Fulton County, GA

Department of Purchasing & Contract Compliance

January 18, 2013

Re: **#13ITB120312K-JD – Construction Services for the New Fulton County Aviation Community Cultural Center**

Dear Bidders:

Attached is one (1) copy of Addendum 5, hereby made a part of the above referenced **#13ITB120312K-JD – Construction Services for the New Fulton County Aviation Community Cultural Center.**

Except as provided herein, all terms and conditions in the **#13ITB120312K-JD – Construction Services for the New Fulton County Aviation Community Cultural Center** referenced above remain unchanged and in full force and effect.

Sincerely,

Joyce Daniel

Joyce Daniel, CPPB
Assistant Purchasing Agent

This Addendum forms a part of the contract documents and **modifies** the original ITB documents as noted below:

REVISIONS

1. The following items have been revised in Volume I:

   Bid Bond - Section 00410 – The Bid Bond Form is provided. The Contractor is to submit this Bid Bond Form along with the required bid submittals. See **Attachment No. 1**

   Table of Contents-Section 00010 - See **Attachment No. 2**

   Bid Form – Section 00300 – has been revised – See **Attachment No. 3**

2. The following items have been revised in Volume II of the Specifications. See **Attachment No. 4** for all revisions listed below:

   Division 01 – General Requirements-012200-Unit Prices
   Division 05 – Metals–057000-Decorative Metal
   Division 07 – Thermal and Moisture Protection-074217-Insulated-Backup Panel System
   Division 08 – Openings–084113-Aluminum-Framed Entrances and Storefronts
   Division 08 – Openings-084413-Glazed Aluminum Curtain Walls
   Division 08 – Openings-087100-Door Hardware
   Division 10 – Specialties-102226-Operable Partitions
   Division 23 – Heating Ventilating and Air Conditioning-236500-Cooling Towers
   Division 31 – Earth Work-312000-Earth Moving

3. Pond & Company Drawings have been revised – The contract documents and specifications named "ISSUED FOR CONSTRUCTION" as Pond's Addendum No. 3 have been revised. See **Attachment No. 5**.

4. Drawings that have been revised. See **Attachment No. 6**.

ANSWERS TO QUESTIONS:

Question: Please clarify the requirement for U.S. Longshoreman and Harbor Worker's compensation insurance coverage stated in Specification Section 00490 – Insurance and Risk Management Provisions

Response: This coverage would only be applicable where the project requires wok on or about a "Navigable" waterway. As this exposure does not exist at the subject project site the coverage (worker's compensation), is not applicable.

Question: Specification Section 00410 "Bid Bond" is not included in the current bid documents. Please provided this section or confirm that AIA Document A310 is acceptable for the Bid Bond Form.

Response: The AIA Document A310 is not acceptable. The Bid Bond Form is provided as Attachment No. 1 of this addendum that is to be used.

Question: Please provide the approximately construction value ($) of New Fulton County Aviation Community Cultural Center.

Response: It is the policy of the County not to provide budget information on projects.

Question: Can you help me with obtaining a bidder's list of GC's for subject project?

Response: The County does not provide Bidder's List on projects. You can go to the County website, www.fultoncountyga.gov, Bid Opportunities, and view the Sign-in Sheet from the Pre-Bid Conference of the prime contractors that attended.

Question: It is our priority to provide Fulton County with the most diverse lowest qualified bid for the Aviation Cultural Center. With this being our intent, we are soliciting as many minority subs, and best qualified subs, in as many scopes as possible. In our quest to solicit subcontractors we are finding that many do not have the manpower to provide good detailed proposals due to holiday scheduling. Many are interested, but cannot provide an accurate proposal given the January 10th deadline. It is with this email that we are requesting your consideration for a 3 week extension on your bid due date of Jan 10, 2013. This will result in a January 31, 2013 due date. Please advise if this is acceptable?

Response: The due date has been extended to January 24, 2013, at 11:00 A.M. per Addendum No. 4.

Question: Can you tell me who the approved vendors are to provide blueprints for the Aviation Center and Parking job?

Response: There are not any approved vendors; and there is not a parking job for this project.

Question: Note 22 on Sheet A-102 states "Artwork panels are to be installed by owner." Are these panels also furnished by the owner? If not, provide details and specifications for the artwork panels.

Response: The Construction Documents have been modified; refer to **Attachment No. 5** of this addendum.

Question: Provide details and specifications on the interior and exterior plaques identified as Note 3 and Note 4 on Sheet A-102.

Response: Interior and exterior plaques identified as note 3 and note 4 on Sheet A-102 are supplied by Owner and installed by GC.

Question: Specification Section 012000 "Allowance" is not included in the current bid documents. Please provide this section or confirm that is has been intentionally excluded.

Response: Specification Section 012100 Allowances will not be issued.

Question: Is the signage allowance of $25,000 listed on the Bid Form to include the Monument Sign identified on Detail 4 on Sheet A-704 and the signage listed in the Signage Schedule on Sheet I-701?

Response: The Signage Allowance of $25,000.00 is for the purchase and installation of signage in the Signage Schedule on Sheet I-701. All other signage including but not limited to the Monument Sign on Sheet A-704 are in the Scope of the Work and are not a part of the Signage Allowance.

Question: Doors 104, 105, and 134 are not listed with any of the hardware sets under the Hardware Schedule in Specification Section 08700 – Door Hardware. Provide which hardware sets are to be provided for Doors 104, 105, and134.

Response: The Construction Documents have been modified; refer to **Attachment No. 5** of this addendum.

Question: Invitation for bid states "The permits will be applied for by the Fulton County PMCM/AE Team. Section 00700-8 states "All permits and license for the work shall be secured and paid for by the Contractor. Will the owner representative apply and pay for all permits?

Response: Fulton County has applied for the Building Permit, but it is the Contractor's responsibility to pull and pay for all permits and licenses after the Notice to Proceed of Contract Award.

Question: Addendum #3, the revised Cost Proposal Form – Item 4 Furniture, Fixtures and Equipment, the Allowance $100,000. Is this allowance inclusive of all items listed in Attachment #1 and Item Code M-12 of the original Cost Proposal Form?

Response: Attachment #1 and item code M-12 on the original Cost Proposal Form was deleted and the Cost Proposal Form was **revised** per Addendum No. 3 to the bid solicitation. The Furniture, Fixtures and Equipment (FF&E) Allowance provided in the **revised** Cost Proposal Form is to be used at the Owner's sole discretion for the procurement of FF&E items.

Question: Cost Proposal Form – Item 4 Sitework Allowance $200,000. What is included in this allowance? Is it the owner's intent to cover all sitework cost in the allowance?

Response: No scope of Work designated in the Contract Documents is a part of this Allowance. This allowance is intended for unforeseen conditions such as unsatisfactory soil and rock excavation and replacement with satisfactory soil materials beyond what is called for in the contract documents. This Allowance is used at the Owner's discretion.

Question: Cost Proposal Form – Item 4 Signage Allowance $25,000. Is this allowance to cover all required signage for the project?

Response: The Signage Allowance of $25,000.00 is for the purchase and installation of signage in the Signage Schedule on Sheet I-701. All other signage including but not limited to the Monument Sign on Sheet A-704 are in the Scope of the Work and are not a part of the Signage Allowance.

Question: Please consider this a formal request to consider Trulite SB750 curtain-wall system, CT451 thermal aluminum framing system and model 300 aluminum doors as acceptable products for bidding purposes on this project.

Response: No product pre-approval is requested by the Contract Documents or required for other products not listed. The Construction Documents, Specification Sections 084113 Aluminum-Framed Entrances and Storefronts and 084413 Glazed Aluminum Curtain Walls have been modified per this addendum.

Question: We (Kingspan) have an equal product for the exterior wall structure that we'd like to get approved. I have attached our brochure and specifications for your review.

Response: No product pre-approval is requested by the Contract Documents or required for other products not listed. Specification 074217 Insulated Core Metal Wall Panel Backup System paragraphs 2.1A, 2.1B and 2.1C allows for "comparable product by another manufacturer having passed all the testing required in this specification section". Specification 074217 Insulated Core Metal Wall Panel Backup System has been modified per this addendum.

Question: I respectfully request for prior approval to bid on the HVAC controls, Using Teletrol Phillips for controls on the above mentioned project that will be up for bid in the near future.

Response: No product pre-approval is requested by the Contract Documents or required for other products not listed. The project specifications list controls manufacturers available that meet the projects general controls requirements, but states that offering other products is "not limited to manufacturers specified."

Question: EPIC Metals Corporation is the specified manufacturer for the acoustic roof deck on this project. Please clarify that this deck is to be supplied as acoustical. The Architectural Drawings and the Specification Section 053100 (Paragraph 2.3) call for "Acoustical structural roof deck and ceiling system"; however the Structural Drawing S-102 calls for ER2R (a non-acoustic deck) and lists the section properties for non-acoustic. This is not an uncommon oversight on structural drawings as the correct nomenclature for the acoustic version is ER2RA and the section properties are published for non-acoustic material with a footnote to reduce them by 5% for acoustic material.

Response: In the Construction Documents at all references to "Acoustical structural roof deck and ceiling system" refer to the Basis of Design product Epic Metals Corporation ER2R (a non-acoustic deck) as noted on Structural Drawing S-102 and as specified in Section 053100 Steel Decking paragraph 2.3.

Question: I would like to submit an RFI to request that Siemens Building Technologies be added as an approved bidder for the Fulton County Aviation Museum. The spec section is 230900.

Response: No product pre-approval is requested by the Contract Documents or required for other products not listed. The project specifications list controls manufacturers available that meet the projects general controls requirements, but states that offering other products is "not limited to manufacturers specified."

Question: I am trying to find out how the Special Inspections and testing will be handled for this project. Do you know if it will be hired by the county, or is it in the Contractor's package?

Response: Yes, the County will hire the Special Inspections Consultant.

Question: I notice an upcoming project for Fulton County. I am not sure if we are on the approved Vendor lists for RFP's for Geotechnical/ICC Special Inspections/Construction Materials Testing or not but I would like to know how these services will be handled on the Cultural Center Project. Typically the services are handled by the Owner but occasionally they are put on the Contractors plate to provide. If you have any information to share with me I would greatly appreciate it.

Response: The County will hire the Special Inspections Consultant.

Question: Can you tell me who the architect is on the project?

Response: Pond & Company is the Architect of Record.

Question: Can you tell me who the approved vendors are to provide blueprints for the Aviation Center and parking job?

Response:
a) Reference **Section 00020, Invitation to Bid, Bid Documents** of the solicitation document for the vendor than can be contacted to provide drawings for the project.

b) There is no parking job for this project.

ACKNOWLEDGEMENT OF ADDENDUM NO. 5

The undersigned proposer acknowledges receipt of this addendum by returning one (1) copy of this form with the proposal package to the Department of Purchasing & Contract Compliance, Fulton County Public Safety Building, 130 Peachtree Street, Suite 1168, Atlanta, Georgia 30303 by the ITB due date and time **Thursday, January 24, 11:00 A.M.**

This is to acknowledge receipt of Addendum No. 5, _____ day of

_____, 2013.

_____
Legal Name of Bidder

_____
Signature of Authorized Representative

_____
Title

ATTACHMENT #1

BID BOND FORM

BID BOND

No bid for a contract in Fulton County for work to be done shall be valid for any purpose unless the Contractor shall give a Bid Bond with good and sufficient surety payable to, in favor of, and for the protection of Fulton County. The Bid Bond shall not be less than 5% of the total amount payable by the terms of the Contract. No bid shall be read aloud or considered if a proper bid bond has not been submitted.

Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Georgia.

Attestation for the corporation must be by the corporate officer; for a partnership by another partner; for an individual by a notary with the corporate seal.

BID BOND

#13ITB120312K-JD-Construction Services for the New Fulton County Aviation Community Cultural Center
FULTON COUNTY GOVERNMENT

KNOW ALL MEN BY THESE PRESENTS, THAT WE_____

_____

hereinafter called the PRINCIPAL, and _____

_____

hereinafter call the SURETY, a corporation chartered and existing under the laws of the State of _____and duly authorized to transact Surety business in the State of Georgia, are held and firmly bound unto the Fulton County Government (COUNTY), in the penal sum of _____

_____Dollars and Cents ($_____) good and lawful money of the United States of America, to be paid upon demand of the COUNTY, to which payment well and truly to be made we bind ourselves, our heirs, executors, and administrators and assigns, jointly and severally and firmly by these presents.

WHEREAS the PRINCIPAL has submitted to the COUNTY, for **#13ITB120312K-JD-Consturction Services for the New Fulton County Aviation Community Cultural Center,** a Bid;

WHEREAS the PRINCIPAL desires to file this Bond in accordance with law:

NOW THEREFORE: The conditions of this obligation are such that if the Bid be accepted, the PRINCIPAL shall within ten (10) calendar days after receipt of written notification from the COUNTY of the award of the Contract execute the Contract in accordance with the Bid and upon the terms, conditions and prices set forth therein, in the form and manner required by the COUNTY, and execute sufficient and satisfactory Performance and Payments Bonds payable to the COUNTY, each in the amount of one hundred percent (100%) of the total contract price, in form and with security satisfactory to said COUNTY, then this obligation to be void; otherwise, to be and remain in full force and virtue in law; and the SURETY shall upon failure of the PRINCIPAL to comply with any or all of the foregoing requirements within the time specified above immediately pay to the COUNTY, upon demand the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

In the event suit is brought upon this Bond by the COUNTY and judgment is recovered, the SURETY shall pay all costs incurred by the COUNTY in such suit, including attorney's fees to be fixed by the Court.

Enclosed is a Bid Bond in the approved form, in the amount of _____

_____Dollars

($_____) being in the amount of five percent (5%) of the Contract Sum. The money payable on this bond shall be paid to the COUNTY, for the failure of the Bidder to execute a Contract within ten (10) days after receipt of the Contract and at the same time furnish a Payment Bond and Performance Bond.

(SIGNATURES ON NEXT PAGE)

IN TESTIMONY THEREOF, the PRINCIPAL and SURETY have caused these presents to be duly signed and sealed this _____day of _____,20__

ATTEST:

_____
PRINCIPAL

_____ BY_____

(SEAL)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the Corporation named as principal in the within bond; that _____, who signed the said bond of said corporation; that I know this signature, and his/her signature thereto is genuine; and that said bond was duly signed, sealed and attested for in behalf of said Corporation by authority of its governing body.

_____
SECRETARY

(CORPORATE SEAL)

_____
SURETY

_____ BY_____
(SEAL)

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ATTACHMENT #3

BID FORM

Revised

BID FORM

Submitted To: Fulton County Government

Submitted By: _____

For: Fulton County Aviation Community Cultural Center

Submitted on _____, 20__.

The undersigned, as Bidder, hereby declares that the only person or persons interested in the Bid as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this Bid or in the Contract to be entered into; that this Bid is made without connection with any other person, company or parties making a Bid; and that it is in all respects fair and in good faith without collusion or fraud.

The Bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the Drawings and Specifications for the work and contractual documents relative thereto, and has read all instructions to Bidders and General Conditions furnished prior to the openings of bids; that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees, if this Bid is accepted, to contract with the Board of Commissioners of Fulton County, Atlanta, Georgia, in the form of contact specified, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary, and to complete the construction of the work in full and complete accordance with the shown, noted, and reasonably intended requirements of the Specifications and Contract Documents to the full and entire satisfaction of the Board of Commissioners of Fulton County, Atlanta, Georgia, with a definite understanding that no money will be allowed for extra work except as set forth in the attached General Conditions and Contract Documents for the following prices.

THE BASE BID TOTAL IS THE AMOUNT UPON WHICH THE BIDDER WILL BE FORMALLY EVALUATED AND WHICH WILL BE USED TO DETERMINE THE LOWEST RESPONSIBLE BIDDER. Please make sure that all line items below are accurately calculated and total up to this inclusive amount.

The bid may not be withdrawn or modified for a period of sixty (60) days following the receipt of bids.

BASE BID TOTAL, ITEMS 1 THROUGH 3 (BELOW), INCLUSIVE, THE AMOUNT OF:

$ _____

(Dollar Amount In Numbers)

_____

(Dollar Amount In Words)

The Bidder agrees hereby to commence work under this Contract, with adequate personnel and equipment, on a date to be specified in a written order of the Contracting Officer and to fully complete all work under this Contract within **Two Hundred and Eighty-seven** consecutive calendar days from issuance of Notice to Proceed.

The Bidder declares that he understands that the quantities shown for the unit prices items are subject to either increase or decrease, and that should the quantities of any of the items of work be increased, the Bidder proposes to do the additional work at the unit prices stated herein; and should the quantities be decreased, the Bidder also understands that payment will be made on the basis of actual quantities at the unit price bid and will make no claim for anticipated profits for any decrease in quantities; and that actual quantities will be determined upon completion of work, at which time adjustments will be made to the contract amount by direct increase or decrease.

In case of discrepancies between the figures shown in the unit prices and the totals, the unit prices shall apply and the totals shall be corrected to agree with the unit prices. In case of discrepancies between written amounts and figures, written amounts shall take precedence over figures and the sum of all Bid extensions (of unit prices) plus lump sum items shall take precedence over BID TOTAL.

The Bidder furthermore agrees that, in the case of a failure on his part to execute the Contract Agreement and Bonds within ten (10) days after receipt of conformed contract documents for execution, the Bid Bond accompanying his bid and the monies payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure.

Enclosed is a Bid Bond in the approved form, in the sum of:_____

_____Dollars

($_____) according to the conditions of "Instructions to Bidders" and provisions thereof.

COST PROPOSAL FORM

The following Cost Proposal Form shall be used for submitting Bid Prices

ITEM 1: BASE BID TOTAL AMOUNT

CODE	COMPONENT DESCRIPTION	TOTAL AMOUNT	COST/SF
	CSI ESTIMATE SUMMARY		
01000	GENERAL REQUIREMENTS		
02000	SITEWORK		
03000	CONCRETE		
04000	MASONRY		
05000	METALS		
06000	WOOD AND PLASTICS		
07000	THERMAL / MOISTURE PROTECTION		
08000	DOORS AND WINDOWS		
09000	FINISHES		
10000	SPECIALTIES		
11000	EQUIPMENT		
12000	FURNISHINGS		
13000	SPECIAL CONSTRUCTION		
14000	CONVEYING SYSTEMS		
15000	MECHANICAL		
16000	ELECTRICAL		
Sub Total			
	FURNITURE, FIXTURES AND EQUIPMENT ALLOWANCE	$100,000	
	OWNER'S ALLOWANCE	$200,000	
	OWNER CONTROLLED CONTINGENCY	$300,000	
	SIGNAGE ALLOWANCE	$25,000	
Sub Total			
	TOTAL BASE BID AMOUNT:		

ITEM 2: ROCK EXCAVATION

	DESCRIPTION	COST/CY
1	Trench Rock Removal and Disposal	
2	Mass Rock Removal and Disposal	
Sub Total		

ITEM 3: REMOVAL OF UNSUITABLE MATERIAL AND REPLACEMENT

	DESCRIPTION	COST/CY
1	Unsuitable Soil Removal and Off Site Disposal	
1.1	Total Quantity Estimated (CY)_____	
2	Importing, Placing and Compacting Soil Suitable for Structural Fill	
2.1	Total Quantity Estimated (CY)_____	
3	Removing, Replacing and Compacting existing Soil	
Sub Total		

ALTERNATES: The project will be awarded on the base bid amount. The following Alternates will be incorporated in the Contract if accepted. Refer to the Specifications for a complete description of Alternates.

Alternate No. 1		Total Alternate Amount
Alt. 1	Sidewalk Enhancement – refer to Drawing C-101, Note 5; Specification Section 012300 "Alternates"	$

The undersigned acknowledges receipt of the following addenda (list by the number and date appearing on each addendum) and thereby affirms that its Bid considers and incorporates any modifications to the originally issued Bidding Documents included therein.

ADDENDUM # _____DATED _____

ADDENDUM # _____DATED _____

ADDENDUM # _____DATED _____

ADDENDUM # _____DATED _____

BIDDER: _____

By: _____
[Name Typed or Printed]

_____
[Name Signed]

Title: _____

Business Address: _____

_____

_____

Business Phone: _____

Bidder's Contractor License No: _____
[State/County]

License Expiration Date: _____

Note: If the Bidder is a corporation, the Bid shall be signed by an officer of the corporation; if a partnership, it shall be signed by a partner. If signed by others, authority for signature shall be attached.

The full name and addresses of persons or parties interested in the foregoing Bid, as principals, are as follows:

Name	**Address**

Revised: Addendum No. 5

END OF SECTION

ATTACHMENT #4

Volume II Specifications
Revised

Divisions 01, 05, 07, 08, 10, 23 and 31

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

B. Related Requirements:

1. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
2. Section 014000 "Quality Requirements" for general testing and inspecting requirements.

1.2 DEFINITIONS

A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price 2.1: Trench rock removal and disposal.

1. Description: Classified rock excavation and disposal off site, as required, according to Section 312000 "Earth Moving."
2. Unit of Measurement: Cubic yard (Cubic meter) of rock excavated, based on survey of volume removed.

B. Unit Price No. 2.2: Mass rock removal and disposal.

1. Description: Classified rock excavation and disposal off site, as required, according to Section 312000 "Earth Moving."
2. Unit of Measurement: Cubic yard (Cubic meter) of rock excavated, based on survey of volume removed.

C. Unit Price 3.1: Unsatisfactory soil removal and off site disposal.

1. Description: Unsatisfactory soil excavation and disposal off site, as required, according to Section 312000 "Earth Moving."
2. Unit of Measurement: Cubic yard (Cubic meter) of soil excavated, based on survey of volume removed.

D. Unit Price 3.2: Importing soil suitable for structural back-fill, placing and compacting.

1. Description: Replacement of unsatisfactory soil excavated with fill material or engineered fill from off site, as required, according to Section 312000 "Earth Moving."
2. Unit of Measurement: Cubic yard (Cubic meter) of soil excavated, based on survey of volume removed.

E. Unit Price 3.3: Remove and reuse existing soil, place and compact.

1. Description: Excavate and recompact existing soils, as required, according to Section 312000 "Earth Moving."
2. Unit of Measurement: Cubic yard (Cubic meter) of soil excavated, based on survey of volume removed.

END OF SECTION 012200

SECTION 057000 - DECORATIVE METAL

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes prefinished Decorative Metal Elements designated as indicated on the drawings:

1. Break Room Window Accent Panel
2. Eyebrow Accent Panel
3. Instruction Room 3 Window Accent Panel
4. Large Display Screen Accent Panel
5. Small Display Screen Accent Panel
6. Entry Accent Screen
7. Wing Accent Screen
8. Red Bolt Accent Display Screens
9. Plate Aluminum Panel Cladding at Red Bolt Entrance Element

B. Related Sections

1. Section 107300 Protective Cover-Entry Canopy

1.2 REFERENCES

A. The Aluminum Association (AA):

1. The Aluminum Design Manual 2000, Specifications & Guidelines for Aluminum Structures.

B. American Architectural Association (AA):

1. AAMA 2603, Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
2. AAMA 2604, Voluntary Specification, Performance Requirements and Test Procedures for High Performing Organic Coatings on Aluminum Extrusions and Panels.
3. AAMA 2605, Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

C. American Society of Civil Engineers (ASCE):

1. ASCE 7, Minimum Design Loads for Buildings and Other Structures.

D. American Society for Testing and Materials (ASTM):

1. ASTM B 209, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
2. ASTM B 221, Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

E. American Welding Society (AWS)

1. ANSI/AWS D1.2, Structural Welding Code – Aluminum.

1.3 SYSTEM DESCRIPTION

A. Design Requirements:

1. Design framing and support system for Decorative Metal Elements in accordance with The Aluminum Design Manual 2000.
2. Comply with the wind requirements of ASCE 7.
3. Provide factory engineered all welded extruded aluminum framing systems. Knocked down frames are acceptable only to accommodate shipping restrictions, or required sequence of erection demands.
4. Non-welded stock KD systems are not acceptable.

1.4 SUBMITTALS

A. Product Data: Manufacturer's product information and specifications for components and accessories.

B. Shop Drawings: Drawings shall bear the seal of a Registered Professional Engineer, licensed in the state where the project is located. Include plan dimensions, elevations, and details for, all framing members (including any knife plate brackets anchored to the building structure) required to support the perforated aluminum screen and the plate aluminum panel cladding at the red bolt feature and the eyebrow accent panel.

C. Samples:

1. Selection: Manufacturer's full range of colors for the finishes selected.
2. Verification: 3-inch square samples of each finish selected on the substrate specified.

D. Design Data: Design calculations bearing the seal of a Registered Professional Engineer, licensed in the state where the project is located. Design calculations shall state that the design of the Decorative Metal Elements comply with the wind requirements of ASCE 7, the stability criteria of applicable building code, and all other governing criteria.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Decorative Metal Elements and related support framing to be wholly produced by a single manufacturer with at least ten years' experience in the design, fabrication, and erection of decorative/ornamental material.

B. Installer Qualifications: Decorative metal elements shall be installed by the manufacturer, or a qualified third party authorized and certified by the manufacturer. Manufacturer shall provide written authorization and approval of the installer, as well as guarantee Installer's workmanship for a period of two years.

1.6 WARRANTIES

A. Material and Workmanship: Manufacturer's standard form in which manufacturer agrees to repair or replace components that fail in material and workmanship for a period of two years from date of substantial completion. Installer, if not the manufacturer, shall provide a written Warranty agreeing to repair or replace components that fail in material and workmanship for a period of two years from date of substantial completion.

B. Finish: Manufacturer's standard form in which manufacturer agrees to repair or replace protective cover components that show evidence of deterioration of factory applied paint finish for a period of ten years from date of substantial completion.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling or failure of paint to adhere to bare metal.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The design is based on products fabricated by: Peachtree Protective Covers, Inc., 1477 Rosedale Drive, Hiram, GA 30141, 770-439-2120, fax 770-439-2122.

1. Subject to compliance with requirements, comparable products by the following manufacturers will be acceptable:

a. Dittmer Architectural Aluminum.
b. Construction Specialties
c. Architectural Louvers & Grilles

2.2 MATERIALS:

A. General: Provide aluminum alloy and temper recommended by aluminum producer and finisher, with strength and durability properties not less than that of alloy and temper as outlined below. Provide aluminum members of size, shape and wall thickness recommended by the Decorative Metal manufacturer, and as shown on the drawings, but in no case less than required as a result of the structural design analysis defined in 1.4 Submittals (see par 1.4.B and 1.4.D).

B. Aluminum Tube Framing Members: All sections shall be extruded aluminum, ASTM B 221, 6063 alloy, heat treated to T6 temper.

C. Plate Aluminum Panel Cladding: Tension-leveled, smooth 3003-H14 aluminum sheet, ASTM B 209 .125" thick

D. Plate Aluminum Perforated Screen Panel: Tension-leveled, smooth 3003-H14 aluminum sheet, ASTM B 209 .125" thick, ¼" diameter holes, 3/8" staggered pattern.

A. Extruded Aluminum Bars and Shapes: ASTM B 221, 6063 heated to T6 temper.

B. Aluminum Flashing: ASTM B 209, Type 3003 H14

C. Stainless Steel (Sheet, Strip, Plate and Flat Bar): ASTM A 666, Type 304.

D. Stainless Steel (Bars and Shapes): ASTM A 276, Type 304.

E. Fastener Materials: Unless otherwise indicated, provide the following:

1. Aluminum Items: 300 Series Stainless-steel fasteners.
2. Stainless Steel Items: 300 Series Stainless-steel fasteners
3. Dissimilar Metals: 300 Series Stainless-steel fasteners.

F. Provide Phillips flat-head machine screws for exposed fasteners unless noted otherwise.

G. Sealants (Plate Aluminum Panel Cladding Joints): Standard Color Dow 795 silicone.

2.3 MISCELLANEOUS MATERIALS

A. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.4 FABRICATION

A. General:

1. Shop Assembly: Assemble components in shop to greatest extent possible to minimize field assembly.
2. Welding: In accordance with ANSI/AWS D1.2.
3. Support Framing Construction: Factory weld tube members with neatly mitered corners to form one-piece rigid bents. Make welds smooth and uniform using an inert gas shielded arc. Perform suitable edge preparation to assure 100% penetration. Grind welds only where interfering with adjoining structure to allow for flush connection. Field

welding is not permitted. Rigid mechanical joints may be used only if fully welded bents cannot be shipped on local, state, or federal highways without a special permit from the department of transportation.

4. Plate Aluminum Perforated Screen Panel Construction: Shear and form to size and shape shown on the drawings. Panel lines, breaks and angles shall be sharp and true. Perforated panels shall be painted after fabrication, NOT prior to fabrication. All panel surfaces shall be free of scratches and marks caused during fabrication.
5. Plate Aluminum Panel Cladding Construction: Brake form edges at right angles to the wall plane, and weld and grind corners smooth to ensure a watertight fit. Reinforce panels with stiffeners where applicable to meet design criteria and panel flatness. Panel lines, breaks and angles shall be sharp and true, and surfaces shall be free from warp and buckle. Panel surfaces shall be free of scratches and marks caused during fabrication. No exposed fasteners permitted.

B. Support Framing: Provide extruded aluminum framing in sizes, shapes and patterns shown on the drawings, AND as required to meet the criteria of system designed by a registered PE in the state of GA (see 1.4 Submittals par B and D). Support framing includes the aluminum knife/plate attachment brackets shown on the drawings. Provide SS HH through bolt with SS lock washer and SS acorn nut to attach knife/plate to support framing. **NOTE**: Material described as "Perforated Aluminum Metal Screens" on the Entry Accent (2 & 3/A-703) and the "Wing Accent" (4 & 6/A-703) shall be installed on extruded aluminum tubular framing similar to the "Large and Small Display Screen" framing. Vertical and horizontal framing shall be as noted on the drawings.

C. Support Framing Cover Plate at Perforated Screen Panels: Fabricate from .125" extruded aluminum bar stock to width of support tube. Provide cover at all support tube locations. Attach with SS closed end blind pop rivets uniformly and consistently spaced.

D. Plate Aluminum Perforated Screen Panel: In all cases the .125" perforated aluminum screen material shall be installed on extruded aluminum tubular framing similar to the "Large and Small Display Screen" framing, not as 12" wide x 1 ½" deep individual panels shown on the drawings the Entry Accent (2 & 3/A-703) and the "Wing Accent" (4 & 6/A-703).

E. Plate Aluminum Panel Cladding: Provide a caulked joint "wet seal" plate aluminum panel system fabricated from single sheets of .125" thick aluminum factory formed into profile for installation method indicated. Include attachment assembly components and accessories required for a watertight installation. System depth to be no less than 1 3/4" deep and in sizes shown on Red Bolt plans, sections and elevations.

F. Plate Aluminum Panel Cladding Furring: Provide 16 gauge x ¾" deep galvanized hat channel furring at 16" on center, or as required by design analysis (see 1.4 Submittals par B and D).

G. Aluminum Flashing/Trim: Custom formed related brake metal trim to be 0.040 inch minimum thickness, finished to match the adjacent aluminum material.

2.5 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. High-Performance Organic Finish: Three-coat solid color fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

1. Color: As designated on the drawings from either a three-coat custom color STR Red or a three-coat custom color BYL Yellow (Mitsubishi Alpolic Colors) to match the Architects sample.

2. Gloss: 30% to 40%.

2.6 STAINLESS-STEEL FINISHES

A. Bright, Cold-Rolled, Unpolished Finish: No. 2B.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide anchorage devices and fasteners where needed to secure decorative metal to in-place construction.

B. Set products accurately in location, alignment, and elevation, measured from established lines and levels.

C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, uniform reveals and spaces for sealants and joint fillers.

D. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

E. Install concealed gaskets, joint fillers, insulation, and flashings as work progresses.

F. Restore protective coverings that have been damaged during shipment or installation. Remove protective coverings only when there is no possibility of damage from other work.

G. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

END OF SECTION 057000

SECTION 07 42 17 - INSULATED-CORE METAL WALL BACKUP PANEL SYSTEM

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Insulated composite backup panel system consisting of foamed-insulation-core metal wall panels and accessories.

B. Concealed fastener metal wall panels as part of the engineered assembly described below.

1. Metal Wall Panels over Insulated-Composite Backup Panel Wall System: Single-skin concealed fastener metal wall panels serving as the exterior rainscreen cladding component of a metal wall panel system that includes insulated composite metal wall backup panels. Metal wall backup panels provide thermal, air, water, and water vapor control. Metal wall panel installation specified in this Section includes secondary metal subgirt framing for panel attachment.

1.2 RELATED REQUIREMENTS

A. Division 05 Section 054000 "Cold-Formed Metal Framing" for support framing for insulated composite backup panel system.

B. Division 07 air barrier section for transition components to building air barrier at perimeter of insulated composite backup panel system.

C. Division 07 Section 076200 "Sheet Metal Flashing and Trim" for metal flashing components at openings and perimeter.

1.3 DEFINITIONS

A. Cradle to Cradle Certification: The Cradle to Cradle Certification process, administered by McDonough Braungart Design Chemistry (MBDC), www.c2ccertified.com, that evaluates materials and product ingredients and the complete formulation for human and environmental health impacts throughout its lifecycle as well as its potential for being truly recycled or safely composted.

1.4 REFERENCE STANDARDS

A. American Society of Civil Engineers (ASCE):

1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

B. ASTM International (ASTM):

1. ASTM A 792 - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
2. ASTM C 920 - Specification for Elastomeric Joint Sealants.
3. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.

4. ASTM D 1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
5. ASTM E 84 - Test Methods for Surface Burning Characteristics of Building Materials.
6. ASTM E 283 - Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences across the Specimen.
7. ASTM E 331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

C. Factory Mutual Global (FMG):

1. ANSI/FMG 4880 - Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings, and Exterior Wall Systems.

D. National Fire Protection Association (NFPA):

1. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

E. Underwriters Laboratories, Inc. (UL):

1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 723 - Test for Surface Burning Characteristics of Building Materials.

1.5 PERFORMANCE REQUIREMENTS

A. General: Provide insulated composite backup panel system meeting the following performance requirements as determined by a qualified testing agency's application of specified tests on manufacturer's standard assemblies.

B. Structural Performance: Provide insulated composite backup panel system fabricated to withstand effects of indicated loads and stresses within limits and under conditions indicated, when tested per ASTM E 72.

1. Wind Loads: Determine loads based on uniform pressure indicated on the drawings.
2. Deflection Limits: Withstand test pressures of 150 percent of inward and outward wind-load design pressures with maximum deflection of L/180 of the span with no evidence of failure.
3. Seismic Performance: Comply with ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 9, "Earthquake Loads."

C. Air Infiltration: Maximum 0.03 cfm/sq. ft. (0.15 L/s per sq. m) per ASTM E 283 at a static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa).

D. Water Penetration: No uncontrolled water penetration at a static pressure of 15 lbf/sq. ft. (0.7 kPa) per ASTM E 331.

E. Thermal Performance: Thermal Resistance (R-value) indicated, per ASTM C 1363, corrected to 15 mph outside and still air inside, as-installed condition including fastening and joints.

F. Water Penetration, Dynamic Pressure: No uncontrolled water penetration per AAMA 501.01 at a minimum static differential of 15 lbf/sq. ft. (718 Pa), using mimimum 10 by 10 foot (3,050 by 3,050 mm) test panel that includes horizontal and vertical joints.

G. Air Infiltration: AAMA 508-07 including a horizontal joint, with an imperfect air barrier.

H. Installer to provide engineering calculations for attachment of face sheet to insulated back up system. Calculations to be sealed by an engineer registered in the state of project location.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer listed in this Section or approved for Project with minimum 10 years experience in manufacture of similar products in successful use in similar applications. Obtain insulated composite backup panel system and concealed fastener metal wall panels through one source from a single approved manufacturer.

B. Installer Qualifications: Experienced Installer with minimum of 10 successful completed projects of similar materials and scope and employing workers trained by manufacturer to install products of this section.

C. Fire-Test-Response Characteristics: Provide insulated composite backup panel system with the following fire-test-response characteristics determined by the indicated test standard as applied by UL or other testing and inspection agency acceptable to authorities having jurisdiction.

1. Surface Burning Characteristics: Not greater than the following, per ASTM E 84 or UL Standard 723, for foam core and interior surface:

   a. Flame spread index: 25 or less.
   b. Smoke developed index: 450 or less.

2. Fire Performance of Insulated Wall: Approved as a Class 1 wall panel per ANSI/FM 4880.
3. Intermediate Scale Multistory Fire Test: Representative mockup tested per NFPA 285.

1.7 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate the installation of insulated composite backup panel system structural support and exterior metal wall panels.

B. Preinstallation Meeting: Conduct preinstallation meeting at the site to coordinate Work of this Section with Work of other trades.

1.8 ACTION SUBMITTALS

A. Product Data: Manufacturer's data sheets for metal wall panels and accessories.

B. Shop Drawings: When MetalWrap is used with non-insulated CENTRRIA Metal Wall panels, shop drawings are to be prepared by manufacturer or manufacturer's authorized dealer. Include elevations showing insulated composite backup panel system, and details of each condition of installation and attachment. Indicate coordination dimensions related to structural support system elements provided by others.

1. Include structural data indicating compliance with performance requirements.

C. Samples for Verification: Provide minimum 10-inch (250-mm) square section of insulated composite backup panel showing finishes, interlocking joint, insulated core, and anchorage detail.

1.9 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Indicating compliance of products with requirements, from a qualified independent testing agency.

B. Cradle to Cradle Certification: Submit minimum of silver level Cradle to Cradle certification www.c2ccertified.com or a comparable independent sustainability audit acceptable to Owner that evaluates and validates materials, material reutilization/design for environment, energy use, water usage, and social responsibility of the product and manufacturing process.

C. Qualification Information: For Installer firm, Installer's field supervisor.

1.10 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Protect insulated composite backup panel system and concealed fastener panels during shipping, handling, and storage to prevent staining, denting, or other visible damage. Deliver, unload, store, and erect metal backup panels and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations. Protect from exposure to sunlight.

1.12 WARRANTY

A. Special Manufacturer's Warranty: Refer to Division 07 metal wall panel section for warranty requirements for combined cladding and backup system.

B. Special Panel Finish Warranty for Concealed Fastener Panels: On manufacturer's standard form, in which manufacturer agrees to repair or replace metal wall panels that evidence deterioration of finish within the following periods from the date of substantial completion:

1. Warranty Period: 20 years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide Basis of design Insulated Composite Backup Panel Wall System product CENTRIA, MetalWrap Series or subject to compliance with requirements, comparable product by another manufacturer having passed all of the testing required in this specification section.

1. CENTRIA Architectural Systems; Moon Township, PA 15108-2944. Tel: (800)759-7474. Tel: (412)299-8000. Fax: (412)299-8317. Email: info@CENTRIA.com. Web: www.CENTRIA.com.

B. Basis of Design: Subject to compliance with requirements, provide Basis of design Metal Wall Panels CENTRIA, IW Series Metal Wall Panels or subject to compliance with requirements, comparable product by another manufacturer having passed all of the testing required in this specification section.

1. CENTRIA Architectural Systems; Moon Township, PA 15108-2944. Tel: (800)759-7474. Tel: (412)299-8000. Fax: (412)299-8317. Email: info@CENTRIA.com. Web: www.CENTRIA.com.

C. Basis of Design: Subject to compliance with requirements, provide Basis of design Metal Soffit Panels CENTRIA, IW Series Metal Wall Panels or subject to compliance with requirements, comparable product by another manufacturer having passed all of the testing required in this specification section.

1. CENTRIA Architectural Systems; Moon Township, PA 15108-2944. Tel: (800)759-7474. Tel: (412)299-8000. Fax: (412)299-8317. Email: info@CENTRIA.com. Web: www.CENTRIA.com.

2.2 MATERIALS

MetalWrap 100 Series

A. Metallic-Coated Steel Sheet, Coil Coated, per ASTM A 755/A 755M.

1. Aluminum-Zinc Alloy Coated Steel: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40 (Class AZM150 coating designation, Grade 275); structural quality, with new embossed flat surface.
2. Metal Faces: 0.0172 -inch (0.286-mm)/29 ga. Coil Coating:

   a. Outer Face: 0.2-mil (0.0058-mm) thick clear coating. (Primer coat only on Vertical MetalWrap Series)
   b. Inner Face: 0.2-mil Primer coating.

B. Polyisocyanurate Core: Foamed-in-place modified polyisocyanurate, closed-cell, utilizing no CFC or HCFC compounds, with density minimum 2.4 lb/cu. ft. (39 kg/cu. m) and compressive strength minimum 15 lb/sq. in (103 kPa).

C. Panel Sealant/Vapor Seal: Factory-applied non-curing butyl.

D. MetalWrap 100 Series insulated-core metal wall panel backup system is at concealed fastener metal wall panels.

MetalWrap 200 Series

A. Metallic-Coated Steel Sheet, Coil Coated, per ASTM A 755/A 755M.

1. Aluminum-Zinc Alloy Coated Steel: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40 (Class AZM150 coating designation, Grade 275); structural quality, with non-embossed, flat surface.
2. Metal Faces: 0.0172 -inch (0.286-mm)/29 ga.
3. Coil Coating:

    a. Outer Face: 0.2-mil Primer Coating
    b. Inner Face: 0.2-mil (0.0058-mm) thick clear coating. (Primer coat only on Vertical MetalWrap Series)

B. Polyisocyanurate Core: Foamed-in-place modified polyisocyanurate, closed-cell, utilizing no CFC or HCFC compounds, with density minimum 2.4 lb/cu. ft. (39 kg/cu. m) and compressive strength minimum 15 lb/sq. in (103 kPa).

C. Panel Sealant/Vapor Seal: Factory-applied non-curing butyl.

D. MetalWrap 200 Series insulated-core metal wall panel backup system is at brick.

Metal Wall Panels (Concealed Fastener Panels)

A. Flush-joint profile with raised flat pan.

1. Basis of Design Product: CENTRIA, IW-10A.
2. Panel Coverage: 12 inches (305 mm).
3. Panel Height: 1.50 inches (38 mm).
4. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Class Z275), structural steel quality.
5. Face Sheet: Minimum 0.036 inch/20 gage (0.91 mm) nominal uncoated thickness.
6. Surface: Smooth.
7. Vertical Panel Joints: All Vertical Joints to be swedged joints and they shall align vertically between panels.

Metal Soffit Panels (Concealed Fastener Panels)

A. Flush-joint profile with raised flat pan.

1. Basis of Design Product: CENTRIA, IW-10A.
2. Panel Coverage: 12 inches (305 mm).
3. Panel Height: 1.50 inches (38 mm).
4. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Class Z275), structural steel quality.
5. Face Sheet: Minimum 0.036 inch/20 gage (0.91 mm) nominal uncoated thickness.
6. Surface: Smooth.

2.3 INSULATED COMPOSITE BACKUP PANELS

A. Factory-foamed, insulated composite backup panels with interlocking side joinery and butt end joints. Fabricate with metal facings bonded to foamed-in-place core. Fabricate interior metal face with planking ribs. Form interlocking joinery to accept concealed fasteners for attachment to supports.

1. Panel Thickness and Thermal Resistance of Finished Wall: 3 inches (76-mm) panel; R-21 wall.

2.4 ACCESSORIES FOR INSULATED COMPOSITE BACK UP PANEL

A. 100 Series Panel Mounting Clips: Manufacturer (CENTRIA) furnished panel mounting clips, 0.064-inch/14 ga (1.63-mm) thick G90 galvanized steel, configured to serve as attachment points for vertical subgirts for the attachment of horizontal cladding.

B. 200 Series Galvanized Masonry Anchors: Manufacturer (CENTRIA) furnished as designated below shall be incorporated in the panel joinery and panel midpoint.

1. Hohmann and Barnard 200 Series Joint Anchors
2. Hohmann and Barnard 200 Series Type 1 Surface Mount Anchors

C. Self-Adhering Sheet Flashing: Minimum 25-mil (0.64-mm) modified bituminous sheet, recommended by panel manufacturer for application.

D. Sealant:

1. Concealed: Non-skinning butyl sealant, ASTM C 920.
2. Exposed: Elastomeric silicone sealant, ASTM C 920, as recommended by panel manufacturer.

E. Fasteners: Corrosion-resistant, self-tapping and self-drilling screws, bolts, nuts, and other fasteners as recommended by panel manufacturer for application.

1. Size fasteners to prevent penetration of interior panel facing.

2.5 ACCESSORIES For Concealed Fastener Panels

A. Mitered Corners: Structurally-bonded horizontal interior and exterior trimless corners matching metal wall panel material, profile, and factory-applied finish, fabricated and finished by metal wall panel manufacturer.

1. Welded, riveted, fastened, or field- fabricated corners do not meet the requirements of this specification.
2. Basis of Design: CENTRIA, MicroSeam Corners.

B. Formed Flashing and Trim: Match material, thickness, and color of metal wall panels.

C. Sealants: Type recommended by metal wall panel manufacturer for application, meeting requirements of Division 07 Section "Joint Sealants."

D. Flashing Tape: 4-inch wide self-adhering butyl flashing tape.

E. Fasteners: Self-tapping screws and other acceptable fasteners recommended by panel manufacturer. Where exposed fasteners cannot be avoided, supply corrosion-resistant fasteners with heads matching color of metal wall panels by means factory-applied coating.

2.6 SECONDARY METAL SUBGIRT FRAMING

F. Miscellaneous Framing Components, General: Cold-formed metallic-coated steel sheet, ASTM A 653/A 653M, G90 (Z180).

1. Hat Channels: 0.053 inch/16 ga. (1.34 mm) minimum.
2. Sill Channels: 0.053 inch/16 ga. (1.34 mm) minimum.

2.7 METAL WALL PANEL FINISHES

A. Exposed Coil-Coated Finish System:

1. Fluoropolymer Two-Coat System: 0.2-mil primer with 0.8-mil 70 percent PVDF fluoropolymer color coat, AAMA 621.

a. Basis of Design: CENTRIA Fluorofinish.

2. Exterior Surface: As selected by Architect from manufacturer's standard colors.
3. Interior Surface: Manufacturer's standard primer color.

2.8 FABRICATION

A. General: Fabricate insulated composite backup panels at the factory, using manufacturer's standard procedures and processes identical to tested units and as necessary to meet performance requirements.

1. Fabricate insulated composite backup panels with joints between panels designed to form weathertight seals.
2. Factory formed insulated composite backup panels in a continuous process with no glues or adhesives between dissimilar materials. Trim and square edges of sheets with no displacement of face sheets or protrusion of core material.
3. Laminated panels will not be acceptable.

PART 3 – EXECUTION

3.1 INSPECTION

A. Examine building structure with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation.
1. Inspect framing that will support insulated composite backup panel system to determine if support components are installed as indicated on approved shop drawings and are within tolerances acceptable to panel manufacturer.

2. Maximum substrate and framing deviations from flat plane acceptable:

a. 1/4-inch in 20 feet vertically or horizontally.

b. 1/2-inch across building elevation.
c. 1/8-inch in 5 feet.

B. Have out of tolerance work and other deficient conditions corrected by the general contractor prior to proceeding with insulated composite backup panel installation.

3.2 INSULATED COMPOSITE BACKUP PANEL SYSTEM INSTALLATION

A. General: Install insulated composite backup panel system in accordance with approved shop drawings and manufacture's recommendations.

B. Installation: Attach backup panels to supports at each panel connection point indicated on approved shop drawings.

1. Install with drain plane of panel facing weather side of insulation.
2. Fasten insulated backup panels to building framing with clips provided by manufacturer and recommended fasteners.
3. Horizontal Joinery: Working from base to top of the backup panel installation, lap upper panel over lower panel to form a weather tight joint oriented to allow gravity drainage.
4. Vertical Joinery:

a. Install vertical butt joints tight with no gap, set against continuous supports.
b. Set panel ends in continuous bead of non-curing butyl sealant as indicated in manufacturer's installation details.
c. Seal butt joints between adjacent panels with a continuous strip of self-adhering flashing at bottom row of panels and where additionally recommended by manufacturer.

5. Penetrations through backup panels: At all window openings, louver openings, door openings, aluminum knife/plate brackets for display screens and accent panels and all other penetrations through the insulated composite backup panels these penetrations shall be made watertight with self adhering sheet flashing as per the backup panel manufacturer's recommendations.

3.3 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in accordance with approved shop drawings and manufacturer's recommendations. Install metal wall panels in orientation, sizes, and locations indicated. Anchor metal wall panels and other components securely in place. Provide for thermal and structural movement

B. Attach panels to metal framing using recommended clips, screws, fasteners, sealants, and adhesives indicated on approved shop drawings.

1. Fasteners for Steel Wall Panels: Stainless-steel for exterior locations and locations exposed to moisture; carbon steel for interior use only.

2. Fasten metal wall panels to supports with fasteners and spacing recommended by manufacturer.

3. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

4. Dissimilar Materials: Where elements of metal wall panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.

5. Vertical Joints: All Vertical Joints to be swedged joints and they shall align vertically between panels. All Vertical Joints to be closed tight and be sealed with concealed non-curing Buytl Marriage Bead as recommended by manufacturer.

C. Joint Sealers: Install joint sealants where indicated on approved shop drawings.

3.4 ACCESSORY INSTALLATION

D. General: Install metal wall panel accessories with positive anchorage to building and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install related flashings and sheet metal trim per requirements of Division 07 Section "Sheet Metal Flashing and Trim."
2. Install components required for a complete metal wall panel assembly, including trim, copings, corners, lap strips, flashings, sealants, fillers, closure strips, and similar items.
3. Comply with performance requirements and manufacturer's written installation instructions.
4. Provide concealed fasteners except where noted on approved shop drawings.
5. Set units true to line and level as indicated.

3.5 FIELD QUALITY CONTROL

A. Specifier: Retain paragraph below when scope and complexity of metal wall panel installation justifies inspection expense.

B. Manufacturer's Field Service: Engage a service representative authorized by metal wall panel manufacturer to inspect completed installation. Submit written report.

C. Correct deficiencies noted in manufacturer's report.

3.6 CLEANING AND PROTECTION

A. Remove temporary protective films. Clean finished surfaces as recommended by metal wall panel manufacturer. Clear weep holes and drainage channels of obstructions, dirt, and sealant. Maintain in a clean condition during construction.

B. Replace damaged panels and accessories that cannot be repaired by finish touch-up or minor repair.

END OF SECTION 074217

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior and interior storefront framing.
2. Storefront framing for window walls.
3. Storefront framing for ribbon walls.
4. Storefront framing for punched openings.
5. Exterior and interior manual-swing entrance doors.
6. Pre-engineered Sunshade Systems.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, sections, full-size details, and attachments to other work.

1. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.

C. Samples: For each exposed finish required.

D. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams.

E. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Energy Performance Certificates: NFRC-certified energy performance values from manufacturer.

B. Product test reports.

C. Field quality-control reports.

D. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated and accredited by IAS or ILAC Mutual Recognition Arrangement as complying with ISO/IEC 17025].

C. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design aluminum-framed entrances and storefronts.

B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this

Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
2. Failure also includes the following:

    a. Thermal stresses transferring to building structure.
    b. Glass breakage.
    c. Noise or vibration created by wind and thermal and structural movements.
    d. Loosening or weakening of fasteners, attachments, and other components.
    e. Failure of operating units.

C. Structural Loads:

1. Wind Loads: As indicated on Drawings..

D. Deflection of Framing Members: At design wind pressure, as follows:

1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches (4.1 m) and to 1/240 of clear span plus 1/4 inch (6.35 mm) for spans greater than 13 feet 6 inches (4.1 m) or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19.1 mm), whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch (3.2 mm).

    a. Operable Units: Provide a minimum 1/16-inch (1.6-mm) clearance between framing members and operable units.

3. Cantilever Deflection: Where framing members overhang an anchor point, as follows:

    a. Perpendicular to Plane of Wall: No greater than 1/240 of clear span plus 1/4 inch (6.35 mm) for spans greater than 11 feet 8-1/4 inches (3.6 m) or 1/175 times span, for spans less than 11 feet 8-1/4 inches (3.6 m).

E. Structural: Test according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2percent of span.
3. Test Durations: As required by design wind velocity, but not less than 10 seconds.

F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:

1. Fixed Framing and Glass Area:

a. Maximum air leakage of 0.06 cfm/sq. ft. (0.30 L/s per sq. m at a static-air-pressure differential of 6.24 lbf/sq. ft. (300 Pa).

2. Entrance Doors:

a. Pair of Doors: Maximum air leakage of 1.0 cfm/sq. ft. (5.08 L/s per sq. m) at a static-air-pressure differential of 1.57 lbf/sq. ft. (75 Pa).
b. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. (2.54 L/s per sq. m) at a static-air-pressure differential of 1.57 lbf/sq. ft. (75 Pa).

G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:

1. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 10 lbf/sq. ft. (480 Pa).

H. Energy Performance: Certify and label energy performance according to NFRC as follows:

1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.43 Btu/sq. ft. x h x deg F (2.55 W/sq. m x K) as determined according to NFRC 100.
2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.40 as determined according to NFRC 200.
3. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified condensation resistance rating of no less than 60 as determined according to NFRC 500.

I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

ALUMINUM-FRAMED STOREFRONTS

2.2 Basis-of-Design Product: Subject to compliance with requirements, provide YKK AP Series YES 45 TU by YKK AP America Inc. Telephone: 678-838-600. Subject to compliance with requirements, available manufacturers that may be incorporated into the Work include but are not limited to, the following:

1. EFCO Corporation.
2. Kawneer North America.

2.3 FRAMING

A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Construction: Thermally broken.
2. Glazing System: Retained mechanically with gaskets on four sides.

3. Glazing Plane: Front.
4. Finish: High-performance organic finish.
5. Fabrication Method: Field-fabricated stick system.

B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.

C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

D. Materials:

1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

a. Sheet and Plate: ASTM B 209 (ASTM B 209M).
b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
d. Structural Profiles: ASTM B 308/B 308M.

2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.

a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.4 PRE-ENGINEERED SUNSHADE SYSTEMS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Aluminum Sun Shades YKK APTHERMASHADE SERIES 36" ThermaShade wedge outrigger with E9-3713 Louvers by YKK AP America Inc. Telephone: 678-838-600. Subject to compliance with requirements, available manufacturers that may be incorporated into the Work include but are not limited to, the following:
1. EFCO Corporation.
2. Kawneer North America.

B. Sun Shade System

1. Description: All structural components and attachment hardware shall be concealed.

2. Thermally improved anchor: Sunshade anchor must provide a continuous thermal barrier by means of a poured and debridged pocket consisting of a two-part chemically curing high density polyurethane which is bonded to the aluminum by YKK AP Thermabond Plus or manufacturers equal. Anchors employing non-structural thermal barriers are not acceptable.

3. Finish: Match color and finish of the Aluminum-Framed Storefront system.

4. Pre-engineered sunshade system to be manufactured by the same manufacturer as the Aluminum-Framed Entrances and Storefronts manufacturer.

C. Materials

1. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 and 6063-T6 Aluminum Alloys.

2. Aluminum Plate: Painted Finish, ASTM B 209 (ASTM B 209M), 3003-H14 Aluminum Alloy, 0.25" (6.35 mm) nominal thickness.

D. Accessories

1. Manufactuer's standard Accessories: Fasteners AISI 300 series stainless steel fasteners.

2.5 ENTRANCE DOOR SYSTEMS

A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.

1. Door Construction: [1-3/4-inch (44.5-mm) overall thickness, with minimum 0.125-inch- (3.2-mm-)] [2-inch (50.8-mm) overall thickness, with minimum 0.188-inch- (4.8-mm-)] [2- to 2-1/4-inch (50.8- to 57.2-mm) overall thickness, with minimum 0.125-inch- (3.2-mm-)] thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.

a. Thermal Construction: High-performance plastic connectors separate aluminum members exposed to the exterior from members exposed to the interior.

2. Door Design: Medium stile; 3-1/2-inch (88.9-mm) nominal .
3. Glazing Stops and Gaskets: Manufacturers standard snap-on, extruded-aluminum stops and preformed gaskets.

a. Provide nonremovable glazing stops on outside of door.

2.6 ENTRANCE DOOR HARDWARE

A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 087100 "Door Hardware."

B. Finger Guards: Manufacturer's standard collapsible neoprene or PVC gasket anchored to frame hinge-jamb at center-pivoted doors.

2.7 GLAZING

A. Glazing: Comply with Section 088000 "Glazing."

B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.

C. Glazing Sealants: As recommended by manufacturer.

D. Sealants used inside the weatherproofing system shall have a VOC content of 250.

E. Sealants used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.8 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

C. Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Physical and thermal isolation of glazing from framing members.
4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
5. Provisions for field replacement of glazing from exterior.
6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.

F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.

G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

A. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF or FEVE resin by weight in color coat.

1. Color and Gloss: Indicated in Section 090500 Colors and Finishes Schedules.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
6. Seal perimeter and other joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Set continuous sill members and flashing in full sealant bed as specified in Section 079200 "Joint Sealants" to produce weathertight installation.

D. Install components plumb and true in alignment with established lines and grades.

E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.

F. Install glazing as specified in Section 088000 "Glazing."

G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.

1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.

2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

3.2 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Field Quality-Control Testing: Perform the following test on representative areas of aluminum-framed entrances and storefronts.

1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.

a. Perform a minimum of three tests in areas as directed by Owner Representative.

C. Aluminum-framed entrances and storefronts will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 084113

SECTION 084413 - GLAZED ALUMINUM CURTAIN WALLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes glazed aluminum curtain walls.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, sections, full-size details, and attachments to other work.

1. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.

C. Samples: For each exposed finish required.

D. Delegated-Design Submittal: For glazed aluminum curtain walls indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Energy Performance Certificates: NFRC-certified energy performance values from manufacturer.

B. Product test reports.

C. Field quality-control reports.

D. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.

C. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

1.7 WARRANTY

A. Special Assembly Warranty: Manufacturer agrees to repair or replace components of glazed aluminum curtain wall that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazed aluminum curtain walls.

B. General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

1. Glazed aluminum curtain walls shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
2. Failure also includes the following:

a. Thermal stresses transferring to building structure.
b. Glass breakage.

c. Noise or vibration created by wind and thermal and structural movements.
d. Loosening or weakening of fasteners, attachments, and other components.
e. Failure of operating units.

C. Structural Loads:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: Interior walls (Pressure acting in either direction).

D. Deflection of Framing Members: At design wind pressure, as follows:
1. Maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AA Specifications for Aluminum Structures.
a. Without Horizontals: L/175 or 3/4" (19.1mm) maximum. .
b. With Horizontals: L/175 or L/240 + 1/4" (6.4mm) for spans greater than 13'-6" (4.1m) but less than 40'-0" (12.2m).

E. Structural: Test according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2percent of span.
3. Test Durations: As required by design wind velocity, but not less than 10 seconds.

F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:

1. Fixed Framing and Glass Area:

a. Maximum air leakage of 0.06 cfm/sq. ft. (0.30 L/s per sq. m) at a static-air-pressure differential of 6.24 lbf/sq. ft. (300 Pa).

G. Water Penetration under Static Pressure: Test according to ASTM E 331 and AAMA 1503.1 as follows:

1. No uncontrolled water on indoor face of any component when tested in accordance with ASTM E 331 and at a dynamic pressure of 15 PSF (718Pa)

2. No uncontrolled water on indoor face of any component when tested in accordance with AAMA 1503.1 and at a dynamic pressure of 15 PSF (718Pa)

H. Energy Performance: Certify and label energy performance according to NFRC as follows:

1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.43 Btu/sq. ft. x h x deg F (2.55 W/sq. m x K as determined according to NFRC 100.
2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.40 as determined according to NFRC 200.
3. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified condensation resistance rating of no less than 66 as determined according to NFRC 102.

I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Glazed Aluminum Curtain Wall YKK AP YCW 750 OG Series by YKK AP America Inc. Telephone: 678-838-600. Subject to compliance with requirements, available manufacturers that may be incorporated into the Work include but are not limited to, the following:
1. EFCO Corporation.
2. Kawneer North America.

2.3 FRAMING

A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Construction: Thermally improved.
2. Glazing System: Retained mechanically with gaskets on four sides.
3. Glazing Plane: Front.
4. Finish: High-performance organic finish.
5. Fabrication Method: Either factory- or field-fabricated system.

B. Pressure Caps: Manufacturer's standard aluminum components that mechanically retain glazing.

1. Include snap-on aluminum trim that conceals fasteners.

C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

D. Materials:

1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

a. Sheet and Plate: ASTM B 209 (ASTM B 209M).
b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
d. Structural Profiles: ASTM B 308/B 308M.

2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.

a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.4 GLAZING

A. Glazing: Comply with Section 088000 "Glazing."

B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.

C. Glazing Sealants: As recommended by manufacturer.

D. Sealants used inside the weatherproofing system shall have a VOC content of 250 g/L or less.

E. Sealants used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.5 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

C. Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Physical and thermal isolation of glazing from framing members.
4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
5. Provisions for field replacement of glazing from exterior.
6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Fabricate components to resist water penetration as follows:

1. Internal guttering system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior.
2. Pressure-equalized system or double barrier design with primary air and vapor barrier at interior side of glazed aluminum curtain wall and secondary seal weeped and vented to exterior.

E. Factory-Assembled Frame Units:

1. Rigidly secure nonmovement joints.
2. Prepare surfaces that are in contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion.
3. Preparation includes, but is not limited to, cleaning and priming surfaces.
4. Seal joints watertight unless otherwise indicated.
5. Install glazing to comply with requirements in Section 088000 "Glazing."

F. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.6 ALUMINUM FINISHES

A. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF or FEVE resin by weight in color coat.

1. Color and Gloss: Indicated in Section 090500 Colors and Finishes Schedules.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
6. Where welding is required, weld components in concealed locations to minimize distortion or discoloration of finish. Protect glazing surfaces from welding.
7. Seal joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with primer, applying sealant or tape, or installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum is in contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior.

D. Install components plumb and true in alignment with established lines and grades.

E. Install glazing as specified in Section 088000 "Glazing."

3.2 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Test Area: Perform tests on representative areas of glazed aluminum curtain walls .

C. Field Quality-Control Testing: Perform the following test on representative areas of glazed aluminum curtain walls.

1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.

a. Perform a minimum of three tests in areas as directed by Architect.

D. Glazed aluminum curtain walls will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 084413

SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

B. This Section includes the following:
1. Hinges
2. Continuous hinges
3. Key control system
4. Lock cylinders and keys
5. Lock and latch sets
6. Bolts
7. Exit devices
8. Push/Pull units
9. Closers
10. Overhead holders
11. Miscellaneous door control devices
12. Door trim units
13. Protection plates
14. Weatherstripping for exterior doors
15. Sound stripping for interior doors
16. Automatic drop seals (door bottoms)
17. Astragals or meeting seals on pairs of doors
18. Thresholds

C. Related Sections: The following Sections contain requirements that relate to this Section:
1. Section 012900: Payment Procedures
2. Section 081113: Hollow Metal Doors and Frames
3. Section 081400: Wood Doors
4. Section 084113: Aluminum-Framed Entrances and Storefronts
5. Division 26: Electrical

D. Products furnished but not installed under this Section to include:
1. Cylinders for locks on entrance doors.
2. Final replacement cores and keys to be installed by Owner.

1.02 REFERENCES

A. Standards of the following as referenced:
1. American National Standards Institute (ANSI)
2. Door and Hardware Institute (DHI)
3. Factory Mutual (FM)
4. National Fire Protection Association (NFPA)
5. Underwriters' Laboratories, Inc. (UL)
a. UL 10C - Fire Tests Door Assemblies
6. Warnock Hersey

B. Regulatory standards of the following as referenced:
1. Department of Justice, Office of the Attorney General, *Americans with Disabilities Act*, Public Law 101-336 (ADA).
2. CABO/ANSI A117.1: *Providing Accessibility and Usability for Physically Handicapped People*, 1992 edition.

1.03 SYSTEM DESCRIPTION

A. Refer to applicable "Headings" for system description for electric and electro-pneumatic hardware products.

1.04 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.

B. Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements. For items other than those scheduled in the "Headings" of Section 3, provide catalog information for the specified items and for those submitted.

C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Use specification Heading numbers with any variations suffixed a, b, etc. Include the following information:
a. Type, style, function, size, and finish of each hardware item.
b. Name and manufacturer of each item.
c. Fastenings and other pertinent information.
d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
e. Explanation of all abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for hardware.
g. Door and frame sizes and materials.

h. Keying information.
i. Cross-reference numbers used within schedule deviating from those specified.
1) Column 1: State specified item and manufacturer.
2) Column 2: State prior approved substituted item and its manufacturer.

2. Furnish complete wiring diagrams, riser diagrams, elevation drawings and operational descriptions of electrical components and systems, listed by opening in the hardware submittals. Elevation drawings shall identify locations of the system components with respect to their placement in the door opening. Operational descriptions shall fully detail how each electrical component will function within the opening, including all conditions of ingress and egress. Provide a copy with each hardware schedule submitted for approval. Supply a copy with delivery of hardware to the jobsite and another copy to the Owner at the time of project completion.
3. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
4. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

D. Provide samples if requested of each type of exposed hardware unit in finish indicated and tagged with full description for coordination with schedule. Submit samples prior to submission of final hardware schedule.
1. Samples will be returned to the supplier. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated in the Work, within limitations of keying coordination requirements.

E. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

F. Contract closeout submittals:
1. Operation and maintenance data: Complete information for installed door hardware.
2. Warranty: Completed and executed warranty forms.

1.05 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer.

B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that

indicated for this Project and that employs an experienced Architectural Hardware Consultant (AHC) who is available for consultation to Owner, Architect, and Contractor, at reasonable times during the course of the Work.

C. Coordination Meetings:
   1. Contractor to set up and attend the following:
      a. Lock distributor to meet with the Owner to finalize lock functions and keying requirements and to obtain final instructions in writing.
      b. Lock distributor and lock, closer and exit device manufacturer to meet with the installer prior to beginning of installation of door hardware. Instruct installer on proper installation of specified products.
   2. General Contractor to set up and attend the following:
      a. Meet with the Owner, General Contractor, Supplier, electrical and security contractors to coordinate all electrical hardware items. Supplier to provide riser diagrams, elevation drawings, wiring diagrams and operational descriptions as required by the General and sub-contractors.

D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not. All hardware to comply with State and local codes and UL 10C.
   1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

E. All hardware is to comply with Federal and State Handicap laws. Provide tactile warning at the back of all outside levers to electrical, mechanical, machine rooms and doors that lead to hazardous areas.

1.06 PRODUCT HANDLING

A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.

D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).

E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.07 WARRANTY

A. Special warranties:
1. Door Closers: Ten year period
2. Exit Devices: Three year period
3. Automatic Door Operators: Two year period
4. Locks and Cylinders: Three year period

1.08 MAINTENANCE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions that are packed in hardware items for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.01 MANUFACTURED UNITS
(*Denotes manufacturer referenced in the Hardware Headings)

A. Hinges:
1. Acceptable manufacturers:
a. Ives*
b. Bommer
c. PBB
2. Characteristics:
a. Templates: Provide only template-produced units.
b. Screws: Provide Phillips flat-head screws complying with the following requirements:
1) For metal doors and frames install machine screws into drilled and tapped holes.
2) For wood doors and frames install threaded-to-the-head wood screws.
3) For fire-rated wood doors install #12 x 1-1/4 inch, threaded-to-the-head steel wood screws.
4) Finish screw heads to match surface of hinges or pivots.
c. Hinge pins: Except as otherwise indicated, provide hinge pins as follows:
1) Out-Swing Exterior Doors: Non-removable pins.
2) Out-Swing Corridor Doors with Locks: Non-removable pins.
3) Interior Doors: Non-rising pins.
4) Tips: Flat button and matching plug. Finished to match leafs.
d. Size: Size hinges in accordance with specified manufacturer's published recommendations.
e. Quantity: Furnish one pair of hinges for all doors up to 5'-0" high. Furnish one hinge for each additional 2-1/2 feet or fraction thereof.

B. Continuous Hinges:
   1. Acceptable manufacturers:
      a. Ives*
      b. Select Products
      c. Markar
   2. Characteristics:
      a. Continuous gear hinges to be manufactured of extruded 6063-T6 aluminum alloy with anodized finish, or factory painted finish as scheduled.
      b. All hinges are to be manufactured to template. Uncut hinges to be non-handed and to be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising.
      c. Vertical door loads to be carried on chemically lubricated polyacetal thrust bearings. The door and frame leaves to be continually geared together for the entire hinge length and secured with a full cover channel. Hinge to operate to a full 180°.
      d. Hinges to be milled, anodized and assembled in matching pairs. Fasteners supplied to be steel self drilling, self tapping 12-24 x ¾" screws.
      e. Provide UL listed continuous hinges at fire doors. Continuous hinges at fire doors (suffix -FR) to meet the required ratings without the use of auxiliary fused pins or studs.

C. Cylinders:
   1. Acceptable manufacturers:
      a. Best
      b. Falcon
      c. Schlage
   2. Characteristics:
      a. Standard system: Except as otherwise indicated, provide new master key system for Project.
      b. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), either new or integrated into Owner's existing system.
      c. Equip locksets with interchangeable core cylinders featuring patented, restricted keys and auxiliary locking pin.
      d. Furnish final cores and keys for installation by Owner.
      e. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
      f. Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
         1) Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE."
      g. Key Material: Provide keys of nickel silver only.

h. Key Quantity: Furnish 3 change keys for each lock, 5 master keys for each master system, 5 grandmaster keys for each grandmaster system, 5 construction master keys and 5 control keys for interchangeable core series.
   1) Furnish one extra blank for each lock.
   2) Furnish construction master keys to General Contractor.
   3) Deliver keys to Owner.

D. Locksets, Latchsets, Deadbolts:
1. Acceptable manufacturers:
   a. Best
   b. Falcon
   c. Schlage*
2. Mortise Locksets and Latchsets: as scheduled.
   a. Chassis: Cold-rolled steel, handing field-changeable without disassembly.
   b. Latchbolts: 3/4-inch throw stainless steel anti-friction type.
   c. Lever Trim: Through-bolted, accessible design, cast or solid rod lever as scheduled. Spindles: Independent break-away.
   d. Thumbturns: Accessible design not requiring pinching or twisting motions to operate.
   e. Deadbolts: Stainless steel 1-inch throw.
   f. Electric operation: Manufacturer-installed continuous duty solenoid.
   g. Strikes: 16 gage curved stainless steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
   h. Scheduled Lock Series and Design: Schlage L series, 17A design.
   i. Certifications:
      1) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
      2) ANSI/ASTM F476-84 Grade 30 UL Listed.
3. Extra Heavy Duty Cylindrical Locks and Latches: as scheduled, fastened with through-bolts.
   a. Chassis: Cylindrical design, corrosion-resistant plated cold-rolled steel.
   b. Locking Spindle: Stainless steel, interlocking design.
   c. Latch Retractors: Forged steel. Balance of inner parts: Corrosion-resistant plated steel, or stainless steel.
   d. Lever Trim: Accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to door face.
   e. All lock functions: 7 year warranty, Vandalguard function outside lever is disengaged when in the locked mode.
   f. Rosettes: Minimum 3-7/16" diameter for coverage of ANSI/DHI A115.18, 1994 door preparation, through-bolt lugs on both spring cages to fully engage this pattern.
   g. Springs: Full compression type.
   h. Electric operation: Manufacturer-installed continuous duty solenoid.
   i. Strikes: 16 gage curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
   j. Lock Series and Design: Schlage ND series, SPA design.
   k. Certifications:
      1) ANSI A156.2, 1994, Series 4000, Grade 1. Tested to exceed 3,000,000 cycles.

2) UL listed for A label single doors up to 4 ft x 8 ft.

E. Exit Devices:

1. Acceptable manufacturers:
   a. Von Duprin*
   b. Falcon
   c. Sargent
2. Characteristics:
   a. Exit devices to be UL Listed for life safety. Exit devices for fire rated openings to have "UL" labels for "Fire Exit Hardware."
   b. Exit devices mounted on labeled wood doors to be mounted on the door per the door manufacturer's requirements.
   c. All trim to be thru-bolted to the lock stile case.
   d. Lever trim to be solid case material with a break-away feature to limit damage to the unit from vandalism. Lever design to match locksets.
   e. All exit devices to be made of brass, bronze, stainless steel, or aluminum material, powder coated, anodized, or plated to the standard architectural finishes to match the balance of the door hardware.
   f. Provide glass bead conversion kits to shim exit devices on doors with raised glass beads.
   g. All exit devices to be one manufacturer. No deviation will be considered.
   h. All series exit devices to incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation. All exit devices to be non-handed. Touchpad to extend a minimum of 1/2 of the door width and to extend to the height of the cross rail housing for a "no pinch" operation. Plastic touchpads are not acceptable. All latchbolts to be the deadlocking type. Latchbolts to have a self-lubricating coating to reduce wear. Plated or plastic coated latchbolts are not acceptable. Plastic linkage and "dogging" components are not acceptable.
   i. Surface vertical rod devices to be UL labeled for fire door applications without the use of bottom rod assemblies. Where bottom rods are required for security applications, the devices to be UL labeled for fire doors applications with rod and latch guards by the device manufacturer.
   j. Exit devices to include impact resistant, flush mounted end cap design to avoid damage due to carts and other heavy objects passing through an opening. End cap to be of heavy-duty metal alloy construction and provide horizontal adjustment to provide alignment with device cover plate. When exit device end cap is installed, no raised edges will protrude.

F. Electric Strikes:
1. Acceptable manufacturers:
a. Von Duprin*
2. Characteristics:
a. Heavy duty, stainless steel construction.
b. Adjustable strike box to compensate for any misalignment of door or frame.
c. Two-piece plug connectors for ease of installation and for removal during strike servicing.

G. Closers and Door Control Devices:
1. Acceptable manufacturers:
a. LCN Closers*
b. Falcon
c. Dorma
2. Characteristics:
a. Door closers to have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder.
b. All closers to utilize a stable fluid withstanding temperature range of 120°F to -30°F without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors to be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C.
c. Spring power to be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Spring power adjustment (LCN Fast ™ Power Adjust) allows for quick and accurate power adjustment and visually shows closer power size settings by way of dial adjustment gauge located on closer spring tube. Hydraulic regulation to be by tamper-proof, non-critical valves. Closers to have separate adjustment for latch speed, general speed and back check.
d. All closers to have solid forged steel main arms (and forearms for parallel arm closers) and where specified to have a cast-in solid stop on the closer shoe ("CUSH"). All parallel arm mounted closers to have "EDA" type arms or, where door travel on out-swing doors must be limited, use "CUSH" or "SCUSH" type closers. Auxiliary stops are not required when "CUSH" type closers are used. Provide drop plates where top rail of door is not sufficient for closer mounting. Provide "cush shoe supports" and "blade stop spacers" where dictated by frame details.
e. Overhead concealed closers to have spring power adjustable for 50% increase in closing power and fully mortised door tracks.
f. All surface closers to be certified to exceed ten million (10,000,000) full load cycles by a recognized independent testing laboratory. All closers (overhead, surface and concealed) to be of one manufacturer and carry manufacturer's ten year warranty (electric closers to have two year warranty).
g. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped provide adjustable units complying with ADA and ANSI A-117.1 provisions for door opening force.

h. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors to provide for corridor clear width as required by code. Where possible, mount closers inside rooms.
i. Powder coating finish to be certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
j. Combination Door Closers and Holders: Provide units designed to hold door in open position under normal usage and to release and automatically close door under fire conditions. Incorporate an integral electromagnetic holder mechanism designed for use with UL listed fire detectors, provided with normally closed switching contacts.
k. Magnetic Door Holders to be heavy duty wall or floor mounted with metal housing and complete mounting hardware. Provide 24V holding coils unless otherwise scheduled.
l. Where specified, security closers (Series 4210 and 4510) to have heavy duty forged steel arms with special joints to prevent disassembly. All covers to be one-piece drawn metal and utilize a four point mounting. All exposed fasteners to have hex-lobular drive with a security pin.

H. Overhead Door Holders:
1. Acceptable manufacturers:
a. Glynn Johnson*
b. Rixson Firemark
2. Characteristics:
a. Provide (heavy duty and/or medium duty and/or light duty) door holders (concealed and/or surface mounted) of brass, bronze or stainless steel.
b. Concealed holders to be installed with the jamb bracket mortised flush with the bottom of the jamb. The arm and channel to be mortised into the door.
c. Surface holders to be installed with the jamb bracket mounted on the stop.

I. Floor Stops and Wall Bumpers:
1. Acceptable manufacturers:
a. Trimco
b. Ives*
c. Rockwood Manufacturing
2. Characteristics: Refer to Hardware Headings.

J. Door Bolts/Coordinators:
1. Acceptable manufacturers:
a. Trimco
b. Ives*
c. Rockwood Manufacturing
2. Characteristics:
a. Flush bolts to be forged brass 6-3/4" x 1", with 1/2" diameter bolts. Plunger to be supplied with milled surface one side that fits into a matching guide.
b. Automatic flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass

components.

c. Self-latching flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.

d. Automatic flush bolts and self-latching flush bolts to be UL listed for fire door application without bottom bolts (LBB).

e. Furnish dust proof bottom strikes.

f. Coordinator to be soffit mounted non-handed fully automatic UL listed coordinating device for sequential closing of paired doors with or without astragals.

g. Provide filler piece to close the header. Provide brackets as required for mounting of soffit applied hardware.

K. Push Plates:

1. Acceptable manufacturers:
   a. Trimco
   b. Ives*
   c. Rockwood Manufacturing
2. Characteristics:
   a. Exposed Fasteners: Provide manufacturers standard exposed fasteners.
   b. Material to be wrought/extruded/forged, brass/ bronze /aluminum/stainless steel, per the Hardware Headings.
   c. Provide plates sized as shown in Hardware Headings.

L. Door Pulls & Pull Plates:

1. Acceptable manufacturers:
   a. Trimco
   b. Ives*
   c. Rockwood Manufacturing
2. Characteristics:
   a. Provide concealed thru-bolted trim on back to back mounted pulls, but not for single units.
   b. Material to be extruded forged/ cast, brass/ bronze/ aluminum/ stainless steel.
   c. Provide units sized as shown in Hardware Headings.

M. Push Pull Sets:

1. Acceptable manufacturers:
   a. Trimco
   b. Ives*
   c. Rockwood Manufacturing
2. Characteristics:
   a. Provide mounting systems as shown in hardware sets.
   b. Material to be (description - i.e. solid rod, tubular, cast etc.). Brass/bronze aluminum/stainless steel.
   c. Provide Push/Pull sets sized as shown in Hardware Headings.

N. Protective Plates:

1. Acceptable manufacturers:
   a. Trimco

b. Ives*
c. Rockwood Manufacturing

2. Characteristics:
   a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
   b. Materials:
      1) Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).
      2) Metal Plates: Brass/Bronze, .062 inch (U.S. 16 gage).
      3) Plastic Plates: Clear acrylic plastic, 1/8" thick.
      4) Plastic Plates: Plastic laminate or high-impact polyethlylene, 1/8" thick, in color selected.
   c. Fabricate protection plates not more than 2 inches less than door width on push side and not more than 1 inch less than door width on pull side.
   d. Heights:
      1) Kick plates to be 10 inches in height.
      2) Mop plates to be 4 inches in height.
      3) Armor plates to be 36 inches in height. Armor plates on fire doors to comply with NFPA 80.

O. Thresholds:
1. Acceptable manufacturers:
   a. National Guard Products, Inc.*
   b. Reese Industries
   c. Zero Weatherstripping Co., Inc.
2. Types: Indicated in Hardware Headings.

P. Door Seals/Gasketing:
1. Acceptable manufacturers:
   a. National Guard Products, Inc.*
   b. Reese Industries
   c. Zero Weatherstripping Co., Inc.
2. Types: Indicated in Hardware Headings.

Q. Silencers:
1. Acceptable manufacturers:
   a. Hager
   b. Ives*
   c. Rockwood Manufacturing
2. Three for each single door; two for each pair of doors.

R. Key Cabinet and System:
1. Acceptable manufacturers:
   a. Telkee, Inc.
2. Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150 percent of the number of locks required for the project.
   a. Provide complete cross index system set up by key control distributor, and place keys on markers and hooks in the cabinet as determined by the

final key schedule.

b. Provide hinged-panel type cabinet for wall mounting.

c. Provide multiple-drawer type cabinet.

2.02 MATERIALS AND FABRICATION

A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Architect.

1. Manufacturer's identification will be permitted on rim of lock cylinders only.

B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.

1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
2. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
4. Do not use thru-bolts or sex bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of adequately fastening the hardware, or otherwise found in Headings. Coordinate with wood doors and metal doors and frames. Where thru-bolts are used, provide sleeves for each thru-bolt as a means of reinforcing the work, or use sex screw fasteners.

2.03 HARDWARE FINISHES

A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).

B. Provide finishes that match those established by ANSI or, if none established, match the Architect's sample.

C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and

aluminum, except as otherwise indicated. The suffix "-NL" is used with standard finish designations to indicate "no lacquer."

E. The designations used to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.
1. Hinges (Exterior): 630 (US32D) Satin Stainless Steel
2. Hinges (Interior wood doors): 652 (US26D) Satin Chrome Plated Steel
3. Hinges (Interior metal doors): 600 (USP)
4. Continuous Hinges: 628 (US28) Clear Anodized Aluminum
5. Flush Bolts: 626 (US26D) Satin Chrome Plated Brass/Bronze
6. Locks: 630 (US32D) Satin Stainless Steel
7. Exit Devices: 628 (US28) chassis, 689 (powder coated) covers, and 630 (US32D) touchpads
8. Door Closers: 689 Powder Coat Aluminum
9. Push Plates: 630 (US32D) Satin Stainless Steel
10. Pull Plates: 630 (US32D) Satin Stainless Steel
11. Protective Plates: 630 (US32D) Satin Stainless Steel
12. Door Stops: 626 (US26D) Satin Chrome Plated Brass/Bronze
13. Overhead Holders: 630 Satin Stainless Steel and 689 Powder Coated Steel (as scheduled)
14. Thresholds/Weatherstripping: 627/628 (US27/US28) Aluminum

PART 3 - EXECUTION

3.01 INSTALLATION

A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
2. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.
3. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers".

F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.02 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
   1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.

B. Clean adjacent surfaces soiled by hardware installation.

C. Door Hardware Supplier's Field Service:
   1. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.
   2. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
   3. File written report of this inspection to Architect.

3.03 HARDWARE SCHEDULE

3.04 HARDWARE SCHEDULE

HW SET: 01
DOOR NUMBER:
107 122

EACH TO HAVE:

6	HINGE	A5111 NRP (5BB1HW NRP)	630	IVE
1	SET FLUSH BOLTS	L04251 X L14011 (FB458 X DP2)		IVE
1	STOREROOM LOCK	FUNCTION 07 (L9080HD)		SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE		FAL
	CARD READER	BY SECURITY		
	ELECTRIC STRIKE	E09331 (6211 FSE 24VDC)		VON
1	SURFACE CLOSER	C02061 X PT4C X PT4D X PT4G X PT4H (4041 HCUSH)		LCN
1	OVERHEAD HOLDER	C02511 (90H)		GLY
2	KICK PLATE	J102 (8400)		IVE
1	ASTRAGAL	R0Y134 (5060)		NGP
1	SEALS	ROY154 (5050B)		NGP
2	DOOR SWEEP	R3A436 (C607A)		NGP
1	THRESHOLD	J32130 (425)		NGP
	POWER SUPPLY	BY SECURITY		
	DOOR POSITION SWITCH	BY SECURITY		

HW SET: 02
DOOR NUMBER:
127A 133A

EACH TO HAVE:

3	HINGE	A5111 NRP (5BB1HW NRP)	630	IVE
1	POWER TRANSFER	EPT-10		VON
1	PANIC HARDWARE	L2 - A156.03 - T04, FN03 - E04 (EL35A-NL-OP)		VON
1	RIM CYLINDER	FALCON / BEST RIM CYLINDER (FOR EXIT DEVICE)		FAL
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE		FAL
1	CARD READER	BY SECURITY		
1	OFFSET DOOR PULL	J402 (8190-0)		IVE
1	SURFACE CLOSER	C02021 X PT4C X PT4D X PT4G X PT4H (4041 CUSH)		LCN
1	KICK PLATE	J102 (8400)		IVE
1	SEALS	ROY154 (5050B)		NGP
1	DOOR SWEEP	R3A436 (C607A)		NGP
1	THRESHOLD	J32130 (425)		NGP
1	POWER SUPPLY	PS914-2RS		FAL
1	DOOR POSITION SWITCH	BY SECURITY		

HW SET: 03
DOOR NUMBER:
113 114

EACH TO HAVE:

3	HINGE	A8112 (5BB1)	IVE
1	STOREROOM LOCK	FUNCTION 44 (ND80HD)	SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE	FAL
1	CARD READER	BY SECURITY	
1	ELECTRIC STRIKE	E09331 (6211 FSE 24VDC)	VON
1	SURFACE CLOSER	C02011 X PT4C X PT4D X PT4H (4041 REG)	LCN
1	KICK PLATE	J102 (8400)	IVE
1	WALL STOP	L02251 (WS407CCV)	IVE
1	DOOR POSITION SWITCH	BY SECURITY	

COORDINATE WITH ELECTRICAL AND SECURITY SYSTEMS.

ALL ELECTRONIC ACCESS CONTROL HARDWARE TO BE PROVIDED BY SECURITY CONTRACTOR.

DOOR NORMALLY CLOSED AND LOCKED. TO ENTER THE SPACE, SOMEONE MUST PRESENT VALID CREDENTIAL TO CARD WHICH WILL ALLOW DOOR TO OPEN.

HW SET: 04
DOOR NUMBER:
111 112

EACH TO HAVE:

3	HINGE	A8111 (5BB1HW)	IVE
1	PUSH PLATE	J301 (8200 4" X 16")	IVE
1	PULL PLATE	J405 (8303-0 4" X 16")	IVE
1	SURFACE CLOSER	C02011 X PT4C X PT4D X PT4H (4041 REG)	LCN
1	KICK PLATE	J102 (8400)	IVE
1	MOP PLATE	J103 (8400)	IVE
1	WALL STOP	L02251 (WS407CCV)	IVE

HW SET: 05
DOOR NUMBER:
108 108A 127 133

EACH TO HAVE:

6	HINGE	A5111 NRP (5BB1HW NRP)	630	IVE
2	EXIT DEVICE	(L2 - A156.03 - T04, FN03-E04) 9827L-F-LBR		VON
2	EXIT DEVICE	(L2- A156.03-T04, FN03-E04) 9827L-LBR @ 127, 133		VON
2	RIM CYLINDER	FALCON / BEST		VON
2	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE		FAL
2	SURFACE CLOSER	C02021 X PT4C X PT4D X PT4G X PT4H (4041 CUSH)		LCN
2	KICK PLATE	J102 (8400)		IVE

1	ASTRAGAL	R0Y134 (5060)		NGP
2	SEALS	ROY154 (5050B)		NGP

HW SET: 06
DOOR NUMBER:
106 116 118

EACH TO HAVE:

6	HINGE	A5111 NRP (5BB1HW NRP)	630	IVE
1	SET FLUSH BOLTS	L04261 X L14011 (FB358 X DP2)		IVE
1	CLASSROOM LOCK	FUNCTION 86 (ND80HD)		SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE		FAL
1	SURFACE CLOSER	C02021 X PT4C X PT4D X PT4G X PT4H (4041 CUSH)		LCN
1	OVERHEAD STOP	C02541 (90S)		GLY
2	KICK PLATE	J102 (8400)		IVE
1	ASTRAGAL	R0Y134 (5060)		NGP
2	SEALS	ROY154 (5050B)		NGP

HW SET: 07
DOOR NUMBER:
126

EACH TO HAVE:

6	HINGE	A5111 NRP (5BB1HW NRP)	630	IVE
1	SET FLUSH BOLTS	L04261 X L14011 (FB358 X DP2)		IVE
1	CLASSROOM LOCK	FUNCTION 86 (ND80HD)		SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE		FAL
1	SURFACE CLOSER	C02011 X PT4C X PT4D X PT4H (4041 REG)		LCN
1	FLOOR STOP	L12141 (FS436)		IVE
2	KICK PLATE	J102 (8400)		IVE
1	ASTRAGAL	R0Y134 (5060)		NGP
2	SEALS	ROY154 (5050B)		NGP

HW SET: 08
DOOR NUMBER:
125

EACH TO HAVE:

3	HINGE	A8112 (5BB1)	IVE
1	CLASSROOM LOCK	FUNCTION 42 (ND70HD)	SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE	FAL
1	OVERHEAD STOP	C02541 (90S)	GLY

HW SET: 09
DOOR NUMBER:
103 129

EACH TO HAVE:

3	HINGE	A8112 (5BB1)	IVE
1	OFFICE LOCK	FUNCTION 41 (ND50HD)	SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE	FAL
1	SURFACE CLOSER	C02021 X PT4C X PT4D X PT4G X PT4H (4041 CUSH) @ 103	LCN
1	KICK PLATE	J102 (8400) @ 103	IVE
1	WALL STOP	L02251 (WS407CCV)	IVE

HW SET: 10
DOOR NUMBER:
112 115 117 120

EACH TO HAVE:

3	HINGE	A5111 (5BB1HW)	IVE
1	CLASSROOM LOCK	FUNCTION 42 (ND70HD)	SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE	FAL
1	SURFACE CLOSER	C02021 X PT4C X PT4D X PT4G X PT4H (4041 CUSH)	LCN
1	KICK PLATE	J102 (8400)	IVE

HW SET: 11
DOOR NUMBER:
110 134

EACH TO HAVE:

3	HINGE	A8112 (5BB1)	IVE
1	STOREROOM LOCK	FUNCTION 44 (ND80HD)	SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE	FAL
1	OVERHEAD STOP	C02541 (90S)	GLY
1	KICK PLATE	J102 (8400)	IVE

HW SET: 12
DOOR NUMBER:
119

EACH TO HAVE:

3	HINGE	A8112 (5BB1)	IVE
1	PRIVACY SET	FUNCTION 76 (ND40S)	SCH
1	SURFACE CLOSER	C02021 X PT4C X PT4D X PT4G X PT4H (4041 CUSH)	LCN
1	KICK PLATE	J102 (8400)	IVE
1	MOP PLATE	J103 (8400)	IVE
1	SEALS	ROY154 (2525B)	NGP

HW SET: 13
DOOR NUMBER:
121 130 131

EACH TO HAVE:

3	HINGE	A8112 (5BB1)	IVE
1	STOREROOM LOCK	FUNCTION 44 (ND80HD)	SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE	FAL
1	WALL STOP	L02251 (WS407CCV)	IVE

HW SET: 14
DOOR NUMBER:
123

EACH TO HAVE:

3	HINGE	A8112 (5BB1)	IVE
1	PASSAGE SET	FUNCTION 75 (ND10S)	SCH
1	SURFACE CLOSER	C02011 X PT4C X PT4D X PT4H (4041 REG)	LCN
1	KICK PLATE	J102 (8400)	IVE
1	WALL STOP	L02251 (WS407CCV)	IVE

HW SET: 15
DOOR NUMBER:
132 132A

EACH TO HAVE:

3	HINGE	A8112 (5BB1)	IVE
1	CLASSROOM LOCK	FUNCTION 42 (ND70HD)	SCH
1	IC CORE ONLY, KEYED	FALCON / BEST SFIC CORE	FAL
1	SURFACE CLOSER	C02011 X PT4C X PT4D X PT4H (4041 REG)	LCN
1	KICK PLATE	J102 (8400)	IVE
1	WALL STOP	L02251 (WS407CCV)	IVE
1	SEALS	ROY154 (2525B)	NGP

HW SET: 16
DOOR NUMBER:

G1

EACH TO HAVE:
ALL HARDWARE TO BE PROVIDED BY GATE SUPPLIER / MANUFACTURER

HW SET: 17
DOOR NUMBER:
101 (VESTIBULE TO EXTERIOR)

EACH TO HAVE:

2	CONTINUOUS HINGE	224HD X EPT PREP	IVE
2	POWER TRANSFER	EPT-10	VON
1	MULLION	KR4954	VON
1	EXIT DEVICE	EL98EO	VON
1	EXIT DEVICE	EL98NL X LESS PULL	VON
1	RIM CYLINDER	FALCON / BEST (FOR EXIT DEVICE)	
2	MORTISE CYLINDER	FALCON / BEST (1 FOR FOR KR, 1 FOR KEY SWITCH)	
2	AUTO DOOR OPERATOR	4640 SERIES	LCN
2	ACTUATOR, WALL MT	8310-856	LCN
2	SURFACE MOUNT BOX	8310-868S	LCN
2	OFFSET PULLS	8190-0	IVE
2	OVERHEAD STOP	90S	GLY
1	DOOR SEALS	5050	NGP
1	DOOR BOTTOM SEAL	C627A	NGP
1	THRESHOLD	425HD	NGP
1	DRIP CAP	16A	NGP
1	CARD READER	BY SECURITY	
1	WIRING DIAGRAM	FURNISHED BY HARDWARE SUPPLIER	
1	POWER SUPPLY	PS914 X 900-2RS	VON
1	KEYSWITCH	653-15	SCE
2	DOOR POSITION SWITCH	BY SECURITY	

COORDINATE WITH ELECTRICAL AND SECURITY SYSTEMS.

ACTUATORS ARE TO BE ACTIVATED BY KEYSWITCH DURING OPEN HOURS OF OPERATION. DURING CLOSED HOURS, KEYSWITCH WILL BE USED TO DISABLE ACTUATORS.

AUTOMATIC DOOR OPENERS TO WORK SEQUENTIALLY WITH OPENERS IN HARDWARE SET 18. WHEN EXTERIOR ACTUATOR IS PRESSED (WHEN ACTIVATED), ELECTRIC LATCH WILL RETRACT AND EXTERIOR DOORS WILL OPEN FOLLOWED BY THE VESTIBULE DOORS.

HW SET: 18
DOOR NUMBER:
102 (CORRIDOR TO VESTIBULE)

EACH TO HAVE:

2	CONTINUOUS HINGE	224HD	IVE
2	DUMMY TOUCH BAR	350	VON
2	AUTO DOOR OPERATOR	4640 SERIES	LCN
2	ACTUATOR, JAMB MT	8310-818 (MOUNTED IN CORRIDOR)	LCN
2	OVERHEAD STOP	90S	GLY
2	OFFSET DOOR PULL	8190-0-N	IVE
2	DOOR BOTTOM SEAL	C607A	NGP
1	DOOR SEALS	5050B	NGP
1	ASTRAGAL	5060B	NGP
1	THRESHOLD	425HD	NGP
1	WIRING DIAGRAM	FURNISHED BY HARDWARE SUPPLIER	

COORDINATE WITH ELECTRICAL AND SECURITY SYSTEMS.

WHEN INTERIOR ACTUATOR IS PRESSED, VESTIBULE DOORS WILL OPEN, LATCHES WILL BE RETRACTED ON EXTERIOR DOORS, AND EXTERIOR DOORS WILL OPEN ALLOWING EXIT FROM THE BUILDING.

ALWAYS FREE EGRESS OUT OF THE BUILDING USING THE PUSH PAD ON THE PANIC HARDWARE.

HW SET: 19
DOOR NUMBER:
104 105

EACH TO HAVE:

2	CONTINUOUS HINGE	224HD X EPT PREP	IVE
2	POWER TRANSFER	EPT-10	VON
1	MULLION	KR4954	VON
1	EXIT DEVICE	EL35A-EO	VON
1	EXIT DEVICE	EL35A-NL X LESS PULL	VON
1	RIM CYLINDER	FALCON / BEST (FOR EXIT DEVICE)	
2	OFFSET PULLS	8190-0	IVE
1	SURFACE CLOSER	C02011 X PT4C X PT4D X PT4H (4041 SCUSH)	LCN
1	MOUNTING PLATE	4110-18 AS REQUIRED	LCN
1	CUSH SHOE SUPPORT	4110-30 AS REQUIRED	LCN
1	BLADE STOP SPACER	4110-61 AS REQUIRED	LCN
1	DOOR SEALS	5050	NGP
1	DOOR BOTTOM SEAL	C627A	NGP
1	THRESHOLD	425HD	NGP
1	DRIP CAP	16A	NGP
1	CARD READER	BY SECURITY	
1	WIRING DIAGRAM	FURNISHED BY HARDWARE SUPPLIER	
1	POWER SUPPLY	PS914 X 900-2RS X BBK	VON
2	DOOR POSITION SWITCH	BY SECURITY	

COORDINATE WITH ELECTRICAL AND SECURITY SYSTEMS.

END OF SECTION 08710

SECTION 102226 – OPERABLE PARTITIONS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Manually operated, paired panel operable partitions.

B. Related Sections include the following:

1. Division 3 Sections for concrete tolerances required.
2. Division 5 Sections for primary structural support, including pre-punching of support members by structural steel supplier per operable partition supplier's template.
3. Division 6 Sections for wood framing and supports, and all blocking at head and jambs as required.
4. Division 9 Sections for wall and ceiling framing at head and jambs.

1.2 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified in writing by the operable partition manufacturer, as qualified to install the manufacturer's partition systems for work similar in material, design, and extent to that indicated for this Project.

B. Acoustical Performance: Test operable partitions in an independent acoustical laboratory in accordance with ASTM E90 test procedure to attain no less than the STC rating specified. Provide a complete and unedited written test report by the testing laboratory upon request.

C. Preparation of the opening shall conform to the criteria set forth per ASTM E557 "Standard Practice for Architectural Application and Installation of Operable Partitions."

1.3 SUBMITTALS

A. Product Data: Material descriptions, construction details, finishes, installation details, and operating instructions for each type of operable partition, component, and accessory specified.

B. Shop Drawings: Show location and extent of operable partitions. Include plans, sections, details, attachments to other construction, and accessories. Indicate dimensions, weights, conditions at openings, and at storage areas, and required installation, storage, and operating clearances. Indicate location and installation requirements for hardware and track, including floor tolerances required and direction of travel. Indicate blocking to be provided by others.

C. Setting Drawings: Show imbedded items and cutouts required in other work, including support beam punching template.

D. Samples: Color samples demonstrating full range of finishes available by architect. Verification samples will be available in same thickness and material indicated for the work.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Clearly mark packages and panels with numbering systems used on Shop Drawings. Do not use permanent markings on panels.

B. Protect panels during delivery, storage, and handling to comply with manufacturer's direction and as required to prevent damage.

1.5 WARRANTY

A. Provide written warranty by manufacturer of operable partitions agreeing to repair or replace any components with manufacturing defects.

B. Partition Warranty period: Two (2) years from date of shipment.

C. Suspension System Warranty: Five (5) years from date of shipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS, PRODUCTS, AND OPERATIONS

1. Basis of Design Product: Subject to compliance with requirements, provide Acousti-Seal #932 manually operated paired panel operable partition by Modernfold, Inc. Subject to compliance with requirements available manufacturers offering products that may be included into the Work include but are not limited to, the following:

1. Panelfold, Inc.

2.2 OPERATION

A. Operation: Series of paired flat panels hinged together in pairs, manually operated, top supported with operable floor seals.

B. Final Closure:

1. Final Closure: Horizontally expanding panel edge with removable crank

2.3 PANEL CONSTRUCTION

A. Nominal 3-inch (76mm) thick panels in manufacturer's standard 48-inch (1220mm) widths. All panel horizontal and vertical framing members fabricated from minimum 18-gage formed steel with overlapped and welded corners for rigidity. Top channel is reinforced to support

suspension system components. Frame is designed so that full vertical edges of panels are of formed steel and provide concealed protection of the edges of the panel skin.

B. Panel skin shall be:

1. Panel Skin: 0.50-inch (13mm) tackable 100% recycled gypsum board, class "A" rated single material or composite layers continuously bonded to panel frame. Acoustical ratings of panels with this construction minimum:

a. 50 STC

C. Hinges for Panels, Closure Panels, Pass Doors, and Pocket Doors shall be:

1. Hinges for Panels: Full leaf butt hinges, attached directly to the panel frame with welded hinge anchor plates within panel to further support hinge mounting to frame. Lifetime warranty on hinges. Hinges mounted into panel edge or vertical astragal are not acceptable.

D. Panel Trim: No vertical trim required or allowed on edges of panels; minimal groove appearance at panel joints.

E. Panel Weights:

1. Panel Weights: 50 STC - 8 lbs./square foot.

2.4 PANEL FINISH

A. A. Panel finish shall be factory applied, Class "A" rated material. Finish shall be:

1. Panel Finish: Reinforced vinyl with woven backing weighing not less than 21 ounces (595 grams) per lineal yard.

B. Panel Trim: Exposed panel trim of one consistent color:

2.5 SOUND SEALS

A. Vertical Interlocking Sound Seals between panels: Roll-formed steel astragals, with reversible tongue and groove configuration in each panel edge for universal panel operation. Rigid plastic astragals or astragals in only one panel edge are not acceptable.

B. Horizontal Top Seals: Continuous contact extruded vinyl bulb shape with pairs of non-contacting vinyl fingers to prevent distortion without the need for mechanically operated parts.

C. Horizontal bottom floor seals shall be:

1. Horizontal Bottom Floor Seals: Modernfold IA2 Bottom seal or selected manufacturer's equal. Automatic operable seals providing nominal 2-inch (51mm) operating clearance

with an operating range of +0.50-inch (13mm) to -1.50-inch (38mm) which automatically drop as panels are positioned, without the need for tools or cranks.

2.6 SUSPENSION SYSTEM

A. Suspension System:

1. Suspension Tracks: Minimum 11-gauge, 0.12-inch (3.04mm) roll-formed steel track, suitable for either direct mounting to a wood header or supported by adjustable steel hanger brackets, supporting the load-bearing surface of the track, connected to structural support by pairs of 0.38-inch (10mm) diameter threaded rods. Aluminum track is not acceptable.

    a. Exposed track soffit: Steel, integral to track, and pre-painted off-white.

2. Carriers: One all-steel trolley with steel tired ball bearing wheels per panel (except hinged panels). Non-steel tires are not acceptable.

2.7 SINGLE PASS DOORS AND POCKET DOORS

A. Single Pass Doors:

1. Single Pass Door: Matching pass door same thickness and appearance as the panels. ADA compliant pass door to be trimless and equipped with friction latch and flush pulls for panic operation. No threshold will be permitted.
2. Self-Illuminated Exit Signs: Self-Illuminated exit signs at single pass door locations.

B. Pocket Doors:

1. Pocket Doors: Acousti-Seal Pocket Doors by Modernfold, Inc., or selected manufacturer's equal, with same construction, finish, and appearance as the adjacent panels.

    a. Pocket Door configuration shall be manually operated: Type II double door hinged to a jamb on each side and closing in the center.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with ASTM E557, operable partition manufacturer's written installation instructions, Drawings and approved Shop Drawings.

B. Install operable partitions and accessories after other finishing operations, including painting have been completed.

C. Match operable partitions by installing panels from marked packages in numbered sequence indicated on Shop Drawings.

D. Broken, cracked, chipped, deformed or unmatched panels are not acceptable.

3.2 CLEANING AND PROTECTION

A. Clean partition surfaces upon completing installation of operable partitions to remove dust, dirt, adhesives, and other foreign materials according to manufacturer's written instructions.

B. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and installer that insure operable partitions are without damage or deterioration at time of Substantial Completion.

3.3 ADJUSTING

A. Adjust operable partitions to operate smoothly, easily, and quietly, free from binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Lubricate hardware and other moving parts.

3.4 EXAMINATION

A. Examine flooring, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of operable partitions. Proceed with installation only after unsatisfactory conditions have been corrected.

3.5 DEMONSTRATION

A. Demonstrate proper operation and maintenance procedures to Owner's representative.

B. Provide Operation and Maintenance Manual to Owner's representative.

END OF SECTION 102266

SECTION 236500 - COOLING TOWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Closed-circuit, forced-draft, counterflow cooling towers.
2. Closed-circuit, induced-draft, combined-flow cooling towers.
3. Closed-circuit, induced-draft, counterflow cooling towers.

1.3 DEFINITIONS

A. BMS: Building management system.

B. FRP: Fiber-reinforced polyester.

1.4 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design cooling tower support structure and wind restraints, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Cooling tower support structure shall withstand the effects of gravity loads and loads and stresses within limits and under conditions at project location.

C. Seismic Performance: Cooling towers shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, pressure drop, fan performance data, rating curves with selected points indicated, furnished specialties, and accessories.

1. Maximum flow rate.

2. Minimum flow rate.
3. Drift loss as percent of design flow rate.
4. Volume of water in suspension for purposes of sizing a remote storage tank.
5. Sound power levels in eight octave bands for operation with fans off, fans at minimum, and design speed.
6. Performance curves for the following:

    a. Varying entering-water temperatures from design to minimum.
    b. Varying ambient wet-bulb temperatures from design to minimum.
    c. Varying water flow rates from design to minimum.
    d. Varying fan operation (off, minimum, and design speed).

7. Fan airflow, brake horsepower, and drive losses.
8. Pump flow rate, head, brake horsepower, and efficiency.
9. Motor amperage, efficiency, and power factor at 100, 75, 50, and 25 percent of nameplate horsepower.
10. Electrical power requirements for each cooling tower component requiring power.

B. Shop Drawings: Complete set of manufacturer's prints of cooling tower assemblies, control panels, sections and elevations, and unit isolation. Include the following:

1. Assembled unit dimensions.
2. Weight and load distribution.
3. Required clearances for maintenance and operation.
4. Sizes and locations of piping and wiring connections.
5. Wiring Diagrams: For power, signal, and control wiring.

C. Delegated-Design Submittal: For cooling tower support structure indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail fabrication and assembly of support structure.
2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
3. Design Calculations: Calculate requirements for selecting vibration isolators and seismic restraints and wind restraints and for designing vibration isolation bases.

1.6 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Floor plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved:

1. Structural supports.
2. Piping roughing-in requirements.
3. Wiring roughing-in requirements, including spaces reserved for electrical equipment.
4. Access requirements, including working clearances for mechanical controls and electrical equipment, and tube pull and service clearances.

B. Certificates: For certification required in "Quality Assurance" Article.

C. Seismic Qualification Certificates: For cooling towers, accessories, and components, from manufacturers.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Source quality-control reports.

E. Field quality-control reports.

F. Startup service reports.

G. Warranty: Sample of special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For each cooling tower to include in emergency, operation, and maintenance manuals.

1.8 QUALITY ASSURANCE

A. Testing Agency Qualifications: Certified by CTI.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. ASHRAE/IESNA 90.1 Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

D. ASME Compliance: Fabricate and label heat-exchanger coils to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.

E. CTI Certification: Cooling tower thermal performance according to CTI STD 201, "Certification Standard for Commercial Water-Cooling Towers Thermal Performance."

F. FMG approval and listing in the latest edition of FMG's "Approval Guide."

1.9 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

B. Coordinate sizes, locations, and anchoring attachments of structural-steel support structures.

C. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace the following components of cooling towers that fail in materials or workmanship within specified warranty period:

1. Fan assembly including fan, drive, and motor.
2. All components of cooling tower.
3. Basis of warranty period: 15 years.
4. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CLOSED-CIRCUIT, INDUCED-DRAFT, COUNTERFLOW COOLING TOWERS

A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Reymsa Cooling Tower.
2. Baltimore Aircoil Company; Models VFL and VF1.
3. Delta Cooling Towers, Inc.; Model Pioneer.
4. Evapco Inc.; Models ATW.

B. Fabricate cooling tower mounting base with reinforcement strong enough to resist cooling tower movement during a seismic event when cooling tower is anchored to field support structure.

C. Casing and Frame:

1. Casing and Frame Material: FRP with UV inhibitors or galvanized steel.
2. Frame Material: FRP with UV inhibitors or galvanized steel.
3. Fasteners: Stainless steel.
4. Joints and Seams: Sealed watertight.

D. Collection Basin:

1. Material: FRP with UV inhibitors or stainless steel.
2. Strainer: Removable corrosion resistant strainer with openings smaller than nozzle orifices.
3. Overflow and drain connections.
4. Makeup water connection.
5. Basin Sweeper Distribution Piping and Nozzles:

a. Pipe Material: PVC.
b. Nozzle Material: Plastic.
c. Configure piping and nozzles to minimize sediment from collecting in the collection basin.

E. Mechanically Operated, Collection Basin Water-Level Control: Manufacturer's standard adjustable, mechanical float assembly and valve.

F. Electric, Collection Basin Water-Level Controller with Solenoid Valve:

1. Enclosure: NEMA 250, Type 4X.
2. Sensor: Solid-state controls with multiple electrode probes and relays factory wired to a terminal strip to provide control of water makeup valve and low- and high-level alarms.
3. Electrode Probes: Stainless steel.
4. Water Stilling Chamber: FRP.
5. Solenoid Valve: Slow closing, controlled and powered through level controller in response to water-level set point.

G. Electric Basin Heater:

1. Stainless-Steel Electric Immersion Heaters: Installed in a threaded coupling on the side of the collection basin.
2. Heater Control Panel: Mounted on the side of each cooling tower cell.
3. Enclosure: NEMA 250, Type 4X.
4. Magnetic contactors controlled by a temperature sensor/controller to maintain collection basin water-temperature set point. Water-level probe shall monitor cooling tower water level and de-energize the heater when the water reaches low-level set point.
5. Control-circuit transformer with primary and secondary side fuses.
6. Terminal blocks with numbered and color-coded wiring to match wiring diagram.
7. Single-point, field-power connection to a circuit breaker and heater branch circuiting complying with NFPA 70.
8. Factory Wiring Method: Metal raceway for factory-installed wiring outside of enclosures, except make connections to each electric basin heater with liquidtight conduit.

H. Water Distribution Piping: Main header and lateral branch piping designed for even distribution over fill throughout the flow range without the need for balancing valves and for connecting individual, removable, nonclogging spray nozzles.

1. Pipe Material: PVC.
2. Spray Nozzle Material: Plastic.
3. Piping Supports: Corrosion-resistant hangers and supports designed to resist movement during operation and shipment.

I. Removable Drift Eliminator:

1. Material: FRP or PVC; with maximum flame-spread index of 25 according to ASTM E 84.
2. UV Treatment: Inhibitors to protect against damage caused by UV radiation.
3. Configuration: Multipass, designed and tested to reduce water carryover to achieve performance indicated.

J. Fan Motor:

1. General Requirements for Fan Motors: Comply with NEMA designation and temperature-rating requirements specified in Section 230513 "Common Motor Requirements for HVAC Equipment" and not indicated below.
2. Motor Enclosure: Totally enclosed fan cooled (TEFC).
3. Energy Efficiency: NEMA Premium Efficient.

4. Service Factor: 1.15.
5. Insulation: Class F.

K. Discharge Hoods:

1. Hood Configuration: Straight; totally surrounding drift eliminators and constructed of same material as casing; and having factory-installed access doors.

L. Vibration Switch: For each fan drive.

1. Enclosure: NEMA 250, Type 4X.
2. Vibration Detection: Sensor with a field-adjustable acceleration sensitivity set point in a range of 0 to 1 g and frequency range of 0 to 3000 cycles per minute. Cooling tower manufacturer shall recommend switch set point for proper operation and protection.
3. Provide switch with manual-reset button for field connection to a BMS and hardwired connection to fan motor electrical circuit.
4. Switch shall, on sensing excessive vibration, signal an alarm through the BMS and shut down the fan.

M. Control Package: Factory installed and wired, and functionally tested at factory before shipment.

1. NEMA 250, Type 4X enclosure with removable internally mount backplate.
2. Control-circuit transformer with primary and secondary side fuses.
3. Terminal blocks with numbered and color-coded wiring to match wiring diagram. Spare wiring terminal block for connection to external controls or equipment.
4. Microprocessor-based controller for automatic control of fan based on cooling tower leaving-water temperature with control features to improve operating efficiency based on outdoor ambient wet-bulb temperature by using adaptive logic.
5. Collection basin, electric/electronic level controller complying with requirements in "Electric/Electronic, Collection Basin Water-Level Controller with Solenoid Valve" Paragraph.
6. Electric basin heaters with temperature control and low-water-level safety switch for each cell, complying with requirements in "Electric Basin Heater" Paragraph.
7. Vibration switch for each fan, complying with requirements in "Vibration Switch" Paragraph.
8. Single-point, field-power connection to a circuit breaker.

    a. Branch power circuit to each motor and electric basin heater and to controls with a disconnect switch or circuit breaker.
    b. NEMA-rated motor controller, hand-off-auto switch, and overcurrent protection for each motor. Provide variable frequency controller with manual bypass and line reactors for each variable-speed motor indicated.

9. Factory-installed wiring outside of enclosures shall be in metal raceway, except make connections to each motor and electric basin heater with liquidtight conduit.
10. Visual indication of status and alarm for each motor.
11. Audible alarm and silence switch.
12. Visual indication of elapsed run time, graduated in hours for each motor.
13. Cooling tower shall have hardware to enable BMS to remotely monitor and display the following:

a. Operational status of each motor.
b. Cooling tower leaving-fluid temperature.
c. Fan vibration alarm.
d. Collection basin high- and low-water-level alarms.

N. Personnel Access Components:

1. Doors: Large enough for personnel to access cooling tower internal components from cooling tower end walls. Doors shall be operable from both sides of the door.
2. External Ladders with Safety Cages: Aluminum, galvanized- or stainless-steel, fixed ladders with ladder extensions to access external platforms and top of cooling tower from adjacent grade without the need for portable ladders. Comply with 29 CFR 1910.27.
3. External Platforms with Handrails: Aluminum, FRP, or galvanized-steel bar grating at cooling tower access doors when cooling towers are elevated and not accessible from grade.
4. Handrail: Aluminum, galvanized steel, or stainless steel complete with kneerail and toeboard at platforms and around top of cooling tower. Comply with 29 CFR 1910.23.

2.2 SOURCE QUALITY CONTROL

A. Verification of Performance: Test and certify cooling tower performance according to CTI STD 201, "Certification Standard for Commercial Water-Cooling Towers Thermal Performance."

B. Factory pressure test heat exchangers after fabrication and prove to be free of leaks.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Before cooling tower installation, examine roughing-in for tower support, anchor-bolt sizes and locations, piping, and electrical connections to verify actual locations, sizes, and other conditions affecting tower performance, maintenance, and operation.

1. Cooling tower locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install cooling towers on support structure indicated.

B. Equipment Mounting:

1. Install cooling towers on cast-in-place concrete equipment bases. Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."

C. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. Maintain manufacturer's recommended clearances for service and maintenance.

E. Loose Components: Install electrical components, devices, and accessories that are not factory mounted.

3.3 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to cooling towers to allow service and maintenance.

C. Install flexible pipe connectors at pipe connections of cooling towers mounted on vibration isolators.

D. Provide drain piping with valve at cooling tower drain connections and at low points in piping.

E. Connect cooling tower overflows and drains, and piping drains to sanitary sewage system.

F. Domestic Water Piping: Comply with applicable requirements in Section 221116 "Domestic Water Piping." Connect to water-level control with shutoff valve and union, flange, or mechanical coupling at each connection.

G. Supply and Return Piping: Comply with applicable requirements in Section 232113 "Hydronic Piping" and Section 232116 Hydronic Piping Specialties." Connect to entering cooling tower connections with shutoff valve, balancing valve, thermometer, plugged tee with pressure gage, and drain connection with valve. Connect to leaving cooling tower connection with shutoff valve. Make connections to cooling tower with a union, flange, or mechanical coupling.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: **Engage** a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to perform field tests and inspections.

C. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

D. Tests and Inspections: Comply with CTI ATC 105, "Acceptance Test Code for Water Cooling Towers."

E. Cooling towers will be considered defective if they do not pass tests and inspections.

F. Prepare test and inspection reports.

3.5 STARTUP SERVICE

A. **Engage a factory-authorized service representative to perform** startup service.

B. Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assemblies, installations, and connections.

C. Obtain performance data from manufacturer.

1. Complete installation and startup checks according to manufacturer's written instructions and perform the following:

   a. Clean entire unit including basins.
   b. Verify that accessories are properly installed.
   c. Verify clearances for airflow and for cooling tower servicing.
   d. Check for vibration isolation and structural support.
   e. Lubricate bearings.
   f. Verify fan rotation for correct direction and for vibration or binding and correct problems.
   g. Adjust belts to proper alignment and tension.
   h. Verify proper oil level in gear-drive housing. Fill with oil to proper level.
   i. Operate variable-speed fans through entire operating range and check for harmonic vibration imbalance. Set motor controller to skip speeds resulting in abnormal vibration.
   j. Check vibration switch setting. Verify operation.
   k. Verify water level in tower basin. Fill to proper startup level. Check makeup water-level control and valve.
   l. Verify operation of basin heater and control.
   m. Verify that cooling tower air discharge is not recirculating air into tower or HVAC air intakes. Recommend corrective action.
   n. Replace defective and malfunctioning units.

D. Start cooling tower and associated water pumps. Follow manufacturer's written starting procedures.

E. Prepare a written startup report that records the results of tests and inspections.

3.6 ADJUSTING

A. Set and balance water flow to each tower inlet.

B. Adjust water-level control for proper operating level.

3.7 DEMONSTRATION

A. **Engage a factory-authorized service representative to train** Owner's maintenance personnel to adjust, operate, and maintain cooling towers.

END OF SECTION 236500

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Refer to S&ME "Final Subsurface Exploration" and "Addendum for Flexible (Asphalt) Pavement Section." Included in Section 003132 Geotechnical Data.

1.2 SUMMARY

A. Section Includes:

1. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, and plants.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for concrete slabs-on-grade.
4. Base course for concrete walks and pavements.
5. Base course for asphalt paving.
6. Excavating and backfilling for utility trenches.

1.3 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subgrade and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by the Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by the Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below base, drainage fill, drainage course, or topsoil materials.

J. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 QUALITY ASSURANCE

A. Preexcavation Conference: Conduct conference at Project site.

1.5 PROJECT CONDITIONS

A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.

B. Do not commence earth moving operations until plant-protection measures specified in Section 015639 "Temporary Tree and Plant Protection" are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 4 inches (100 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Plasticity Index: 30 or less.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

E. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

F. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

G. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored to comply with local practice or requirements of authorities having jurisdiction.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored to comply with local practice or requirements of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Building Footings and Foundations: Undercut old fill below building footprint and an additional 10 feet beyond building footprint as recommended in the geotechnical report. Fill excavated undercut soils back to final subgrade. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

2. Excavations for Other Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: As indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material, 4 inches (100 mm) deeper elsewhere, to allow for bedding course.

D. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.
3. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Engineer.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Engineer.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Section 03 30 00 "Cast-in-Place Concrete"

D. Trenches under Roadways: Provide 4-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (100 mm) of concrete before backfilling or placing roadway subbase course. Concrete is specified in Section 03 30 00 "Cast-in-Place Concrete."

E. Place and compact initial backfill of base material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. Under building slabs and 10 feet outside of building footprint undercut old fill to undisturbed residual soils as recommended in geotechnical report and recompact each layer each layer of backfill or fill soil material at 98 percent..
2. Under structures, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 98 percent.
3. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 98 percent.
4. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 90 percent.
5. For utility trenches, compact each layer of initial and final backfill soil material at 98 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Walks: Plus or minus 1 inch (25 mm).
3. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place base course under pavements and walks as follows:

1. Shape base course to required crown elevations and cross-slope grades.
2. Place base course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
3. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 98 percent of maximum dry unit weight according to ASTM D 698.

3.15 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Engineer.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

ATTACHMENT #5

Pond & Company Specifications

Revised

For Fulton County Addendum No. 5 Dated January 18, 2013 per Pond's Addendum No. 3

POND

Architects ▪ Engineers ▪ Planners
834 Inman Village Parkway, Suite 100
Atlanta, GA 30307

Pond Project No.: 1120185

PROVIDED FOR FULTON COUNTY ADDENDUM NO. 5 DATED January 18, 2013:

Fulton County Aviation Community Cultural Center
3900 Aviation Circle
Atlanta, GA 30336

Pursuant to the Contract Agreement between Fulton County Purchasing and Pond & Company to include the contract documents and specifications named "ISSUED FOR CONSTRUCTION" dated November 12th, 2012 the following items below with any required revised drawings and specifications will be comprised as part of Pond & Company ADDENDUM NO. 3 dated January 10, 2013.

Specifications

Delete Specification Section 012200 Unit Prices and add Section 012200 Unit Prices, Dated Pond & Company Addendum No. 3, Revised.

Delete Specification Section 057000 Decorative Metal and add Section 057000 Decorative Metal, dated Pond & Company Addendum No. 3, Revised.

Delete Specification Section 074217 Insulated-Core Metal Wall Backup Panel System and add Section 0774217 Insulated-Core Metal Wall Backup Panel System, dated Pond & Company Addendum No. 3, Revised.

Delete Specification Section 084113 Aluminum-Framed Entrances and Storefronts and add Section 084113 Aluminum-Framed Entrances and Storefronts, dated Pond & Company Addendum No. 3, Revised.

Delete Specification Section 084413 Glazed Aluminum Curtain Walls and add Section 084413 Glazed Aluminum Curtain Walls, dated Pond & Company Addendum No. 3, Revised.

Delete Specification Section 087100 Door Hardware and add Specification Section 087100 Door Hardware dated Pond & Company Addendum No. 3, Revised.

Delete Specification Section 102226 Operable Partitions and add Specification Section 102226 Operable Partitions dated Pond & Company Addendum No. 3, Revised.

Delete Specification Section 236500 Cooling Towers and add Specification Section 236500 Cooling Towers dated Pond & Company Addendum No. 3, Revised.

Delete Specification Section 312000 Earth Moving and add Specification Section 312000 Earth Moving dated Pond & Company Addendum No. 3, Revised.

Drawings

Reissue Sheet C-104 Grading and Drainage Plan dated, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet C-105 Erosion and Sediment Control Plan – Initial Phase dated, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet C-106 Erosion and Sediment Control Plan – Intermediate Phase dated, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet C-107 Erosion and Sediment Control Plan – Final Phase dated, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet C-505 Construction Details dated, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet C-506 Construction Details dated, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet C-507 Construction Details dated, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet A-101 Dimensioned Floor Plan dated, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet A-102 Noted Floor Plan dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet A-501 Exterior Wall and Window Details Revision 1, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet A-531 Reflected Ceiling and Roof Details dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet A-701 Tower Sections and Details dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet A-703 Details dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet A-704 Details dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet S-101 Foundation and Floor Plan dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet M-601 Mechanical Schedules dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

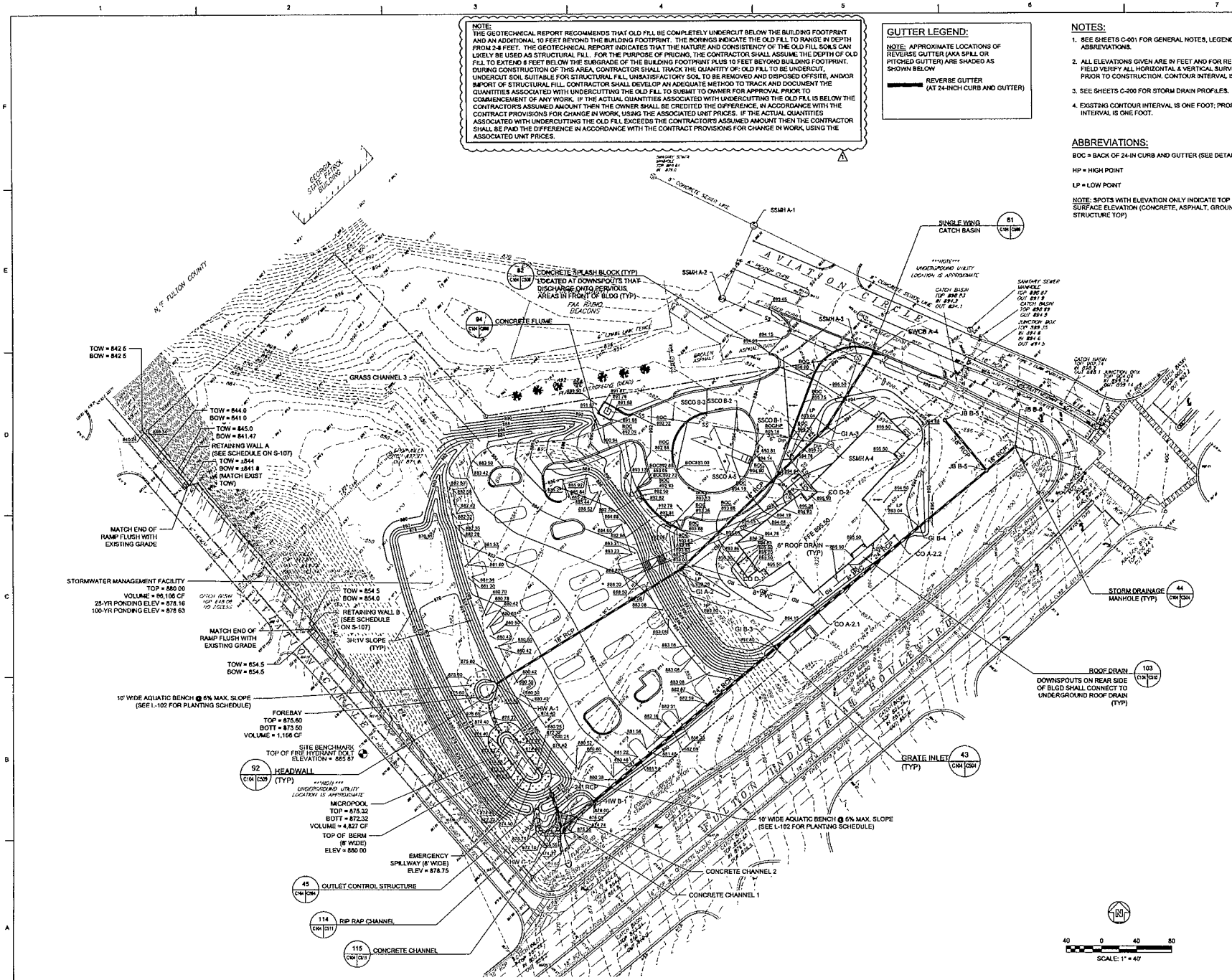
Reissue Sheet M-701 Hydronic Flow System Diagram dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

Reissue Sheet E-605 Panel Schedules dated Revision 1, Pond & Company Addendum No. 3, 1/10/13.

ATTACHMENT #6

DRAWINGS

Revised



FULTON COUNTY
FULTON COUNTY ARTS & CULTURE

DRAWING REVISIONS

REV	DESCRIPTION	PREP BY	DATE	APVD
A	ADDENDUM NO. 3	DSA	05/28/08	HCB

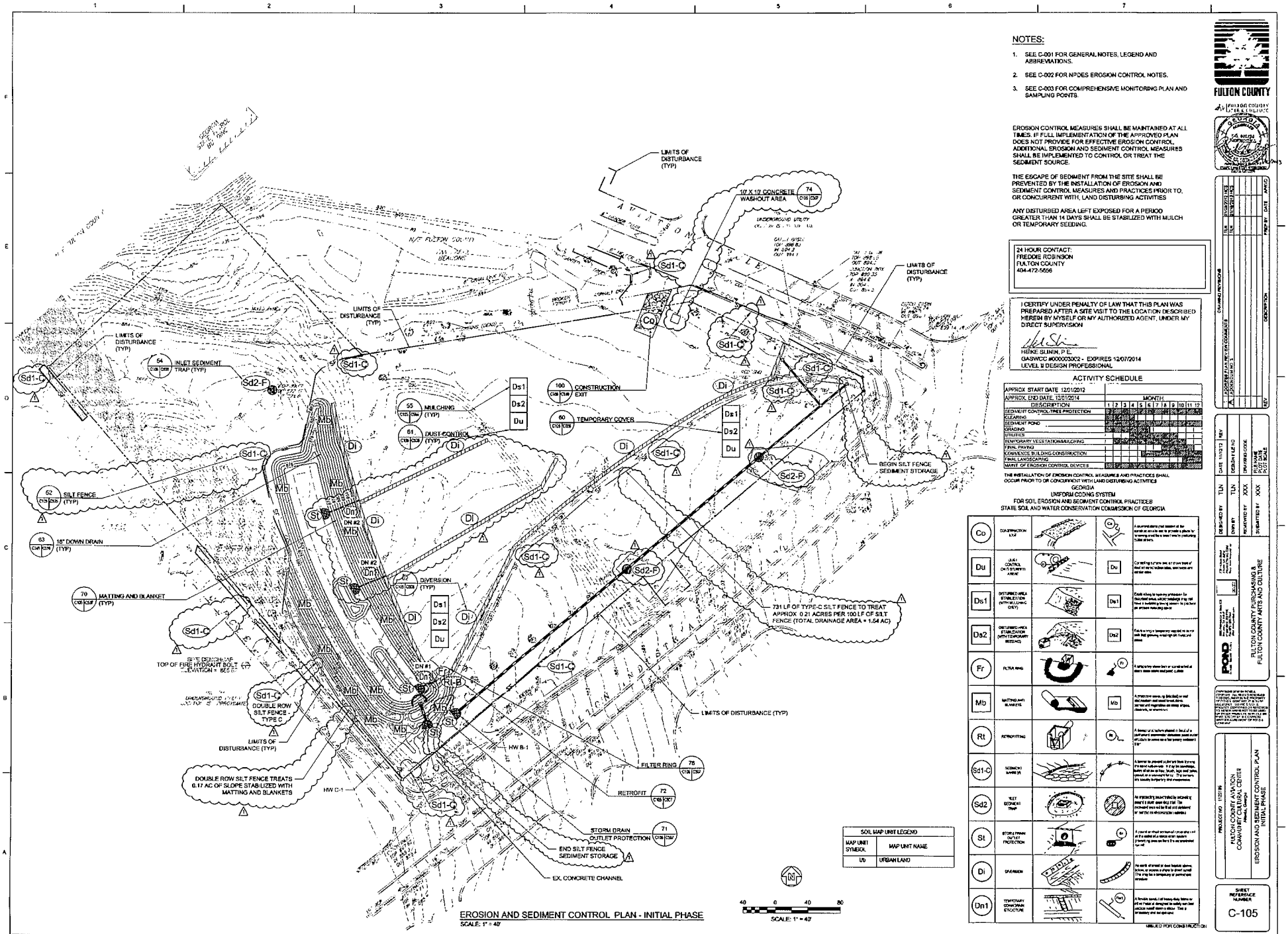
DESIGNED BY: TLN
DRAWN BY: TLN
REVIEWED BY: XXX
SUBMITTED BY: XXX
DATE: 1/4/2008
DESIGN FILE NO.
DRAWING CODE
PLOT DATE
PLOT SCALE: 1"=40'

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

PROJECT NO. 1109185
FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
Atlanta, Georgia
GRADING AND DRAINAGE PLAN

SHEET REFERENCE NUMBER
C-104

4/9/2008 12:43:43 AM File Path



NOTES:

1. SEE C-001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
2. SEE C-002 FOR NPDES EROSION CONTROL NOTES.
3. SEE C-003 FOR COMPREHENSIVE MONITORING PLAN AND SAMPLING POINTS.

EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

24 HOUR CONTACT:
FREDDIE ROBINSON
FULTON COUNTY
404-472-5556

I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATION DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION

HEIKE SLINEN, P.E.
GASWCC #0000053002 - EXPIRES 12/07/2014
LEVEL II DESIGN PROFESSIONAL

ACTIVITY SCHEDULE

APPROX. START DATE 12/01/2012												
APPROX. END DATE 12/01/2014	MONTH											
DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12
SEDIMENT CONTROL-TREE PROTECTION												
CLEARING												
SEDIMENT POND												
GRADING												
UTILITIES												
TEMPORARY VEGETATION/MULCHING												
FINAL PAVING												
COMMERCIAL BUILDING CONSTRUCTION												
FINAL LANDSCAPING												
MAINT. OF EROSION CONTROL DEVICES												

THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO OR CONCURRENT WITH LAND DISTURBING ACTIVITIES

GEORGIA
UNIFORM CODING SYSTEM
FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES
STATE SOIL AND WATER CONSERVATION COMMISSION OF GEORGIA

Co	CONSTRUCTION EXIT		A temporary stone mat located at the access or exit site to prevent a place for a waiting truck to track sediment by motorized rubber tyres.
Du	DUAL CONTROL ON (1) STUBBLE AREAS		Controlling runoff over (1) of both types of dead or live vegetative cover, and bare soil areas.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)		Exposed areas to receive protection by disturbed areas, which remain for long not more than a specified time period, to be bare or protected from rainfall.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)		Exposed areas temporarily vegetated to protect from rainfall, growing, weed-free grass mixes and stands.
Fr	FILTER RING		A temporary sediment barrier constructed at storm drain inlets and public curbs.
Mb	MATTING AND BLANKETS		A protective covering, of fabric, plastic or wood fiber material used around bare, disturbed areas of irregular surfaces, to protect against erosion.
Rt	RETROFITTING		A device or structure placed in front of a permanent stormwater conveyance system inlet or culvert to serve as a filter primary sediment trap.
Sd1-C	SEDIMENT BARRIER		A barrier to prevent sediment from leaving the site or to prevent it from entering storm drains, ditches or bodies of water. Such as hay bales, silt fence, or sediment control logs. The barrier is only temporary and impervious.
Sd2	SILT SEDIMENT TRAP		An impervious structure to intercept sediment laden runoff from small drainage areas. The impounded area must be flat and allow storage of sediment as construction progresses.
St	STORM DRAIN OUTLET PROTECTION		A riprap or other permanent protection at the outlet of a storm drain system to prevent scouring and to dissipate the energy of flow. It is an accepted but not
Di	DIVERSION		An earth channel or dike located above, across, or at the bottom of slopes to divert runoff. The channel is temporary or permanent, depending on its intended use.
Dn1	TEMPORARY DOWNDRAIN STRUCTURE		A flexible conduit, of heavy-duty fabric or other material designed to safely carry flow from the top of a slope to the bottom. This is a temporary and not open-cut.

UNLESS NOTED FOR CONSTRUCTION

SOIL MAP UNIT LEGEND	
MAP UNIT SYMBOL	MAP UNIT NAME
Ub	URBAN LAND

EROSION AND SEDIMENT CONTROL PLAN - INITIAL PHASE
SCALE: 1" = 40'

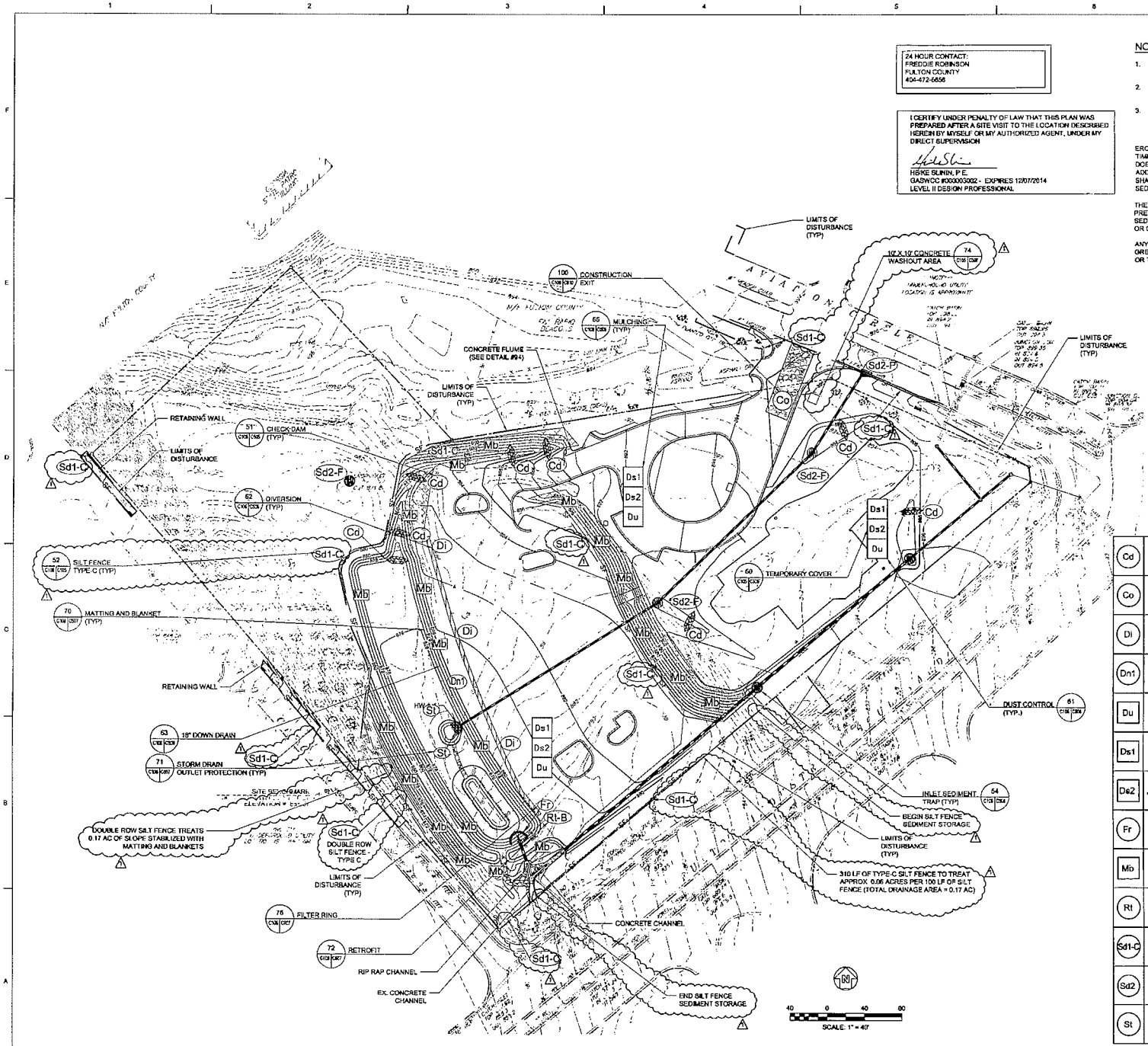
SCALE: 1" = 40'

FULTON COUNTY
FULTON COUNTY DEPARTMENT OF PURCHASING & CONTRACTING

REV	DESCRIPTION	DATE	APP'D
A	ADDENDUM #1 PER COMMENTS	11/13/12	TLN
B	ADDENDUM #2 PER COMMENTS	11/19/12	TLN

PROJECT NO 1102196
FULTON COUNTY AVIATION
COMMUNITY CULTURAL CENTER
Atlanta, Georgia
EROSION AND SEDIMENT CONTROL PLAN
INITIAL PHASE

SHEET REFERENCE NUMBER
C-105



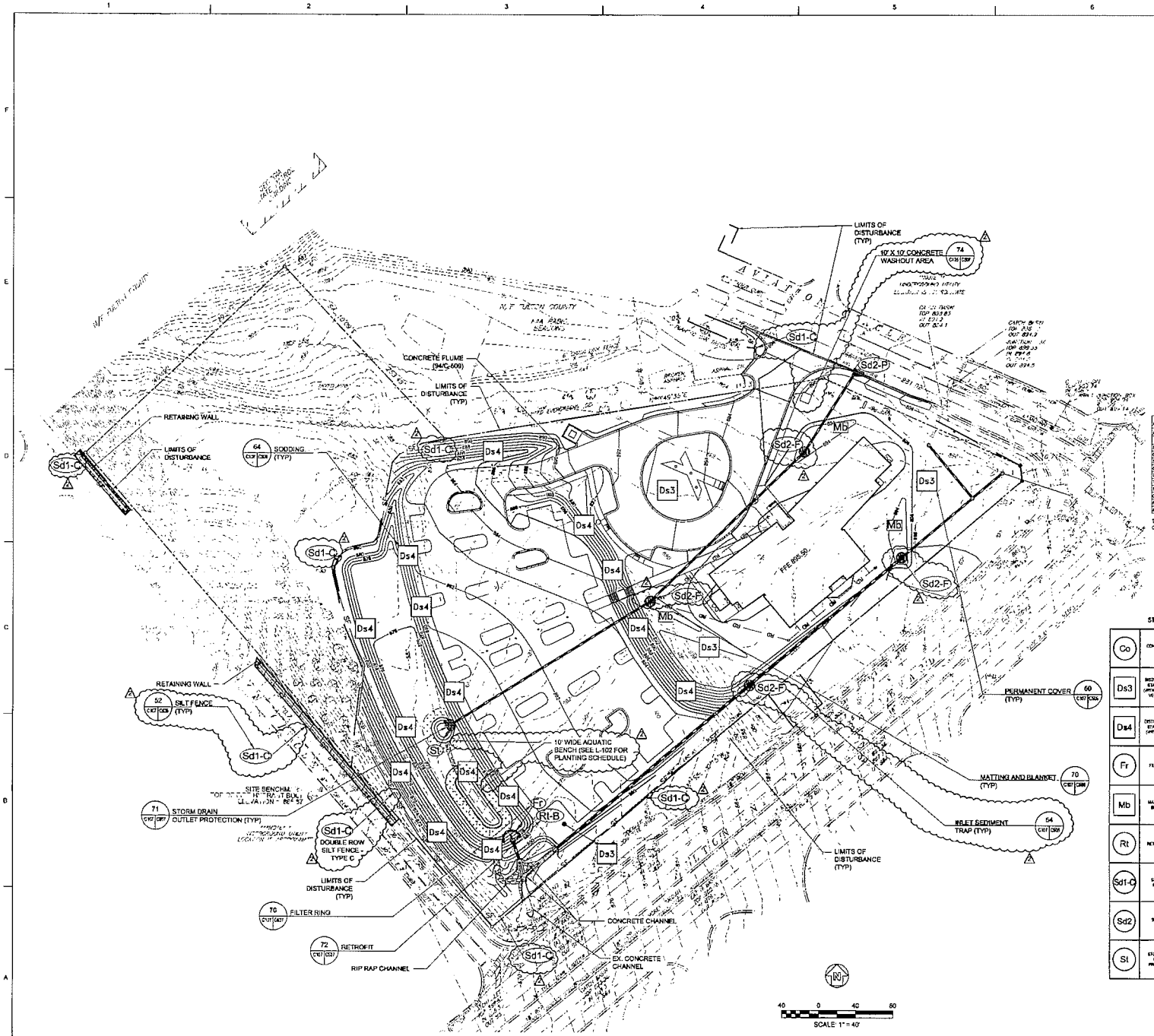
EROSION AND SEDIMENT CONTROL PLAN - INTERMEDIATE PHASE
SCALE: 1" = 40'

ISSUED FOR CONSTRUCTION

FULTON COUNTY
FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

PROJECT NO: 11001A9
FULTON COUNTY ATHANSON COMMUNITY CULTURAL CENTER
Atlanta, Georgia
EROSION AND SEDIMENT CONTROL PLAN INTERMEDIATE PHASE

SHEET REFERENCE NUMBER
C-106



EROSION AND SEDIMENT CONTROL PLAN - FINAL PHASE

SCALE: 1" = 40'

NOTES:

1. SEE C-001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
2. SEE C-002 FOR NPDES EROSION CONTROL NOTES.
3. SEE C-003 FOR COMPREHENSIVE MONITORING PLAN AND SAMPLING POINTS.
4. PREMENANT VEGETATION SHALL BE IN ACCORDANCE WITH THE LANDSCAPE PLAN, SEE L-102.
5. ALL TEMPORARY EROSION CONTROLS TO BE REMOVED AT TIME OF PERMANENT STABILIZATION.

EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

24 HOUR CONTACT:
FREDDIE ROBINSON
FULTON COUNTY
404-472-5858

I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATION DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION.

HEIKE SLINN, P.E.
GA/SWCC #0000030002 - EXPIRES 12/07/2014
LEVEL II DESIGN PROFESSIONAL

ACTIVITY SCHEDULE

APPROX START DATE: 12/01/2012	
APPROX END DATE: 12/01/2014	MONTH
DESCRIPTION	1 2 3 4 5 6 7 8 9 10 11 12
SEDIMENT CONTROL-TREE PROTECTION	
CLEARING	
SEDIMENT POND	
GRADING	
UTILITIES	
TEMPORARY VEGETATION/MULCHING	
FINAL PAVING	
CONVENIENCE BUILDING CONSTRUCTION	
FINAL LANDSCAPING	
MAINT. OF EROSION CONTROL DEVICES	

THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO OR CONCURRENT WITH LAND DISTURBING ACTIVITIES

SOIL MAP UNIT LEGEND	
MAP UNIT SYMBOL	MAP UNIT NAME
Us	URBAN LAND

GEORGIA
UNIFORM CODING SYSTEM
FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES
STATE SOIL AND WATER CONSERVATION COMMISSION OF GEORGIA

Co	CONSTRUCTION EXIT		
Ds3	DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)		Ds3
Ds4	DISTURBED AREA STABILIZATION (WITH SODDING)		Ds4
Fr	FILTER RING		Fr
Mb	MATTING AND BLANKETS		Mb
Rt	RETROFITTING		Rt
Sd1-C	SEDIMENT BARRIER		
Sd2	INLET SEDIMENT TRAP		
St	STORM DRAIN OUTLET PROTECTION		

ISSUED FOR CONSTRUCTION

FULTON COUNTY

DRAWING REVISIONS

REV	DESCRIPTION	DATE	APP'D
1	ADDRESS AGENCY COMMENTS	11/08/2013	HS
2	ADDENDUM NO. 1	11/26/2013	HS
3	ADDENDUM NO. 2	01/16/2014	HS
4	ADDENDUM NO. 3	01/16/2014	HS

DESIGNED BY: TLN | DATE WHEN D: REV
DRAWN BY: TLN | DESIGN FILE ID
REVIEWED BY: XXX | DRAWING CODE
SUBMITTED BY: XXX | FILE NAME / PLOT SCALE

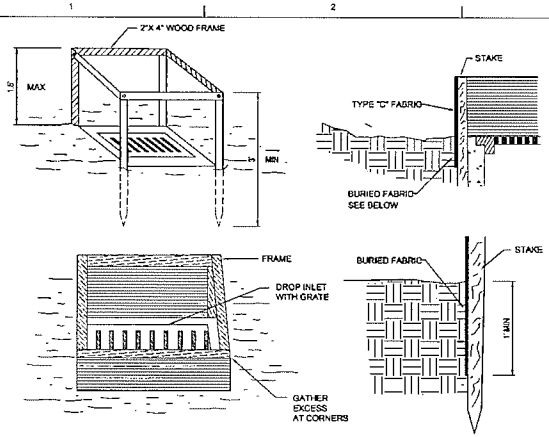
FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

PROJECT NO. 130186

FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
Atlanta, Georgia

EROSION AND SEDIMENT CONTROL PLAN FINAL PHASE

SHEET REFERENCE NUMBER
C-107



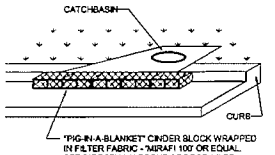
Sd2-F INLET SEDIMENT TRAP

NOTES:
1. FOR STAKES, USE 2X4 INCH WOOD (PREFERRED) OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3'.
2. SPACE STAKES EVENLY AROUND THE PERIMETER OR THE INLET A MAXIMUM OF 3' APART, AND SECURELY DRIVE THEM INTO THE GROUND, APPROXIMATELY 16" DEEP.
3. TO PROVIDE NEEDED STABILITY TO THE INSTALLATION, FRAME WITH 2X4 INCH WOOD STRIPS AROUND THE CREST OF THE OVERFLOW AREA AT A MAXIMUM OF 1.5' ABOVE THE DROP INLET CREST.
4. PLACE THE BOTTOM 12" OF THE FABRIC IN A TRENCH AND BACKFILL THE TRENCH WITH AT LEAST 4" OF CRUSHED STONE OR 12" OF COMPACTED SOIL.
5. FASTEN FABRIC SECURELY TO THE STAKES AND FRAME. JOINTS MUST BE OVERLAPPED TO THE NEXT STAKE.
6. THE TOP OF THE FRAME AND FABRIC MUST BE WELL BELOW THE GROUND ELEVATION DOWN SLOPE FROM THE DROP INLET TO KEEP RUNOFF FROM PASSING THE INLET. IT MAY BE NECESSARY TO BUILD A TEMPORARY DIKE ON THE DOWN SLOPE SIDE OF THE STRUCTURE TO PREVENT BYPASS FLOW.

Sd2-F INLET SEDIMENT TRAP CALCULATIONS

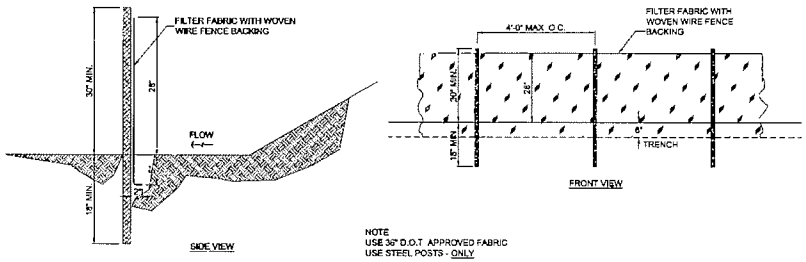
Structure ID		A2	A3	B3	B4
Drainage Area (1 ac. max.)	(acres)	0.21	0.53	0.35	0.80
Volume Required (67 c.y./ac.)	(c.y.)	14.1	35.5	23.5	40.2
Volume Required	(cu. ft.)	380	958	635	1085
Excavated Depth	(ft.)	2.0	2.0	2.0	2.0
Circular					
Required Excav. Diameter	(ft.)	16	0	0	0
Rectangular					
Length	(ft.)		20	18	22
Width	(ft.)	0	24	18	25
Volume Provided	(cu. ft.)	402	960	648	1100

54 INLET PROTECTION
SCALE NTS



MAINTENANCE NOTE:
1. THE TRAP SHALL BE INSPECTED DAILY AND AFTER EACH RAIN EVENT AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO ON HALF THE HEIGHT OF THE TRAP. SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE-HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION.
3. SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET AGAIN.
4. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. APPROPRIATELY STABILIZE ALL DISTURBED AREAS AROUND THE INLET.

Sd2-P CURB INLET PROTECTION



NOTE
USE 36" D.O.T. APPROVED FABRIC
USE STEEL POSTS - ONLY

1. FABRIC SHALL RETAIN 85% OF SOIL BASED ON SIEVE ANALYSIS, BUT NOT FINER THAN OPENING SIZE 70
2. SILT FENCE MATERIAL WILL MEET GDOT SPECIFICATIONS.
3. MAINTENANCE. SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE BARRIER. FILTER FABRIC SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE FABRIC IS REDUCED (APPROXIMATELY SIX MONTHS). TEMPORARY SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL DISTURBED AREA HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATED AT THE BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE BARRIER IS REMOVED.

Sd1-C 52 TYPE 'C' SILT FENCE
SCALE NTS

SPECIFICATIONS

MULCHING WITHOUT SEEDING

THIS STANDARD APPLIES TO GRADES OR CLEARED AREAS WHERE SEEDINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AND EROSION RETARDANT COVER, BUT CAN BE STABILIZED WITH A MULCH COVER

SITE PREPARATION

1. GRADE TO PERMIT THE USE OF EQUIPMENT FOR APPLYING AND ANCHORING MULCH.
2. INSTALL NEEDED EROSION CONTROL MEASURES AS REQUIRED SUCH AS DIKES, DIVERSIONS, BERMS, TERRACES AND SEDIMENT BARRIERS.
3. LOOSEN COMPACT SOIL TO A MINIMUM DEPTH OF 3 INCHES.

MULCHING MATERIALS

SELECT ONE OF THE FOLLOWING MATERIALS AND APPLY AT THE DEPTH INDICATED:
1. DRY STRAW OR HAY SHALL BE APPLIED AT A DEPTH OF 2 TO 4 INCHES PROVIDING COMPLETE SOIL COVERAGE. ONE ADVANTAGE OF THIS MATERIAL IS EASY APPLICATION.
2. WOOD WASTE (CHIPS, SAWDUST OR BARK) SHALL BE APPLIED AT A DEPTH OF 2 TO 3 INCHES. ORGANIC MATERIAL FROM THE CLEARING STAGE OF DEVELOPMENT SHOULD REMAIN ON SITE, BE CHIPPED AND APPLIED AS MULCH. THIS METHOD OF MULCHING CAN GREATLY REDUCE EROSION CONTROL COSTS.
3. CUTBACK ASPHALT (SLOW CURING) SHALL BE APPLIED AT 1200 GALLONS PER ACRE (OR 1/4 GALLON PER SQUARE YARD).
4. POLYETHYLENE FILM SHALL BE SECURED OVER BANKS OR STOCKPILED SOIL MATERIAL FOR TEMPORARY PROTECTION. THIS MATERIAL CAN BE SALVAGED AND RE-USED

APPLYING MULCH

WHEN MULCH IS USED WITHOUT SEEDING, MULCH SHALL BE APPLIED TO PROVIDE FULL COVERAGE OF THE EXPOSED AREA
1. DRY STRAW OR HAY MULCH AND WOOD CHIPS SHALL BE APPLIED UNIFORMLY BY HAND OR BY MECHANICAL EQUIPMENT
2. IF THE AREA WILL EVENTUALLY BE COVERED WITH PERENNIAL VEGETATION, 20-30 POUNDS OF NITROGEN PER ACRE IN ADDITION TO THE NORMAL AMOUNT SHALL BE APPLIED TO OFFSET THE UPTAKE OF NITROGEN CAUSED BY THE DECOMPOSITION OF THE ORGANIC MULCHES
3. CUTBACK ASPHALT SHALL BE APPLIED UNIFORMLY. CARE SHOULD BE TAKEN IN AREAS OF PEDESTRIAN TRAFFIC DUE TO PROBLEMS OF "TRACKING IN" OR DAMAGE TO SHOES, CLOTHING, ETC.
4. APPLY POLYETHYLENE FILM ON EXPOSED AREAS

ANCHORING MULCH

1. STRAW OR HAY MULCH CAN BE PRESSED INTO THE SOIL WITH A DISK HARROW WITH THE DISK SET STRAIGHT OR WITH A SPECIAL "PACKER DISK". DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISK SHOULD BE DULL ENOUGH NOT TO CUT THE MULCH BUT TO PRESS IT INTO THE SOIL LEAVING MUCH OF IT IN AN ERECT POSITION. STRAW OR HAY MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION ON ALL SLOPES 5H:1V OR GREATER.

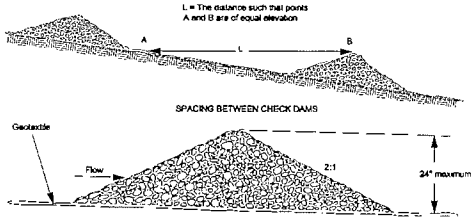
   STRAW OR HAY MULCH SPREAD WITH SPECIAL BLOWER-TYPE EQUIPMENT MAY BE ANCHORED WITH EMULSIFIED ASPHALT (GRADE AE-5 OR SS-1). THE ASPHALT EMULSION SHALL BE SPRAYED ONTO THE MULCH AS IT IS EJECTED FROM THE MACHINE. USE 100 GALLONS OF EMULSIFIED ASPHALT AND 100 GALLONS OF WATER PER TON OF MULCH. TACKIFIERS AND BINDERS CAN BE SUBSTITUTED FOR EMULSIFIED ASPHALT. PLEASE REFER TO SPECIFICATION Tb - TACKIFIERS AND BINDERS. PLASTIC MESH OR
2. NETTING WITH MESH NO LARGER THAN ONE INCH BY ONE INCH SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
3. NETTING OF THE APPROPRIATE SIZE SHALL BE USED TO ANCHOR WOOD WASTE. OPENINGS OF THE NETTING SHALL NOT BE LARGER THAN THE AVERAGE SIZE OF THE WOOD WASTE CHIPS. POLYETHYLENE FILM SHALL BE ANCHOR TRENCHED AT THE TOP AS WELL AS INCREMENTALLY AS NECESSARY.

Ds-1 55 DISTURBED AREA STABILIZATION W/ MULCHING ONLY
SCALE NTS

PIPE OR BEND ANCHOR TO FLANGE SPIGOT
N.T.S.

NOTES:
1. IN THE ASSEMBLIES OF RODS AND CLAMPS SHOWN, RODS RUN FROM A LUG ON THE FITTING (OR A CLAMP BEHIND THE HUB OF A BELL) TO A CLAMP AGAINST THE FACE OF A BELL. NOTE THAT THIS ARRANGEMENT ANCHORS ONLY ONE JOINT. THE STABILITY OF THE JOINT WHERE THE CLAMP IS AGAINST THE FACE OF THE BELL DEPENDS ON HAVING SOIL ABOVE A RELATIVELY LONG PIECE OF PIPE ON BOTH SIDES OF THE JOINT. CONSEQUENTLY, IF THE DISTANCE BETWEEN THE FIRST AND SECOND JOINT IS LESS THAN 12 FEET, THE SECOND JOINT SHOWN SHALL BE ANCHORED BY A CLAMP BEHIND THE HUB OF THE BELL AND RODS TO A CLAMP AT THE FACE OF THE NEXT BELL.
2. IN THE ASSEMBLIES SHOWN FOR RODS TO FLANGED FITTINGS, NOTE THAT THE FLANGED FITTING IS NOT TO BE BURIED IN SOIL.
3. AFTER INSTALLATION THE RODS AND CLAMP ASSEMBLY SHALL BE THOROUGHLY COVERED WITH ROYSTON LABORATORIES INC. ROSKOTE MASTIC NO. A-936 OR KOPPERS CO INC. BITUMASTIC SUPERSERVICE BLACK OR APPROVED EQUIVALENT.
4. RODS TO BE HIGH TENSILE, HOT ROLLED STEEL WITH TENSILE STRENGTH OF 150,000 P.S.I. AND A MINIMUM YIELD STRENGTH OF 130,000 P.S.I.

56 TYPICAL ANCHORS
SCALE NTS



MAINTENANCE NOTE:

PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED. SEDIMENT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF ONE-HALF THE ORIGINAL DAM HEIGHT OR BEFORE. IF THE AREA IS TO BE MOWED, CHECK DAMS SHALL BE REMOVED ONCE FINAL STABILIZATION HAS OCCURRED. OTHERWISE, CHECK DAMS MAY REMAIN IN PLACE PERMANENTLY. AFTER REMOVAL, THE AREA BENEATH THE DAM SHALL BE SEEDED AND MULCHED IMMEDIATELY.

Cd 51 CHECK DAM
SCALE NTS

ISSUED FOR CONSTRUCTION

FULTON COUNTY
FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE
PROJECT NO. 11801.05
FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
CONSTRUCTION DETAILS
SHEET REFERENCE NUMBER C-505

Species	Broadcast Rates - PLS Per Acre	Broadcast Rates - PLS Per 1000 sq. ft.	Planting Dates (Solid lines indicate optimum dates, dotted lines indicated permissible but marginal dates) J F M A M J J A S O N D
BARLEY (Hordeum vulgare) alone in mixtures	3 bu (144 lbs) / ⅓ bu (24 lbs)	3.3 lb / 0.6 lb	
LESPEDEZA, ANNUAL (lespedeza striata) alone in mixtures	40 lbs / 10 lbs	0.9 lb / 0.2 lb	
LOVEGRASS, WEEPING (Eragrostis curvula) alone in mixtures	4 lbs / 2 lbs	0.1 lb / 0.05 lb	
MILLET, BROWNTOP (Panicum fasciculatum) alone in mixtures	40 lbs / 10 lbs	0.9 lb / 0.2 lb	
MILLET, PEARL (Pennisetum glaucum) alone	50 lbs	1.1 lb	
OATS (Avena sativa) alone in mixtures	4 bu (128 lbs) / 1 bu (32 lbs)	2.9 lb / 0.7 lb	
RYE (Secale cereale) alone in mixtures	3 bu (168 lbs) / ½ bu (28 lbs)	3.9 lb / 0.6 lb	
RYE (Secale cereale) alone in mixtures	3 bu (168 lbs) / ½ bu (28 lbs)	3.9 lb / 0.6 lb	
RYEGRASS, ANNUAL (Lolium temulentum) alone	40 lbs	0.9 lb	
SUDANGRASS (Sorghum sudanese) alone	60 lbs	1.4 lb	
WHEAT (Triticum aestivum) alone in mixtures	3 bu (180 lbs) / ½ bu (30 lbs)	4.1 lb / 0.7 lb	

Ds2 SEEDING SCHEDULE
TEMPORARY COVER

Species	Broadcast Rates - PLS Per Acre	Broadcast Rates - PLS Per 1000 sq. ft.	Planting Dates (Solid lines indicate optimum dates, dotted lines indicated permissible but marginal dates) J F M A M J J A S O N D
BERMUDA, COMMON (Cynodon dactylon) alone with other perennials	10 lbs / 6 lbs	0.2 lb / 0.1 lb	Hulled seed; Unhulled seed
FESCUE, TALL (Festuca arundinacea) alone with other perennials	50 lbs / 30 lbs	1.1 lb / 0.7 lb	

NOTES
1. CONTRACTOR MAY USE ANY OTHER SPECIES IF APPROVED BY "MANUAL OF EROSION AND SEDIMENT CONTROL IN GEORGIA", LATEST EDITION
2. ALL FERTILIZER RATE AND APPLICATION, SEED QUALITY, SEEDBED PREPERATION, INNOCULANTS, PLANTING, AND MULCHING SHALL COMPLY WITH MANUAL OF EROSION AND SEDIMENT CONTROL IN GEORGIA, LATEST EDITION
3. PERMANENT SEEDING TO BE USED IN ALL DISTURBED AREAS NOT COVERED BY LANDSCAPING PLAN
4. MULCHING RATES FOR PERMANENT SEEDING SHALL BE STRAW APPLIED AT A RATE OF 2 TONS PER ACRES AND HAY AT A RATE OF 2 1/2 TONS PER ACRE

Ds3 SEEDING SCHEDULE
PERMANENT COVER

60 STANDARD CONSTRUCTION DETAILS TEMPORARY AND PERMANENT SEEDING COVER

C105 C106 C107 C506 SCALE: N.T.S.

METHODS AND MATERIALS

A. TEMPORARY METHODS

MULCHES

SEE STANDARD DS1-DISTURBED AREA STABILIZATION (WITH MULCHING ONLY). SYNTHETIC RESINS MAY BE USED INSTEAD OF ASPHALT TO BIND MULCH MATERIAL. REFER TO STANDARD TB-TACKIFIERS AND BINDERS. RESINS SUCH AS CURASOL OR TERRATACK SHOULD BE USED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS

VEGETATIVE COVER

SEE STANDARD DS2-DISTURBED AREAS STABILIZATION (WITH TEMPORARY SEEDING). SPRAY-ON ADHESIVES. THESE ARE USED ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS. REFER TO STANDARD TB-TACKIFIERS AND BINDERS.

TILLAGE

THIS PRACTICE IS DESIGNED TO ROUGHEN AND BRING CLODS TO THE SURFACE. IT IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE WIND EROSION STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING-TOOTHED HARROWS AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

IRRIGATION

THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS WET. REPEAT AS NEEDED.

BARRIERS.

SOLID BOARD FENCES, SNOWFENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 15 TIME THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING WIND EROSION.
CALCIUM CHLORIDE. APPLY AT RATE THAT WILL KEEP SURFACE MOIST. MAY NEED RE-TREATMENT.

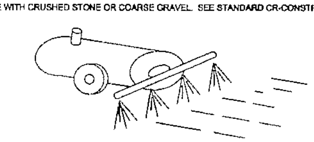
B. PERMANENT METHODS

PERMANENT VEGETATION

SEE STANDARD DS3-DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION).
EXISTING TREES AND LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
TOPSOILING. THIS ENTAILS COVERING THE SURFACE WITH LESS EROSIVE SOIL MATERIAL. SEE STANDARD TP-TOPSOILING.

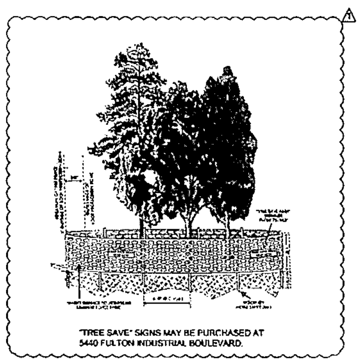
STONE

COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL. SEE STANDARD CR-CONSTRUCTION ROAD



61 DUST CONTROL Du

C105 C106 C506 SCALE: N.T.S.



65 TREE PROTECTION FENCE

C100 C506 SCALE: N.T.S.

DEFINITION
A PERMANENT VEGETATIVE COVER USING SODS ON HIGHLY ERODIBLE OR CRITICALLY ERODED LANDS

CONDITIONS
THIS APPLICATION IS APPROPRIATE FOR AREAS WHICH REQUIRE IMMEDIATE VEGETATIVE COVERS, DROP INLETS, GRASS SWALES, AND WATERWAYS WITH INTERMITTENT FLOW.

PLANNING
CONSIDERATIONS

SODDING CAN INITIALLY BE MORE COSTLY THAN SEEDING, BUT THE ADVANTAGES JUSTIFY THE INCREASED INITIAL COSTS.

1. IMMEDIATE EROSION CONTROL, GREEN SURFACE, AND QUICK USE
2. REDUCED FAILURE AS COMPARED TO SEED AS WELL AS THE LACK OF WEEDS
3. CAN BE ESTABLISHED NEARLY YEAR-ROUND.

SODDING IS PREFERABLE TO SEED IN WATERWAYS AND SWALES BECAUSE OF THE IMMEDIATE PROTECTION OF THE CHANNEL AFTER APPLICATION. SODDING MUST BE STAKED IN CONCENTRATED FLOW AREAS (SEE FIGURE 6-6.1) CONSIDER USING SOD FRAMED AROUND DROP INLETS TO REDUCE SEDIMENTS AND MAINTAINING THE GRADE

CONSTRUCTION SPECIFICATIONS
INSTALLATION

SOIL PREPARATION

BRING SOIL SURFACE TO FINAL GRADE. CLEAR SURFACE OF TRASH, WOODY DEBRIS, STONES AND CLODS LARGER THAN 1". APPLY SOD TO SOIL SURFACES ONLY AND NOT FROZEN SURFACES, OR GRAVEL TYPE SOILS.TOPSOIL PROPERLY APPLIED WILL HELP GUARANTEE A STAND. DON'T USE TOPSOIL RECENTLY TREATED WITH HERBICIDES OR SOIL STERILANTS. MIX FERTILIZER INTO SOIL SURFACE. FERTILIZE BASED ON SOIL TESTS OR TABLE 6-6.1.

INSTALLATION
LAY SOD WITH TIGHT JOINTS AND IN STRAIGHT LINES. DON'T OVERLAP JOINTS STAGGER JOINTS AND DO NOT STRETCH SOD (SEE FIGURE 6-6.2) ON SLOPES STEEPER THAN 3:1, SOD SHOULD BE ANCHORED WITH PINS OR OTHER APPROVED METHODS. INSTALLED SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE GOOD CONTACT BETWEEN SOD AND SOIL. IRRIGATE SOD AND SOIL TO A DEPTH OF 4" IMMEDIATELY AFTER INSTALLATION. SOD SHOULD NOT BE CUT OR SPREAD IN EXTREMELY WET OR DRY WEATHER. IRRIGATION SHOULD BE USED TO SUPPLEMENT RAINFALL FOR A MINIMUM OF 2-3 WEEKS.

MATERIALS
SOD SELECTED SHOULD BE CERTIFIED. SOD GROWN IN THE GENERAL AREA OF THE PROJECT IS DESIRABLE

1. SOD SHOULD BE MACHINE CUT AND CONTAIN 3/4" (+ OR - 1/4") OF SOIL, NOT INCLUDING SHOOTS OR THATCH.
2. SOD SHOULD BE CUT TO THE DESIRED SIZE WITHIN + OR -5% TORN OR UNEVEN PADS SHOULD BE REJECTED
3. SOD SHOULD BE CUT AND INSTALLED WITHIN 36 HOURS OF DIGGING.
4. AVOID PLANTING WHEN SUBJECT TO FROST HEAVE OR HOT WEATHER IF IRRIGATION IS NOT AVAILABLE
5. THE SOD TYPE SHOULD BE SHOWN ON THE PLANS OR INSTALLED ACCORDING TO TABLES TO RIGHT.

MAINTENANCE
RE-SOD AREAS WHERE AN ADEQUATE STAND OF SOD IS NOT OBTAINED. NEW SOD SHOULD BE MOWED SPARINGLY. GRASS HEIGHT SHOULD NOT BE CUT LESS THAN 2"-3" OR AS SPECIFIED (SEE FIGURE 6-6.2). APPLY ONE TON OF AGRICULTURAL LIME AS INDICATED BY SOIL TEST OR EVERY 4-6 YEARS. FERTILIZE GRASSES IN ACCORDANCE WITH SOIL TESTS OR TABLE 6-6.3

TABLE 6-6.1 FERTILIZER REQUIREMENTS FOR SOIL SURFACE APPLICATION

FERTILIZER TYPE	FERTILIZER RATE (lbs/acre)	FERTILIZER RATE (lbs/sq ft)	SEASON
10-10-10	1000	.025	FALL

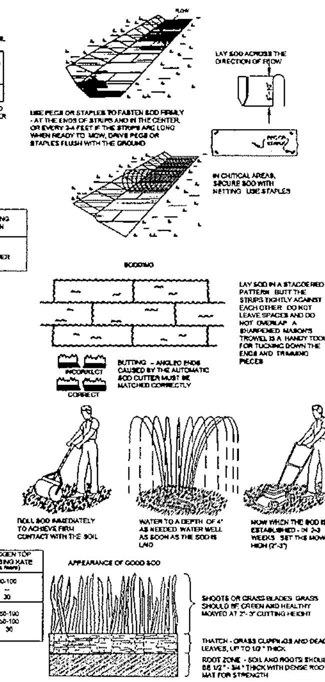
AGRICULTURAL LIME SHOULD BE APPLIED BASED ON SOIL TESTS OR AT A RATE OF 1 TO 2 TONS PER ACRE

TABLE 6-6.2 SOD PLANTING REQUIREMENTS

GRASS	VARIETIES	RESOURCE AREA	GROWING SEASON
BERMUDA GRASS	TIFWAY	P,C	WARM WEATHER

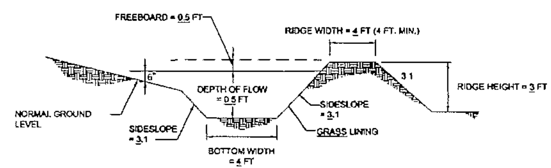
TABLE 6-6.3 FERTILIZER REQUIREMENTS FOR SOD

TYPES OF SPECIES	PLANTING YEAR	FERTILIZER (N-P-K)	RATE (lbs/acre)	NITROGEN TOP DRESSING RATE (lbs/acre)
COOL SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100 -- 30
WARM SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30



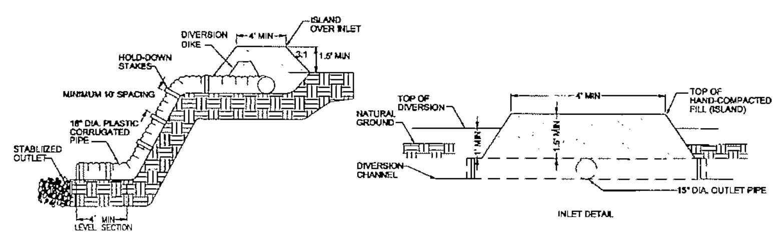
64 DISTURBED AREA STABILIZATION W/ SODDING Ds4

C106 C107 C506 SCALE: N.T.S.



DI 62 DIVERSION

C105 C506 SCALE: N.T.S.



Dn1 63 DOWNDRAIN

C106 C506 SCALE: N.T.S.

ISSUED FOR CONSTRUCTION

FULTON COUNTY

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

POND

DESIGNED BY	TLN	DATE 11/12/12	REV
DWN BY	TLN	DESIGN FILE NO	
REVIEWED BY	XXX	DRAWING CODE	
SUBMITTED BY	XXX	FILE NAME / PLOT DATE / PLOT SCALE	

DRAWING REVISIONS

REV	DESCRIPTION	PREP BY	DATE	APPRVD
A	ADDENDUM NO. 3	TLN	01/10/2013	

PROJECT NO. 11121185

FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
Atlanta, Georgia

CONSTRUCTION DETAILS

SHEET REFERENCE NUMBER C-506

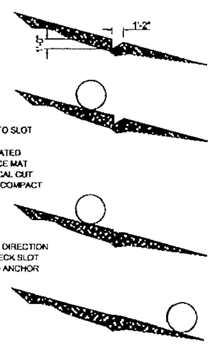
UPSTREAM TERMINAL

STEP 1. CUT TERMINAL SLOT

STEP 2 SNUG MAT INTO SLOT

STEP 3:
A. STAKE MAT INTO SLOT
B. USE 1"x3" PRESSURE-TREATED BOARD TO BRACE MAT AGAINST VERTICAL CUT
C. BACKFILL AND COMPACT

STEP 4:
A. REVERSE MAT DIRECTION TO OVERLAY CHECK SLOT
B. STAKE MAT TO ANCHOR TERMINAL



TRANSVERSE CHECK SLOT

STEP 1. CUT CHECK SLOT

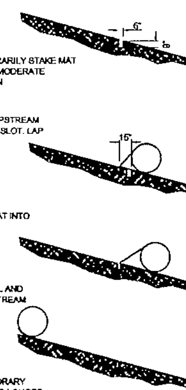
TEMPORARILY STAKE MAT UNDER MODERATE TENSION

STEP 2: WORK UPSTREAM ACROSS CHECK SLOT. LAP BACK 15"

STEP 3: TUCK MAT INTO SLOT & STAKE

STEP 4: BACKFILL AND PROGRESS UPSTREAM

PULL OUT TEMPORARY STAKES WHEN NO LONGER NEEDED FOR TENSIONING



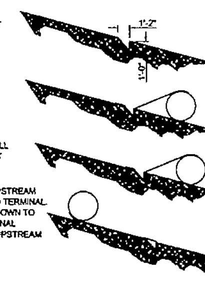
DOWNSTREAM TERMINAL

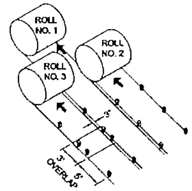
STEP 1: CUT TERMINAL SLOT

STEP 2 STAKE MAT INTO SLOT

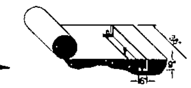
STEP 3: BACKFILL TERMINAL SLOT

STEP 4:
A. ROLL MAT UPSTREAM OVER REFILLED TERMINAL
B. STAKE MAT DOWN TO ANCHOR TERMINAL
C. PROGRESS UPSTREAM WITH ROLL





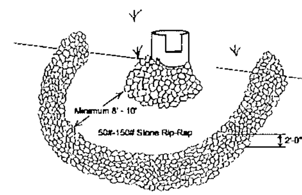
SEQUENTIAL ROLL RUN OUT IN CHANNELS



PICTORIAL VIEW OF TRANSVERSE SLOT

Md NOTES:

1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND FIRST ROLL. USE CENTER ROLL FOR ALIGNMENT TO CHANNEL CENTER.
4. WORK OUTWARDS FROM CHANNEL CENTER TO EDGE.
5. USE 3' OVERLAP AND STAKE AT 5' INTERVAL ALONG SEAMS.
6. USE 3" OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT LINING AT ROLL ENDS.
7. MATTING AND BLANKET SHALL BE JUTE MESH. JUTE MESH WITH A 48-INCH WIDTH SHALL SHOW BETWEEN 78 AND 80 WRAPPINGS AND A ONE YARD LENGTH SHALL SHOW BETWEEN 39 TO 43 WEFTINGS. THE WOVEN MESH SHALL BE AT LEAST 45 INCHES WIDE. YARN SHALL HAVE A UNIT WEIGHT OF AT LEAST 0.9 PONDS PER SQUARE YARD, BUT NOT MORE THAN 1.5 POUNDS PER SQUARE YARD.
8. MAINTENANCE: ALL EROSION CONTROL BLANKETS AND MATTING SHOULD BE INSPECTED PERIODICALLY FOLLOWING INSTALLATION, PARTICULARLY AFTER RAINSTORMS TO CHECK FOR EROSION AND UNDERMINING. ANY DISLOCATION NOR FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUTS OR BREAKAGE OCCURS, REINSTALL THE MATERIAL AFTER REPAIRING DAMAGE TO THE SLOPE OR DITCH. CONTINUE TO MONITOR THESE AREAS UNTIL THEY BECOME PERMANENTLY STABILIZED.



76 STONE FILTER RING (Fr)

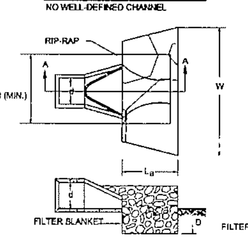
SCALE N.T.S.

70 TYPICAL INSTALLATION GUIDELINES FOR MATTING AND BLANKETS

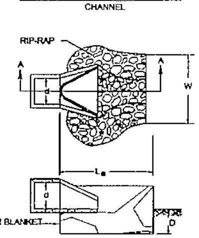
SCALE N.T.S.

Mb

PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL



PIPE OUTLET TO WELL-DEFINED CHANNEL



NOTES:

1. La IS THE LENGTH OF THE RIP RAP APRON
2. MAXIMUM STONE DIAMETER = 1.5 TIMES d50
3. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6"
4. APRON THICKNESS = 1.5 TIMES MAXIMUM STONE DIAMETER
5. IN A WELL DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH, OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
6. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION
7. MAINTENANCE: INSPECT RIPRAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE

OUTLET						APRON LENGTH	APRON WIDTH	RIPRAP SIZE	W1
	d (IN.)	S (FT/FT)	Q25 (CFS)	V25 (FT/S)	TAILWATER	La (FT.)	W (FT.)	d50 (IN.)	(FT)
A1	18" RCP	0.025	4.78	3.72	> 0.5d	9.5	5.3	6.0	4.5
B1	24" RCP	0.013	19.23	7.35	< 0.5d	11.0	13.0	6.0	6.0
C1	24" RCP	0.010	8.78	6.28	< 0.5d	11.0	13.0	6.0	6.0
DN 1	18" HDPE	0.294	4.95	16.66	< 0.5d	9.0	11.0	10.0	4.5
DN 2	18" HDPE	0.150	4.51	14.32	< 0.5d	9.0	11.0	9.0	4.5
DN 3	18" HDPE	0.147	4.51	14.33	< 0.5d	9.0	11.0	9.0	4.5

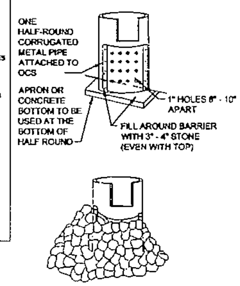
(St) 71 STORM DRAIN OUTLET PROTECTION

SCALE N.T.S.

STORAGE CALCULATIONS
DISTURBED AREA = 4.8 AC
POND LENGTH = 132 FT
POND WIDTH = 71 FT
1 REQUIRED STORMWATER STORAGE (AS DETERMINED BY LOCAL ORDINANCE) = 1288.1 CY
2 REQUIRED SEDIMENT STORAGE (67 CY/AC X DISTURBED AREA) = 387.6 CY
3 TOTAL REQUIRED STORAGE = 1505.6 CY
4 AVAILABLE STORAGE = 3146 CY
5 IS THE AVAILABLE STORAGE (4) GREATER THAN THE TOTAL REQUIRED STORAGE (3)? YES
6 IF "NO," THE SEDIMENT STORAGE CAPACITY OF THE POND MUST BE INCREASED. CHOOSE THE METHOD TO BE USED
N/A RAISE THE INVERT OF THE OUTLET CONTROL STRUCTURE ___ INCHES
N/A UNDERCUT THE POND ______ FEET
N/A OTHER ______
7 CLEAN-OUT ELEVATION = 875.63 FT (ELEVATION CORRESPONDING TO 22 CY/AC X DISTURBED AREA = 101.0 CY)
8 IS THE LENGTH-WIDTH RATIO 2:1 OR GREATER? YES
9 IF "NO," THE LENGTH OF FLOW MUST BE INCREASED. CHOOSE THE METHOD USED
N/A BAFFLES (TYPE OF BAFFLE ______)
N/A OTHER ______
NOTE THE CMP DIAMETER AND HEIGHT IF A HALF-ROUND CMP RETROFIT IS TO BE USED
DIAMETER = 30 IN
HEIGHT = 3 FT

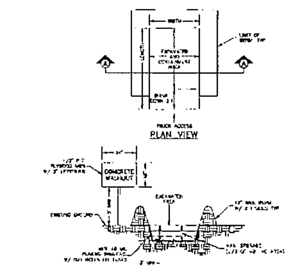
MAINTENANCE NOTE.

RETROFIT STRUCTURES SHALL BE KEPT CLEAR OF TRASH AND DEBRIS. THIS WILL REQUIRE CONTINUOUS MONITORING AND MAINTENANCE, WHICH INCLUDES SEDIMENT REMOVAL WHEN ONE-THIRD OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST. STRUCTURES ARE TEMPORARY AND SHALL BE REMOVED WHEN DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.



(Rt-B) 72 RETROFIT - HALF ROUND

SCALE N.T.S.



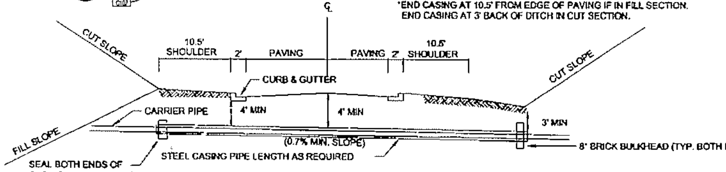
NOTES,

1. SEE PLAN VIEW FOR LOCATION & LENGTH AND WIDTH INFORMATION.
2. CONCRETE WASHOUT AREA & SIGNS SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT.
3. CONCRETE WASHOUT SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO THE OPERATORS OF CONCRETE TRUCKS & EQUIPMENT. WASHOUT OF THE CONCRETE DRUM IS PROHIBITED AT THE SITE.
4. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED, ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASHED CONCRETE.
5. AT THE END OF CONSTRUCTION, ALL CONCRETE & MATERIALS SHALL BE REMOVE FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
6. CONCRETE WASHOUT AREAS SHALL BE LOCATED A MIN. OF 50 FEET AWAY FROM ANY PART OF A STORM SEWER SYSTEM.
7. CONCRETE WASHOUT AREAS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAIN EVENT AND SHALL BE REPAIRED AS NECESSARY.
8. CONCRETE WASHOUT AREA SHALL MEET THE GUIDELINES OF THE EPA'S CONCRETE WASHOUT BMP.

74 10' X 10' CONCRETE WASHOUT AREA

SCALE N.T.S.

*END CASING AT 10.5' FROM EDGE OF PAVING IF IN FILL SECTION. END CASING AT 3' BACK OF DITCH IN CUT SECTION.



SECTION

N.T.S.

BORING NOTES:

1. CASING TO BE STEEL PIPE (ROUND) WITH 45° BEVELED EDGES
2. ALL CUTS TO BE SQUARED TO END
3. JOIN ALL PIPE WITH DOUBLE BEAD BUTT WELDS
4. AUGER HEAD DIAMETER CANNOT EXCEED DIAMETER OF CASING BY MORE THAN 2"
5. BORING AND CASING SHALL BE INSTALLED SIMULTANEOUSLY
6. ANYTHING 8" OR LARGER REQUIRES BORE AND CASE
7. CASING PIPE SHALL HAVE A PROTECTIVE COATING CONSISTING OF A COAL-TAR PRIMER COAT AND AN APPLICATION OF HOT COAL-TAR ENAMEL THICK PLUS A BONDED 15 LB. ASBESTOS WRAP
8. PIT TO BE NO CLOSER THAN 4' BEHIND CURB OR EDGE OF PAVEMENT
9. TYPICAL PIT IS 32' LONG BY 10' WIDE
10. CASING SHALL BE MANUFACTURED FROM STEEL CONFORMING TO ASTM A 139, GRADE B
11. TWO STAINLESS STEEL CASING SPACERS ARE REQUIRED PER JOINT
12. CARRIER PIPE SHALL BE DUCTILE IRON
13. FIELD LOCKING GASKETS REQUIRED INSIDE OF CASING
14. ALL BORING MUST BE APPROVED AND A PERMIT OBTAINED FROM PUBLIC WORKS (404) 612-7400

* SEE FULTON COUNTY STANDARD DETAIL NO. 129 FOR CASING SPECIFICATIONS

PIPE CASING: THE STEEL CASING PIPE SHALL BE MANUFACTURED FROM STEEL CONFORMING TO ASTM A 139, GRADE B. SIZE AND THICKNESS SHALL BE AS FOLLOWS.

UNDER HIGHWAYS

PIPE DIAMETER INCHES (I.D)	CASING DIAMETER INCHES (I.D.) MIN.	WALL THICKNESS INCHES
6	12	0.250
8	16	0.250
10	18	0.250
12	20	0.375
16	24	0.375
18	30	0.375
20	30	0.375
24	36	0.375
30	42	0.375

FULTON COUNTY STANDARD DETAIL 107

73 STEEL CASING

SCALE N.T.S.

BORING NOTES:

1. CASING TO BE STEEL PIPE (ROUND) WITH 45° BEVELED EDGES
2. ALL CUTS TO BE SQUARED TO END
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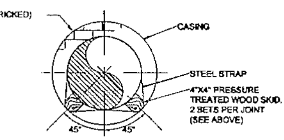
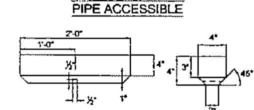


CASING-END VIEW
PIPE ACCESSIBLE



WOOD SKID DETAIL

BORED CASINGS			
PIPE SIZE	PIPE O.D	CASING SIZE	CASING I.D.
6"	6.90"	12"	11.376"
8"	9.05"	15"	14.314"
12"	13.20"	20"	17.938"
16"	17.40"	24"	21.564"
20"	21.60"	28"	27.0"
24"	25.80"	36"	35.0"

NOTE: IF CASING UNDER RAILROAD IS NOT COATED OR CATHODICALLY PROTECTED, INCREASE THICKNESS .062"

FULTON COUNTY STANDARD DETAIL 129

ISSUED FOR CONSTRUCTION

FULTON COUNTY

FULTON COUNTY ARTS & CULTURE

REV	DESCRIPTION	PREP BY	DATE	APPVD
3	ADDENDUM NO. 3	TLN	01/10/2013	HCS

DRAWING REVISIONS

DESIGNED BY	TLN	DATE 11/13/12	REV
DWN BY	TLN	DESIGN FILE NO	
REVIEWED BY	XXX	DRAWING CODE	
SUBMITTED BY	XXX	FILE NAME / PLOT DATE / PLOT SCALE	

POND

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

PROJECT NO. 1120185

FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
Atlanta, Georgia

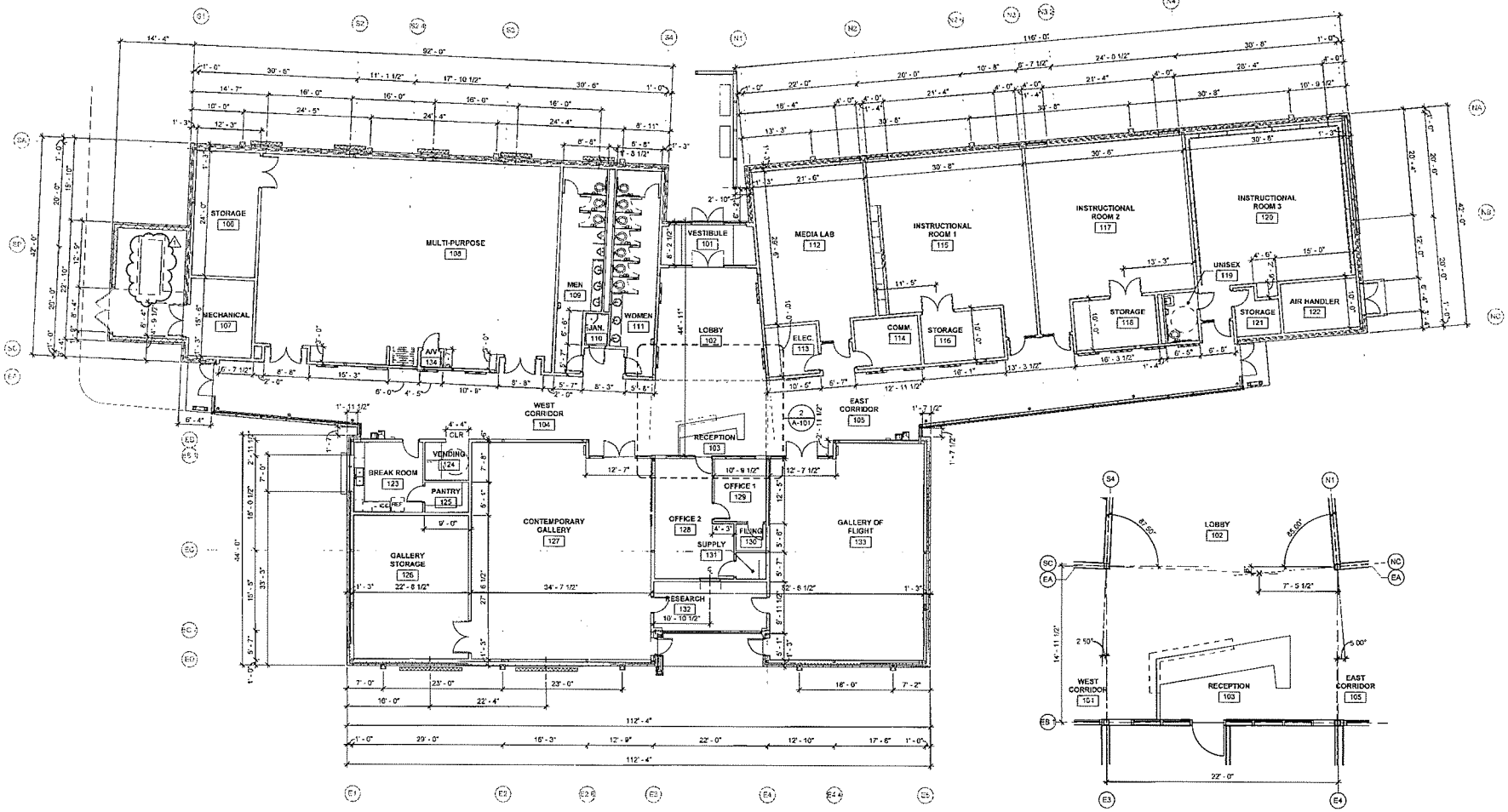
CONSTRUCTION DETAILS

SHEET REFERENCE NUMBER

C-507

GENERAL NOTES:

1 ALL DIMENSIONS ARE FROM FACE OF FACE OF STUD, CONCRETE, CMU OR COLUMN GRIDLINE U.N.O.
2 BUILDING CONTROL POINTS ARE COLUMN CENTERLINES EI, ED & ES, ED SEE CIVIL DRAWINGS



DIMENSIONED FLOOR PLAN
SCALE 1/8" = 1'-0"

2 A-101 ENLARGED CENTRAL CORR./RECEPTION 103
SCALE 1/4" = 1'-0"

SCALE: 1/8" = 1'-0"
SCALE 1/4" = 1'-0"
NORTH
ISSUED FOR CONSTRUCTION

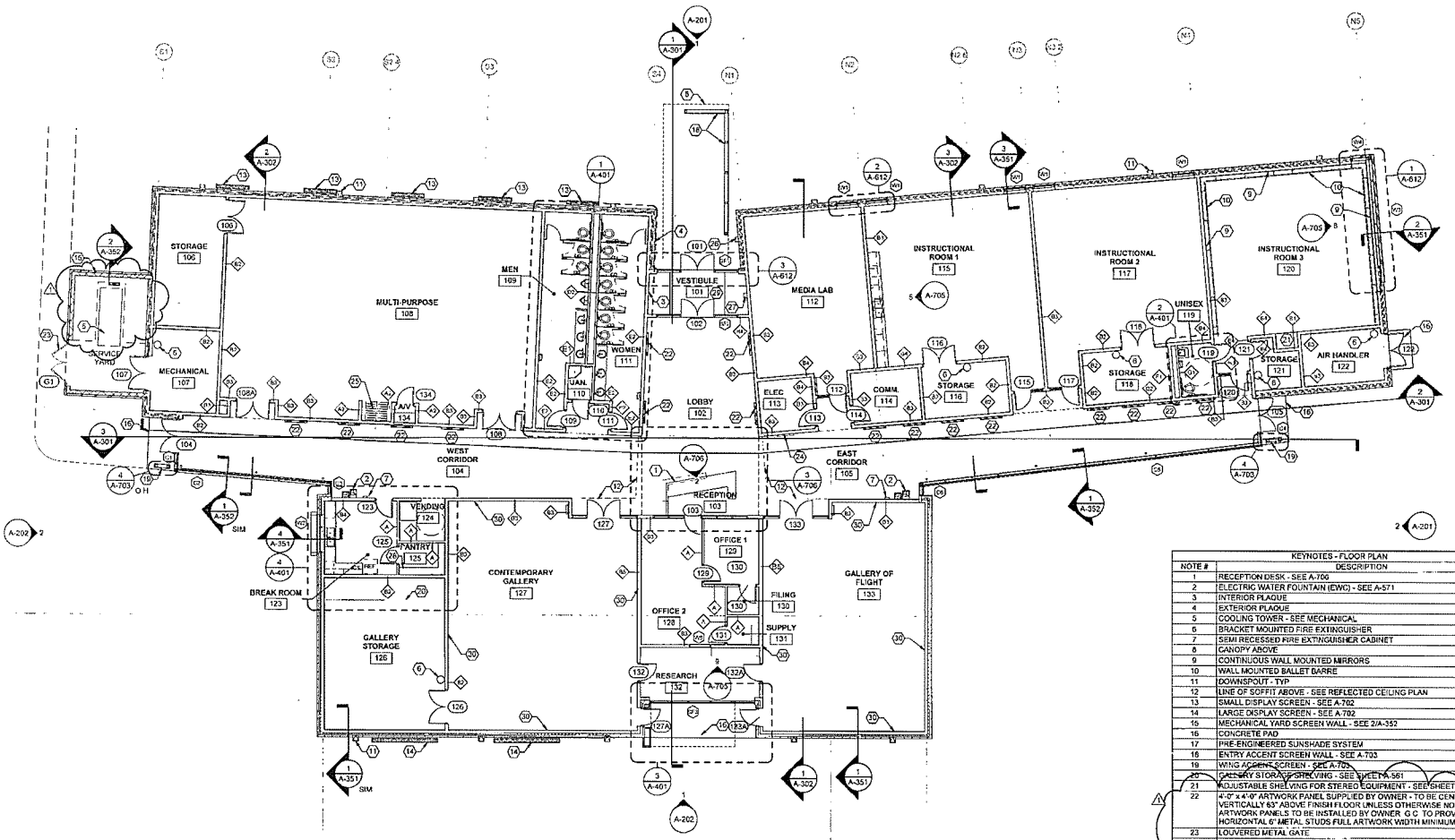
FULTON COUNTY
FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

PROJECT NO. 1126155
FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
Atlanta, Georgia
DIMENSIONED FLOOR PLAN

SHEET REFERENCE NUMBER
A-101

GENERAL NOTES

1. ALL DIMENSIONS ARE FROM FACE OF CMU, FACE OF STUD, OR WHERE APPLICABLE, COLUMN GRIDLINE
2. PROVIDE GYPSUM WALLBOARD CONTROL JOINTS @ 30'-0" O.C. MAX
3. PARTITION TYPE INDICATED WITH ◇ SEE SHEET A-371 FOR PARTITION TYPES
4. DOORS INDICATED WITH ⬭ SEE SHEET A-601 FOR DOOR SCHEDULE & TYPES
5. WINDOWS, STOREFRONTS, AND CURTAIN WALLS INDICATED WITH ⬡ SEE SHEET A-611 & A-612 FOR STOREFRONT ELEVATIONS
6. KEYNOTES INDICATED WITH ⬡ SEE THIS SHEET
7. FINISH FLOOR ELEVATION AT 100'-0" U.N.O., SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION
8. WALLS ABOVE SOFFITS AT RECESSED DOORWAYS TO BE TYPE B-3 WITH GWB APPLIED TO ONE SIDE



NOTED FLOOR PLAN

SCALE 1/8" = 1'-0"

KEYNOTES - FLOOR PLAN	
NOTE #	DESCRIPTION
1	RECEPTION DESK - SEE A-706
2	ELECTRIC WATER FOUNTAIN (EWC) - SEE A-571
3	INTERIOR PLAQUE
4	EXTERIOR PLAQUE
5	COOLING TOWER - SEE MECHANICAL
6	BRACKET MOUNTED FIRE EXTINGUISHER
7	SEMI RECESSED FIRE EXTINGUISHER CABINET
8	CANOPY ABOVE
9	CONTINUOUS WALL MOUNTED MIRRORS
10	WALL MOUNTED BALLET BARRE
11	DOWNSPOUT - TYP
12	LINE OF SOFFIT ABOVE - SEE REFLECTED CEILING PLAN
13	SMALL DISPLAY SCREEN - SEE A-702
14	LARGE DISPLAY SCREEN - SEE A-702
15	MECHANICAL YARD SCREEN WALL - SEE 2/A-352
16	CONCRETE PAD
17	PRE-ENGINEERED SUNSHADE SYSTEM
18	ENTRY ACCENT SCREEN WALL - SEE A-703
19	WING ACCENT SCREEN - SEE A-703
20	GALLERY STORAGE SHELVING - SEE 1/A-571
21	ADJUSTABLE SHELVING FOR STEREO EQUIPMENT - SEE SHEET A-581
22	4'-0" x 4'-0" ARTWORK PANEL SUPPLIED BY OWNER - TO BE CENTERED VERTICALLY 63" ABOVE FINISH FLOOR UNLESS OTHERWISE NOTED ARTWORK PANELS TO BE INSTALLED BY OWNER G.C. TO PROVIDE TWO HORIZONTAL 6" METAL STUDS FULL ARTWORK WIDTH MINIMUM AT 80" A.F.F.
23	LOUVERED METAL GATE
24	DIRECTORY MONITOR BY OWNER
25	MANUALLY OPERATED PAIRED PANEL OPERABLE PARTITIONS WITH TWO SINGLE PASS DOORS AND POCKET DOORS
26	KNOX BOX SERIES - MODEL #3275 - RECESS MOUNT - LOCATE 5'-0" A.F.F. +/- (AT BRICK JOINT) TO BOTTOM OF BOX. PHONE 800-552-5669
27	FIRE ALARM PANEL - SEE ELECTRICAL
28	ADJUSTABLE SHELVING TO BE STANDARD DUTY 16 GAUGE STEEL STANDARDS AND BRACKETS WITH WHITE MELAMINE SHELVING. PROVIDE 4 SHELVES MOUNTED AT 15" VERTICAL INTERVALS
29	RECESSED FLOOR MAT
30	PLYWOOD BLOCKING AT GALLERY WALLS - SEE- 5/A-371

NORTH

SCALE 1/8" = 1'-0"

ISSUED FOR CONSTRUCTION

FULTON COUNTY

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

POND

PROJECT NO. 15016

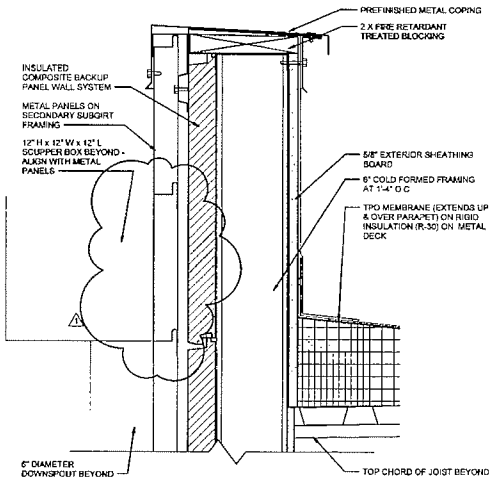
FULTON COUNTY ARTS & CULTURAL CENTER

Atlanta, Georgia

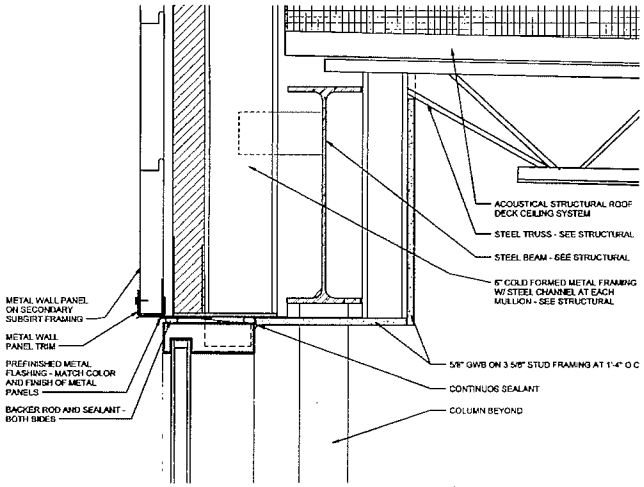
NOTED FLOOR PLAN

SHEET REFERENCE NUMBER

A-102

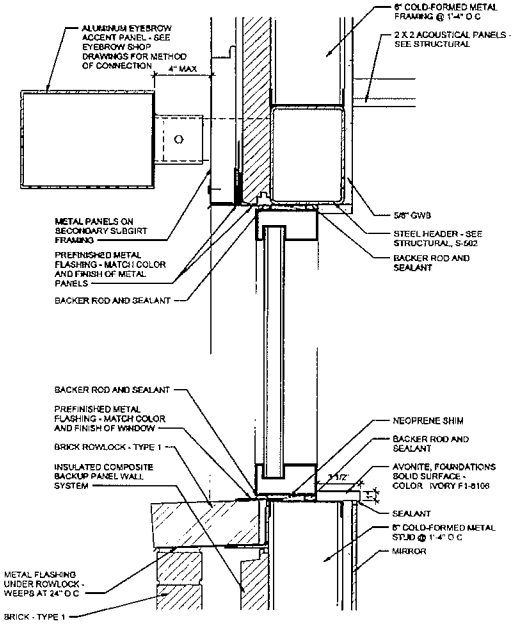


1 A-501 SCALE 3" = 1'-0" PARAPET DETAIL

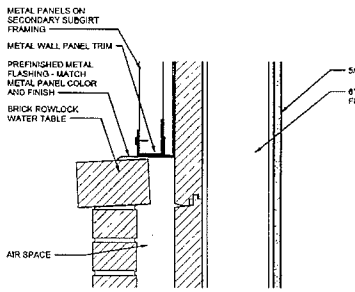


4 A-501 SCALE 3" = 1'-0" CURTAIN WALL HEAD DETAIL

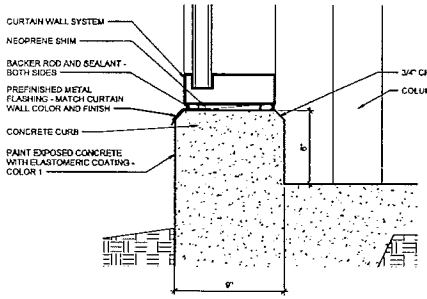
NOTE
CLOSE OFF ALL OPEN METAL PANEL ENDS WITH METAL CLOSURE AS PER MANUFACTURER'S RECOMMENDED DETAILS. MATCH COLOR AND FINISH OF METAL WALL PANELS



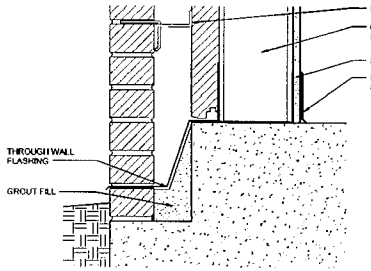
7 A-501 SCALE 3" = 1'-0" DETAIL AT INSTRUCTIONAL ROOM 3 WINDOW



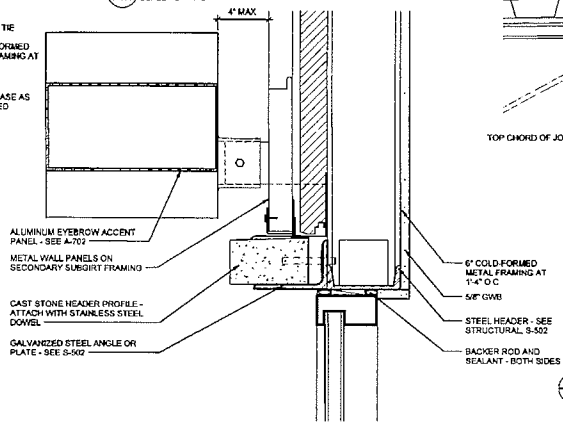
2 A-501 SCALE 3" = 1'-0" WATER TABLE DETAIL



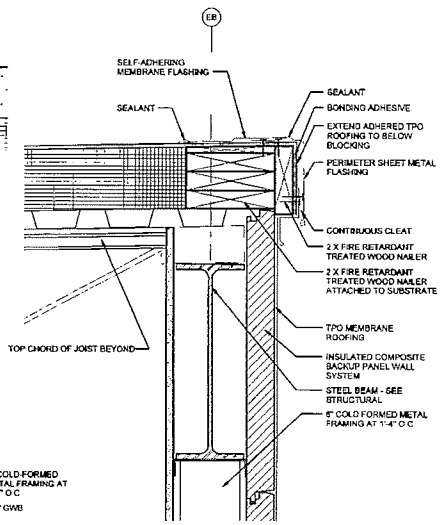
5 A-501 SCALE 3" = 1'-0" CURTAIN WALL BASE DETAIL



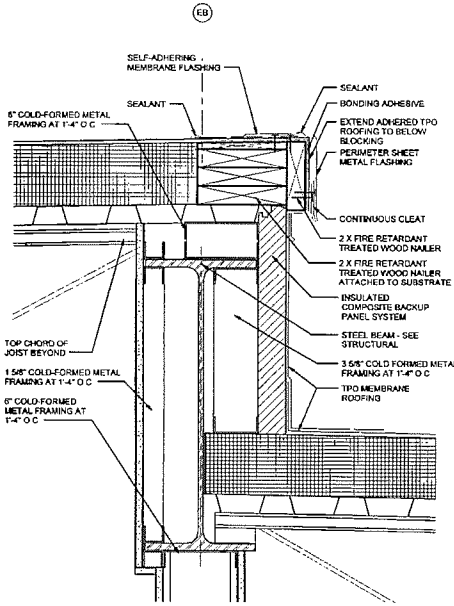
3 A-501 SCALE 3" = 1'-0" EXTERIOR WALL BASE DETAIL



6 A-501 SCALE 3" = 1'-0" WINDOW HEAD DETAIL AT INSTRUCTIONAL ROOMS



8 A-501 SCALE 3" = 1'-0" DETAIL AT ROOF TRANSITION



9 A-501 SCALE 3" = 1'-0" DETAIL AT ROOF TRANSITION

SCALE 3" = 1'-0"

ISSUED FOR CONSTRUCTION

FULTON COUNTY

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

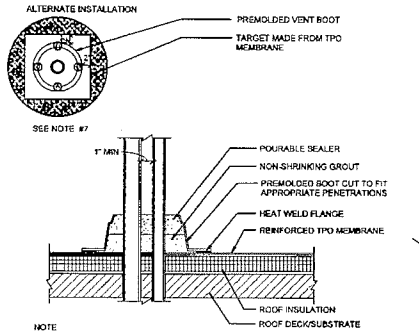
PROJECT NO. 113245

FULTON COUNTY AVIATION COMMUNITY CENTRAL CENTER

EXTERIOR WALL AND WINDOW DETAILS

SHEET REFERENCE NUMBER

A-501



NOTE

1 EXISTING PROJECTION MUST BE CLEANED AND FREE OF INSULATING MATERIALS

2 POURABLE SEALER MOUNDED TO SHED WATER (MAX 2" DEPTH). REMAINDER OF POCKET MAY BE FILLED WITH A NON-SHRINKING GROUT

3 DO NOT USE OVER EXISTING PENETRATION POCKETS

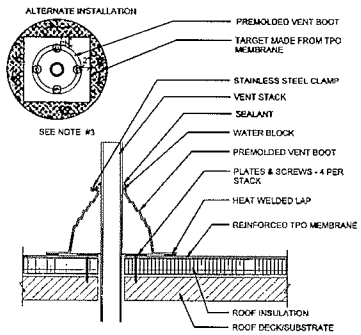
4 DO NOT USE WHEN SERVICE LINE TEMP. EXCEEDS 140°F

5 TPO PRIMER REQ. ON PENETRATIONS AND MEMBRANE INSIDE OF PENETRATION POCKET

6 IF THE PLATES AND FASTENERS INTRUDE INTO BOOT FLANGE AREA, THEN A TARGET MUST FIRST BE INSTALLED OVER PLATES AND FASTENERS BEFORE BOOT INSTALLATION

7 APPLY TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES

1 / A-531 PENETRATION FLASHING DETAIL
SCALE 1 1/2" = 1'-0"



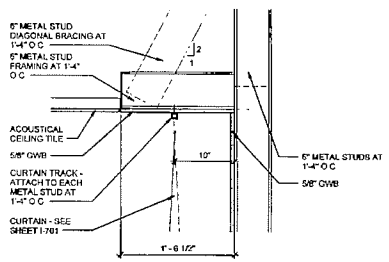
NOTE

1 DO NOT CUT PREMOLDED BOOT IT MUST BE PULLED OVER VENT PIPE

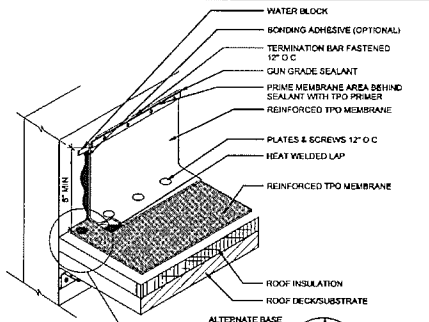
2 IF THE PLATES AND FASTENERS INTRUDE INTO BOOT FLANGE AREA, THEN A TARGET MUST FIRST BE INSTALLED OVER PLATES AND FASTENERS BEFORE BOOT INSTALLATION

3 APPLY TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES

2 / A-531 VENT BOOT FLASHING DETAIL
SCALE 1 1/2" = 1'-0"



3 / A-621 CURTAIN TRACK DETAIL - TYP.
SCALE 1 1/2" = 1'-0"



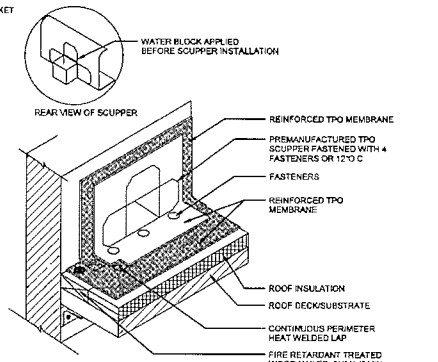
NOTE

1 PLATES & SCREWS 6" O C REQ'D FOR BA SYSTEMS

2 INCREASED FASTENING TO 6" O C MAY BE REQUIRED TO KEEP CONSTANT COMPRESSION OF BAR TO WALL

3 APPLY TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES

4 / A-531 ROOF CURB DETAIL
SCALE 1 1/2" = 1'-0"

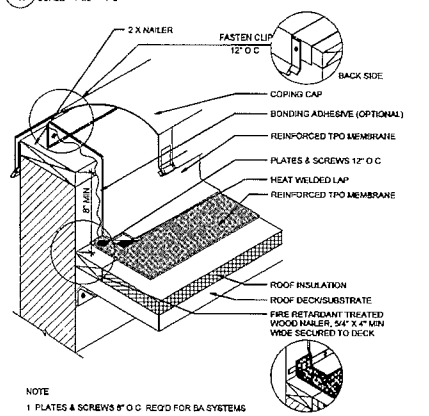


NOTE

1 DETAIL TO BE USED IN CONJUNCTION WITH STANDARD GUIDE SPECIFICATION CONTAINING REQUIREMENTS FOR NAILERS, INSULATION ETC

2 APPLY CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES

5 / A-531 SCUPPER DETAIL
SCALE 1 1/2" = 1'-0"

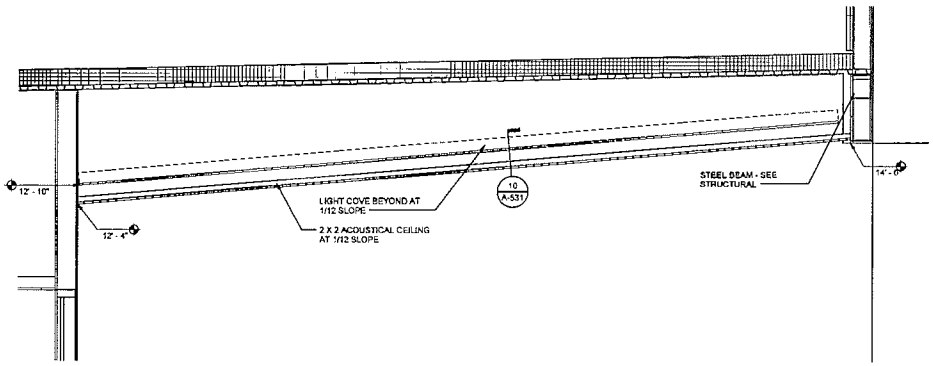


NOTE

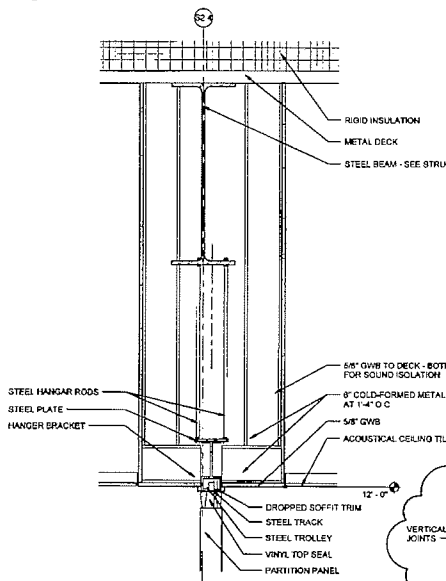
1 PLATES & SCREWS 6" O C REQ'D FOR BA SYSTEMS

2 APPLY TPO CUT EDGE SEALANT TO ALL CUT REINFORCED TPO EDGES

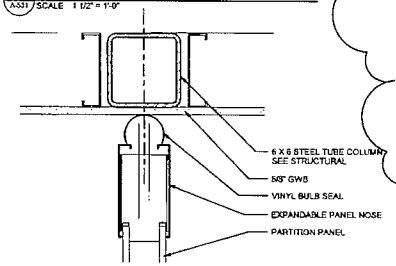
6 / A-631 PARAPET CAP DETAIL
SCALE 1 1/2" = 1'-0"



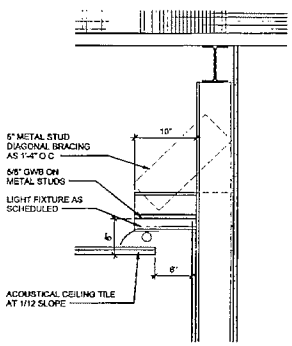
7 / A-531 SECTION THROUGH LOBBY CEILING
SCALE 3/4" = 1'-0"



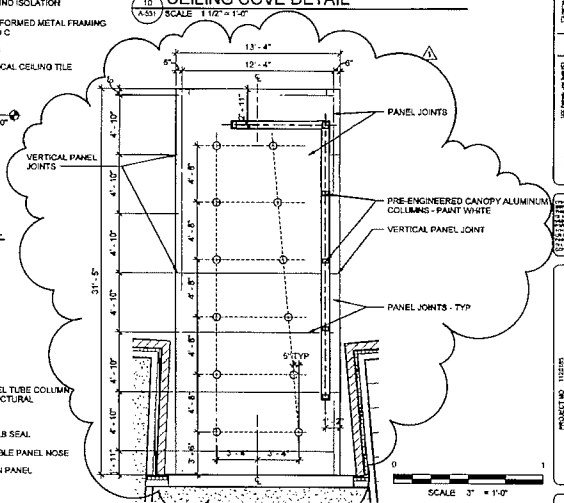
8 / A-531 RETRACTABLE PARTITION DETAIL
SCALE 1 1/2" = 1'-0"



9 / A-631 RETRACTABLE PARTITION JAMB
SCALE 3" = 1'-0"



10 / A-531 CEILING COVE DETAIL
SCALE 1 1/2" = 1'-0"



11 / A-531 CANOPY PLAN
SCALE 1/4" = 1'-0"

ISSUED FOR CONSTRUCTION

FULTON COUNTY

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

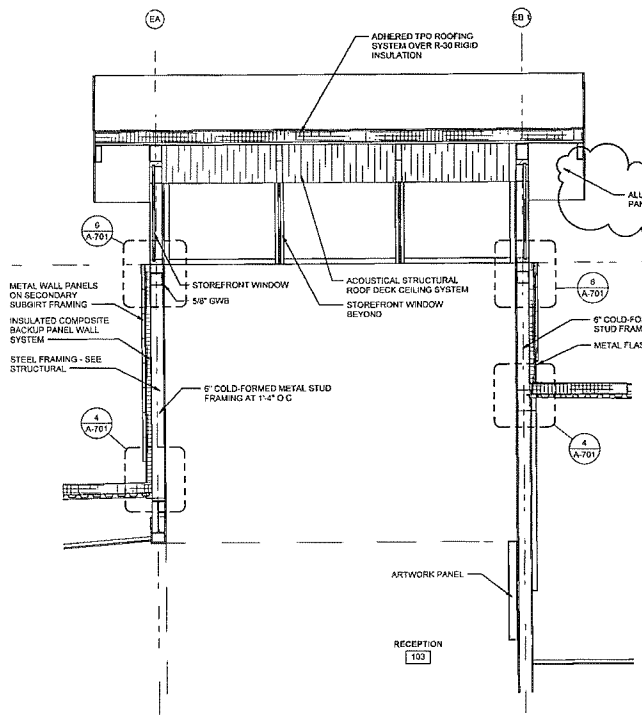
POND

PROJECT NO. 113251

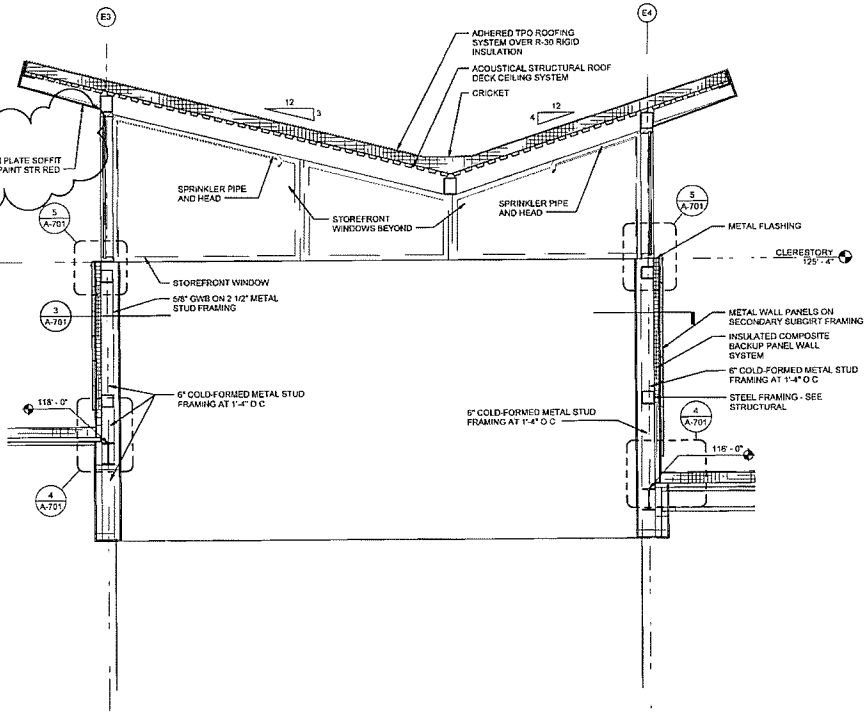
FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
ASH ST, SMYRNA

REFLECTED CEILING AND ROOF DETAILS

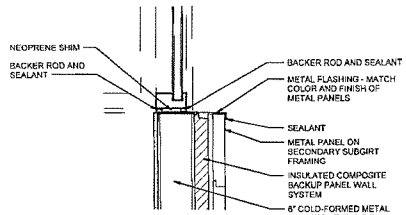
SHEET REFERENCE NUMBER
A-531



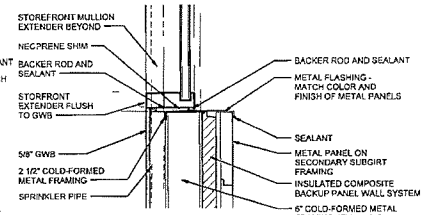
1 A-701 SECTION THRU TOWER - EAST TO WEST
SCALE 1/2" = 1'-0"



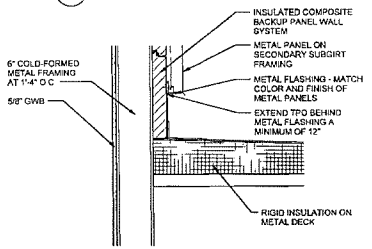
2 A-701 SECTION THRU TOWER - NORTH TO SOUTH
SCALE 1/2" = 1'-0"



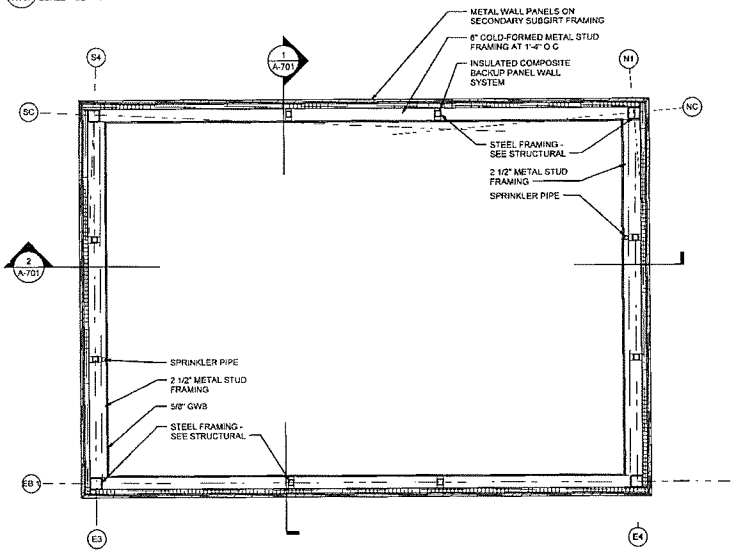
6 A-701 DETAIL AT WINDOW SILL - TYP.
SCALE 1 1/2" = 1'-0"



5 A-701 DETAIL AT WINDOW SILL
SCALE 1 1/2" = 1'-0"



4 A-701 DETAIL AT TOWER BASE - TYP.
SCALE 1 1/2" = 1'-0"



3 A-701 PLAN SECTION THROUGH TOWER
SCALE 1/2" = 1'-0"

SCALE 1/4" = 1'-0"
SCALE 1/2" = 1'-0"

ISSUED FOR CONSTRUCTION

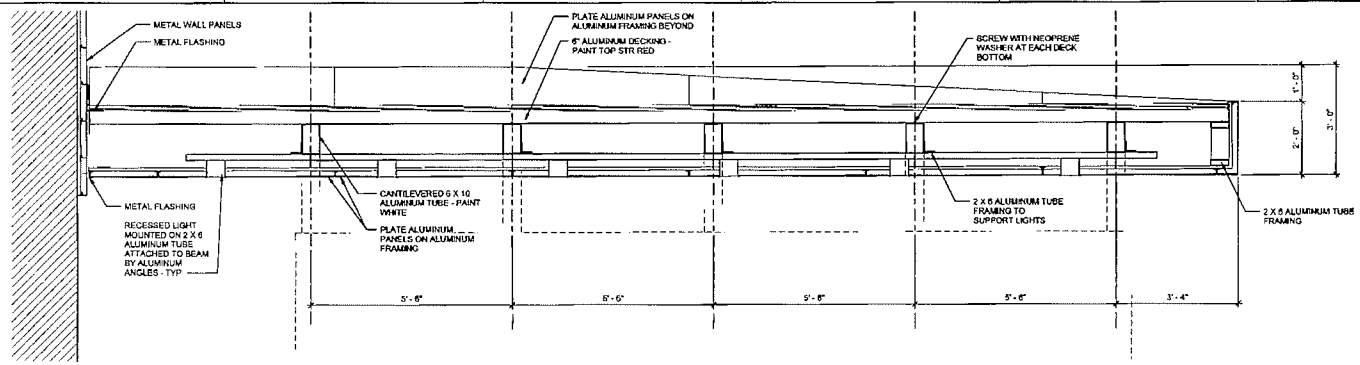
FULTON COUNTY

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

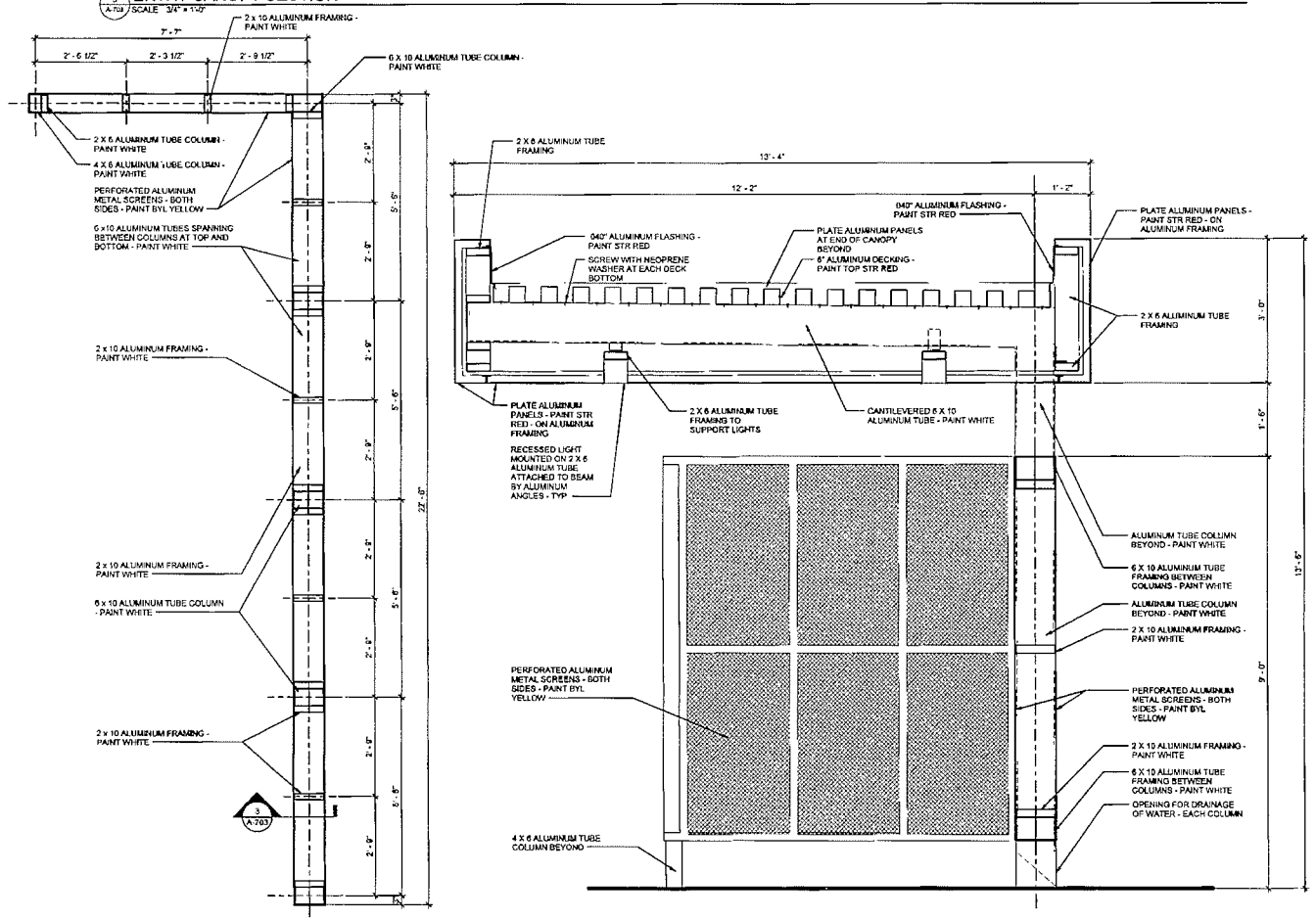
PROJECT NO 170014
FULTON COUNTY ARTS & COMMUNITY CULTURAL CENTER
Atlanta, Georgia

TOWER SECTIONS AND DETAILS

SHEET REFERENCE NUMBER
A-701

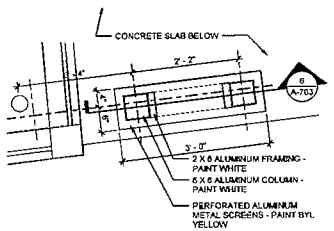


5 A-703 ENTRY CANOPY SECTION
SCALE 3/4" = 1'-0"

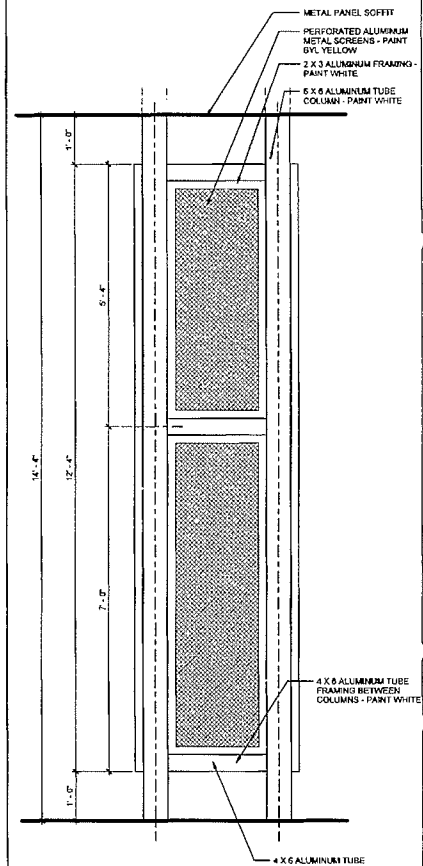


2 A-703 ENTRY ACCENT SCREEN PLAN
SCALE 3/4" = 1'-0"

3 A-703 ENTRY CANOPY AND ACCENT SCREEN SECTION
SCALE 1" = 1'-0"



4 A-703 WING ACCENT PANEL PLAN
SCALE 1" = 1'-0"



6 A-703 WING ACCENT SCREEN SECTION
SCALE 1" = 1'-0"

1 0 1 2 3
SCALE 3/4" = 1'-0"
1 0 1 2
SCALE 1" = 1'-0"

ISSUED FOR CONSTRUCTION

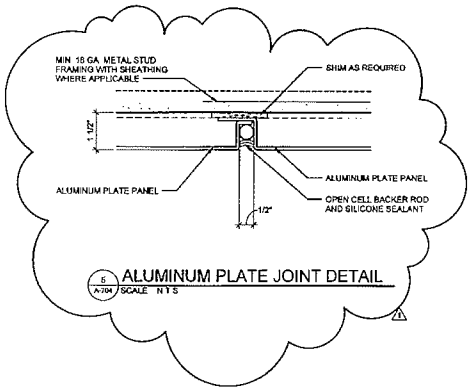
FULTON COUNTY

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

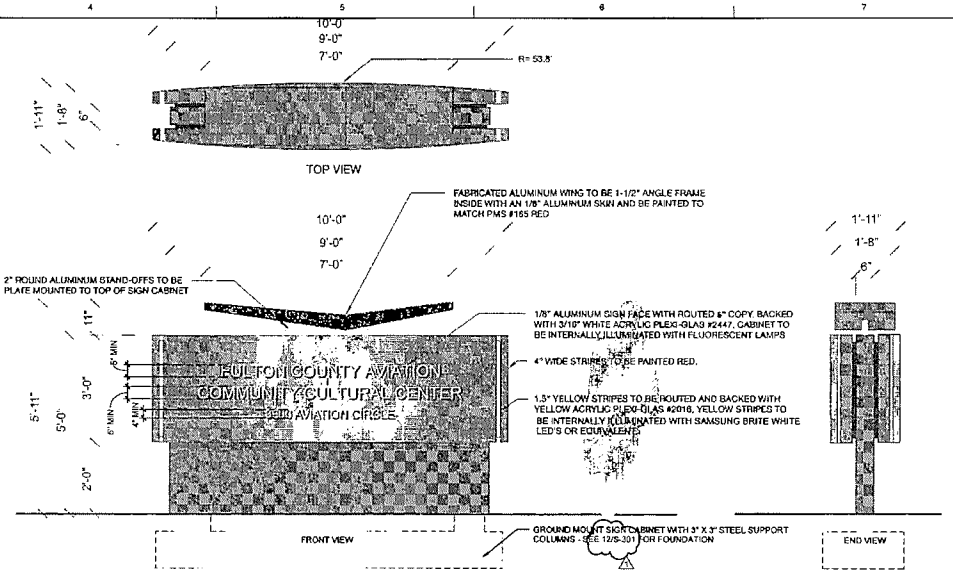
FULTON COUNTY AVIATION (COMMUNITY CULTURAL CENTER

DETAILS

SHEET REFERENCE NUMBER
A-703

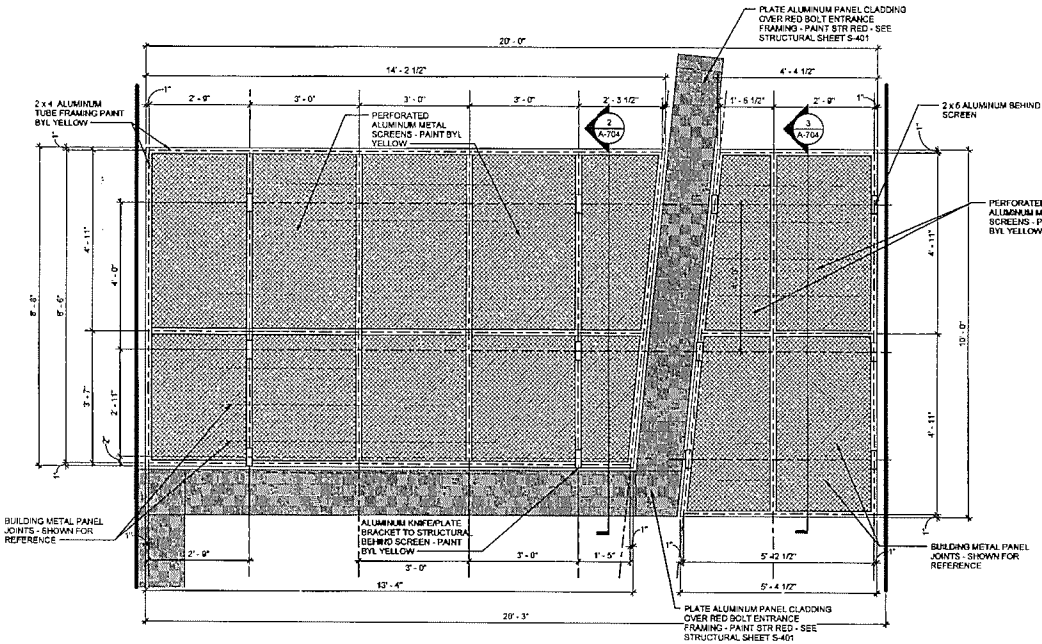


5 A-704 ALUMINUM PLATE JOINT DETAIL
SCALE: N T S

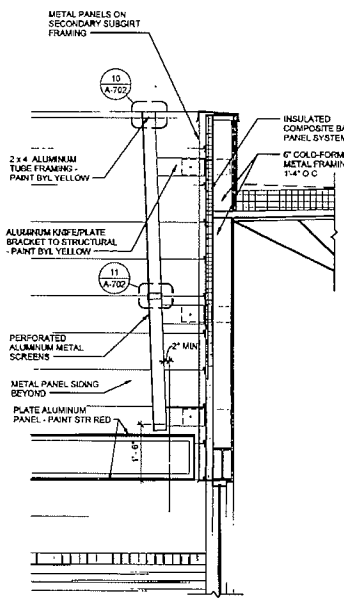


4 A-704 MONUMENT SIGN
SCALE: 3/4" = 1'-0"

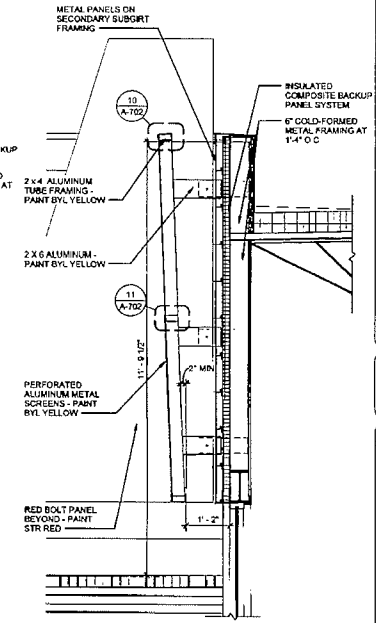
BASIS OF DESIGN MANUFACTURER
SIGN GALLEY, INC
328 AVIEMORE LANE
SUWANEE, GA 30024
(404) 784-7925



1 A-704 RED BOLT ACCENT DISPLAY SCREENS
SCALE: 3/4" = 1'-0"



2 A-704 RED BOLT BACKGROUND SECTION 1
SCALE: 3/4" = 1'-0"



3 A-704 RED BOLT BACKGROUND SECTION 2
SCALE: 3/4" = 1'-0"

SCALE: 3/4" = 1'-0"

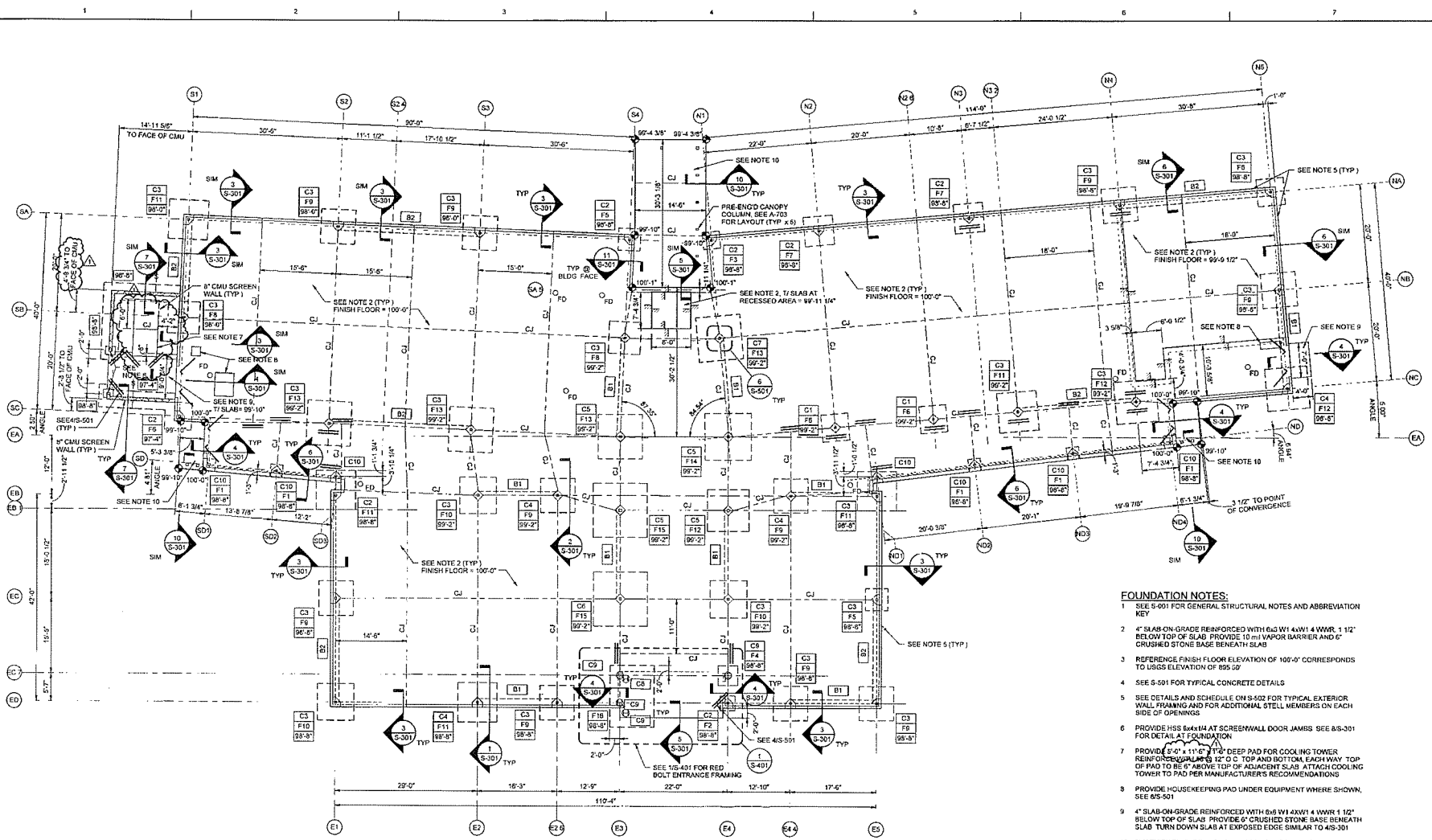
ISSUED FOR CONSTRUCTION

FULTON COUNTY

FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
ATLANTA, GEORGIA

DETAILS

SHEET REFERENCE NUMBER
A-704



FOUNDATION PLAN

SCALE 1/8" = 1'-0"

FOUNDATION NOTES:

1. SEE S-001 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATION KEY
2. 4" SLAB-ON-GRADE REINFORCED WITH 6x6 W1 4xW1 4 WWR, 1 1/2" BELOW TOP OF SLAB. PROVIDE 10 mil VAPOR BARRIER AND 6" CRUSHED STONE BASE BENEATH SLAB
3. REFERENCE FINISH FLOOR ELEVATION OF 100'-0" CORRESPONDS TO USGS ELEVATION OF 895.50'
4. SEE S-501 FOR TYPICAL CONCRETE DETAILS
5. SEE DETAILS AND SCHEDULE ON S-502 FOR TYPICAL EXTERIOR WALL FRAMING AND FOR ADDITIONAL STELL MEMBERS ON EACH SIDE OF OPENINGS
6. PROVIDE HSS 6x4x1/4 AT SCREENWALL DOOR JAMBS. SEE 8/S-301 FOR DETAIL AT FOUNDATION
7. PROVIDE 5'-0" x 11'-6" x 1'-0" DEEP PAD FOR COOLING TOWER REINFORCED WITH #5 @ 12" O.C. TOP AND BOTTOM, EACH WAY. TOP OF PAD TO BE 6" ABOVE TOP OF ADJACENT SLAB. ATTACH COOLING TOWER TO PAD PER MANUFACTURER'S RECOMMENDATIONS
8. PROVIDE HOUSEKEEPING PAD UNDER EQUIPMENT WHERE SHOWN, SEE 6/S-501
9. 4" SLAB-ON-GRADE REINFORCED WITH 6x6 W1 4XW1 4 WWR 1 1/2" BELOW TOP OF SLAB. PROVIDE 6" CRUSHED STONE BASE BENEATH SLAB. TURN DOWN SLAB AT EXPOSED EDGE SIMILAR TO 4/S-301
10. 2'-0" THICK SLAB, REINFORCE WITH #3 @ 12" O.C. EACH WAY TOP AND #5 @ 10" O.C. EACH WAY BOTTOM. HOOK TOP BARS AT EACH END. PROVIDE 6" CRUSHED STONE BASE BENEATH SLAB

LEGEND

- C1 — COLUMN DESIGNATION. SEE SCHEDULE ON S-701
- F1 — CAST-IN-PLACE CONCRETE FOOTING, SEE SCHEDULE ON S-701
- B1 — STEEL BRACING DESIGNATION. SEE S-201 FOR ELEVATIONS AND SIZES
- 98'-8" — TOP OF FOOTING ELEVATION
- 2" — SLAB DEPRESSION, SEE DETAIL 7/S-501
- FD — FLOOR DRAIN, SEE P-101 AND P-401 FOR EXACT LOCATION
- CJ — CONTROL JOINT, SEE 1/S-501
- 2 - #4 x 4'-0" REBARS AT DISCONTINUOUS CONTROL JOINTS
- SPOT ELEVATION RELATIVE TO BUILDING FINISH FLOOR OF 100'-0"
- STEPPED FOOTING, SEE 12/S-501

PLAN NORTH

SCALE 1/8" = 1'-0"

ISSUED FOR CONSTRUCTION

FULTON COUNTY

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

POND

PROJECT NO 116185

FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER

ATLANTA, GEORGIA

FOUNDATION AND FLOOR PLAN

SHEET REFERENCE NUMBER

S-101

PUMP SCHEDULE

ID	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID: FLOW RATE (GPM)	FLUID: WORKING FLUID	FLUID: HEAD LOSS (FT)	ELECTRICAL: MOTOR SIZE (HP)	ELECTRICAL: VOLT / PH / HZ	NOTES
P-WSHP-1	TACO L0435	WSHP-1	CIRCULATOR	5 3	WATER	12	0 125	120 / 1 / 60	1
P-WSHP-2	TACO L0435	WSHP-2	CIRCULATOR	5 3	WATER	12	0 125	120 / 1 / 60	1
P-WSHP-3	TACO L1130	WSHP-3	CIRCULATOR	9	WATER	11 7	0 125	120 / 1 / 60	1
P-WSHP-4	TACO L1130	WSHP-4	CIRCULATOR	10 7	WATER	11 9	0 125	120 / 1 / 60	1
P-WSHP-5	TACO L1130	WSHP-5	CIRCULATOR	9	WATER	11 7	0 125	120 / 1 / 60	1
P-WSHP-6	TACO L0515	WSHP-6	CIRCULATOR	2 3	WATER	11 7	0 04	120 / 1 / 60	1
P-WSHP-7	TACO L0515	WSHP-7	CIRCULATOR	3	WATER	12 2	0 04	120 / 1 / 60	1
P-WSHP-8	TACO L0435	WSHP-8	CIRCULATOR	3 8	WATER	12 8	0 125	120 / 1 / 60	1
P-WSHP-9	TACO L0435	WSHP-9	CIRCULATOR	3 8	WATER	12 8	0 125	120 / 1 / 60	1
P-WSHP-10	TACO L0435	WSHP-10	CIRCULATOR	5 3	WATER	12	0 125	120 / 1 / 60	1
P-WSHP-11	TACO L0515	WSHP-11	CIRCULATOR	2 3	WATER	11 7	0 04	120 / 1 / 60	1
P-WSHP-12	TACO L0435	WSHP-12	CIRCULATOR	7 6	WATER	11 5	0 125	120 / 1 / 60	1
P-WSHP-13	TACO L0435	WSHP-13	CIRCULATOR	5 3	WATER	12	0 125	120 / 1 / 60	1
P-WSHP-14	TACO L0435	WSHP-14	CIRCULATOR	3 8	WATER	12 8	0 125	120 / 1 / 60	1
P-WSHP-15	TACO L0435	WSHP-15	CIRCULATOR	6 2	WATER	12 3	0 125	120 / 1 / 60	1
P-16	TACO KV1507	MECHANICAL	V C C I	82 7	WATER	40	2	208 / 3 / 60	2, 3
P-17	TACO KV1507	MECHANICAL	V C C I	82 7	WATER	40	2	208 / 3 / 60	2, 3
P-18	TACO 1935	MECHANICAL	HORIZONTAL INLINE	65 2	WATER	20	0 75	208 / 3 / 60	2

NOTES
1 LOADMATCH THERMOSTAT TACO VT7600
2 SUCTION DIFFUSER MODEL (SUCTION SIDE) SD030020, NON-GROOVED
3 V C C I = VERTICAL CLOSE-COUPLED INLINE

EXPANSION TANK SCHEDULE

ID	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID: WORKING FLUID	FLUID: MIN TANK/ ACCEPTANCE (GAL)	PHYSICAL: TANK SIZE (GAL)	PHYSICAL: RELIEF VALVE (PSIG)	PHYSICAL: DIA / HEIGHT (IN)	PHYSICAL: NPT FITTING (IN)	NOTES
ET-1	TACO CBX-30	MECH 107	VERT BLADDER FULL	WATER	5	8	30	14 / 22	1/2	1

NOTES
1 ASME CERTIFIED

AIR SEPARATOR SCHEDULE

ID	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID: FLOW RATE (GPM)	FLUID: WORKING FLUID	FLUID: HEAD LOSS (FT)	PHYSICAL: DIA / HEIGHT (IN)	NOTES
AS-1	TACO 4903ADT-5	MECH 107	TANK - HIGH EFF (AIR / DIRT)	82 7	WATER	0 6	11 / 25	1

NOTES
1 ASME CERTIFIED

MULTIPLE-PURPOSE VALVE SCHEDULE

ID	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	BODY CONSTRUCTION	FLUID: FLOW RATE (GPM)	FLUID: HEAD LOSS (FT)	PHYSICAL: CONNECT SIZE (IN)	NOTES
MPV-P-16	TACO MPV015	P-16	STRAIGHT	OTHER	82 7	1 8	3	
MPV-P-17	TACO MPV015	P-17	STRAIGHT	OTHER	82 7	1 8	3	

NOTES

1 SEE MECHANICAL SHEET M-001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS

COOLING TOWER SCHEDULE

ID	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FAN AIRFLOW (CFM)	AMBIENT TEMP DB/WB (°F)	FLUID: FLOW RATE (GPM)	FLUID: ENTERING / LEAVING TEMP (°F)	FLUID: WORKING FLUID	FLUID: INLET / OUTLET HEAD LOSS (FT)	ELECTRICAL, FAN: MOTOR QUAN	ELECTRICAL, FAN: MOTOR SIZE (HP)	TOWER AND CONTROL CIRCUIT VOLT / PH / HZ	PHYSICAL: OPERATING WEIGHT (LB)	PHYSICAL: LENGTH / WIDTH / HEIGHT (IN)	NOTES
CCCT	EVAPCO ATWB 4-4F9-ZR	EQUIPMENT YARD	CLOSED, AXIAL	APPROX 20,000	91 / 78	82 7	95 / 85	WATER	5 / 5	2 - FAN 1 - PUMP 1 - HEATER	3 EACH 1 4 0 kW	208/3	7,100	APPROX 108/48/MAX 120	1,2,3,4

1 PROVIDE SINGLE POINT ELECTRICAL CONNECTION AND MOTOR STARTERS
2 PROVIDE MAKEUP WATER, 1/2" PIPE, FROM MECHANICAL ROOM SEE DRAWING P-102 PLAN NOTE "CW TO HVAC MAKE UP" FOR LOCATION
3 PROVIDE DRAIN, 1-1/2" PIPE, TO MECHANICAL ROOM, DISCHARGE TO FLOOR DRAIN SEE DRAWING P-101 FOR LOCATION
4 PROVIDE NON-CHEMICAL WATER TREATMENT SYSTEM FOR SPRAY PUMP LOOP

BOILER SCHEDULE

ID	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	INPUT LOAD (BTU/H)	OUTPUT LOAD (BTU/H)	FLUID: FLOW RATE (GPM)	FLUID: ENTERING / LEAVING TEMP (°F)	FLUID: WORKING FLUID	FLUID: HEAD LOSS (FT)	ELECTRICAL: CONTROL CIRCUIT VOLT / PH / HZ	NOTES
B-1	BRYAN BE-90	MECHANICAL 107	ELECTRIC	330600	330600	66 2	60 / 70	WATER	2	120 / 1 / 60	

TWIN TEE SCHEDULE

ID	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	LOCATION	BODY CONSTRUCTION	FLUID: PRIMARY FLOW RATE (GPM)	FLUID: SECONDARY FLOW RATE (GPM)	PRIMARY PIPE / CONNECT (IN)	SECONDARY PIPE / CONNECT (IN) S / R	NOTES
TT-1	TACO TT300G	WSHP-1	DUCTILE IRON	82 7	5 3	3 / 3	1 / 1 25	
TT-2	TACO TT300G	WSHP-2	DUCTILE IRON	82 7	5 3	3 / 3	1 / 1 25	
TT-3	TACO TT300G	WSHP-3	DUCTILE IRON	82 7	9	3 / 3	1 25 / 1 25	
TT-4	TACO TT300G	WSHP-4	DUCTILE IRON	82 7	10 7	3 / 3	1 25 / 1 25	
TT-5	TACO TT300G	WSHP-5	DUCTILE IRON	82 7	9	3 / 3	1 25 / 1 25	
TT-6	TACO TT300G	WSHP-6	DUCTILE IRON	82 7	2 3	3 / 3	0 75 / 1 25	
TT-7	TACO TT300G	WSHP-7	DUCTILE IRON	82 7	3	3 / 3	0 75 / 1 25	
TT-8	TACO TT300G	WSHP-8	DUCTILE IRON	82 7	3 8	3 / 3	0 75 / 1 25	
TT-9	TACO TT300G	WSHP-9	DUCTILE IRON	82 7	3 8	3 / 3	0 75 / 1 25	
TT-10	TACO TT300G	WSHP-10	DUCTILE IRON	82 7	5 3	3 / 3	1 / 1 25	
TT-11	TACO TT300G	WSHP-11	DUCTILE IRON	82 7	2 3	3 / 3	0 75 / 1 25	
TT-12	TACO TT300G	WSHP-12	DUCTILE IRON	82 7	7 6	3 / 3	1 25 / 1 25	
TT-13	TACO TT300G	WSHP-13	DUCTILE IRON	82 7	5 3	3 / 3	1 / 1 25	
TT-14	TACO TT300G	WSHP-14	DUCTILE IRON	82 7	3 8	3 / 3	0 75 / 1 25	
TT-15	TACO TT300G	WSHP-15	DUCTILE IRON	82 7	6 2	3 / 3	1 / 1 25	

WATER SOURCE HEAT PUMP SCHEDULE

ID	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	LOCATION	ZONE	TOTAL S A CFM	O A CFM	FAN HP	ESP IN W C	USAGE	LOAD (BTU/H)	FLUID: FLOW RATE (GPM)	FLUID: ENTERING / LEAVING TEMP (° F)	FLUID: WORKING FLUID	FLUID: HEAD LOSS (FT)	ELECTRICAL: VOLTAGE / PHASE	MINIMUM EER AT AHRI	MINIMUM COP AT AHRI	NOTES
WSHP-1	TRANE GEHE0240	MEDIA LAB 112	LOBBY 102 / VESTIBULE 101	800	120	0 333	0 4	HEATING COOLING	21200 26400	5 3 5 3	66 7 / 58 7 88 3 / 98 3	WATER	10 10	208 / 3	14 4	4 7	1, 2, 3, 4
WSHP-2	TRANE GEHE0248	MECHANICAL 107	WEST CORRIDOR 104	800	80	0 333	0 4	HEATING COOLING	21200 26400	5 3 5 3	70 / 62 85 / 95	WATER	10 10	208 / 3	14 4	4 7	1, 2, 3, 4
WSHP-3	TRANE GEHE0428	MECHANICAL 122	EAST CORRIDOR 103	1,400	100	0 5	0 4	HEATING COOLING	36000 44700	9 9	64 1 / 56 1 90 9 / 100 9	WATER	10 10	208 / 3	13 6	4 6	1, 2, 3, 4
WSHP-4	TRANE GEHE0608	STORAGE 106	MULTI-PURPOSE 108	1,600	330	1 0	0 6	HEATING COOLING	42800 53200	10 7 10 7	69 4 / 61 4 85 6 / 95 6	WATER	10 10	208 / 3	13 4	4 5	1, 2, 3, 4
WSHP-5	TRANE GEHE0488	MULTI-PURPOSE 108	MULTI-PURPOSE 108	1,600	330	1 0	0 5	HEATING COOLING	36000 44700	9 9	67 8 / 59 8 87 2 / 97 2	WATER	10 10	208/ 3	13 9	4 8	1, 2 3, 4
WSHP-6	TRANE GEHE0122	MULTI-PURPOSE 108	MEN 109 / WOMEN 111	400	400	0 125	0 4	HEATING COOLING	9200 11400	2 3 2 3	68 1 / 60 1 86 9 / 96 9	WATER	10 10	208 / 1	14 0	4 9	1, 2, 3, 4
WSHP-7	TRANE GEHE0182	MEDIA LAB 112	MEDIA LAB 112	600	90	0 333	0 4	HEATING COOLING	12000 14900	3 3	66 1 / 58 1 88 9 / 98 9	WATER	10 10	208 / 1	13 3	4 8	1, 2, 3, 4
WSHP-8	TRANE GEHE0182	STORAGE 118	INSTRUCTIONAL ROOM 1 115	600	150	0 333	0 4	HEATING COOLING	15200 18900	3 8 3 8	65 7 / 57 7 89 3 / 99 3	WATER	10 10	208 / 1	13 3	4 8	1, 2, 3, 4
WSHP-9	TRANE GEHE0182	STORAGE 118	INSTRUCTIONAL ROOM 2 117	600	150	0 333	0 4	HEATING COOLING	15200 18900	3 8 3 8	65 2 / 57 2 89 8 / 99 8	WATER	10 10	208 / 1	13 3	4 8	1, 2, 3, 4
WSHP-10	TRANE GEHE0248	MECHANICAL 122	INSTRUCTIONAL ROOM 3 120	800	100	0 333	0 4	HEATING COOLING	21200 26400	5 3 5 3	64 8 / 56 8 90 2 / 100 2	WATER	10 10	208 / 3	14 4	4 7	1, 2, 3, 4
WSHP-11	TRANE GEHE0122	GALLERY STORAGE 126	B R 123 / VEND 124 / PANTRY 125	400	30	0 125	0 4	HEATING COOLING	9200 11400	2 3 2 3	60 3 / 52 3 94 7 / 104 7	WATER	10 10	208 / 1	14 0	4 9	1, 2, 3, 4
WSHP-12	TRANE GEHE0368	GALLERY STORAGE 126	G S 126 / CONT GALLERY 122	1,200	180	0 5	0 5	HEATING COOLING	30400 37800	7 6 7 6	61 2 / 63 2 93 8 / 103 8	WATER	10 10	208 / 3	14 2	4 6	1, 2, 3, 4
WSHP-13	TRANE GEHE0248	OFFICE 2 128	OFFICE 1 129 / OFFICE 2 128 / FILING 130	800	30	0 333	0 4	HEATING COOLING	21200 26400	5 3 5 3	61 8 / 53 8 93 2 / 103 2	WATER	10 10	208 / 3	14 4	4 7	1, 2, 3, 4, 5
WSHP-14	TRANE GEHE0182	SUPPLY 131	RESEARCH 132	300	20	0 333	0 4	HEATING COOLING	15200 18900	3 8 3 8	63 / 55 92 / 102	WATER	10 10	208 / 1	13 3	4 8	1, 2, 3, 4
WSHP-15	TRANE GEHE0308	OFFICE 1 129	GALLERY OF FLIGHT 133	1020	140	0 5	0 5	HEATING COOLING	24800 30800	6 2 6 2	62 6 / 54 6 92 4 / 102 4	WATER	10 10	208 / 3	13 8	4 6	1, 2, 3, 4, 5

NOTES:
1 E S P DOES NOT INCLUDE, FILTERS, COILS, AND CASING LOSSES
2 COMPRESSOR SHORT-CYCLE PROTECTOR
3 MAX SOUND LEVEL AT 3FT SHALL NOT EXCEED 63 DbA
4 FILTER SECTION WITH MERVE 8 THROW-AWAY 2" THICK FILTERS
5 PROVIDE CONDENSATE PUMP, PLENUM RATED, HARTWELL PUMPS

LOADMATCH THERMOSTAT SCHEDULE

ID	WSHP SERVED	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER	VOLT / PH / HZ	NOTES
T-P-WSHP-1	P-WSHP-1	TACO VT7600	24 / 1 / 60	
T-P-WSHP-2	P-WSHP-2	TACO VT7600	24 / 1 / 60	
T-P-WSHP-3	P-WSHP-3	TACO VT7600	24 / 1 / 60	
T-P-WSHP-4	P-WSHP-4	TACO VT7600	24 / 1 / 60	
T-P-WSHP-5	P-WSHP-5	TACO VT7600	24 / 1 / 60	
T-P-WSHP-6	P-WSHP-6	TACO VT7600	24 / 1 / 60	
T-P-WSHP-7	P-WSHP-7	TACO VT7600	24 / 1 / 60	
T-P-WSHP-8	P-WSHP-8	TACO VT7600	24 / 1 / 60	
T-P-WSHP-9	P-WSHP-9	TACO VT7600	24 / 1 / 60	
T-P-WSHP-10	P-WSHP-10	TACO VT7600	24 / 1 / 60	
T-P-WSHP-11	P-WSHP-11	TACO VT7600	24 / 1 / 60	
T-P-WSHP-12	P-WSHP-12	TACO VT7600	24 / 1 / 60	
T-P-WSHP-13	P-WSHP-13	TACO VT7600	24 / 1 / 60	
T-P-WSHP-14	P-WSHP-14	TACO VT7600	24 / 1 / 60	
T-P-WSHP-15	P-WSHP-15	TACO VT7600	24 / 1 / 60	

FULTON COUNTY

REV	DESCRIPTION	PREP BY	DATE	APPVD
1	POND & CO ADDENDUM NO 3		01/10/13	

DRAWING REVISIONS

DATE 11/12/12 | DESIGNED BY JRG | DWN BY MC | REVIEWED BY BO | SUBMITTED BY PJU
DESIGN FILE NO | DRAWING CODE | FILE NAME | PLOT DATE | PLOT SCALE

POND

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

PROJECT NO 112185
FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
Atlanta, Georgia

MECHANICAL SCHEDULES

SHEET REFERENCE NUMBER
M-601

ISSUED FOR CONSTRUCTION

NOTES:

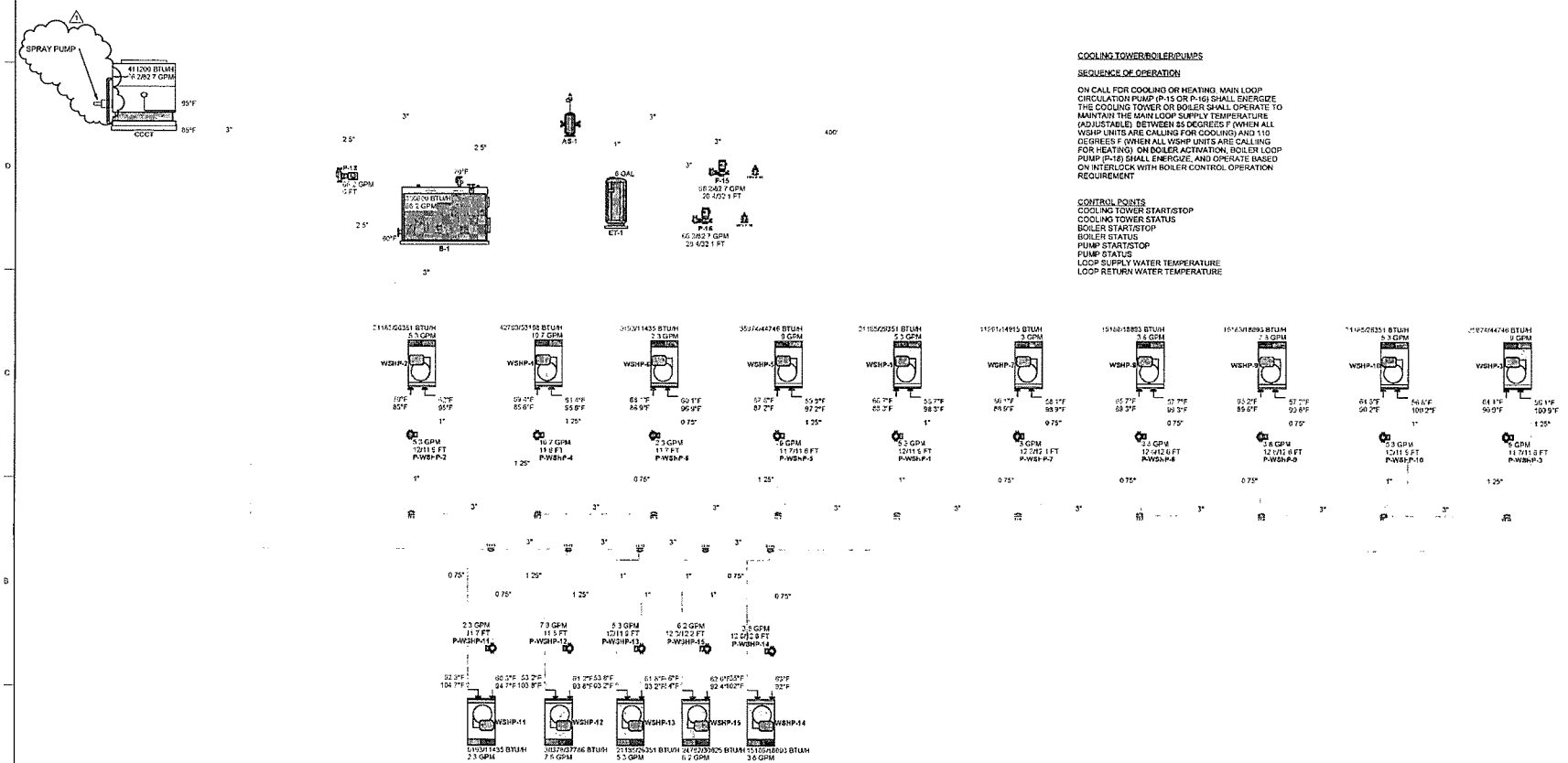
1. SEE MECHANICAL SHEET M-001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS

COOLING TOWER/BOILER/PUMPS

SEQUENCE OF OPERATION

ON CALL FOR COOLING OR HEATING, MAIN LOOP CIRCULATION PUMP (P-15 OR P-16) SHALL ENERGIZE. THE COOLING TOWER OR BOILER SHALL OPERATE TO MAINTAIN THE MAIN LOOP SUPPLY TEMPERATURE (ADJUSTABLE) BETWEEN 85 DEGREES F (WHEN ALL WSHP UNITS ARE CALLING FOR COOLING) AND 110 DEGREES F (WHEN ALL WSHP UNITS ARE CALLING FOR HEATING). ON BOILER ACTIVATION, BOILER LOOP PUMP (P-16) SHALL ENERGIZE, AND OPERATE BASED ON INTERLOCK WITH BOILER CONTROL OPERATION REQUIREMENT

CONTROL POINTS
COOLING TOWER START/STOP
COOLING TOWER STATUS
BOILER START/STOP
BOILER STATUS
PUMP START/STOP
PUMP STATUS
LOOP SUPPLY WATER TEMPERATURE
LOOP RETURN WATER TEMPERATURE



1 HYDRONIC FLOW SYSTEM DIAGRAM
M-701 SCALE: NTS

ISSUED FOR CONSTRUCTION

FULTON COUNTY

DRAWING REVISIONS

REV	DESCRIPTION	PRES BY	DATE	APP'D
1				
2				
3				
4				
5				

DESIGNED BY: JAS
DRAWN BY: MC
REVIEWED BY: BS
SUBMITTED BY: PJH
DATE: 11/17/15
DESIGN FILE XD
DRAWING CODE
FILE NAME
PLOT SCALE

FULTON COUNTY PURCHASING & FULTON COUNTY ARTS AND CULTURE

PROJECT NO. 1170115
FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
ATLANTA, GEORGIA
HYDRONIC FLOW SYSTEM DIAGRAM

SHEET REFERENCE NUMBER
M-701

PANELBOARD SCHEDULE MDP

LOCATION: ROOM 107 | MAINS RATING: 800A | MINIMUM BREAKER A.I.C. 22,000
SUPPLY FROM: FLT | VOLTAGE: 120/208 Wye
MOUNTING: FLOOR | PHASES: 3
ENCLOSURE: Type 1 | WIRES: 4

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POLE	CONNECTED LOAD KVA A	A	B	B	C	C	POLE	TRIP	CIRCUIT DESCRIPTION	CKT
1	H1	250 A	3	17.78	12.18					3	150 A	H2	2
3	--	--	--			17.87	15.87			--	--	--	4
5	--	--	--					13.42	15.15	--	--	--	6
7	L1	150 A	3	11.82	8.18					3	150 A	H3	8
9	--	--	--			11.78	9.15			--	--	--	10
11	--	--	--					10.78	9.50	--	--	--	12
13	R1	150 A	3	4.40	2.10					3	150 A	R2	14
15	--	--	--			3.90	0.68			--	--	--	16
17	--	--	--					6.80	4.64	--	--	--	18
19	SPD	30 A	3	0.00									20
21	--	--	--			0.00							22
23	--	--	--					0.00					24
25	--												26
27	--												28
29	--												30
31	--												32
33	--												34
35	--												36
37	--												38
39	--												40
41	--												42
	TOTAL LOAD			34.13		58.92		54.58				TOTAL CONNECTED LOAD: 419.3 A	
	TOTAL AMPS:			482.8 A		487.7 A		477.6 A					

PANELBOARD SCHEDULE H1

LOCATION: ROOM 113 | MAINS RATING: 225A | MINIMUM BREAKER A.I.C. 22,000
SUPPLY FROM: MDP | VOLTAGE: 120/208 Wye
MOUNTING: SURFACE | PHASES: 3
ENCLOSURE: Type 1 | WIRES: 4

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POLE	CONNECTED LOAD KVA A	A	B	B	C	C	POLE	TRIP	CIRCUIT DESCRIPTION	CKT
1	WSHP-6	15 A	3	0.72	1.18					3	15 A	WSHP-7	2
3	--	--	--			0.72	1.18			--	--	--	4
5	WSHP-11	15 A	2					0.72	1.18	--	--	--	6
7	--	--	--	0.72	1.18					3	15 A	WSHP-13	8
9	WSHP-14	20 A	2			1.32	1.18			--	--	--	10
11	--	--	--					1.32	1.18	--	--	--	12
13	WSHP-4	40 A	3	2.23	1.98					3	30 A	WSHP-12	14
15	--	--	--			2.63	1.68			--	--	--	16
17	--	--	--					2.63	1.68	--	--	--	18
19	BOILER B-1	20 A	1	0.40	2.35					3	30 A	WSHP-5	20
21	EWH-1	20 A	3			0.84	2.34			--	--	--	22
23	--	--	--					0.84	2.23	--	--	--	24
25	--			0.84	0.84					3	60 A	CCCT	26
27	P-18	20 A	3			0.84	0.84			--	--	--	28
29	--	--	--					0.84	0.84	--	--	--	30
31	--	--	--	0.84	4.15					2	30 A	EWH-2	32
33	Space	20 A	1			0.00	4.15			--	--	--	34
35	Space	20 A	1	0.00	0.00			0.00	0.00	1	20 A	Space	36
37	Space	20 A	1			0.00	0.00			1	20 A	Space	38
39	Space	20 A	1					0.00	0.00	1	20 A	Space	40
41	Space	20 A	1							1	20 A	Space	42
	TOTAL LOAD			11.18		17.87		13.72				TOTAL CONNECTED LOAD	137.8 A
	TOTAL AMPS:			148.2 A		148.9 A		114.3 A					

PANELBOARD SCHEDULE L1

LOCATION: ROOM 113 | MAINS RATING: 150A | MINIMUM BREAKER A.I.C. 22,000
SUPPLY FROM: MDP | VOLTAGE: 120/208 Wye
MOUNTING: SURFACE | PHASES: 3
ENCLOSURE: Type 1 | WIRES: 4

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POLE	CONNECTED LOAD KVA A	A	B	B	C	C	POLE	TRIP	CIRCUIT DESCRIPTION	CKT
1	Lighting Room 108	20 A	1	1.45	0.37					1	20 A	Lighting Rms 112,113,114	2
3	Lighting Rms 120,121,122	20 A	1			0.93	0.86			1	20 A	Lighting Rms 111,116,119	4
5	Lighting Rms 106,107	20 A	1					0.46	0.80	1	20 A	Lighting Rm 115	6
7	Lighting Room 103	20 A	1	0.62	0.62					1	20 A	Lighting Room 127	8
9	Lighting Rms 123 thru 126	20 A	1			0.92	0.53			1	20 A	Lighting Office Area	10
11	Lighting - Exterior	20 A	1					0.18	1.93	1	20 A	Gas Valve Lighting	12
13	Lighting - Canopy	20 A	1	0.22	2.10					1	20 A	Track lighting room 133	14
15	Track Lighting Room 127	20 A	1			2.18	2.10			1	20 A	Track lighting room 133	16
17	Track Lighting Room 127	20 A	1					2.10	1.92	1	20 A	Display Cases	18
19	Display Cases	20 A	1	1.92	1.90					1	20 A	Door By Gates	20
21	Console Lighting	20 A	1			0.18	0.92			1	20 A	Lighting Rms 101,102	22
23	Lighting Rms 109,110,111	20 A	1					0.92	0.92	2	20 A	Lighting - Exterior	24
25	Theatrical Lighting Control Panel	20 A	1	0.40	0.92					--	--	--	26
27	Lighting - Exterior	20 A	2			1.68	0.42			1	20 A	Lighting - Exterior Walkway & Flag	28
29	--	--	--					1.68	0.68	1	20 A	Lighting - Exterior Floodlights	30
31	Lighting - Exterior	20 A	2	1.06	0.84					1	20 A	Lgt - Rms 113,114,116,118,121,122	32
33	--	--	--			1.06	0.04			1	30 A	Access Lighting at Hood	34
35	Lighting - Exterior Sign	20 A	1					0.13	0.06	1	20 A	Spare	36
37	Lighting - Exterior Art Proof Lights	20 A	1	0.43	0.00					1	20 A	Spare	38
39	Spare	20 A	1			0.00	0.00			1	20 A	Spare	40
41	Spare	20 A	1					0.00	0.00	1	20 A	Spare	42
	TOTAL LOAD			5.82		11.79		10.78				TOTAL CONNECTED LOAD: 94.7 A	
	TOTAL AMPS:			80.8 A		98.3 A		89.8 A					

PANELBOARD SCHEDULE R1

LOCATION: ROOM 122 | MAINS RATING: 100A | MINIMUM BREAKER A.I.C. 22,000
SUPPLY FROM: MDP | VOLTAGE: 120/208 Wye
MOUNTING: SURFACE | PHASES: 3
ENCLOSURE: Type 1 | WIRES: 4

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POLE	CONNECTED LOAD KVA A	A	B	B	C	C	POLE	TRIP	CIRCUIT DESCRIPTION	CKT
1	ELECTRIC HAND DRYER	20 A	1	0.51	0.51					1	20 A	ELECTRIC HAND DRYER	2
3	REC WORKSHOP	20 A	1			0.12	0.36			1	20 A	REC WORKSHOP	4
5	RECEIVING & SHOWROOM	20 A	1					1.14	0.12	1	20 A	REC EXTERIOR	6
7	REC MULTI PURPOSE RM	20 A	1	0.18	0.72					1	20 A	REC MULTI PURPOSE	8
9	REC MULTI PURPOSE RM	20 A	1			0.12	0.18			1	20 A	REC AV ROOM	10
11	REC MULTI PURPOSE RM	20 A	1					0.24	0.90	1	20 A	REC CORRIDOR	12
13	AV OUTLET	20 A	1	0.18	0.84					1	20 A	REC ROOMS 114,115	14
15	REC STORAGE 126	20 A	1			1.08	0.18			1	20 A	REC VENDING	16
17	REC STORAGE 126	20 A	1					0.54	0.18	1	20 A	REC VENDING	18
19	REC BREAK ROOM	20 A	1	0.54	0.18					1	20 A	REC BREAK ROOM	20
21	REFRIGERATOR	20 A	1			0.18	0.18			1	20 A	REC BREAK ROOM	22
23	DISHWASHER	20 A	1					2.50	1.08	1	20 A	REC STORAGE 107	24
25	IRRIGATION CONTROLLER	20 A	1	0.36	0.18					1	20 A	PROJECTOR SCREEN	26
27	REC MULTI PURPOSE RM	20 A	1			0.72							28
29	--							9.00	1	1	20 A	CARD ACCESS CONTROLLER	30
31	MDF'S	20 A	1	1.12	0.24					1	20 A	ACCESS CONTROLLER	32
33	Spare	20 A	1			0.00	2.90			1	20 A	Spare	34
35	Spare	20 A	1					0.00	0.00	1	20 A	Spare	36
37	Spare	20 A	1	0.00	0.00					1	20 A	Spare	38
39	Spare	20 A	1			0.00	0.00			1	20 A	Spare	40
41	Spare	20 A	1					0.00	0.00	1	20 A	Spare	42
	TOTAL LOAD			4.40		2.95		5.68				TOTAL CONNECTED LOAD: 33.3 A	
	TOTAL AMPS:			34.7 A		33.0 A		48.3 A					

PROVIDE SPD

PANELBOARD SCHEDULE H2

LOCATION: ROOM 113 | MAINS RATING: 225A | MINIMUM BREAKER A.I.C. 22,000
SUPPLY FROM: MDP | VOLTAGE: 120/208 Wye
MOUNTING: SURFACE | PHASES: 3
ENCLOSURE: Type 1 | WIRES: 4

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POLE	CONNECTED LOAD KVA A	A	B	B	C	C	POLE	TRIP	CIRCUIT DESCRIPTION	CKT
1	WSHP-8	20 A	2	1.72	1.13					2	20 A	WSHP-9	3
3	--	--	--			1.32	1.32			--	--	--	4
5	WSHP-1	15 A	3					1.18	1.32	2	20 A	WSHP-10	6
7	--	--	--	1.18	1.32					--	--	--	8
9	--	--	--			1.18	1.97			3	30 A	WSHP-3	10
11	WSHP-10	15 A	3					1.18	1.97	--	--	--	12
13	--	--	--	1.18	1.97					--	--	--	14
15	--	--	--			1.18	2.23			2	30 A	EWH-1	16
17	WSHP-18	20 A	3					1.32	2.26	--	--	--	18
19	--	--	--	1.32	0.00					3	20 A	ERV-2	20
21	--	--	--			1.32	0.00			--	--	--	22
23	EWH-4	30 A	2					1.80	0.90	--	--	--	24
25	--	--	--	1.80	0.90					2	20 A	CU-1	26
27	EWH-3	60 A	2			4.15	0.06			--	--	--	28
29	--	--	--					4.13	0.94	3	20 A	P-17	30
31	P-18	20 A	3	0.49	0.94					--	--	--	32
33	--	--	--			0.43	0.94			--	--	--	34
35	--	--	--					0.43	0.00	1	40 A	Space	36
37	Space	20 A	1	0.00	0.00					1	20 A	Space	38
39	Space	20 A	1			0.00	0.00			1	20 A	Space	40
41	Space	20 A	1					0.00	0.00	1	20 A	Space	42
	TOTAL LOAD			12.18		13.87		16.15				TOTAL CONNECTED LOAD: 122.7 A	
	TOTAL AMPS:			101.5 A		132.2 A		134.6 A					

PANELBOARD SCHEDULE R3

LOCATION: ROOM 122 | MAINS RATING: 100A | MINIMUM BREAKER A.I.C. 22,000
SUPPLY FROM: MDP | VOLTAGE: 120/208 Wye
MOUNTING: SURFACE | PHASES: 3
ENCLOSURE: Type 1 | WIRES: 4

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POLE	CONNECTED LOAD KVA A	A	B	B	C	C	POLE	TRIP	CIRCUIT DESCRIPTION	CKT
1	REC STORAGE 107	20 A	1	1.08	3.77					1	20 A	REC INSTRUCTION 117	2
3	HAND DRYER	20 A	1			0.51	0.18			1	20 A	PROJECTION SCREEN 117	4
5	REC STORAGE 118 RR 119	20 A	1					0.90	0.36	1	20 A	REC INSTRUCTION 117	6
7	REC INSTRUCTION 117	20 A	1	0.18	0.72					1	20 A	REC EXTERIOR	8
9	REC INSTRUCTION 117	20 A	1			0.18	0.18			1	20 A	REC INSTRUCTION 117	10
11	REC ROOM 120	20 A	1					0.72	0.90	2	20 A	PLOTTER	12
13	PROJECTION SCREEN 117	20 A	1	0.18	0.90					1	--	--	14
15	REC MEDIA LAB 112	20 A	1			0.72	0.54			1	20 A	REC MEDIA LAB 112	16
17	REC MEDIA LAB 112	20 A	1					0.18	2.72	1	20 A	REC INSTRUCTION 115	18
19	REC INSTRUCTION 117	20 A	1	1.08	0.18					1	20 A	REC ROOM 115	20
21	PROJECTION SCREEN 115	20 A	1			2.18	0.18			1	20 A	REC ROOM 115	22
23	REC ROOM 115	20 A	1					0.18	0.90	1	20 A	REC MEDIA LAB REC RM	24
25	REC INSTRUCTION 117	20 A	1	0.72	0.20					1	20 A	CARD ACCESS CONTROLLER	26
27	REC MEDIA LAB 112	30 A	1			0.36	0.12			1	20 A	MDS-8	28
29	EPY-1 MDO	20 A	1					CCT	0.24	1	20 A	ACCESS CONTROL	30
31	Spare	20 A	1	0.00	0.00					1	20 A	Spare	32
33	Spare	20 A	1			0.00	0.00			1	20 A	Spare	34
35	Spare	20 A	1					0.00	0.00	1	20 A	Spare	36
37	Spare	20 A	1	0.00	0.00					1	20 A	Spare	38
39	Spare	20 A	1			0.00	0.00			1	20 A	Spare	40
41	Spare	20 A	1					0.00	0.00	1	20 A	Spare	42
	TOTAL LOAD			3.15		3.13		5.36				TOTAL CONNECTED LOAD: 39.3 A	
	TOTAL AMPS:			42.8 A		38.3 A		45.8 A					

PROVIDE SPD

PANELBOARD SCHEDULE R2

LOCATION: | MAINS RATING: | MINIMUM BREAKER A.I.C. 22,000
SUPPLY FROM: MDP | VOLTAGE: 120/208 Wye
MOUNTING: SURFACE | PHASES: 3
ENCLOSURE: Type 1 | WIRES: 4

NOTES:

CKT	CIRCUIT DESCRIPTION	TRIP	POLE	CONNECTED LOAD KVA A	A	B	B	C	C	POLE	TRIP	CIRCUIT DESCRIPTION	CKT
1	REC GALLERY 138	20 A	1	0.36	0.90					1	20 A	REC GALLERY 133	2
3	REC GALLERY 133	20 A	1			0.36	0.36			1	20 A	REC LVR/DOORS	4
5	REC RECEPTION 103	20 A	1					0.72	0.72	1	20 A	REC ROOM 133	6
7	REC OFFICE 2	20 A	1	0.72	0.72					1	20 A	REC RESEARCH 132	8
9	REC OFFICE 2	20 A	1			0.90	1.58			1	20 A	DOOR OPENER POWER	10
11	REC OFFICE TYPING 130	20 A	1					0.72	0.90	1	20 A	REC LOBBY/VESTIBULE	12
13	REC COMM ROOM 114	20 A	1	0.36	0.54					1	20 A	REC COMM ROOM 114	14
15	REC COMM ROOM 114	20 A	1			0.36	0.36			1	20 A	REC COMM ROOM 114	16
17	REC CONN ROOM 114	20 A	1					0.36	0.36	1	20 A	REC COMM ROOM 114	18
19	REC GALLERY 127	20 A	1	0.54	0.90					1	20 A	REC GALLERY 127	20
21	REC GALLERY 127	20 A	1			1.08	0.36			1	20 A	REC GALLERY 127	22
23	LCP-1	20 A	1					0.18	0.18	1	20 A	SECURITY CAMERA	24
25	SECURITY CAMERA	20 A	1	0.18	0.24					1	20 A	ACCESS CONTROL	26
27	PAGING SYSTEM	20 A	1			0.60	0.06			1	20 A	Spare	28
29	Spare	20 A	1					0.00	0.00	1	20 A	Spare	30
31	Spare	20 A	1	0.00	0.00					1	20 A	Spare	32
33	Spare	20 A	1			0.00	0.00			1	20 A	Spare	34
35	Spare	20 A	1					0.00	0.00	1	20 A	Spare	36
37	Spare	20 A	1	0.00	0.00					1	20 A	Spare	38
39	Spare	20 A	1			0.00	0.00			1	20 A	Spare	40
41	Spare	20 A	1					0.00	0.00	1	20 A	Spare	42
	TOTAL LOAD			2.16		3.98		1.98				TOTAL CONNECTED LOAD: 42.2 A	
	TOTAL AMPS:			42.5 A		49.0 A		25.1 A					

PROVIDE SPD

FACP CIRCUIT BREAKER SHALL BE LOCKED IN "ON" POSITION

MECHANICAL EQUIPMENT SCHEDULE

MECHANICAL DESIGNATION	DESCRIPTION	VOLTAGE/ PHASE	FULL LOAD AMPS	MIN CKT AMPS	MOCP AMPS	HP	KW	CIRCUIT NUMBER	WIRE SIZE	DISCONNECT
WSHP-1	WATER SOURCE HEAT PUMP	208/3	9.8	11.73	15			H2-5,7,9	3#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-2	WATER SOURCE HEAT PUMP	208/3	9.8	11.73	15			H1-2,4,6	3#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-3	WATER SOURCE HEAT PUMP	208/3	17.1	20.48	30			H2-10,12,14	3#10 & 1#10G - 3/4"C	BY DIV 26
WSHP-4	WATER SOURCE HEAT PUMP	208/3	21.0	24.9	40			H1-13,15,17	3#8 & 1#10G - 3/4"C	BY DIV 26
WSHP-5	WATER SOURCE HEAT PUMP	208/3	19.9	23.53	35			H1-20,22,24	3#8 & 1#10G - 3/4"C	BY DIV 26
WSHP-6	WATER SOURCE HEAT PUMP	208/1	7.0	8.58	15			H1-1,3	2#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-7	WATER SOURCE HEAT PUMP	208/1	11.7	14.1	20			H2-2,4	3#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-8	WATER SOURCE HEAT PUMP	208/1	11.7	14.1	20			H2-1,3	3#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-9	WATER SOURCE HEAT PUMP	208/1	11.7	14.1	20			H2-6,8	2#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-10	WATER SOURCE HEAT PUMP	208/3	9.8	11.73	15			H2-11,13,15	2#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-11	WATER SOURCE HEAT PUMP	208/1	7.0	8.58	15			H1-5,7	2#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-12	WATER SOURCE HEAT PUMP	208/3	14.0	16.6	25			H1-14,16,18	3#10 & 1#10G - 3/4"C	BY DIV 26
WSHP-13	WATER SOURCE HEAT PUMP	208/3	9.8	11.73	15			H1-8,10,12	3#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-14	WATER SOURCE HEAT PUMP	208/1	11.7	14.1	20			H1-9,11	2#12 & 1#12G - 1/2"C	BY DIV 26
WSHP-15	WATER SOURCE HEAT PUMP	208/3	11.0	13.23	20			H2-17,19,21	2#12 & 1#12G - 1/2"C	BY DIV 26
CCCT	COOLING TOWER	208/3				5	4	H1-28,26,30	4#6 & 1#8G - 1"C	60A/3P/3R
ERV-1	ENERGY RECOVERY VENTILATOR	208/3				3/4		H1-19,21,23	3#12 & 1#12G - 3/4"C	BY DIV 26
ERV-2	ENERGY RECOVERY VENTILATOR	208/3				3/4		H2-20,22,24	3#12 & 1#12G - 3/4"C	BY DIV 26
EWH-1	ELECTRIC WATER HEATER	208/1					4.5	H2-16,18	2#10 & 1#10G - 3/4"C	BY DIV 26
EWH-2	ELECTRIC WATER HEATER	208/1					6.3	H1-28,30	3#6 & 1#10G - 1"C	BY DIV 26
EWH-3	ELECTRIC WATER HEATER	208/1					6.3	H2-17,29	3#6 & 1#10G - 1"C	BY DIV 26
EWH-4	ELECTRIC WATER HEATER	208/1					3.0	H2-23,25	2#12 & 1#12G - 1/2"C	BY DIV 26
P-16	PUMP	208/3				2		H1-27,27,31	3#12 & 1#12G - 1/2"C	BY DIV 23
P-17	PUMP	208/3				2		H2-30,32,34	3#12 & 1#12G - 1/2"C	BY DIV 23
P-18	PUMP	208/3				3/4		H2-31,33,35	3#12 & 1#12G - 1/2"C	BY DIV 23
CU-1/AC-1 & AC-2	CONDENSER	208/1						H2-26,28	2#10 & 1#10G - 3/4"C	BY DIV 23
P-WSHP-1 THRU 5	CONDENSATE PUMPS	120/1						R1-	2#12 & 1#12G - 3/4"C	BY DIV 23
P-WSHP-6 THRU 10	CONDENSATE PUMPS	120/1						R1-	2#12 & 1#12G - 3/4"C	BY DIV 23
P-WSHP-11 THRU 15	CONDENSATE PUMPS	120/1						R1-	2#12 & 1#12G - 3/4"C	BY DIV 23

NOTE REFER TO MECHANICAL EQUIPMENT PLANS FOR EXACT EQUIPMENT LOCATIONS

ISSUED FOR CONSTRUCTION

FULTON COUNTY

DRAWING REVISIONS

NO.	DESCRIPTION	DATE	APPVD
1	PONDELCO ADDENDUM NO. 3	10/31/2014	

DESIGNED BY: PTN | DRAWN BY: MJD | CHECKED BY: ES
REVIEWED BY: | EXAMINER CODE:
SUBMITTED BY: PJN | FILE NAME: PLOT SCALE: PLOT DATE:

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FULTON COUNTY PURCHASING & FLEET
COUNTY ARTS AND CULTURE

PROJECT NO: 13-0146
FULTON COUNTY AVIATION COMMUNITY CULTURAL CENTER
Atlanta, Georgia

PANEL SCHEDULES

SHEET REFERENCE NUMBER
E-605

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