated; types and colors as selected by Architect.

C. Trim and transition profiles:

1. Acceptable manufacturers:

a. Basis of design: Schluter Systems L.P.
b. Custom Building Products.
c. Ceramic Tool Co. (CTC).

2. Floor edge protection and transition profiles:

a. Basis of design: Schluter, Schiene for straight edges. Schluter Schiene-Radius for radiused edges. Finish as selected by Architect.
b. Description: Profile with heights as required to conceal setting materials and tile edges. Profiles shall have an anchoring leg for embedment in setting material.

3. Coved floor to wall profile:

a. Basis of design: Schluter, DILEX-AHK. Finish as selected by Architect.
b. Description: Profile with heights as required to conceal setting materials and tile edges. Profiles shall have an anchoring leg for embedment in setting material.

D. Cleaning materials and methods for face of epoxy-grouted tile: Provide grout cleaning materials and methods in accord with manufacturer's product data.

E. Grout sealer:

1. Acceptable products:

a. Custom Building Products; TileLab SurfaceGard Penetrating Sealer.
b. Mapei Corp., UltraCare Penetrating Sealer.
c. Southern Grouts & Mortars, Inc; Grout Sealer-Premium Stain Blocker.
d. Summitville Tiles, Inc.; SL-99 SummitSeal II.

2. Characteristics: Clear sealer which will not change the color or appearance of grout.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Suitable substrates:

1. Concrete shall be fully cured and tested for moisture vapor emissions, humidity levels, and pH level as specified herein.
2. Gypsum board products shall be properly installed and receive a Level 2 Finish as specified in Gypsum Board section.

B. Conditions of surfaces to receive tile:

1. Surfaces shall be firm, dry, smooth, clean, free of oily or waxy films, and suitable for tile installation.
2. Grounds, anchors, plugs, hangers, bucks, electrical and mechanical work in or behind tile shall be installed prior to proceeding with tile work.

C. Correction of conditions: Prior to installation, correct conditions that do not meet specified requirements and flooring manufacture's requirements, or that may be detrimental to flooring installation.

3.2 PREPARATION:

A. Subfloor curing:

1. Concrete subfloors shall be moisture-cured or cured using a curing compound in accord with the requirements of the Concrete Finishing section.
2. If a curing compound has been used, Contractor shall verify that compound is compatible with flooring manufacturer's installation materials.
3. If the curing compound is not compatible, or if compatibility is unknown, Contractor shall remove curing compound by shot-blasting or other methods approved by floor finish manufacturer.

B. Concrete moisture vapor emission, humidity levels and pH testing: Perform one or more of the following tests, as required by flooring manufacturer's product data, using the following methods:

1. Moisture vapor emissions: Perform tests on subfloors in accord with ASTM F1869-11 calcium chloride test and flooring manufacturer's product data, to determine if surfaces are acceptable to receive specified flooring products.
2. Humidity level: Perform on subfloors in accord with ASTM F2170-11 in situ probe and flooring manufacturer's product data, to determine if surfaces are acceptable to receive specified flooring products.
3. Concrete pH level: Perform on subfloors to verify that surfaces are acceptable to receive specified flooring products.
4. Moisture mitigation: If moisture vapor and/or humidity level requirements cannot be achieved, install complete moisture mitigation system as recommended by mortar/grout manufacturer's product data.

C. Leveling compound:

1. Acceptable substrates: Concrete shall be fully cured, scarified, and shall accept water penetration. Test by sprinkling water on various areas of the substrate.

a. If water penetrates, then a good bond can be achieved.
b. If water beads, surface contaminants are present, and loss of adhesion may occur. Contaminants shall be mechanically removed before installation.
c. Concrete shall be free of efflorescence and not subject to hydrostatic pressure. Concrete slabs shall have a broomed or brushed finish to enhance the bond. Smooth concrete slabs shall be mechanically abraded to ensure a good bond.
d. Prior to leveling compound installation, prime surfaces with primer recommended by leveling compound manufacturer's product data.

2. Installation:

a. Priming: Apply primer in accord with manufacturer's product data.
b. Leveling compound: Install leveling compound in accord with manufacturer's product data. Install to thicknesses indicated on approved shop drawings.
c. Joints: If leveling compound spans any type of joint, bring joint through leveling compound by sawcutting leveling compound when it has reached walkable hardness.

D. Membrane waterproofing for thickset tile installations:

1. Install in accord with manufacturer's product data. Turn up membrane material at curbs and walls. Make joints and seams watertight, as recommended by manufacturer's product data.
2. Tie membrane into all drain flanges.
3. Perform water test just prior to setting bed installation. Check for leaks at seams and drains. Do not begin setting bed installation until membrane waterproofing is watertight.
4. Install tile in accord with TCNA F122/F122A-16 for waterproofed areas.

E. Crack isolation membrane for partial coverage:

1. Install crack isolation membrane in accord with manufacturer's product data and TCNA F125-Partial-16.
2. Partial-floor application: Install partial coverage over all substrate cracks and joints to be relocated.

3.3 GENERAL TILE INSTALLATION:

A. Install tile in accord with ANSI A108.1 through A108.17 and as specified herein.

B. Layout:

1. Center tile within areas to avoid tiles of unequal widths at opposite walls and tiles of less than 1/2 tile width.
2. Align tile joints straight and parallel to walls.

3. Align joints in floor, base and wall tile.
4. Locate accessories, control joints and expansion joints before installing tile.

C. Cutting and fitting:

1. Cut and drill tiles without damaging exposed tile face. Rub cut edges smooth with Carborundum stone.
2. Grind and fit tile at intersections, against trim and at built-in fixtures and accessories.
3. Fit tile around outlets, pipes, fixtures and fittings so that tile edges are concealed under applied escutcheons, collars or plates.
4. Miter coved and bullnose tile in corners or use special trim shapes to maintain uniform joint widths.

D. Joints:

1. Provide uniform joint widths equal to pre-spaced tile for ceramic tile and glazed wall tile.
2. Joint widths for tile shall be as scheduled or as selected by Architect.
3. In internal vertical corners of wall tile and base, and where tile abuts dissimilar materials, form joints using control joint filled with sealant in lieu of grout.

E. Movement joints:

1. Ascertain that control joints, expansion joints and other movement joints are located in accord with approved shop drawings, TCNA EJ171-16, and as approved in advance by Architect.
2. Provide movement joints through tile and setting bed.

    a. Field of floor movement joints shall be located as follows:

        1) Spacing indicated, but not less than the following:

            (a) Interior dry areas: 20'-0" to 25'-0" o. c. in each direction.
            (b) Interior wet areas: 8'-0" to 12'-0" o. c. in each direction.
            (c) Exterior: 8'-0" to 12'-0" o. c. in each direction.

        2) Over cold joints and saw-cut control joints.

    b. Provide movement joints at all perimeters.
    c. Width of joints shall match width of grout joints, except control joint shall be not less than 1/8" wide.
    d. Following tile work completion, seal joints in accord with TCNA EJ171-16, using specified sealant. Prime joints in accord with sealant manufacturer's product data.

3. Relocation of existing subfloor joints:

a. Where existing subfloor joint is required to be relocated, span joint by installing crack isolation membrane over existing joint.
b. Install crack isolation membrane in accord with manufacturer's instructions and TCNA F125-Partial-16, as herein specified.
c. Move joint location to the nearest grout joint.

F. Thresholds, transition strips and edge strips:

1. Marble thresholds: Install in accord with TCNA TR611-16. Seal joint between threshold and tile using sealant in lieu of grout.
2. Transition strips and edge strips: Install specified transition strips and edge profiles at floors, walls, and intersections with dissimilar materials, as shown on the drawings.

G. Tolerances:

1. Allowable lippage: Comply with ANSI A108.02 as follows:

a. Glazed wall tile/mosaic tile: 1/32".
b. Porcelain tile joint width less than 1/4": 1/32".
c. Porcelain tile joint width 1/4" or greater: 1/16".

2. Allowable site installation tolerances: Plumb, level and true to line, meeting ANSI A108.02 as follows:

a. For tile with all dimensions less than 15": Maximum 1/16" in 1'-0" and maximum 1/4" in 10'-0".
b. For tile with any dimension greater than 15": Maximum 1/16" in 2'-0" and maximum 1/8" in 10'-0".

H. Grout release agent: Prior to grouting tile to receive epoxy grout, apply specified grout release agent to face of tile only. Do not allow agent to migrate into joints.

3.4 TILE INSTALLATION:

A. Floor tile with any dimension 15" or larger, LHT (medium bed) set, interior:

1. Setting method: LHT (medium-bed) polymer-modified Portland cement mortar, minimum 1/4" embedded thickness.
2. Standard installation method: Generally in accord with TCNA F113-16/TCNA F113A-16 for cement grout, and TCNA F115-16/TCNA F115A-16 for epoxy grout.
3. Grout types:

a. Dry areas: Premium rapid-setting high performance grout.
b. Wet areas: Epoxy grout. Apply grout release agent prior to grouting tile to receive epoxy grout.

B. Floor tile, with all dimensions less than 15", thinset, interior:

1. Setting method: Premium polymer-modified thinset mortar.
2. Standard installation method: Generally in accord with TCNA F113-16/TCNA F113A-16 for cement grout, and TCNA F115-16/TCNA F115A-16 for epoxy grout.
3. Grout types:

    a. Dry areas: Premium rapid-setting high performance grout.
    b. Wet areas: Epoxy grout. Apply grout release agent prior to grouting tile to receive epoxy grout.

C. Wall tile and base, thinset over gypsum board and studs, interior:

1. Setting method: Premium polymer-modified thinset mortar.
2. Standard installation method: TCNA W243-16.
3. Grout types:

    a. Dry areas: Premium rapid-setting high performance grout.
    b. Wet areas: Epoxy grout. Apply grout release agent prior to grouting tile to receive epoxy grout.

D. Shower floors and curbs thickset, and shower walls, thinset, over cement backer board:

1. Setting methods:

    a. Floors:

        1) Setting bed: Portland cement paste (bond coat) over uncured (plastic) or premium polymer-modified thinset mortar over cured 1-1/4" to 2" thickness Portland cement bed. Place bed over shower pan and install bed reinforcement. Turn pan up a minimum of 3" above curb, and a minimum of 6" up wall.
        2) Standard installation method: TCNA B415-16.

    b. Curbs:

        1) Setting bed: Portland cement paste (bond coat) over uncured (plastic) or premium polymer-modified thinset mortar over cured 3/4" to 1-1/4" thickness Portland cement bed. Place bed over shower pan and install metal lath reinforcement. Turn pan up a minimum of 3" above curb.
        2) Standard installation method: TCNA B417-16.
        3) Sealant: Bath sealant as specified in Joint Sealants section.

    c. Walls:

        1) Setting bed: Premium polymer-modified thinset mortar.
        2) Shower pan: Turn pan a minimum of 6" up wall, behind cementitious backer unit.
        3) Standard installation method: TCNA W244C-16.

2. Grout type: Epoxy grout. Apply grout release agent prior to grouting tile to receive epoxy grout.

3.5 CLEANING AND PROTECTION:

A. Clean tile as work progresses, preventing accumulation of setting and grouting materials or debris on tile faces.

B. Immediately remove stains, grout release agent, excess mortar, grout and sealant from faces of tile; comply with manufacturer's product data.

C. Thresholds and glazed tile: Clean thresholds and glazed tile using a solution of detergent and water only. Do not use acids or harsh cleaning agents to clean thresholds or glazed tile.

D. Clean grout smears and haze from tile in accord with tile and grout manufacturer's product data.

1. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned.
2. Protect metal surfaces and plumbing fixtures from effects of cleaning.
3. Flush surfaces with clean water before and after cleaning.

E. Remove temporary protective coating by method recommended by coating manufacturer’s product data and as acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.

F. Grout sealer: Apply grout sealer to cementitious grout joints in compliance with grout sealer manufacturer’s product data. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten onto tile faces by wiping with soft cloth.

G. Protection: Protect installed tile work until Date of Substantial Completion by covering with kraft paper.

END OF SECTION

SYMBOLS AND ABBREVIATIONS LEGEND

SYMBOL	DESCRIPTION	NOTE	SYMBOL	DESCRIPTION	NOTE
	2'X4', 2'X2', 1'X4' RECESSED MOUNTED LUMINAIRE			CONDUIT BELOW GRADE OR BELOW SLAB	
	2'x4', 2'x2' OR 1'X4' RECESSED MOUNTED EMERGENCY LUMINAIRE		2#12, 1#12G - 1/2"C.	HOMERUN WITH QUANTITY AND SIZE. 2#12,1#12G UNLESS NOTED OTHERWISE	
	ROUND RECESSED LUMINAIRE			DATA RECESSED J-BOX WITH 3/4" CONDUIT STUBBED TO ACCESS CEILING	16" AFF
	ROUND RECESSED EMERGENCY LUMINAIRE			TELEPHONE RECESSED J-BOX WITH 3/4" CONDUIT STUBBED TO ACCESS CEILING	16" AFF
	SURFACE MOUNTED LUMINAIRE			COMBINATION DATA/ TELE. RECESSED J-BOX WITH 3/4" CONDUIT STUBBED TO ACCESS CEILING	16" AFF
	SURFACE MOUNTED EMERGENCY LUMINAIRE			COMBINATION DATA/ TELE. FLOOR J-BOX WITH 1" CONDUIT STUBBED TO ACCESSIBLE CEILING	
	PENDANT MOUNTED LUMINAIRE				
	PENDANT MOUNTED EMERGENCY LUMINAIRE			FLOOR MOUNTED TELEPHONE DATA OUTLET	
	WALL MOUNTED LUMINAIRE	SEE FIXTURE SCHEDULE		TV OUTLET RECESSED J-BOX WITH 3/4" CONDUIT STUBBED TO ACCESS CEILING	16" AFF
	WALL MOUNTED EMERGENCY LUMINAIRE	SEE FIXTURE SCHEDULE		VOLUME CONTROL	44" AFF TO CENTER
	EXIT SIGN - WALL OR CEILING MOUNTED	7'-6" AFF UNLESS NOTED OTHERWISE		8" CONE SPEAKER IN CEILING	
	EMERGENCY LIGHTING LUMINARE - WALL OR CEILING MOUNTED	SEE FIXTURE SCHEDULE		4" CONE SPEAKER IN CEILING	
	8' OR 4' SURFACE MOUNTED STRIP LUMINAIRE			FIRE ALARM PULL STATION	44" AFF, LESS THAN 5' FROM DOOR
	8' OR 4' SURFACE MOUNTED STRIP EMERGENCY LUMINAIRE			FIRE ALARM STROBE - MINIMUM 75 CANDELA	80" TO BOTTOM AFF
	4' PENDANT MOUNTED LINEAR LUMINAIRE			FIRE ALARM SPEAKER / HORN	80" TO BOTTOM AFF
	4' PENDANT MOUNTED LINEAR EMERGENCY LUMINAIRE			COMBINATION FIRE ALARM STROBE AND SPEAKER / HORN	80" TO BOTTOM AFF
	8' PENDANT MOUNTED LINEAR LUMINAIRE			CEILING MOUNTED SMOKE DETECTOR	CEILING UNLESS IND. OTHERWISE
	8' PENDANT MOUNTED LINEAR EMERGENCY LUMINAIRE			CEILING MOUNTED SMOKE DETECTOR	NO LESS THAN 4" AND NO MORE THAN 12" BELOW CEILING
	LIGHT TRACK AND TRACK HEADS				
	SITE LIGHTING LUMINAIRE AND POLE			DUCT MOUNTED SMOKE DETECTOR	
	FLOOD OR SPOT LUMINAIRE			HEAT DETECTOR	
	SINGLE POLE SWITCH	44" AFF TO CENTER		MAGNETIC DOOR HOLD OPEN DEVICE	
	DOUBLE POLE SWITCH	44" AFF TO CENTER		TAMPER SWITCH	
	THREE WAY SWITCH	44" AFF TO CENTER		FLOW SWITCH	
	FOUR WAY SWITCH	44" AFF TO CENTER	A	AMPERES	
	SWITCH WITH DIMMING CAPABILITY	44" AFF TO CENTER	C	CONDUIT	
	THREE WAY SWITCH WITH DIMMING CAPABILITY	44" AFF TO CENTER	P	POLE	
	MOTORIZED PROJECTION SCREEN RAISE/LOWER SWITCH	44" AFF TO CENTER	FA	FIRE ALARM	
	OCCUPANCY SENSING SWITCH, SINGLE POLE	44" AFF TO CENTER	NF	NON FUSED	
	RELAY PANEL CONTROL SWITCH	44" AFF TO CENTER	WP	WEATHERPROOF	
	CEILING MOUNTED OCCUPANCY SENSOR		CB	CIRCUIT BREAKER	
	PUSHBUTTON SWITCH	44" AFF TO CENTER	AFF	ABOVE FINISHED FLOOR	
	EMERGENCY SHUTOFF SWITCH	44" AFF TO CENTER	AFG	ABOVE FINISHED GRADE	
	125V NEMA 5-20R DUPLEX RECEPTACLE OUTLET	16" AFF TO BOTTOM	CKT	CIRCUIT	
	125V NEMA 5-20R UNINTERRUPTIBLE POWER SUPPLIED DOUBLE DUPLEX RECEPTACLE OUTLET	16" AFF TO BOTTOM	XFMR	TRANSFORMER	
	FIRE RATED POKE-THRU FLOOR BOX		IG	ISOLATED GROUND	
	125V NEMA 5-20R DUPLEX RECEPTACLE OUTLET - CEILING MOUNTED		RMC	RIGID METALLIC CONDUIT	
	SPECIAL PURPOSE SINGLE RECEPTACLE OUTLET	16" AFF TO BOTTOM	EMT	ELECTRIC METALLIC TUBING	
	125V NEMA 5-20R UNINTERRUPTIBLE POWER SUPPLIED RECEPTACLE OUTLET	16" AFF TO BOTTOM	FMC	FLEXIBLE METALLIC CONDUIT	
	125V NEMA 5-20R TAMPER RESISTANT DUPLEX RECEPTACLE OUTLET	16" AFF TO BOTTOM	G	GROUND	
	125V NEMA 5-20R DUPLEX RECEPTACLE OUTLET MOUNTED ABOVE COUNTER		GFCI	GROUND FAULT CIRCUIT INTERRUPTER	
	FLOOR AND CEILING MOUNTED JUNCTIONBOX		AFCI	ARC FAULT CIRCUIT INTERRUPTER	
	RECESSED WALL MOUNTED JUNCTION BOX		NL	NIGHT LIGHT	
XX/ XX/ XX	DISCONNECT SWITCH - SIZE / AMPERAGE / ENCLOSURE TYPE		D	DEMOLISH	
	SPECIAL PURPOSE SURFACE MOUNTED & RECESSED ELECTRICAL PANEL OR EQUIPMENT		N	NEW	
	RECESSED AND SURFACE MOUNTED ELECTRICAL POWER PANEL 480V		RE	RELOCATED	
	RECESSED AND SURFACE MOUNTED ELECTRICAL POWER PANEL 208V		ETR	EXISTING TO REMAIN	
T	FLOOR MOUNTED AND SUSPENDED TRANSFORMER		UNO	UNLESS NOTED OTHERWISE	
	CONDUIT CONCEALED IN BUILDINGS WALLS AND CEILINGS				
	CONDUIT SURFACE MOUNTED ON BUILDING WALLS AND CEILINGS				

PANEL NAME: L3 - SEC.1

LOCATION: ELECTRICAL ROOM — 6/20/2018
VOLTAGE: 208 Y/ 120V 3 PHASE — MAIN C/B: 225 AMPS — BUS RATING: 250 AMPS
MOUNTING / ENCLOSURE: EXISTING / NEMA 1 — AVAIL. FAULT CURRENT: EXISITNG — SHORT CIRCUIT RATING: EXISTING

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	1	1.80			2	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	3		1.80		4	0.90	JB CEILING MEETING ROOM	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	5			1.80	6	0.90	JB CEILING MEETING ROOM	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	7	1.00			8	0.10	MOTORIZED SCREEN	M	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	9		1.80		10	0.90	JB CEILING MEETING ROOM	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	11			1.80	12	0.90	JB AV ROOM	R	1	20 EX.
20 EX.	1	R	FRIDGE (MARSHALL'S OFF.)	0.30	13	1.20			14	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	15		1.80		16	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	17			1.80	18	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	19	1.00			20	0.10	BATH FAN	M	1	20 EX.
20 EX.	1	R	MODULAR FURN 2ND FL E	1.60	21		2.50		22	0.90	COUNTER	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	23			1.20	24	0.30	REFRIGERATOR	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	25	1.80			26	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	27		1.80		28	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	MODULAR FURN 2ND FLR E	1.60	29			2.50	30	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	MODULAR FURN 2ND FLR E	1.60	31	2.50			32	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	MODULAR FURN 2ND FLR E	1.60	33		2.50		34	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	MODULAR FURN 2ND FLR E	1.60	35			2.50	36	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
20 EX.	1		SPARE CKT RM 201 2ND FLR		37	0.72			38	0.72	RECEPTS ROOF	R	1	20 EX.
20 EX.	1		SPARE CKT RM 201 2ND FLR		39		1.00		40	1.00	DOWN LIGHTS ROOM 263	L	1	20 EX.
20 EX.	1	R	RECEPTS 2ND FLOOR EAST	0.90	41			1.80	42	0.90	RECEPTS 2ND FLOOR WEST	R	1	20 EX.
				PHASE TOTAL		10.0	13.2	13.4	KVA					
						SUB FEED LUGS					TOTAL CONNECTED LOAD	88 KVA	244 A	
						16.46	17.41	17.33			TOTAL DEMAND LOAD	75 KVA	209 A	

* HACR TYPE BREAKER
** GROUND FAULT CIRCUIT INTERRUPTER BREAKER
*** ARC FAULT CIRCUIT INTERRUPTER BREAKER

PANEL NAME: L3 - SEC.2

LOCATION: ELECTRICAL ROOM — 6/20/2018
VOLTAGE: 208 Y/ 120V 3 PHASE — MAIN C/B: MLO AMPS — BUS RATING: 250 AMPS
MOUNTING / ENCLOSURE: EXISTING / NEMA 1 — AVAIL. FAULT CURRENT: EXISTING — SHORT CIRCUIT RATING: EXISTING

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
20 EX.	1	R	RECEPTS - 2ND FLOOR EAST	0.90	43	1.80			44	0.90	RECEPTS-2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS - 2ND FLOOR EAST	0.90	45		1.80		46	0.90	RECEPTS-2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	H	EWH-1D	1.50	47			3.00	48	1.50	EWH-1G	H	1	20 EX.
20 EX.	1	R	CARD READER - 2ND FLOOR	0.06	49	0.96			50	0.90	MONITORS - 2ND FLR LOBBY	R	1	20 EX.
20 EX.	1	H	EWH-1E	1.50	51		3.00		52	1.50	EWH-1H	H	1	20 EX.
20 EX.	1	R	COPIER (ADMINISTRATION)	1.20	53			1.38	54	0.18	VENDING MACHINE	R	1	20 EX.
20 EX.	1	H	EWH-1F	1.50	55	2.40			56	0.90	RECEPTS-MEETING ROOM	R	1	20 EX.
20 EX.	1	R	COPIER (TAX ASSESSOR)	0.18	57		1.08		58	0.90	RECEPTS-MEETING ROOM	R	1	20 EX.
20 EX.	2	AC	CRU2-1	1.20	59			2.10	60	0.90	RECEPTS-MEETING ROOM	R	1	15 EX.
		AC		1.20	61	2.10			62	0.90	NEW PAYROLL ROOM	R	1	
20 EX.	1	M	FAN F-1	0.30	63		1.20		64	0.90	RECEPTS-2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS - 2ND FLOOR EAST	0.90	65			1.80	66	0.90	RECEPTS-2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS - 2ND FLOOR EAST	0.90	67	1.80			68	0.90	RECEPTS-2ND FLOOR WEST	R	1	20 EX.
20 EX.	1	R	RECEPTS - 2ND FLOOR EAST	0.90	69		2.50		70	1.60	MODULAR FURN 2ND FLR W	R	1	20 EX.
15 EX.	1	R	ALARM SYSTEM	0.50	71			1.90	72	1.40	ACC2-1	AC	3	15 EX.
15 EX.	1	R	SPARE		73	1.40			74	1.40		AC		
20 EX.	2	R	MAPPING MACHINE	0.25	75		1.65		76	1.40		AC		
		R	ROOM 207	0.25	77			1.15	78	0.90	ROOM 230	R	1	20 EX.
20 EX.	1		SPARE		79	6.00			80	6.00	LCP2, LIGHTS, MEETING	L	3	100 EX.
20 EX.	1	R	BIG COPIER - HR FILE ROOM	0.18	81		6.18		82	6.00	ROOM	L		
	1		SPACE		83			6.00	84	6.00		L		
				PHASE TOTAL		16.5	17.4	17.3	KVA					
						SUB FEED LUGS					TOTAL CONNECTED LOAD	51 KVA	142 A	
						0	0	0			TOTAL DEMAND LOAD	45 KVA	124 A	

* HACR TYPE BREAKER
** GROUND FAULT CIRCUIT INTERRUPTER BREAKER
*** ARC FAULT CIRCUIT INTERRUPTER BREAKER

PANEL NAME: H3 - SEC.1

LOCATION: WAREHOUSE — 6/20/2018
VOLTAGE: 480 Y/ 277V 3 PHASE — MAIN C/B: 350 AMPS — BUS RATING: 400 AMPS
MOUNTING / ENCLOSURE: EXISTING / NEMA 1 — AVAIL. FAULT CURRENT: EXISTING — SHORT CIRCUIT RATING: EXISTING

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
20 EX.	1	L	LIGHTS 2ND FLOOR WEST	1.50	1	3.00			2	1.50	LIGHTS 2ND FLOOR EAST	L	1	20 EX.
20 EX.	1	L	LIGHTS 2ND FLOOR WEST	1.50	3		3.00		4	1.50	LIGHTS 2ND FLOOR EAST	L	1	20 EX.
20 EX.	1	L	LIGHTS 2ND FLOOR WEST	1.50	5			3.00	6	1.50	LIGHTS 2ND FLOOR EAST	L	1	20 EX.
20 EX.	1				7	1.50			8	1.50	LIGHTS 2ND FLOOR EAST	L	1	20 EX.
20 EX.	1				9		1.50		10	1.50	LIGHTS 2ND FLOOR EAST	L	1	20 EX.
20 EX.	1				11			1.50	12	1.50	LIGHTS ROOM 204-258-259	L	1	20 EX.
30 EX.	1		PIU2-1	6.00	13	10.00			14	4.00	PIU2-15		1	20 EX.
20 EX.	1		PIU2-2	4.00	15		8.00		16	4.00	PIU2-16		1	20 EX.
30 EX.	1		PIU2-3	6.00	17			10.00	18	4.00	PIU2-17		1	20 EX.
30 EX.	1		PIU2-4	6.00	19	10.00			20	4.00	PIU2-18		1	20 EX.
20 EX.	1		PIU2-5	4.00	21		10.00		22	6.00	PIU2-19		1	30 EX.
20 EX.	1		PIU2-6	4.00	23			8.00	24	4.00	PIU2-20		1	20 EX.
30 EX.	1		PIU2-7	6.00	25	12.00			26	6.00	PIU2-21		1	30 EX.
20 EX.	1		PIU2-8	4.00	27		8.00		28	4.00	PIU2-22		1	20 EX.
20 EX.	1		PIU2-9	4.00	29			8.00	30	4.00	PIU2-23		1	20 EX.
30 EX.	1		PIU2-10	6.00	31	10.00			32	4.00	PIU2-24		1	20 EX.
30 EX.	1		PIU2-11	6.00	33		16.00		34	10.00	PIU2-25		1	50 EX.
20 EX.	1		PIU2-12	4.00	35			14.00	36	10.00	PIU2-26		1	50 EX.
20 EX.	1		PIU2-13	4.00	37	12.00			38	8.00	PIU2-27		1	40 EX.
20 EX.	1				39		4.00		40	4.00	PIU2-28		1	20 EX.
20 EX.	1				41				42				1	20 EX.
				PHASE TOTAL		58.5	50.5	44.5	KVA					
						SUB FEED LUGS					TOTAL CONNECTED LOAD	249 KVA	300 A	
						34.48	30.61	30.73			TOTAL DEMAND LOAD	253 KVA	304 A	

* HACR TYPE BREAKER
** GROUND FAULT CIRCUIT INTERRUPTER BREAKER
*** ARC FAULT CIRCUIT INTERRUPTER BREAKER

PANEL NAME: H3 - SEC. 2

LOCATION: CORRIDOR — 6/20/2018
VOLTAGE: 480 Y/ 277V 3 PHASE — MAIN C/B: MLO AMPS — BUS RATING: 400 AMPS
MOUNTING / ENCLOSURE: EXISTING / NEMA 1 — AVAIL. FAULT CURRENT: EXISTING — SHORT CIRCUIT RATING: EXISTING

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
125 EX.	3	T	TRANSFORMER T3	26.48	43	26.48			44				1	20 EX.
		T	(PANEL L3)	30.61	45		30.61		46				1	30 EX.
		T		30.73	47			30.73	48				1	30 EX.
40 EX.	1	H	PIU2-14	8.00	49	8.00			50				1	40 EX.
	1		SPACE		51				52				1	40 EX.
	1		SPACE		53				54		SPACE		1	
	1		SPACE		55				56		SPACE		1	
	1		SPACE		57				58		SPACE		1	
	1		SPACE		59				60		SPACE		1	
	1		SPACE		61				62		SPACE		1	
	1		SPACE		63				64		SPACE		1	
	1		SPACE		65				66		SPACE		1	
	1		SPACE		67				68		SPACE		1	
	1		SPACE		69				70		SPACE		1	
	1		SPACE		71				72		SPACE		1	
	1		SPACE		73				74		SPACE		1	
	1		SPACE		75				76		SPACE		1	
	1		SPACE		77				78		SPACE		1	
	1		SPACE		79				80		SPACE		1	
	1		SPACE		81				82		SPACE		1	
	1		SPACE		83				84		SPACE		1	
				PHASE TOTAL		34.5	30.6	30.7	KVA					
						SUB FEED LUGS					TOTAL CONNECTED LOAD	96 KVA	115 A	
						0	0	0			TOTAL DEMAND LOAD	96 KVA	115 A	

* HACR TYPE BREAKER
** GROUND FAULT CIRCUIT INTERRUPTER BREAKER
*** ARC FAULT CIRCUIT INTERRUPTER BREAKER

PANEL NAME: UP - SEC. 3

LOCATION: COMPUTER ROOM 237 — 8/30/2018
VOLTAGE: 208 Y/ 120V 3 PHASE — MAIN C/B: MLO AMPS — BUS RATING: 200 AMPS
MOUNTING / ENCLOSURE: EXISTING / NEMA 1 — AVAIL. FAULT CURRENT: EXISTING — SHORT CIRCUIT RATING: EXISTING

AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	C	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS
20 EX.	1				1				2		RACK #5		2	60 EX.
20 EX.	1				3				4					
20 EX.	1				5				6		IT TECH RECEPT (HALL)		1	20 EX.
20 EX.	1		SERVER RM / VOTE. REG.		7				8		IT TECH		1	20 EX.
20 EX.	1		DENNIS		9		1.20		10	1.20	COM. CONT. ROOM SERVER	R	1	20 EX.
20 EX.	2		208V SERVER		11				12		208V SERVER		2	30 EX.
					13				14					
20 EX.	2		208V SERVER		15				16		208V RECEPT UNDER		2	30 EX.
					17				18		PANEL 3			
20 EX.	1	R	BOC SOUND BOOTH RECEPT	0.18	19	1.38			20	1.20	COM. CONT. ROOM SERVER	R	1	20 EX.
20 EX.	1	R	COM.CONT.RM RECEPTS	1.44	21		1.44		22		208V RECEPT SERVER		2	20 EX.
20 EX.	1	R	LAR. CON.RM UP RECEPTS	0.72	23			0.72	24					
20 EX.	1	R	OFFICE UP RECEPTS	0.36	25	0.36			26				3	30 EX.
20 EX.	1	R	OFFICE UP RECEPTS	0.72	27		0.72		28					
20 EX.	1	R	BOC - MONITORS	1.44	29			1.44	30					
20 EX.	1	R	LAR. CON.RM UP RECEPTS	1.26	31	1.98			32	0.72	OFFICE 104 FLOOR RECEPT	R	1	20 EX.
20 EX.	1	R	BOC OFFICE 104 RECEPTS	1.08	33		1.80		34	0.72	OFFICE 104 FLOOR RECEPT	R	1	20 EX.
20 EX.	1	R	BOC OFFICE 104 RECEPTS	1.08	35			1.08	36		MEDIA LTG / LEFT COM. RM		1	20 EX.
20 EX.	1	R	BOC OFFICE 104 RECEPTS	1.44	37	1.44			38		MEDIA RM / CONSOLE 2+1		1	20 EX.
20 EX.	1		LCD. TV / COMM. ROOM		39				40		MEDIA RM / TOWER		1	20 EX.
20 EX.	1		CAMERAS / COMM. ROOM		41				42		MEDIA LTG /RIGHT COM. RM		1	20 EX.
				PHASE TOTAL		5.2	5.2	3.2	KVA					
						SUB FEED LUGS					TOTAL CONNECTED LOAD	14 KVA	38 A	
						0	0	0			TOTAL DEMAND LOAD	12 KVA	33 A	

* LOCK-ON TYPE CIRCUIT BREAKER
** GROUND FAULT CIRCUIT INTERRUPTER BREAKER
*** ARC FAULT CIRCUIT INTERRUPTER BREAKER

MECHANICAL EQUIPMENT SCHEDULE

6/25/2018

EQUIPMENT NAME	VOLTAGE	PHASE	HP	KW	KW / POLE	FLA	MCA	MOCP	BREAKER AMPACITY	NOTES	FEEDER	DISCONNECT SIZE	DISCONNECT POLES	DISCONNECT FUSE SIZE	DISCONNECT ENCLOSURE	CONTROL / NOTES
EF - 1	120	1		0.0	0.02				15	1,2	2 # 12 CU ,1# 12 CU G- 1/2 "C.	20	MOTOR RATED SWITCH			MOTION SENSOR
WH - 1	120	1		1.8	1.80			15	15	2	2 # 12 CU ,1# 12 CU G- 1/2 "C.	20	1	NF	NEMA 1	BY DIVISION 15
WH - 2	120	1		1.8	1.80			15	15	2	2 # 12 CU ,1# 12 CU G- 1/2 "C.	20	1	NF	NEMA 1	BY DIVISION 15
WH - 3	120	1		3.0	3.00			25	25	2	2 # 10 CU ,1# 10 CU G- 1/2 "C.	30	1	NF	NEMA 1	BY DIVISION 15

NOTES:
1. EXHAUST FAN SHALL HAVE AN INTEGRAL PASSIVE INFRARED MOTION DETECTOR AND BUILT-IN TIME DELAY RELAY.
2. ALL MECHANICAL EQUIPMENTS SHALL BE CONNECTED TO A DEDICATED CIRCUIT ON EITHER PANEL L3 - SECTION 1 OR L3 - SECTION 2.

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PRIME ENGINEERING INCORPORATED
3715 NORTHSIDE PARKWAY NW
300 NORTHCREEK, SUITE 200
ATLANTA, GEORGIA 30327
404-425-7100

PROJECT:
FORSYTH COUNTY BOARD OF COMMISSIONERS SUITE RENOVATION
110 E. MAIN STREET
CUMMING, GEORGIA

PREPARED FOR:
FORSYTH COUNTY

REVISIONS
1 08/29/2018 REVISION 1

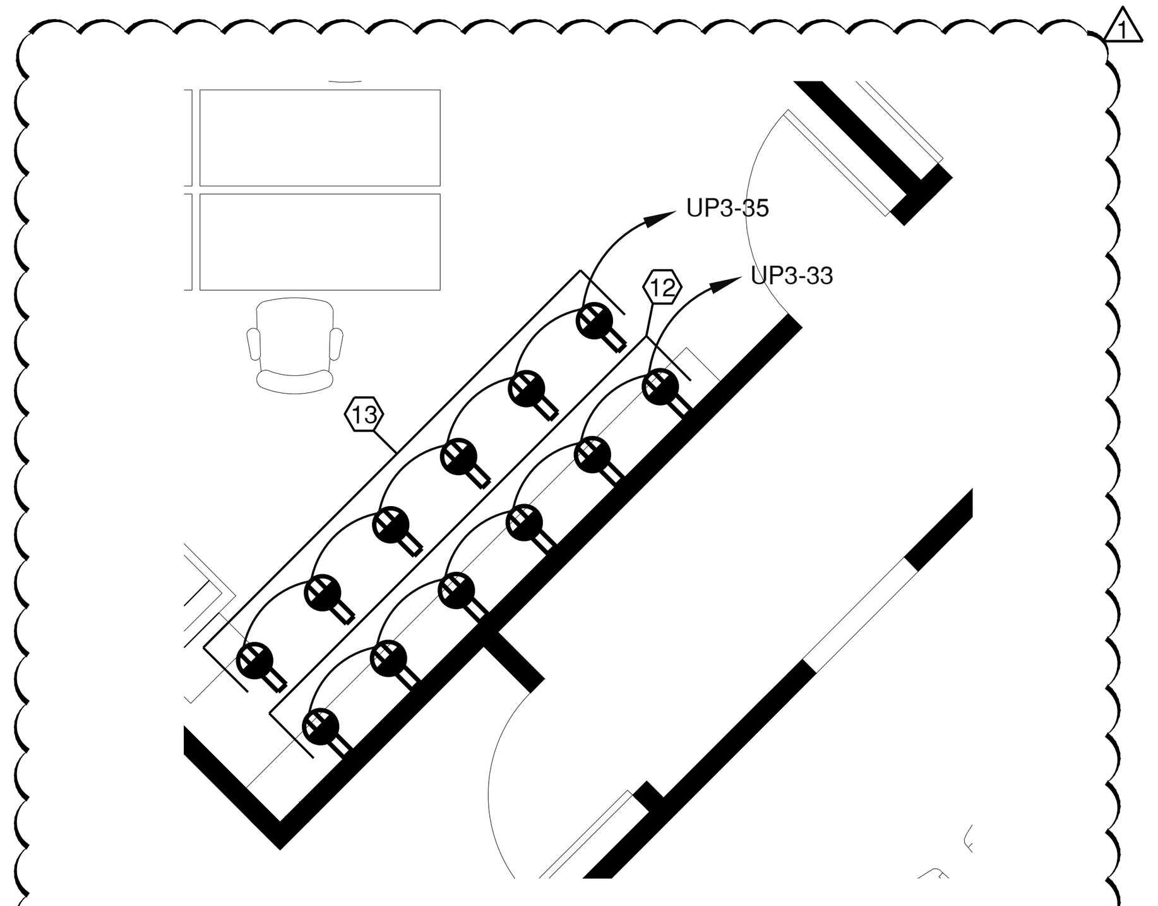
SEAL
DATE:

DRAWING TITLE
LEGEND & SCHEDULES

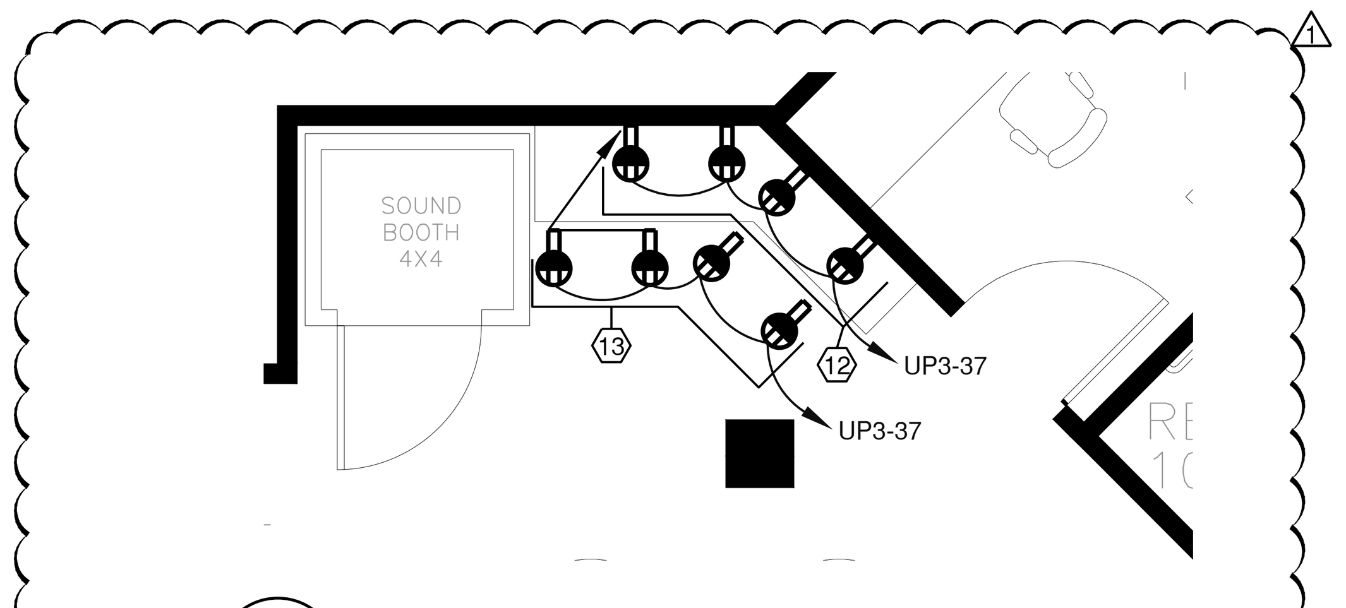
DRAWING DATE	DRAWING SCALE	PROJECT NUMBER	DRAWING NUMBER
06/25/18	1/8"=1'-0"	2044-0002	E101

DRAWN BY: SN
DESIGNED BY: SN
CHECKED BY: LDM

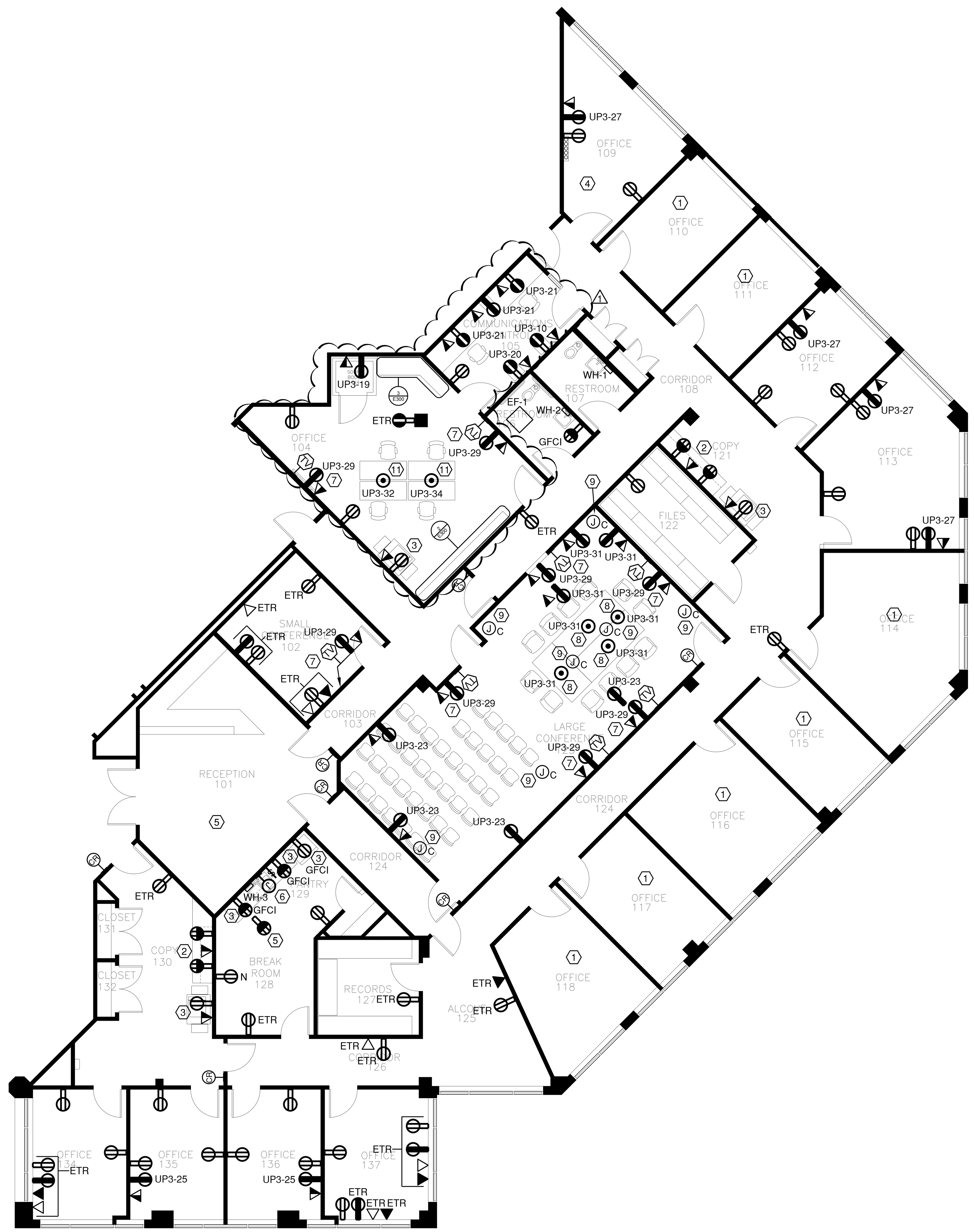
ISSUED FOR CONSTRUCTION



2 E300 POWER PLAN: OFFICE 104
SCALE: 1/4" = 1' - 0"



3 E300 POWER PLAN: OFFICE 104
SCALE: 1/4" = 1' - 0"



1 E300 POWER, SYSTEMS & MECHANICAL EQUIPMENT PLAN
SCALE: 1/8" = 1' - 0"

POWER AND SYSTEMS PLAN GENERAL NOTES

1. DEVICES INDICATED WITH "ETR" ARE EXISTING TO REMAIN. ALL OTHER DEVICES ARE NEW DEVICES TO BE INSTALLED.
2. FOR ALL UN-CIRCUITED NEW POWER RECEPTACLES, CONNECT THE RECEPTACLES TO NEARBY EXISTING 120V CIRCUIT NOT TO EXCEED 10 RECEPTACLES OR 80% OF BREAKER RATING.
3. ALL NON-CONDUIT CABLES IN THE CEILING SHALL BE PLENUM RATED.

POWER AND SYSTEMS PLAN KEY NOTES

1. EXISTING POWER AND DATA OUTLETS IN THE OFFICE SPACE SHALL REMAIN.
2. COMBINATION DATA / TELEPHONE OUTLET SHALL BE MOUNTED ABOVE THE COUNTER.
3. POWER OUTLET SHALL BE CONNECTED TO A DEDICATED 120V, 20A CIRCUIT.
4. EXISTING EQUIPMENT, POWER AND DATA TO REMAIN UNTIL NEW COMMUNICATIONS CONTROL ROOM IS OPERATIONAL. GENERAL CONTRACTOR TO PROVIDE PRICING TO REMOVE EXISTING OUTLETS AND REPLACE WITH NEW OUTLETS AS SHOWN AT THAT TIME. THIS WORK WILL FOLLOW THE COMPLETION OF THE PRIMARY SCOPE OF WORK.
5. PROVIDE A GFCI POWER OUTLET FOR MICROWAVE OVEN. POWER OUTLET SHALL BE CONNECTED TO A DEDICATED 120V, 20A CIRCUIT.
6. PROVIDE JUNCTION BOX AND SWITCH FOR GARBAGE DISPOSAL AT THE KITCHEN SINK. JUNCTION BOX SHALL BE CONNECTED TO A DEDICATED 120V, 20A CIRCUIT.
7. PROVIDE OUTLET FOR TELEVISION CONNECTION. PROVIDE (1) UNINTERRUPTIBLE POWER SUPPLIED DUPLEX RECEPTACLE, (1) COAXIAL CABLE CONNECTION AND (1) DATA CONNECTION (SUITABLE FOR HDMI CONNECTION). COORDINATE THE EXACT MOUNTING HEIGHT AND LOCATION OF OUTLETS FOR TELEVISION CONNECTIONS WITH OWNER OR PROJECT ARCHITECT PRIOR TO INSTALLATION.
8. PROVIDE A FIRE RATED POKE-THRU FLOOR BOX WITH POWER OUTLET (UNINTERRUPTIBLE POWER SUPPLIED) AND DATA COMBINATION OUTLET.
9. PROVIDE CEILING MOUNTED JUNCTION BOX FOR CEILING MOUNTED CAMERA. COORDINATE THE EXACT LOCATION OF THE CEILING MOUNTED JUNCTION BOX WITH OWNER OR ARCHITECT PRIOR TO INSTALLATION.
10. PROVIDE CEILING MOUNTED JUNCTION BOX FOR CEILING MOUNTED DROP MICROPHONES. COORDINATE THE EXACT LOCATION OF THE CEILING MOUNTED JUNCTION BOX WITH OWNER OR ARCHITECT PRIOR TO INSTALLATION.
11. PROVIDE AND INSTALL LEGRAND 10AT EVOLUTION MULTI-SERVICE POKE-THRU DEVICE. PROVIDE (4) UNINTERRUPTIBLE POWER SUPPLIED DUPLEX RECEPTACLE. COORDINATE COMMUNICATION AND A/V DEMAND WITH OWNER. PROVIDE COMMUNICATION AND A/V DEVICES MEETING OWNER DEMAND.
12. PROVIDE AND INSTALL UNINTERRUPTIBLE POWER SUPPLIED DUPLEX RECEPTACLES AT 24" AFF.
13. PROVIDE AND INSTALL UNINTERRUPTIBLE POWER SUPPLIED DUPLEX RECEPTACLES AT 42" AFF.

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PROJECT:
FORSYTH COUNTY BOARD OF COMMISSIONERS SUITE RENOVATION
110 E. MAIN STREET
CUMMING, GEORGIA

PREPARED FOR:
FORSYTH COUNTY

REVISIONS
1 08/29/2018 REVISION 1

SEAL
DATE: 06/25/2018

DRAWING TITLE
POWER & SYSTEMS PLAN

DRAWING DATE	06/25/18
DRAWN BY	SN
DRAWING SCALE	1/8"=1'-0"
DESIGNED BY	SN
PROJECT NUMBER	2044-0002
CHECKED BY	LDM
DRAWING NUMBER	E300

ISSUED FOR CONSTRUCTION

LUMINAIRE SCHEDULE

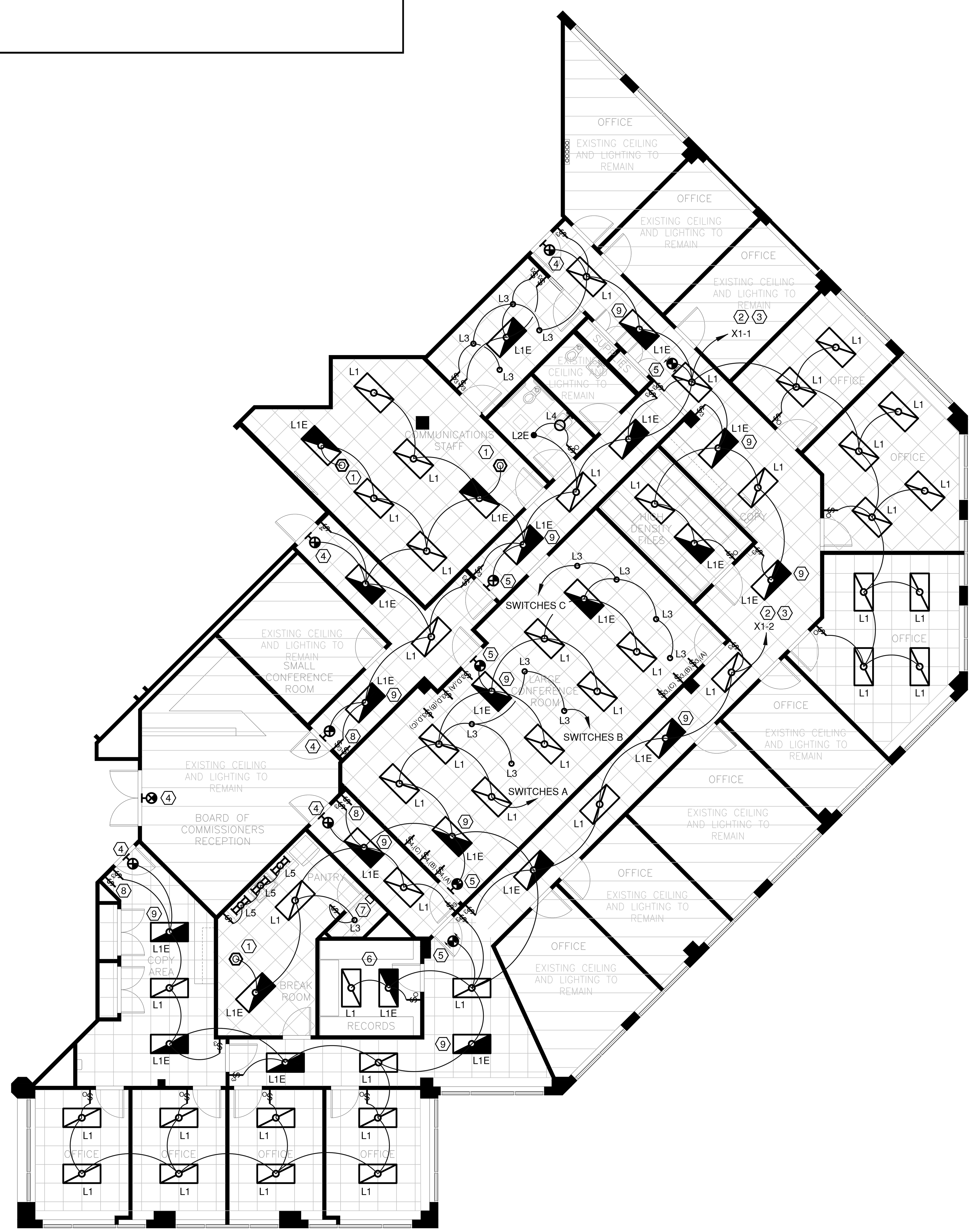
9/4/2018

LUMINAIRE DESIGNATION	PART NUMBER OR DESCRIPTION	COLOR	NOTES	MOUNTING	HEIGHT	VOLTAGE	LAMPING	COLOR TEMP.	CRI
L1	DECO LIGHTING : GO - LED - 24 - 25 - 40 - UNV - N - F - AR	WHITE	4	RECESSED	CEILING	UNV	25W LED	4000K	85
L1E	DECO LIGHTING : GO - LED - 24 - 25 - 40 - UNV - N - F - AR - E	WHITE	4	RECESSED	CEILING	UNV	25W LED	4000K	85
L2E	CREE : KR6 - 9L - 30K - 277V - EB7 / KR6T - SSGC - WF	WHITE	4	RECESSED	CEILING	277V	13W LED	3000K	90
L3	CREE : KR6 - 9L - 40K - 277V - EB7 / KR6T - SSGC - WF	WHITE	4	RECESSED	CEILING	277V	13W LED	4000K	90
L4	BROWNLEE LIGHTING : 5010 - 24 - H16LED - CEC - 30K	CHROME	4	SURFACE	84" AFF	UNV	16W LED	3000K	82
L5	EMERGE : UCL - 24 - WH - 35K - FEED AS REQUIRED	WHITE	1, 2, 3	SURFACE	UNDERCABINET	120V	3.5W / FT, LED	3500K	85

1. PROVIDE A JUNCTION BOX ADJACENT TO EACH FIXTURE AND LIGHT FIXTURES SHALL BE HARDWIRED TO A 120V CIRCUIT.
2. CONCEAL THE CORDS BELOW THE OVERHEAD CABINETS FOLLOWING THE INSTALLATION OF THE LIGHT FIXTURE.
3. ~~LIGHT FIXTURE SHALL BE INSTALLED BELOW THE OVERHEAD CABINETS AT THE BREAKROOM.~~
4. LIGHTING CONTACT: TIM DUFF, NEXT GENERATION LIGHTING, PHONE: 404-902-6396

CIRCUIT SCHEDULE

CIRCUIT	DESCRIPTION	VOLTAGE	KVA	BREAKER SIZE
x1-1	LIGHTING CIRCUIT	277	0.86	20
x1-2	LIGHTING CIRCUIT	277	0.99	20



1 E400 LIGHTING PLAN
SCALE: 1/8" = 1' - 0"

LIGHTING PLAN GENERAL NOTES

1. PROVIDE A NON-SWITCHED, NON-CONTACTED HOT CONDUCTOR OF SAME CIRCUIT TO EACH EMERGENCY LIGHTING FIXTURE, EMERGENCY BALLAST, NIGHT LIGHT (NL) AND EXIT SIGN.
2. ALL NON-CONDUIT CABLES IN THE CEILING SHALL BE PLENUM RATED.
3. ALL ADJACENT LIGHT SWITCHES SHALL BE GANGED WITH A SINGLE FACEPLATE.
4. LIGHT FIXTURES IN CEILING TILE TO BE CENTERED IN TILE, UNLESS NOTED OTHERWISE.
5. ALL NEW COVERPLATES AND DEVICES SHALL BE WHITE.

LIGHTING PLAN KEY NOTES

1. PROVIDE CEILING MOUNTED PASSIVE INFRARED OCCUPANCY SENSOR. PROVIDE POWER PACKS AND ACCESSORIES AS NECESSARY. SET TIME DELAY FOR 30 MINUTES. OCCUPANCY SENSOR SHALL NOT BE WITHIN 4 FEET OF AN AIR VENTILATION.
2. LIGHTING CIRCUIT SHALL BE CONNECTED TO THE EXISTING LIGHTING CIRCUIT ON PANEL H3 - SECTION 1.
3. PROVIDE A 7-DAY PERIOD TIME CLOCK TO CONTROL LIGHTING CIRCUITS.
4. EXIT SIGN IS EXISTING TO REMAIN.
5. NEW EXIT SIGN SHALL MATCH THE EXISTING EXIT SIGNS.
6. TROFFERS IN THE RECORDS ROOM SHALL BE MOUNTED IN A GYPSUM BOARD CEILING.
7. LOCATION OF TIME CLOCK.
8. PROVIDE 2 HOUR OVERRIDE SWITCH TO CONTROL THE TIME CLOCK.
9. FIXTURE SHALL BE CONNECTED AS A NIGHT LIGHT.

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PREPARED FOR:
FORYSTH COUNTY

REVISIONS
1 08/29/2018 REVISION 1

SEAL
GEORGIA REGISTERED No. 24180 PROFESSIONAL ENGINEER LADD D. MARKS
DATE:

DRAWING TITLE
LIGHTING PLAN

DRAWING DATE	DRAWN BY
06/25/18	SN
DRAWING SCALE	DESIGNED BY
1/8"=1'-0"	SN
PROJECT NUMBER	CHECKED BY
2044-0002	LDM

DRAWING NUMBER
E400

ISSUED FOR CONSTRUCTION