State of Rhode Island
Department of Administration / Division of Purchases
One Capitol Hill, Providence, Rhode Island 02908-5855
Tel: (401) 574-8100 Fax: (401) 574-8387

Solicitation Information
December 11, 2017

ADDENDUM # 1

RFQ 7575502

TITLE: Interior Renovations RIAG Building 150 South Main Street, Providence

SUBMISSION DEADLINE HAS BEEN POTPONED UNTIL:
FRIDAY DECEMBER 29, 2017 at 11:00 am (Local Time)

QUESTION PERIOD HAS BEEN EXTENDED UNTIL DECEMBER 14, 2017 AT 4 PM

Attached Includes:

1. Updated RFQ information
2. Bid form that must be used
3. Sign in sheet from mandatory pre-bid conference held on 12/5/2017

Tom Bovis
Interdepartmental Project Manager

Interested parties should monitor this website, on a regular basis, for any additional information.

Solicitation #: 7575502

Solicitation Title: Rhode Island Office of Attorney General

RIAG Interior Office Renovations – 150 South Main Street, Providence

BID FORM

To: The Department of Administration, Division of Purchases

One Capitol Hill, Providence, RI 02908

Project: State of Rhode Island Office of Attorney General

150 South Main Street

Providence, Rhode Island 02903

Bidder:

_____
Legal name of entity

_____
Address

_____ _____
Contact name Contact email

_____ _____
Contact telephone Contact fax

1. BASE BID PRICE

The Bidder submits this bid proposal to perform all of the work (including labor and materials) as described in the solicitation for this Base Bid Price, (including the costs for all Allowances, Bonds, and Addenda):

$ _____

(Base Bid Price *in figures* printed electronically, typed, or handwritten legibly in ink)

_____

(Base Bid Price *in words* electronically, typed, or handwritten legibly in ink)

Solicitation #: 7575502

Solicitation Title: Rhode Island Office of Attorney General

RIAG Interior Office Renovations – 150 South Main Street, Providence

- **ALTERNATES**

Alernates are disccribed in Section 01 10 00 of the specifications. For Changing the Work to be performed under this Contract to that Work described in the Alternates, the undersigned agrees to modify his or her Base Bid by the following sums; which remain in effect for sixty (60) calander days from the bid proposal submission deadline.

1. Alternate #1 - Secttion 26 00 00 Standby electric generating system:

   $_____

- **ALLOWANCES**

The Base Bid Price ***includes*** the costs for the following Allowances:

Lump Sum Allowances

1. Section 01 40 00 Payment of inspections, testing and laboratory services	**$15,000**
2. Police Details	**$35,000**
3. Section 09 72 00 Wall Covering – Type 97C.1	**$15,000**
4. Section 09 72 00 Wall Covering – Type 97C.2	**$20,000**
5. Section 10 14 00 Interior Signage	**$40,000**
6. Section 27 51 19 Sound Masking	**$75,000**
Total Allowances:	**$200,000**

- **BONDS**

The Base Bid Price ***includes*** the costs for all Bid and Payment and Performance Bonds required by the solicitation.

- **ADDENDA**

The Bidder has examined the entire solicitation (including the following Addenda), and the Base Bid Price ***includes*** the costs of any modifications required by the Addenda.

All Addenda must be acknowledged.

Solicitation #: 7575502

Solicitation Title: Rhode Island Office of Attorney General

RIAG Interior Office Renovations – 150 South Main Street, Providence

Addendum No. 1, dated
_____

Addendum No. 2, dated
_____

Addendum No. 3, dated
_____

Addendum No. 4, dated
_____

Addendum No. 5, dated
_____

3. UNIT PRICES *(of which costs are provided by the Bidder)*

The Bidder submits these Unit Prices as the Basis for any change orders approved in advance by the State. These Unit Prices include all costs, including labor, materials, services, regulatory compliance, overhead, and profit.

	DESCRIPTION OF SERVICES	CONTRACTORS UNIT COST
Unit Price No. 1	**Provide abatement services for Asbestos containing materials beyond the base scope of work.**	
	Amount per unit of measurement: 1 SF (Square Foot)	$, .
Unit Price No. 2	**Concrete scarification:**	
	Amount per unit of measurement: 1 SF (Square Foot)	$, .

Solicitation #: 7575502

Solicitation Title: Rhode Island Office of Attorney General

RIAG Interior Office Renovations – 150 South Main Street, Providence

Unit Price No. 3	**Concrete trenching at 14" thick slab-on-grade.**	
	Amount per unit of measurement: 1 LF (Linear Foot)	$, .
Unit Price No. 4	**Concrete repair at eisting concrete slab-on-grade, floor slabs, walls, and/or ceilings.**	
	Amount per unit of measurement: 1 SF (Square Foot)	$, .
Unit Price No. 5	**Well pump and Motor at Dewatering Wells**	
	Amount per unit of measurement: Per Unit (Each)	$, .
Unit Price No. 6	**Bituminous Concrete Pavement for patching.**	
	Amount per unit of measurement: 1 CY (Cubic Yard)	$, .
Unit Price No. 7	**General Fill.**	
	Amount per unit of measurement: 1 CY (Cubic Yard)	$, .
Unit Price No. 8	**Duplex Receptacle and 30' of wiring from receptacle, in wall framing with at least one side of the wall cavity accessible.**	
	Amount per unit of measurement: Per Unit (Each)	$, .
Unit Price No. 9	**Duplex Receptacle and 30' of wiring from receptacle, in wall framing after the installation of wall board.**	

	Amount per unit of measurement: Per Unit (Each)	$, .
Unit Price No. 10	**Empty Outlet: Empty outlet box including wiring raceway for CATV, telephone or data in wall framing with at least one side of the wall cavity accessible**	
	Amount per unit of measurement: Per Unit (Each)	$, .
Unit Price No. 11	**Tel/Data Receptacle: Empty outlet box including wiring raceway for CATV, telephone or data in wall framing after the installation of wall board**	
	Amount per unit of measurement: Per Unit (Each)	$, .

Unit Price No. 12	**Tel/Data Receptacle: Empty outlet box including wiring raceway for CATV, telephone or data in wall framing with at least one side of the wall cavity accessible**	
	Amount per unit of measurement: Per Unit (Each)	$, .
Unit Price No. 13	**Exit Light: Existing including 30' of wiring.**	
	Amount per unit of measurement: Per Unit (Each)	$, .
Unit Price No. 14	**Fire Alarm Horn/Strobe: Fire Alarm Horn/Strobe, including 30-feet of wiring**	
	Amount per unit of measurement: Per Unit (Each)	$, .

Any and all material(s) quantities due to excessive amount(s) using unit prices will be able to be negotiated due to the volume.

4. CONTRACT TIME

The Bidder offers to perform the work in accordance with the timeline specified below:

- Substantial Completion..... shall be no later than 500 calender days from the date of commencement; unless specific floors and/or areas are otherwise noted on the "Phasing Schedule" plans (sheet(s) A040, A041, & A042)
- Final Completion shall be no later than 45 calendar days from substantial completion; unless specific floors and/or areas are otherwise noted on the "Phasing Schedule".

5. LIQUIDATED DAMAGES

The successful bidder awarded a contract pursuant to this solicitation shall be liable for and pay the State, as liquidated damages and not as a penalty, the following amount for ***each*** calendar day of delay beyond the date for substantial completion, as determined in the sole discretion of the State: **One Thousand Dollars ($1,000.00) per day.**

BID FORM SIGNATURE(S)

Solicitation #: 7575502

Solicitation Title: Rhode Island Office of Attorney General

RIAG Interior Office Renovations – 150 South Main Street, Providence

This bid proposal is irrevocable for 60 days from the bid proposal submission deadline.

If the Bidder is determined to be the successful bidder pursuant to this solicitation, the bidder will promptly: (i) comply with each of the requirements of the Tentative Letter of Award; and (ii) commence and diligently pursue the work upon issuance and receipt of the purchase order from the State and authorization from the user agency.

The person signing below certifies that he or she has been duly authorized to execute and submit this bid proposal on behalf of the Bidder.

BIDDER

Date: _____

Name of Bidder

Signature in ink

Printed name and title of person signing on behalf of Bidder

#

Bidder's Contractor Registration Number

ADDENDUM #1

Rhode Island Attorney General
Interior Renovations
150 South Main Street
Providence, RI

RGB #6355
December 8, 2017

50 Holden Street · Providence, RI 02908 · Tel: (401) 272-1730 · www.rgb.net
Architecture · Project Management · Interior Design
RGB architects

ADDENDUM #1
Solicitation #: 7575502

END OF TABLE OF CONTENTS

PRE-BID WALK-THROUGH / 05 December 2017
Re: RIAG Interior Renovations
RGB #6355

Participants:

Refer to attached sign-in sheet.

The purpose of this Pre-bid meeting was to invite potential bidders to the RI Attorney General's offices, review the overall proposed interior renovation scope of work and field questions that may have been placed by the interested bidders during the meeting. The meeting was held at 150 South Main Street, Providence, RI.

No.	Issues and Action Items	
1.	The representative for the RI Department of Administration (RIDOA) reported the following:	
	1.1	Any changes to the bid documents will be done by Addenda and posted online for access by interested bidders.
	1.2	Currently, Monday Dec. 11th is the deadline for questions. However, this deadline will likely be extended. RIDOA encourages to refer to the website for updates.
	1.3	A bid bond is required for submitted bids to be received.
	1.4	All questions need to be submitted in writing to Tom Bovis, RIDOA.
	1.5	This project is a public bid, so all public rules apply.
	1.6	All questions to be in writing to Tom Bovis.
	1.7	Thursday, December 7th and Friday, December 8th there will time for a walk-through for contractors and sub-contractors.
	1.8	December 22 at 11:00 a.m. is the deadline for bid submittal.
	1.9	All bid submissions to shall be submitted at One Capitol Hill, 2nd floor.
	1.10	The revised bid form will be part of Addendum 1.
2.	Representatives of the RI Attorney General's office went over the critical milestones of the project.	
	2.1	Site mobilization starts beginning of February
	2.2	It is anticipated that a construction contract will be executed in January 2018 for site mobilization early February 2018.
	2.3	The OPM indicated that the intention is to have the third floor and mock courtroom to have substantial completion by October 1, 2018. The second floor to be substantially complete two months later, December 2018. The remainder of work to be complete by July 2019.
3.	Owner's Project Manager (OPM) described the project scope. In general, the interior renovations will be a full gut and renovation.	

	3.1	There will be abatement of asbestos containing materials (ACM) included in the project scope of work. A plan has been submitted to the RI Department of Health for review and approval. Plan is also part of the bid documents.
	3.2	The OPM reported that the building is approximately 43,000 gross square feet in area.
	3.3	The OPM indicated that the work will be phased, and the building will be partially occupied throughout construction. Coordination of phasing will be critical for a successful project delivery.
	3.4	OPM noted that a suggested sequence of construction for reference is included in the bid documents.
	3.5	In addition to the interior renovation, there will be water mitigation (consisting of a series of new wells) at the rear of the building
	3.6	The OPM noted RIAG are seeking LEED certification for Interior Renovations.
4.	Representatives of the RIAG noted there is and will continue to be 24-hour security at the building.	
	4.1	The RIAG will require a BCI check (mandatory) for all workers working on the project prior to the workers being allowed to work onsite.
	4.2	The RIAG will require that the successful bidder provide security check-in and check-out for all workers, direct or indirect during the entire project construction period.
5.	The OPM noted that this project will be lump sum with unit prices and add alternates.	
6.	The OPM provided a brief overview of site access and hours of operation for the Owner.	
	6.1	The Owner's hours are from 8:30 a.m. to 4:30 p.m.
	6.2	All loud work, trash disposal, and deliveries to be performed during off hours.
	6.3	There is limited parking onsite. The Owner will be using the parking lot, however, it is anticipated that some spaces will be available for contractor staging.
	6.4	As site access is limited, logistics are also critical
	6.5	The freight elevator is available to the contractor, but needs to remain accessible for limited owner deliveries
7.	The OPM indicated that elevators will be available to contactor during the first phase(s). Refer to the suggested staging plans.	
8.	It was reported that significant mechanical work will be included in the scope of work.	
	8.1	AC Units in the penthouse are to remain, but will be upgraded.
	8.2	The existing steam wall units at the exterior walls will be replaced with new hot water units.

9.	The OPM noted that the RIAG intends to put out a separate invitation to bid early 2018 for exterior renovations will be bid. Windows are not being replaced. Other coordination with exterior work may be required.
10	The RIAG will require supervision for any work occurring outside the construction access area. It was specifically noted that work outside the construction access areas should be very limited if any.
11.	A perspective bidder indicated that the specifications required the contractor to carry temporary facilities running costs in its bid, including utilities. Clarification on how that can be managed with the building phasing and partial occupancy by the Owner is required.
12.	A perspective bidder inquired on the Owner's budget. The OPM reported that the Owner's budget will not be disclosed.

If any of the above is inconsistent with your understanding, or this correspondence fails to document any items discussed, please advise the writer immediately. If comment is not received within five days of this document's distribution, minutes will be considered accurate and final.

Submitted by,

Rene Brakels
Job Captain
RGB architects

cc:

State of Rhode Island
Division of Purchases
One Capitol Hill
Providence, RI 02908

"MANDATORY" PRE-BID CONFERENCE SIGN IN SHEET

Mandatory Pre-bid Conference: Any vendor who intends to submit a bid proposal in response to this solicitation must have its representative attend this mandatory prebid conference, sign, and complete all required information on this Sign-In Sheet. Failure to comply with this requirement will result in the rejection of any bid proposal.

BID NUMBER: 7575502
BID TITLE: Interior Renovations RIAG Building 150 South Main Street, Providence
PRE-BID DATE AND TIME: December 5, 2017 @ 10:00 AM

Purchasing Representative:
Gary P. Mosca
Mandatory Pre-bid START TIME:
10:00
Mandatory Pre-bid END TIME:
10:35 10:45 (60)

	COMPANY NAME	COMPANY REPRESENTATIVE	SIGNATURE	ADDRESS	CONTACT E-MAIL	CONTACT PHONE NUMBER
1	State of RI	GARY P. MOSCA	Gary P. Mosca	One Capitol Hill Prov. RI 02908	GARY.MOSCA@PURCHASING.RI.GOV.	401-574-8124
2	TURGEON	PETER ABBENANTE		ONE HARRY ST	PETER@ETURGEON.com	401-943-0190
3	SACCA	JUSTIN FOTTE		1 HARRY ST CRANSTON, RI	JUSTIN@SACCAENG.COM	(401) 942-1150
4	Arden Eng	Waymon Jones		505 Narragansett Pk Dr Pawtucket, RI	estimating@ardeneng.com	
5	EW BURMAN	BOB DANDENEAU		33 Vermont Ave Warwick RI 02888	estimating@ewburman.com	401-738-5400
6	BOND BROTHERS	KIM SILVESTRI	Kim Silvestri	ONE CEDAR ST PROVIDENCE RI 02903	KSILVESTRI@bondbrothers.com	401-601-6150
7	R.A. Keough	KCM		312 Waterman Ave EAST Prov	RKeough@Keoughconstruct.com	
8	~~Loretta Picciriilli~~	~~Loretta Picciriilli~~				
9	Bentley Builders	Loretta Picciriilli		250 Scrabbletown Rd.	lpicciriilli@bbbuildllc.com	401-309-5674
10						
11						
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14						
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** VENDOR: PLEASE SUBMIT A BUSINESS CARD IF AVAILABLE**

State of Rhode Island
Division of Purchases
One Capitol Hill
Providence, RI 02908

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BID TITLE: Interior Renovations RIAG Building 150 South Main Street, Providence
PRE-BID DATE AND TIME: December 5, 2017 @ 10:00 AM

	COMPANY NAME	COMPANY REPRESENTATIVE	SIGNATURE	ADDRESS	CONTACT E-MAIL	CONTACT PHONE NUMBER
17	Ahlborg Construction	Dayne DeSeires		355 Centerville Road Warwick	ddeseires@ahlborg.com	401-681-4949
18	AHLBORG CONST CO	JIM PLANTE		355 CENTERVILLE RD WARWICK, RI	JPLANTE@AHLBORG.COM	401-681-4949
19	H.V. Collins	Raymond Way		99 GANO ST Providence, RI 02906	RWAY@HVCOLLINS.com	401-302-2144
20	~~J. RACINE~~ RGB	JOHN RACINE		50 HOLDEN ST PROVIDENCE RI 02906		
21	RGB	René Brakels		50 Holden St. Providence RI 02906		
22	KCM	Andy Pearce		150 S. Main		
23	RIAG	Bill Massé		150 S. main Street	WMasse@riag.ri.gov	274-4400
24	BAILEY GROUP	MARK HATHAWAY		615 JEFFERSON BLVD WARWICK RI	MHATHAWAY@BAILEYGROUP.COM	885-6135
25	Shanix Technology	Jake Jachym		40 Worthington Rd Cranston, RI 02920	Jake@shanix.com	401.941.4022
26	Calson Corp	George A. Calcagni		340 Oakdale Ave Johnston, RI 02919	GEORGE@CCALSON CORP.COM	(401) 272-1100
27	TRAL Builders	Brian Ross		28 Wolcott St Prov, RI	ESTIMATING@ TRALBUILDERS.com	401 943-3800
28						
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32						

** VENDOR: PLEASE SUBMIT A BUSINESS CARD IF AVAILABLE**

State of Rhode Island
Division of Purchases
One Capitol Hill
Providence, RI 02908

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	COMPANY NAME	COMPANY REPRESENTATIVE	SIGNATURE	ADDRESS	CONTACT E-MAIL	CONTACT PHONE NUMBER
37/17	ACME	NARONG THIM		52 FULLER ST. SEEKONK MA	ESTIMATING6.ACME@GMAIL.COM	508-336-5551
38/18	ADS Construction	Dan KENNEY		300 Wampanoag Trl E. Prov	dKenney@adsconst.com	401-431-1228
39/19	GES	Vicki KEARNS		PO Box 8233 WARWICK	vfkearns@gmail.com	255 2923
39/20	Tower Construction Corp	San Jolie-Jossa		10 Southern Industrial Cranston RI	ESTIMATING@Towerconstruction.com	943-0110
37/21	BlueSkies Const - Rubicon	Gabriel Vargas		514 River Rd Lincoln RI 02865	blueskiescomp@gmail.com	401.603 5289
36/22	MARON CONSTRUCTION	WILLIAM HUNTER		180 BUTTONHILL DR. providence, RI 02909	Wchunter88@gmail.com	401-272-4930
36/23	RIAG	Chris Potter		150 SOMAW	CCotter@RIAG.RI.gov	X2350 274-4400
40/24	RIAG	Ernest CARLUCCI		150 S. Main	ECARLUCCI@RIAG.RI.gov	274-4400
41/25	Mill City Construction	Avanthi Kusumba		7 Old great Rd	akusumba@mill-city.com	401-741-804
42/26						
43/27						
44/28						
45/29						
46/30						
47/31						
48/32						

** VENDOR: PLEASE SUBMIT A BUSINESS CARD IF AVAILABLE**

TO ALL BIDDERS OF RECORD:

This Addendum forms a part of the Contract Documents and modifies the Drawings and Project Manual as hereinafter indicated.

PROJECT MANUAL

1. RIDOA BID FORM

   A. Delete RIDOA Bid Form in its entirety and replace with revised RIDOA Bid Form as issued as part of this addendum.

2. Section 01 01 00 - Summary of Work

   A. Page 7 of 7 Change Section 01 01 00 1.12 B 1 to read as follows: “Allow owner use of building rear parking lot, refer to phasing plan for additional information for owner parking and utility access”.

3. Section 01 21 00 – Allowances

   A. Page 2 of 2 Cash Allowances: Add Section 01 21 00 1.4 B 6 to read: Section 27 51 19 Sound Masking. Furnish and install full Sound Masking System in sound sensitive areas as required and approved by the Owner. Provide $75,000 for this item.

4. Section 01 50 00 – Temporary Facilities and Controls

   A. Page 2 of 7 and 3 of 7 Section 2.1 Temporary Facilities: Delete sections Section 2.1 A.1 and A.2 in their entirety.

      Note: trailers not required. Use of onsite office on the Lower Level of the building will be available for use.

5. Section 23 00 00 – HVAC

   A. Pages #22-27 Section 23 00 0 2.5: Delete Section 2.5 VARIABLE SPEED PUMPS and replace with the following:

      2.5 VARIABLE REFRIERANT FLOW (VRF) SYSTEM

      A. General:
      1. Systems for variable refrigerant flow shall be as manufactured by Mitsubishi City-Multi, LG, York, Trane, or an approved equal provided the system can meet the performance and installation parameters scheduled, details and specified on the drawings and herein.
      2. System designs for this project are customized for the intended installation. The purchased system(s) shall be verified with the Manufacturer’s representative as being the same as the system designs shown on the drawings. For substituted Manufacturer’s systems that are considered equal, a full design analysis shall be completed by their certified Manufacturer’s representative proving equality in the sizing, configuration and layout of the specified system.
      3. The system manufacturer’s work shall include all fittings, start-up, commissioning and training for the owner of the systems as required in accordance with the requirements listed in Part 3 of these HVAC specifications.

      B. Outdoor units (Heat Pumps):

1. Units shall be equipped with multiple circuit boards that interface to the variable refrigerant flow (VRF) controls system and shall perform all function necessary for operation. Each unit module shall be completely factory assembled, piped and wired and run-tested at the factory.
2. Sound rating shall be no higher than 55 dBA.
3. Unit cabinet/casing shall be fabricated of galvanized steel, bonderized and finished with an electro-statically applied, thermally fused acrylic or polyester powder coating. Assembly hardware shall be cadmium plated. Assembly shall include two mild steel mounting feet, traverse mounted across the cabinet base pan, welded, providing four slotted mounting holes (furnished). The assembly shall be able to withstand lateral wind gusts up to 155 MPH.
4. Fans:
   a. Units shall have one direct drive, variable speed propeller type fan per module.
   b. Fans shall have inherent protection, permanently lubricated bearings and be completely variable speed.
   c. Shall be mounted for quiet operation, horizontal discharge airflow.
   d. Shall have raised guard to prevent contact with moving parts.
   e. Shall have vertical flow discharge.
   f. Fan speed shall be switched automatically according to the number of operating indoor units and compressor operating frequency.
5. Refrigerant shall be type R-410A. Polyolester oils shall be required.
6. Coil:
   a. Outdoor coil shall be nonferrous construction with lanced or corrugated plate fins on copper tubing.
   b. Fins shall have factory applied corrosion resistant blue-fin finish.
   c. Coil shall be protected with an integral metal guard.
   d. Refrigerant flow from outdoor unit shall be controlled by means of individual electronic linear expansion valves for each indoor unit.
   e. All refrigerant lines between outdoor and indoor units shall be of annealed, refrigeration grade copper tubing, ARC Type, meeting ASTM B280 requirements, individually insulated in twin-tube, flexible, closed-cell, CFC-free (ozone depletion potential of zero), elastomeric material for the insulation of refrigerant pipes and tubes with thermal conductivity equal to or better than 0.27 BTU-inch/hour per Sq Ft / °F, a water vapor transmission equal to or better than 0.08 Perm-inch and superior fire ratings such that insulation will not contribute significantly to fire and up to 1” thick insulation shall have a Flame-Spread Index of less than 25 and a Smoke-development Index of less than 50 as tested by ASTM E 84 and CAN / ULC S-102.
7. Compressor:
   a. Compressor shall be hermetic, inverter driven, variable speed, dual rotary type.
   b. Compressor motor shall be direct current (DC) type equipped with a factory supplied and installed inverter drive package.
   c. Shall be equipped with internal thermal overload.
   d. Shall be mounted to avoid transmission of vibration.
   e. Outdoor unit shall be equipped with a suction side refrigerant accumulator.
8. Electrical power for the outdoor unit shall be 208/230 volt, 1-phase, 60 hertz. The unit shall be controlled by integral microprocessors. Indoor units shall be powered directly from outdoor unit(s) using 3-wire 14 gauge AWG connections plus ground. The outdoor unit shall be equipped with pulse amplitude modulation (PAM) compressor inverter drive control.

C. Branch Box (BC) Controllers:

1. The outdoor unit shall have liquid and suction gas line connections. Pipe lines run from outdoor unit shall connect to the branch box(es) per the system layout/design.
2. Branch boxes shall be installed indoors in an area with a temperature between 67°F and 95°F and relative humidity of 80% or lower.

D. Indoor Air Handling Units

1. General:
   a. Indoor unit electrical power shall be 208/230 volt, 1-phase, 60 hertz as scheduled.
   b. Indoor unit controls shall be as provided by Mitsubishi Electric to perform the functions necessary to operate the system. Refer to “Temperature Control System” portion of these specifications.
   c. Unit control boards shall consist of contacts for control of external heat source (as applicable). Boards shall have no less than 4 digital inputs capable of customizable control strategies and no less than 3 digital outputs capable of being used for customizable control strategies.
2. Wall Mounted Unit:
   a. Unit shall mount directly to a wall via a fastening back plate assembly. Units shall be factory assembled, wired and run-tested. Unit shall contain all factory wiring, piping, electronic modulating linear expansion valve, control circuit board and fan motor. Unit shall have self-diagnostic function, 3-minute time delay mechanism, auto restart function, emergency operation function, test run switch, and ability to adjust airflow patterns. Indoor unit refrigerant pipes shall be charged with dehydrated air before shipment.
   b. Unit casing shall have a white finish, multi-directional drain and refrigerant piping (2 direction pipe alignment for condensate and 3 direction piping alignment for refrigerant piping). A separate back plate shall secure the unit firmly to the wall. The plate shall securely attach to the wall with an appropriate anchor kit (method shall be field determined by the installing contractor).
   c. Indoor fans shall be an assembly with a line-flow direct driven single motor. The fan shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings. The fan shall discharge through a manual adjustable guide vane for changing airflow from side to side (left-right). An integral, motorized, multi-position, horizontal air sweep flow louver shall provide for uniform air distribution up and down and shall include 5 speed positions including “auto” to adjust from the unit controller. The fan shall operate at five speeds plus auto-fan mode, all selectable from the remote controller.
   d. Unit filter shall be long-life washable type.
   e. The indoor coil shall be nonferrous construction with smooth plate fins on copper tubing. Tubing shall have inner grooves and be brazed with phos-copper or silver alloy. Coils shall be pressure tested at the factory. Both refrigerant lines to the indoor unit shall be insulated in accordance with the installation manual.
   f. Unit shall include a sloped, corrosion resistant condensate pan with drain under the coil. Provide as an option, a drain pan level switch that shall connect to the unit control board (to prevent condensate overflow).
   g. Both refrigerant lines to the indoor unit shall be insulated in accordance with the installation manual.

B. Pages #102-111 Section 230000: Add Section 230000 2.37 SKID MOUNTED PUMPING SYSTEM as issued as part of this Addendum.

6. Section 26 00 00 Electrical

A. Page #35 Section 260000 2.16 B.h.: Delete Sub-base fuel storage system and piping and replace with: Day tank fuel storage system and piping.

B. Page #36 Section 260000 2.16 F. 2nd line: Replace 40 kW with 80 kW, 100 kVA.

C. Page #55 Section 260000 2.21 B. Sequence of Operation 1.a. first and second line: Remove all [ ] and add “and existing” after DACT (on board dialer/DACT and existing Master Box.).

D. Page #56 Section 260000 2.21C.1.: Remove Audio Evacuation from first line.

E. Page #70 Section 260000: Add Section 2.27 BRANCH PANEL SPD PROTECTION as follows:

2.27 BRANCH PANEL SPD PROTECTION

A. Provide surge protective devices for branch circuit panelboards as shown in Schedule in this Section or on the Drawings.

B. Provide surge protective devices for all panelboards designated as emergency in compliance with NEC Article 700.

C. References:
1. ANSI/IEEE C62.41 and C62.45.
2. UL 1449 – 3rd Edition.
3. UL 1283.
4. NEC – NFPA 70.
5. NEMA LS1.
6. NFPA.
7. OSHA.
8. IEEE Std. 1100.

D. Submittals:
1. Shop Drawings: Provide Shop Drawings with wiring diagrams, installation information, testing and maintenance procedures, and operational information for the transient protection system. Shop Drawings shall be submitted to Engineer for approval before starting actual fabrication.
2. Submittal for Approval: Provide the following transient protection submittals:
   a. Dimensional Drawings of each SPD type, indicating proposed mounting arrangements.
   b. Written functional description of the transient protection circuit in terms of components, configuration, design approach, and performance capability per latest NEMA LS1.
   c. The means of connection of the SPD to the electrical distribution system per latest NEMA LS1.
   d. Manufacturer will provide UL-1449, Third Edition data card showing the Suppressed Voltage Rating (SVR) for the specific catalog number submitted. “Typical” UL 1449, Second Edition data is not acceptable.
   e. Per the requirements of NEC Article 285.6, the devices shall be marked with the short circuit current rating. This rating shall meet or exceed the available fault current. Test data from an independent testing laboratory shall be provided to demonstrate the short circuit current rating has been tested on a complete device.
   f. Submit test report data clearly demonstrating the maximum surge current rating has been tested on a COMPLETE SPD unit, including all necessary fusing/overcurrent protection, thermal disconnects, integral disconnects and monitoring systems. Manufacturers who cannot provide this data will not be considered.
   g. Submit data demonstrating the complete unit, including all overcurrent protection, is capable of a minimum repetitive surge current rating of 8,000 ANSI/IEEE C62.41, Category C3 (10kA) impulses without failure or performance degradation of more than 10%.
   h. Written detailed response to each paragraph of the specification indicating that the proposed product meets or exceeds this specification. If specific paragraphs are not met, provide written explanation as to why not.

E. Warranty:

1. Description: Manufacturer shall provide a product warranty for a period of not less than 5 years from date of installation.

F. Manufacturers:
1. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows:
   a. Liebert
   b. Current Technology
2. Quality: The manufacturer shall be ISO 9001 certified, demonstrating world-class quality systems for the design and manufacture of the SPD units.

G. Environmental:
1. General Requirements:
   a. No audible noise shall be generated.
   b. No appreciable magnetic fields shall be generated. System shall be capable of use directly in computer rooms in any location without danger to disc units, disk packs, tapes.
   c. Operating Conditions:
      1) 30 – 130 Degrees F.
      2) 15 – 85 Percent Humidity Non-Condensing.
   d. Enclosure: Unit shall have a NEMA 1 enclosure.

H. Electrical Requirements:
1. General Requirements:
   a. Rated for a 208Y/120 volt, 60 Hertz, 3 phase, 4 wire.
   b. Surge Suppressors shall be in accordance with the following requirements:
      1) Unit shall be parallel in design and connect in parallel to panelboard. Each surge suppression element (MOV) shall be individually fused so that a failure of one element and/or fuse shall not affect other surge suppression elements.
      2) Unit shall provide maximum UL 1449 Third Edition Suppressed Voltage Rating (SVR), for the 120/208V system:
         a) L-N = 400V.
         b) L-G = 400V.
         c) N-G = 400V.
         d) L-L = 800V.
      3) Unit shall provide maximum surge rating of 65,000 amperes based on ANSI/IEEE C62.41, standard 8 by 20 microsecond current waveform.
      4) Unit shall have a short-circuit current rating (amperes interrupting capacity) which equals or exceeds that of the panelboard.
      5) Unit shall include solid-state, long-life externally mounted LED visual status indicators that indicate the on-line status and operational integrity of each phase of the unit.
      6) Unit shall be UL 1283 listed as an electromagnetic interference filter and provide 50 Ohm noise attenuation of at least 30dB at 100 kHz, 50 dB at 1 MHz, 50 dB at 10MHz, and 45 dB at 100 MHz.
      7) Unit shall have a Form C summary alarm output contact rated for at least 1 amp at 120VAC for remote annunciation of SPD status.

I. Installation:
1. General Requirements:
   a. The SPD will be mounted internal/external to the panelboard as close as possible to the panelboard neutral lug and wired to the panelboard through a 30 amp, 3-pole breaker that will serve as a maintenance disconnect. Lead lengths shall be as short as possible, preferably less than 18”.
   b. System shall be installed in accordance with the manufacturer’s printed instruction to maintain warranty. All local and national codes shall be observed.

DRAWINGS

1. Drawings A100.1 and A100.2

   A. Work note A7.5 to read as follows: High Density Shelving System to be installed by Owner. Contractor to coordinate installation with Owner as required for full and complete installation.
   B. Change work note A7.6 to read as follows: New High Density Shelving System supply and install by Owner. Contractor to coordinate schedule of delivery and installation only.

2. Drawings A911 Room Finish Schedule Legend

   A. At Material 97G: Under Finish/Remarks in the schedule, change “at Masonry Walls” to read “at Masonry and Existing Concrete Walls”.

3. Drawing #E000:
   A. LEGEND, TOGGLE SWITCHES, symbol “SD” – Delete the description in its entirety and replace with “DIMMER SWITCH TO MATCH LIGHTING FIXTURE TYPE AND LIGHTING CONTROL SYSTEM INSTALLED. SEE DETAILS ON DRAWING #E201.”.

4. Drawing #ED101:
   A. Keynote clarification.
   B. Indicate existing feeder to existing elevators to be replaced with new feeders.

5. Drawing #E100:
   A. Clarify disconnect switch rating at FPT-10.
   B. Electric service entrance revision.
   C. Add exit lighting.
   D. Clarify toilet room flush valve power.

6. Drawing #E101:
   A. Add exit lighting.
   B. Clarify toilet room flush valve power.
   C. Clarify office receptacle circuiting.

7. Drawing #E102:
   A. Add exit lighting.
   B. Clarify toilet room flush valve power.

8. Drawing #E103:
   A. Add exit lighting.
   B. Clarify toilet room flush valve power.

9. Drawing #E104:
   A. Relocate new penthouse switchboard and revise rating.
   B. Indicate individual feeders from penthouse switchboard to each elevator.
   C. Indicate standby power circuit to each elevator cab light circuit.
   D. Added exterior service receptacles at roof mounted HVAC equipment.

10. Drawing #E200:
    A. Revise size and quantity of incoming service entrance conductors and their routing requirements.
    B. Revise rating of new main circuit breaker at new switchboard.
    C. Clarify rating of existing main circuit breaker in existing switchboard.
    D. Indicate new housekeeping pad at new switchboard.
    E. Indicate TVSS systems at emergency panelboards.
    F. Revise requirements and feeders for new emergency generator.
    G. Revise main distribution switchboard MDS schedule to indicate revised main circuit breaker and connected loads.

H. Revise penthouse switchboard MDP schedule to indicate revised main circuit breaker, connected loads, and individual circuits for elevators.
I. Revise panel schedules for panels EL1 and E23 to indicate circuit breakers for TVSS systems.

11. Drawing #FA100:
    A. Clarify location of fire alarm control panel.
    B. Indicate power circuit and fire alarm connections to sprinkler pre-action system.
    C. Clarify existing flow and tamper switches at existing fire service shall be connected to the new fire alarm panel

SKETCHES

1. Architectural Sketch – SK01 Conduit Wall, dated December 7, 2017

(THIS COMPLETES ADDENDUM NO. 1)

a. Acceptable fan array assembly shall consist of a total quantity of 2 single width, single inlet, class II, direct-drive type plenum fans dynamically balanced as an assembly, as shown in schedule. Maximum fan RPM shall be below first critical fan speed. All fan assemblies shall be dynamically balanced by the manufacturer on all three planes.
   1) Walk in access section placed downstream for motor access.
   2) Unit shall come equipped with an isolation damper upstream of each fan in the array. Damper shall be equipped with an adjustable, weighted counter balance to minimize static pressure loss.
   3) Fan array section shall come with sound absorbing panels installed around each fan.
b. Fan array shall have fans individually isolated with spring isolators.
c. Motors shall be 208v/3ph/60Hz, premium effeciency, TEFC.

5. Bearings, Shafts, and Drives: Shafts shall be solid, hot rolled steel, ground and polished, keyed to shaft, and protectively coated with lubricating oil. Hollow shafts are not acceptable.

6. Electrical:
   a. The air handler(s) shall be ETL and listed by Intertek Testing Services, Inc. Units shall conform to bi-national standard ANSI/UL Standard 1995/CSA Standard C22.2 No. 236.
   b. Wiring Termination: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclosed terminal lugs in terminal box sized to NFPA 70.
   c. Installing contractor shall provide GFI receptacle within 25 feet of unit to satisfy National Electrical Code requirements.
   d. Fan array section shall come equipped with motor control panel with short circuit protection complete with variable frequency drives.
      1) Fan array shall be equipped with one variable frequency drive wired to each of the fans in the fan array.
   e. Motor control panel shall come equipped with a disconnect switch.

7. Discharge Section:
   a. Plenum section shall be provided and properly sized for discharge air flow. The plenum shall provide a single opening as shown on drawings and project schedule.
   b. Access section shall be provided for access between components.

C. Execution

1. Installation: Install in accordance with manufacturer's Installation & Maintenance instructions.

2. Environmental Requirements: Do not operate units for any purpose, temporary or permanent, until ductwork is clean, filters are in place, bearings lubricated, and fan has been test run under observation.

2.37 SKID MOUNTED PUMPING SYSTEM

A. General:

1. Description:

a. The following specification details the minimum requirement for equipment and structure for a skid mounted pumping package. The installing contractor is responsible for the following: Preconstruction verification of the existing doorways to the penthouse. The pump skid shall fit through the existing doorway. The clear opening width for the door on is 3'-1". The door can be removed, and then the clearance would be 3'-2 1/8". If the door and weather-stripping were removed you can get a clearance of 3'-2 ¾". The height of the doorway is 6'-8" and 6'-10" with the door closer removed

b. The Packaged System shall be factory fabricated, tested and delivered to site by the manufacturer as a complete unit containing all of the items listed under Products. Field fabrication of the Packaged System is not acceptable. The Packaged System shall only require supply and return chilled water connections, one 460V electrical power connection and the necessary terminal contacts to the various field mounted devices and building automation.
c. Acceptable manufactures include Epsilon Industries, Armstrong, or approved equal.
d. Equal and alternate manufacturers must submit a request to bid in writing to the owner, or owner's consultant prior to tender closing. Alternate bids must be entered with savings over base bid. The manufacturer must provide the following information for consideration prior to entering a bid:
1) Equipment selection data.
2) General equipment and pipe arrangement drawings of the alternate's package in three dimensions demonstrating compliance with space considerations.
3) Piping schematic of the alternate's package.
4) List of deviations to the specification.

2. Products:
a. The following products are to be included as part of this Packaged System:
1) Structural Skid with piping supports.
2) Pumps and Motors.
3) Air Separator and Make-Up Water System.
4) Expansion Tank.
5) Valves, Gauges and Piping Accessories.
6) Pipe and Pipe Supports.
7) Electrical System.
8) Variable Frequency Drives.
9) Thermal Energy Co.ntrol System (TECS).
10) Instrumentation
b. The Packaged System shall be designed for the heat transfer, generation, flow and total dynamic head as noted. It shall be arranged to fit the space allotted on the plans and allow for equipment service.

3. Submittals and Operation Manuals:
a. Submittals shall include the following as a minimum:
1) Package dimensions and general arrangement drawing in three dimensions including overall 3D orthographic and renders.
2) Electrical power diagram indicating all terminations and connections by others.
3) Equipment submittals for all major components including but not limited to: pumps and pump ancillary equipment, tanks, variable frequency drives and electrical switchgear.
4) Catalog information on valves, strainers, and piping components specific to this project.
5) Piping schematic of the Packaged System's components showing equipment and valve tags, pipe sizes, connections types, gauges, piping specialties and instrumentation tags.
6) Enclosure details including wall, base, and roof construction.
7) Welding procedures structural
8) Welding procedures piping
9) Pipe and fittings
10) Inspection and test plan
b. Operation and maintenance manuals shall include the following as a minimum:
1) All of the items contained in the submittal section above.

2) Installation and maintenance manuals for OEM's products integral to the Package.
3) Structural calculations

c. Submittals and operation and maintenance manuals shall be assembled in a neat and orderly manner, and submitted in PDF form.

4. Quality and Performance Assurance:
a. Performance Criteria: The following are to be used as selection criteria and are to be as specified: water flow rates, water temperatures, water pressure drops.
b. Controls Responsibility: The Packaged System manufacturer must take responsibility for the independent control logic of the packaged system, and associated central plant equipment including but not restricted to: chillers, boilers and towers. The Packaged System's controls must be of a recognized manufacturer in the country of destination, and be capable of communicating with the building automation system (BAS) via BACnet
c. ETL: The unit shall be ETL certified as a package. Certification of only the components is not acceptable.
d. Quality Assurance Program: The manufacturer shall have a quality assurance program in place, and have the quality assurance manual available for the owner upon request.
e. Pressure Test: Once the Packaged System is fully assembled, all piping shall be pressure tested as per ASME B31.1 guidelines in the factory before shipping. Pressure testing of individual pipe spools or sub-assemblies is not acceptable.
f. Structural (and Seismic) Requirements: The base, shall be designed to meet or exceed the loading
g. Welding: All pipe and structural steel shall be welded in accordance with the procedures outlined in this section – no exceptions. At the owner's request, the manufacturer shall provide certified documentation of both the procedures and the welder's certification for that procedure.
h. Painting: All bases, enclosure floors and exteriors are to be factory painted in accordance with this section. At the owner's request, submit the paint specification demonstrating that it will withstand 500 hour exposure to the salt spray test specified in ASTM B 117.
i. The control system shall be fully tested prior to shipment. A complete IO check shall be performed and documented. VFDs shall be run to ensure correct phase rotation and control interface.

5. Warranty: The entire Packaged System shall be guaranteed for parts and workmanship for a period of 12 months from start-up or 18 months from shipment from the vendor's facility, whichever comes first.

B. Products: Furnish and install the following equipment as part of a factory assembled and tested Packaged System. The Packaged System shall be within the dimensions indicated on the plans and shall have sufficient service clearance for equipment as outlined by the manufacturer.

1. Structural Steel Base:
a. The steel base shall consist of a structural steel perimeter with intermediate structural steel members at a minimum height of 6". A 3/16" checkered plate floor shall be welded to the base and serve as an intricate part of the structure.
b. The base shall be designed for a maximum deflection of L/240 when the unit is fully operational and supported only at the section perimeter and at unit splits every eight (8) feet.

c. The base frame shall be welded to a factory certified procedure that shall conform to the requirements of AWS D1.1

2. Pumps and Motors:

a. Pumps shall be end suction type with cast iron housing, bronze impeller, shaft sleeve or stainless steel shaft. Pump shall be flexibly coupled to the motor, and all couplings shall include an approved guard. Pump and motor will be mounted on structural steel base and free of distortion caused by flexing of the base or piping. Motors shall be of premium efficiency and open drip proof design. Both pumps and motors shall be installed with shims under so that they can be dropped down for alignment without milling. All pump selections shall be non-overloading over the entire curve.

b. For variable speed applications the motor shall be selected to be compatible with the associated VFD. Refer to separate motor section. The flexible coupler between the motor and pump shall be Neoprene or EPDM for all variable speed applications.

c. Double suction vertical split case base mounted style pumps are considered equal to the end suction style as long as they meet the criteria outlined above.

d. Vertical In-Line style pumps and base mounted, end suction close coupled pumps are an acceptable equal up to and including 25HP motors.

e. All flex coupled base mounted pumps shall be furnished with a suction diffuser connected directly to the pump suction. Pumps shall be complete with a combination valve on the discharge. Refer to the manufacturer for minimum spool length needed between pump discharge and valve. The suction diffuser and combination valve must be from the same manufacturer as the pump. No exceptions.

f. For pipe sizes greater than 8" a combination of separate check valve and isolation valve shall be used in lieu of a triple duty valve, and a "Y" strainer or a basket strainer can be used instead of a suction diffuser. A long radius elbow must be the minimum fitting required between the strainer and the pump suction.

g. All flex coupled base mounted pumps must be fitted with vibration isolation equipment consisting of spring isolators of the open type sized for 2" deflection, and double sphere flex connectors for both suction and discharge. Each pump shall be fitted individually with the vibration isolation described above, or as a package with a common inertia base when two or more pumps are ganged together.

h. Vibration isolation is not required for pipe mounted VIL style pumps.

3. Air Separator and Make-up Water System:

a. Air separators shall be factory tested. Separators shall be supplied with an automatic air vent.

b. Chilled water systems shall use a PurgAir model in line air separator with a standard design rating of 150 psig. The inlet and outlet connections shall be flanged.

c. A make-up water system shall be connected to the outlet of the air separator. This system shall include a pressure reducing valve, backflow preventer, shut-off valves, Y-strainer, pressure gauge and manual by-pass.

4. Expansion Tanks:

a. Expansion tanks shall be manufactured in an ISO recognized facility. Each unit shall be factory tested per Hydraulic Institute standards at the factory of origin.

b. For air elimination systems, the expansion tank shall be a pressurized horizontal or vertical tank. The tank shall utilize either a bladder, or diaphragm to separate the air from the system water. Diaphragm and bladder tanks shall be factory charged with a .302-32 charging valve connection. The tank shall be designed, constructed,

and stamped for 125PSI and 240°F in accordance with Section VIII of the ASME Boiler and Pressure Vessel Code.

5. **Valves, Gauges and Piping Accessories:**
   a. **Valves shall meet the material, fabrication and operating requirements of ASME B31.1. All valves shall be located such that the removal of their bonnets is possible. All valves must be of threaded or flanged type. All bronze and iron body gate and globe valves shall be the product of one manufacturer. Manufacturers of other types may not be mixed, i.e., all butterfly valves shall be of one manufacturer, all ball valves shall be of one manufacturer, etc. No yellow brass valves will be allowed. Wafer style valves (except check valves) are not allowed.**
   b. **Butterfly valves shall be constructed with a ductile or cast iron lug body, EPDM seat, aluminum bronze disc, 416 stainless steel shaft and acetal stem bushing. Valves 6" and smaller shall be provided with lever operators and valves 8" and larger shall be provided with hand wheel and gear operator.**
   c. **Ball valves shall be forged brass body. Stem extensions shall be furnished for use on all ball valves to be insulated.**
   d. **Check valves 2" and smaller shall be Y-pattern swing type, bronze body to ASTM B62 with forged brass cap and cast bronze disc. Check valves 2½" and larger shall be iron body, bronze disc, bronze seat or non-slam lug or wafer type.**
   e. **Strainers 2" and smaller shall be constructed for 250 psig operating pressure at 406°F and shall have a cast iron threaded body and 20 mesh stainless steel screen. Strainers larger than 2" shall be constructed for 150 psig @ 150 degrees F and shall have a cast iron flanged body and a 1/16" perforated stainless steel screen up to 3", and a 1/8" perforated stainless steel screen on 5" and larger. Strainers 2" and smaller shall have straight thread and gasketed caps and plugged blow-off connections. Strainers larger than 2" shall include drain connections complete with ball valve, cap and chain.**
   f. **Install thermometers so they can be easily read from floor level. If this cannot be accomplished, install remote reading units. Thermometers are to be installed in thermowells so that they can be replaced without draining the system. Thermometers shall have a 9" scale, cast aluminum case and adjustable angle stem.**
   g. **Use one pressure gauge for each pump/ strainer assembly with connections upstream of the strainer, between the strainer and pump and on the discharge of the pump, all isolated with shut off valves.**

6. **Pipe and Pipe Support:**
   a. **All pipe used in the Packaged System shall be fabricated in accordance with this specification. The use of grooved mechanical connections is only acceptable for equipment connections as required, except where joining to OEM equipment with grooved connections.**
   b. **Unless otherwise indicated chilled water, hot water and steam piping shall be Schedule 40 for pipe smaller than 12" and standard weight for pipe 12" and larger. All pipe shall conform to Standard ASTM Designation A53 grade A or B. All weld fittings shall conform to ASTM A234. All condensate and threaded pipe shall be Schedule 80 conforming to Standard ASTM Designation A53B.**
   c. **Pipe welding shall be in accordance with ANSI/ASME B31.1 and ANSI/ASME Boiler and Pressure Vessel Code, Section IX. Ensure complete penetration of deposited metal with base metal. Manufacturer shall provide filler metal suitable for use with basemetal. Keep inside of fittings free from globules of weld metal. All welded pipe joints shall be made by the fusion welding process employing a shielded metallic arc process (SMAW) or gas metal arc welding process (GMAW/ MIG). Inside of pipe shall be free of excessive reinforcement. The use of backing plates**

is not acceptable. Tack welds, if used, must be of the same material and made by the same procedure as the completed weld. Otherwise, remove tack welds during the welding operation.

- **d. In no cases shall Schedule 40, 80 or standard weight pipe be welded with less than three passes including one stringer/ root, one filler and one lacer/ cap.**
- **e. Each weld shall be uniform in width and size throughout its full length. In addition, the cover pass (final weld layer) shall be free of coarse ripples, grooves, overlaps, abrupt ridges and valleys/ under cut. The surface smoothness of the finished weld shall be suitable for the proper interpretation of non-destructive examination of the weld.**
- **f. Each weld layer or pass shall be visually free of slag, inclusions, cracks, porosity and lack of fusion. Grinding to meet this criteria and elimination of defects and surface preparation of welds shall be done in a manner as not to gouge, groove or reduce the adjacent base material thickness below the minimum required.**
- **g. All butt welds shall be full penetration with uniform crown, with reinforcement blending smoothly into the base material. Concavity on the root side of a single welded circumferential butt weld is permitted with the resulting thickness of the weld at least equal to the thickness of the thinner member of the sections being joined.**
- **h. Socket welds shall have a gap of approximately 1/16" minimum to 1/8" maximum between the bottom of the socket and the end of the pipe prior to welding.**
- **i. Visually inspect all welds for compliance with this section. Welds found to be lacking penetration, or containing excessive porosity or cracks must be removed and replaced with an original quality weld as specified herein.**
- **j. All screw joints shall be made with tapered threads, properly cut. Joints shall be made with Teflon or dope applied to the pipe threads only and not to fittings. All threaded fittings shall conform to ASTM B16.3.**
- **k. Copper pipe shall be fabricated of Type L conforming to ASTM specifications for copper water tube. Copper pipe shall only be joined using non-lead-solder such as 95-5 silver or antimony solder (95 percent tin and 5 percent silver or antimony).**
- **l. All internal pipe shall be painted with a machine enamel in the Manufacturer's standard color prior to assembly. All pipe exposed to weather shall be sand blasted and painted using the system described in section 2.02.B.5**
- **m. All piping for the Packaged System shall be sized for a maximum head loss of 4 feet W.C. per 100 feet equivalent pipe length. Piping shall be supported independently of connections to equipment.**
- **n. Piping shall be installed to facilitate drainage and/or condensate management. Install drain valves at low points in piping, at equipment and at section isolating valves. Install air vents at high points in each piping system.**
- **o. Pipe supports shall be used to support pipe under all conditions of operation and prevent excessive stresses and vibration from being introduced into pipe work or connected equipment. Hot water and chilled water piping up to and including 8" shall be supported using Behringer Heavy Series pipe clamps. For hot water and chilled water piping above 8", Behringer Heavy 4.0 Series pipe clamps shall be used. U-bolts shall be used for internal condenser water piping. Oversized U-bolts shall be used on external condenser water pipe with welded saddles to allow for 2" insulation.**
- **p. Shop fabricate equipment supports not provided by equipment manufacturer from structural grade steel. Provide removable angle iron blocking and bracing to prevent movement of pipe work and equipment during shipping.**

7. Vibration Isolation:

- **a. An integral all welded steel vibration isolation base mounted on spring isolators shall be provided for the pumps and motors.**

b. Provide open spring mounts with ISO stiff springs, sound deadening pads and leveling bolts. Spring deflection shall be 2".
c. Flexible pipe connectors shall be designed for 125 psig service, or as appropriate for the static head plus system head, and 200 degrees F. The flexible connector shall be constructed of rubber or tetrafluoroethylene resin. The flexible section shall be suitable for intended service with end connections to match connecting piping. Connectors shall be flanged and equipped with limit bolts, rods or cable to restrict maximum travel.

8. Electrical Fabrication:
a. All Electrical fabrication work shall be in compliance with N.E.C. and C.E.C.
b. All service, feeder, branch or control circuit conductors shall be housed in Electrical Metallic Tubing.
c. All conductors used shall have a minimum temperature rating of 90 degree C.
d. Separate EMT conduit is used to house power , control and signal conductors.

9. Motor Control Centers:
a. General:
1) The motor control center shall be constructed to meet or exceed the requirements within NEMA ICS3-322, UL845, CSA22.2, and IEC 439-1 for motor control centers. The motor control center shall be designed, manufactured, and tested in facilities registered to ISO9001 quality standards.
b. Ratings
1) Voltage - Unless shown differently on the drawings, the MCC shall be rated for a 480V system.
2) Short Circuit Withstand Rating – Unless shown differently on the drawings, the MCC shall be rated for a fault current of 65,000A at 460VAC
c. Structure:
1) The MCC shall be of dead front construction and shall consist of one or more vertical sections bolted together to form a rigid, free-standing assembly. The systems shall be designed to allow for the addition of future sections and to permit the interchanging of units. The overall length of the MCC shall not exceed the dimensions shown on the drawings.
2) Vertical sections shall be rigid, free-standing structures.
3) Vertical sections shall have internal mounting angles running continuously within the shipping block.
4) Vertical sections shall be 90 inches high, 20 inches deep and 20 inches wide except where larger dimensions are required.
5) Enclosure – NEMA Type 1G - with Gasketed Doors , Sprinkler Hoods Standard

10. Low Voltage Panelboard/Switchboard Distribution:
a. General:
1) The panelboard/switchboard shall be constructed to meet or exceed the requirements within UL 67 panelboards , cabinets and boxes UL 50 NEC , CSA , NEMA Standard PB1 . The panelboard shall be designed, manufactured, and tested in facilities registered to ISO9001 quality standards.
2) Enclosure – Sprinkler proof , door in door construction
3) All circuit breakers within the panelboard / switchboard shall be UL listed under UL 489.
b. Ratings:
1) Voltage - Unless shown differently on the drawings, the panelboard/ switchboard shall be rated for a 480V system.
2) Short Circuit Withstand Rating – Unless shown differently on the drawings, the panelboard/switchboard shall be rated for a fault current of 65,000A at 460VAC.

11. Variable Frequency Drives:
- **a. General:**
  - **1) A Variable Frequency Drive shall be furnished where pump or fan speed regulation is required. The VFD can be housed within a MCC enclosure or wall mounted as required. The drive shall be listed UL, ETL and/or CSA.**
- **b. Standard Displays:**
  - **1) Output Frequency (HZ)**
  - **2) Set-Point Frequency (HZ)**
  - **3) Motor Current (Amperes)**
  - **4) DC Bus Voltage (VDC)**
- **c. Control Signal Interface:**
  - **1) 0 to 10 VDC**
  - **2) 0-20 or 4-20ma**
  - **3) Fixed frequencies using digital inputs**
  - **4) RS-485**
  - **5) Ethernet IP**
- **d. Output Signal Interface: A minimum of 1 4-20ma output signal which can be programmed to any of the following:**
  - **1) Output Frequency (HZ)**
  - **2) Output Current (Amperes)**
  - **3) Motor Torque (Percent)**
  - **4) Motor Speed (RPM)**
- **e. Remote Indication Interface: minimum of 2 dry contact relays outputs for remote indication of the following**
  - **1) Motor Enabled**
  - **2) Motor Running**
  - **3) Fault or warning indication**

12. Controls:
- **a. Dedicated JACE style controller for local sequencing and speed control of pumps**
- **b. The following equipment to be provided by vendor. All equipment outside of the skid boundary is field installed and wired back to controller by site contractor.**
  - **1) Differential pressure transmitter per chillers (3)**
  - **2) Two Temp sensors**
  - **3) Three (3) 2-way automated isolation valves for chillers**
  - **4) Two (2) DPT to be field mounted and wired back to the controller**

C. Packaged Validation and Shipping:

1. Inspection and Testing:
- **a. Include all test data and reports as required by this section as part of the Operation and Maintenance manual, including:**
  - **1) Vendor's Inspection and Test Report verifying compliance with this specification on an item by item basis.**
  - **2) ETL label.**
  - **3) Pneumatic pressure test results.**
  - **4) Structural [and seismic] calculations.**

2. Shipping Preparation:
- **a. All equipment and open nozzles shall be sealed to prevent entry of water, dirt or other foreign matter. Seals used in nozzles shall not affect threads, weld preparation or flange faces. Each open side of the Packaged System shall be shrink wrapped with a minimum 10 mil plastic. All equipment and components shipped loose or on skids shall be properly packaged to withstand recommended**

method of shipment without damage. Each package shall be clearly labeled on the outside.

b. Include a complete packing list and bill of material.

c. Provide consumables required during the installation for all equipment furnished including, but not limited to, flange bolts, sheet metal screws, rubber roofing for unit splits, roofing glue and caulking.

D. Execution:

1. Removal of protective wrapping such as shrink-wrap, wood crating, and packing.

2. The installing contractor is responsible for the following: Presconstruction verification of the existing doorways to the penthouse. The pump skid shall fit through the existing doorway. The clear opening width for the door on is 3'-1". The door can be removed, and then the clearance would be 3'-2 1/8". If the door and weather-stripping were removed you can get a clearance of 3'-2 ¾". The height of the doorway is 6'-8" and 6'-10" with the door closer removed

3. Receiving (including interior and exterior inspection).

4. Inspect interior and exterior and report any obvious damage, or equipment shifting that may have taken place between the time the unit left the factory and arrived at job curb.

5. Roof preparations: contractor is responsible for supplying, and installing all roofing materials including caulking, and sundry items needed to accept unit into place. Roofing equipment can consist of, but is not restricted to roof curb, sleepers, structural beam, vibration rails with springs. It is the contractor's responsibility to confirm roofing equipment to be supplied by Vendor.

6. Hoisting and rigging the section(s) into final location as per the instructions supplied with the unit.

7. Join the sections (if shipped in sections) following the instructions enclosed with the unit.

8. Reinstall any equipment, pipe, stacks or enclosure trim shipped loose due to shipping constraints.

9. Leveling, shimming as needed, and as per manufacturer's instructions.

10. Tighten all mechanically fastened connections that may have vibrated loose during shipping.

11. Realign and level equipment including pumps.

12. Fill all pump inertia bases with non-shrink grout as per pump manufacturer's instructions.

13. Insulate all piping and equipment that is required.

14. Flushing and filling the system.

15. Install all life safety equipment as needed.

16. **All field connections to the unit including piping, electrical, and drainage.**

17. **Connect all utilities needed for the mechanical system including domestic water, drainage, gas and electricity.**

18. **Make all hydronic connections (leading to and away from) the Packaged System and the base building [and cooling towers].**

19. **Field installed equipment including pressure/temperature transmitters, flow meters and their associated wiring to the unit (a list field installed equipment will be supplied, along with installation instructions).**

20. **Touch up and paint scratches and minor dents occurred during hoisting and rigging.**

21. **Permits and inspections needed to start system up.**

22. **Startup of system with the supervision of manufacturer personnel.**

PART 3 EXECUTION

3.1 COMMISSIONING OF EQUIPMENT AND SYSTEMS

A. The Architect will check the completed installation either sequentially as different parts are completed, or when the entire installation is complete, at the sole option of the Architect.

B. Prior to the Architect's checking a part of the installation or the entire installation, this Contractor shall submit a letter signed by an Officer of this Contracting Company or an Officer of the General Contractor stating that:

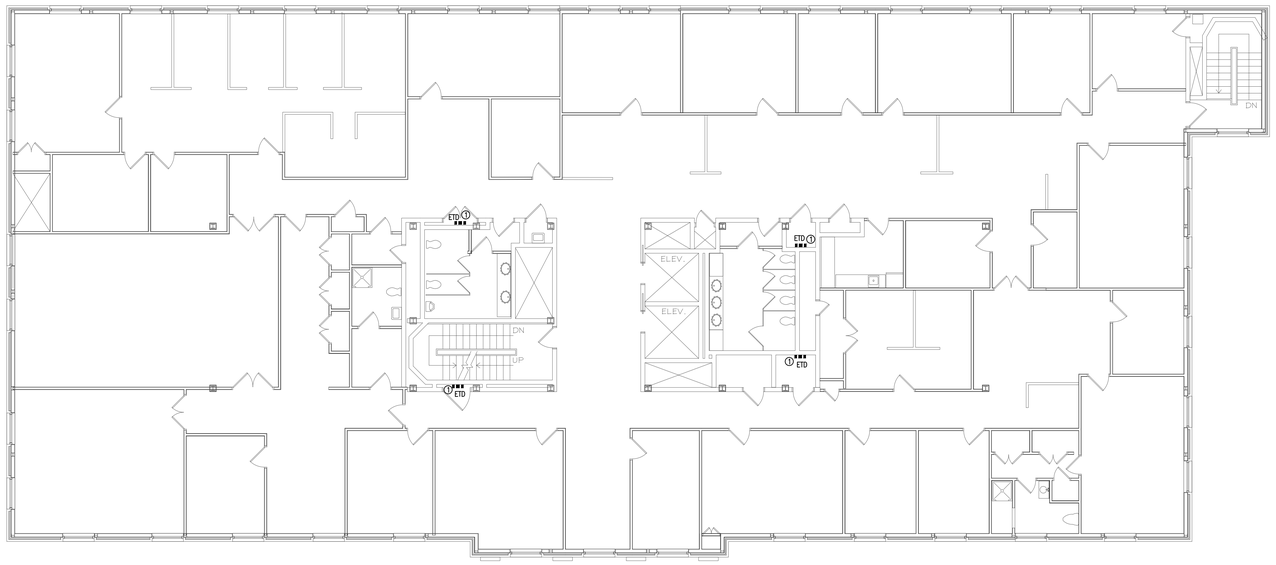
1. He is an Officer of the Company.
2. He has personally inspected the installation to be checked.
3. The date of his inspection.
4. The installation is complete and tested and ready to be inspected by the Architect, and that all required test reports have been submitted.

C. This Contractor shall arrange that an Officer of this Contracting Company or of the General Contractor, as well as the Clerk of the Works, in addition to other test witnesses that may be specified, shall witness the below listed tests. At the conclusion of each such test this Contractor shall submit a letter signed by the Officer stating that:

1. He is an Officer of the Company.
2. He has personally witnessed the tests (giving the name of the tests).
3. The date of testing.
4. The results of testing, as compared to specified performance.
5. List the name, title and company affiliated to all those witnessing the tests.

Tests Requiring Letters:

HVAC:	Boiler Operation and Controls
	Pumps Operation and Controls



2 ED100 THIRD FLOOR PLAN - DEMOLITION - ELECTRICAL

Scale: 1/8" = 1'-0"

KEYNOTES

1. EXISTING ELECTRIC PANELBOARD TO BE DISCONNECTED AND REMOVED COMPLETELY EXCEPT AS OTHERWISE NOTED. SEE ALSO "DEMOLITION AND REMOVAL WORK" NOTES "A", "C" AND "I".
2. EXISTING RETURN FAN VFD'S TO BE DISCONNECTED FROM EXISTING CIRCUIT. EXISTING BRANCH CIRCUIT WIRING TO BE DISCONNECTED AND REMOVED COMPLETELY FROM MOTOR BACK TO PANEL.
3. DISCONNECT AND REMOVE EXISTING BRANCH CIRCUIT TO EXISTING ROOF EXHAUST FANS.

DEMOLITION AND REMOVAL WORK

A. REMOVE ALL ELECTRICAL EQUIPMENT, WIRING, AND OTHER ELECTRICAL WORK ON ALL FLOORS AS REQUIRED EXCEPT AS OTHERWISE NOTED. DISCONNECT LOAD AND LINE END OF CONDUCTORS FEEDING DEVICES WHICH ARE TO BE REMOVED OR ABANDONED, REMOVE CONDUCTORS NO LONGER IN USE. CUT BACK TO FLOOR, WALL, OR CEILING AND PLUG BOTH ENDS OF CONCEALED CONDUITS MADE OBSOLETE BY THIS ALTERATION. REMOVE EXPOSED AND/OR ABANDONED CIRCUITS, OUTLETS, AND CONDUITS. REMOVE MATERIAL AND EQUIPMENT AND DISPOSE OF AS DIRECTED. EXISTING ELECTRICAL CONDUITS WITHIN ALL ELECTRICAL CLOSETS AND CHASES MAY BE REUSED AT CONTRACTORS OPTION TO RUN FEEDERS TO NEW PANELS FROM NEW SWITCHBOARD. VERIFY CONDUITS ARE CLEAR AND REUSABLE AND REROUTE EXISTING CONDUIT RUNS TO NEW SWITCHBOARD LOCATION.

B. WHEREVER IT IS REQUIRED TO DISCONNECT OR REMOVE ANY PART OF AN EXISTING CIRCUIT, IMMEDIATELY RECONNECT THAT CIRCUIT OR REESTABLISH SERVICE IN THE REMAINING PORTION OF THE CIRCUIT.

C. THE WORK SHALL ALSO INCLUDE THE REMOVAL OF MATERIALS AS DIRECTED. PRIOR TO REMOVING EQUIPMENT AND MATERIAL FROM PROJECT SITE, THE BUILDING MANAGER OR OWNER WILL INSPECT AND ADVISE WHICH ITEMS WILL BE STORED. STORE THOSE ITEMS WHERE DIRECTED.

D. WHERE EXISTING RECEPTACLES AND/OR SWITCHES ARE LOCATED IN COLUMNS AND/OR EXTERIOR WALLS, AND ARE NOT TO BE REUSED, REMOVE RECEPTACLE AND CAP OUTLET BOX. RECEPTACLES SHOWN ON PARTITIONS TO BE REMOVED SHALL HAVE ALL WIRING AND CONDUIT REMOVED AS WELL.

E. WHERE PRESENT WORK IS DAMAGED IN THE EXECUTION OF THIS CONTRACT, OR WHERE OPENINGS ARE LEFT DUE TO THE REMOVAL OF CONDUITS, EQUIPMENT, OR APPARATUS, THE SAME SHALL BE REPAIRED OR CLOSED UP TO CORRESPOND IN MATERIAL, QUALITY, SHAPE, AND FINISH WITH THAT OR SIMILAR AND ADJOINING WORK, UNLESS OTHERWISE NOTED.

F. SHOULD ANY DAMAGE DUE TO THE EXECUTION OF THIS CONTRACT OCCUR TO THE FURNITURE, FIXTURES, OR ANY OTHER EQUIPMENT OR APPARATUS, SUCH DAMAGES SHALL BE PROPERLY REPAIRED WITH THE SUPPLY OF NEW ARTICLES AND MADE GOOD WITHOUT EXTRA CHARGE.

G. WHERE REMOVAL OF EXISTING ELECTRICAL EQUIPMENT WILL RESULT IN OUTAGES IN AREA(S) TO REMAIN OCCUPIED OR NOT TO BE DEMOLISHED, THIS CONTRACTOR SHALL COORDINATE IN ADVANCE AND OBTAIN THE APPROVAL OF THE BUILDING MANAGER OR OWNER PRIOR TO ANY POWER INTERRUPTION.

H. PRIOR TO REMOVAL OF ANY EXISTING BRANCH CIRCUIT PANELS ON ANY FLOOR, THIS CONTRACTOR SHALL VERIFY THAT THERE ARE NO BRANCH CIRCUITS FEEDING OUTLETS AND/OR EQUIPMENT ON ANY OTHER FLOOR OR ADJACENT AREA THAT WILL REMAIN OCCUPIED DURING THAT PHASE OF THE CONSTRUCTION. WHERE CIRCUITS ARE FOUND FEEDING OTHER FLOORS THAT ARE REQUIRED TO REMAIN, THIS CONTRACTOR SHALL PROVIDE TEMPORARY POWER TO THOSE CIRCUITS TO KEEP THEM ACTIVE UNTIL REMOVAL CAN BE ACCOMPLISHED.

I. FOR CLARITY ONLY THE ELECTRICAL DISTRIBUTION EQUIPMENT (PANELBOARDS, SWITCHBOARDS, GENERATOR, ETC.) HAVE BEEN INDICATED ON THESE DRAWINGS. IT SHALL BE UNDERSTOOD THAT ALL EXISTING ELECTRICAL OUTLETS, DEVICES, CONDUITS, WIRING, AND OTHER RELATED APPURTENANCES ON ALL FLOOR ARE TO DE DISCONNECTED AND REMOVED AS DESCRIBED IN NOTE "A" ABOVE.

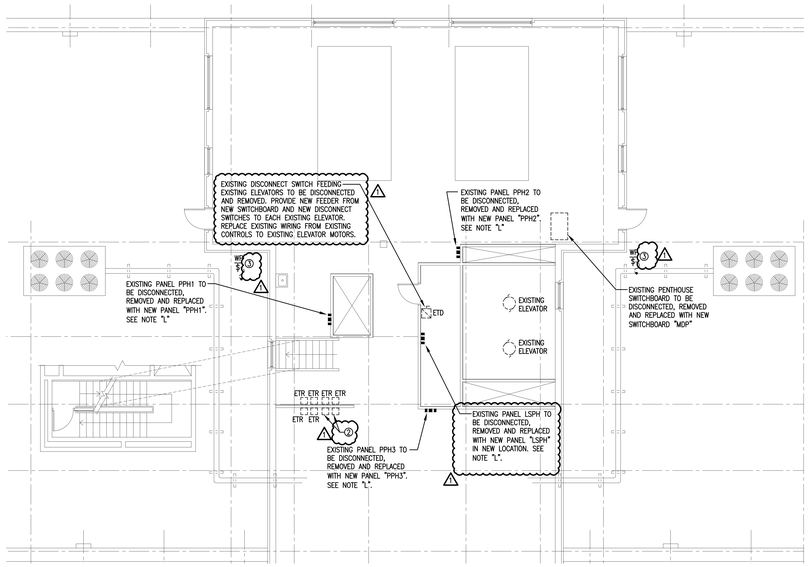
J. ALL EXISTING EXTERIOR WALLS AND MANY EXISTING INTERIOR WALLS CONTAIN ASBESTOS. THESE WALLS SHALL NOT BE DISTURBED. WHERE EXISTING RECEPTACLES ARE MOUNTED ON THESE WALLS AND TO BE REMOVED, THE EXISTING WIRING FEEDING THE EXISTING DEVICES SHALL BE REMOVED AND THE EXISTING CONDUIT CUT FLUSH WITH THE CEILING OR WALL AND ABANDONED. PROVIDE BLANK PLATES ON ALL UNUSED OUTLET BOXES. WHERE NEW DEVICES ARE INDICATED IN CLOSE PROXIMITY TO AN EXISTING WALL BOX, THE EXISTING BOX AND CONDUIT RUN MAY BE REUSED AT THE CONTRACTOR'S OPTION TO PROVIDE THE NEW DEVICES PROVIDING THE EXISTING WALL MATERIAL IS NOT DISTURBED. ALL SUCH LOCATIONS SHALL BE IDENTIFIED AND THE WORK AT EACH LOCATION COORDINATED WITH THE ARCHITECT PRIOR TO ANY WORK BEING DONE ON THAT FLOOR.

K. THERE IS AN EXISTING UNDER-FLOOR RACEWAY SYSTEM LOCATED ON EACH FLOOR. ALL EXISTING WIRING FOR ALL EXISTING ELECTRICAL EQUIPMENT AND SYSTEMS RUN IN THESE DUCTS FROM EXISTING PANELS SHALL BE DISCONNECTED AND REMOVED. EXISTING RACEWAY SHALL BE CAPPED AT ALL OPENINGS AND LEFT ABANDONED IN PLACE. HOWEVER, CONTRACTOR MAY, AT HIS OPTION, REUSE THE EXISTING RACEWAY SYSTEM FOR NEW WIRING TO NEW DEVICES. PROVIDE ALL REQUIRED FLOOR OUTLETS, SERVICE FITTINGS, OUTLET AND JUNCTION BOXES, CONDUIT AND WIRING CONNECTORS AND ADAPTERS, AND OTHER APPURTENANCES AS REQUIRED TO REUSE THE RACEWAY SYSTEM.

L. WHERE EXISTING PANELS ARE SPECIFIED TO BE REMOVED AND REPLACED, ALL EXISTING BRANCH CIRCUITS AND WIRING SHALL BE TRANSFERRED TO NEW PANEL. WHERE EXISTING RH WIRING IS ENCOUNTERED PROVIDE NEW BRANCH CIRCUIT WIRING TO REPLACE THE EXISTING WIRING TO THE EQUIPMENT.

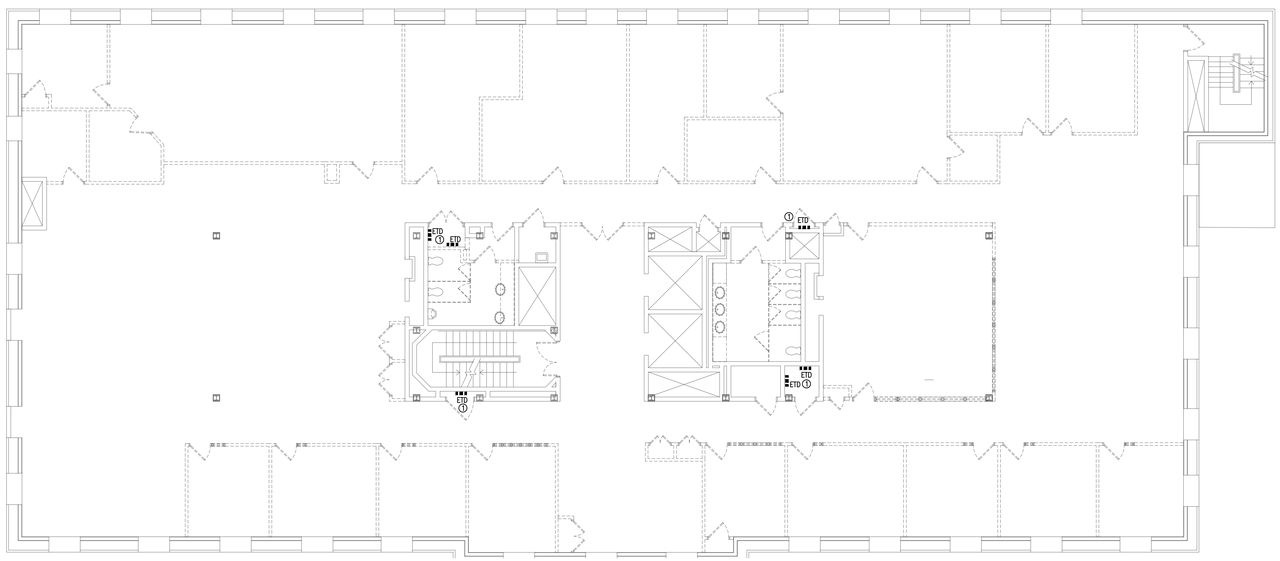
M. ALL EXISTING LIGHTING IN THE EXISTING CUPOLA TO REMAIN. CLEAN EXISTING FIXTURES, RELAMP, AND RECONNECT TO THE BRANCH INDICATED CIRCUITS.

N. ALL EXISTING LIGHTNING PROTECTION CABLES AND CONNECTIONS IN THE EXISTING CUPOLA TO REMAIN. EXAMINE EXISTING CONNECTIONS AND TIGHTEN ANY FOUND LOOSE.



3 ED100 PENTHOUSE FLOOR PLAN - DEMOLITION - ELECTRICAL

Scale: 1/8" = 1'-0"



1 ED100 SECOND FLOOR PLAN - DEMOLITION - ELECTRICAL

Scale: 1/8" = 1'-0"

ALL WORK TO BE PHASED. BUILDING WILL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. ALL TOILET ROOMS NOT UNDER CONSTRUCTION SHALL REMAIN ACTIVE.

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Certification

Drawn by RJ

Checked by SRB

Revised on

1 ADDENDUM #1 12-07-17
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Drawing Status

ISSUED FOR CONSTRUCTION

Issued On NOVEMBER 22, 2017

Sheet Contents

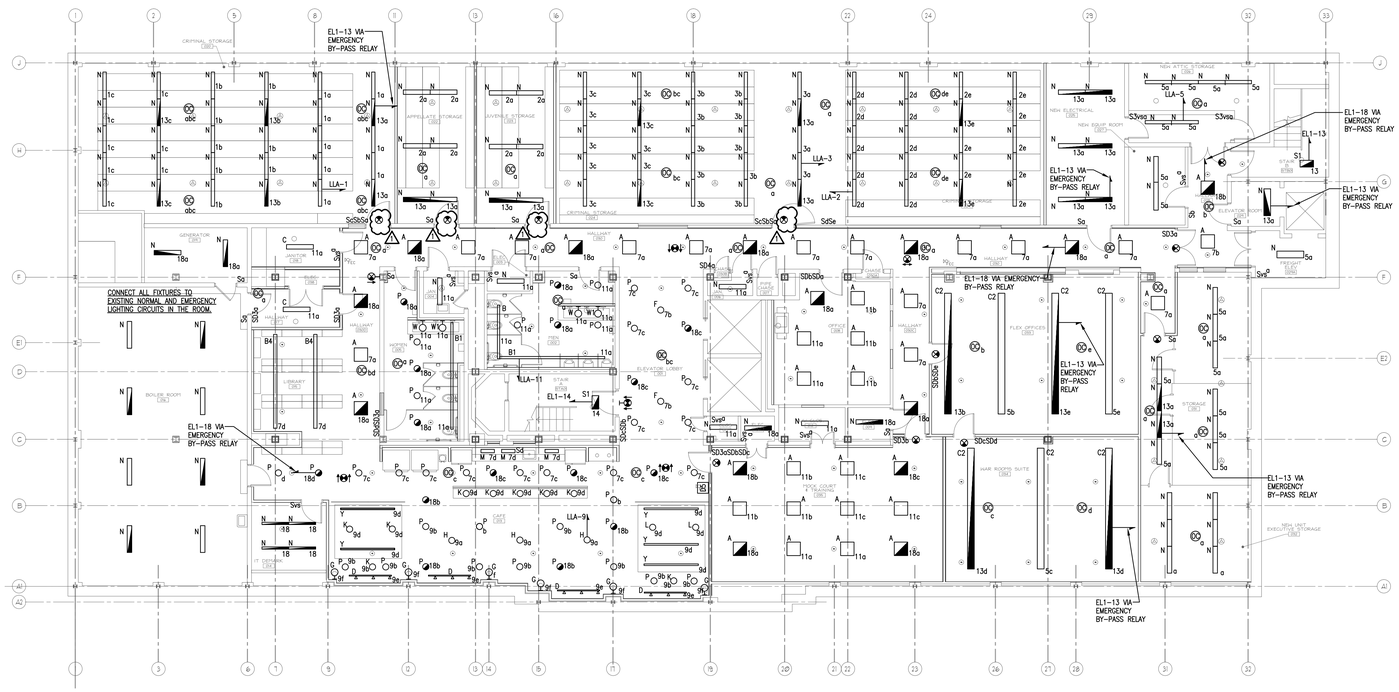
SECOND, THIRD, & PENTHOUSE FLOOR PLANS - DEMOLITION - ELECTRICAL

Project Number. 9999

Drawing No.

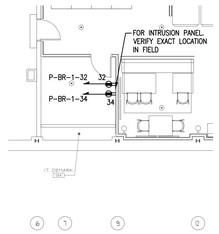
ED101

Sheet of



1 / E100 — LOWER LEVEL FLOOR PLAN - LIGHTING

Scale: 1/8" = 1'-0"



3 / E100 — PART. PLAN - IT DEMARK #014

Scale: 1/8" = 1'-0"

NOTES

1. PROVIDE GFCI RECEPTACLE WITH WEATHER PROOF COVER, WEATHER PROOF LIGHT SWITCH AND UTILITY LIGHT FIXTURE IN ELEVATOR HOISTWAY PIT. FIXTURE SHALL BE EQUAL TO CREE#E-WT6.221NG. COORDINATE EXACT MOUNTING LOCATIONS WITH ELEVATOR CONTRACTOR.
2. SEE DRAWING #E301 FOR CONNECTION INFORMATION TO ALL MECHANICAL EQUIPMENT.
3. IN ACCORDANCE WITH IGCC SECTION 608.6, PLUG LOAD CONTROL SHALL BE PROVIDED IN ALL OFFICE SPACES, COPY ROOMS AND FOR ALL AUDIO/VISUAL SYSTEMS AND WATER DISPENSERS. QUANTITY OF CONTROLLED RECEPTACLES SHALL BE IN CONFORMANCE WITH 608.6 (1) THROUGH (3).
4. PROVIDE CHANNELING AND CUTTING OF FLOOR ONLY WHERE NECESSARY. FLOOR OF THE LOWER LEVEL IS A STRUCTURAL CONCRETE SLAB APPROXIMATELY 14" THICK.
5. PROVIDE 600V, 30A, 3 POLE, SINGLE THROW, DISCONNECT RATED TOGGLE SWITCH WITHOUT OVERLOADS EQUAL TO LEVITON #N1303-TDS.
6. ALL CONDUIT, WIRE, OUTLET AND JUNCTION BOXES, DEVICES, AND OTHER APPURTENANCES ASSOCIATED WITH THE LOW VOLTAGE SYSTEMS IN THE BUILDING, INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, AND AV SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SEE THE "LV" SERIES DRAWINGS AND SPECIFICATIONS FOR ALL WORK TO BE PERFORMED.
7. ALL SWITCHED EMERGENCY LIGHTING SHALL BE WIRED TO THE INDICATED CIRCUIT VIA AN EMERGENCY BY-PASS RELAY. PROVIDE ONE (1) RELAY PER SWITCH.
8. ALL CIRCUITS FOR RECEPTACLES WITH A "GFI" DESIGNATION SHALL BE PROVIDED WITH GFCI CIRCUIT BREAKERS IN THE RESPECTIVE PANELS.

KEYNOTES

1. EXISTING PANELBOARD "P-BR-1" TO BE REPLACED WITH NEW. REFER TO POWER DISTRIBUTION DIAGRAM AND PANELBOARD SCHEDULE FOR ADDITIONAL INFORMATION. ENSURE ALL CLEARANCES PER CODE BEFORE INSTALLING. RECONNECT ALL EXISTING CIRCUITS TO THE NEW PANELBOARD EXCEPT AS OTHERWISE NOTED.
2. PROVIDE NEMA L5-30 RECEPTACLE IN IDF CLOSET.
3. PROVIDE TWO (2) 4" CONDUITS WITH PULL CORD FROM LOWER LEVEL IT ROOM TO FIRST FLOOR SERVER ROOM. RUN CONDUITS ABOVE CEILING IN LOWER LEVEL CORRIDOR.
4. PROVIDE ONE (1) 4" CONDUIT WITH PULL CORD FROM FIBER OPTIC CABLE ENTRY INTO BUILDING IN LOWER IT ROOM TO FIRST FLOOR SERVER ROOM. RUN CONDUITS ABOVE CEILING IN LOWER LEVEL CORRIDOR.
5. PROVIDE 3 #10, #10G, 3/4" CONDUIT INTERLOCK WIRING FROM AC-1 IN IDF ROOM TO CU-1 ON ROOF.
6. PROVIDE CONNECTION TO DOOR OPERATOR AND ALL ASSOCIATED CONTROL SWITCHES. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
7. CONNECT TO DOOR ACCESS SYSTEM AT INDICATED LOCATIONS. SEE "LV" SERIES DRAWINGS FOR LOCATIONS AND WIRING DETAILS.
8. EXISTING IRRIGATION SYSTEM TO BE RELOCATED. THIS CONTRACTOR SHALL RELOCATE CONTROL SWITCHING, OUTLET AND JUNCTION BOXES, CONDUITS AND ALL WIRING TO AVOID NEW DOOR INSTALLATION. PROVIDE NEW POWER RECEPTACLE FOR SYSTEM CONTROL PANEL. COORDINATE ALL LOCATIONS WITH PLUMBING CONTRACTOR AND EQUIPMENT LOCATIONS.
9. THE EXISTING SUMP PUMPS SHALL REMAIN. EXISTING WIREWAY AND ASSOCIATED BOOSTING TRANSFORMERS TO REMAIN. PROVIDE NEW BRANCH CIRCUITS FROM STAND-BY POWER PANEL AS INDICATED AND CONNECT TO THE EXISTING SUMP PUMP CONTROL EQUIPMENT.
10. PROVIDE POWER CIRCUIT AND CONNECTION TO EACH AUTOMATIC FLUSH VALVE AND FAUCET CONTROL IN EACH BATHROOM.

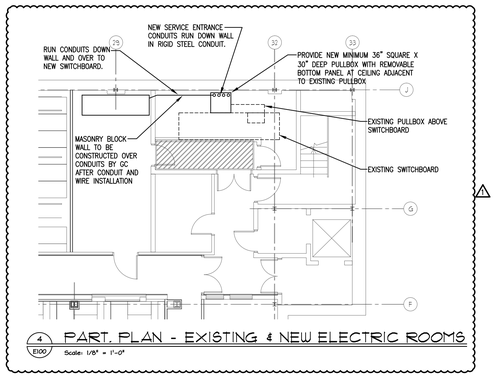
Certification

Drawn by RJ

Checked by SRB

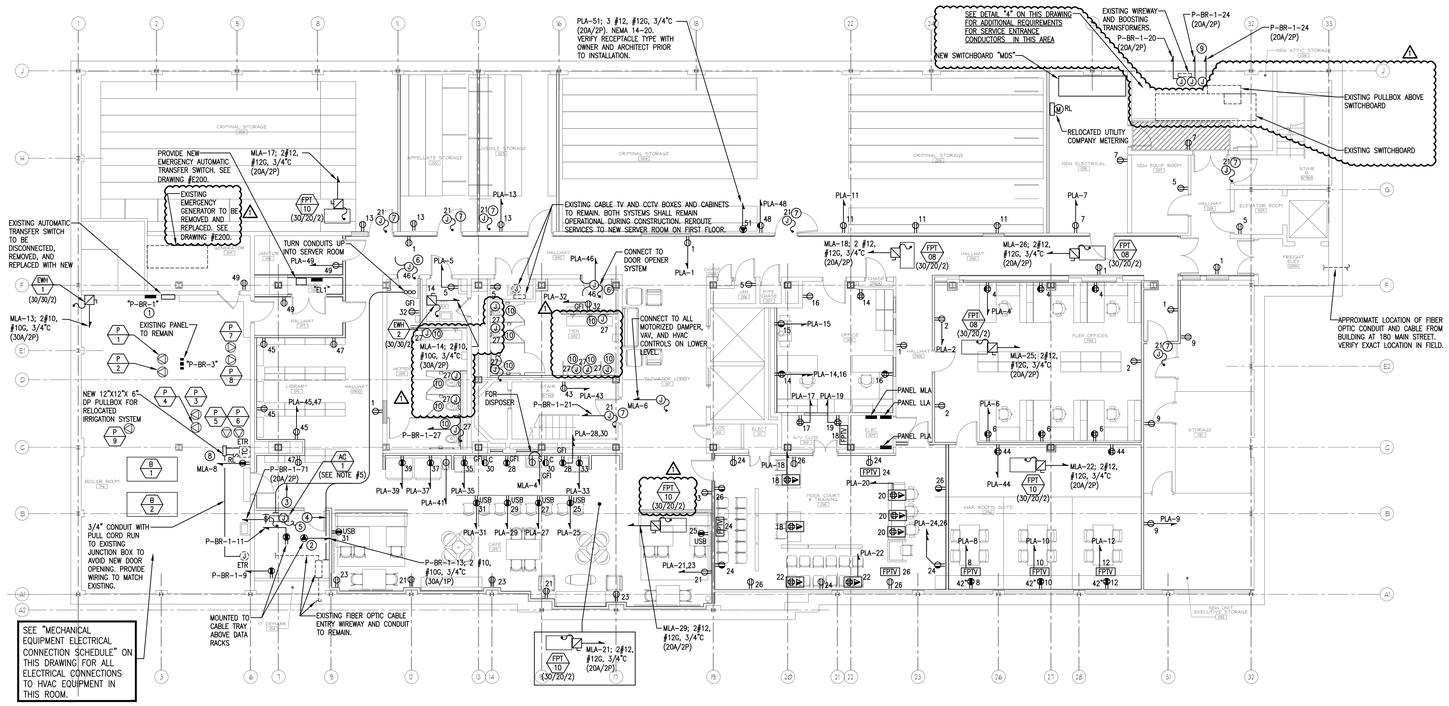
Revised on

1 ADDENDUM #1 12-07-17
HVAC CLARIFICATION & SERVICE AND EXIT LIGHT REVISION



4 / E100 — PART. PLAN - EXISTING & NEW ELECTRIC ROOMS

Scale: 1/8" = 1'-0"



2 / E100 — LOWER LEVEL FLOOR PLAN - POWER

Scale: 1/8" = 1'-0"

MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE

EQUIPMENT ID	EQUIPMENT CHARACTERISTICS						CIRCUIT	FEEDER	DISCONNECT SW		REC	REMARKS
	HP	FLA	KVA	VOLTS	PH	MOP			AS	AF		
P-1	7.5	24.2	–	208	3	50A-3P	P-BR-1-61,63,65	3#6, 1#10G IN 3/4"C	60	–	–	NOTE 6
P-2	7.5	24.2	–	208	3	50A-3P	P-BR-1-62,64,66	3#6, 1#10G IN 3/4"C	60	–	–	NOTE 6
P-3	3.0	10.6	–	208	3	30A-3P	P-BR-1-55,57,59	3#10, 1#10G IN 3/4"C	30	–	–	NOTE 7
P-4	3.0	10.6	–	208	3	30A-3P	P-BR-1-56,58,60	3#10, 1#10G IN 3/4"C	30	–	–	NOTE 7
P-5	2.0	7.5	–	208	3	20A-3P	P-BR-1-43,45,47	3#12, 1#12G IN 3/4"C	30	–	–	NOTE 7
P-6	2.0	7.5	–	208	3	20A-3P	P-BR-1-44,46,48	3#12, 1#12G IN 3/4"C	30	–	–	NOTE 7
P-7	3.0	10.6	–	208	3	30A-3P	P-BR-1-49,51,53	3#10, 1#10G IN 3/4"C	30	–	–	NOTE 7
P-8	3.0	10.6	–	208	3	30A-3P	P-BR-1-50,52,54	3#10, 1#10G IN 3/4"C	30	–	–	NOTE 7
B-1	–	13.0	–	120	1	20A-1P	P-BR-3-21	2#12, 1#12G IN 3/4"C	–	–	–	NOTE 8
B-2	–	13.0	–	120	1	20A-1P	P-BR-3-23	2#12, 1#12G IN 3/4"C	–	–	–	NOTE 8
								3 #500 KCMIL, #3G, 4"C				

MECHANICAL EQUIPMENT SCHEDULE NOTES:

1. NOTES 2-5 APPLY FOR ALL MECHANICAL EQUIPMENT.
2. COORDINATE EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL MECHANICAL EQUIPMENT.
3. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON DRAWINGS/SPECIFICATIONS FOR THE APPLICABLE LOCATION. THE MAXIMUM FINAL THREE FEET SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
4. COPPER BRANCH CIRCUIT CONDUCTOR SIZING BASED ON TABLE 310.15(B)(16). MAKE ADJUSTMENTS TO CONDUCTORS FOR TEMPERATURE OR VOLTAGE DROP THAT EXCEED NEC AND SPECIFICATION CRITERIA.
5. RACEWAY SIZES ARE BASED UPON GRSC AND LFMC WITH THWN CONDUCTORS.
6. FEEDER FOR PUMP #1 AND PUMP #2 SHALL BE RECONNECTED TO NEW PANEL P-BR-1. PROVIDE ALL REQUIRED CONDUIT AND WIRING.
7. REQUIRED VFD/STARTER IS PROVIDED INTEGRAL/PREWIRED TO MECHANICAL EQUIPMENT.
8. PROVIDE MOTOR RATED TOGGLE SWITCH.
9. PROVIDE 20A-1P CIRCUIT FOR LEAK DETECTION POWER AS REQUIRED FOR EQUIPMENT.

ALL WORK TO BE PHASED. BUILDING WILL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. ALL TOILET ROOMS NOT UNDER CONSTRUCTION SHALL REMAIN ACTIVE.

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Drawing Status

ISSUED FOR CONSTRUCTION

Issued On NOVEMBER 22, 2017

Sheet Contents

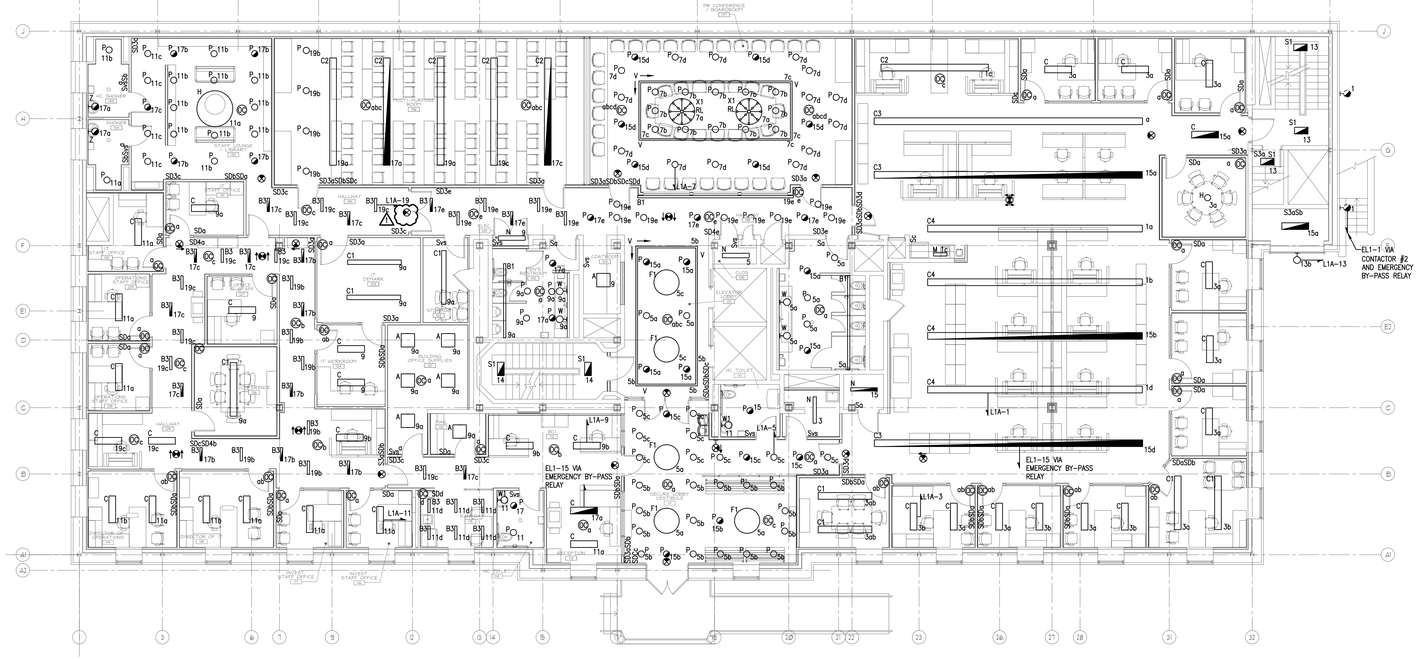
LOWER LEVEL FLOOR PLANS - LIGHTING & POWER

Project Number. 9999

Drawing No.

E100

Sheet of



1 FIRST FLOOR PLAN - LIGHTING
E101 Scale: 1/8" = 1'-0"

NOTES

1. SEE DRAWING #E301 FOR CONNECTION INFORMATION TO ALL MECHANICAL EQUIPMENT.
2. IN ACCORDANCE WITH IGCC SECTION 608.6, PLUG LOAD CONTROL SHALL BE PROVIDED IN ALL OFFICE SPACES, COPY ROOMS AND FOR ALL AUDIO/VISUAL SYSTEMS AND WATER DISPENSERS. QUANTITY OF CONTROLLED RECEPTACLES SHALL BE IN CONFORMANCE WITH 608.6 (1) THROUGH (5).
3. ALL RECEPTACLES IN ENTERTAINMENT BOXES IN ALL CONFERENCE ROOMS SHALL BE CONNECTED TO INDICATED CIRCUIT VIA A PLUG LOAD CONTROLLER.
4. PROVIDE ONE (1) PLUG LOAD CONTROLLER TO CONTROL A SINGLE CIRCUIT AT ALL FURNITURE SYSTEM FEED LOCATIONS.
5. PROVIDE 600V, 30A, 3 POLE, SINGLE THROW, DISCONNECT RATED TOGGLE SWITCH WITHOUT OVERLOADS EQUAL TO LEVITON #N1303-TDS.
6. ALL CONDUIT, WIRE, OUTLET AND JUNCTION BOXES, DEVICES, AND OTHER APPURTENANCES ASSOCIATED WITH THE LOW VOLTAGE SYSTEMS IN THE BUILDING, INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, AND AV SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SEE THE "LV" SERIES DRAWINGS AND SPECIFICATIONS FOR ALL WORK TO BE PERFORMED.
7. ALL SWITCHED EMERGENCY LIGHTING SHALL BE WIRED TO THE INDICATED CIRCUIT VIA AN EMERGENCY BY-PASS RELAY. PROVIDE ONE (1) RELAY PER SWITCH.
8. ALL CIRCUITS FOR RECEPTACLES WITH A "GFI" DESIGNATION SHALL BE PROVIDED WITH GFCI CIRCUIT BREAKERS IN THE RESPECTIVE PANELS.

KEYNOTES

1. PROVIDE 3 #10, #10G, 3/4" CONDUIT INTERLOCK WIRING FROM AC-1 IN IDF ROOM TO CU-1 ON ROOF.
2. PROVIDE NEMA L5-30 RECEPTACLE IN IDF CLOSET.
3. ELECTRICAL CONTRACTOR SHALL INSTALL THE SKYFOLD WALL CONTROL BOX TO THE STRUCTURAL CEILING, AND TWO (2) CONTROL SWITCHES, ONE ON EITHER SIDE OF WALL. ALL ITEMS ARE FURNISHED WITH THE WALL SYSTEM. COORDINATE EXACT LOCATIONS WITH ARCHITECTURAL DETAILS FOR THE WALL SYSTEM INSTALLATION. PROVIDE IN LINE FUSED ISOLATOR WITH FUSES SIZED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS ON INCOMING POWER CIRCUIT. PROVIDE 4/C #18 CONTROL WIRING FROM SKYFOLD WALL CONTROL BOX TO CONTROL SWITCH LOCATION #1. PROVIDE 4/C #18 CONTROL WIRING FROM CONTROL SWITCH #1 TO CONTROL SWITCH #2. VERIFY EXACT MOUNTING LOCATION OF SWITCHES WITH ARCHITECT IN FIELD PRIOR TO INSTALLATION.
4. PROVIDE CONNECTION TO DOOR OPERATOR AND ALL ASSOCIATED CONTROL SWITCHES. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
5. PROVIDE TELECOMMUNICATIONS MAIN GROUNDING BUSBAR IN DATA CENTER/SERVER ROOM #123. SEE DETAIL ON THIS DRAWING. PROVIDE ALL GROUND WIRING AS SPECIFIED ON DRAWING #LV201.
6. VERIFY EXACT RECEPTACLE TYPE REQUIRED FOR LARGE COPY MACHINE WITH OWNER AND ARCHITECT PRIOR TO INSTALLATION.
7. PROVIDE DUPLEX RECEPTACLE FOR POWER TO INTRUSION SYSTEM PANEL. VERIFY PANEL LOCATION WITHIN SERVER ROOM PRIOR TO INSTALLATION.
8. CONNECT TO DOOR ACCESS SYSTEM AT INDICATED LOCATIONS. SEE "LV" SERIES DRAWINGS FOR LOCATIONS AND WIRING DETAILS.
9. PROVIDE POWER CIRCUIT AND CONNECTION TO EACH AUTOMATIC FLUSH VALVE AND FAUCET CONTROL IN EACH BATHROOM.

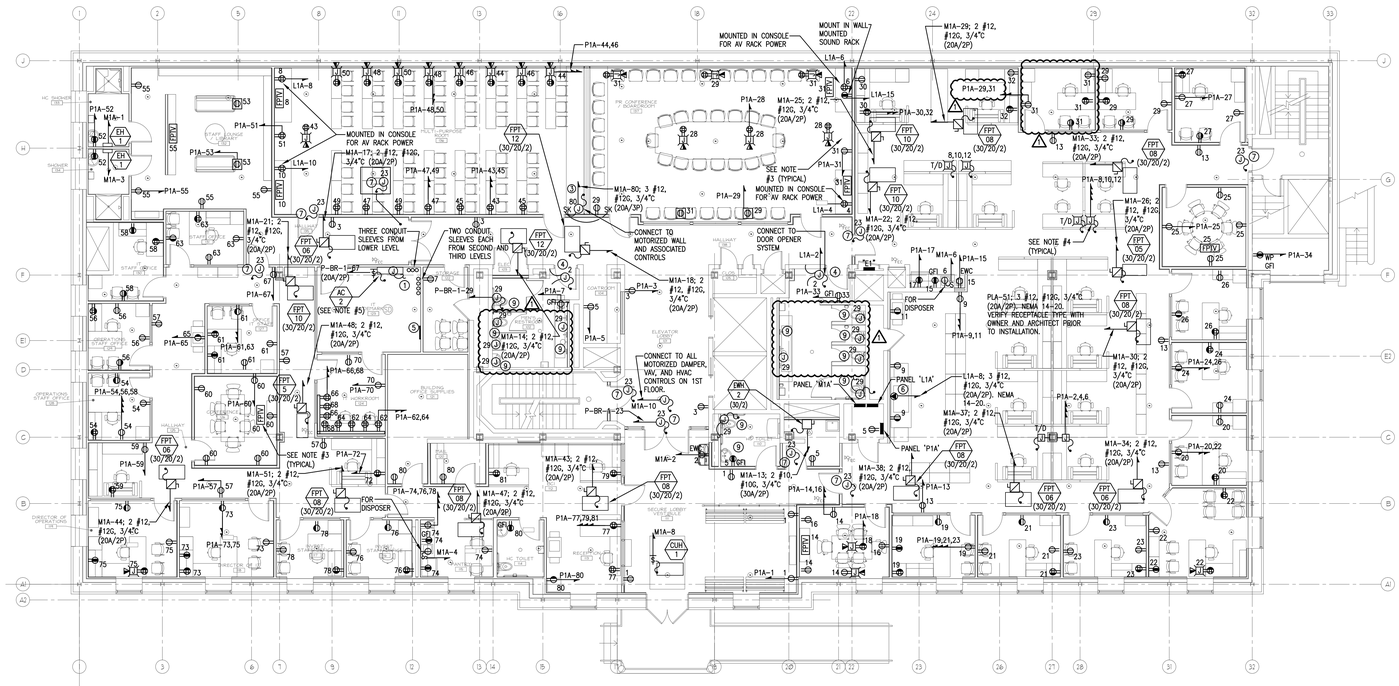
Certification

Drawn by RJ

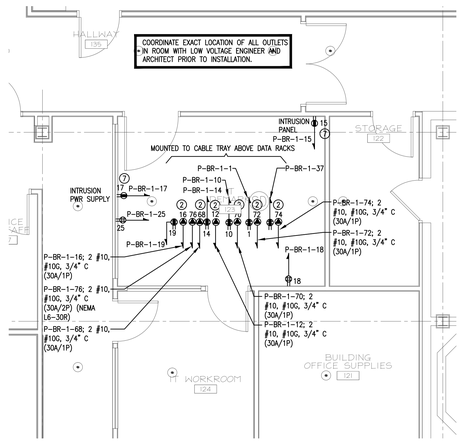
Checked by SRB

Revised on

1 ADDENDUM #1 12-06-17
ADDED EXIT LTS & CLARIFY TLT RM PWR



2 FIRST FLOOR PLAN - POWER
E101 Scale: 1/8" = 1'-0"



3 PART. PLAN MDF ROOM - POWER
E101 Scale: 1/4" = 1'-0"

ALL WORK TO BE PHASED. BUILDING WILL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. ALL TOILET ROOMS NOT UNDER CONSTRUCTION SHALL REMAIN ACTIVE.

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Sheet Contents

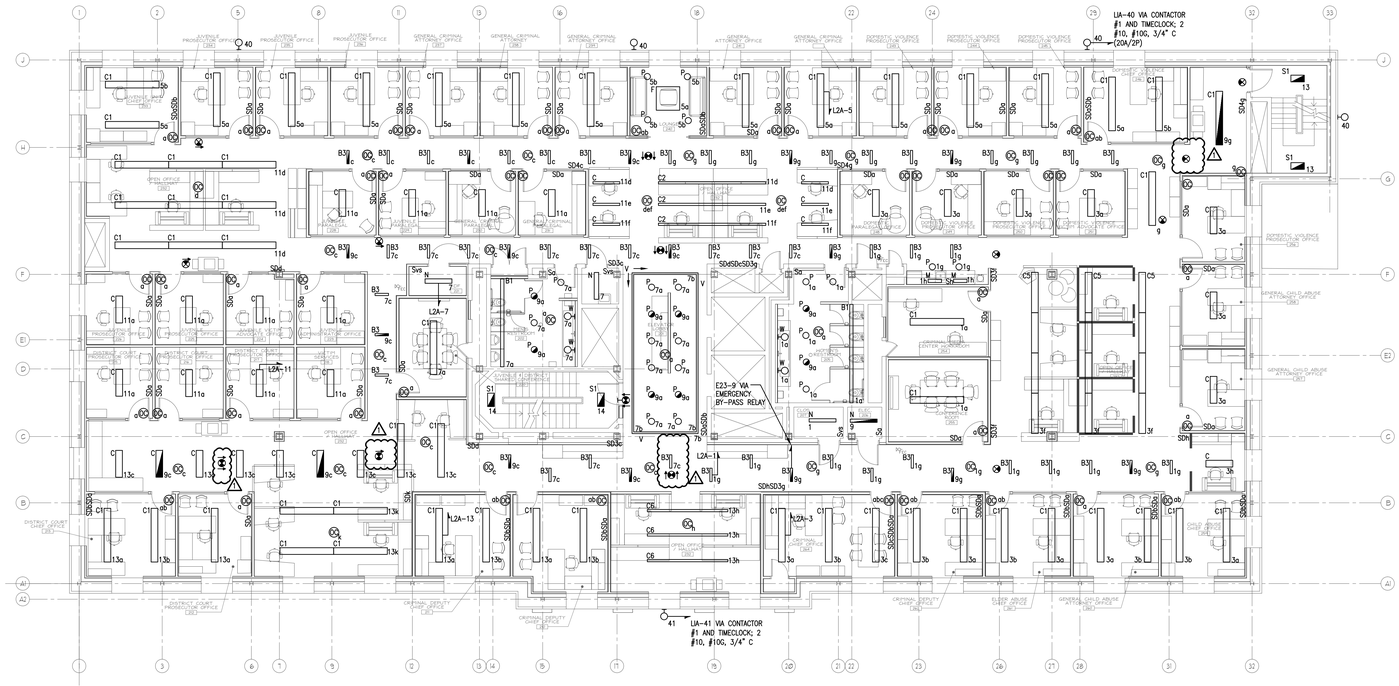
FIRST FLOOR PLANS - LIGHTING & POWER

Project Number. 9999

Drawing No.

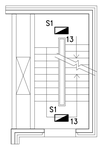
E101

Sheet of



1 E102 SECOND FLOOR PLAN - LIGHTING

Scale: 1/8" = 1'-0"



NOTES

1. PROVIDE (2) 4" CONDUIT SLEEVES WITH PULL CORD FROM IT CLOSET ON THIS FLOOR TO FIRST FLOOR SERVER ROOM. PROVIDE INSULATING BUSHINGS ON BOTH ENDS OF CONDUITS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL LAYOUT AND "LV" SERIES DRAWINGS.
2. SEE DRAWING #E301 FOR CONNECTION INFORMATION TO ALL MECHANICAL EQUIPMENT.
3. IN ACCORDANCE WITH IGCC SECTION 608.6, PLUG LOAD CONTROL SHALL BE PROVIDED IN ALL OFFICE SPACES, COPY ROOMS AND FOR ALL AUDIO/VISUAL SYSTEMS AND WATER DISPENSERS. QUANTITY OF CONTROLLED RECEPTACLES SHALL BE IN CONFORMANCE WITH 608.6 (1) THROUGH (5).
4. ALL RECEPTACLES IN ENTERTAINMENT BOXES IN ALL CONFERENCE ROOMS SHALL BE CONNECTED TO INDICATED CIRCUIT VIA A PLUG LOAD CONTROLLER.
5. PROVIDE ONE (1) PLUG LOAD CONTROLLER TO CONTROL A SINGLE CIRCUIT AT ALL FURNITURE SYSTEM FEED LOCATIONS.
6. PROVIDE 600V, 30A, 3 POLE, SINGLE THROW, DISCONNECT RATED TOGGLE SWITCH WITHOUT OVERLOADS EQUAL TO LEVITON #1303-TDS.
7. ALL CONDUIT, WIRE, OUTLET AND JUNCTION BOXES, DEVICES, AND OTHER APPURTENANCES ASSOCIATED WITH THE LOW VOLTAGE SYSTEMS IN THE BUILDING, INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, AND AV SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SEE THE "LV" SERIES DRAWINGS AND SPECIFICATIONS FOR ALL WORK TO BE PERFORMED.
8. ALL SWITCHED EMERGENCY LIGHTING SHALL BE WIRED TO THE INDICATED CIRCUIT VIA AN EMERGENCY BY-PASS RELAY. PROVIDE ONE (1) RELAY PER SWITCH.
9. ALL CIRCUITS FOR RECEPTACLES WITH A "GFI" DESIGNATION SHALL BE PROVIDED WITH GFCI CIRCUIT BREAKERS IN THE RESPECTIVE PANELS.

KEYNOTES

1. PROVIDE 3 #10, #10G, 3/4" CONDUIT INTERLOCK WIRING FROM AC-1 IN IDF ROOM TO CU-1 ON ROOF.
2. PROVIDE NEMA L5-30 RECEPTACLE IN IDF CLOSET.
3. PROVIDE CONNECTION TO DOOR OPERATOR AND ALL ASSOCIATED CONTROL SWITCHES. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. CONNECT TO DOOR ACCESS SYSTEM AT INDICATED LOCATIONS. SEE "LV" SERIES DRAWINGS FOR LOCATIONS AND WIRING DETAILS.
5. PROVIDE POWER CIRCUIT AND CONNECTION TO EACH AUTOMATIC FLUSH VALVE AND FAUCET CONTROL IN EACH BATHROOM.

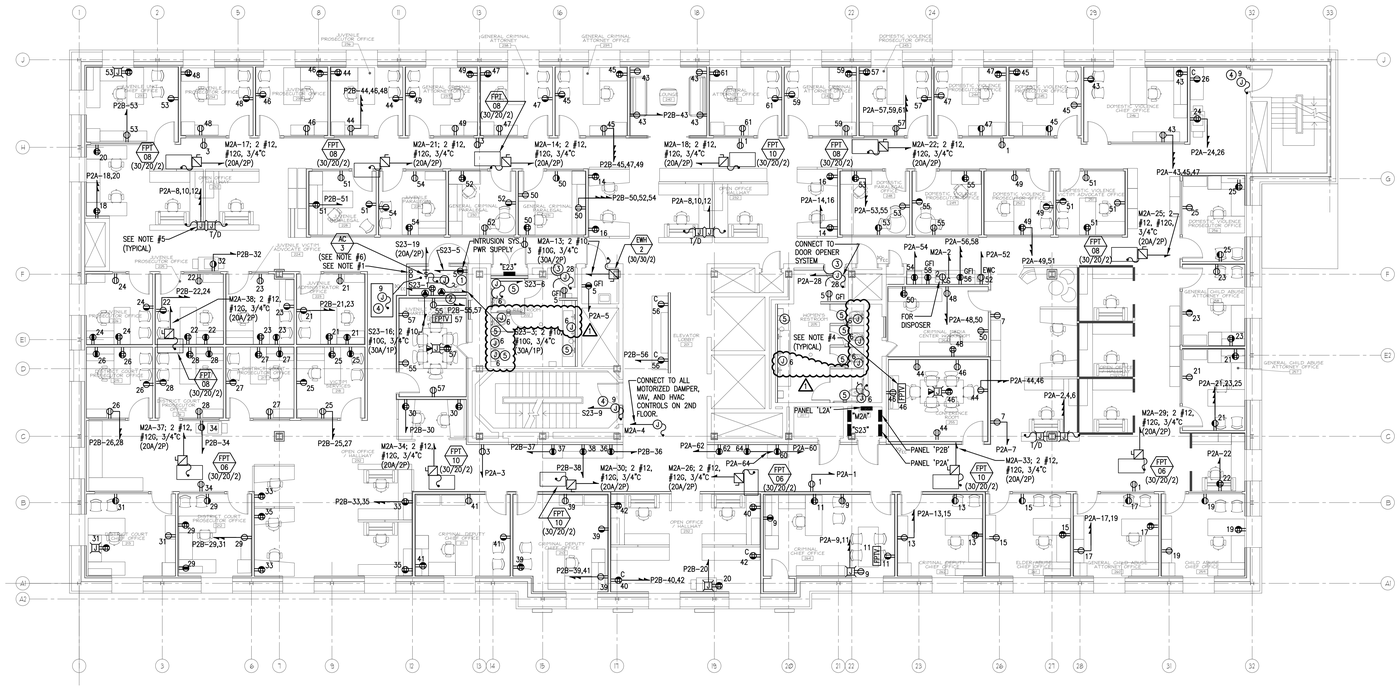
Certification

Drawn by RJ

Checked by SRB

Revised on

1 ADDENDUM #1 12-06-17
ADDED EXIT LIGHTS & CLARIFY TLT RM PWR



2 E102 SECOND FLOOR PLAN - POWER

Scale: 1/8" = 1'-0"

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SECOND FLOOR PLANS - LIGHTING & POWER

Project Number. 9999

Drawing No.

E102

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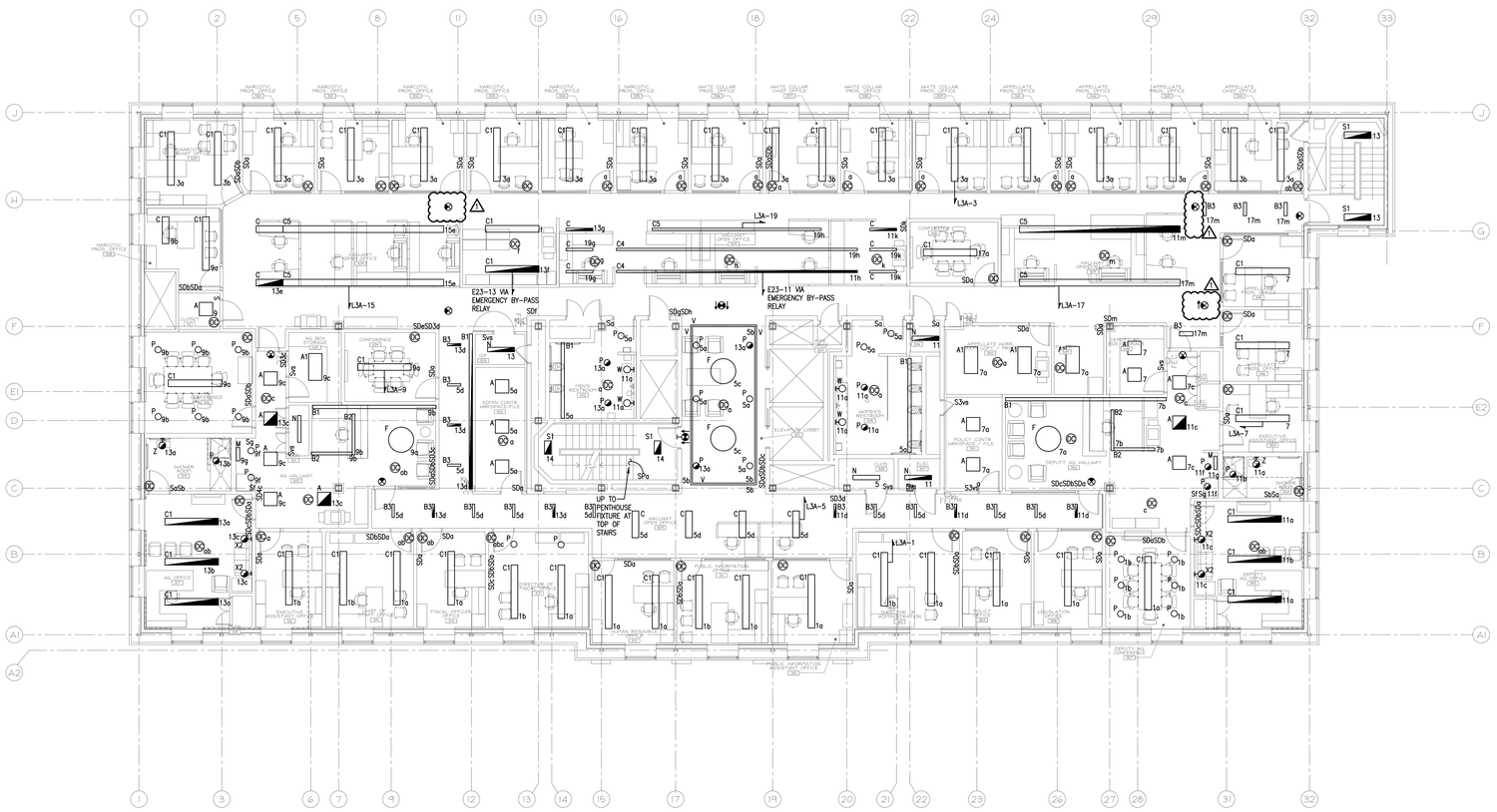

1 E103 THIRD FLOOR PLAN - LIGHTING

Scale: 1/8" = 1'-0"

NOTES

1. PROVIDE (2) 4" CONDUIT SLEEVES WITH PULL CORD FROM IT CLOSET ON THIS FLOOR TO FIRST FLOOR SERVER ROOM. PROVIDE INSULATING BUSHINGS ON BOTH ENDS OF CONDUITS. COORDINATE EXACT LOCATION WITH ARCHITECTURAL LAYOUT AND "LV" SERIES DRAWINGS
2. IN ACCORDANCE WITH IGCC SECTION 608.6, PLUG LOAD CONTROL SHALL BE PROVIDED IN ALL OFFICE SPACES, COPY ROOMS AND FOR ALL AUDIO/VISUAL SYSTEMS AND WATER DISPENSERS. QUANTITY OF CONTROLLED RECEPTACLES SHALL BE IN CONFORMANCE WITH 608.6 (1) THROUGH (5).
3. ALL RECEPTACLES IN ENTERTAINMENT BOXES IN ALL CONFERENCE ROOMS SHALL BE CONNECTED TO INDICATED CIRCUIT VIA A PLUG LOAD CONTROLLER.
4. PROVIDE ONE (1) PLUG LOAD CONTROLLER TO CONTROL A SINGLE CIRCUIT AT ALL FURNITURE SYSTEM FEED LOCATIONS.
5. PROVIDE 600V, 30A, 3 POLE, SINGLE THROW, DISCONNECT RATED TOGGLE SWITCH WITHOUT OVERLOADS EQUAL TO LEVITON #1303-TDS.
6. ALL CONDUIT, WIRE, OUTLET AND JUNCTION BOXES, DEVICES, AND OTHER APPURTENANCES ASSOCIATED WITH THE LOW VOLTAGE SYSTEMS IN THE BUILDING, INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, AND AV SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SEE THE "LV" SERIES DRAWINGS AND SPECIFICATIONS FOR ALL WORK TO BE PERFORMED.
7. ALL SWITCHED EMERGENCY LIGHTING SHALL BE WIRED TO THE INDICATED CIRCUIT VIA AN EMERGENCY BY-PASS RELAY. PROVIDE ONE (1) RELAY PER SWITCH.
8. ALL CIRCUITS FOR RECEPTACLES WITH A "GFI" DESIGNATION SHALL BE PROVIDED WITH GFCI CIRCUIT BREAKERS IN THE RESPECTIVE PANELS.

KEYNOTES

1. PROVIDE CONNECTION TO DOOR OPERATOR AND ALL ASSOCIATED CONTROL SWITCHES. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. CONNECT TO DOOR ACCESS SYSTEM AT INDICATED LOCATIONS. SEE "LV" SERIES DRAWINGS FOR LOCATIONS AND WIRING DETAILS.
3. PROVIDE POWER CIRCUIT AND CONNECTION TO EACH AUTOMATIC FLUSH VALVE AND FAUCET CONTROL IN EACH BATHROOM.
4. PROVIDE 3 #10, #10G, 3/4" CONDUIT INTERLOCK WIRING FROM AC-1 IN IDF ROOM TO CU-1 ON ROOF.
5. PROVIDE NEMA L5-30 RECEPTACLE IN IDF CLOSET.

Certification

Drawn by RJ

Checked by SRB

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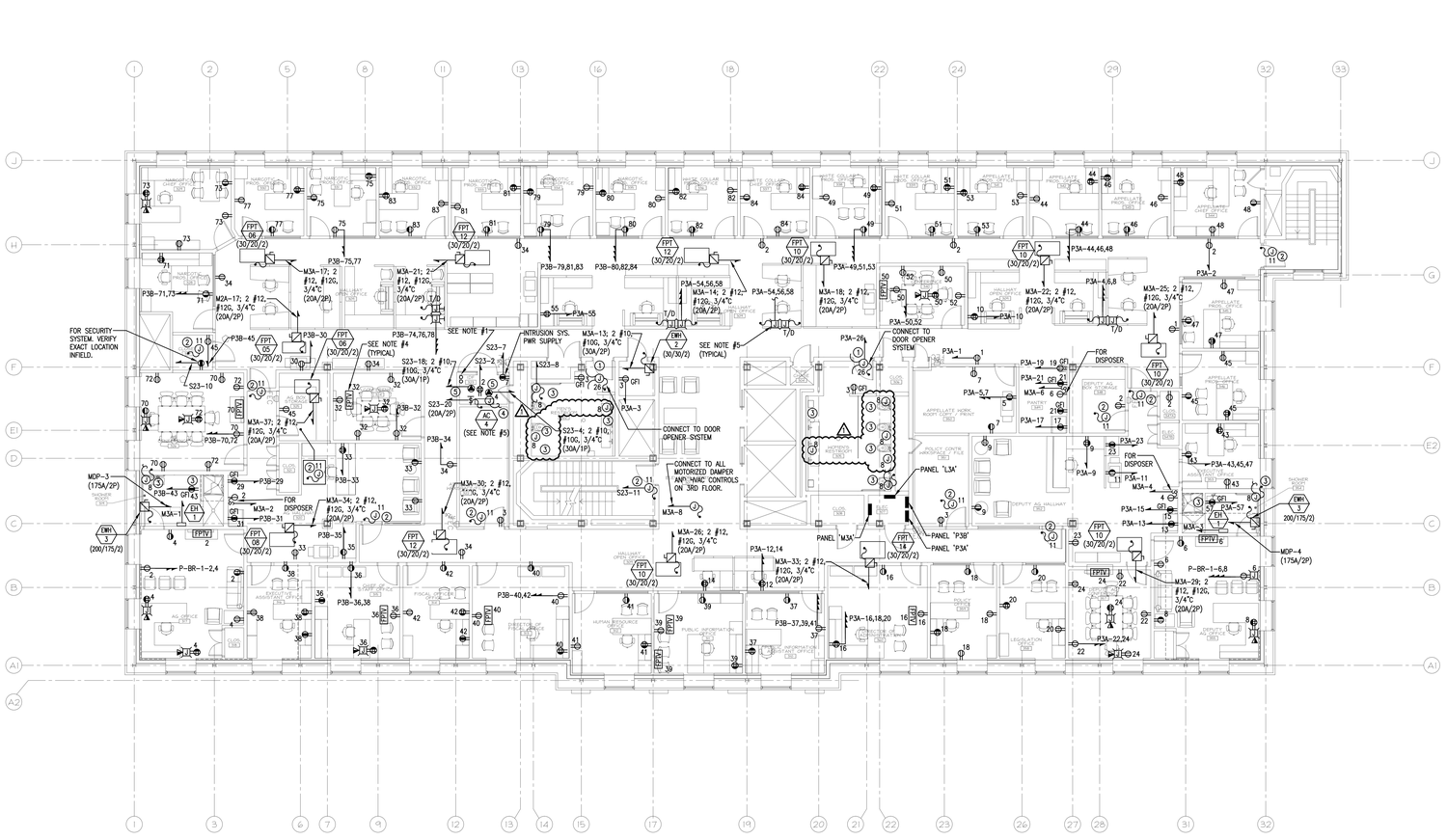

2 E103 THIRD FLOOR PLAN - POWER

Scale: 1/8" = 1'-0"

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THIRD FLOOR PLANS - LIGHTING & POWER

Project Number. 9999

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E103

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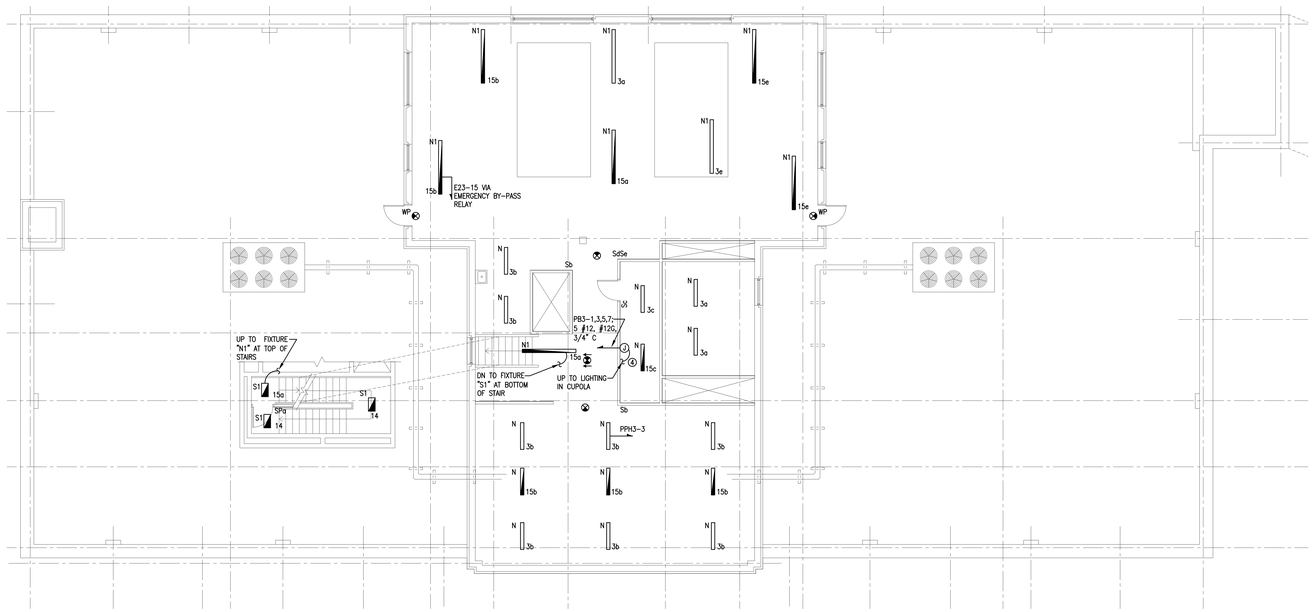
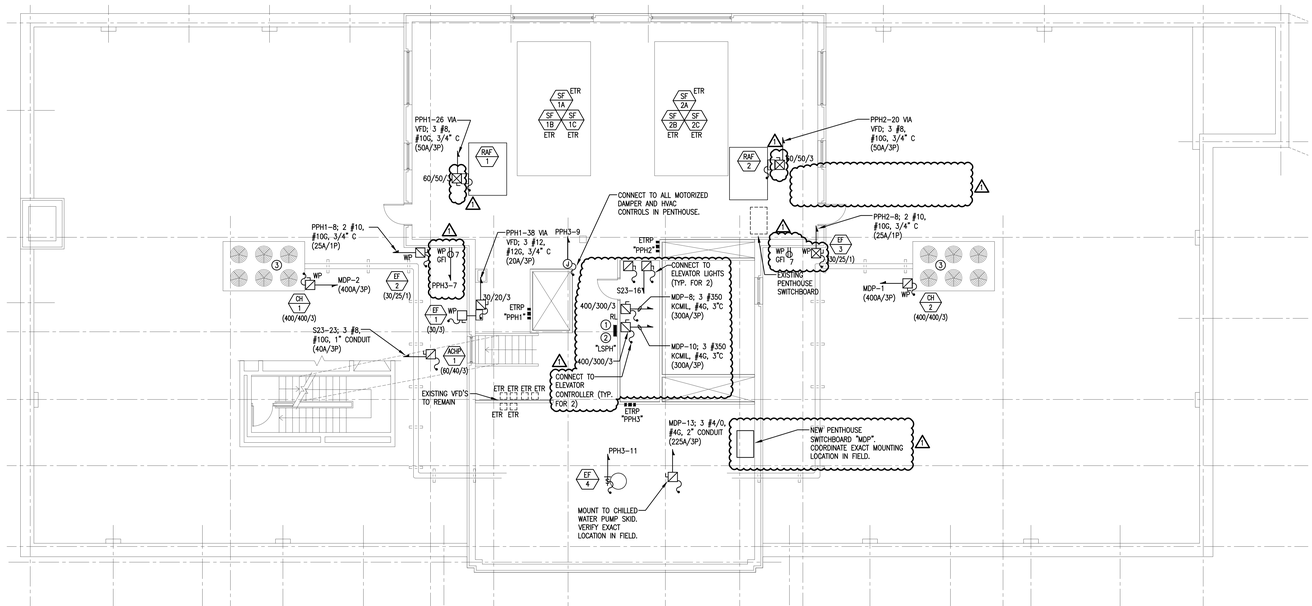


1 E104 PENTHOUSE FLOOR PLAN - LIGHTING

Scale: 1/8" = 1'-0"



2 E104 PENTHOUSE FLOOR PLAN - POWER

Scale: 1/8" = 1'-0"

NOTES

1. ALL VFD'S SHALL BE FURNISHED BY HVAC CONTRACTOR, INSTALLED AND WIRED BY ELECTRICIAN.
2. ALL CONDUIT, WIRE, OUTLET AND JUNCTION BOXES, DEVICES, AND OTHER APPURTENANCES ASSOCIATED WITH THE LOW VOLTAGE SYSTEMS IN THE BUILDING, INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, AND AV SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SEE THE "LV" SERIES DRAWINGS AND SPECIFICATIONS FOR ALL WORK TO BE PERFORMED.
3. ALL CIRCUITS FOR RECEPTACLES WITH A "GFI" DESIGNATION SHALL BE PROVIDED WITH GFCI CIRCUIT BREAKERS IN THE RESPECTIVE PANELS.

KEYNOTES

1. EXISTING PANEL LS-PH TO BE DISCONNECTED, REMOVED, AND RELOCATED TO OPPOSITE SIDE OF WALL. EXTEND ALL EXISTING BRANCH CIRCUITS TO NEW PANEL LSPH.
2. PROVIDE NEW PANEL LSPH AND ASSOCIATED FEEDER. SEE POWER DISTRIBUTION DIAGRAM.
3. PROVIDE ALL REQUIRED INTERLOCK, CONTROL AND ALARM WIRING FROM CHILLER UNIT TO ASSOCIATED PUMPS, CONTROL PANELS, AND ALARM PANELS. COORDINATE CONNECTIONS WITH HVAC CONTRACTOR AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. ALL EXISTING LIGHTING IN THE EXISTING CUPOLA TO REMAIN. CLEAN EXISTING FIXTURES, RELAMP, AND RECONNECT TO THE BRANCH INDICATED CIRCUITS.

ALL WORK TO BE PHASED. BUILDING WILL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. ALL TOILET ROOMS NOT UNDER CONSTRUCTION SHALL REMAIN ACTIVE.

Certification

Drawn by RJ

Checked by SRB

Revised on

1 ADDENDUM #1 12-06-17
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PENTHOUSE FLOOR PLANS - LIGHTING & POWER

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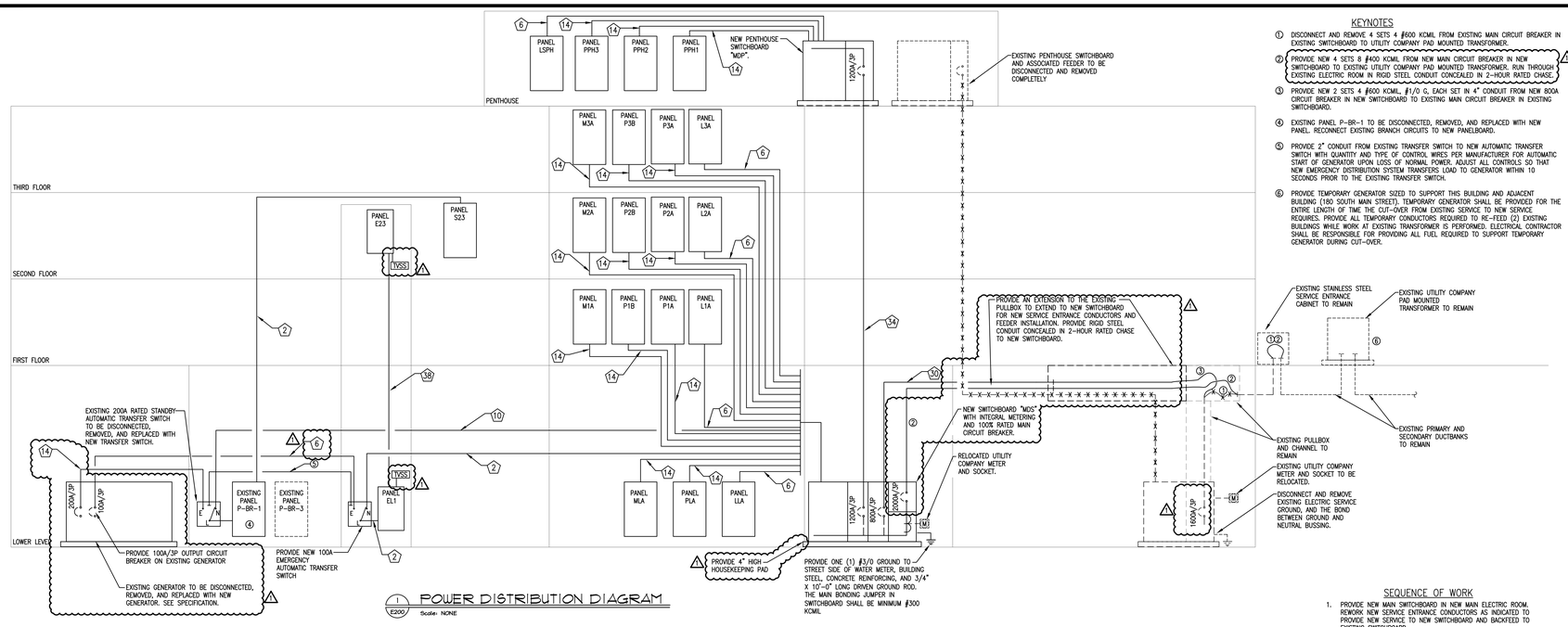

POWER DISTRIBUTION DIAGRAM

E200 Scale: NONE

KEYNOTES

1. DISCONNECT AND REMOVE 4 SETS 4 #600 KCMIL FROM EXISTING MAIN CIRCUIT BREAKER IN EXISTING SWITCHBOARD TO UTILITY COMPANY PAD MOUNTED TRANSFORMER.
2. PROVIDE NEW 4 SETS 8 #400 KCMIL FROM NEW MAIN CIRCUIT BREAKER IN NEW SWITCHBOARD TO EXISTING UTILITY COMPANY PAD MOUNTED TRANSFORMER. RUN THROUGH EXISTING ELECTRIC ROOM IN RIGID STEEL CONDUIT CONCEALED IN 2-HOUR RATED CHASE.
3. PROVIDE NEW 2 SETS 4 #600 KCMIL, #1/0 G, EACH SET IN 4" CONDUIT FROM NEW 800A CIRCUIT BREAKER IN NEW SWITCHBOARD TO EXISTING MAIN CIRCUIT BREAKER IN EXISTING SWITCHBOARD.
4. EXISTING PANEL P-BR-1 TO BE DISCONNECTED, REMOVED, AND REPLACED WITH NEW PANEL. RECONNECT EXISTING BRANCH CIRCUITS TO NEW PANELBOARD.
5. PROVIDE 2" CONDUIT FROM EXISTING TRANSFER SWITCH TO NEW AUTOMATIC TRANSFER SWITCH WITH QUANTITY AND TYPE OF CONTROL WIRES PER MANUFACTURER FOR AUTOMATIC START OF GENERATOR UPON LOSS OF NORMAL POWER. ADJUST ALL CONTROLS SO THAT NEW EMERGENCY DISTRIBUTION SYSTEM TRANSFERS LOAD TO GENERATOR WITHIN 10 SECONDS PRIOR TO THE EXISTING TRANSFER SWITCH.
6. PROVIDE TEMPORARY GENERATOR SIZED TO SUPPORT THIS BUILDING AND ADJACENT BUILDING (180 SOUTH MAIN STREET). TEMPORARY GENERATOR SHALL BE PROVIDED FOR THE ENTIRE LENGTH OF TIME THE CUT-OVER FROM EXISTING SERVICE TO NEW SERVICE REQUIRES. PROVIDE ALL TEMPORARY CONDUCTORS REQUIRED TO RE-FEED (2) EXISTING BUILDINGS WHILE WORK AT EXISTING TRANSFORMER IS PERFORMED. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FUEL REQUIRED TO SUPPORT TEMPORARY GENERATOR DURING CUT-OVER.

SEQUENCE OF WORK

1. PROVIDE NEW MAIN SWITCHBOARD IN NEW MAIN ELECTRIC ROOM. REWORK NEW SERVICE ENTRANCE CONDUCTORS AS INDICATED TO PROVIDE NEW SERVICE TO NEW SWITCHBOARD AND BACKFEED TO EXISTING SWITCHBOARD.
2. AS EACH FLOOR IS RENOVATED, DISCONNECT AND REMOVE ALL EXISTING PANELBOARDS AND ASSOCIATED FEEDERS FROM EXISTING SWITCHBOARD. PROVIDE NEW PANELS AS INDICATED AND CONNECT TO NEW SWITCHBOARD.
3. WHEN THERE ARE NO LONGER ANY LOADS CONNECTED TO THE EXISTING MAIN SWITCHBOARD, THE BACKFEED TO THE SWITCHBOARD SHALL BE DISCONNECTED AND REMOVED AND THE EXISTING SWITCHBOARD DISCONNECTED, REMOVED, AND DISPOSED OF OFF SITE IN A LEGAL MANNER. UTILIZE CAUTION DURING REMOVAL AS THE EXISTING SWITCHBOARD CONTAINS ASBESTOS.

PANELBOARD SCHEDULE

PANEL DESIGNATION	VOLTS	PHASE	WIRES	MAINS (MLO: MAIN LUGS ONLY MCB: MAIN CKT. BKR.) BUS SIZE	OVERCURRENT DEVICE FRAME AMPS	OVERCURRENT DEVICE TRIP AMPS	CKT. NO.	POLES	BRANCH DEVICES BREAKER AMPS 15	20	25	30	35	40	50	60	100	TOTAL POLES	SURFACE: S; SURFACE: F; FLUSH	ADDITIONAL BRANCH C.B.'S	REMARKS
P-BR-1	120/208	3	4	225	MLO	MLO	1	1		24		7						84	S		REPLACE EXISTING PANEL MATCH AIC RATING OF PANEL
							2	5		2											
							3	2		4		2		1							
P-BR-3	120/208	3	4	225	MLO	MLO	1	2										–	–		EXISTING PANEL TO REMAIN. PROVIDE NEW CBS AS INDICATED
							2														
							3														
S23	120/208	3	4	100	MLO	MLO	1	1	15		3							42	S		
							2	2													
							3														
EL1	120/208	3	4	100	100	MCB	1	1	18									42	S		
							2														
							3					1									
E23	120/208	3	4	100	MLO	MLO	1	1	18									42	S		
							2					1									
							3					1									
L1A	120/208	3	4	100	MLO	MLO	1	1	18									42	S		
							2														
							3														
P1A	120/208	3	4	225	MLO	MLO	1	1	52									84	S		PROVIDE (1) 20A/1P GFCI CB FOR CKT #41
							2	1													
							3														
M1A	120/208	3	4	225	MLO	MLO	1	1	12									84	S		
							2	18		1											
							3	1													
L2A	120/208	3	4	100	MLO	MLO	1	1	18									42	S		
							2														
							3														
P2A	120/208	3	4	225	MLO	MLO	1	1	57									84	S		
							2														
							3														
P2B	120/208	3	4	225	MLO	MLO	1	1	49									84	S		
							2														
							3														
M2A	120/208	3	4	225	MLO	MLO	1	1	12									60	S		PROVIDE (1) 20A/1P GFCI CB FOR CKT #2
							2	14		1											
							3														
L3A	120/208	3	4	100	MLO	MLO	1	1	16									42	S		
							2														
							3														
P3A	120/208	3	4	225	MLO	MLO	1	1	52									84	S		
							2														
							3														
P3B	120/208	3	4	225	MLO	MLO	1	1	44									84	S		
							2														
							3														
M3A	120/208	3	4	225	MLO	MLO	1	1	12									60	S		PROVIDE (1) 20A/1P GFCI CB FOR CKTs #2, #4, & #6
							2	14		1											
							3														
PPH1	120/208	3	4	225	MLO	MLO	1	1	9	1								42	S		RECONNECT EXISTING BRANCH CIRCUITS TO NEW PANEL
							2	1													
							3	1						4							
PPH2	120/208	3	4	225	MLO	MLO	1	1	9	1								60	S	(1)70A/3P	RECONNECT EXISTING BRANCH CIRCUITS TO NEW PANEL
							2	1													
							3	4					2	1		1					
PPH3	120/208	3	4	225	MLO	MLO	1	9										42	S		RECONNECT EXISTING BRANCH CIRCUITS TO NEW PANEL
							2														
							3	2					2								
LSPH	120/208	3	4	100	MLO	MLO	1	30										42	S		RECONNECT EXISTING BRANCH CIRCUITS TO NEW PANEL
							2														
							3														

LEGEND OF FEEDER SIZES – (COPPER CONDUCTORS UNLESS NOTED)

FEEDER (★)	CONDUCTORS (3 PHASE, 3 WIRE) WITH GROUND	RACEWAY SIZE	CONDUCTORS (3 PHASE, 3 WIRE) WITH GROUND	RACEWAY SIZE	NORMAL AMPERE RATING
1	3#6 & 1#10G	3/4"	–	–	60
2	–	–	4#6 & 1#10G	1"	
3	3#4 & 1#8G	1"	–	–	70
4	–	–	4#4 & 1#8G	1-1/4"	
5	3#2 & 1#8G	1-1/4"	–	–	100
6	–	–	4#2 & 1#8G	1-1/2"	
7	3#1 & 1#6G	1-1/2"	–	–	125
8	–	–	4#1 & 1#6G	1-1/2"	
9	3#1/0 & 1#6G	1-1/2"	–	–	150
10	–	–	4#1/0 & 1#6G	2"	
11	3#2/0 & 1#6G	2"	–	–	175
12	–	–	4#2/0 & 1#6G	2"	
13	3#3/0 & 1#6G	2"	–	–	200
14	–	–	4#3/0 & 1#6G	2"	
15	3#4/0 & 1#4G	2"	–	–	225
16	–	–	4#4/0 & 1#4G	2-1/2"	
17	3#250KCMIL & 1#4G	2-1/2"	–	–	250
18	–	–	4#250KCMIL & 1#4G	3"	
19	3#350KCMIL & 1#4G	3"	–	–	300
20	–	–	4#350KCMIL & 1#4G	3"	
21	3#500KCMIL & 1#3G	3"	–	–	350
22	–	–	4#500KCMIL & 1#3G	4"	
23	3#500KCMIL & 1#3G	3"	–	–	400
24	–	–	4#500KCMIL & 1#3G	4"	
25	2 SETS (3#250KCMIL & 1#2G)	(2) 2-1/2"	–	–	500
26	–	–	2 SETS (4#250KCMIL & 1#2G)	(2) 2-1/2"	
27	2 SETS (3#350KCMIL & 1#1G)	(2) 3"	–	–	600
28	–	–	2 SETS (4#350KCMIL & 1#1G)	(2) 3"	
29	2 SETS (3#600KCMIL & 1#1/0G)	(2) 3-1/2"	–	–	800
30	–	–	2 SETS (4#600KCMIL & 1#1/0G)	(2) 4"	
31	3 SETS (3#400KCMIL & 1#2/0G)	(3) 3"	–	–	1000
32	–	–	3 SETS (4#400KCMIL & 1#2/0G)	(3) 3"	
33	3 SETS (3#600KCMIL & 1#3/0G)	(3) 3-1/2"	–	–	1200
34	–	–	3 SETS (4#600KCMIL & 1#3/0G)	(3) 4"	
35	4 SETS (3#600KCMIL & 1#4/0G)	(4) 3-1/2"	–	–	1600
36	–	–	4 SETS (4#600KCMIL & 1#4/0G)	(4) 4"	
37	3/C #6 MI	–	–	–	60
38	–	–	4/C #6 MI	–	

NOTES

1. CONDUCTORS SIZES ARE THE MINIMUM ALLOWED BASED UPON NEC TABLE 310.16 WITH NO GREATER THAN THREE CURRENT CARRYING CONDUCTORS PER RACEWAY IN AN AMBIENT NOT TO EXCEED 30 DEGREES CELSIUS.
2. RACEWAY SIZES ARE THE MINIMUM ALLOWED BASED UPON NEC TABLE C1 FOR THHN/THWN CONDUCTORS IN EMT. RACEWAY SIZES SHALL BE INCREASED TO ACCOMMODATE DIFFERING INSULATION SYSTEMS AND RACEWAY TYPES TO LIMIT RACEWAY FILL TO LESS THAN 40%.
3. FEEDERS DESIGNATED IN MULTIPLE SETS SHALL HAVE THE REQUIRED SETS INSTALLED IN PARALLEL.

MAIN DISTRIBUTION SWITCHBOARD "MDS"

65,000 AIC

2000 AMP MAIN CIRCUIT BREAKER 100% RATED

MAINS: 2000 AMP MAIN BUS VOLTAGE: 120/208 PHASE: 3 WIRE: 4

CKT NO	OVERCURRENT DEVICE FRAME	OVERCURRENT DEVICE TRIP	DESCRIPTION OF LOAD	CONNECTED LOAD (KVA)
1	100	100	PANEL L1A	8.905
2	225	200	PANEL P1A	23.06
3	225	200	PANEL M1A	17.512
4	100	100	PANEL L1A	12.3
5	225	200	PANEL P1A	30.32
6	225	200	PANEL M1A	24.185
7	100	100	PANEL L2A	7.0
8	225	200	PANEL P2A	22.39
9	225	200	PANEL P2B	21.06
10	225	200	PANEL M2A	17.39
11	100	100	PANEL L3A	7.19
12	225	200	PANEL P3A	18.49
13	225	200	PANEL P3B	19.81
14	225	200	PANEL M3A	22.493
15	800	800	PENTHOUSE SWITCHBOARD MDP	424.02
16	800	800	EXISTING SERVICE BACKFEED	–
17	100	60	PANEL EL1 VIA TRANSFER SWITCH	10.89
18	225	150	PANEL P-BR-1 VIA TRANSFER SWITCH	65.17
19	400	400	BUSSED SPACE	–
20	400	400	BUSSED SPACE	–
21	225	225	BUSSED SPACE	–
22	225	225	BUSSED SPACE	–
23	100	100	BUSSED SPACE	–
24	100	100	BUSSED SPACE	–

PENTHOUSE SWITCHBOARD "MDP"

65,000 AIC

1200 AMP MAIN CIRCUIT BREAKER

MAINS: 1200 AMP MAIN BUS VOLTAGE: 120/208 PHASE: 3 WIRE: 4

CKT NO	OVERCURRENT DEVICE FRAME	OVERCURRENT DEVICE TRIP	DESCRIPTION OF LOAD	CONNECTED LOAD (KVA)
1	400	400	CHILLER 1	102.1
2	400	400	CHILLER 2	102.1
3	225	175A/2P	EWH-3 (AG OFFICE)	26.6
4	225	175A/2P	EWH-3 (DEP. AG)	26.6
5	225	200	PANEL PPH1	30.67
6	225	200	PANEL PPH2	27.5
7	225	200	PANEL PPH3	1.955
8	400	300	ELEVATOR #1	40.0
9	100	100	PANEL LSPH	15.0
10	400	300	ELEVATOR #2	40.0
11	225	–	BUSSED SPACE	–
12	100	–	BUSSED SPACE	40.0
13	225	225	CHILLED WATER PUMP SKID	11.5

ALL WORK TO BE PHASED. BUILDING WILL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. ALL TOILET ROOMS NOT UNDER CONSTRUCTION SHALL REMAIN ACTIVE.

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Certification

Drawn by RJ

Checked by SRB

Revised on

1 ADDENDUM #1 12-06-17
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Drawing Status

ISSUED FOR CONSTRUCTION

Issued On NOVEMBER 22, 2017

Sheet Contents

DETAILS AND SCHEMATICS - ELECTRICAL

Project Number. 9999

Drawing No.

E200

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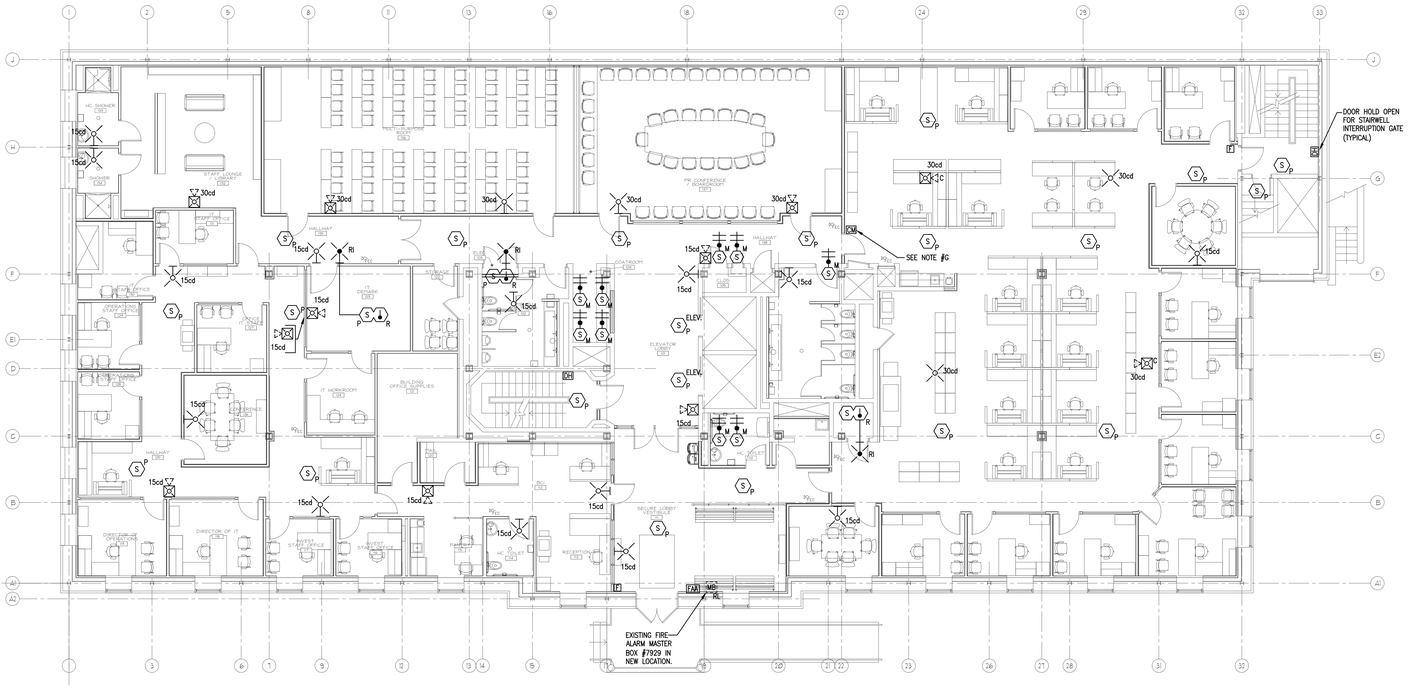
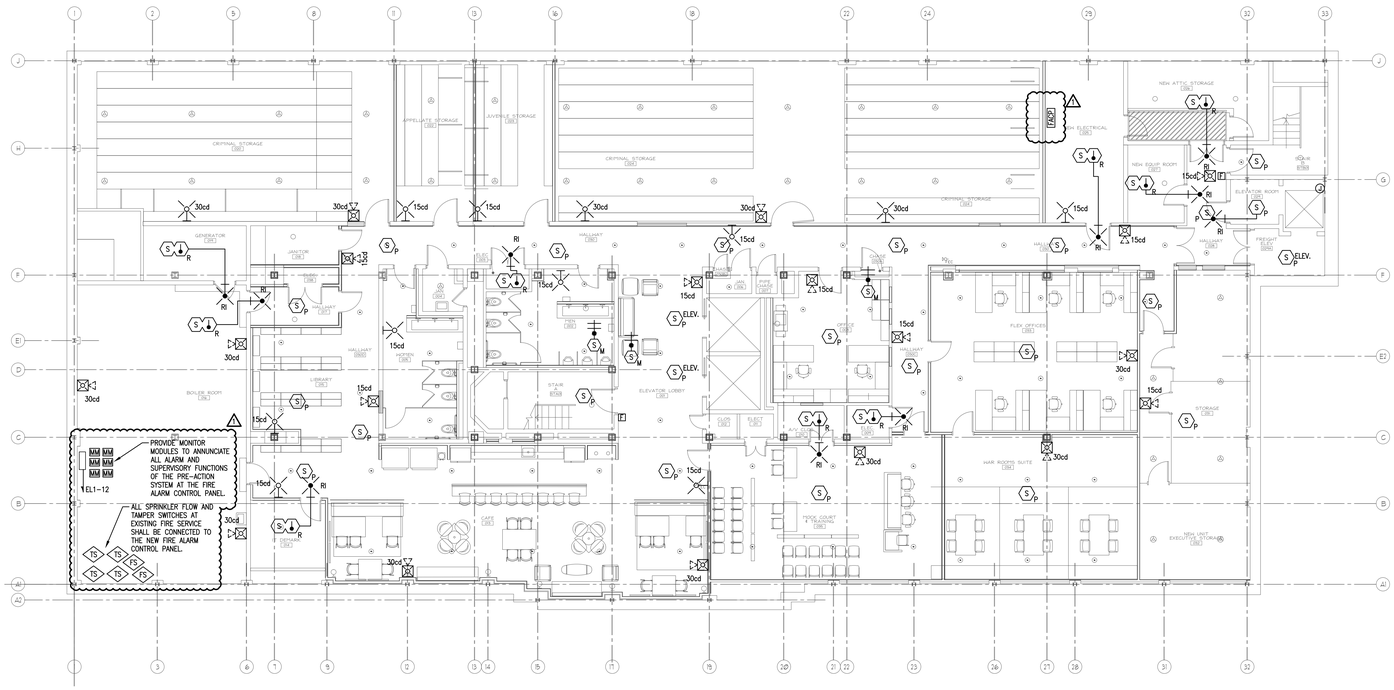


2 FA100 FIRST FLOOR PLAN - FIRE ALARM

Scale: 1/8" = 1'-0"



1 FA100 LOWER LEVEL FLOOR PLAN - FIRE ALARM

Scale: 1/8" = 1'-0"

FIRE ALARM EXISTING EQUIPMENT AND NOTES

A. THE EXISTING FACILITY IS EQUIPPED WITH A FIRE ALARM SYSTEM WHICH IS TO BE REVISED WITHIN THE WORK AREA(S) AND UTILIZED AS A TEMPORARY FIRE ALARM SYSTEM. REMOVE ALL EXISTING SMOKE DETECTORS AND REPLACE WITH HEAT DETECTORS. PROVIDE FIRE ALARM PULL STATIONS AT ALL EGRESS POINTS FROM THE FLOOR AND AUDIO/VISUAL DEVICES WITHIN THE AREA OF CONSTRUCTION. PROVIDE NEW WIRING AS NECESSARY TO CREATE THE TEMPORARY SYSTEM INCLUDING ANY REQUIRED PROGRAMMING TO ACCOMPLISH THIS. CONTRACTOR SHALL MAINTAIN THE EXISTING SYSTEM IN OPERATION DURING CONSTRUCTION, INCLUDING REROUTING WIRING AND DEVICES TO SUIT NEW CONSTRUCTION, REPROGRAMMING THE SYSTEM DUE TO SYSTEM MODIFICATIONS, AND REPAIRING AND REPLACING DEFECTIVE DETECTION/NOTIFICATION DEVICES. ONCE THE NEW FIRE ALARM SYSTEM IS INSTALLED AND OPERATIONAL AND ALL AREAS OF THE BUILDING HAVE BEEN RENOVATED, THE TEMPORARY FIRE ALARM SYSTEM SHALL BE DISCONNECTED AND REMOVED COMPLETELY.

B. ONCE THE NEW FIRE ALARM CONTROL PANEL IS INSTALLED, PROVIDE A CONNECTION FROM THE NEW TO THE TEMPORARY FIRE ALARM SYSTEM CONTROL PANELS. THE NEW CONTROL PANEL SHALL MONITOR AND CONTROL ALL FUNCTIONS OF THE TEMPORARY SYSTEM.

C. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO REVIEW THE SCOPE OF WORK AND PROPOSED EQUIPMENT WITH THE SUPERINTENDENT OF FIRE ALARMS FOR THE CITY PRIOR TO PURCHASE AND INSTALLATION. THE E.C. SHALL ALSO NOTIFY THE LOCAL FIRE DEPARTMENT AND THE OWNER AT LEAST 48 HOURS IN ADVANCE OF ANY MODIFICATIONS, POSSIBLE DISRUPTION TO, OR ASSOCIATED WORK ON THE EXISTING FIRE ALARM SYSTEM.

D. PROVIDE ALL FIRE ALARM WIRING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

E. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT. ALL CONDUIT SHALL HAVE A RED STRIPE PAINTED EVERY 10'-0". ALL JUNCTION BOXES AND COVERS SHALL BE PAINTED RED. FIRE ALARM RATED "MC" CABLE MAY BE USED WHERE RUN CONCEALED IF ACCEPTABLE TO THE LOCAL FIRE DEPARTMENT.

F. PROVIDE 120 VOLT POWER TO ALL COMBINATION FIRE SMOKE DAMPERS ON THE FLOOR. SEE "FIRE ALARM RISER DIAGRAM" ON DRAWING #FA102 FOR CIRCUIT AND ADDITIONAL INFORMATION.

G. PROVIDE FIRE ALARM CONTROL MODULE AND CONNECTION TO FIRE ALARM SYSTEM TO RELEASE DOOR LOCKING MECHANISM UPON ACTIVATION OF THE FIRE ALARM SYSTEM.

ALL WORK TO BE PHASED. BUILDING WILL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. ALL TOILET ROOMS NOT UNDER CONSTRUCTION SHALL REMAIN ACTIVE.

Certification

Drawn by RJ

Checked by SRB

Revised on

1 ADDENDUM #1 12-06-17
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Drawing Status

ISSUED FOR CONSTRUCTION

Issued On NOVEMBER 22, 2017

Sheet Contents

LOWER LEVEL & FIRST FLOOR PLANS - FIRE ALARM

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Project Number. 9999

Drawing No.

FA100

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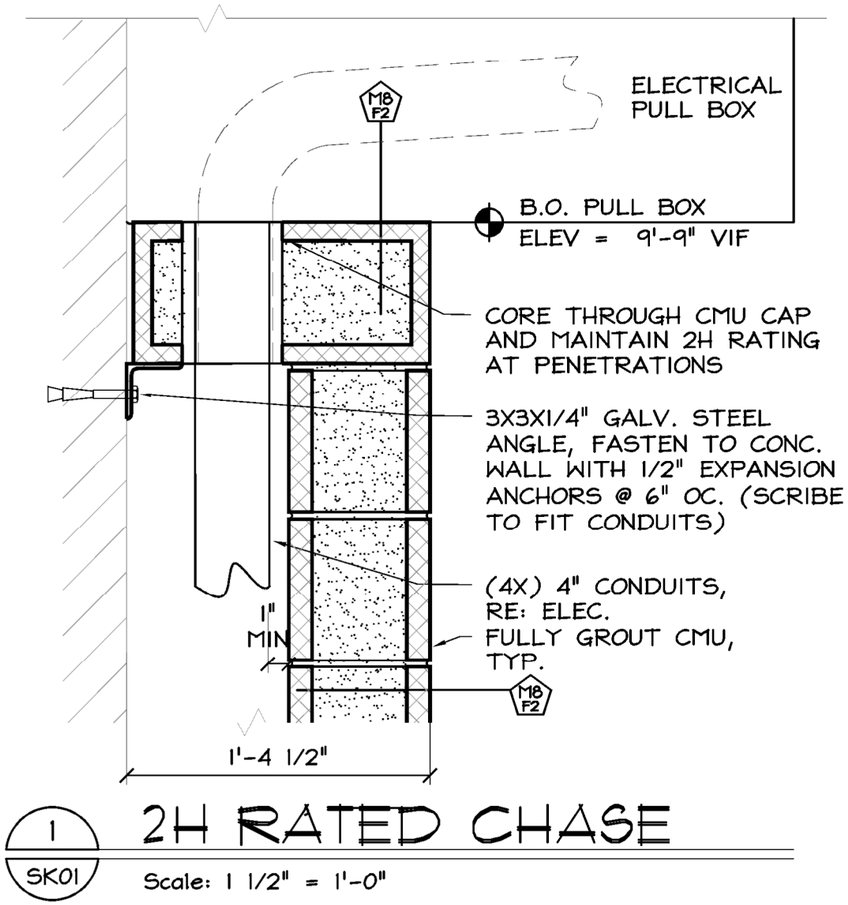
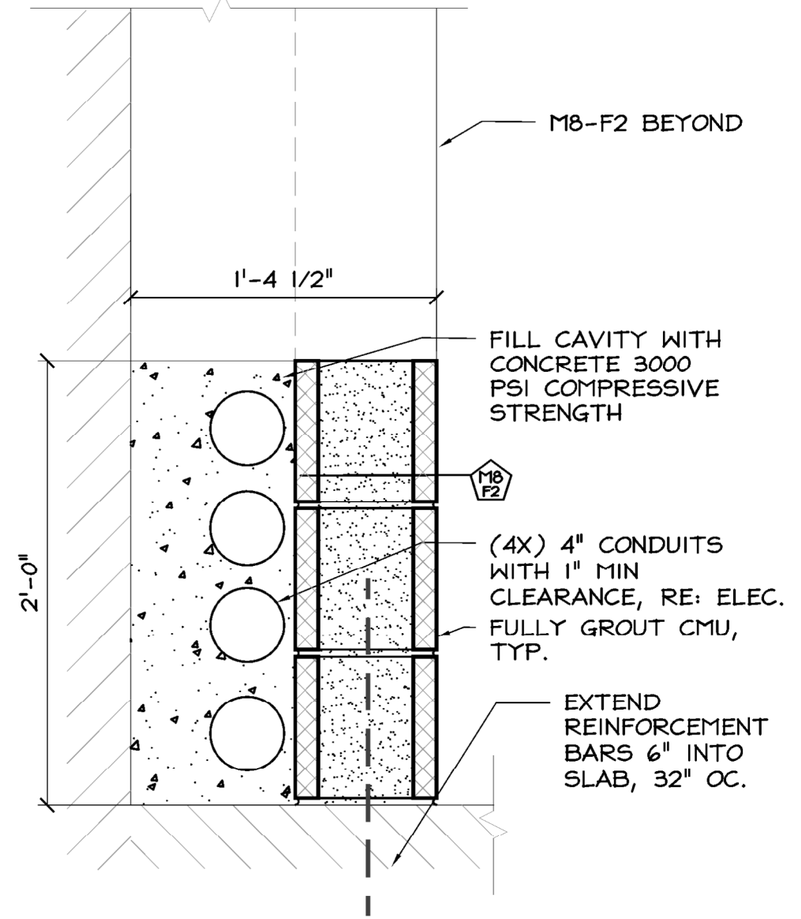


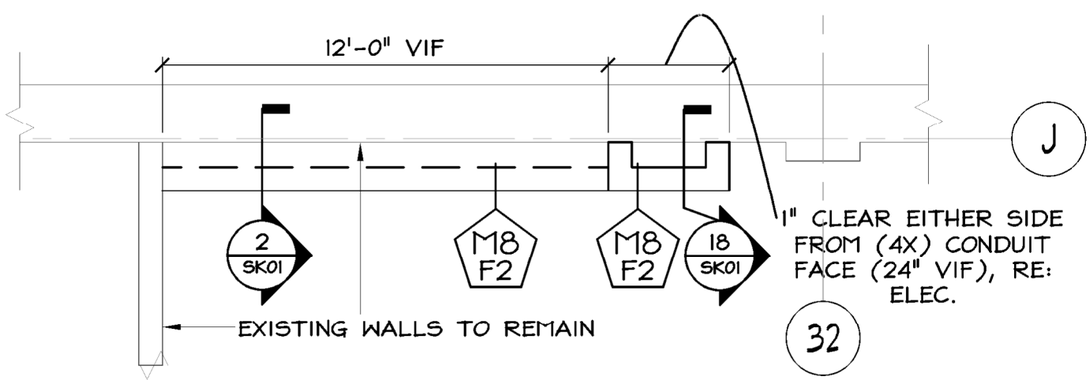
1 SK01 **2H RATED CHASE**

Scale: 1 1/2" = 1'-0"



3 SK01 **2H RATED KNEE WALL**

Scale: 1 1/2" = 1'-0"



3 SK01 **LOWER LEVEL PARTIAL PLAN**

Scale: 1 1/2" = 1'-0"

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Contents **CONDUIT WALL**

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