



BOISE DATA CENTER SPECIFICATIONS SHEET



BOISE DATA CENTER

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ADDRESS:

9700 Bethel Court
Boise, ID 83709

BUILDING SIZE:

Approx 60,000 rentable square feet
Office area available on southernly perimeter and open work stations on the west of the building.

AVAILABILITY:

Anticipated completion of all mechanical & electrical upgrades 120-180 days from lease completion. Tenant shall be permitted access to the building immediately to configure their systems and prepare for operation.

COMMON AREAS:

The common areas are in good condition and need new carpet and paint to bring them into compliance with today's standards. There is a large open space dedicated to work stations that could accommodate disaster recovery.

SCOPE OF WORK FOR COMMON AREAS:

EXTERIOR COMMON AREA:

Compliance with all exterior ADA work for entrance, sidewalks and parking areas.
Installation of new metal eyebrow and glass canopy.
Painting of Building
New Entrance doors

INTERIOR COMMON AREAS:

Creation of mantrap to the immediate left of security station
Complete renovation of entrance lobby with new carpet, paint and of the reception desk with security pass through to the mantrap. Installation of large screen to view all cameras in addition to computer access to view the building automation system. Remote control access to the mantrap.
Restrooms- complete ada renovation of restrooms adjacent to security station.
New paint and flooring in the offices and common areas immediately to the east and west of the main entrance for office staff/conference and kitchen.

AREA MEASUREMENT RAISED FLOOR AREA- EAST SECTOR:

The gross usable areas of the raised floor are as follows:
East Sector gross usable square feet: approx. 16,826 sf
East Sector white space usable square feet: approx. 13,896 sf
West Sector gross usable square feet: approx. 13,500
West Sector white space usable square feet: not yet determined



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Boise Data Center Usable White Space Area Calculation				7/25/10
Gross Data Center Area	Description of Deductions from Gross Area	Unit Count	Area Each	Area
	Interior Columns	9	1.00	9.00
	AC 15 - AC 32	18	27.90	502.20
	AC 15 - AC 32 Clearance	18	42.84	771.12
	Future AC Units	7	27.90	195.30
	Future AC Clearance (7 units at 42.84 sf each)	7	42.84	299.88
	PDU's	28	13.77	385.56
	PDU Clearance	28	27.41	767.48
Net Usable White Space				13,896.22
Note:	Gross Data Center Area is taken from inside face of perimeter walls of white space.			
	Areas are based on cad file from RE Wall on 7/23/2010.			

RAISED FLOOR AREA:

The raised floor area in the building is divided into and “East” and “West” Sectors. Due to the age of improvements and proximity to the existing UPS, we decided to renovate the East Sector first. The East Sector shall remain in its current condition ready for expansion.

115 WATTS PER SQUARE FOOT PDU POWER EAST BUILDING:

Approximately 13,896 net usable white space has approximately 115 watts per square foot of electrical connected load supported by full cooling and lighting. All infrastructure including CRAC units and PDU's are designed and installed for this 115 wsf tenant load.

SCOPE OF WORK FOR RAISED FLOOR AREA:

- Repainting of all data center walls
- Repainting of all crac and pdu units
- Relocation of crac and pdu's to facilitate new racking plan
- Removal of MeetMeRoom to accommodate new UPS room
- Installation on new crac units and pdu units to accommodate new racking plan
- Installation of digital cctv monitors
- Installation of digital automation for all crac and pdu unit
- (auto cad plan available at Tenant Resource Sharefile Extranet/see racking plans-request access thru Telaxis LLC)

FLOOR LOAD:

Typical structural capacity of 200+ pounds per square foot on raised floor.

BUILDING ACCESS AND SECURITY: ACCESS CONTROLS:

EXISTING SYSTEM:

The building has an existing C-Cure card access system.



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SCOPE OF WORK:

The existing system will be upgraded to comply with C-Cure 800/1 bundled system card access system on access points with central control in Security office. The software update will include latest version of Software House Access Control System with central server in the Meet Me Room and remote access in the Security office for card input. All security was installed in 1997 and will be updated.

BIOMETRIC READER:

EXISTING SYSTEM: none

SCOPE OF WORK:

Install Bioscrypt V-Prox reader at tenant entrance to the data center floor which links card and fingerprint. All access to the data center floor will be limited to individuals with biometric credentials.

CCTV:**EXISTING SYSTEM:**

Pelco analog cameras installed throughout the building. The DVR recording system was upgraded approx 5 years ago.

SCOPE OF WORK:

Outdoor prepackaged Bosch cameras, 1/3-inch high resolution high sensitivity color, 5-50mm lens: quantity 10
Indoor flexidome-XF, color NTSC, 540 tvl, W/3-9.5 mm Fq.0 Varifocal: quantity 6
ExacqVision Hybrid NVR, 32 analog & 8 Ip channel inputs(expandable to 64 IP inputs)
All cameras will be accessibly remotely over the web.

MOTION DETECTION:

EXISTING SYSTEM: None. Some lighting controlled by motion detection.

SCOPE OF WORK:

Install Stanley Security Solutions system with numerous interior and exterior motion detection.

TELECOMMUNICATIONS PROVIDERS:

Carrier neutral facility

SCOPE OF WORK:

Owner to install diverse fiber vaults with divergent entrances to the MeetMeRoom
East Fiber Vault: fiber vault with 4-4" conduits terminated in Fiber Entry room #1.
4-4" conduits to run to the Meet Me Room.
West Fiber Vault: Fiber vault with 4-4" conduits terminated in Fiber Entry room #2.
4- 4"conduits run to the Meet Me Room
(Building entrance plan available at Tenant Resource Center)



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COMMUNICATIONS CARRIERS AVAILABLE:

QWEST(terminated in building)

AT&T(terminated in building)

Owner confirming capacity and alternative carrier availability

MEET ME ROOM

Meet Me Room located in the west portion of the building to remain.

SCOPE OF WORK:

install Ladder rack installed ready for tenant install

install conduits and inner duct to duel entrances

UPS power provisioned to panel to provide 6-20 amp circuits- 2 20 amp circuits for 3 carriers

COMMERCIAL ELECTRICAL POWER:

COMMERCIAL ELECTRICAL POWER EAST SECTOR:

2- 2500 kVA transformer

Transformer voltage primary 12,470 volts

Transformer voltage secondary 480 volts

Power fed from one substation

Electrical service enters building underground

Transformer number T25A

Switchgear size of 3000 Amps of 480 volt 3 phase power dedicated to East Portion of Building

COMMERCIAL ELECTRICAL POWER WEST PORTION:

1- 2500 kVA transformer

Transformer voltage primary 12,470 volts

Transformer voltage secondary 480 volts

fed from one substation

Electrical service enters building underground

Transformer number T25B

Switchgear size of 3,000 Amps of 480 volt 3 phase power dedicated to West Portion of Building(future expansion capacity of an additional 3000 amps with the addition of an additional utility transformer).

UTILITY PROVIDER:

Idaho Power(www.idahopower.com)

Utility contact number: 208-388-2323(request commercial power group)

POWER COST:

Large General Service Customer criteria:

Over 2000 kWh for any 3 months during a 12 month period

Summer Rates:

0-2000 kWh: \$.08880 per kwh



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over 2000 kWh: \$.03807 per kwh

Winter Rates:

0-2000 kWh \$.079237 per kwh

over 2,000 kWh \$.033959 per kwh

There is a demand charge for peak demand and other customary taxes and assessments. According to Idaho Power representatives, the base rate on hold for several years. Please confirm total power utilization, rebates and other applicable terms and conditions with Idaho Power.

ELECTRICAL SERVICE UPGRADES TO THE EAST PORTION OF THE BUILDING:

OVERALL ELECTRICAL SCOPE:

(Please refer to the one line diagram with notes prepared by RE WALL)

Existing UPS will be maintained as an 'A' side in a new '2N' topology with a new system providing the alternate 'B' side. This will harden this portion of the system to Tier IV level of maintainability and reliability. Additionally, all data center cooling will be provided with a dual feed capability to harden this portion of the system and enhance maintainability. In order to try and achieve the greatest amount of W/sq. ft. some portions of the east side HVAC system will be shifted to be supported by the currently unused west side. Additionally all HVAC equipment not required for the critical east side data center including support areas will be reconnected to the west side.

GENERATOR WORK:

No work required except to tie in the new ATS's into the existing system start/stop and annunciation. This will be required for the three new large ATS's 9, 10 and 11. No upgrades will be made to the generation or service capacities other than ensuring that the generator system in operating in accordance with specifications and all units are load tested after the completion of annual maintenance.

ATS WORK:

Three (3) new isolation bypass ATS's will be required for the existing system in place. The ATS's for the mechanical system (noted as DC, AC, RT and MC) shall be simple "preferred emergency" stand alone ATS's (non ISO bypass). These will not tie into the existing generator control system but shall allow manual selection of a preferred source. These ATS's will be located as close as possible to the loads served (i.e. adjacent to AC's on floor, etc.) but no cases mounted outside to allow for access during all weather conditions (i.e. dry cooler ATS's to be mounted indoors). Final locations will be determined at design stage.

The ATS feeding the existing UPS system Bypass equipment shall be upgraded to a 3000A 3P ISO/Bypass ATS to match new units.

QUANTITIES



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AC	CRAC Units	100A	3P	26
DC	Dry Coolers	30A	3P	15
PD	Mini Mate Distribution Panels	400A	3P	2
MC	Motor Control Centers	400A	3P	2
RT	Rooftop AC's	60A	3P	8

UPS WORK:

Provide one complete parallel redundant configuration static UPS system complete with static bypass and maintenance bypass cabinets. Each module to have a minimum of 10-minute sealed maintenance free battery at full design load. System to be sized to handle 1800KW of output load at a 0.9pf. Exact modules sizing and configuration details to be determined during full design. System shall be provided with a remote sync system to allow this system to be sync'd to the existing system for uninterrupted load transfers. System shall have full remote monitoring system and shall be by Liebert, MGE or Powerware. Batteries shall be URLA maintenance free variety rated at a minimum life of 10 years.

Existing UPS shall have its battery system replaced with new sealed maintenance free battery sized for 10 minutes at full module load. The existing static bypass shall be upgraded to 3000A.

PDU WORK:

PDU's shall be sized as shown on the single line diagram. Each shall have seismic floor stands, underfloor input J-Boxes and branch circuit monitoring (add alternate price for circuit monitoring). PDU's shall be by Liebert, MGE or approved equal. Relocate existing PDU's to locations shown on drawing. Additional pdu's to be purchased at future date- add budget.

SWITCHGEAR WORK:

New switchboards shall match existing to allow use of series ratings to obtain short circuit withstand capability and maintain commonality of parts onsite. Prior to commissioning, a new coordination study and short circuit study will be performed to integrate the new equipment into the system. All new or revised spare breakers 100A and larger shall be primary injection tested prior to reuse. It is anticipated that all feeders within the east wing will be routed overhead, while any feeds coming from the west wing will be routed overhead to the edge of west wing, underground between buildings, the overhead again within the east wing.

EXISTING EMERGENCY POWER:

Separate N+1 generator systems supplies service to the mechanical system and the critical power system.

EXISTING EAST GENERATOR SERVICE(CRITICAL POWER-UPS POWER):



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Generator #1: Cummings 1750 kW DQKB-5568337 serial # 1020418329
Engine hours: 168
Engine starts: 275
Year Installed: 2002
Fuel: diesel fuel with belly tank with 3,000 gallons capacity/ 34 hours run time

Generator #2 Cummings 1750 kW DQKB-5568337 serial # 1020418328
Engine hours: 162
Engine starts: 197
Year Installed: 2002
Fuel: diesel fuel with belly tank with 3,000 gallons capacity/ 34 hours run time

Generator #3 Cummings 1750 kW DQKB-5568337 serial # 1020418330
Engine hours: 171
Engine starts: 261
Year Installed: 2002
Fuel: diesel fuel with belly tank with 3,000 gallons capacity/ 34 hour run time

EXISTING BATTERY CHARGERS:

Generator # 1: Cummings Model 305-0813-05
Generator #2: Cummins Model 305-0813-05
Generator #3: Cummins Model 305-0813-05

Generators have factory supplied digital controls with paralleling and network capacity.
Digital logic systems communicate with paralleling switchgear

WEST GENERATOR SERVICE:

The West Generators consist of the following:

Generator #4: Cummings model 1250DFLC serial # 1970648343
Size: 1250 kw
Engine hours: 1394
Engine starts: 582
Year Installed: 1997
Fuel: diesel fuel with belly tank with 660 gallons capacity/ 6 hours run time

Generator #5: Cummings model 1250DFLC serial # 1970648344
Size: 1250 kw
Engine hours: 356
Engine starts: 640
Year Installed: 1997
Fuel: diesel fuel with belly tank with 660 gallons /6 hours run time



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DISTRIBUTED POWER(PDU):

EXISTING INSTALLATION:

There are currently 17 Liebert Model PPA 150C installed on the east portion of the floor. These units have a 2 panel 42 pole extension cabinet rated at 208v and 360A. The breaker type is snap in.

PDU SCOPE OF WORK:

Upon installation of the new UPS system owner will provide a total of 28 pdu's. The configuration of the UPS systems will be separate UPS systems installed with 14 pdu units installed and connected to UPS "A" and 14 pdu's connected to UPS "B". Each UPS system will have N+1 capability. The pdu's will be installed and numbered for easy installation of whips to the redundant power source.

All pdu's will be load tested and refurbished. All new units will receive startup by manufacturer.

UPS POWER EXISTING EAST SIDE:

**EXISTING UPS SPECIFICATIONS EAST(UPS SYSTEM "A")
INSTALLED WITH N+1 CAPACITY
TOTAL UPS CAPACITY DELIVERED TO FLOOR: 1600 KW
TO BE RUN AT 50% UTILIZATION: 800 KW**

UPS: 1

Manufacturer: Liebert
Model: UDA63750A36J000
Serial number: c251396/23402
Year installed: 1999

UPS: 2

Manufacturer: Liebert
Model: UDA63750A36J000
Serial number: 12544/26928
Year installed: 1999

UPS: 3

Manufacturer: Liebert
Model: UDA63750A36H255
Serial number: c253340/30436
Year installed: 2000



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**NEW REDUNDANT UPS SYSTEM TO BE INSTALLED(SYSTEM "B"):
TOTAL UPS CAPACITY DELIVERED TO THE FLOOR: 1600 KW
TO BE RUN AT 50% UTILIZATION: 800 KW**

Owner will install a new UPS system with 3 ups units, new battery strings all in an N+1 Configuration. Specifications of the UPS are as follows:

UPS 1-3:

Manufacturer: Liebert (tbd)

Model: Series 610 model U39SA625AAAP

AC input voltage 480V (three-phase, three-wire plus ground)

AC bypass voltage 277/480V (three-phase, three or four-wire plus ground)

AC output voltage 277/480V (three-phase, three or four-wire plus ground)

This model is for pricing purposes only. Two alternative providers will be specified and competitively bid.

BATTERY PLANT:

EXISTING BATTERY INSTALLATION:

UPS #1 Battery String:

Number of jars: 240

Model #: SLF 12205

Amp hours per jar: 184

UPS #2 Battery String:

Number of jars: 240

Model #: SLF 12205

Amp hours per jar: 184

UPS #3 Battery String:

Number of jars: 240

Model #: SLF 12205

Amp hours per jar: 184

BATTERY SCOPE OF WORK:

**ALL BATTERIES ON EAST SECTOR EXISTING TO BE REPLACED ON UPS "A"
AND PROCURED AND INSTALLED ON UPS "B".**

NEW BATTERY SPECIFICATIONS:

New Batteries to be purchased and installed in the existing racking with the following specifications:

C&D "XT" Series flooded cell batteries model XT4LC-07

5 minutes backup at full load

IEEE certification of batteries. Battery inspection and certification to IEEE standards performed by manufacturer.



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Racking is two tier construction with Seismic Zone 4 bracing
IBC certification
Factory System startup and equalization of batteries to be complete.

**BATTERY MONITORING:
EXISTING BATTERY MONITORING SYSTEM:**

Manufacturer: Alber

BATTERY MONITORING: SCOPE OF WORK:
Work: refurbish and recertify the existing battery monitoring system

PARALLELING SWITCHGEAR:

Existing:
Manufacturer: Cummins Onan
Model Number: PCIL2003G-375D
Serial Number: K020434775

SCOPE OF WORK:
Annual maintenance to be performed.

HVAC EXISTING:

The existing HVAC on the raised floor consists of the following:
18 floor mounted Liebert model FE240GUAAG 20 ton units
11 matching exterior mounted dry coolers model FE240GUAAG
12 roof top mini mates manufactured by York model DINA030N05606 with 8 tons capacity each

HVAC SCOPE OF WORK:
The HVAC remodel is being designed by TKSC Engineering and priced by McKinstry.

PROJECT OVERALL STRATEGY

The existing HVAC systems serving the data center will be maintained and supplemented with additional air conditioning capacity to meet the proposed load density. The additional air conditioning equipment will include upflow Computer Room Air Conditioning, (CRAC), Units, dry coolers and a circulating pump as well as provision of hot aisle containment systems. New air conditioning will be provided to the new UPS Room.

Design criteria is as follows:

1.Elevation:	2800ft.
2.Data Center Equipment Redundancy:	
a. CRAC Units:	N+2
b. Dry Coolers	N+2
c. Cooling Water Circulating Pumps	N+1
3.UPS Room Equipment Redundancy	N+1
4.Summer Outdoor Design Temperature:	100 deg.F



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5. Winter Outdoor Design Temperature:	2 deg.F
6. Data Center Indoor Design Temperature:	75 deg.F
7. Data Center Indoor Design Relative Humidity:	30 – 50%
8. UPS Room Indoor Design Temperature:	75 deg.F
9. UPS Room Indoor Relative Humidity:	no control

In order to try and achieve the greatest amount of W/sq. ft. some portions of the east side HVAC system will be shifted to be supported by the currently unused west side. Additionally all HVAC equipment not required for the critical east side data center including support areas will be reconnected to the west side. Refer to electrical description of work.

B. HVAC: DATA CENTER EAST SECTOR SCOPE OF WORK

- i. The data center will be arranged into hot and cold aisles.
- ii. A new hot aisle containment system will be provided, similar or equal to the Wrightline Paramount Enclosure system. Refer to the schematic floor plan furnished by Pacific Design Group showing the proposed racking and containment layout.
- iii. The hot aisle will be open to the ceiling return air plenum.
- iv. (7) Liebert model DS077 up flow CRAC units will be added on the data center floor. The units will not incorporate humidifiers or reheat coils, (humidity control shall be provided by existing CRAC units). Units shall be provided optional 10 hp supply fan motors.
- v. (18) Existing Liebert down flow CRAC units will remain and continue to utilize the raised floor for supply air.
- vi. Existing floor diffusers will be relocated into the proposed cold aisles.
- vii. Return air ducting will be extended from the existing CRAC units to the ceiling return air plenum.
- viii. (12) Existing Liebert Mini-Mates will remain. Supply air ducting from the MiniMates will be remodeled to coordinate with relocated supply air diffusers to be located in the proposed cold aisles. Return air to the MiniMates will be drawn from the ceiling return air plenum.
- ix. New CRAC units will be provided with supply air ducting distributed to the cold aisles and return air ducting extended from the back of the CRAC units to the ceiling plenum which will be used for return air.
- x. (3) Liebert model DD-350 dry coolers will be added to the exterior equipment yard.
- xi. (1) new cooling water circulating pump will be added in parallel with the existing circulating pumps. Pump shall provide be 800gpm at 120' head, 460v/3ph/60h z, 40hp.
- xii. New cooling water piping will be extended from the existing main headers in the pump room to the new dry coolers and also extended to serve the new CRAC units in the data center.

C. UPS Room:

New air conditioning will be provided to the proposed UPS Room.
 (3) York model DCE102 rooftop downflow AC units with roof curbs, supply air and return air ducting. Units will be provided with 100%



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OA economizer.

D. Plumbing New condensate drainage to the new CRAC units and new UPS AC units, connected to the existing waste system.

BUILDING AUTOMATION:

EXISTING:

Front End: Barbara Coleman

Niagra System: the software that does all the monitoring

Owner is currently evaluating capability of existing system.

BUILDING AUTOMATION SCOPE OF WORK:

If the current system is deemed obsolete, owner will supply and install new system to monitor and control the mechanical plant and provide power monitoring. Install Liebert Sitelink to all pdu and crac units to allow monitoring. Upgrade communication boards on PDU and Crac to allow 2 wire communication to the following: all crac units, all mini mates, all pumps and emergency notification of generators, switchgear, ups and fire alarms.

Details of owner scope of work if system replaced:

Owner shall supply and install one Teletrol eSC Model 276 controller in the UPS Room to host communications with the new YorkTalk /Modbus bridge device (Supplied and installed by Owner). Supply connectivity between the eSC controller and the YorkTalk new bridge device. This eSC will also host communications with the new generator and switchgear communications device, by a modbus connection.

Supply and install one Teletrol eSC Model 276 in the Pump Room and supply and install up to five(5) new replacement Teletrol SimpleStat thermostats including all wiring between the thermostats and the Teletrol eSC Model 276 supported in compliance with code for the office and common areas.

Owner shall have its Electrical Contractor install metal conduit from each pdu and crack unit to the designated Siteman units and a backbone.

Supply and install one new Windows XP based server machine. Supply and install the most current version of the Teletrol Envoy Server – Professional Edition software. Supply and install the current versions of both Teletrol Edifice and Teletrol Easel



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software packages to Supply the customer a complete configuration and programming environment. The server will be installed in an Owner supplied rack in the Meet Me Room.

Supply and install Ethernet cabling and communications hardware to combine them above into one contiguous system. Supply Ethernet cabling to building router. Configure the site server (Item 9) with an external, static IP address (Supplied by others) and verify web connectivity. OWNER will be responsible for the cost of installing low voltage wire and hire Guardian to install such network.

Supply and install custom written software to duplicate the programming from the existing Teletrol Integrator controllers (based on .c files). Implement the sequence of operations into the programming .Supply printed hard-copy of the JavaScript programming of the new control system. Supply and install web pages to allow operators to:

- a. View floor plans with dynamically updating temperature values representing current conditions.
- b. View current condition of the UPS system (details depend on data points available from new UPS system).
- c. View current condition of each CRAC unit (details depend on data points available and integrated from each unit).
- d. View current condition of each PDU (details depend on data points available and integrated from each PDU).
- e. View current condition of chilled water plant including pump and chiller status, cooling tower temperatures and status, loop temperatures.
- f. View current condition of generator plant as indicated by existing hardwired interface.
- g. Navigate through each of the above pages with a consistent user interface.

Web pages described in Item 10 above to be created, submitted and approved early in the project.

Connection to customer Supplied mail server to be established. A list of points and conditions regarded as alarms will be compiled and programming put in place to notify users via email when alarm conditions exist.

Supply up to 40 hours of testing of the Sequence of Operations. This testing will include normal operation of the building using the new operator interface, failure recovery, alarm



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detection and notification/delivery. Configure the system to the sequence of operations attached hereto as Exhibit “B”.

Supply 24 hours of training in three eight hour sessions. Owner and Owner may reconfigure the training schedule per mutual agreement. First session: Introduction to eBuilding/Operator training. Second session: System configuration and web page construction using Edifice. Third session: Custom Programming using Easel.

Supply up to three weeks of on-site support for commissioning the system as a whole. This work will be performed in tandem with the general contractor, electrical trade and mechanical trade.

Label all control panels not used in the operating system comprising of Teletrol or Datasite as not in service.

Supply complete shop drawing for the review and approval of Owner detailing all control wiring and all required metal conduit to be installed by Owner.

**SCOPE OF WORK: PDU AND CRACK UNIT MONITORING:
Liebert SiteLink Site Monitoring Interface Units:**

Install up to Eight (8) Liebert “SiteLink-12M” twelve port data concentrator IGM interface units, each with 12 ports each capable of communicating directly with a single Liebert SiteScan interface in a Liebert power and air unit. The SiteLink-12 provides MODBUS/BACNET output to allow for the interface of Liebert equipment to external monitoring system.

e-Building interface allows monitoring at the pdu level with utilization and emergency notification.

FIRE SUPPRESSION:

OWNER IS EVALUATING THE CURRENTLY INSTALLED FIRE MONITORING AND FIRE SUPPRESSION SYSTEM.

UPS Room:

Provide pre-action and non-aqueous fire protection zone for the proposed UPS Room

LOADING DOCK:

Loading dock located at rear of Building



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PARKING:

There is currently strip parking for approx 110 cars.

SECURITY:

The site is secured by a fence on the entire perimeter and an card accessed front gate.

FLOOR PLANS:

All floor plans available from Telecom Real Estate Service or Telaxis LLC.



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CUSTOMER NOTES



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