DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

County Executive
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Commissioner / Director
Gerald J. Mandli

April 10, 2009

ATTENTION ALL REQUEST FOR BID (RFB) HOLDERS

RFB NO. 309001- ADDENDUM NO. 2

TENANT IMPROVEMENTS FIRST AND THIRD FLOOR

CITY-COUNTY BUILDING

BIDS DUE: THURSDAY, APRIL 16, 2009, 2:00 PM. DUE DATE AND TIME ARE NOT CHANGED BY THIS ADDENDUM.

This Addendum is issued to modify, explain or clarify the original Request for Bid (RFB) and is hereby made a part of the RFB. **Acknowledge this addendum on the Bid Form.**

PLEASE MAKE THE FOLLOWING CHANGES:

1. **INVITATION TO BID (LEGAL NOTICE)**
   a. Add the following: "Bid Opening will be held at the Dane County Highway Department, 2302 Fish Hatchery Road. Due to a conflict in schedules with the Midwest Horse Fair being held at the Alliant Energy Center Grounds, bids will be opened at the Dane County Highway Department. This is to avoid contractors having to pay admission to the grounds during this period. Bids can still be mailed to the Dane County Department of Public Works and will be accepted if received before 2:00 PM, THURSDAY, APRIL 16, 2009. The mailing address is 1919 Alliant Energy Center Way, Madison, WI 53713. Bids can also be dropped off in person at the Dane County Highway Department, 2302 Fish Hatchery Road."

2. **Section 06600**
   a. Revise 2.01, B. to "Countertops and trim with 3/4 inch or greater thickness indicated on drawings."
   b. Add 2.01, B, 2. "Solid surface dimensions indicated on drawings may be achieved by using 1/2 inch thick material with a dropped edge. Profiles to match drawings. Provide a minimum of 1/2 inch material behind routed conditions."
   c. Add 2.01, C, 5. "Material thickness as indicated on drawings."

3. **Section 08710**
   a. Revise 3.05, A, 3.a. Revise door closer approved equals to: "Sargent and Stanley."

b. Revise Hardware Set 04 to the following:

SET 04

Opening(s): 321a

3	EA	HALF-MORTISE HINGES	BB1129	652	HAG
3	EA	FRAME FILLER PLATE FF-45	PC	DNJ	
1	EA	OVERHEAD STOP 450	630	GLY	

-Remainder of hardware existing.

-Intent is to reverse swing of door. Supplier is responsible for confirming compatibility of new hardware with existing conditions. Use Molly Jack Nuts to anchor overhead stop and hinges to frame. Use through bolts to secure overhead stop to door. Strike will need to be moved and frame will need to be modified to receive strike on other side of stop.

4. **Section 16515**
   a. Add Section 16515, issued with this addendum to be included in documents distributed by hard copy only. No changes have been made in the attached document from the electronically issued document.

5. **Section 16751**
   a. Add Section 16751, issued with this addendum to be included in documents distributed by hard copy only. No changes have been made in the attached document from the electronically issued document.
   b. In Article 2.06A.1.b, add "Provide two per coverplate."
   c. In Article 2.06, delete paragraphs "C" and "D". The outlets are not used.
   d. In Article 3.04G, add "Resupport existing cables within the remodeled areas to same requirements as new cables. Supports shall consist of J-hooks or D-rings."

6. **Sheet D2.3**
   a. Modify demolition at Conference Room 321 for modification to door 321a swing and add Demolition Note 22 per sheet AD2.D2.3.1, issued with this addendum.

7. **Sheet A2.3**
   a. Modify door 321a swing per sheet AD2.A2.3.1, issued with this addendum.
   b. In Conference Room 310 add wall type notation B1 at center column on south wall.

8. **Sheet A3.1**
   a. Add note in Corridor 1000 and 1002: "Existing ceiling to remain".
   b. Add Reflected Ceiling Plan General Note: "7. Height to existing concrete deck on First Floor is approx. 13'-5". Height to existing concrete deck on Third Floor is approx. 11'-1". Field Verify."

9. **Sheet A3.3**
   a. Add note in Corridor 3006: "Portion of existing ceiling to remain. Refer to D3.3 for extent of demolition."
   b. Add note at east end of Corridor 3007 near existing stairs: "Existing ACT ceiling to remain. Refer to D3.3 for extent of demolition."

10. **Sheet A9.1**
    a. Revise General Finish Note 8 to the following: "8. Contractor is responsible for subfloor preparation as indicated in Section 09650 and 09680. Include 2000 SF in the base bid of patching and filling at areas where existing VCT will remain."

11. Sheet H2.1

a. 4"HWS and HWR piping, included as a part of Alternate Bid 6, shall be routed as shown on AD2.H2.1.1, ADH2.1.2 and ADH2.1.3, issued with this Addendum.

12. Sheet E1.1

a. See Attachment AD2.E.1.1.1 included in this Addendum for Partial Ground Floor Plan.

13. Sheet E1.2

a. Add general note "3. Stub 1-1 inch conduit to accessible ceiling from each voice/data outlet."

14. Sheet E2.1

a. See Attachments AD2.E2.1.1, AD2.E2.1.2, AD2.E2.1.3 and AD2.E2.1.4 included in this addendum for added emergency lighting.

15. Sheet E2.2

a. In Keyed Note 1, delete "Future".

16. Sheet E3.0

a. In Symbols List, add "Fire Alarm Mini-Sounder" represented by speaker/strobe symbol with "MS" inside the square.
b. In the Motor Schedule:
   Indicate circuit 1/PA-1,3,5 for CIRC PUMP 1(20A, 3P breaker).
   Indicate circuit 1/PA-2,4,6 for CIRC PUMP 2 (20A, 3P breaker).
   Indicate circuit 1/PA-7,9,11 for COND UNIT 1 (15A, 3P breaker).
   Indicate circuit 1/PA-8,10,12 for COND UNIT 2 (15A, 3P breaker).
c. See Attachments AD2.E3.0.1, AD2.E3.0.2 and AD2.E3.0.3 included in this addendum for Partial Power Riser, Partial Second Floor Plan, and Wiring Diagram: Shades and Lighting Controls.

Enclosures:

Specification Sections 16515 and 16751
Drawings AD2.D2.3.1, AD2.A2.3.1, AD2.H2.1.1, AD2.H2.1.2, AD2.H2.1.3, AD2.E1.1.1, AD2.E2.1.1, AD2.E2.1.2, AD2.E2.1.3, AD2.E2.1.4, AD2.E3.0.1, AD2.E3.0.2, AD2.E3.0.3

SECTION 16515

LIGHTING

PART 1 - GENERAL

1.01 SCOPE

A. All requirements of Division 1 govern work under this Section.

1.02 SUMMARY

A. Section Includes:
   1. Interior lighting fixtures.
   2. Exterior lighting fixtures.
   3. Lamps.
   4. Ballasts.
   5. Emergency lighting units.

1.03 REFERENCES

A. American National Standards Institute (ANSI):
   1. C78 Series - Lamps.
   2. C82.2-84 - Fluorescent Lamp Ballasts.
   3. C82.4-85 - Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type).
   4. ANSI C2-90 - National Safety Code.

B. Institute of Electrical and Electronics Engineers (IEEE):
   1. C62.41-91 - IEEE Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.

C. National Fire Protection Association (NFPA):
   1. 70-93 - National Electric Code.

D. Underwriters Laboratory (UL):
   1. 844-90 - UL Standard for Safety Electric Lighting Fixtures for Use in Hazardous (Classified) Locations.
   2. 924-90 - UL Standard for Safety Emergency Lighting and Power Equipment.
   3. 935-84 - UL Standard for Safety Florescent-Lamp Ballast.
   4. 1092 (P) - UL Standard for Safety Proposed First Edition of the Standard for Process Control Equipment.
   5. 1570-88 - UL Standard for Safety Florescent Lighting Fixtures.
   6. 1571-91 - UL Standard for Safety Incandescent Lighting Fixtures.
   7. 1572-91 - UL Standard for Safety High Intensity Discharge Lighting Fixtures.
   8. 1573-85 - UL Standard for Safety Stage and Studio Lighting Units.
   9. 1574-87 - UL Standard for Safety Track Lighting Systems.
   10. UL 773-87 - UL Standard for Safety Plug-In, Locking Type Photo controls for Use

with Area Lighting.

1.04 DEFINITIONS

A. Emergency Lighting Unit: Fixture with integral emergency battery power supply and means for controlling and charging battery. Also known as emergency light set. Emergency units are available with integral lamps only.

B. Fixture: Complete lighting unit, exit sign, or emergency lighting unit. Fixtures include lamps and parts required to distribute light, position and protect lamps, and connect lamps to power supply. Internal battery powered exit signs and emergency lighting units also include battery and means for controlling and recharging battery. Emergency lighting units are available with and without integral lamp heads and lamps.

C. Luminaire: Fixture.

D. Average Life: Time after which 50% will have failed and 50% will have survived under normal conditions.

1.05 SUBMITTALS

A. Product Data:

1. Describe fixtures, lamps, ballasts, poles, emergency lighting units, and accessories. Arrange product data for fixtures in order of fixture designation. Include data on features and accessories and following information:

a. Outline drawings of fixtures indicating dimensions and principal features.

b. Electrical ratings and photometric data with specified lamps and certified results of independent laboratory tests.

c. Data on batteries and chargers of emergency lighting units.

2. Air and thermal performance data for air handling fixtures. Provide data required to be submitted in Section 15940.

3. Sound performance data for air handling fixtures. Provide certified test reports indicating sound power level and sound transmission class.

B. Shop Drawings: Detail nonstandard fixtures and indicating dimensions, weights, methods of field assembly, components, features, and accessories.

C. Samples: Submit sample of fixture if different than specified.

D. Miscellaneous:

1. For substitutes only, product certifications signed by manufacturers of lighting fixtures certifying that their fixtures comply with specified requirements.

2. Warranty for rechargeable battery.

3. Coordination drawings for fixtures that require coordination with other equipment installed in same space.

E. Submit in accordance with Section 01340.

1.06 QUALITY ASSURANCE

A. Items provided under this section shall be listed and labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).

1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
2. Terms "listed" and "labeled" shall be as defined in National Electric Code, Article 100.

B. Regulatory Requirements:
1. National Electric Code: Components and installation shall comply with NFPA 70.
2. Comply with ANSI C2, "National Electrical Safety Code".

C. Coordinate fixtures mounting hardware and trim with ceiling tile.

1.07 WARRANTY

A. Requirements:
1. Special Project Warranty Period (Where called for herein.): 10 years, beginning on date of Substantial Completion. Full warranty shall apply for first year of period, and prorata warranty for last 9 years.
2. Protection of Metal from Corrosion: Warranty against perforation or erosion of finish due to weathering.
3. Color Retention: Warranty against fading, staining, chalking due to effects of weather and solar radiation.
4. Furnish extra materials matching products installed, as described below, packaged with protective covering for storage, and identified with labels describing contents. Deliver extra materials to OWNER.
a. Lamps: 10 lamps for each 100 of each type and rating installed. Furnish at least 1 of each type.
b. Ballasts: 1 for each 100 of each type and rating installed. Furnish at least 1 of each type.

PART 2 - PRODUCTS

2.01 FIXTURES, GENERAL

A. Comply with requirements specified in Articles below and lighting fixture schedule.

2.02 FIXTURE COMPONENTS, GENERAL

A. Metal Parts: Free from burrs, sharp corners, and edges.

B. Sheet Metal Components: Steel, except as indicated. Form and support components to prevent warping and sagging.

C. Doors, Frames, and Other Internal Access: Smooth operating and free from light leakage under operating conditions. Arrange to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in operating position.

D. Reflecting Surfaces: Minimum reflectances as follows, except as otherwise indicated:
1. White surfaces: 85%.
2. Specular Surfaces: 83%.
3. Diffusing Specular Surfaces: 75%.

4. Laminated Silver Metallized Film: 90%.

E. Exterior Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed fixtures.

F. Exterior Exposed Hardware Material: Stainless steel.

G. Lenses, Diffusers, Covers, and Globes: 100% virgin acrylic plastic or water white, annealed crystal glass except as indicated.

1. Plastic: Highly resistant to yellowing and other changes due to aging, exposure to heat and UV radiation.
2. Lens Thickness: 0.125 inches, minimum.

H. Photoelectric Relay: UL 773.

1. Contact Relays: Single-throw, arranged to fail in the "on" position and factory set to turn light unit on at 1.5 to 3 footcandles and off at 4.5 to 10 footcandles with 15 seconds minimum time delay.
2. Relay Mounting: In fixture housing.

2.03 SUSPENDED FIXTURE SUPPORT COMPONENTS

A. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fitting and ceiling canopy. Finish same as fixture.

B. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy arranged to mount single fixture. Finish same as fixture.

C. Rod Hangers: 3/16-inch diameter cadmium plated, threaded steel rod.

D. Hook Hanger: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.

2.04 FLUORESCENT FIXTURES

A. Fixtures: Conform to UL 1570.

B. Ballasts: All fluorescent ballasts shall be electronic type and shall meet the following specs:

1. UL Listed (Class P) sound rating A and CSA certified.
2. Comply with EMI and RFI limits set by the FCC (CFR 47 part 18) or NEMA and not interfere with normal electrical equipment.
3. Meet any applicable standards set forth by ANSI.
4. Be potted or conformal coated in a metallic case and not contain PCBs.
5. Provide normal rated lamp life as stated by lamp manufacturers (i.e. rated life at 3 hour burn time per start).
6. Provide independent test results from an approved testing laboratory for all of the specifications below. This is required for all submitted ballasts.
7. Nominal power factor of .90 or higher.
8. Total harmonic distortion of less than 10% at 120 or 277 volts (universal voltage).
9. Ballast factor 0.70 through 1.2, as shown on the lighting fixture schedule.
10. Frequency of operation shall be 40 kHz - 50 kHz and units shall operate without visible flicker.

11. Ballast efficiency factor shall meet Consortium of Energy Efficiency (www.cee1.org) specifications (adopted by Focus on Energy program).
12. Multi-lamp ballasts shall operate in parallel so that when one lamp burns out, the other lamps will continue to operate at full light output.
13. Ballasts shall carry a minimum 5 year warranty with a $10 replacement labor allowance.
14. Ballasts shall not be affected by lamp failure.
15. Ballasts shall be a standard production item.
16. Ballasts shall be marked with manufacturer's name, part number, supply voltage, power factor, open circuit voltage, current draw for each lamp type and UL Listing.
17. Ballasts shall withstand line transients as defined in IEEE 587, Category A.

C. Acceptable ballast manufacturer's names and product lines are as follows:
1. Osram Sylvania – Quicktronic High Efficiency and Quicktronic PROstart.
2. GE Lighting – Ultramax and UltraStart.
3. Maxlite – High Efficiency Ballast.
4. Advance – Optanium.
5. Universal Lighting Technologies – F32T8.

D. Manufacturer names are used to develop quality and performance requirements only. All manufacturers and their products shall meet the system performance requirements and this entire specification.

E. Compact Fluorescent Ballasts (Electronic)
1. Ballasts shall be high power factor, class P, with voltage rating matching the branch circuit voltage.
2. Ballast factor shall be 0.85 or higher.
3. Ballast shall have lamp fault shut-off circuitry to prevent starting of a faulty lamp.
4. Cold-weather ballast must reliably start and operate the lamp in ambient temperatures down to 0ºF for the rated life of the lamp.

F. Dimming Ballasts (Fluorescent)
1. Ballast shall provide continuous, flicker-free dimming from 100% to 5%.
2. Ballast shall have Total Harmonic Distortion of less than 10%.
3. Ballast power factor shall be greater than 0.95.
4. Ballast factor shall be 0.85 or higher for T8 lamps, 0.95 or higher for T5 lamps.
5. Ballast shall be high frequency electronic type and operate lamps at a frequency above 25kHz for T5 lamps.
6. Ballast shall have built-in inrush current limiting circuitry, maximum of 7 amps for 120 volts and 3 amps for 277 volts.
7. Ballast shall have internal fusing.

8. Ballast shall have ultra-quiet operation.
9. Operating temperature shall not exceed 75º C on the case during normal operation.
10. Minimum lamp starting temperature shall be 10ºC / 50º F.

2.05 INCANDESCENT FIXTURES

A. Conform to UL 1571.

2.06 EXIT SIGNS

A. Conform to UL 924.
   1. Sign Colors: Conform to local code.

B. Self-Powered Exit Signs (Battery Type): Integral automatic high/low trickle charger in self-contained power pack.
   1. Battery: Sealed, maintenance-free, nickel cadmium type with special project warranty.

C. Self-Powered Exit Signs (Luminous Source Type): Licensed for public use by U.S. Nuclear Regulatory Commission. signs have solid-state tritium gas energy source and provide legibility in total darkness at 100 feet after 10 years of service.

2.07 EMERGENCY LIGHTING UNITS

A. Conform to UL 924. Provide self-contained units with following features and additional characteristics as indicated.
   1. Battery: Sealed, maintenance-free, lead-acid type with 10-year nominal life minimum, and special project warranty.
   2. Charger: Minimum 2-rate, fully-automatic, solid-state type, with sealed transfer relay.
   3. Operation: Relay automatically turns lamp on when supply circuit voltage drops to 80% of nominal or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. Relay disconnects lamps and battery automatically recharges and floats on trickle charge when normal voltage is restored.
   4. Time-Delay Relay: Provide time-delay relay in emergency lighting unit control circuit arranged to hold unit "on" for fixed interval after restoration of power from an outage. Provide adequate time delay to permit HID lamps to restrike and develop output.
   5. Wire Guard: Where indicated, provide heavy chrome plated wire guard arranged to protect lamp heads or fixtures.

2.08 EMERGENCY FLUORESCENT POWER SUPPLY

A. Conform to UL 924.

B. Internal Type: Self-contained, modular, battery-inverter unit factory-mounted within fixture body.
   1. Test Switch and LED Indicator Light: Visible and accessible without opening fixture or entering ceiling space.
   2. Battery: Sealed, maintenance-free, nickel-cadmium type, with minimum nominal 10-year life.

3. Charger: Fully-automatic, solid-state, constant-current type.
4. Operation: Relay automatically turns 2 lamps on when supply circuit voltage drops to 80% of nominal or below. Relay disconnects lamp and battery automatically recharges when normal voltage is restored.

C. External Type: Self-contained, modular, battery-inverter unit. Exterior fluorescent light fixtures are specified in Section 16525.
1. Test Switch and LED Indicator Light: Visible and accessible without entering ceiling space.
2. Battery: Sealed, maintenance-free, nickel-cadmium type, with minimum nominal 10-year life.
3. Charger: Fully-automatic, solid-state, constant-current type.
4. Operation: Relay automatically turns 2 lamps of associated fixture on when supply circuit voltage drops to 80% or nominal or below. Battery automatically recharges when normal voltage is restored.

2.09 LAMPS

A. Conform to ANSI C78 series applicable to each type of lamp.

2.10 FINISH

A. Steel Parts: Manufacturer's standard finish applied over corrosion-resistant primer, free of streaks, runs, holidays, stains, blisters, and defects. Remove fixtures showing evidence of corrosion during project warranty period and replace with new fixtures.

B. Other Parts: Manufacturer's standard finish.

C. Verify and provide light fixture finishes as selected by ARCHITECT for all light fixture types. Include colored finish selection tables with product submittals. Upon request submit actual material finish swatches for A/E review.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Setting and Securing: Set units plumb, square, and level with ceiling and walls, and secure according to manufacturer's printed instructions and approved submittals.

B. Support For Recessed and Semirecessed Fixtures: Units may be supported from suspended ceiling support system. Install ceiling system support rods or wires at minimum of four rods or wires per fixture located not more than 6 inches from fixture corners.
1. Fixtures Smaller Than Ceiling Grid: Install minimum of four rods or wires for each fixture and locate at corner of ceiling grid where fixture is located. Do not support fixtures by ceiling acoustical panels.
2. Fixtures of Sizes Less Than Ceiling Grid: Center in acoustical panel. Support fixtures independently with at least two 3/4-inch metal channels spanning and secured to ceiling tees.
3. Install support clips for recessed fixtures, securely fastened to ceiling grid members, at or near each fixture corners.

C. Support for Suspended Fixtures: Brace pendants and rods that are 4 feet long or longer to

limit swinging. Support stem mounted single-unit suspended fluorescent fixtures with twin-stem hangers. For continuous rows, use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of chassis, including one at each end.

D. Lamping: Lamp units according to manufacturer's instructions.

3.02 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Give 7-day notice of dates and times for field tests.

C. Verify normal operation of each fixture after fixtures have been installed and circuits have been energized with normal power source.

D. Interrupt electrical energy to demonstrate proper operation of emergency lighting installation.

1. Duration of supply.
2. Low battery voltage shut-down.
3. Normal transfer to battery source and retransfer to normal.
4. Low supply voltage transfer.

E. Replace or repair malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

3.03 ADJUSTING AND CLEANING

A. Clean fixtures upon completion of installation. Use methods and materials recommended by manufacturer.

B. Adjust aimable fixtures to provide required light intensities.

END OF SECTION

SECTION 16751

TELECOMMUNICATIONS DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.01 SCOPE

A. The basic scope of this project is as follows:

1. Reroute a 12-strand multi-mode fiber optic cable presently serving an old telecommunications room on the 1st floor to Telecommunications Room 105. The fiber optic cabling is for voice and data communications. Coordinate the installation of this cable with the Dane County Information Technology (IT) staff.
2. Provide a 12-strand multi-mode fiber optic cabling between the 3rd Floor telecommunications closet and the Main Computer Room location on the 5th Floor of the Dane County City-County Building. The fiber optic cabling is for voice and data communications. Coordinate the installation of this cable with the Dane County Information Technology (IT) staff.
3. Provide a new telecommunications rack in the existing 1st floor telecommunications room complete with fiber optic patch panel. From the telecommunications closet, provide horizontal Category 6 cabling out to the workstation outlets as indicated on the floor plans.
4. Provide a new fiber optic patch panel in the existing 3rd floor telecommunications rack. From the telecommunications closet, provide horizontal Category 6 cabling out to the workstation outlets as indicated on the floor plans.
5. Provide all certification and testing of the equipment and cabling as required.

B. Section Includes: Equipment, materials, labor, and services to provide telephone and data distribution system including, but not limited to:

1. Raceway, boxes, and cable tray
2. Telephone and data cabling terminations
3. Optical fiber and terminations
4. Telecommunications outlets
5. Terminal blocks/cross-connect systems
6. Equipment racks and cabinets
7. System testing
8. Documentation and submissions

C. Provide all equipment, materials, labor, and services, not specifically mentioned or shown, which may be necessary to complete or perfect all parts of the installation. Ensure that they are in compliance with requirements stated or reasonably inferred by the contract documents.

D. Work not included:

1. The following work will be done by others:
   a. Off-site services.
   b. Providing 120V wiring and outlets.
   c. Providing data concentrators, hubs, servers, computers, and other active

devices.

1.02 REFERENCES

A. Design, manufacture, test, and install telecommunications cabling networks per manufacturer's requirements and in accordance with NFPA-70 (National Electrical Code®), state codes, local codes, requirements of authorities having jurisdiction, and particularly the following standards:

1. ANSI/NECA/BICSI-568 -- Standard for Installing Commercial Building Telecommunications Cabling
2. ANSI/TIA/EIA Standards
    a. ANSI/TIA/EIA-568-B.1 -- Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements
    b. ANSI/TIA/EIA-568-B.2 -- Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components
    c. ANSI/TIA/EIA-568-B.3 -- Optical Fiber Cabling Components Standard
    d. ANSI/TIA/EIA-569-A -- Commercial Building Standard for Telecommunications Pathways and Spaces
    e. ANSI/TIA/EIA-606(A) -- The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
    f. ANSI/TIA/EIA-607(A) -- Commercial Building Grounding and Bonding Requirements for Telecommunications
    g. ANSI/TIA/EIA-526-7 -- Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant
    h. ANSI/TIA/EIA-526-14A -- Measurement of Optical Power Loss of Installed Multimode Fiber Cable Plant
    i. ANSI/TIA/EIA-758(A) -- Customer-Owned Outside Plant Telecommunications Cabling Standard

B. Install cabling in accordance with the most recent edition of BICSI® publications:

1. BICSI -- Telecommunications Distribution Methods Manual
2. BICSI -- Cabling Installation Manual
3. BICSI -- LAN Design Manual
4. BICSI – Customer-Owned Outside Plant Design Manual

C. Federal, state, and local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. If the contractor should note items in the drawings or the specifications, construction of which would be code violations, promptly call them to the attention of the owner's representative in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

1.03 PERMITS, FEES, AND CERTIFICATES OF APPROVAL

A. As prerequisite to final acceptance, supply to the owner certificates of inspection from an inspection agency acceptable to the owner and approved by local municipality and utility

company serving the project.

1.04 SYSTEM DESCRIPTION

A. Telecommunications cabling system generally consists of one telecommunications outlet in each workstation, wall telephones in common and mechanical areas and telecommunications rooms (TRs) located on each floor.

1. For this project, both telecommunications rooms are existing. See floor plans for the exact location.

2. The equipment room (ER) is currently existing and is located on the 5th Floor of the City-County Building.

B. The typical work area consists of a single-gang plate with three standards compliant work area outlets.

1. Each work area outlet consists of one (1) four-pair data Category 6 cable or above, installed from work area outlet to the TR. Terminate data cables on rack mounted modular patch panels located in the appropriate TR.

C. Vertical/horizontal backbone cabling consists of 50/125 mm multimode optical fiber cable installed from the telecommunications closet (room) to the Main Computer Room on the 5th Floor of the City-County Building. The backbone cabling to be used for both voice and data communications within the building.

1.05 SUBMITTALS

A. Submit to the engineer/designer shop drawings, product data (including cut sheets and catalog information), and samples required by the contract documents. Submit shop drawings, product data, and samples with such promptness and in such sequence as to cause no delay in the work or in the activities of separate contractors. The engineer/designer will indicate approval of shop drawings, product data, and samples submitted to the engineer by stamping such submittals "APPROVED" with a stamp. Submitted shop drawings shall be initialed or signed by the contractor, showing the date and the contractor's legitimate firm name.

1. By submitting shop drawings, product data, and samples, the contractor represents that he or she has carefully reviewed and verified materials, quantities, field measurements, and field construction criteria related thereto. It also represents that the contractor has checked, coordinated, and verified that information contained within shop drawings, product data, and samples conform to the requirements of the work and of the contract documents. The engineer/designer remains responsible for the design concept expressed in the contract documents as defined herein.

2. The engineer’s/designer’s approval of shop drawings, product data, and samples submitted by the contractor shall not relieve the contractor of responsibility for deviations from requirements of the contract documents, unless the contractor has specifically informed the engineer/designer in writing of such deviation at time of submittal, and the engineer/designer has given written approval of the specific deviation. The contractor shall continue to be responsible for deviations from requirements of the contract documents not specifically noted by the contractor in writing, and specifically approved by the engineer in writing.

3. The engineer’s/designer’s approval of shop drawings, product data, and samples shall not relieve the contractor of responsibility for errors or omissions in such shop

drawings, product data, and samples.

4. The engineer's/designer's review and approval, or other appropriate action upon shop drawings, product data, and samples, is for the limited purpose of checking for conformance with information given and design concept expressed in the contract documents. The engineer's/designer's review of such submittals is not conducted for the purpose of determining accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the contractor as required by the contract documents. The review shall not constitute approval of safety precautions or of construction means, methods, techniques, sequences, or procedures. The engineer's/designer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

B. Perform no portion of the work requiring submittal and review of shop drawings, product data, or samples, until the engineer/designer has approved the respective submittal. Such work shall be in accordance with approved submittals.

C. Submit shop drawings, product data, and samples as a complete set within thirty (30) days of award of contract.

1. For initial submission and for resubmission required for approval, submit four (4) copies of each item. The engineer/designer will only return two copies. Make reproductions as required for your use and distribution to subcontractors.
2. Illegible submittals will not be checked by the engineer.

D. General: Submit the following:

1. Bill of materials, noting long lead time items
2. Optical loss budget calculations for each optical fiber run
3. Project schedule including all major work components that materially affect any other work on the project

E. Shop drawings: Submit the following:

1. Backbone (riser) diagrams.
2. System block diagram, indicating interconnection between system components and subsystems.
3. Interface requirements, including connector types and pin-outs, to external systems and systems or components not supplied by the contractor.
4. Fabrication drawings for custom-built equipment.

F. Product Data -- Provide catalog cut sheets and information for the following:

1. Wire, cable, and optical fiber
2. Outlets, jacks, faceplates, and connectors
3. All metallic and nonmetallic raceways, including surface raceways, outlet boxes, and fittings
4. Terminal blocks and patch panels
5. Enclosures, racks, and equipment housings
6. Splice housings

G. Project record drawings:

1. Submit project record drawings at conclusion of the project and include:
    a. Approved shop drawings
    b. Plan drawings indicating locations and identification of work area outlets, nodes, telecommunications rooms (TRs), and backbone (riser) cable runs
    c. Telecommunications rooms (TRs) and equipment room (ER and/or MC) termination detail sheets.
    d. Cross-connect schedules including entrance point, main cross-connects, intermediate cross-connects, and horizontal cross-connects.
    e. Labeling and administration documentation.
    f. Warranty documents for equipment.
    g. Copper certification test result printouts and diskettes.
        (a.) Optical fiber power meter/light source test results.

1.06 QUALITY ASSURANCE

A. The contractor shall have worked satisfactorily for a minimum of five (5) years on systems of this type and size.

B. Upon request by the engineer/designer, furnish a list of references with specific information regarding type of project and involvement in providing of equipment and systems.

C. Equipment and materials of the type for which there are independent standard testing requirements, listings, and labels, shall be listed and labeled by the independent testing laboratory.

D. Where equipment and materials have industry certification, labels, or standards (i.e., NEMA - National Electrical Manufacturers Association), this equipment shall be labeled as certified or complying with standards.

E. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout.

F. Subcontractors shall assume all rights and obligations toward the contractor that the contractor assumes toward the owner and engineer/designer.

1.07 WARRANTY

A. Specification Note: Insert manufacturer’s extended warranty verbiage if requested.

B. Unless otherwise specified, unconditionally guarantee in writing the materials, equipment, and workmanship for a period of not less than fifteen (15) years from date of acceptance by the owner. The owner shall deem acceptance as beneficial use.

C. Transfer manufacturer's warranties to the owner in addition to the General System Guarantee. Submit these warranties on each item in list form with shop drawings. Detail specific parts within equipment that are subject to separate conditional warranty. Warranty proprietary equipment and systems involved in this contract during the guarantee period. Final payment shall not relieve you of these obligations.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect equipment during transit, storage, and handling to prevent damage, theft, soiling, and misalignment. Coordinate with the owner for secure storage of equipment and materials. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions. Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.

1.09 SEQUENCE AND SCHEDULING

A. Submit schedule for installation of equipment and cabling. Indicate delivery, installation, and testing for conformance to specific job completion dates. As a minimum, dates are to be provided for bid award, installation start date, completion of station cabling, completion of riser cabling, completion of testing and labeling, cutover, completion of the final punch list, start of demolition, owner acceptance, and demolition completion.

1.10 USE OF THE SITE

A. Use of the site shall be at the owner's direction in matters in which the owner deems it necessary to place restriction.

B. Access to building wherein the work is performed shall be as directed by the owner.

C. The owner will occupy the premises during the entire period of construction for conducting his or her normal business operations. Cooperate with the owner to minimize conflict and to facilitate the owner's operations.

D. Schedule necessary shutdowns of plant services with the owner, and obtain written permission from the owner. Refer to article - CONTINUITY OF SERVICES herein.

E. Proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations of the owner.

1.11 CONTINUITY OF SERVICES

A. Take no action that will interfere with, or interrupt, existing building services unless previous arrangements have been made with the owner's representative. Arrange the work to minimize shutdown time.

B. Owner's personnel will perform shutdown of operating systems. The contractor shall give three (3) days’ advance notice for systems shutdown.

C. Should services be inadvertently interrupted, immediately furnish labor, including overtime, material, and equipment necessary for prompt restoration of interrupted service.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Hubbell, Ortronics, Panduit

1. Or any other approved equivalent manufacturer that meets the performance requirements of this specification. Category 6 performance is standard.
2. Contractor shall be a certified installer.

B. Berk-Tek

C. Belden

D. Mohawk

E. Commscope

F. Superior Essex

G. Optical Cable Corporation

2.02 FABRICATION

A. Fabricate custom-made equipment with careful consideration given to aesthetic, technical, and functional aspects of equipment and its installation.

2.03 SUITABILITY

A. Provide products that are suitable for intended use, including, but not limited to environmental, regulatory, and electrical.

2.04 BACKBONE CABLE

A. VOICE/DATA TELECOMMUNICATIONS SERVICE BACKBONE CABLE (Edit for items that will actually be used on the project. Alter parameters for fire rating of cable jacket(s) as required.)

1. Multimode 50/125 µm diameter tight-buffered optical fiber, with fiber counts as indicated on drawings, with mechanical and transmission performance specifications that meet or exceed ANSI/TIA/EIA-568-B.3

a. Listed type OFNP, OFNR, OFCR, and/or OFCP (as required in the NEC 2002).

2.05 STATION CABLE

A. VOICE TELECOMMUNICATIONS STATION CABLE

1. Solid copper, 24 AWG, 100 W balanced twisted-pair (UTP) Category 6 cables with four individually twisted-pairs, which meet or exceed the mechanical and transmission performance specifications in ANSI/TIA/EIA-568-B.2 up to 250 MHz.

a. Listed Type CMP (as required in the NEC 2005).

B. DATA STATION CABLE (Copper)

1. Solid copper, 24 AWG, 100 W balanced twisted-pair (UTP) Category 6 cables with four individually twisted-pairs, which meet or exceed the mechanical and transmission performance specifications in ANSI/TIA/EIA-568-B.2 up to 250 MHz.

a. Listed Type CMP (as required in the NEC 2005).

2.06 WORK AREA OUTLETS

A. VOICE/DATA WORK AREA OUTLETS (Copper only)

1. Single-gang mounting plate with four (4) openings containing the following devices:

a. Voice Outlet - 8-pin modular, Category 6, unkeyed, white, pinned to T568A standards.

b. Data Outlet - 8-pin modular, Category 6, unkeyed, blue, pinned to T568A standards.

2. The device color of outlets and jacket color for cabling that will be used on the project

shall be coordinated with the Dane County Information Technology (IT) Department prior to the beginning of any work. It is intended that the Dane County standard being maintained.

B. WALL VOICE OUTLETS

1. Single-gang stainless steel faceplate with six-conductor jack and wall telephone mounting lugs

C. DATA ONLY WORK AREA OUTLET

1. Single-gang faceplate with 8-pin modular, category 6, unkeyed, blue data jack, pinned to T568A standards

D. VOICE ONLY WORK AREA OUTLET

1. Single-gang faceplate with 8-pin modular, category 6, unkeyed, whitey telephone jack, pinned to T568A standards

2.07 PATCH PANELS

A. 19 in. rack mountable, 24-port 8-pin modular to insulation displacement connector (IDC) meeting Category 5e performance standards, and pinned to either T568 (A or B) standards. Typical examples of IDC connections are the 110, BIX, and Krone.

2.08 RACK MOUNTED OPTICAL FIBER TERMINATION PANEL

A. 19 in. rack mounted 72-port rack-mounted optical fiber termination panel with cable strain relief, grounding lugs, slack storage and three 12-port duplex SC or approved alternative connector panels with adapters and provisions for six (6) splice trays.

2.09 SPLICE TRAYS

A. Sized for multimode fibers, nonmetallic with clear plastic cover, 12-fiber splice capacity, compatible with splice enclosure and splicing method.

2.10 OPTICAL FIBER CONNECTORS

A. Ceramic tipped field installed 568SC connectors, which meet or exceed the performance specifications in ANSI/TIA/EIA-568-B.3.

2.11 OPTICAL FIBER JUMPERS

A. Dual 50/125-µm (and/or singlemode) optical fiber jumper cable, 1 m long with 3.0 mm Duplex 568 SC optical fiber connectors on each end.

2.12 OPTICAL FIBER PIGTAILS

A. 50/125 µm (and/or singlemode) optical fiber pigtail 1 m long with 3.0 mm single 568 SC optical fiber connectors on one end

2.13 OPEN FRAME EQUIPMENT RACK

A. Open frame, 19 in. equipment rack, 7 foot 6 in. overall height with flange base, mounting rails drilled front and back and tapped to EIA standards, and a front-rack mountable 10 outlet multiple outlet electrical strip. MATCH EXISTING MANUFACTURER AND MODEL.

2.14 SPLICE HOUSING

A. Encapsulated, re-enterable splice housing, sized as required with bonding straps, accessories, end caps and encapsulant as required

B. Splice modules (such as 710 series or MS2) for use within splice housing

2.15 SPARES

A. Furnish the following spare equipment and parts:

1. Terminal block connectors, if required
2. Test set cords, if required
3. Install one test cord set in each telecommunications closet
4. Five (5) percent of base bid quantity of each type of jack shall be provided
5. Five (5) percent of base bid quantity of each type of outlet

PART 3 - EXECUTION

3.01 PRE-INSTALLATION SITE SURVEY

A. Prior to start of systems installation, meet at the project site with the owner's representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the General Contractor will be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets.

B. Examine areas and conditions under which the system is to be installed. Do not proceed with the work until satisfactory conditions have been achieved.

C. The contractor shall be responsible for meeting with the Owner’s (Dane County) Information Technology staff prior to the start of any installation to coordinate the work to be installed as part of this project. It is the design intent to maintain any cabling or installation standards that are currently in use by Dane County.

1. Failure to perform this meeting may cause work to be removed and reinstalled if not deemed acceptable by Dane County.

3.02 HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS

A. Be responsible for safekeeping of your own and your subcontractors' property, such as equipment and materials, on the job site. The owner assumes no responsibility for protection of above named property against fire, theft, and environmental conditions.

3.03 PROTECTION OF OWNER'S FACILITIES

A. Effectively protect the owner's facilities, equipment, and materials from dust, dirt, and damage during construction.

B. Remove protection at completion of the work.

3.04 INSTALLATION

A. Receive, check, unload, handle, store, and adequately protect equipment and materials to be installed as part of the contract. Store in areas as directed by the owner's representative. Include delivery, unloading, setting in place, fastening to walls, floors, ceilings, or other structures where required, interconnecting wiring of system components, equipment alignment and adjustment, and other related work whether or not expressly defined herein.

B. Install materials and equipment in accordance with applicable standards, codes, requirements, and recommendations of national, state, and local authorities having jurisdiction, and National Electrical Code® (NEC) and with manufacturer's printed instructions.

C. Adhere to manufacturer's published specifications for pulling tension, minimum bend radii, and sidewall pressure when installing cables.

1. Where manufacturer does not provide bending radii information, minimum-bending radius shall be 15 times cable diameter. Arrange and mount equipment and materials in a manner acceptable to the engineer and the owner.

D. Penetrations through floor and fire-rated walls shall utilize intermediate metallic conduit (IMC) or galvanized rigid conduit (GRC) sleeves and shall be firestopped after installation and testing, utilizing a firestopping assembly approved for that application.

E. Install station cabling to the nearest telecommunications room (TR), unless otherwise noted.

F. Installation shall conform to the following basic guidelines:

1. Use of approved wire, cable, and wiring devices
2. Neat and uncluttered wire termination

G. Attach cables to permanent structure with suitable attachments at intervals of 48 to 60 inches. Support cables installed above removable ceilings.

H. Install adequate support structures for 10 foot of service slack at each TR.

I. Support riser cables every three (3) floors and at top of run with cable grips.

1. Limit number of four-pair data riser cables per grip to fifty (50)

J. Install cables in one continuous piece. Splices shall not be allowed except as indicated on the drawings or noted below:

K. Provide overvoltage protection on both ends of cabling exposed to lightning or accidental contact with power conductors.

3.05 GROUNDING

A. Grounding shall conform to ANSI/TIA/EIA 607(A) - Commercial Building Grounding and Bonding Requirements for Telecommunications, National Electrical Code®, ANSI/NECA/BICSI-568 and manufacturer's grounding requirements as minimum.

B. Bond and ground equipment racks, housings, messenger cables, and raceways.

C. Connect cabinets, racks, and frames to single-point ground which is connected to building ground system via #6 AWG green insulated copper grounding conductor.

3.06 LABELING

A. Labeling shall conform to ANSI/TIA/EIA-606(A) standards. In addition, provide the following:

1. Label each outlet with permanent self-adhesive label with minimum 3/16 in. high characters.

2. Label each cable with permanent self-adhesive label with minimum, 1/8 in. high characters, in the following locations:

   a. Inside receptacle box at the work area.

   b. Behind the communication closet patch panel or punch block.

   c. Use labels on face of data patch panels. Provide facility assignment records in a protective cover at each telecommunications closet location that is specific to the facilities terminated therein.

   d. Use color-coded labels for each termination field that conforms to ANSI/TIA/EIA-606(A) standard color codes for termination blocks.

   e. Mount termination blocks on color-coded backboards.

   f. Labels shall be machine-printed. Hand-lettered labels shall not be acceptable.

   g. Label cables, outlets, patch panels, and punch blocks with room number in which outlet is located, followed by a single letter suffix to indicate particular outlet within room, i.e., S2107A, S2107B. Indicate riser cables by an R then pair or cable number.

   h. Mark up floor plans showing outlet locations, type, and cable marking of cables. Turn these drawings over to the owner two (2) weeks prior to move in to allow the owner's personnel to connect and test owner-provided equipment in a timely fashion.

   i. Three (3) sets of as-built drawing shall be delivered to the owner within four (4) weeks of acceptance of project by the owner. A set of as-built drawings shall be provided to the owner in magnetic media form (3.5” floppy disks) and utilizing CAD software that is acceptable to the owner. The magnetic media shall be delivered to the owner within six (6) weeks of acceptance of project by owner.

3.07 TESTING

A. Testing shall conform to ANSI/TIA/EIA-568-B.1 standard. Testing shall be accomplished using level IIe or higher field testers.

B. Test each pair and shield of each cable for opens, shorts, grounds, and pair reversal. Correct grounded, and reversed pairs. Examine open and shorted pairs to determine if problem is caused by improper termination. If termination is proper, tag bad pairs at both ends and note on termination sheets.

1. Perform testing of copper cables with tester meeting ANSI/TIA/EIA-568-B.1 requirements.

Category 6 Test Parameters:

Category 6 Cable
Permanent Link Test

Frequency	TIA/EIA 568B.2-1 Insertion Loss Attenuation	TIA/EIA 568B.2-1 NEXT Worst Pair to Pair	TIA/EIA 568B.2-1 PSNEXT Worst Case Loss	TIA/EIA 568B.2-1 ELFEXT Worst Pair to Pair Loss	TIA/EIA 568B.2-1 PSELFEXT Loss	TIA/EIA 568B.2-1 Return Loss
Mhz	Max. dB	dB	dB	DB	dB	dB
1.00	1.9	65.0	62.0	64.2	61.2	19.1
4.00	3.5	64.1	61.8	52.1	49.1	21.0
8.00	5.0	59.4	57.0	46.1	43.1	21.0
10.00	5.5	57.8	55.5	44.2	41.2	21.0
16.00	7.0	54.6	52.2	40.1	37.1	20.0
20.00	7.9	53.1	50.7	38.2	35.2	19.5
25.00	8.9	51.5	49.1	36.2	33.2	19.0
31.25	10.0	50.0	47.5	34.3	31.3	18.5
62.50	14.4	45.1	42.7	28.3	25.3	16.0
100.00	18.6	41.8	39.3	24.2	21.2	14.0
200.00	27.4	36.9	34.3	18.2	15.2	11.0
250.00	31.1	35.3	32.7	16.2	13.2	10.0

C. Propagation Delay

1. The maximum propagation delay determined in accordance with the ANSI/TIA/EIA – 568B.2 for a Permanent Link configuration shall be less than 498-ns measured at 10MHz. (Note: In determining the permanent link propagation delay, the propagation delay contribution of connecting hardware is assumed to not exceed 2.5 ns from 1 MHz to 250MHz).

D. Delay Skew

1. For all frequencies from 1 MHz to 250 MHz, Category 6 cable propagation delay skew shall not exceed 44ns/100m at 20 degrees C, 40 degrees C, and 60 degrees C. In addition, the propagation delay skew between all pairs shall not vary more than +/- 10ns from the measured value at 20 degrees C when measured at 40 degrees C and 60 degrees C. Compliance shall be determined using a minimum 100m of cable.

E. In order to establish testing baselines, cable samples of known length and of the cable type and lot installed shall be tested. The cable may be terminated with an 8-position Category 6 Modular plug (8-pin) to facilitate testing. Net Propagation Velocity (NPV) and nominal attenuation values shall be calculated based on this test and be utilized during the testing of the installed cable plant. This requirement can be waived if NPV data is available from the cable manufacturer for the exact cable type under test.

F. In the event results of the tests are not satisfactory, the Contractor shall make adjustments, replacement and changes as are necessary, and shall then repeat the test or tests which disclosed faulty or defective material, equipment or installation method, and shall make additional tests as the Engineer deems necessary at no additional expense to the project or user agency.

G. Optical Fiber Testing

1. Initially test optical cable with a light source and power meter utilizing procedures as stated in ANSI/TIA/EIA-526-14A: OFSTP-14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant and ANSI/TIA/EIA-526-7 Measurement of

Optical Power Loss of Installed Singlemode Fiber Cable Plant. Measured results shall be plus/minus 1 dB of submitted loss budget calculations. If loss figures are outside this range, test cable with optical time domain reflectometer to determine cause of variation. Correct improper splices and replace damaged cables at no charge to the owner

a. Cables shall be tested at 850 and 1300 nm for multimode optical fiber cables.

b. Testing procedures shall utilize "Method B" – One jumper reference.

c. Bi-directional testing of optical fibers is required.

H. Where any portion of system does not meet the specifications, correct deviation and repeat applicable testing at no additional cost to the owner.

3.08 FIELD QUALITY CONTROL

A. Employ job superintendent or project manager during the course of the installation to provide coordination of work of this specification and of other trades, and provide technical information when requested by other trades. This person shall maintain current RCDD® (Registered Communications Distribution Designer) registration and shall be responsible for quality control during installation, equipment set-up, and testing.

B. At least 30 percent of installation personnel shall be BICSI Registered Telecommunications Installers. Of that number, at least 15 percent shall be registered at the Technician Level, at least 40 percent shall be registered at the Installer Level 2, and the balance shall be registered at the Installer Level 1.

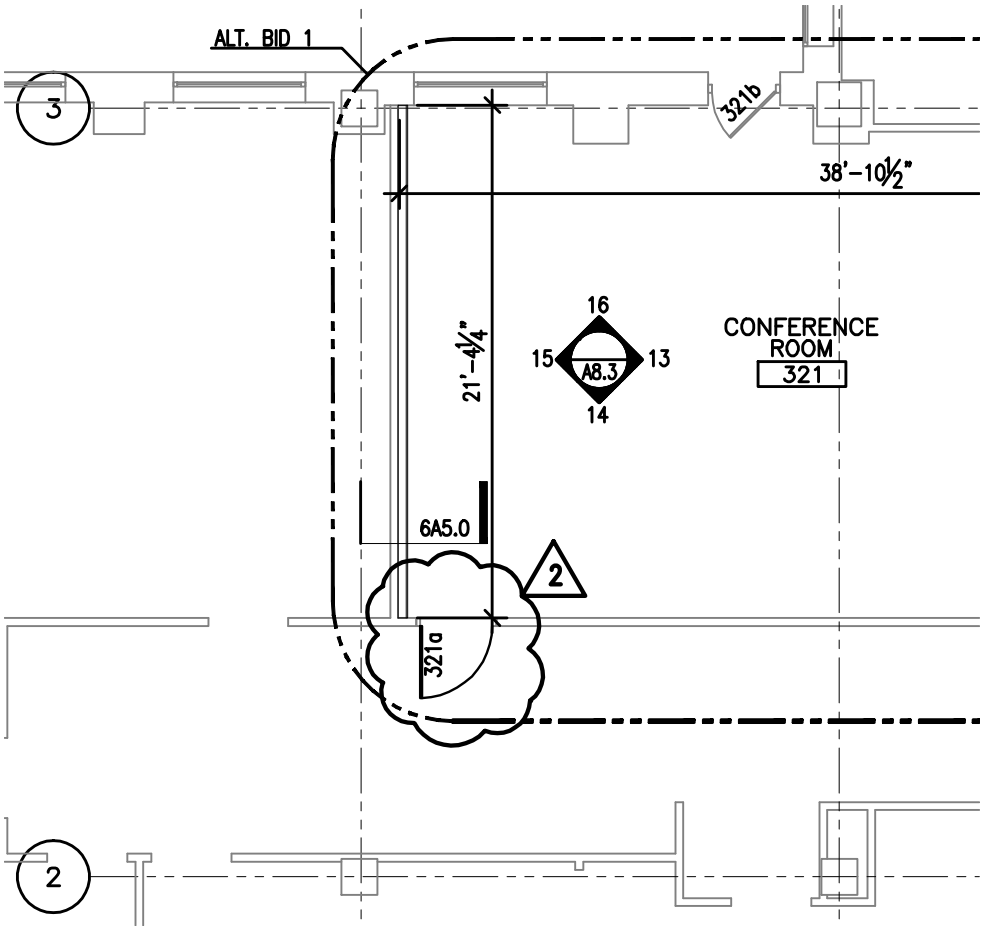
C. Installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program.

END OF SECTION

DORSCHNER ASSOCIATES

Architecture
Planning

Dorschner/Associates, Inc.
649 E. Washington Ave., Ste 112
Madison, Wisconsin 53703



1 PARTIAL THIRD FLOOR PLAN 1A2.3

1/8=1'-0"

MODIFICATION TO DOOR 321a SWING

PLAN NORTH

TRUE NORTH

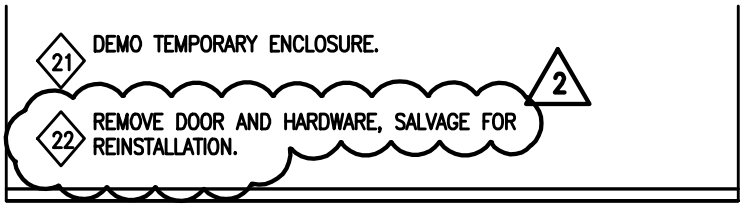
ISSUED

PROJECT
TENANT IMPROVEMENTS
FIRST AND THIRD FLOOR
CITY-COUNTY BUILDING
210 MARTIN LUTHER KING,
JR. BLVD., MADISON, WI

DRAWING
THIRD FLOOR PLAN

DATE
04.10.09

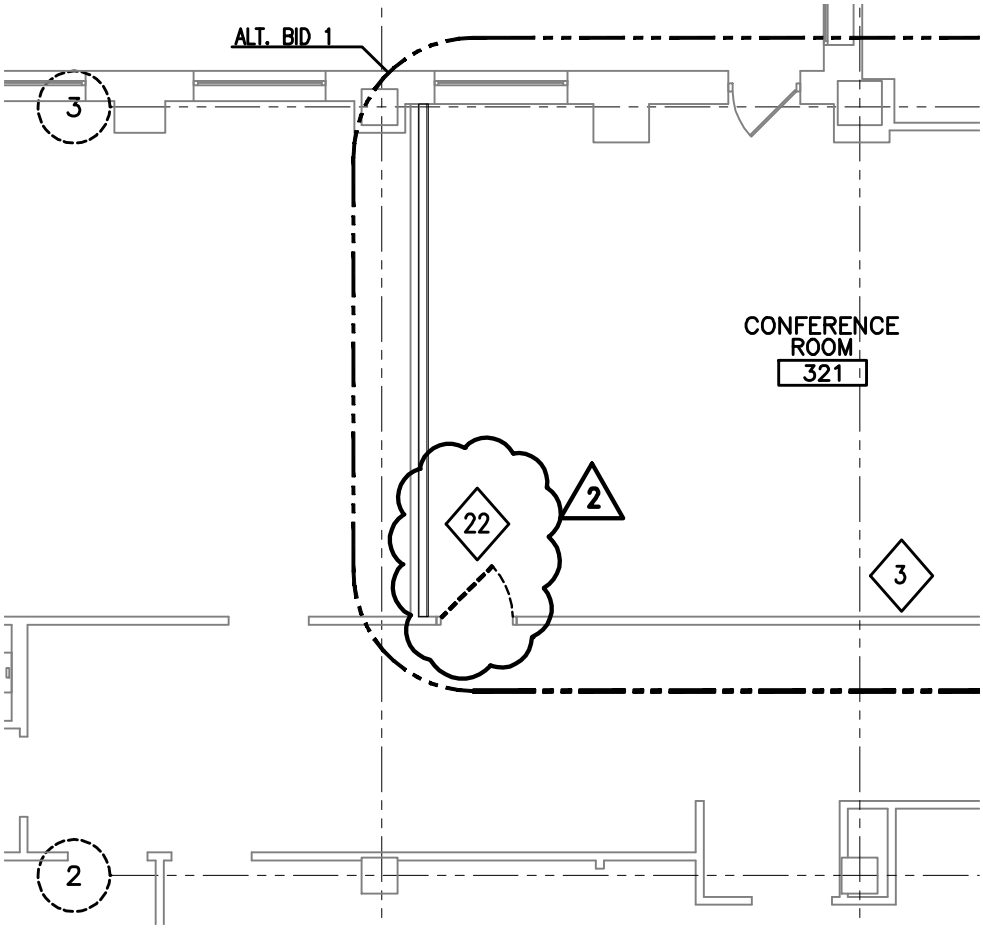
AD2.A2.3.1



2 DEMOLITION NOTES

NTS

ADDITION OF DEMO NOTE 22



1 PARTIAL THIRD FLOOR DEMOLITION PLAN 1D2.3

1/8=1'-0"

MODIFICATION TO DOOR 321a SWING

PLAN NORTH

TRUE NORTH

DORSCHNER ASSOCIATES

Architecture
Planning

Dorschner/Associates, Inc.
649 E. Washington Ave., Ste 112
Madison, Wisconsin 53703

ISSUED

PROJECT

TENANT IMPROVEMENTS
FIRST AND THIRD FLOOR
CITY-COUNTY BUILDING
210 MARTIN LUTHER KING,
JR. BLVD., MADISON, WI

DRAWING

THIRD FLOOR
DEMOLITION PLAN

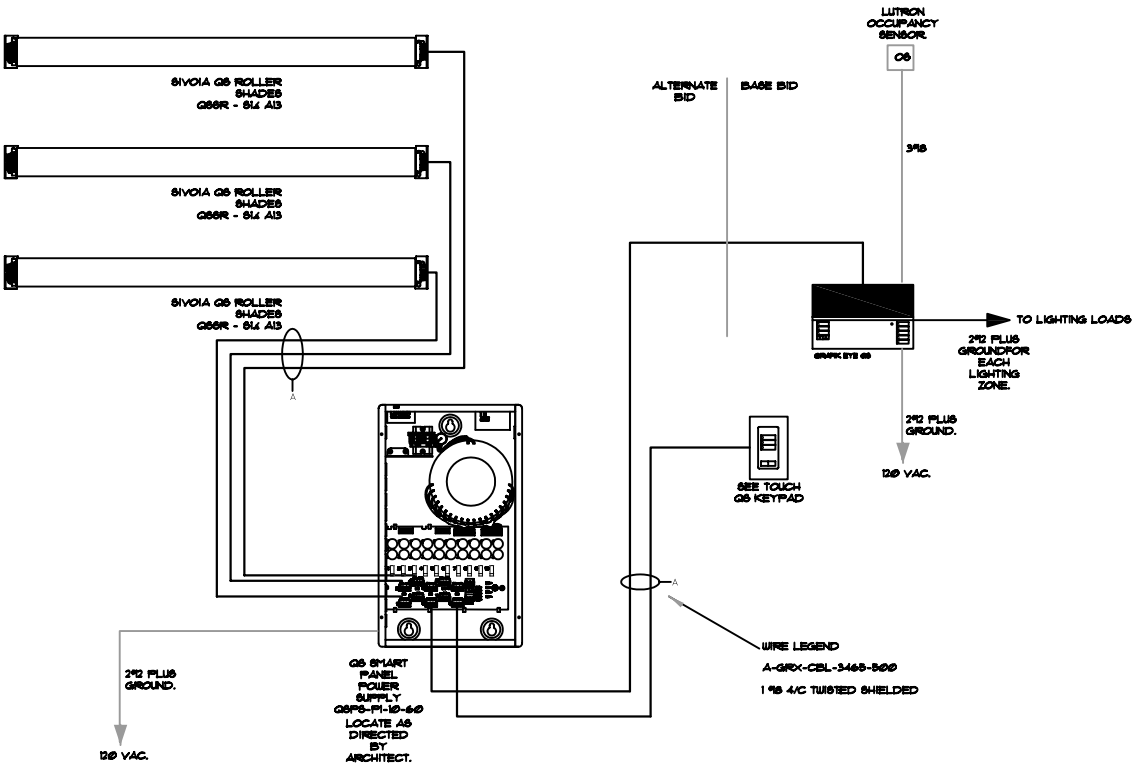
DATE

04.10.09

AD2.D2.3.1

NOTES:

1. NUMBER OF SHADES VARIES BETWEEN ROOMS
2. MAXIMUM TOTAL WIRERUN PER QS SMART PANEL IS 2000 FEET.
3. CUT AND PATCH WALLS FOR ALL NEW WIRING.
4. SHADE WIRING IS UNDER ALTERNATE BID 2 IN ROOMS 310 AND 312, AND UNDER ALTERNATE BID 3 IN ROOM 321.



WIRING DIAGRAM: SHADES AND LIGHTING CONTROLS (TYPICAL FOR CONF. ROOMS 310, 315, 321)

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ISSUED

PROJECT
TENANT IMPROVEMENTS
FIRST AND THIRD FLOOR
CITY–COUNTY BUILDING
210 MARTIN LUTHER KING,
JR. BLVD., MADISON, WI

DRAWING
WIRING DIAGRAM – SHADE
AND LIGHTING CONTROLS

DATE
4.10.09

AD2.E3.0.1

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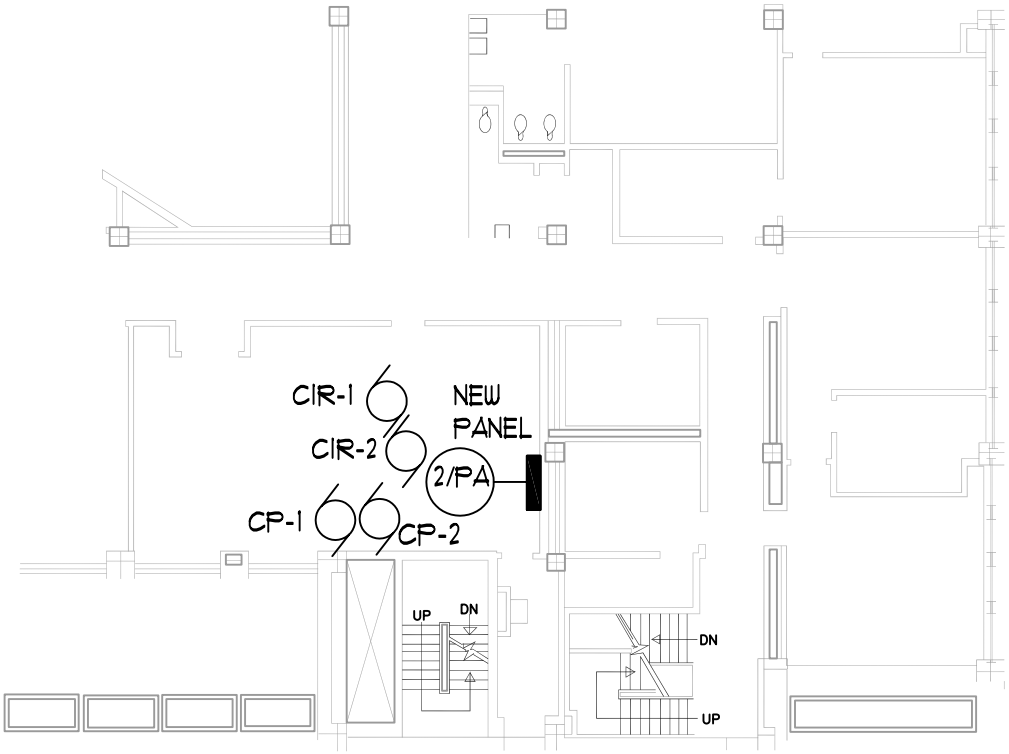
ISSUED



PARTIAL SECOND FLOOR PLAN

NO SCALE

PROJECT
TENANT IMPROVEMENTS
FIRST AND THIRD FLOOR
CITY–COUNTY BUILDING
210 MARTIN LUTHER KING,
JR. BLVD., MADISON, WI

DRAWING
PARTIAL SECOND FLOOR
PLAN

DATE
4.10.09

AD2.E3.0.3

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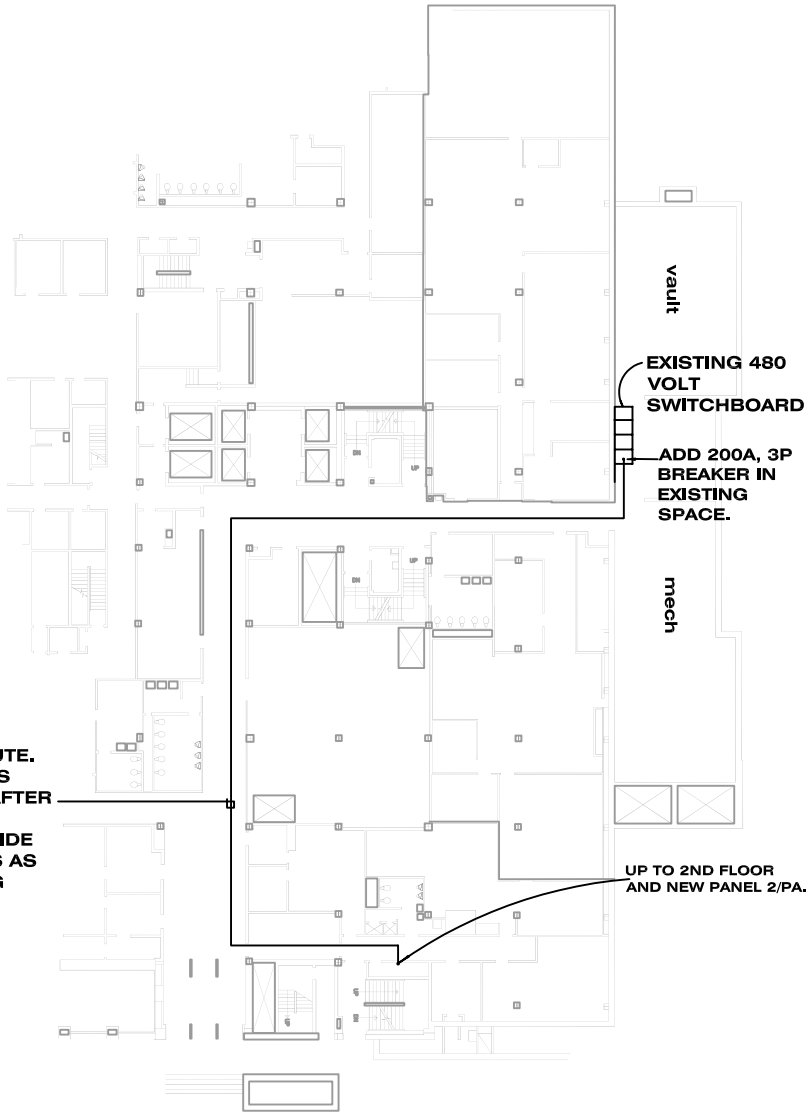


PARTIAL GROUND FLOOR PLAN
no scale

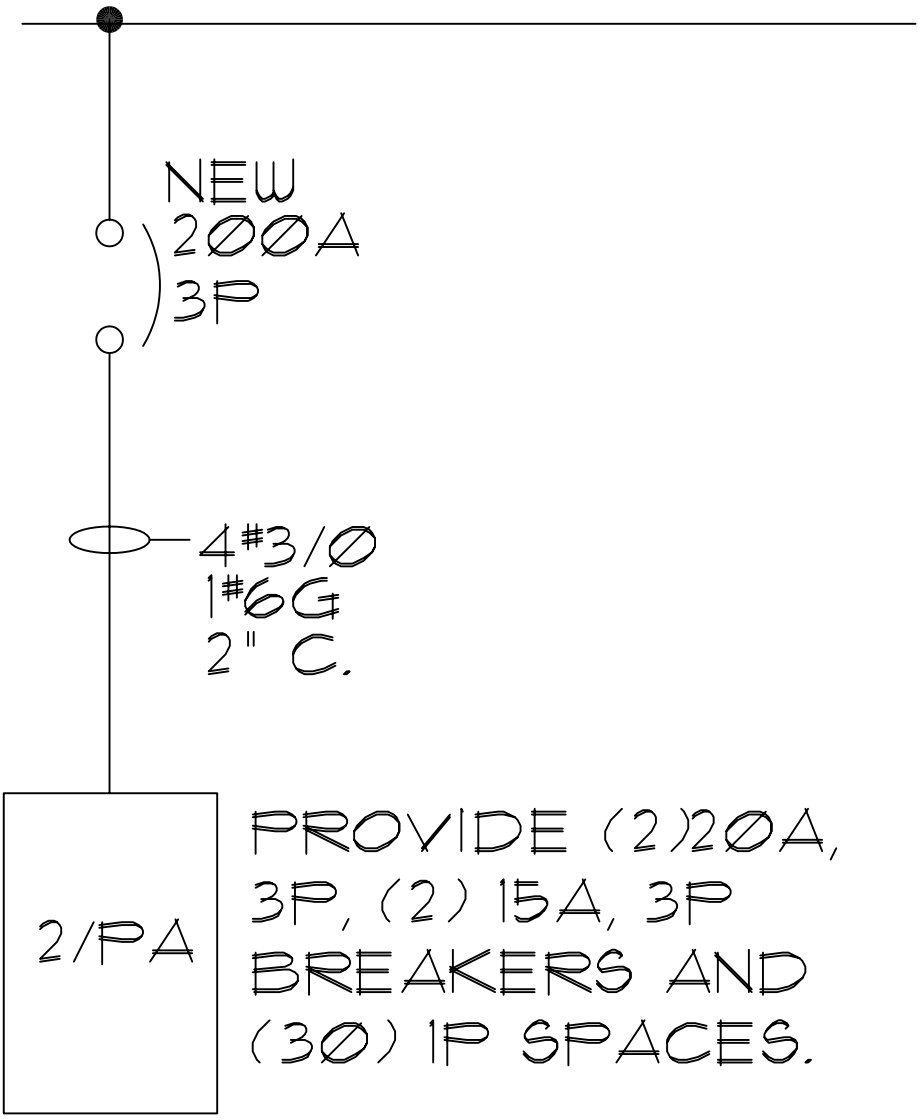
ISSUED

PROJECT
TENANT IMPROVEMENTS
FIRST AND THIRD FLOOR
CITY–COUNTY BUILDING
210 MARTIN LUTHER KING,
JR. BLVD., MADISON, WI

DRAWING
PARTIAL GROUND FLOOR PLAN

DATE
4.10.09

AD2.E.1.1.1



PARTIAL POWER RISER

UNDER ALTERNATE BID 6

DORSCHNER ASSOCIATES

Architecture
Planning

Dorschner|Associates, Inc.
849 E. Washington Ave., Ste 112
Madison, Wisconsin 53703

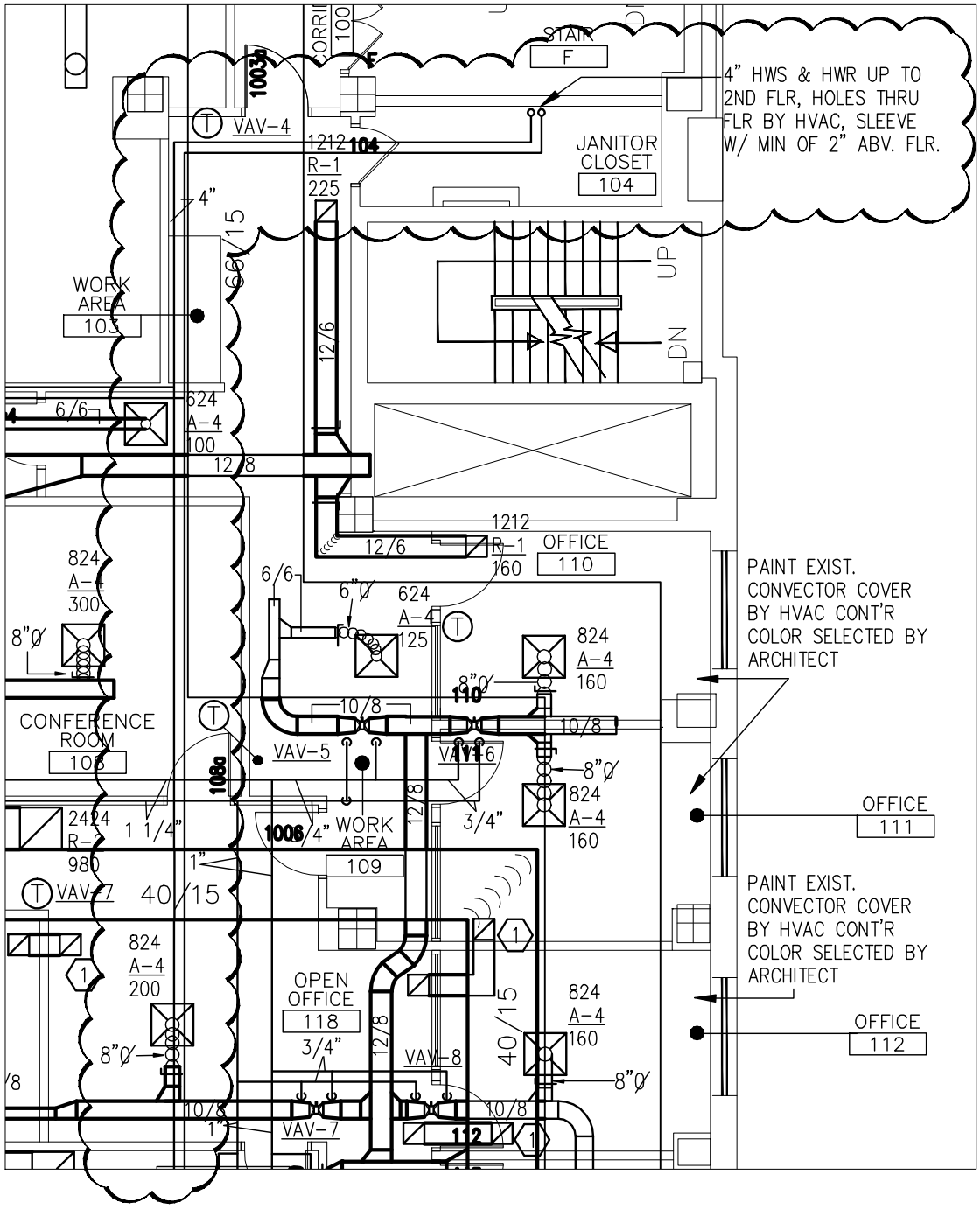
ISSUED

PROJECT
TENANT IMPROVEMENTS
FIRST AND THIRD FLOOR
CITY–COUNTY BUILDING
210 MARTIN LUTHER KING,
JR. BLVD., MADISON, WI

DRAWING
PARTIAL POWER RISER

DATE
4.10.09

AD2.E3.0.2



2

NOTE: ALL PIPING WORK SHOWN AS PART OF THIS ADDENDUM IS PART OF ALTERNATE BID NO. 6. REFER TO CONSTRUCTION DOCUMENTS FOR ENTIRE ALTERNATE BID NO. 6.

1 PARTIAL FIRST FLOOR HVAC PLAN

SCALE 1/8" = 1'-0"

PLAN NORTH

TRUE NORTH

ASSOCIATE

Architecture
Planning

Donohue/Associates, Inc.
649 E. Washington Ave., Ste 112
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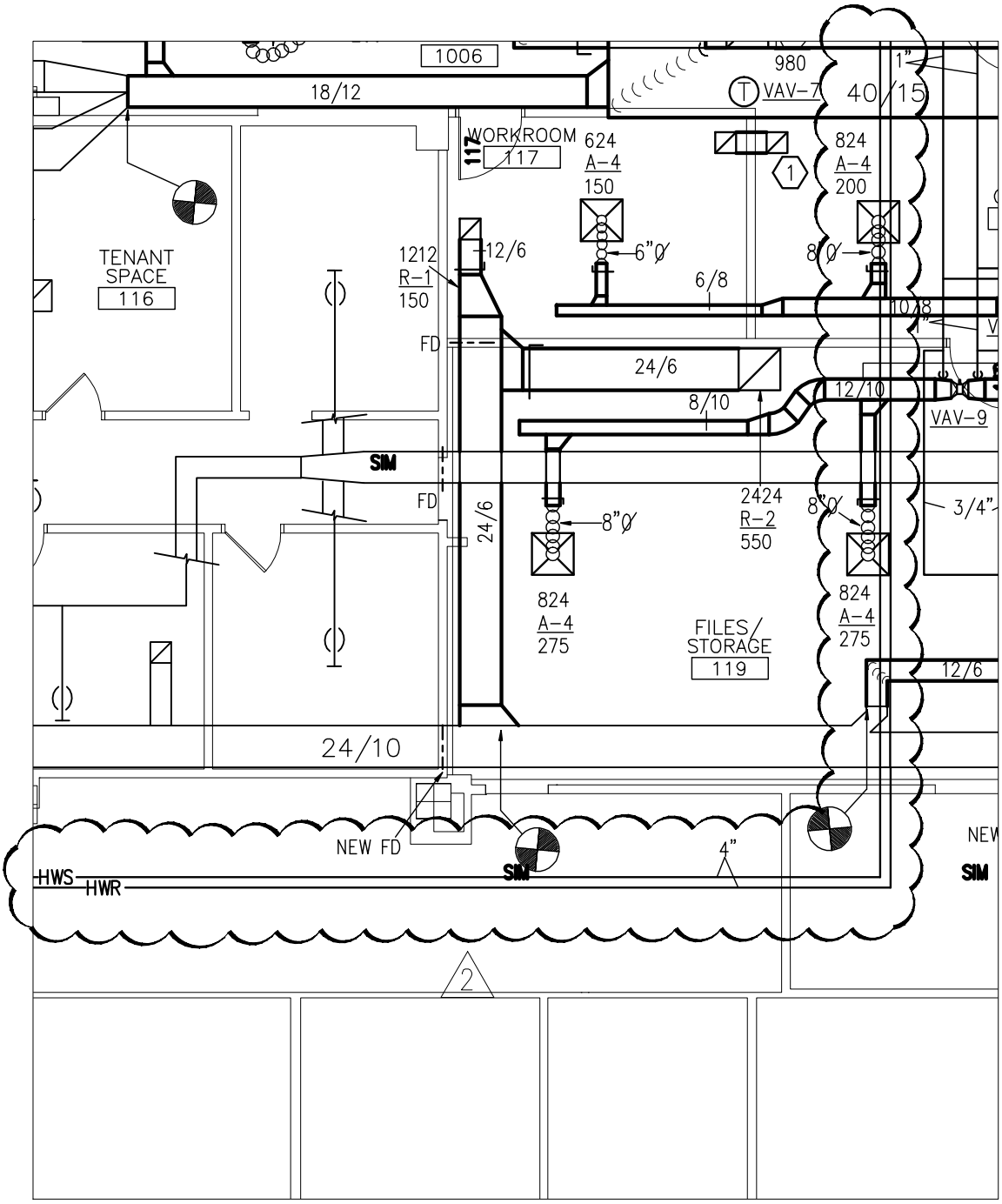
ISSUED

PROJECT
TENANT IMPROVEMENTS
FIRST AND THIRD FLOOR
CITY-COUNTY BUILDING
210 MARTIN LUTHER KING, JR. BLVD., MADISON, WI

DRAWING
FIRST FLOOR PLAN

DATE
04.10.09

AD2.H2.1.1



NOTE: ALL PIPING WORK SHOWN AS PART OF THIS ADDENDUM IS PART OF ALTERNATE BID NO. 6. REFER TO CONSTRUCTION DOCUMENTS FOR ENTIRE ALTERNATE BID NO. 6.

1 PARTIAL FIRST FLOOR HVAC PLAN

SCALE 1/8" = 1'-0"

PLAN NORTH

TRUE NORTH

ASSOCIATE

Architecture
Planning

Donohue/Associates, Inc.
649 E. Washington Ave., Ste 112
Madison, Wisconsin 53703

ISSUED

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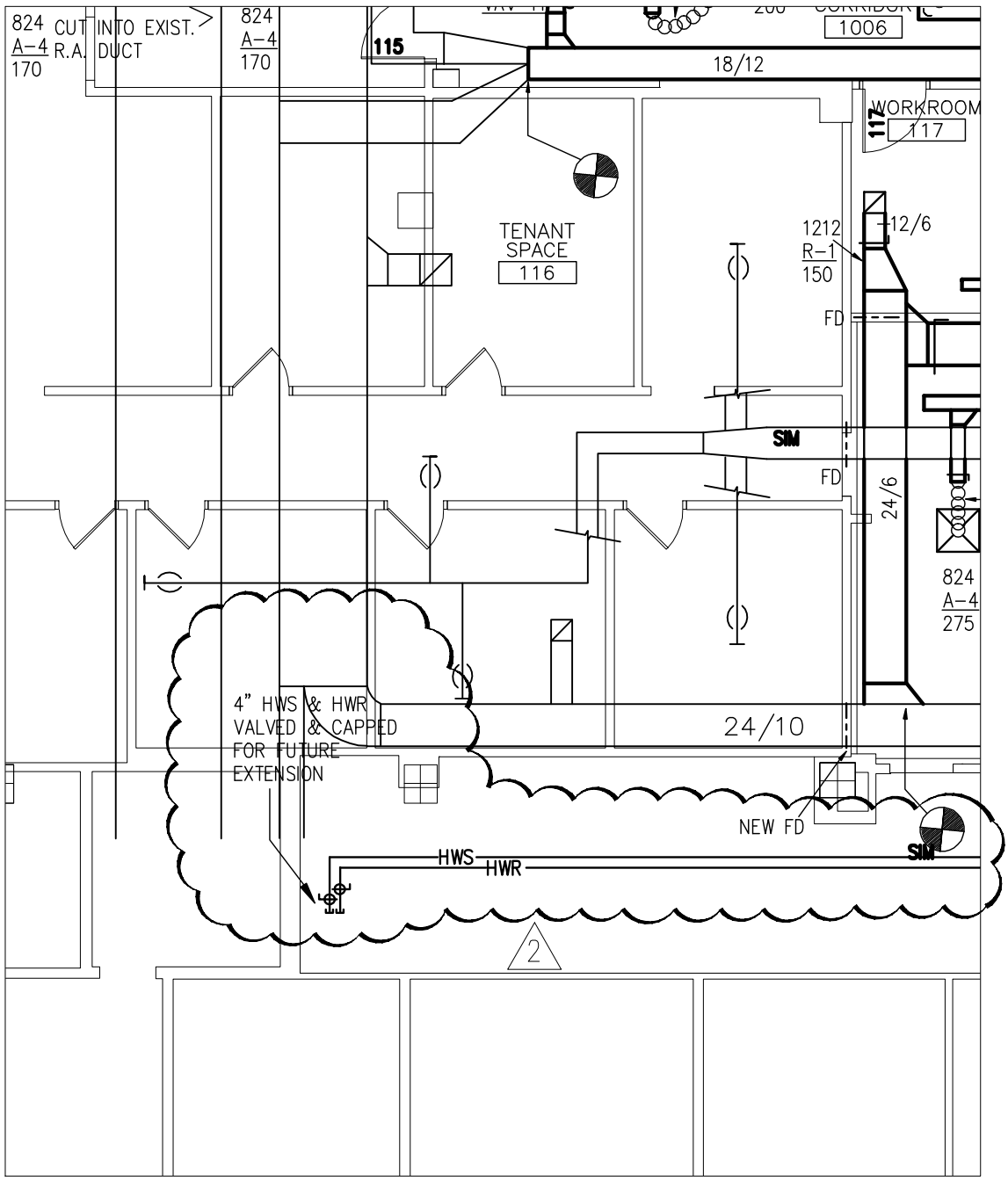
AD2.H2.1.2



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1 PARTIAL FIRST FLOOR HVAC PLAN

SCALE 1/8" = 1'-0"

PLAN NORTH

TRUE NORTH

ASSOCIATE

Architecture
Planning

Dorschner/Associates, Inc.
849 E. Washington Ave., Ste 112
Madison, Wisconsin 53703

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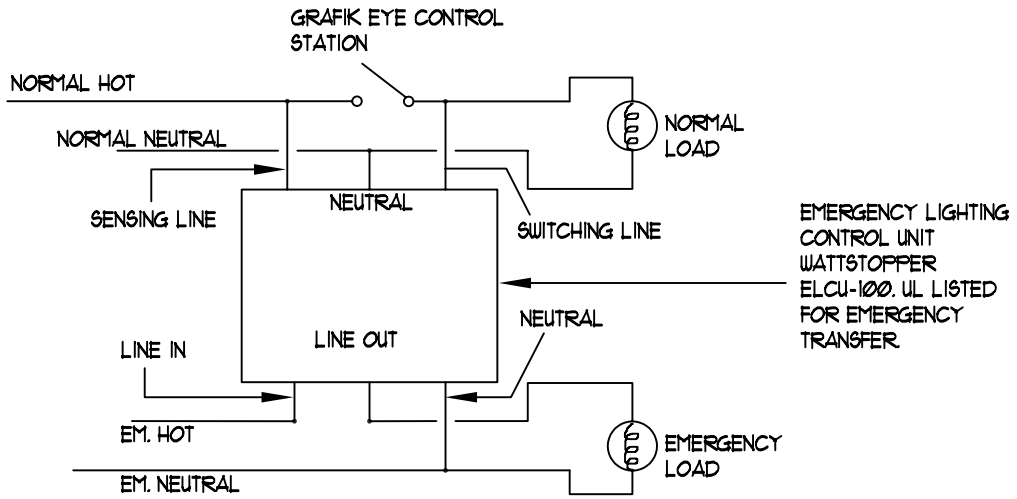
AD2.H2.1.3



NOTES:

PROVIDE THIS DEVICE FOR ALL TYPE 'B' FIXTURES WHERE SHOWN HALF SHADED. A SEPARATE DEVICE IS REQUIRED FOR EACH GRAFIK EYE ZONE.

2 EMERGENCY LIGHTING CONTROL DETAIL

NOT TO SCALE

DORSCHNER

Architecture
Planning

Dorschner|Associates, Inc.
849 E. Washington Ave., Ste 112
Madison, Wisconsin 53703

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CITY–COUNTY BUILDING
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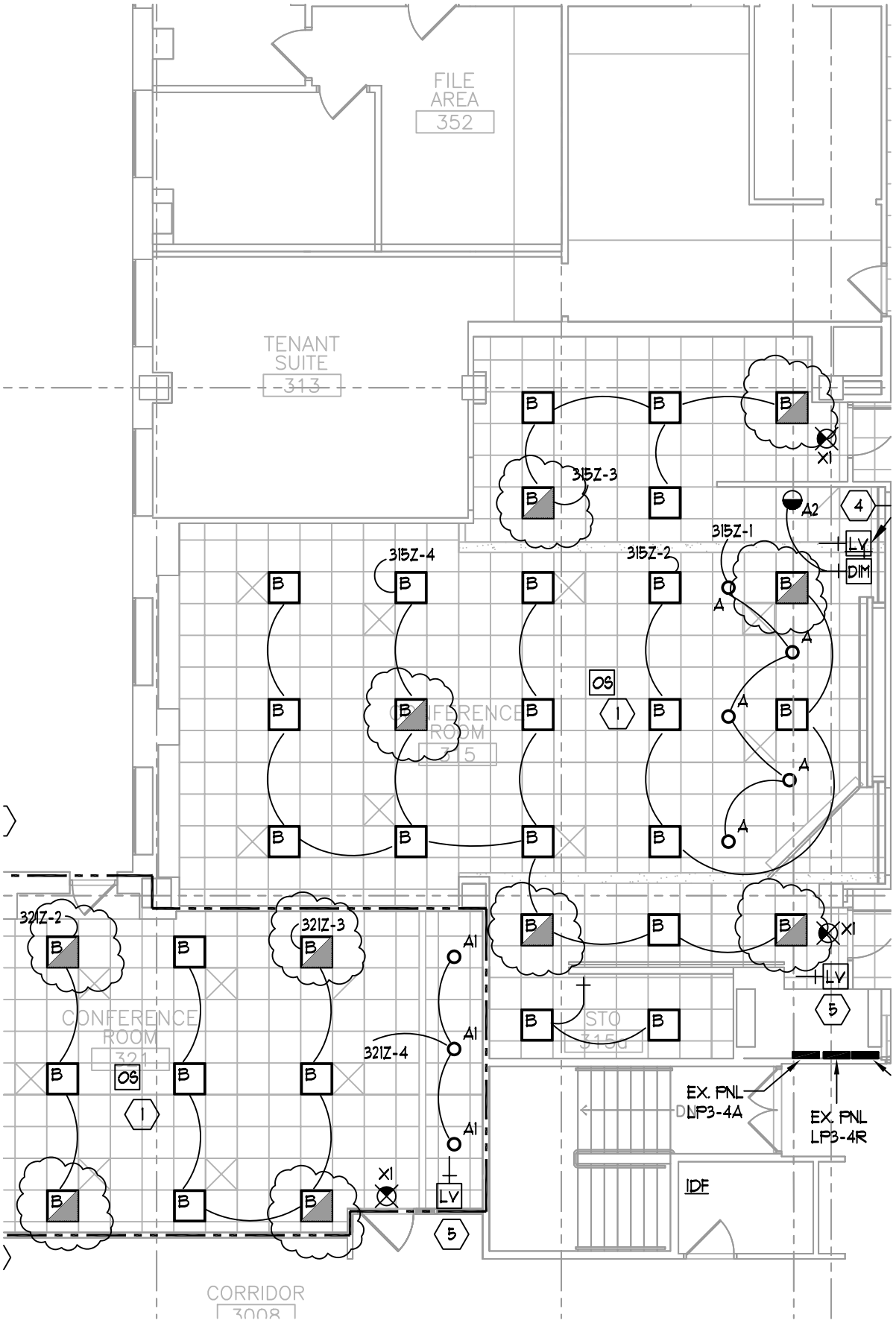
JR. BLVD., MADISON, WI

DRAWING
SECOND FLOOR
LIGHTING PLAN

DATE
4.10.09

AD2.E2.1.1



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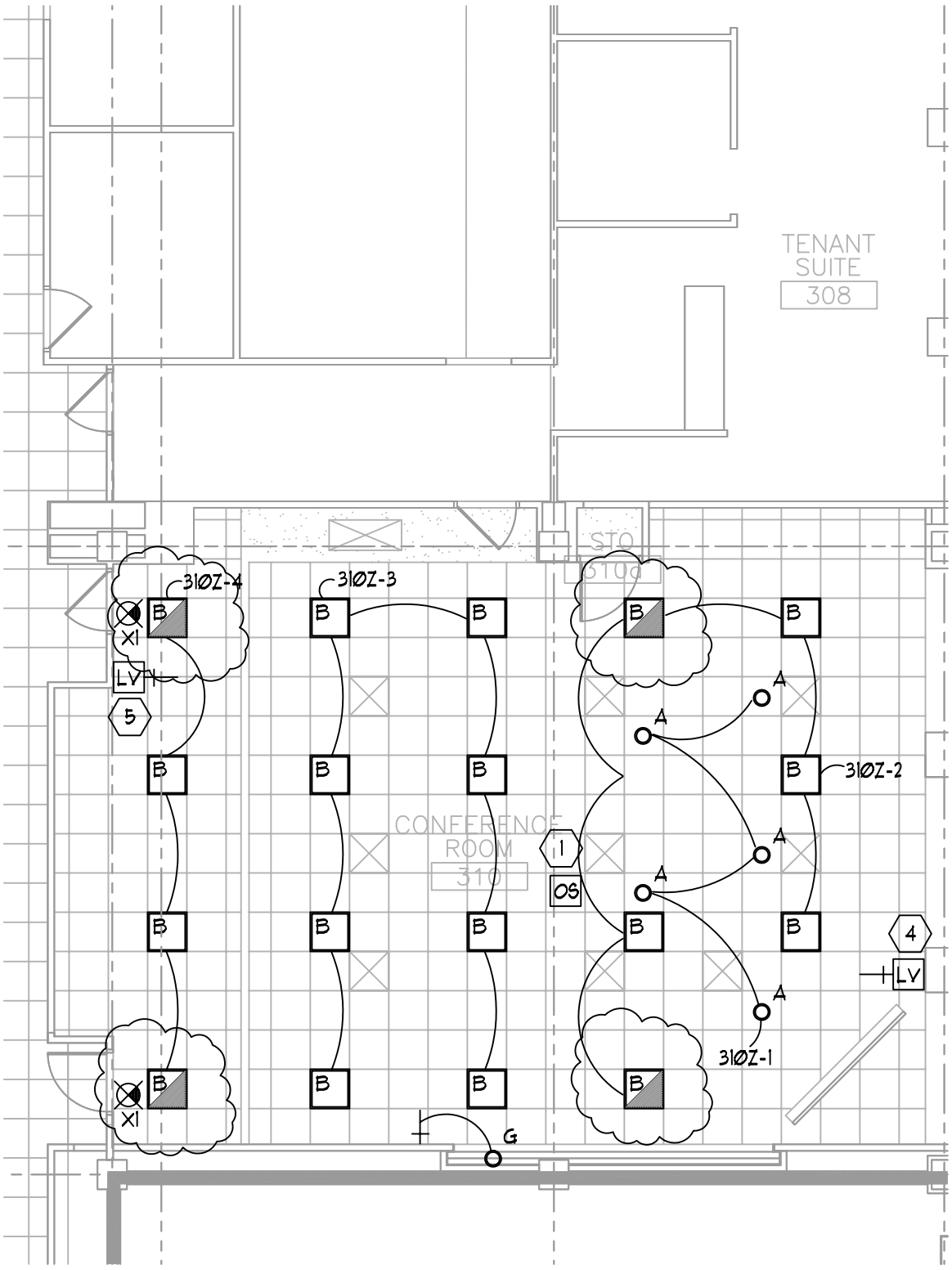
AD2.E2.1.2



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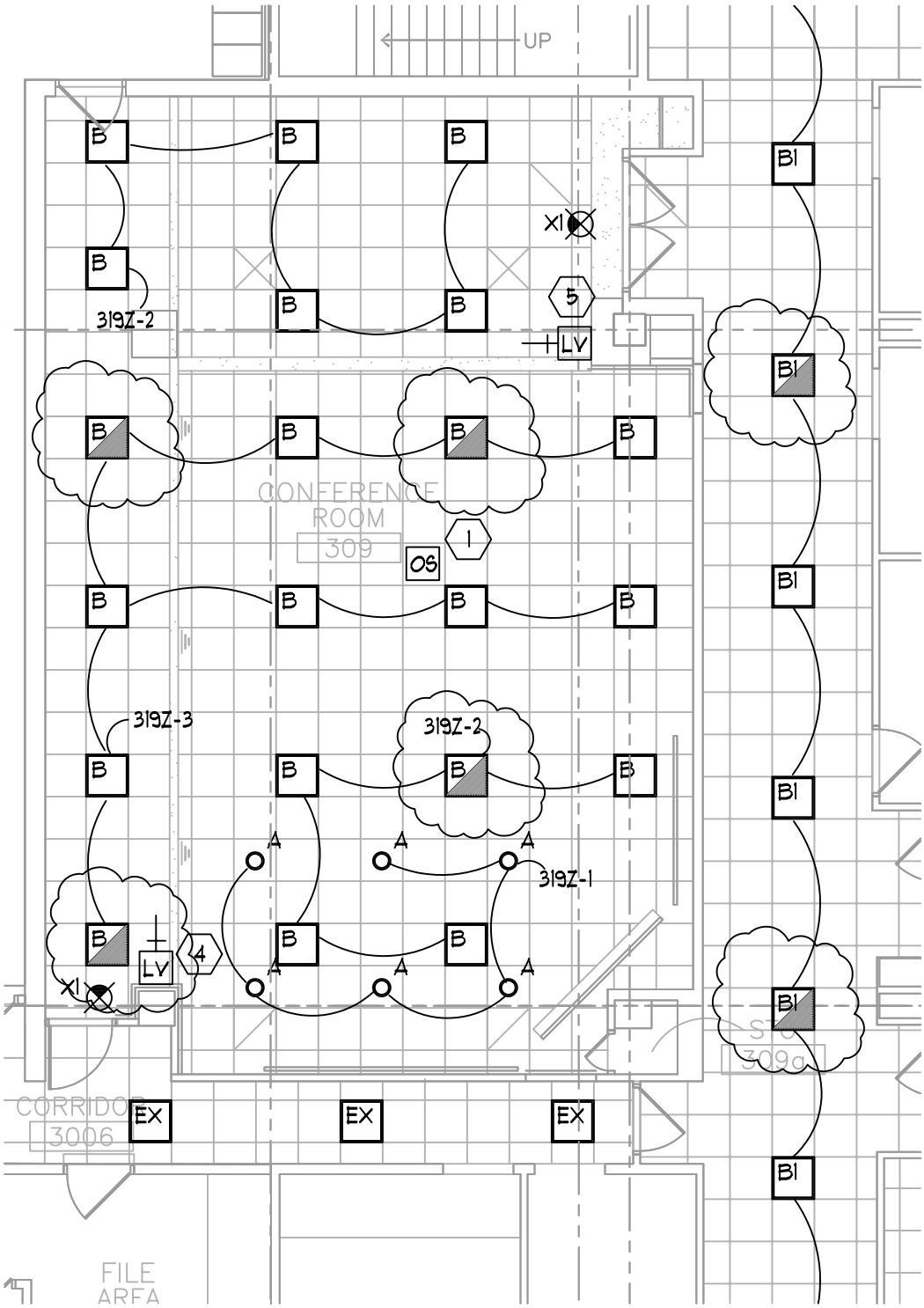

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AD2.E2.1.4