

# 3575 W. Northern Avenue, Phoenix, AZ, 85051

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# Code Plan



Project Na Project Add

Legal Description: described as follows: 196.44 feet:

Project Description:

# **Project Directory**

Building Code Data

WNER:	Rubenstein Family Partnership c/o Visiquest Properties 8679 E. San Alberto Drive Suite 201 Scottsdale, Arizona 85258 contact: Joel Broder phone: 602-524-8588 Jbroder @vqholdings.com
RCHITECT:	Motley Design Group LLC 1114 Grand Avenue Phoenix, AZ 85007 contact: Robert Graham AIA phone: 602.254.5599 rgraham@motleydesigngroup.com
RUCTURAL ENGINEER:	Slaysman Engineering Company 707 West Missouri Ave, Suite B Phoenix, AZ 85013 contact: Melvin Slaysman, P.E. phone: (602) 280-7777 mel@slaysman.org
ECTRICAL ENGINEER:	Welch + Sandon Design LLC 4864 E. Baseline Rd. Suite 103 Mesa, AZ 85206 contact: Brian Sandon phone: 480.641.6383 brian @ welch-sandon.com

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# Vicinity Map

ame:	3575 W. Northern Av	ve Remodel
ddress:	3575 W. Northern Av	ve Phoenix AZ 85051

### Assessor's Parcel Number: 151-04-078

A portion of Lot I, Section 3, Township 2 North, Range 2 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona,

BEGINNING at the Northwest corner of said Section 3, thence South 89° 51' 15" West

along the North line of said Section 3, a distance of 599.00 feet;

Thence South and parallel to the East line of said Section 3, a distance of 43.50 feet to a point on the South right of way of Northern Avenue, as recorded in Docket 12471, page 690, records of Maricopa County, Arizona, and the TRUE POINT OF BEGINNING: Thence continuing South and parallel to the East line of said Section 3, a distance of

## Thence West a distance of 125 feet,

Thence North and parallel to the East line of said Section 3, a distance of 199.07 feet to a point on the South right of way of Northern Avenue, as recorded in Docket 12471, page 690, records of Maricopa County, Arizona;

Thence South 88° 47' 44" East, along said right of way a distance of 125.03 to the TRUE POINT OF BEGINNING

Demolish interior walls, add new storefront openings, make minor alterations to the north and west walls, add parapet extension to entire perimeter of building, re-surface stucco on exterior of building



# Specifications

- I. GENERAL REQUIREMENTS
- I.I SCOPE OF WORK: Provide all labor, materials, equipment, and transportation necessary for complete and proper execution of the Work, unless such work is specifically noted as "Not in Contract", "N.I.C.", "By Owner" or "By Others".
- 1.2 FIELD CONDITIONS: Verify all dimensions, elevations, and site conditions prior to commencing work, and notify the Architect of all discrepancies. Bring all conflicts present in the drawings to the attention of the Architect and obtain resolution prior to proceeding with construction.
- 1.3 SUBSTITUTIONS: No substitutions shall be made without approval of the Architect. Where the Contractor wishes to request a change, either due to field conditions of material or detail substitution, he shall submit to the Architect completed documentation including drawings and required engineering prior to construction of the specific area, allowing ample time for review.
- 1.4 CODES: All work shall comply with prevailing building codes in the jurisdiction having responsibility for the project, as identified in the project summary or code data.
- 1.5 PERMITS: Provide all necessary permits and approvals necessary by governing authorities.
- 1.6 CUTTING AND PATCHING: All trades shall do their own cutting, fitting, patching, etc. to make the several parts come together properly and fit it to receive or to be received by work of other trades. Obtain Architect's approval before cutting and/or patching any structural building element.
- 1.7 METHODS AND TECHNIQUES OF CONSTRUCTION: The contract drawings and specifications represent the finished structure. They do not indicate the method of construction. The Contractor shall provide all measures necessary to protect the structure and any surrounding structures during construction. Such measures shall include, but not be limited to, bracing and shoring for loads due to construction equipment. Observation visits by the Architect or his consultants shall not include inspection of such items.
- 1.8 MATERIALS PLACEMENT: Construction materials shall be spread out if placed on framed floor or roofs. Load shall not exceed the design live load per square foot.
- 1.9 GENERAL CONDITIONS: AIA Document A201, latest edition as of the date of this contract, is hereby made a part of this contract by reference.
- 1.10 CLEAN-UP: Keep the premises clean and free from accumulated waste materials or rubbish at all times. At the completion of Work, remove all such materials and all tools, scaffolding and surplus materials and clean all parts of the work, including broom cleaning and vacuuming; removal of stickers, labels, and paint smears; etc.
- 1.11 SUBMITTAL PROCEDURES: Submit product data, shop drawings, and samples required by these specifications. Submit samples, including color selection samples, in the form and number required by the relevant section of the specifications. Submit all written and graphic materials in electronic PDF format, unlocked (allowing markup), via email, FTP transfer website, or digital media such as CD-ROM or DVD. Each submittal shall be compiled into a single PDF file. The first page of the PDF file shall be a transmittal page identifying the project, project location, Contractor, Architect, submittal identification and number, and space for Contractor's review and approval and 3" x 5" minimum space for Architect's review stamp. Allow 5 working days for Architect's review of all submittals unless a longer time is specified elsewhere.
- 1.12 CLOSEOUT SUBMITTALS: At substantial completion of the work, provide two loose-leaf copies of Owner's Manual including all operating instructions, maintenance instruction, and parts lists for all mechanical and electrical systems installed as a part of the Work.
- 2. SITE WORK
- 2.1 SELECTIVE DEMOLITION: Completely demolish and remove all existing building elements and components indicated, including all appurtenances related or connected to demolished elements. Demolish and remove those building elements in conflict with installation of new work, even if not specifically noted. Undertake demolition using the gentlest means possible. Hand demolition is encouraged and preferred over powerdriven and machine demolition. Debris shall become the property of the contractor unless noted otherwise. Carefully remove items and materials indicated to be salvaged for reuse and reinstallation in the building.

## 3. CONCRETE

## 3.1 CONCRETE MATERIALS AND MIXES:

Submit mix designs prior to placing concrete. Mix designs shall be proportioned per Chapter 4 ACI 318. Maximum slump 4-1/2". Submit statistical data on all mix designs. All concrete shall be 3000 psi at 28 days with 5-7% entrained air. Materials shall be as follows:

Cement - ASTM C-150, Type II

Aggregates - ASTM C-33

Water - Potable

Admixtures will not be permitted except as authorized in writing by the Architect. Admixtures containing calcium chloride will not be permitted under any circumstances.

## 3.2 REINFORCING

Materials shall conform to ASTM A-615, Grade 40,  $F_y$ =40,000 psi. Welded wire fabric shall conform to ASTM A82.

Latest ACI code and detailing manual applies.

Lap splices: Unless noted otherwise, lap splices in concrete beams and slabs shall be Class B tension splices. Stagger alternate splices a minimum of one lap length. All splice locations subject to approval. Provide bent corner bars to match and lap with horizontal bars at corners and intersections of footings. Reinforcing bar spacings given are maximum centers. All bars to be continuous unless otherwise noted. Place bars per CRSI Specifications and Handbook. Dowel all vertical reinforcing to foundation. Securely tie all bars in location before placing concrete or grout.

Reinforcing mesh: ASTM \$185, size and gauge as noted.

Provide min. 1-1/2" cover over all reinforcing, except provide 3" cover over all reinforcing adjacent to earth.

3.3 CONCRETE WORKMANSHIP: Materials and Workmanship shall be in conformance with ASTM 318 (latest edition). Testing shall be performed in conformance with ASTM C-39. Mechanically vibrate all concrete when placed, except that slabs on grade need be vibrated only around underfloor ducts, etc.

Flatwork to be exposed in the finished construction shall have light broom finish.

- 4. MASONRY None in this project
- 5. METALS
- 5.1 METAL FABRICATIONS: Submit shop drawings of all steel fabrications. Provide steel fabrications of ASTM A-36 steel for steel shapes, ASTM A-500 or A-501 for tubing. All steel shapes, tubes, and expanded metal shall be G-90 hot dip galvanized. Exposed welds shall be ground smooth, with all weld spatter removed. Comply with AWI guidelines. Shop fabricate elements to the extent practical. Shop prime all fabrications, and touch up field welds prior to painting. Grind smooth and touch up all sharp edges, corners, and burrs.

## 6. WOOD AND PLASTICS

## 6.1 ROUGH CARPENTRY

All lumber shall bear the stamp of a recognized lumber grading agency. Erect all wood framing in a workmanlike manner. Materials shall be as follows:

Vertical framing: Douglas Fir No. 2 Horizontal framing: Douglas Fir No. 1 Plywood: 5-ply CDX, plywood shall conform to PS 1-83 Rough hardware: As manufactured by Simpson

All nails to be common nails, sizes as indicated on nailing schedule and on drawings. Where nails are not specifically called out, IBC table 2304.9.1 shall apply. All floors to be glued and nailed.

Western Lumber Grading Rules and National Design Specification values to apply to all lumber.

Treated lumber: Provide decay-treated lumber where indicated. Where "Redwood" is indicated on drawings, either redwood or treated wood may be provided at Contractor's option. Lumber indicated to be decaytreated lumber shall be pressure treated with chromated copper arsenate or other approved chemicals. Each piece of treated lumber shall bear the AWPA grade mark of LP2 (above ground use).

6.2 GLUE-LAMINATED MEMBERS

Glulam beams shall be combination 24F, Industrial appearance grade. Comply with ANSI/AITC A190.1, "Structural Glued Laminated Timber".

## 7. MOISTURE AND THERMAL PROTECTION

- 7.1 BUILDING INSULATION: Fiberglass rolls or batts shall conform to FS HH-I-521F. Available products below are taken from Owens-Corning Thermal Batt Fiberglas Insulation product data. Thickness in roofs shall be thickness indicated in plans; R-values R-22 for 6.75" thickness, R-30 for 8.25" thickness and R-38 for 12" thickness. Thickness in walls shall be 5.5" providing an insulation value of R-19. Rigid wall insulation and foundation insulation shall be closed-cell polystyrene, I-1/2" thickness, R-4.
- 7.2 POLYURETHANE FOAM ROOFING SYSTEM: Foamed in place, coated polyurethane with manufacturer's 10-year warranty against leakage. R-value of installed system shall equal R-7.

Foam insulation:

I. Thermal Conductivity: When tested in accordance with ASTM C177: K value of 0.146 initial at 75 degrees F.

2. Water Vapor Permeability: 1.4 perm inch, when tested in accordance with ASTM E96/E96M.

3. Closed Cell Content: 91 percent, determined in accordance with ASTM D6226 or ASTM D2856.

- 4. Compressive Strength: ASTM D1621; 42 psi.
- 5. Tensile Strength: ASTM D1623, 75 psi.
- 6. Shear Strength: ASTM C273/C273M, 51.9 psi.
- 7. Density: ASTM D1622; 2.5 lb/cu ft.

## Overcoat:

- I. Tensile Strength (ASTM D412): 299.
- 2. Elongation (ASTM D412): 355.
- 3. Water Vapor Permeance: 3.5 perms, maximum, at 20 mils when tested in accordance with ASTM E96/E96M.
- 4. Solar Reflective Index: 103.
- 5. Acceptable Material: SWD Quik-Shield 1929.
- 7.3 SHEET METAL GUTTERS AND DOWNSPOUTS: Paint-prefinished metal (steel). Fabricate and install per SMACNA guidelines.
- 7.4 SEALANTS Apply sealants in conformance with manufacturer's directions. Thickness of sealant shall be ½ the width of the joint unless otherwise directed by manufacturer or drawings. Provide back-up rod or other accessories as required for proper performance. Provide sealants as follows:
  - EXTERIOR GENERAL PURPOSE: (Masonry and concrete, vertical control and expansion joints, door and window frame perimeter; flashing joints; thresholds; juncture of dissimilar materials.) One part polyurethane, FS-TT-S-00230-C, Type II, Class A, Color as selected.
  - INTERIOR GENERAL PURPOSE: (Perimeter of door and window frames, juncture of dissimilar materials) Acrylic-latex, ASTM C834
- 7.5 ROOF ACCESSORIES:

Roof drain system: Jay R. Smith 1000 Series, model 1010 with cast iron dome. Overflows, model 1080 with cast iron dome. Outlet diameter per drawings. Supply with necessary receivers, clamps, and flashings to integrate with roof deck structure and roofing systems shown.

## 8. DOORS, WINDOWS, and GLASS

- 8.1 ALUMINUM STOREFRONT: Kawneer Trifab 451 system or equal by Southwest Aluminum or Arcadia. Bronze anodized finish.
- 8.2 GLAZING in door and window units shall be clear insulated glazing. Glazing in doors and where otherwise noted shall be fully tempered. Insulated glazing shall be 1" total thickness, with low-emissivity coating on the #2 surface, Vitro (formerly PPG) "Solarban 70" or equal. Insulated glass shall yield visible transmittance of 64%, visible reflectance of 13%, and solar heat gain coefficient of 0.27.
- 8.3 DOOR HARDWARE: Supplied by aluminum storefront manufacturer. Provide on each door butt hinges, single cylinder deadbolt lock with interior thumb turn, closer, weatherstripping, threshold, and tubular push-pull handle set with offset pull design.

## 9. FINISHES

- 9.1 GYPSUM BOARD: Exterior soffit board shall be 5/8" Type X, ASTM C1396 for exterior soffit board.
- 9.2 PORTLAND CEMENT STUCCO: Follow PCA recommendations and all requirements of IBC Section 2512. Lath shall be self furring, hexagonal

mesh of 17 gauge galvanized steel wire, complying with ASTM C 1032. Stucco shall be premixed or field mixed compliant with ASTM C 926. Provide corner reinforcement of expanded metal with continuous metal corner bead. Provide all other accessories, detailed or required for proper installation, including grounds, stops, joints, and weep screeds. Provide in 2 coats on masonry, to approx. <sup>1</sup>/<sub>2</sub>" thickness. Provide in 3 coats over metal lath to approx. 7/8" thickness. Provide sand finish coat.

- 9.3 PAINTING/STAIN: Provide paints as manufactured by Dunn-Edwards or approved equal. Systems shall be equal to the following:
  - A. Exterior and Interior Ferrous Metals: One coat Bloc-Rust BRPR-1 or shop prime, two coats Evershield Exterior Semi Gloss EVSH50.
  - B. Exterior Stucco & Concrete: Primer Eff-Stop Select ESSLOO, two coats Spartashield SSHL30 Gloss Level 3
  - C. Exterior Wood: Primer EZ-Prime Premium EZPROO, two coats Spartashield SSHL30 Gloss Level 3
  - D. Exterior Gypsum Board: Primer Ultra-Grip Select UGSL00, two coats Spartashield SSHL30 Gloss Level 3

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# **(4)** Accessible Parking Spaces r- - **\***1 18 A-02 12 A-02 Εð DN A-02 · · · · · · · · · · 6'-0" *\_*6'-0'' ||'-0" 6'-0" $\langle \rangle$ L\_\_\_\_\_ 10 Accessible Parking Ramps











(N) Bituthane waterproofing mémbrane

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- (E) Concrete slab to remain

— (E) Concrete footing to remain

I" = I'-0"

PROJECT NO.: 19-016

Floor Plan - Rehabilitation

SHEET TITLE:

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<b>Design Group, LLC</b> Architecture - Historic Preservation - Planning - 1114 Grand Avenue - Phoenix AZ 85007 - 602.254.5599 -	Landscape Design motleydesigngroup.com						
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# North Elevation











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	I/8'' =	= 1'-0''	
	<i>\</i> Q'' -	=  '_0"	
	1/0 -	1 <b>"</b> V	
(N) Wood-frame parapet extension with painted stucco			
Future signage location			
(E) Parapet, resurface stucco and paint			
(E) Column to remain, resurface			
succo and paint			
insport with splash pad			
s onto typ.			
	/8'' =	= 1'-0''	
		-	
	/8" =	= 1'-0''	
			Design Group, LLC
			Architecture - Historic Preservation - Planning - Landscape Design III4 Grand Avenue - Phoenix AZ 85007 - 602.254.5599 - motleydesigngroup.com
			PROJECT: 3575 W. Northern Ave Remodel
			ADDRESS: 3575 W. Northern Ave Phoenix AZ 85051
			PROJECT NO.: 19-016 SHEET TITLE:
			Exterior Elevations
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PROJECT: 3575 W. Northern Ave Remodel Address: 3575 W. Northern Ave Phoenix AZ 85051 PROJECT NO: 19-016								
SHEET TITLE: Building Sections DATE of ISSUE: Enter in Project info CURRENT REVISION: ,	PRELIMINARY							
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Door and	Frame S	chedule													4 Window Head/Jamb 3" = 1'-0"	55
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															Sill pan Storefront window Sill pan Sealant under sill pan	
Window S	chedule															(17) V
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W02	9'-1/2"	9'-6"		Fixed	В	Bronze Anodiz.										
W03	7'-2 1/2"	9'-6"		Fixed	C	Bronze Anodiz.										
Window T	vpes															
	/ 1			Window	w Types											
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Door and	Frame S	chedule													4 Window Head/Jamb 3" = 1'-0"	<b>55</b>
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															5/8" Exterior plywood sheathing 5/8" Gyp. board	she 2 Coot
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W02	9'-1/2"	9'-6"		Fixed	В	Bronze Ar	nodiz									
W03	7'-2 1/2"	9'-6"		Fixed	C	Bronze Ar	nodiz									
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**Electrical Symbols & Specifications** 

# ELECTRICAL SPECIFICATIONS - NOT A

SECTION 1 - GENERAL SPECIFICATIONS AND WARRANTY ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE ELECTRICAL SYSTEM THAT MEETS THE INTENT OF THESE CONSTRUCTION DOCUMENTS, NOTES, AND SPECIFICATIONS. AGENCY SHALL TEST BOT INSULATION RESISTANCE 8.4. ELECTRICAL DRAWINGS ARE SCHEMATIC IN NATURE. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A COMPLETE, OPERATIONAL, AND FUNCTIONAL SYSTEM. ANY AND ALL DEVICES, MATERIALS, PERFORM TEST ON BOT AND LABOR SHALL BE INCLUDED IN INITIAL BID. <u>GROUND FAULT PROTECTI</u> 8.5. 1.3. PRIOR TO PROVIDING BID, THE ELECTRICAL CONTRACTOR SHALL CONDUCT ON-SITE FIELD INVESTIGATION TO BECOME FAMILIAR WITH EXISTING SITE CONDITIONS. THERE WILL BE NO ALLOWANCES MADE FOR SETTING WITH COORDINA FAILURE TO COMPLY RESISTANCE TO GROUND. 1.4. ALL ELECTRICAL INSTALLATIONS SHALL COMPLY WITH THE CURRENT ADOPTED NATIONAL ELECTRIC CODE (NEC), INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL ENERGY CONSERVATION CODE (IECC), ANY LOCAL AND STATE ADOPTED CODES AND ORDINANCES. AND LOCAL UTILITY COMPANY REQUIREMENTS. <u>SECTION 9 – ELECTRICAL</u> 1.5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN CLARIFICATION ON ANY CONFLICT IN THE CONSTRUCTION DOCUMENTS, ELECTRICAL SPECIFICATIONS, OR DESIGN PRIOR TO HIS BID. THIS LABELING: CLARIFICATIONS SHALL BE MADE IN THE FORM OF A WRITTEN R.F.I. ANY INTERPRETATIONS MADE BY THE CONTRACTOR NOT CLARIFIED IN WRITING SHALL BE HIS OR HER RESPONSIBILITY TO CORRECT (AT HIS 9.1.A. ALL NEW AND EX COST) TO MEET THE INTENT OF THE CONSTRUCTION DOCUMENTS. 9.1.B. ALL ELECTRICAL 1.6. THE MATERIALS AND WORKMANSHIP MUST COMPLY WITH THE RECENT ADOPTED LOCAL CODES (NFPA, NEC, IBC, ADA, EPA, IECC, UTILITY COMPANY REQUIREMENTS, AND ANY AND ALL STATE AND LOCALLY ¼″ TALL WHITE L AS FOLLOWS: "W ADOPTED CODES). ALL FQUIPMENT CONTRO 1.7. ELECTRICAL CONTRACTOR SHALL OBTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AND COORDINATE WITH ALL TRADES INCLUDING BUT NOT LIMITED TO, ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, STRUCTURAL, LANDSCAPE, FIRE ALARM, AND EQUIPMENT VENDOR. NO PROVISIONS WILL BE MADE FOR FAILURE TO COMPLY. EXISTING PANEL BOARD 9.3.A. PROVIDE NEW CIR 1.8. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFY EXACT LOCATION OF ALL DEVICES AND LIGHT FIXTURES WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN. ANY CONFLICTS SHALL BE PROVIDED IN 9.3.B. PROVIDE 60 DEGR WRITING TO THE ENGINEER. PANEL BOARDS G 1.9. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO CONTACT SERVING ELECTRICAL UTILITY COMPANY WITHIN FIVE (5) BUSINESS DAYS OF BEING AWARDED A CONTRACT. ELECTRICAL CONTRACTOR 9.4. NEW PANEL BOARDS: SHALL PROVIDE THE SERVING UTILITY COMPANY WITH A COMPLETE SET OF ELECTRICAL CONSTRUCTION DOCUMENTS INCLUDING (BUT NOT LIMITED TO) AN ELECTRICAL SITE PLAN, ONE-LINE DIAGRAM, PANEL 9.4.A. ALL NEW PANE SCHEDULES, AND "SES" LOAD SUMMARY. 9.4.B. ALL NEW PANE 1.10. THE ELECTRICAL CONTRACTOR SHALL TAKE RESPONSIBILITY FOR ANY EQUIPMENT HE SUPPLIES. ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURE'S RECOMMENDATIONS. THE ELECTRICAL CONTRACTOR SHALL, 9.4.C. PROVIDE 60 DEGR AT HIS COST. CORRECT ANY FAILURE TO COMPLY. PANEL BOARDS G 1.11. ANY DEVIATION FROM THE ELECTRICAL CONSTRUCTION DOCUMENTS SHALL BE APPROVED IN WRITING IN THE FORM OF AN R.F.I. 9.4.D. ACCEPTABLE MAN 1.12. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND VARIANCES NEEDED TO COMPLETE HIS SCOPE OF WORK. 9.5. CIRCUIT BREAKERS: 9.5.A. ALL CIRCUIT BRE <u>SECTION 2 – REMODELS AND TENANT IMPROVEMENTS</u> ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT SCOPE OF REMODEL PRIOR TO THE START OF WORK. ELECTRICAL CONTRACTOR SHALL PROTECT ALL EXISTING POWER AND LIGHTING THAT IS TO REMAIN AND 9.5.B. ALL CIRCUIT BRE 9.5.C. ALL CIRCUIT BREA KEEP ENERGIZED DURING CONSTRICTION. 9.5.D. ALL CIRCUIT BRE 2.2. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A SAFE AND HAZARD FREE WORK ZONE. CONTRACTOR SHALL REMOVE ALL DEMOLISHED EQUIPMENT AT THE END OF EACH DAY TO MINIMIZE 9.5.E. ANY CIRCUIT BRE HAZARDS AND TO MAINTAIN A CLEAN WORK ENVIRONMEN 9.6. 9.6 TRANSFORMERS: 2.3. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR: 9.6.A. ALL TRANSFORME VERIFY SERVICE ENTRANCE SECTION BONDING AND GROUNDING AND BRING INTO COMPLIANCE IF FOUND TO NOT MEET NEC CODE REQUIREMENTS. 9.6.B. ALL TRANSFORME VERIFY ALL FEEDER SIZES AND BRING INTO COMPLIANCE IF FOUND TO NOT MEET NEC CODE REQUIREMENTS. 9.6.C. ALL TRANSFORMER 2.5.A. ALL ELECTRICAL DISTRIBUTION EQUIPMENT (SWITCHBOARDS, DISTRIBUTION PANELBOARDS, AND TRANSFORMERS) IN THIS SCOPE OF WORK SHALL BE INSPECTED TO ENSURE PROPER WORKING ORDER. ALL 9.6.D. ACCEPTABLE MAN EQUIPMENT SHALL BE CLEANED AND HAVE LUGS RE-TORQUED. 2.5.B. ANY LIGHT FIXTURE THAT IS TO REMAIN OR BE RE-USED IN THIS SCOPE OF WORK SHALL BE CLEANED AND RE-LAMPED. <u>SECTION 10 – LUMINAIR</u> 2.5.C. ALL LIGHT FIXTURES WITH EMERGENCY FEATURES SHALL BE INSPECTED AND TESTED. ANY FIXTURE FOUND TO BE DAMAGED SHALL BE REPAIRED OR REPLACED AS REQUIRED. THE SAME SHALL BE 10.1. ALL LUMINAIRES SHAL REQUIRED FOR EXIT SIGNAGE. 10.2. ALL LUMINAIRES THAT A 2.6. THE ELECTRICAL CONTRACTOR SHALL REPORT ALL DISCREPANCIES AND NON-COMPLIANT ITEMS TO THE OWNER AND ENGINEER IN WRITING. 10.3. ALL FLUORESCENT FIXTU 10.4. ALL LIGHT FIXTURES PR <u>SECTION 3 – ELECTRICAL DEMOLITION</u> ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT SCOPE OF DEMOLITION PRIOR TO THE START OF WORK. ELECTRICAL CONTRACTOR SHALL PROTECT ALL EXISTING POWER AND LIGHTING THAT IS TO REMAIN AND 10.5. THE ELECTRICAL CONTRA KIT SHALL BE EQUIPPED KEEP ENERGIZED DURING CONSTRICTION. OPPOSITE CORNERS OF 3.2. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A SAFE AND HAZARD FREE WORK ZONE. CONTRACTOR SHALL REMOVE ALL DEMOLISHED EQUIPMENT AT THE END OF EACH DAY TO MINIMIZE 10.6. ANY PRISMATIC LENS SH HAZARDS AND TO MAINTAIN A CLEAN WORK ENVIRONMENT. 3.3. ANY DEMOLISHED CIRCUITS SHALL BE REMOVED COMPLETELY INCLUDING BUT NOT LIMITED TO CONDUIT, WIRE, SUPPORT STRUCTURE, FASTENERS, AND JUNCTION BOXES. ALL REMOVED CIRCUITS SHALL BE 10.7. <u>LAMPING</u> 10.7.A. ALL FLUORESCENT RE-LABLED IN PANELBOARDS OR LOAD CENTER AS "SPARE." ELECTRICAL CONTRACTOR SHALL TRACE AN UN-MARKED BRANCH CIRCUITS AND PROVIDE A NEW, TYPED PANEL SCHEDULE DIRECTORY THAT CLEARLY 10.7.B. ALL H.I.D. LAMPS IDENTIFIES ALL BRANCH CIRCUITS. 3.4. EXISTING ELECTRICAL EQUIPMENT THAT INTERFERES WITH CURRENT SCOPE OF WORK SHALL BE PROTECTED OR REMOVED AND RE-INSTALLED UPON PROJECT COMPLETION. SUCH REMOVAL, DISCONNECTION, 10.7.C. ALL INCANDESCEN 10.8. <u>BALLASTS</u> 10.8.A. ACCEPTABLE BALL RELOCATION, AND RE-INSTALLATION SHALL BE INCLUDED IN ELECTRICAL CONTRACTOR'S ORIGINAL BID. FAILURE TO COMPLY SHALL NOT RESULT IN ADDED COST TO THE OWNER. 3.5. ANY DISTRIBUTION BOARDS, PANEL BOARDS, OR LOAD CENTERS AFFECTED UNDER THIS SCOPE SHALL HAVE THE LOADS OF EACH CIRCUIT AFFECTED AND FEEDERS TESTED TO VERIFY THEY DO NOT EXCEED 80% 10.8.B. ALL BALLASTS SH OF THEIR STATED RATING. ANY DAMAGED CIRCUIT BREAKER OR FEEDERS SHALL BE REPLACED WITH NEW UNDER THIS SCOPE OF CONSTRUCTION. 10.8.C. ALL FLUORESCENT 3.6. ALL EXISTING EQUIPMENT AND INSTALLATIONS SHALL BE VERIFIED TO BE IN COMPLIANCE WITH EXISTING CODES AND ORDINANCES. ALL NON-COMPLIANT INSTALLATIONS SHALL BE BROUGHT UP TO COMPLIANCE WAREHOUSE AREA WITH EXISTING CODES. 10.8.D. ALL H.I.D. BALLAS 10.8.E. ALL ELECTRONIC <u>SECTION 4 – MEANS, METHODS, AND MATERIALS</u> OF 3 AMPS AT 27 ALL RECEPTACLES LOCATED WITHIN SIX FEET OF WATER OR A SINK SHALL BE PROTECTED BY EITHER A GFCI TYPE RECEPTACLE OR GFCI TYPE CIRCUIT BREAKER IN PANELBOARDS. 4.2. ALL EMT, "SEALTIGHT". RIGID NON-METALLIC CONDUIT, FLEXIBLE METALLIC CONDUIT, FLEXIBLE NON-METALLIC CONDUIT, AND ANY OTHER CONDUIT THAT DOES NOT THAT DOES NOT CONTAIN A GROUND WIRE <u>SECTION 11 – EMERGEN</u> SHALL HAVE A BOND WIRE SIZED PER NEC INCLUDED AS PART OF BRANCH CIRCUIT CONDUCTORS. 11.1. EMERGENCY PATH OF E 4.3. ALL EQUIPMENT AND MATERIALS SHALL BE A STANDARD PRODUCT MADE BY A REPUTABLE MANUFACTURE. INSTALL ALL EQUIPMENT AS RECOMMENDED BY MANUFACTURE SPECIFICATIONS. PATH OF EGRESS PER 4.4. ALL WIRING DEVICES SHALL BE SPEC GRADE BY PASS & SEYMOUR, HUBBELL, OR LEVITON. ALL WIRING DEVICES SHALL BE RATED AT 20 AMPS OR GREATER. WIRING DEVICES SHALL BE WHITE. CONTRACTOR 11.2. ALL LIGHT FIXTURES DES SHALL VERIFY EXACT FINISH WITH ARCHITECT PRIOR TO ORDERING. 4.5. ELECTRICAL CONTRACTOR SHALL PROVIDE PERMANENT MARKING ON COVERPLATE INDICATING PANEL AND CIRCUIT NUMBER. COVERPLATES SHALL BE WHITE FOR OFFICE APPLICATIONS AND STAINLESS STEEL IN WAREHOUSE/INDUSTRIAL/MANUFACTURING AREAS. CONTRACTOR SHALL VERIFY EXACT FINISH WITH ARCHITECT PRIOR TO ORDERING. <u>SECTION 12 – LIGHTING</u> 12.1. ALL LIGHT SWITCHES SH 4.6. ELECTRICAL CONTRACTOR MAY USE ELECTRICAL METALLIC TUBING ("EMT") WHERE ACCEPTABLE BY THE NEC. EMT SHALL NOT BE USED WHERE INSTALLATION IS SUBJECT TO PHYSICAL DAMAGE. MINIMUM 12.2. ALL OCCUPANCY SENSO ACCEPTABLE SIZE FOR BRANCH CIRCUITS IS 3/" AND HOMERUNS IS 3/". 12.3. ALL LIGHTING CONTROL 4.7. ALL EMT FITTINGS SHALL BE COMPRESSION TYPE. SET-SCREW FITTINGS SHALL ONLY BE ACCEPTED WITH WRITTEN APPROVAL FROM OWNER AND ENGINEER. BE COORDINATED WITH 4.8. ALL CONDUCTORS SHALL BE COPPER AND RATED FOR 600V. THE MINIMUM LINE VOLTAGE CONDUCTOR SIZE SHALL BE #12 AWG COPPER. ALL CONDUCTORS #6 AND SMALLER SHALL HAVE THHN OR THHW 12.4. ALL DAYLIGHT HARVESTIN INSULATION. ALL CONDUCTORS #4 AWG AND LARGER SHALL HAVE XHHW OR XHHW-2 TYPE INSULATION. ALL CONDUCTOR INSULATION SHALL BE RATED FOR 90 DEGREES. ANY 120V BRANCH CIRCUIT 12.5. ALL LIGHTING CONTACTOR OVER 100'-0" SHALL HAVE #10 AWG MINIMUM AND 277V BRANCH CIRCUITS OVER 200'-0" SHALL HAVE #10 AWG MINIMUM. 12.6. ACCEPTABLE OCCUPANCY 4.9. BRANCH CIRCUITS CONTAINING TWO (2) OR MORE CURRENT CARRYING CONDUCTORS SHALL HAVE DEDICATED NEUTRALS. LIGHTING CONTROL RELAY 4.10. ALL CONDUITS SHALL BE INSTALLED IN A NEAT AND ORGANIZED MANNER. CONDUITS SHALL BE RUN PARALLEL AND PERPENDICULAR TO BUILDING LINE. CONDUIT SHALL NOT BE RUN ON EXTERIOR FACES OF THE 12.7. ALL DIMMER SWITCHES DIMMER MANUFACTURE 4.11. ALL CONDUIT SUPPORT SHALL BE INSTALLED ON THE STRUCTURE OF THE BUILDING BY WAY OF UNI-STRUCT OR EQUAL U.L. LISTED PRODUCT. CONDUIT SHALL NOT BE SUPPORTED BY CEILING GRID SYSTEM, TIE 12.8. ALL SWITCHING DEVICES WIRES, OR ANY OTHER BUILDING PIPING. ALL INSTALLATIONS AND SUPPORTING SHALL BE PER NEC APPROVED METHOD. 4.12. FLEXIBLE METAL CONDUIT SHALL BE USED TO CONNECT EQUIPMENT THAT MAY VIBRATE. MAXIMUM LENGTH SHALL BE 6'-0". SUCH INSTALLATIONS MADE OUTDOORS SHALL UTILIZE SEAL TIGHT. SECTION 13 - TELEPHO 4.13. MC CABLE MAY BE USED FOR CONCEALED BRANCH CIRCUITS ONLY. MC CABLE MAY NOT BE USED FOR EXPOSED BRANCH CIRCUITS, HOME RUNS, MEDICAL APPLICATIONS, OR EXTERIOR INSTALLATIONS. THE USE 13.1. ELECTRICAL CONTRACTOR OF MEDICAL GRADE MC CABLE MAY BE USED FOR MEDICAL CONCEALED BRANCH CIRCUITS ONLY. IT SHALL NOT BE USED FOR EXPOSED BRANCH CIRCUITS, HOME RUNS, OR EXTERIOR INSTALLATIONS. THE USE CONTRACTOR SHALL BE OF MC CABLE MUST BE ACCEPTED BY OWNER/TENANT/LANDLORD IN WRITING PRIOR TO USE 13.2. ALL TELEPHONE MOUNTIN 4.14. ALL NEW FEEDERS SHALL BE CONTINUOUS. ANY SPLICE IN A NEW CONDUCTOR REQUIRES WRITTEN APPROVAL BY ENGINEER. BE "CDX" TYPE PLYWOO 4.15. ALL FEEDERS SHALL HAVE CONTINUOUS COLORED INSULATION. 4.16. ALL FEEDER CONNECTIONS AND SPLICES SHALL BE EXOTHERMIC WELDS - NO EXCEPTIONS. 14. <u>SECTION 14 – MOTORS.</u> 14.1. ELECTRICAL CONTRACTOR 4.17. ALL CABLING INSTALLED IN A PLENUM CEILING SHALL BE PLENUM RATED ACCORDING TO THE ADOPTED NEC ARTICLE "WIRING METHODS." 4.18. ALL NON-METALLIC CONDUIT (PVC - MINIMUM OF SCHEDULE 40) SHALL BE INSTALLED A MINIMUM OF 24" BELOW GRADE OR SLAB. PVC MAY ONLY BE USED UNDER GROUND, IN CONCRETE, OR IN MASONRY INCLUDES COORDINATION WALLS, ALL CONDUIT INSTALLED UNDERGROUND SHALL CONTAIN A METALLIC TRACE WIRE. THE METALLIC TRACER WIRE SHALL BE A MINIMUM OF #18 AWG COPPER. IT IS RECOMMENDED THE TRACER WIRE BE POINT-OF-USE WATER SECURED TO THE TOP OF THE CONDUIT AT 6'-O"ON CENTER. IMPACT OR CHANGE THE 4.19. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER. ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER. 14.2. DISCONNECT SWITCHES 4.20. ANY MATERIAL INSTALLED OUTSIDE SHALL BE U.L. LISTED FOR USE IN WET LOCATION. ANY DISCONNECT SWITCH 4.21. ALL CONDUCTORS SHALL BE LABELED AT TERMINATION POINTS WITH PANEL AND CIRCUIT NUMBER THAT FEEDS EACH CONDUCTOR. AND A CREDIT TO OWNE 4.22. CONDUCTOR COLOR CODING: 14.3. ELECTRICAL CONTRACTOR \*ALL EQUIPMENT GROUNDING CONDUCTORS (E.G) SHALL BE GREEN REQUIREMENTS AND/OR 14.4. FI FCTRICAL CONTRACTOR \*ALL ISOLATED GROUNDING CONDUCTORS (I.G.) SHALL BE GREEN WITH YELLOW STRIP 4.22.A. 120V, 2-WIRE: UNGROUNDED LEG=BLACK; GROUNDED NEUTRAL=WHITE SYSTEM. NO PROVISIONS 14.5. ELECTRICAL CONTRACTOR 4.22.A. 120/240V, 3-WIRE, 1-PHASE: PHASE A=BLACK; PHASE B=RED; GROUNDED NEUTRAL=WHITE 4.22.B. 240V DELTA, 3-WIRE, 3-PHASE: PHASE A=BLACK; PHASE B=RED; PHASE C=BLUE THERMAL OVERLOADS, T 4.22.C. 120/240V, 4-WIRE, 3-PHASE HIGH-LEG DELTA: PHASE A=BLACK; PHASE C=BLUE; HIGH LEG (208V TO NEUTRAL)=ORANGE; GROUNDED NEUTRAL=WHITE 14.6 ALL TAP CONDUCTOR SH 4.22.D. 208Y/120V, 4-WIRE, 3-PHASE: PHASE A=BLACK; PHASE B=RED; PHASE C=BLUE; GROUNDED NEUTRAL=WHITE 14.7. ELECTRICAL CONTRACTOR 4.22.E. 480V DELTA, 3-WIRE, 3-PHASE: PHASE A=BROWN; PHASE B=ORANGE; PHASE C=YELLOW 14.8. ELECTRICAL CONTRACTOR 4.22.F. 480Y/277V, 4-WIRE, 3-PHASE: PHASE A=BROWN; PHASE B=ORANGE; PHASE C=YELLOW; GROUNDED NEUTRAL=GRAY 15. <u>SECTION 15 – SURGE F</u> <u>SECTION 5 – ELECTRICAL SUBMITTAL PROCESS , AS-BUILTS, AND WARRANTIES</u> ELECTRICAL CONTRACTOR SHALL SUBMIT A COMPLETE ELECTRICAL SUBMITTAL TO ELECTRICAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ORDERING ANY EQUIPMENT. SUBMITTAL SHALL INCLUDE ANY NEW 15.1. ALL SPD's SHALL BE U. 15.2. FOR ALL EXTERNALLY MC SWITCHBOARDS, COORDINATION STUDY (IF REQUIRED), PANEL BOARDS, CIRCUIT BREAKERS, LIGHT FIXTURE, LIGHT POLES, LIGHTING CONTROLS, FIRE ALARM EQUIPMENT, STARTERS, DISCONNECT SWITCHES, 15.3. ALL SPD's SHALL HAVE INTERNALLY MOUNTED AND EXTERIOR MOUNTED SPD'S, AND HVAC EQUIPMENT. INDICATOR LIGHTS IN SH 5.2. SUBMITTAL MAY BE EMAILED AS A .PDF DOCUMENT OR DELIVERED AS A HARD COPY. IF HARD COPIES ARE USED, A MINIMUM OF (2) TWO COPIES ARE REQUIRED; (1) ONE TO MARK-UP AND RETURN AND (1) 16. <u>SECTION 16 – ELEVATOR</u> 16.1. IT SHALL REMAIN THE R ONE TO KEEP FOR ENGINEER'S RECORDS. 5.3. ALL SUBMITTALS AND/OR SHOP DRAWINGS SHALL INCLUDE COMPLETE DIMENSIONS FOR REFERENCE. 16.2. ALL INSTALLATIONS SHAL 5.4. THE CONTRACTOR SHALL PROVIDE (2) TWO SETS OF MANUFACTURE AND SUPPLIER WARRANTIES, OPERATIONS MANUALS, AND ALL OTHER MATERIAL TO OWNER/TENANT WITHIN TWO WEEKS OF FINAL CERTIFICATE OF 16.3. ELECTRICAL CONTRACTOR 16.3.A. DEDICATED BRANC 5.5. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A COMPLETE, ACCURATE, AND FINAL AS-BUILT TO THE ENGINEER AND OWNER WITHIN 2 WEEKS OF PROJECT COMPLETION. AS-BUILTING BY THE ENGINEER WILL BE 16.3.B. DEDICATED BRANC BILLED A STANDARD HOURLY RATES. 16.3.C. DEDICATE BRANCH 5.6. THE ELECTRICAL CONTRACTOR SHALL TRANSFER ALL MANUFACTURE WARRANTIES TO OWNER/TENANT AT COMPLETION OF PROJECT. THIS SHALL INCLUDE ALL WRITTEN DOCUMENTATION FURNISHED BY 16.3.D. DEDICATED BRANC SUPPLIER/MANUFACTUERER. FI FVATOR FQUIP 5.7. THE OWNER/TENANT RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO REMOVE AND REPLACE (AT HIS COST) ANY EQUIPMENT OR INSTALLATIONS THAT DO NOT MEET THESE ELECTRICAL SPECIFICATIONS OR 16.3.E. PROVIDE SMOKE FLECTRICAL CONSTRUCTION DOCUMENTS. MODE IN CASE ( 5.8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A MINIMUM OF A TWO YEAR WARRANTY ON ALL WORK PERFORMED BY THE CONTRACTOR. THIS INCLUDES ALL MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED 16.3.F. PROVIDE SMOKI BY THE CONTRACTOR. ANY ITEM THAT FAILS OR IS FOUND TO HAVE A DEFECT SHALL BE REPAIRED OR REPLACED, AT THE CONTRACTORS, EXPENSE WITHIN WARRANT PERIOD. SHUT-DOWN O 16.3.G. PROVIDE HEAT DE 6. <u>SECTION 6 – SERVICE ENTRANCE SECTION</u> 6.1. ALL NEW SERVICE EQUIPMENT SHALL BE INSTALLED SUCH THAT IT MEETS ALL CLEARANCE REQUIREMENTS STATED IN NEC ARTICLE 110. Shall be tied II 16.4. THE CONTRACTOR(S) SH 6.2. ALL SERVICE EQUIPMENT REQUIRING SPECIAL INSPECTIONS AND/OR OBSERVATIONS SHALL BE COORDINATED WITH DESIGN ENGINEER, AHJ, AND SERVING UTILITY COMPANY. QUALIFIED 3RD PARTY SHALL CONDUCT DIRECTLY RELATED TO T HI-POT TEST AND PROVIDE WRITTEN RESULTS TO ENGINEER. SEE ADDITIONAL INFORMATION IN ELECTRICAL SPECIFICATION SECTION 8. 16.5. IF FIRE SPRINKLERS AR 6.3. ELECTRICAL ENGINEER SHALL BE NOTIFIED UPON COMPLETE INSTALLATION OF ANY NEW OR RENOVATED ELECTRICAL DISTRIBUTION SYSTEM. ELECTRICAL ENGINEER SHALL HAVE OPPORTUNITY TO INSPECT PRIOR TO WATER BEING INSTALLED SYSTEM PRIOR TO ENERGIZING SYSTEM REGARDLESS IF SPECIAL INSPECTION IS REQUIRED. 6.4. ALL ELECTRICAL EQUIPMENT RATED 1000 AMPERES OR GREATER SHALL BE TESTED IN COMPLIANCE WITH U.L. 869 OR 891. THESE TESTS SHALL BE PERFORMED BY QUALIFIED TESTING AGENCY AND RESULTS 17. <u>Section 17 – Fire Ala</u> 17.1. It shall remain the r APPROVED BY BUILDING OFFICIAL. 6.5. ALL GROUND FAULT SETTINGS SHALL BE SET PER MANUFACTURE'S RECOMMENDATIONS AS STATED IN COORDINATION STUDY. 17.2. ALL SYSTEMS SHALL BE ELECTRICAL CONTRACTOR SHALL PROVIDE A COMPLETE SET OF SUBMITTALS TO ENGINEER TO REVIEW PRIOR TO ORDERING ANY EQUIPMENT. SUBMITTALS SHALL ALSO BE PROVIDED TO SERVING UTILITY COMPANY 17.3. CONTRACTOR SHALL PRO FOR APPROVAL PRIOR TO ORDERING ANY EQUIPMENT. 17.4. SPRINKLER SYSTEMS WIT 6.7. ACCEPTABLE MANUFACTURERS FOR SWITCHGEAR SHALL BE SIEMENS, SQUARE D, EATON: CUTLER HAMMER, GENERAL ELECTRIC (GE), SUN VALLEY (AS SPECIFIED ON CONSTRUCTION DOCUMENTS), AND MYERS REQUIRE A MINIMUM OF POWER SYSTEMS (FOR SITE PEDESTAL SERVICES AS SPECIFIED IN DOCUMENTS). 17.5. ALL FIRE ALARM SYSTEM 6.8. ALL NEW SWITCHGEAR SHALL HAVE COPPER BUSSING (SILVER PLATED), HAVE U.L. LABEL, AND FULL SIZED BUSSING (HORIZONTAL AND VERTICAL). TAPERED BUSSES NOT PERMITTED. 17.6. ALL DEVICES SHALL BE 6.9. ALL UTILITY METERED SECTIONS AND UTILITY COMPLAINT PULL SECTIONS SHALL BE BARRIER FROM ALL OTHER WORK. FINAL APPROVAL OF ALL SWITCH GEAR SHALL BE MADE BY AHJ AND/OR SERVING UTILITY 17.7. SMOKE DETECTORS SHA 17.8. ALL SYSTEMS SHALL BE 17.9. ACCEPTABLE MANUFACTU 6.10. ALL SWITCH GEAR 480V LINE TO LINE WITH SWITCHES AND/OR CIRCUIT BREAKERS 1000 AMPS AND GREATER SHALL HAVE GROUND FAULT PROTECTION. ALL GROUND FAULT PROTECTED SYSTEMS SHALL BE 17.10. IN EXISTING BUILDINGS PROVIDED WITH AUDIBLE AND VISIBLE ALARMS. 6.11. ALL SERVICE ENCLOSURES SHALL MEET ALL U.L REQUIREMENTS AND SERVING UTILITY REQUIREMENTS. THERE SHALL BE A PHYSICAL BARRIER BETWEEN SECTIONS, LINE AND LOAD. ALL SWITCHGEAR SHALL BE INCLUDE ANY ADDITIONAL U.L. LISTED FOR FRONT ACCESS ONLY. 18. <u>SECTION 18 – MEDICAL</u> 18.1. PATIENT CARE AREA IS I 6.12. NO COVERS SHALL BE GREATER THAN 1/3 OF THE TOTAL HEIGHT OF THE SWITCHGEAR. THE HEIGHT AND DEPTH OF ALL SWITCHGEAR SECTIONS SHALL BE CONSISTENT. 6.13. CONTRACTOR SHALL PROVIDE A CONCRETE HOUSEKEEPING PAD AT ALL FREE STANDING ELECTRICAL SWITCHGEAR. COORDINATE EXACT REQUIREMENT AND SIZE WITH SERVING UTILITY COMPANY.

<u>SECTION 7 – COORDINATION STUDY</u>

WHEN REQUIRED: A COORDINATION STUDY SHALL BE REQUIRED WHEN A TWO-TIER GROUND FAULT PROTECTED SYSTEM OR CIRCUIT BREAKER WITH ADJUSTABLE TRIP IS SPECIFIED. THE PURPOSE OF THE COORDINATION STUDY IS TO ANALYZE ALL PROTECTIVE DEVICES IN THE SYSTEM AND DETERMINE THE CORRECT SETTING TO MINIMIZE DAMAGE CAUSED BY AN ELECTRICAL FAULT. THE COORDINATION STUDY SHALL INCLUDE THE OVER-CURRENT DEVICE CLOSEST TO UTILITY COMPANY SERVICE, MAIN CIRCUIT BREAKERS AT ALL PANEL BOARDS, AND BRANCH CIRCUIT BREAKERS IN ALL PANEL BOARDS. THE COORDINATION STUDY SHALL INCLUDE BOTH NORMAL POWER AND EMERGENCY/STAND-BY SYSTEMS. ALL PHASE AND GROUND OVER-CURRENT PROTECTION SHALL BE INCLUDED IN THIS STUDY. THIS WILL ENSURE PROPER COORDINATION FOR THE ELECTRICAL DISTRIBUTION SYSTEM.

7.4. THE COORDINATION STUDY SHALL BE REQUESTED BY THE ELECTRICAL CONTRACTOR AT THE TIME OF SHOP DRAWING PREPARATION. THE COORDINATION STUDY SHALL BE DONE BY AN ELECTRICAL P.E. IN THE STATE IN WHICH THE PROJECT IS TO BE CONSTRUCTED. THE STUDY CAN BE COMPLETED BY EITHER AN INDEPENDENT CONSULTANT OR MANUFACTURE. COORDINATION STUDY SHALL PROVIDE ALL TRIP CURVES OF FUSES AND CIRCUIT BREAKERS IN THE SYSTEM INCLUDING TIME AND CURRENT RATIOS FOR ALL CURVES

COORDINATION STUDY SHALL PROVIDE THE FOLLOWING ITEMS: GROUND FAULT PICKUP AND TIME DELAY, CIRCUIT BREAKER SENSOR RATING, LONG-TIME, SHORT-TIME, AND INSTANTANEOUS SETTINGS, TIME BANDS, FUSE RATING AND TYPE (IF APPLICABLE), CURRENT TRANSFORMER RATIO, RELAY TAP, AND TIME DELAY. 7.7. THE COORDINATION STUDY SHALL BE PROVIDED TO THE ENGINEER WITH SWITCHGEAR SUBMITTAL AND SHALL INCLUDE A SUMMARY NOTING ANY ITEMS THAT ARE NOT COORDINATED OR UNDER RATED.

SECTION 8 - ELECTRICAL TESTING AN INDEPENDENT TESTING AGENCY SHALL PROVIDE TEST RESULT TO ENGINEER ON THE ELECTRICAL "SES" AND ELECTRICAL DISTRIBUTION SYSTEM. TESTING SHALL BE MADE BY A CERTIFIED NETA OR NICET

CERTIFIED AGENCY. TESTING SHALL COMPLY WITH MANUFACTURER RECOMMENDATIONS AND ALL NATIONAL RECOGNIZED PRACTICES AND STANDARDS. 8.2. FALL OF POTENTIAL TESTING - ALL NEW SERVICES SHALL HAVE FALL OF POTENTIAL TESTING (RESISTANCE TO GROUND) PERFORMED. THE GROUND SHALL HAVE 5 OHMS OR LESS RESISTANCE TO GROUND.

STEM SHALL HAVE LESS THAN 0.5 OHMS POINT TO POINT BETWEEN MAIN GROUNDING AND EQUIPMENT FRAMES, NEUTRAL, OR ANY DERIVED NEUTRAL. HI—POT TEST SHALL NOT BE COMPLETED IF THERE HAS BEEN RAINFALL WITHIN 24-HOURS BEFORE THE TEST. 8.3. OVER-POTENTIAL (HI-POT) TESTING - ALL NEW SERVICES OR EXISTING SERVICES WITH NEW SWITCHES/BREAKERS ADDED TO IT SHALL HAVE HI-POT TEST PERFORMED IF IT IS OVER 1000 AMPS. TESTING

SCHEDULES. AND "SES" LOAD SUMMARY.

OF NEC 517.

LL MAY BE USED		SYMBOLS	LEGEND	)
TH PHASE TO GROUND AND PHASE TO PHASE FOR AT LEAST ONE MINUTE EACH. TEST (MEGGER TEST) – TESTING AGENCY SHALL TEST AT 1000 VOLTS FOR ONE MINUTE WITH A MINIMUM OF 50 MEGAOHMS OF RESISTANCE TO GROUND TESTING AGENCY SHALL	LIGHTING		<u>ABBRE VIATION</u> A	S AMPERE (AMP)
I PHASE TO GROUND AND PHASE TO PHASE. 1001 (GFP) TESTING AGENCY SHALL TEST THE PRIMARY VOLTAGE. VOLTAGE SHALL NOT EXCEED 57% OF RATED VOLTAGE. VERIFY TIME-DELAY SETTING AND PICK-UP TIME TON STUDY TESTING AGENCY SHALL TEST THE PRIMARY VOLTAGE. VOLTAGE SHALL NOT EXCEED 57% OF RATED VOLTAGE. VERIFY TIME-DELAY SETTING AND PICK-UP TIME TON STUDY TESTING AGENCY SHALL TEST THE PRIMARY VOLTAGE. VOLTAGE SHALL NOT EXCEED 57% OF RATED VOLTAGE. VERIFY TIME-DELAY SETTING AND PICK-UP TIME		GRID MOUNTED TROFFER SEE LIGHT FIXTURE SCHEDULE FOR TYPE AND SPECIFICATION.	AIC AI	AVAILABLE INTERRUPTING CURRENT ALUMINUM
IION STUDY. TESTING AGENCY SHALL TEST THE GROUND FAULT PROTECTION RELAY TIMING. TESTING AGENCY SHALL TEST THE GROUNDING CONDUCTOR AND THE INSULATION FOR		SURFACE FLUORESCENT FIXTURE	AFC AFCI	AVAILABLE FAULT CURRENT ARC FAULT CIRCUIT INTERRUPTER
IL DISTRIBUTION, PANELBOARDS, CIRCUIT BREAKERS, AND TRANSFORMERS ISTING PANEL BOARDS SHALL BE PROVIDED WITH NEW. TYPED PANEL BOARD DIRECTORY UNIQUELY LABELING WHAT EACH CIRCUIT BREAKER SERVES.	$\boxtimes \boxtimes$	SUSPENDED HIGH BAY	AFF AFG APS	ABOVE FINISHED FLOOR ABOVE FINISHED GRADE ARIZONA PUBLIC SERVICE
EQUIPMENT (PANELS, SWITCHBOARDS, DISTRIBUTION BOARDS, TRANSFORMERS, DISCONNECT SWITCHES, MOTOR STARTER, ETC) SHALL BE LABELED WITH PERMANENT BLACK STOCK TAG WITH ETTERS. LABEL SHALL INCLUDE NAME OF EQUIPMENT, VOLTAGE, AND PHASE. IN ADDITION, ALL ELECTRICAL DISTRIBUTION EQUIPMENT SHALL BE PROVIDED WITH A WARNING LABEL READING ARNING — ELECTRICAL EQUIPMENT — ONLY QUALIFIED PERSONNEL SHALL OPEN OR OPERATE EQUIPMENT."		SUSPENDED LINEAR LIGHT FIXTURE WALL MOUNTED LIGHT FIXTURE	C C CCT CRI	CONDUIT CORRECTED COLOR TEMPERATURE COLOR RENDERING INDEX
L PANELS SHALL HAVE A MINIMUM WITHSTAND RATING OF 10,000 AIC FOR ONE HALF SECOND O.N.O. : COUIT BREAKERS TO MATCH BRAND AND TYPE WITH AIC RATING AS INDICATED IN CONSTRUCTION DOCUMENTS. REE RATED TERMINATIONS, CONNECTORS, AND LUGS FOR ALL PANEL BOARDS 100 AMPERES AND LESS. PROVIDE 75 DEGREE MINIMUM TERMINATIONS, CONNECTORS, AND LUGS FOR ALL DEFATED THAN 100 AMPERES		WALL MOUNTED WALL PACK SURFACE OR RECESSED LIGHT FIXTURE	Cu DED E EC	COPPER DEDICATED EXISTING ELECTRICAL CONTRACTOR
REATER THAN TOU AMPERES. BOARDS SHALL BE U.L. LISTED. PROVIDE NEMA RATING AS REQUIRED FOR APPLICATIONS IN WHICH IT IS INSTALLED.	<del>ر</del> ان م م م م	SUSPENDED LIGHT FIXTURE	EDF EF	ELECTRIC DRINKING FOUNTAIN EXHAUST FAN EQUIDMENT, CROUND
BOARDS SHALL HAVE COPPER BUSSING, HAVE A HINGED COVER, AND BE DOOR—IN—DOOR CONSTRUCTION. REE RATED TERMINATIONS, CONNECTORS, AND LUGS FOR ALL PANEL BOARDS 100 AMPERES AND LESS. PROVIDE 75 DEGREE MINIMUM TERMINATIONS, CONNECTORS, AND LUGS FOR ALL REATER THAN 100 AMPERES. UFACTURERS FOR PANEL BOARDS SHALL BE SIEMENS, SQUARE D, EATON:CUTLER HAMMER, AND GENERAL ELECTRIC (GE).	₫ ₫ X	SELF–CONTAINED EXIT LIGHT (<5W PER SIDE) WHERE APPLICABLE, ARROWS INDICATE DIRECTION	E.G. EM GFCI	EQUIPMENT GROUND EMERGENCY. PROVIDE 90-MINUTE BATTERY BACK-UP. GROUND FAULT CIRCUIT INTERRUPTER
AKERS SHALL BE FULL SIZED. NO PIGGY-BACK OR TANDEM BREAKERS WILL BE ACCEPTED.		EMERGENCY BATTERY PACK ("BUG-EYE")	GFP GND	GROUND FAULT PROTECTION GROUND/BOND CONDUCTOR
AKERS FEEDING HVAC MOTORS SHALL BE HCAR RATED. AKERS FEEDING LIGHTING CIRCUITS SHALL BE RATED FOR CONTINUOUS DUTY.		EXTERIOR EMERGENCY BATTERY PACK	IECC I.G.	INTERNATIONAL BUILDING CODE INTERNATIONAL ENERGY CONSERVATION CODE ISOLATED GROUND
arer Feeding a Class I or class z areas shall have switched neutrals. RS ABOVE 15Kvg SHALL BE RATED FOR A MINIMUM OF 150 DEGREE TEMPERATURE RISE ABOVE 40 DEGREES AMBIENT.		POLE MOUNTED LIGHT FIXTURE. SEE LIGHT FIXTURE SCHEDULE FOR TYPE AND SPECIFICATION.	кvа M.C.B. M.C.C.	KILOVOLT AMPERE MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER
R 75KVG AND BELOW SHALL BE ABLE TO BE WALL, FLOOR, OR RACK MOUNTED. RS SHALL BE U.L. LISTED. UFACTURERS FOR TRANSFORMERS SHALL BE SIEMENS, SQUARE D, EATON:CUTLER HAMMER, ACME TRANSFORMERS, AND GENERAL ELECTRIC (GE).		CEILING FAN	м.L.О. N N.E.C. NI	MAIN LUG ONLY NEW NATIONAL ELECTRIC CODE NIGHT LIGHT – UN-SWITCHED
<u>YES, BALLASTS, AND LAMPING</u> BE LISTED FOR THE USE IN WHICH THEY ARE INSTALLED. ANY LUMINAIRE INSTALLED OUTDOORS SHALL BE LISTED AS EITHER DAMP OR WET DEPENDING ON LOCATION OF INSTALLATION. RE RECESSED SHALL EITHER BE I.C. RATED OR LOCATED A MINIMUM OF 3″ AWAY FROM COMBUSTIBLE MATERIALS. RECESSED FIXTURES SHALL BE THERMALLY PROTECTED.		TRACK FIXTURE. CONFIRM VOLTAGE & QUANTITY OF TRACK HEADS. AIM PER	R R R.F.I. S.F.S	RELOCATED REQUEST FOR INFORMATION SERVICE ENTRANCE SECTION
IRES THAT HAVE DOUBLE ENDED LAMPS SHALL HAVE INTEGRAL DISCONNECTING MEANS PER CURRENT ADOPTED EDITION OF IECC. OVIDED AND INSTALLED BY CONTRACTOR SHALL BE INSTALLED WITH LAMPS, WHIPS, AND ANY SPECIFIC ACCESSORIES. CTOR SHALL COORDINATE EXACT MOUNTING, CEILING TYPE, AND MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ORDERING, ALL FIXTURES INSTALLED IN A GRID CEILING OR WITH A FLANGE	CONTROLS	SINGLE POLE SPEC GRADE TOGGLE SWITCH	SFD SPD	SMOKE FIRE DAMPER SURGE SUPPRESSION DEVICE
WITH (4) FOUR EARTHQUAKE MOUNTING CLIPS. ALL TROFFERS INSTALLED IN A LAY—IN GRID SHALL BE SUPPORTED PER IBC REQUIREMENTS. CONNECT A MINIMUM OF (2) #9 WIRES TO FIXTURE TO FIXTURE TAUGHT TO STRUCTURE AND (2) LOOSE WIRES AT OTHER CORNERS. IALL BE A MINIMUM OF 0.125" THICK.	\$	MOUNTED AT +44" AFF TO CENTER OF DEVICE.	SRP TEP TMB TTC	SALT RIVER PROJECT TUCSON ELECTRIC POWER TELEPHONE MOUNTING BOARD TELEPHONE TERMINAL CABINET
T LAMPS SHALL BE A MINIMUM OF 3500 KELVIN (UNLESS NOTED OTHERWISE IN LUMINAIRE SCHEDULE) AND 80+ CRI. SHALL BE PULSE START TYPE NOTED IN LUMINAIRE SCHEDULE.	\$#	SWITCH AS NOTED: MOUNTED AT $+44$ AFF TO CENTER OF CENTER OF DEVICE. 3=3-WAY, $LV=LOW-$ VOLTAGE	UFER U.G. UNO	CONCRETE ENCASED ELECTRODE UNDER GROUND UNLESS NOTED OTHERWISE
IT LAMPS SHALL BE 130V FOR "A" TYPE BASE. AST MANUFACTURERS ARE: ADVANCED, GE, AND LUTRON.	"	4=3-WAY K=KEYED D=DIMMER (2000W SLIDE TYPE)	VA W WP	VOLT AMPERES WATT <u>WEATHER PROOF.</u> – RAIN TIGHT
IALL BE UL LISTED, CBM CERTIFIED, AND ETL TESTED. BALLASTS SHALL HAVE AN "A" SOUND RATING, A THD OF LESS THAN 10% , AND A POWER FACTOR GREATER THAT 0.9. T BALLASTS SHALL START AT TO AT LEAST 60 DEGREES F. WHEN BALLASTS ARE LISTED IN LUMINAIRE SCHEDULE AS "COLD WEATHER", INSTALLED IN COOLERS, OUTSIDE, OR OPEN S, BALLAST SHALL START AT O DEGREES F.	\$ <sub>os</sub>	+44" AFF TO CENTER OF DEVICE. SENSOR SHALL BE DUAL-TECHNOLOGY PROGRAMMED	WR X	NEMA 3R OR NEMA 4 WEATHER RESISTANT EXISTING TO BE DEMOLISHED
STS SHALL BE PULSE START, START AT A MINIMUM OF –20 DEGREES F <u>AND</u> 131 DEGREES F. DIMMING BALLASTS SHALL DIM SMOOTHLY FROM 100% OUTPUT TO 10% OUTPUT. IN ADDITION, ELECTRONIC DIMMING BALLASTS SHALL LIMIT INRUSH CURRENT INTERNALLY TO A MAXIMUM 77V AND 7 AMPS AT 120V.		LOW-VOLTAGE PUSH BUTTON CONTROL	XP HVAC	EXPLOSION PROOF
<u>ICY LIGHTING AND BALLASTS</u> GRESS SHALL BE DESIGNED AND DESIGNATED BY ARCHITECT OF RECORD. ELECTRICAL CONTRACTOR SHALL PROVIDE A 1 FOOT CANDLE AVERAGE AND A 0.1 FOOTCANDLE MINIMUM ON THE	eo S	PHOTOCELL (EXTERIOR) – AIM NORTH PHOTO SENSOR (INTERIOR)	4	FUSIBLE DISCONNECT SWITCH W.P. WHERE
BC 1006. SIGNATED AS EMERGENCY (EM) OR NIGHTLIGHT (NL) SHALL BE CONNECT AS UN-SWITCHED.	(PP) (OS)	POWER PACK OR SLAVE PACK CEILING MOUNTED OCCUPANCY SENSOR		FUSIBLE DISCONNECT SWITCH/MOTOR STARTER. 30A/3P WITH MINIMUM SIZE 1 MAGNETIC
<u>CONTROLS (SWITCHES, DIMMERS, OCCUPANCY SENSORS, CONTROL PANELS, DAYLIGHTING, CONTRACTOR)</u> ALL DE INSTALLED IN COMPLIANCE WITH NEC AND IECC FOR GROUPING AND ACCESSIBILITY.	<u> </u>	DUAL-TECHNOLOGY - 360° ELECTRIC TIME CLOCK (ASTRONOMICAL)		STARTER OR U.N.O. N.F. = NON-FUSED
RS SHALL BE PROGRAMMED AS MANUAL "ON" AND VACANCY "OFF." RELAY PANELS SHALL HAVE RELAYS RATED AT 14,000 AIC OR GREATER. ALL LIGHTING CONTROL PANELS SHALL BE PROGRAMMED BY ELECTRICAL CONTRACTOR. ZONING AND TIMES SHALL DWNER/TENANT. ALL PROGRAMMING SHALL MEET THE REQUIREMENTS OF THE CURRENT ADOPTED IECC.	POWER RC	SURFACE MOUNTED PANEL BOARD		ELECTRICAL CONTRACTOR.
IG SENSORS SHALL AUTOMATICALLY CONTROL LIGHTING IN DESIGNATED ZONE. TARGET LIGHTING LEVELS SHALL BE COORDINATE WITH OWNER/TENANT. RS SHALL HAVE A WITHSTAND RATING OF 14,000 AIC FOR 0.5 SECONDS UNLESS SPECIFICALLY NOTED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS. 1 SENSOR SWITCH, LOW-VOLTAGE SWITCH, TOGGLE SWITCH, AND DIMMER SWITCH MANUFACTURES ARE: LUTON, LEVITON, WATTSTOPPER, HUBBELL, DOUGLAS, AND LC AND D. ACCEPTABLE		FLUSH MOUNTED PANEL BOARD (MINIMUM 6" WALL DEPTH REQUIRED)		ELECTRICAL CONTRACTOR. SEE PLAN FOR SIZE AND REQUIREMENTS.
Y PANELS ARE: WATT STOPPER, LUTON, HUBBELL, DOUGLAS, AND LC AND D. (LINE VOLTAGE, 0—10V, OR FORWARD PHASE) USED WITH LED TYPE LUMINAIRES OR LAMPS SHALL BE LISTED FOR USE WITH SPECIFIC FIXTURE/LAMP. COORDINATE INRUSH CURRENT WITH IND LED DRIVER MANUELACTURE	⇔	20A SPECIFICATION GRADE, DUPLEX RECEPTACLE MOUNTED 15" AFF TO BOTTOM U.N.O.	(M)	MOTOR
NG ELD DRIVER MAINTOTALE. SHALL BE UL LISTED FOR SPECIFIC USE OF LOAD BEING CONTROLLED. ALL DIMMERS AND SWITCHES SHALL MEET U.L., ANSI, AND IEEE STANDARDS. NE DATA AND LT. SYSTEMS.	•	20A SPECIFICATION GRADE DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER OR	Şm	THERMAL OVERLOADS.
RE, DAIR, AND T.T. STSTEMD SHALL PROVIDE EMPTY ¾ EMT CONDUIT WITH NYLON PULLSTRING STUBBED ABOVE ACCESSIBLE CEILING SPACE FOR ALL TELE/DATA DEVICES SHOWN. IN ADDITION, THE ELECTRICAL RESPONSIBLE FOR PROVIDING JUNCTION BOX AND MUD—RING. COORDINATE ALL PHONE AND DATA REQUIREMENTS WITH OWNER/TENANT PRIOR TO ROUGH—IN.	$\bigcirc$	20A SPECIFICATION GRADE 1/2 SWITCHED DUPLEX RECEPTACLE MOUNTED 15" AFF TO	<u>TELE/DATA</u>	DATA OUTLET MOUNTED 15" AFF TO BOTTOM
NG BOARDS SHOWN IN CONSTRUCTION DOCUMENTS SHALL HAVE #6 AWG COPPER GROUND TIED TO MAIN SWITCH GEAR GROUNDING SYSTEM. ALL TELEPHONE MOUNTING BOARDS SHALL D PAINTED TO MATCH WALL. COORDINATE ALL PHONE AND DATA REQUIREMENTS WITH SERVING UTILITY COMPANY.		BOTTOM U.N.O. 20A SPECIFICATION GRADE ISOLATED GROUND RECEPTACLE MOUNTED 15" AFE TO BOTTOM		WITH NYLON PULLSTRING STUBBED MINIMUM OF 4" ABOVE CEILING.
<u>HVAC, AND PLUMBING SYSTEMS</u> ? SHALL COORDINATE ALL HVAC AND PLUMBING ELECTRICAL CONNECTIONS WITH MECHANICAL CONSTRUCTIONS DOCUMENTS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH—IN. THIS ! OF POWER REQUIREMENTS, VOLTAGES, HORSEPOWER RATING, FLA, MCA, MOCP, AND LOCATIONS OF ALL HVAC UNITS, EXHAUST FANS, EVAPORATIVE COOLERS, WATER HEATERS, #EATERS,SMOKE DUCT DETECTORS, FIRE SMOKE DAMPERS,ETC. ELECTRICAL CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IMMEDIATELY OF ANY CHANGES IN HVAC EQUIPMENT THAT WILL	<b></b>	U.N.O. RECEPTACLE SHALL BE ORANGE. 20A SPECIFICATION GRADE FOURPLEX RECEPTACLE MOUNTED 15" AFF TO BOTTOM	►	PHONE OUTLET MOUNTED 15" "AFF TO BOTTOM U.N.O. PROVIDE WITH (1) 3/4" CONDUIT STUB WITH NYLON PULLSTRING STUBBED MINIMUM OF 4" ABOVE CEILING.
ELECTRICAL CONSTRUCTION DOCUMENTS. FOR ALL HVAC EQUIPMENT SHALL BE HEAVY DUTY, COMMERCIAL GRADE, QUICK MAKE, QUICK BREAK TYPE. ALL DISCONNECT SWITCHES LOCATED OUTSIDE SHALL BE NEMA 3R MINIMUM. H LOCATED IN ENVIRONMENT SUBJECT TO DIRECT WATER SPRAY SHALL BE RATED NEMA 4X. GENERAL DUTY DISCONNECTS SHALL ONLY BE USED WITH WRITTEN APPROVAL FROM ENGINEER R. BASE BID SHALL BE BASED ON HEAVY DUTY DISCONNECT SWITCHES.	+	U.N.U. 20A SPECIFICATION GRADE DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER OR AT HEIGHT AS NOTED IN PLANS.		TELE/DATA OUTLET MOUNTED 15" AFF TO BOTTOM U.N.O. PROVIDE WITH (1) 3/4" CONDUIT STUB WITH NYLON PULLSTRING STUBBED MINIMUM OF 4" ABOVE CEUING
Shall provide appropriately sized, type, voltage, and quantity of duel element time-delay fuses each hvac unit. Fuses shall be sized per hvac manufacture nameplate on unit. Shall coordinate and provide any necessary equipment. Contactors. Motor starters. Relays. Etc. Needed to connect to fire alarm system or building management	$\oplus$ $\oplus$	20A SPECIFICATION GRADE SWITCHED RECEPTACLE, CONTROLLED VIA OCC. SENSOR,		TELE/DATA OUTLET MOUNTED IN SCRUB WATER RATED FLUSH FLOOR BOX (FINISH BY
WILL BE MADE FOR FAILURE TO COMPLY. SHALL PROVIDE MAGNETIC MOTOR STARTERS AT ALL MOTORS RATED BETWEEN ONE(1) AND TWENTY-FIVE(25) HORSEPOWER. MAGNETIC MOTOR STARTERS SHALL BE PROVIDED WITH YO (2) AUXILIARY CONTACTS, INTERNAL LINE VOLTAGE TO 24VOLT TRANSFORMER, AMBIENT COMPENSATION, RUNNING LIGHT (RED), HAND-OFF-AUTO ACROSS THE LINE STARTERS. HILL DE A MAXIMUM OF OF THE FEITH AND NOT DE LEGO TUNE ONE THIND (1 (2) OF THE DATED MUDATES OF THE FEDER COMPUTED DED THE NEO.	$\ominus$	MOUNTED 15 AFF TO BOTTOM U.N.O. 20A SPECIFICATION GRADE SIMPLEX RECEPTACLE MOUNTED 15" AFF TO BOTTOM U.N.O.		ARCHITECT).THOMAS & BETTS, HUBBELL, OR EQUAL. PROVIDE WITH (1)1" CONDUIT STUB WITH NYLON PULLSTRING STUBBED MINIMUM OF 4" ABOVE CEILING.
ALL BE A MAXIMUM OF 25 IN LENGTH AND NOT BE LESS THAN ONE THIRD (175) OF THE NATED AMPACITY OF THE FEEDER CONDUCTOR FER THE NEC. S SHALL PROVIDE WEATHERPROOF (WP), WEATHER RESISTANT (WR), GFCI, RECEPTACLE WITH METALLIC WHILE—IN—USE COVER WITH 25'—0" OF ALL MECHANICAL EQUIPMENT. S SHALL PROVIDE MANUAL MOTOR STARTER WITH THERMAL OVERLOADS FOR ALL FRACTIONAL HORSEPOWER MOTORS GREATER THAN ½ HP. PROVIDE AMBIENT COMPENSATION AS REQUIRED.	€	SPECIAL RECEPTACLE. SEE PLANS FOR REQUIREMENTS AND NEMA RATING.		TELE/DATA OUTLET MOUNTED FLUSH IN CEILING. CD = CORD DROP THOMAS & BETTS,
<u>PROTECTION</u> L. AND INSTALLED PER NEC 285. DUINTED SER <sup>1</sup> 2, THE ELECTRICAL CONTRACTOR SHALL ROLITE TO MINIMIZE DISTANCE	$\bigoplus \bigcirc$	MOUNTED IN SCRUB WATER RATED FLUSH FLOOR BOX (FINISH BY ARCHITECT). THOMAS & BETTS HIBBELL OR FOLIAL	~	CABLE T.V. OUTLET MOUNTED 15" AFF TO BOTTOM U.N.O. PROVIDE WITH (1) 3/4"
A MINIMUM OF 5-YEAR WARRANTY, 200KA SCCR PROTECTION PER PHASE, BE 20KA LINE TO NEUTRAL, HAVE A RESPONSE TIME OF LESS THAT 0.5 NANOSECONDS, AND CONTAIN LED IOW CURRENT CONDITION.		20A SPECIFICATION GRADE RECEPTACLE MOUNTED IN FLUSH IN CEILING.		CONDUIT STUB WITH NYLON PÙLLSTRING STUBBED MINIMUM OF 4" ABOVE CEILING.
RS ESPONSIBILITY OF THE CONTRACTOR TO COORDINATE EXACT ELEVATOR REQUIREMENTS WITH VENDOR AND AHJ.		CD = CORD DROP THOMAS & BETTS, HUBBELL, OR EQUAL.	<u>ī </u>	3/4" 'CDX' PLYWOOD TELEPHONE TERMINAL BOARD ("TMB"). PROVIDE (1) #6 AWG GND. TO "SES" SIZE AS NOTED ON DRAWINGS. INSTALL
L COMPLY WITH THE CURRENT ADOPTED NEC, LOCAL, AND STATE CODES. SHALL PROVIDE THE FOLLOWING: CH CIRCUIT FOR ELEVATOR EQUIPMENT ROOM LIGHTING AND GFCI RECEPTACLE.		POWER AND COMMUNICATION POLE. PROVIDE WITH DUAL COMPARTMENTS FOR SEPARATION OF POWER AND TELE/DATA.		PER PHONE Co. REQUIREMENTS.
H CIRCUITS FOR ELEVATOR PIT LIGHT (4'-0" FLUORESCENT STRIP WITH 2-LAMPS AND WIRE GUARD), GFCI RECEPTACLE, AND SUMP PUMP (IF REQUIRED). I CIRCUIT TO ELEVATOR HVAC SYSTEM THAT CAN BE LOCKED IN THE OPEN POSITION. THIS CIRCUIT SHALL FEED NO OTHER EQUIPMENT. CH CIRCUIT FOR ELEVATOR CAB LIGHTS, POWER, FANS, AND OPTIONAL EQUIPMENT AS REQUIRED. DISCONNECT SHALL BE LOCKABLE IN THE OPEN POSITION AND LOCATED WITHIN THE	<u>CONDUIT</u>	JUNCTION BOX (4" MINIMUM)	<u>SPECIAL SYST</u>	EMS CARBON MONOXIDE DETECTOR
ient room. Detector at all elevator lobbies. Each smoke detector shall be provided with auxiliary contacts that shall be tied into elevator controller to recall operation F A Fire.		CONCEALED CONDUIT UNDERGROUND CONDUIT CONDUIT STUR WITH CAR	S D	SMOKE DETECTOR DUCT SMOKE DETECTOR
DETECTORS AT TOP OF SHAFT, BOTTOM OF SHAFT, AND IN THE ELEVATOR EQUIPMENT ROOM CONNECTED TO BUILDING FIRE ALARM CONTROL PANEL TO SERVE AS THE PRIMARY ELEVATOR. SMOKE DETECTORS SHALL ALSO CONNECT TO ELEVATOR CONTROLLER FOR RECALL OPERATION. TECTORS (165 DEGREE RISE) AT TOP OF SHAFT, BOTTOM OF SHAFT, AND IN THE ELEVATOR EQUIPMENT ROOM. EACH HEAT DETECTOR SHALL BE PROVIDED WITH AUXILIARY CONTACTS THAT	S	CONDUIT WITH SEAL-OFF CONDUIT STUBBED DOWN	Ĥ	HEAT DETECTOR FIRE BELL
NTO ELEVATOR CONTROLLER AND SHUNT TRIP FEATURES TO ACTIVE THE SHUNT TRIP OF THE ELEVATOR EQUIPMENT. ALL NOT RUN CONDUIT DUCT WORK, PIPING, OR ANY OTHER RACEWAY THROUGH THE ELEVATOR EQUIPMENT SHAFT, HOISTWAY, OR ELEVATOR EQUIPMENT ROOM THAT IS NOT PART OF OR HE ELEVATOR OPERATIONS THIS EXCLUDES REQUIRED FIRE SPRINKLER PIPES.	0	CONDUIT STUBBED UP HOMERUN TO PANEL AS NOTED ARROWS	ES V	FIRE ALARM PULL STATION AT 48" AFF
E LECATOR OFENANDS. THIS EXCLUDES RECORDED THE STRUMENT FOR LOS. E LOCATED WITHIN THE ELEVATOR EQUIPMENT ROOM OR SHAFT, THE CONTRACTOR SHALL PROVIDE A MEANS OF SHUNT TRIPPING OFF ALL POWER TO THE ELEVATOR AND ITS CONTROLS APPLIED TO THE AREA. THIS ONLY APPLIES TO THE SPRINKLERS WITHIN THE ELEVATOR SHAFT AND ELEVATOR EQUIPMENT ROOM.		REPRESENT QUANTITY OF CIRCUITS. ISOLATED GROUND CONDUCTOR	Ĕ	BELOW CEILING (LOWER OF THE TWO) CANDELA RATING AS NOTED ON PLAN
<u>IRM SYSTEMS</u> ESPONSIBILITY OF THE CONTRACTOR TO COORDINATE EXACT FIRE ALARM REQUIREMENTS WITH OWNER, TENANT, AHJ, AND LOCAL FIRE MARSHALL. U.L. LISTED AND INSTALLED BE A U.L. CERTIFIED INSTALLER.		GROUNDING CONDUCTOR	ĽĬ ⟨Ê×ᡬ	BELOW CEILING (LOWER OF THE TWO)
WIDE AND INSTALL A COMPLETE CLASS "B" FIRE ALARM SYSTEM OR AS OTHERWISE INDICATED IN THESE CONSTRUCTION DOCUMENTS OR IN A DEFERRED SUBMITTAL BY CONTRACTOR. H LESS THAN 100 HEADS ONLY REQUIRE A MONITORED SYSTEM WITH CONNECTIONS TO TAMPER AND FLOW SWITCHES. ANY SPRINKLER SYSTEM WITH 100 HEADS OR GREATER SHALL A 6-ZONE CLASS "B" FIRE ALARM CONTROL PANEL AND AUTOMATIC DIALFR.		SHORT DASH = PHASE CONDUCTOR LONG DASH = NEUTRAL CONDUCTOR GROUND CONDUCTOR NOT SHOW BUT REQUIRED	FACP	FIRE ALARM CONTROL PANEL
I SHALL BE A MINIMUM OF 600V, PLENUM RATED, #14 AWG STRANDED COPPER WITH 105 DEGREE INSULATION. FLUSH MOUNTED IN STANDARD BACK BOXES. I DE LOCATED CREATER THAT 12" AWAY FROM ANY LICHT FIXTURE AND 36" AWAY FROM ANY LICHT STUDIES OF RETURN CRULE	<u> </u>	FLEXIBLE CONDUIT PROVIDE SEAL TIGHT IN ALL		KEYPAD
I DE LUGALED GREATER TRAFT 12 AMAI FROM ANT LIGHT FATURE AND 30 AWAT FROM ANT HVAC SUPPLY OF RETORN GRILLE. MONITORED BY AN ACM REMOTE MONITORING STATION WITHIN THE CITY THE PROJECT IS LOCATED. THE MONITORING STATION MUST BE APPROVED BY U.L. IRERS FOR FIRE ALARM SYSTEMS SHALL BE SIMPLEX, EDWARDS, AND FIRELITE. AND REMODELS, THE CONTRACTOR SHALL EXTEND EXISTING SYSTEM AS REQUIRED. CONNECT ANY NEW DEVICES AND/OR ZONES TO EXISTING FACP/FAAP AS REQUIRED. CONTRACTOR SHALL ONITION OF DATES. THE CONTRACTOR SHALL EXTEND EXISTING SYSTEM AS REQUIRED. CONNECT ANY NEW DEVICES AND/OR ZONES TO EXISTING FACP/FAAP AS REQUIRED. CONTRACTOR SHALL ONITION OF DATES.	<u>ONE-LINE</u>	TIGHT TO TRANSFORMERS AND VIBRATING EQUIPMENT		CARD READER SECURITY CAMERA
. UNITAL UNDO, ZUNEO, AND RUNO IN TIO INTIAL BIU. REQUIREMENTS DEFINED AS ANY ADEA WITHIN A HEALTH CADE FACILITY WHEDE DATIENTS ADE DEFINE TREATED OD EVANIMED, AL WODY, WITHIN THESE ADELO CHARL CONDUCTION WITH ADDITION OF DETINING	XXX/3 AF XXX/3 AT	CIRCUIT BREAKER AF = AMP FRAME AT = AMP TRIP		FUSIBLE PULLOUT (SIZE AS SHOWN)
DELIVED AS ANT AND MITTHIN A TRADITT WARE FAULTIT WHERE FATIENTS ARE DEING TREATED OR EXAMINED. ALL WORK WITHIN THESE AREAS SHALL COMPLY WITH APPLICABLE PORTIONS THENT CARE AREAS SHALL BE IN METALLIC CONDUIT. ALL METALLIC RACEWAYS SHALL MEET EQUIPMENT GROUNDING RETURN PATH REQUIREMENTS OF NEC 250.118. IN PATIENT CARE AREAS SHALL BE HOOPITAL CRADE IN COMPLIANCE WITH NEC 517.13 (A) & (B)	XXX/3 AS XXX/3 AF	FUSIBLE SWITCH AS = AMP SWITCH AF = AMP FUSE	- M M	"S" (SPARE), "B" (BLANK) CURRENT TRANSFORMERS AS REQ'D. UTILITY METERING – "M" (METER),

18.2. BRANCH CIRCUITS IN PAT 18.3. RECEPTACLES INSTALLED 18.4. ELECTRICAL CONTRACTOR SHALL PROVIDE A MINIMUM OF A #12 AWG REDUNDANT GROUNDING CONDUCTOR TO ALL RECEPTACLES AND FIXED ELECTRICAL EQUIPMENT.

SECTION 19 - SITE AND UTILITY COMPANY IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO CONTACT TELEPHONE AND CABLE COMPANY TO DETERMINE EXACT LOCATION, ROUTING, AND REQUIREMENTS OF ALL CONDUITS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM. PROVIDE CONDUITS, TRENCHING, AND BACK FILL AS REQUIRED. 19.2. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO CONTACT SERVING ELECTRICAL UTILITY COMPANY WITHIN FIVE (5) BUSINESS DAYS OF BEING AWARDED A CONTRACT. ELECTRICAL CONTRACTOR SHALL PROVIDE THE SERVING UTILITY COMPANY WITH A COMPLETE SET OF ELECTRICAL CONSTRUCTION DOCUMENTS INCLUDING (BUT NOT LIMITED TO) AN ELECTRICAL SITE PLAN, ONE-LINE DIAGRAM, PANEL

19.3. PRIOR TO START OF ELECTRICAL WORK, ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT, TRANSFORMER PAD, TRENCHING, AND METERING REQUIREMENTS WITH SERVING UTILITY COMPANY. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUITS, SECONDARY CONDUCTORS (WHERE NOT SIZED AND PROVIDED BY SERVING UTILITY COMPANY), AND TRANSFORMER PAD. 19.4. WHEN ADDING LOAD, SWITCHES, OR METERS TO AN EXISTING"SES", IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE WITH SERVING UTILITY COMPANY IF AN UPGRADE TO UTILITY TRANSFORMER OR SECONDARY CONDUITS AND CONDUCTORS IS REQUIRED. COST SHALL BE COORDINATED WITH UTILITY COMPANY AND PROVIDED TO THE GENERAL CONTRACTOR AND OWNER PRIOR TO START OF ANY WORK. THESE COSTS SHALL NOT BE THE RESPONSIBILITY OF THE ELECTRICAL ENGINEER AS UTILITY COMPANY WORK IS BEYOND OUR SCOPE OF WORK AND CONTROL. 19.5. ALL WIRING LOCATED ON THE EXTERIOR OF A BUILDING SHALL BE A MINIMUM OF #10 AWG COPPER WITH THWN TYPE INSULATION. CONDUCTORS LARGER THAN #4 AWG COPPER SHALL HAVE TYPE XHHW INSULATION. ALL UNDERGROUND CIRCUITS SHALL BE INSTALLED IN PVC CONDUIT. ALL UNDERGROUND CIRCUITS SHALL HAVE TRACER WIRE. SEE REQUIREMENTS IN THIS SPECIFICATION FOR TRACER WIRE.

# N.I.

en conject in whole, for other purposes without the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent de sensured. Alteration, reproduction, or use in conjunction with the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIGHT NOTIFICATION: As instruments of service of the author's written consent may violate Act 17 U.S.C. par. 301 (1991).(c). COPYINIG

PROJECT INFO
MUNICIPALITY:
NATIONAL ELECTRICAL CODE:2017_N.E.C.
ENERGY CODE: 2018 I.E.C.C.
UTILITY COMPANY: SRP



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# Electrical Power Plan





# KEYED NOTES

EXISTING DEVICE TO REMAIN UNTIL TIME OF TENANT IMPROVEMENT. ELECTRICAL CONTRACTOR SHALL PRESERVE FUNCTIONALITY, IF CURRENTLY PRESENT, UNTIL SUCH TIME.

<u>GENERAL ELECTRICAL NOTE:</u> ELECTRICAL CONTRACTOR SHALL UPDATE ALL PANEL SCHEDULES WITH NEW TYPE WRITTEN DIRECTORIES UPON COMPLETION OF WORK.





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## PROJECT: **3575 W. Northern Ave Remodel** ADDRESS: **3575 W. Northern Ave Phoenix AZ 85051** <u>PROJECT NO.:</u> 19-016 SHEET TITLE:





# LIGHT FIXTUR

TAG	VOLTS	MANUFACTURER	PART #	LAMPING CCT/WATTS	DESCRIPTION/NOTES
L1	120V	EXISTING TO REMAIN	EXISTING TO REMAIN	EXISTING TO REMAIN	EXISTING 2x4 FLUORESCENT LIGHT FIXTURE.
L2	MVOLT	AS SELECTED BY ARCHITECT & OWNER.	_	LED (3800 lumens) 3500K/38W	4'-0" LINEAR LED WITH EMERGENCY FEATURES. SUSPEND AT HEIGHT DIRECTED BY OWNER AND ARCHITECT.
L3	MVOLT	NOT USED	_	_	_
L4	MVOLT	AS SELECTED BY ARCHITECT & OWNER.	_	LED–3500K 12W MAXIMUM	LED EXTERIOR SURFACE MOUNTED DOWNLIGHT. PROVIDE EMERGENCY BATTERY AS REQUIRED. VERIFY HEIGHT WITH OWNER AND ARCHITECT.
SCHEDULE	NOTES:	·		·	

ALL EMERGENCY FIXTURE SHALL PROVIDE MINIMUM OF 90-MINUTE BATTERY BACK-UP. IF THE GENERAL LIGHTING IN THE AREA IS HID, ALL FIXTURES IN THE AREA SHALL HAVE A MINIMUM OF A 10-MINUTE TIME DELAY. ELECTRICAL CONTRACTOR SHALL PROVIDE A BASE BID OFF THIS LIGHT FIXTURE SCHEDULE. ALTERNATES MAY BE SUBMITTED AFTER AWARD OF CONTRACT. PROVIDING THEY ARE SUBMITTED WITH WRITTEN OWNER APPROVAL AND ITEMIZED DEDUCT FROM THE BASE BID. ANY RE-DESIGN REQUIRED BY AN ALTERNATE PACKAGE SHALL BE BILLED TO THE ELECTRICAL CONTRACTOR. MODULAR WIRING IS ACCEPTABLE.

> EXISTING CONDITIONS NOTE: ALL EXISTING CONDITION INFORMATION HAS BEEN IS NOT RESPONSIBLE FOR ANY OMISSIONS OR INACCURACIES. ANY DISCREPANCIES SHALL BE SUBMITTED TO ENGINEER IN WRITING.

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Έ	SCHEDU	'LE

![](_page_15_Picture_7.jpeg)

KEYED NOTES POWER-PACK FOR CONTROL OF LINE-VOLTAGE LIGHTING WITHIN SPACE (ZONES AS INDICATED). PROVIDE CONNECTION TO INPUT SIGNAL DEVICES (OCCUPANCY SENSOR, PHOTOSENSOR, DIMMING WALL SWITCH, ETC.) AS NECESSARY AND PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE SUFFICIENT QUANTITY TO POWER ALL LOW-VOLTAGE DEVICES AND PROVIDE CONTROL PER CODE REQUIREMENTS (TYPICAL U.N.O.). 2 ELECTRICAL CONTRACTOR SHALL PROVIDE WP JUNCTION BOX AND (1) 3/4" STUB INTO ACCESSIBLE SPACE FOR FUTURE CONNECTION TO TENANT SIGNAGE. PROVIDE WP TOGGLE SWITCH AS MEANS OF DISCONNECT. FIELD VERIFY EXACT LOCATION WITH ARCHITECT AND SIGNAGE VENDOR. 3 NEW EXTERIOR LIGHT FIXTURE SHALL BE PHOTOCELL ON/OFF CONTROLLED AND PROGRAMMED FOR DUSK-TO-DAWN OPERATION. 4 OCCUPANCY SENSOR (LOW-VOLTAGE, CEILING MOUNTED) FOR "AUTOMATIC-OFF" OPERATION UPON VACANCY FOR NOT LONGER THAN 30 MIN. TIE INTO POWER-PACK FOR POWER AND CONTROL OF LIGHTING, PER MANUFACTURER'S INSTALLATION INSTRUCTIONS (TYPICAL U.N.O.). 5 LOW-VOLTAGE SWITCH FOR MANUAL CONTROL OF LIGHTING ZONE AS SHOWN. TIE INTO POWER-PACK PER MANUFACTURER'S INSTALLATION INSTRUCTIONS (TYPICAL U.N.O.). 2018 INTERNATIONAL ENERGY CONSERVATION CODE CALCULATIONS <u>EXTERIOR LIGHTING – (ZONE 3)</u> BUILDING AREA TYPE ALLOWED WATTS QUANTITY = 500 W ENTRY CANOPIES .400 W ENTRY CANOPIES . 0.4 W X 1054 SQ FT = 422 W WATTAGE ALLOWED BY IECC. .922 WATTS <u>FIXTURE TYPE</u> FIXTURE WATTS QUANTITY ..12 W X 17 = 204 W L4. . . WATTAGE USED . WATTAGE ALLOWED BY IECC. .922 W .204 W WATTAGE USED . PROJECT COMPLYS BY:. .718 WATTS 2018 INTERNATIONAL ENERGY CONSERVATION CODE CALCULATIONS

<u>INTERIOR LIGHTING – (405.5.2)</u>						
BUILDING AREA TYPEALLOWED WATTSQUANTITYRETAIL1.06WX3432SQFT=3638	W					
WATTAGE ALLOWED BY IECC	WATTS					
WATAGE         ALLOWED         DT         IECC         AT         S0%         FOR         REDUCED         POWER         PER         C406.3         C	WATTS					
$\frac{FIXTURE TYPE}{L1.(EXJSTING)} = \frac{FIXTURE WATTS}{22} = 2002$	W					
$L2. \dots \dots$	W					
WATTAGE USED	WATTS					
WATTAGE         ALLOWED         BY         IECC         3274           WATTAGE         USED         2344         2344	W W					
PROJECT COMPLYS BY:	WATTS					

![](_page_15_Picture_10.jpeg)

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![](_page_15_Figure_14.jpeg)

![](_page_16_Figure_1.jpeg)

GENERAL DEMOLITION NOTES - POWER:

- DEVICES, FIXTURES AND OUTLETS SHOWN AS DASHED OR DENOTED "X" SHALL BE REMOVED. ANY DEVICE, FIXTURE OR OUTLET NOT SHOWN AND AFFECTED BY DEMOLITION SHALL BE REMOVED. NOTIFY
- ENGINEER OF ADDITIONAL REMOVAL.
- ELECTRICAL CONTRACTOR SHALL ENSURE EXTERIOR POWER IS NOT ALTERED FROM DEMOLITION. UNUSED CONDUIT AND WIRE SHALL BE REMOVED.

GENERAL DEMOLITION NOTES - LIGHTING:

- DEVICES, FIXTURES AND OUTLETS SHOWN AS DASHED OR DENOTED "X" SHALL BE REMOVED. ANY DEVICE, FIXTURE OR OUTLET NOT SHOWN AND AFFECTED BY DEMOLITION SHALL BE REMOVED. NOTIFY
- ENGINEER OF ADDITIONAL REMOVAL.
- ELECTRICAL CONTRACTOR SHALL ENSURE EXTERIOR LIGHTING IS NOT ALTERED FROM DEMOLITION. UNUSED CONDUIT AND WIRE SHALL BE REMOVED. ELECTRICAL CONTRACTOR SHALL RETAIN LIGHTS TO BE RELOCATED. SEE ELECTRICAL LIGHTING SHEET FOR 4.
- NEW LOCATIONS.

<u>GENERAL ELECTRICAL NOTE:</u> ELECTRICAL CONTRACTOR SHALL UPDATE ALL PANEL SCHEDULES WITH NEW TYPE WRITTEN DIRECTORIES UPON COMPLETION OF WORK.

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![](_page_16_Picture_13.jpeg)

![](_page_16_Picture_14.jpeg)

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HEET TITLE: electric	al Demo Power & Lighting F	Plan	
ATE of ISSU HEET REVIS Revid Chid	E: Enter in Project info CURRENT REVISION: , ION HISTORY Change Name	Date	42800 WILLIAM R. WELCH O WELCH O
			Ap/ZONA, U.S. A:       Expires:     09/30/2020
			<b>E-03</b>

# Electrical One-Line Detail & Panel Schedules

EX	ISTING PANELB	OARD	SC	CHE.	DUL	_E				Β″	$ E\rangle$	KISTING
225/	A, 120 / 208 V, 3 Ø, 4 W NEMA	1		SURFA	CE MC	DUNTE	D		М	.L.O.	400	)A, 120 /208 V,
SERI	ESRATED @ 10K							1			SEF	PIES RATED @ 10
#	CIRCUIT DESCRIPTION		CB	AØ	BØ	Cø	CB	CIRCUIT DESCRIPTIO	N	#	#	CIRCUI
1	SPARE	E Z	20	1251			201	EXISTING INTERIOR LIGHTING 3	<u> </u>	2	1	NEW INTERIOR L
3			2		1251	-	201	EXISTING INTERIOR LIGHTING 5		4	3	NEW EXTERIOR
5	SPARE	E	40				201	SPARE	E	6	5	SPARE
7			/ 2	-			20 1	SPARE	E	8	7	
9	SPARE	E			-		20 1	SPARE		10	9	SPARE
11	SPARE	E				-	20 /		<u> IE</u>	12	11	
13	SPARE	E		-				SPARE	L E	14	13	
15	EXISTING ROOF RECEPT	E	20 1		-	-	/ 3		AR	16	15	SPARE
17	SPARE	E 2	20 1			-	_20_1	SPARE	E	18	17	
19	SPARE	EŹ	20 1	-			20 1	SPARE		20	19	
21	SPARE	E	201		-	1	20	SPARE		22	21	SPARE
23	SPARE	E	201			-	20 1	SPARE	Ē	24	23	
25	SPARE	Ē	30 /	-			30 /	SPARE		26	25	
27			/ 2		_	1	/ 2		—	28	27	EXISTING A/C
29	SPARE	E 2	$20^{-1}$					SPARE		30	29	
31	SPARE	E 2	20/1	-		-	$1/_{2}$		-	32	31	BUSSED SPACE
33	SPARE	 E	20/1	_	-		20/1	SPARE	E	34	33	BUSSED SPACE
.35	SPARE	F	20/1				20/1	SPARE	 	.36	.35	BUSSED SPACE
.37	SPARE	F	20/1	_		<u> </u>	40 /			38	37	BUSSED SPACE
39	SPARE	F	20/1	_	_			SPARE	F	40	39	BUSSED SPACE
41	SPARE	F 2	$\frac{1}{20}$			_				42	41	BUSSED SPACE
τοτα	I VA PER PHASE		/ 1	1251	1251	-		। ९		72		AI VA PER PHA
				1201			-1.	<u></u>			1017	
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	= A M = S F = A A A A A A A A A A A A A A A A A A				<u>10.4</u> TYDF	0.0						TEN ODAUT TO
	$\begin{array}{c} \square & \square $	CUIT BREAKE CUIT BREAKE CUIT BREAKE	$E_R = C_R = C_R$	GFCI CIRCI	UIT BR TYPE UIT BR	REAKE	$\frac{R}{R} \triangleq \frac{E}{R}$	KISTING C.B. EXISTING C.B. ELABELED E WITH LOAD E S "SPARE" UNCHANGED	EXISTING WITH LO CHANGIN	; C.B. AD IG		EW CIRCUIT BR CONT. LOAD (@ CIRCUIT VIA LTG

PANELBOARD SCHEDULE NOTES: EVERY CIRCUIT AND CIRCUIT MODIFICATION SHALL BE LEGIBLY IDENTIFIED AS TO ITS CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE. THE IDENTIFICATION SHALL INCLUDE SUFFICIENT DETAIL TO ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM ALL OTHERS. SPARE POSITIONS THAT CONTAIN UNUSED OVERCURRENT DEVICES OR SWITCHES SHALL BE DESCRIBED ACCORDINGLY. THE IDENTIFICATION SHALL BE INCLUDED IN A CIRCUIT DIRECTORY THAT IS LOCATED ON THE FACE OR INSIDE OF THE PANEL DOOR, IN THE CASE OF A PANELBOARD, AND LOCATED AT EACH SWITCH ON A SWITCHBOARD. NO CIRCUIT SHALL BE DESCRIBED IN A MANNER THAT DEPENDS ON TRANSIENT CONDITIONS OF OCCUPANCY.

ELECTRICAL CONTRACTOR SHALL PROVIDE UPDATED, TYPED PANELBOARD SCHEDULES FOR ALL PANELBOARDS INVOLVED IN THIS REMODEL.

INSPECTOR WILL VERIFY AT FINAL INSPECTION.

![](_page_17_Figure_7.jpeg)

EXISTING PANEL."B"=	2502	VA
EXISTING PANEL ."C" =	726	VA
REVISED TOTAL LOAD	3228	VA
TOTAL LOAD ON "SES" @ 208V/3ø =	9	AMPS

1 EXISTING UTILITY COMPANY PRIMARY UNDERGROUND CONDUCTORS TO REMAIN. 2 EXISTING UTILITY COMPANY TRANSFORMER TO REMAIN. 3 EXISTING UTILITY COMPANY SECONDARY UNDERGROUND CONDUCTORS TO REMAIN. 4 EXISTING BONDING AND GROUNDING SYSTEM TO REMAIN. 5 EXISTING SPARE CONDUIT STUBBED INTO SPACE TO REMAIN (TYPICAL U.N.O.).

![](_page_17_Figure_11.jpeg)

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# KEYED NOTES

![](_page_17_Picture_16.jpeg)

![](_page_17_Picture_17.jpeg)

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Electric	al One-Line Detail & Panel	Schedules	Contraction of the second seco
DATE of ISSU Sheet Revis	IE: Enter in Project info CURRENT REVISION: ION HISTORY	,	42800 WILLIAM R. Q WELCH Q
RevID ChID	Change Name	Date	A Bre Signed Dive
			Expires: 09/30/2020
			Sheet No.
			<b>L-04</b>
			-