State of Utah

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Department of Administrative Services
KIMBERLY K. HOOD
Executive Director

Division of Facilities Construction and Management
DAVID G. BUXTON
Director

ADDENDUM #2

Date: August 4, 2008

To: Contractors

From: Mike Ambre, Project Manager, DFCM

Reference: Noorda Black Box Theater Addition and Remodel
Utah Valley University – Orem, Utah
DFCM Project No. 08017790

Subject: **Addendum No. 2**

Pages			
	Addendum	1	page
	Revised Project Schedule	1	page
	Revised Bid Form	2	pages
	Architects Addendum	119	pages
	Total	123	pages

Note: This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

1.1 **SCHEDULE CHANGES – There are changes to the project schedule.**
Deadline for submitting questions has been changed to Thursday, August 7, 2008 by 4:00

1.2 **GENERAL** – Two Additive Alternates were added to the bid form.

1.2.1 Alternate No. 1 – White Box Theater Improvements.
Alternate No. 2 – Terrazzo Flooring at Lobby 105.

1.2.2 Axis Architects – Addenda and Drawings, please see attached.

Utah!
Where ideas connect

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

Stage II
REVISED PROJECT SCHEDULE
AS PER ADDENDA NO. 2 – DATED August 4, 2008

PROJECT NAME:UVU – Noorda Black Box Theater Addition and Remodel Utah Valley University – Orem, Utah DFCM PROJECT #: 08017790				
Event	**Day**	**Date**	**Time**	**Place**
Stage II Bidding Documents Available	Tuesday	July 22, 2008	2:00 PM	DFCM 4110 State Office Building SLC, UT and the DFCM web site*
Mandatory Pre-bid Site Meeting	Monday	July 28, 2008	8:30 AM	UVU Campus (outside east entrance of the Gunther Trades Bldg.)**
Deadline for Submitting Questions	**Thursday**	**August 7, 2008**	**4:00 PM**	Michael Ambre– DFCM E-mail mambre@utah.gov Fax (801)-538-3267
Addendum Deadline (exception for bid delays)	Tuesday	August 12, 2008	2:00 PM	DFCM web site*
Prime Contractors Turn in Bid and Bid Bond	Tuesday	August 19, 2008	2:00 PM	DFCM 4110 State Office Building SLC, UT
Subcontractors List Due	Wednesday	August 20, 2008	2:00 PM	DFCM 4110 State Office Building SLC, UT Fax 801-538-3677
Substantial Completion Date	Thursday	April 30, 2009	5:00 PM	

* **NOTE: DFCM's web site address is http://dfcm.utah.gov**

** Link to UVU's Campus Map **http://www.uvsc.edu/visitors/maps/flash/main_campus.swf**

STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

REVISED BID FORM

PER ADDENDUM NO. 2 DATED August 4, 2008

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Invitation to Bid" and in accordance with the Request for Bids for the **Noorda Black Box Theater Addition & Remodel – Utah Valley University – Orem, Utah - DFCM Project No. 08017790** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

BASE BID: For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

ADDITIVE ALTERNATE #1: White Box Theater Improvements.

_____DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

ADDITIVE ALTERNATE #2: Terrazzo Flooring at Lobby 105.

_____DOLLARS ($_____)
(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by April 30, 2009, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **$350.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening**.**

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____.

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract. The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable l00% Performance and Payment bonds are not delivered within time set forth.

Type of Organization: _____
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

_____

Respectfully submitted,

_____
Name of Bidder

ADDRESS:

_____

_____

_____
Authorized Signature

Axis Architects

ADDENDUM - 1

Project: UVU Noorda Theater
DFCM Project Number: 08217790
Axis Project Number: 0804
To: Mike Ambre
From: Axis Architects
Date: August 1, 2008

Please make the following revisions to the construction documents:

Drawings:

2.1 Top of concrete wall surrounding ticket booth and safe is 110'-0"
2.2 Eliminate guard rail from parapet above exterior wall at Loading 114.
2.3 Provide fire extinguisher and cabinet in Hall 111 adjacent to latch side of door 116B.
2.4 For lobby wall near grid 3, see A2/AE402, SIM.
2.5 All new roof areas to be ballasted with gravel per specifications. At eave of lobby roof, mechanically fasten membrane, and taper gravel to edge.
2.6 AD001 Demolition Site Plan issued.
2.7 AE001 Architectural Site Plan issued.
2.8 AE100: Add note at retaining walls: MEMBRANE WATERPROOFING TO BE APPLIED TO ALL RETAINING WALL SURFACES FROM SLAB TO BOTTOM OF FOOTING. SEE A1/AE402. ALSO PROVIDE WATERPROOFING ALONG FIRST 4' EXISTING DIAGONAL RETAINING WALL FROM GRID INTERSECTION C1.
2.9 AE101: Diagonally striped area in Loading 114 indicates 3" wide red painted stripes on floor at 12" on center.
2.10 AE101: provide stainless steel corner guard at gypsum board corners of black box theater side of doorway 108E and at gypsum board corners of hall side of doorway 116A.
2.11 AE111: Ceiling in Vest. 105 to be 9'-0".
2.12 AE122: Overhanging eave at lobby area extends towards plan north 5'-0" past grid D. Eave extends towards plan east 3'-0" past grid 3.
2.13 AE122: Top of architectural concrete wall along grid 1 to be 127'-6"
2.14 AE402: Replace with revised sheet attached.
2.15 AE403: Replace with revised sheet attached.
2.16 AE500 Re-issued. See AE500 for dimensioned enlarged plans.
2.17 AE601-AE605 Issued. Refer to these sheets for details.

Specifications:

2.18 Revised Table of Contents attached.
2.19 New/Revised specifications sections attached: 01 11 00; 01 23 00; 02 41 13; 08 71 00; 09 66 23; 09 68 13; 10 26 13; 12 48 13; 31 10 00; 31 23 00; 31 25 13; 32 12 16; 32 13 13; 33 11 19; 33 40 00;

Structural: See Attached

Mechanical: See Attached

Electrical: None

Theater: None

Note: This addendum shall be part of the construction documents. Items in this addendum apply to all drawing and specification sections whether referenced or not involving the portion of the work added, deleted, modified or otherwise addressed in the addendum. Acknowledge receipt of this addendum in the space provided on the bid form. Failure to do so may subject the bidder to disqualification.

End of Addendum

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DIVISION 05 - METALS

DIVISION 06 - WOOD AND PLASTICS

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

DIVISION 08 – OPENINGS

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DIVISION 25 – INTEGRATED AUTOMATION

Not Used

DIVISION 26 – ELECTRICAL

END OF TABLE OF CONTENTS

SECTION 01 11 00 – SUMMARY July 31, 2008

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Type of the Contract.
3. Work phases.
4. Work under other contracts.
5. Products ordered in advance.
6. Owner-furnished products.
7. Use of premises.
8. Owner's occupancy requirements.
9. Work restrictions.
10. Specification formats and conventions.

B. Related Sections include the following:
1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: UVU Noorda Black Box Theater.

1. Project Location: Located within and is an addition to the Gunther Trades Building on the campus of Utah Valley University in Orem, Utah.

B. Owner: Utah Valley University.

C. Project Number: DFCM 08017790.

D. Architect: Axis Architects.

E. The Work consists of the following:

1. The Work includes all of the work of Divisions 01 thru 48 for the UVU Noorda Black Box Theater project.

1.4 TYPE OF CONTRACT

A. Project will be constructed under a single prime contract.

1.5 WORK PHASES

A. The Work may be conducted in phases, with each phase substantially complete before beginning the next phase:

B. Before commencing Work of each phase, submit a schedule showing the sequence, commencement and completion dates, and move-out and -in dates of Owner's personnel for all phases of the Work.

1.6 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

B. Preceding Work: Owner may award separate contract(s) for other construction operations at Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.

C. Concurrent Work: Owner may award separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

D. Future Work: Owner may award separate contract(s) for the following additional work to be performed at site after Substantial Completion. Completion of that work will depend on successful completion of preparatory work under this Contract.

1.7 PRODUCTS ORDERED IN ADVANCE

A. General: Owner has negotiated Purchase Orders with suppliers of material and equipment to be incorporated into the Work. Owner will assign these Purchase Orders to Contractor. Costs for receiving, handling, storage if required, and installation of material and equipment are included in the Contract Sum.

1. Contractor's responsibilities are same as if Contractor had negotiated Purchase Orders, including responsibility to renegotiate purchase and to execute final Purchase-Order agreements.

1.8 OWNER-FURNISHED PRODUCTS

A. Owner will furnish products indicated. The Work includes providing support systems to receive Owner's equipment and making plumbing, mechanical, and electrical connections.

1. Owner will arrange for and deliver Shop Drawings, Product Data, and Samples to Contractor.
2. Owner will arrange and pay for delivery of Owner-furnished items according to Contractor's Construction Schedule.
3. After delivery, Owner will inspect delivered items for damage. Contractor shall be present for and assist in Owner's inspection.
4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
5. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Contractor.
6. Owner will furnish Contractor the earliest possible delivery date for Owner-furnished products. Using Owner-furnished earliest possible delivery dates, Contractor shall designate delivery dates of Owner-furnished items in Contractor's Construction Schedule.
7. Contractor shall review Shop Drawings, Product Data, and Samples and return them to Architect noting discrepancies or anticipated problems in use of product.
8. Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
9. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
10. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.
11. Contractor shall install and otherwise incorporate Owner-furnished items into the Work.

1.9 USE OF PREMISES

A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.

B. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to Contract limits.

    a. Limit site disturbance, including earthwork and clearing of vegetation, to 40 feet (12.2 m) beyond building perimeter; 5 feet (1.5 m) beyond primary roadway curbs, walkways, and main utility branch trenches; and 25 feet (7.6 m) beyond pervious paving areas.

2. Owner Occupancy: Allow for Owner occupancy of Project site.
3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.10 OWNER'S OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: Owner will occupy site and existing adjacent buildings during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

B. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits, unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

C. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

1.11 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours, except otherwise indicated.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect and Owner not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.

a. Implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION 01 11 00

SECTION 01 23 00 - ALTERNATES July 31, 2008

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1 – White Box Construction:
   1. Provide all material, equipment and labor as required for all of the construction pertaining to White Box no. 131, White Box Audience no. 132, and White Box Office no. 133. This alternate shall include all partitions, doors, frames, hardware, finishes, mechanical and electrical as required for a complete and finished space.

B. Alternate No. 2 – Terrazzo Flooring:
   1. Provide all material, equipment and labor as required for the substitution of carpet tile in Lobby no. 105 for terrazzo flooring as specified in Section 09 66 23 – Resinous Matrix Terrazzo Flooring. This alternate shall include all miscellaneous working including floor preparation as required for a complete and finished installation.

END OF SECTION 01 23 00

SECTION 02 41 13 – SITE DEMOLITION July 31, 2008

PART 1 - GENERAL

1.1. SUMMARY:

A. Section includes requirement for demolition work.
   1. Verify existing utilities to be removed as well as site features to be demolished with Architect and Owner.

B. Demolition includes, but is not limited to, the removal of the following items within the demolition limit lines:
   1. Sidewalks
   2. Curbwalls
   3. Curb and Gutter
   4. Paving
   5. Concrete Slabs
   6. Water Lines and Meters
   7. Gas Lines
   8. Fencing
   9. Building Structures (below and above grade)
   10. Unmarked Trees and all their Roots
   11. Tree Stumps and all their Roots
   12. Minor Overhead Utility Lines and Poles
   13. Sod, Lawn and all irrigated wet soils
   14. Shrubs and all their Roots
   15. Underground Structures including Septic Tanks, vaults, Basements
   16. Buildings, sheds, and houses
   17. Paint obliteration.

C. Related Sections
   1. Refer to Section 31 23 00 for earthwork requirements.

D. Drawings and general provisions of contract, including general and supplementary Conditions and site clearing specifications apply to work in this section.

1.2. SUBMITTALS:

A. Schedule: Submit proposed methods and operations of demolition to review prior to start of work. Include in schedule coordination for shut-off, capping, and continuation of utility services as required.

B. Explosives: The use of explosives is not permitted.

C. Traffic: Conduct demolition operations and removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
   1. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulation.

D. Protections: Ensure safe passage of persons around area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.

1. Erect temporary covered passageways as required by authorities having jurisdiction.
2. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.
3. Erect construction fence along phase lines and around demolition limits to keep unauthorized persons from entering.

E. Damage: Promptly repair damage caused to adjacent facilities by demolition operations.
1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

F. Hazardous Materials Removal:
1. When hazardous materials are encountered, notify the Owner immediately.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

A. Demolition:
1. Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.
   a. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.
   b. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations, as directed by Architect or governing authorities. Return adjacent areas to condition existing prior to start of work.
   c. Refer to storm water pollution prevention plan for methods to contain dust, dirt, and debris on site. Update plan as necessary with signature on the revision table.

B. Cutting Asphalt, Concrete and Concrete Block: Saw cut asphalt paving, concrete slabs and concrete block walls with approved saws at lines and levels indicated on drawings. Provide temporary shoring for roof or members which bear on wall to be removed prior to commencing cutting. Saw cut concrete walks and curbs only if they cannot be removed to an existing control joint.

C. Capping and Abandonment: Cap all abandoned lines and conduits and drains in accordance with requirements of Utility Companies having jurisdiction. Remove abandoned lines, unless otherwise noted.

D. Overhead Utility Lines: The Utility companies that own or otherwise control the overhead utility lines will remove and relocate their poles and overhead utility lines at the Owner's expense. The Contractor shall coordinate these utility changes with the proper utility companies.

E. Permits: Contractor is required to obtain a Demolition Permit and Utility Disconnection Permits from the City and utility companies.
1. Record on Record Document location and extent of all capped and abandoned lines

below grade.

F. Relocation: Relocate utilities as indicated on the plans and as necessary for interfering utilities on the site. Work performed for relocation of utilities to conform to new utility line construction. This shall include the relocation of all utilities above and below ground, including existing street lights. All utility relocations must be coordinated by the Contractor and approved through the Owner and the responsible jurisdiction or utility company.

G. Vegetation Removal: Remove all plants, trees, grass, and any other types of vegetation as shown on the plans. Existing vegetation that is interfering with the completion of the construction project must be removed. If a note for removal of any type of vegetation is not indicated on the plans, then the Contractor must notify the Owner prior to removal. If the removed vegetation may be salvaged and replaced on the project, the Contractor must get approval and coordinate matters with the Owner.

3.2. DISPOSAL OF DEMOLISHED MATERIALS:

A. General: Remove from site debris, rubbish, and other materials resulting from demolition operations and dispose in a legal manner.

B. Onsite salvage of items by contractor is not allowed.

3.3. BACKFILL:

A. Excavated areas associated with the removal of all substructures should be backfilled with a well-graded granular material having a maximum size of 2 inches and not more than 15 percent passing a #200 sieve. All earth materials placed in excavated areas should be placed in maximum eight inch loose lifts and densified to an in-place unit weight equal to 95% of the Maximum Laboratory Density as determined by ASTM D 1557.
   1. Refer to section 31 23 00 for placement and compaction requirements.

3.4. TOPSOIL:

A. Salvage all topsoil from demolition areas and stockpile on site. Said topsoil to be used for finish grading.

END OF SECTION 02 41 13

SECTION 08 71 00 - DOOR HARDWARE (SCHEDULED BY NAMING PRODUCTS) July 31, 2008

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Commercial door hardware for the following:
      a. Swinging doors.
      b. Other doors to the extent indicated.
   2. Cylinders for doors specified in other Sections.

B. Related Sections include the following:
   1. Division 8 Section "Steel Doors and Frames" for astragals provided as part of a fire-rated labeled assembly and for door silencers provided as part of the frame.

C. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
   1. Cylinders for locks on aluminum and glass entrance doors.

1.3 SUBMITTALS

A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
   2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.
      a. Organize door hardware sets in same order as in the Door Hardware Schedule at the end of Part 3.
   3. Content: Include the following information:
      a. Type, style, function, size, label, hand, and finish of each door hardware item.
      b. Manufacturer of each item.
      c. Fastenings and other pertinent information.
      d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
      e. Explanation of abbreviations, symbols, and codes contained in schedule.
      f. Mounting locations for door hardware.
      g. Door and frame sizes and materials.
      h. Description of each electrified door hardware function, including location, sequence of operation, and interface with other building control systems.

1) Sequence of Operation: Include description of component functions that occur in the following situations: authorized person wants to enter; authorized person wants to exit; unauthorized person wants to enter; unauthorized person wants to exit.

4. Submittal Sequence: Submit initial draft of final schedule along with essential Product Data to facilitate the fabrication of other work that is critical in the Project construction schedule. Submit the final Door Hardware Schedule after Samples, Product Data, coordination with Shop Drawings of other work, delivery schedules, and similar information has been completed and accepted.

C. Keying Schedule: Prepared by or under the supervision of supplier, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.

D. Maintenance Data: For each type of door hardware to include in maintenance manuals specified in Division 1.

E. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Supplier Qualifications: Door hardware supplier with warehousing facilities in Project's vicinity and who is or employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
1. Scheduling Responsibility: Preparation of door hardware and keying schedules.

C. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.

D. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.

E. Regulatory Requirements: Comply with provisions of the following:
1. Where indicated to comply with accessibility requirements, comply with ANSI A117.1, as follows:
a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
b. Door Closers: Comply with the following maximum opening-force requirements indicated:
1) Interior Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
c. Thresholds: Not more than 1/2 inch (13 mm) high. Bevel raised thresholds with a slope of not more than 1:2.

F. Fire-Rated Door Assemblies: Provide door hardware for assemblies complying with

NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

1. Test Pressure: Test at atmospheric pressure.

G. Keying Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:

1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
2. Preliminary key system schematic diagram.
3. Requirements for key control system.
4. Address for delivery of keys.

H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Review methods and procedures related to electrified door hardware including, but not limited to, the following:

1. Inspect and discuss electrical roughing-in and other preparatory work performed by other trades.
2. Review sequence of operation for each type of electrified door hardware.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review required testing, inspecting, and certifying procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver keys to Owner by registered mail or overnight package service.

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing 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.

1.7 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of operators and door hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

C. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.

D. Warranty Period for Manual Closers: 10 years from date of Substantial Completion.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in this Section, and the Door Hardware Schedule at the end of Part 3.
1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products.
2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Schedule at the end of Part 3. Products are identified by using door hardware designations, as follows:
1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

2.2 HINGES AND PIVOTS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Hinges:
   a. Bommer Industries, Inc. (BI).
   b. IVES Hardware; an Ingersoll-Rand Company (IVS).
   c. Hager Companies (HAG).
   d. McKinney Products Company; Div. of ESSEX Industries, Inc. (MCK).
   e. Stanley Commercial Hardware; Div. of The Stanley Works (STH).

B. Quantity: Provide the following, unless otherwise indicated:
1. Two Hinges: For doors with heights up to 60 inches (1524 mm).
2. Three Hinges: For doors with heights 61 to 90 inches (1549 to 2286 mm).
3. Four Hinges: For doors with heights 91 to 120 inches (2311 to 3048 mm).
4. For doors with heights more than 120 inches (3048 mm), provide 4 hinges, plus 1 hinge for every 30 inches (750 mm) of door height greater than 120 inches (3048

mm).

C. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

D. Hinge Base Metal: Unless otherwise indicated, provide the following:
1. Interior Hinges: Brass, with stainless-steel pin body and brass protruding heads.
2. Hinges for Fire-Rated Assemblies: Steel, with steel pin.

E. Hinge Options: Comply with the following where indicated in the Door Hardware Schedule or on Drawings:
1. Nonremovable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:
a. Outswinging exterior doors.
b. Outswinging corridor doors with locks.
2. Corners: Square.

F. Fasteners: Comply with the following:
1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
2. Wood Screws: For wood doors and frames.
3. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
4. Screws: Phillips flat-head screws; machine screws (drilled and tapped holes) for metal doors, wood screws for wood doors and frames. Finish screw heads to match surface of hinges.

2.3 LOCKS AND LATCHES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Mechanical Locks and Latches:
a. As scheduled and as required to match existing.

B. Bored Locks: BHMA Grade 1; Series 4000.

C. Certified Products: Provide door hardware listed in the following BHMA directories:
1. Mechanical Locks and Latches: BHMA's "Directory of Certified Locks & Latches."

D. Lock Trim: Comply with the following:
1. Lever: Cast.
2. Knob: Wrought.
3. Escutcheon (Rose): Wrought.
4. Dummy Trim: Match lever lock trim and escutcheons.
5. Lockset Designs: Provide the lockset design designated below or, if sets are provided by another manufacturer, provide designs that match those designated:
a. Bored Locks: Provide design indicated in schedules.

E. Lock Functions: Function numbers and descriptions indicated in the Door Hardware Schedule comply with the following:
1. Mortise Locks: BHMA A156.13.

F. Lock Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:

1. Mortise Locks: Minimum 3/4-inch (19-mm) latchbolt throw.
2. Deadbolts: Minimum 1-inch (25-mm) bolt throw.

G. Backset: 2-3/4 inches (70 mm), unless otherwise indicated.

2.4 DOOR BOLTS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Flush Bolts:
   a. Glynn-Johnson; an Ingersoll-Rand Company (GJ).
   b. IVES Hardware; an Ingersoll-Rand Company (IVS).
   c. NT Quality Hardware; an Ingersoll-Rand Company (NTQ).
   d. Rockwood Manufacturing Company (RM).

B. Flush Bolts: BHMA Grade 1, designed for mortising into door edge.

C. Bolt Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:
1. Half-Round Surface Bolts: Minimum 7/8-inch (22-mm) throw.
2. Interlocking Surface Bolts: Minimum 15/16-inch (24-mm) throw.
3. Fire-Rated Surface Bolts: Minimum 1-inch (25-mm) throw; listed and labeled for fire-rated doors.
4. Mortise Flush Bolts: Minimum 3/4-inch (19-mm) throw.

2.5 EXIT DEVICES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Von Duprin.
2. Sargent 19-GL-8843 ETL and 19 GL-8500 Series.
3. Precision 2100 Series

B. Certified Products: Provide exit devices listed in BHMA's "Directory of Certified Exit Devices."

C. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.

D. Fire Exit Devices: Complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252.

E. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
1. Operation: Rigid.

F. Outside Trim: Lever or Lever with cylinder; material and finish to match locksets, unless otherwise indicated.
1. Match design for locksets and latchsets, unless otherwise indicated.

G. Through Bolts: For exit devices and trim on metal doors, non-fire-rated wood doors, and fire-rated wood doors.

2.6 CYLINDERS AND KEYING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Cylinders: ASSA, OFCI.

B. Cylinders: Manufacturer's standard tumbler type, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:
   1. Number of Pins: Seven.
   2. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
   3. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.

C. Removable Cores: Core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware.

D. Construction Keying: Comply with the following:
   1. Construction Cores: Owner will furnish temporary cores.

2.7 STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
   1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
   2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.

B. Dustproof Strikes: BHMA Grade 1.

2.8 OPERATING TRIM

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Hager Companies (HAG).
   2. IVES Hardware; an Ingersoll-Rand Company (IVS).
   3. NT Quality Hardware; an Ingersoll-Rand Company (NTQ).
   4. Rockwood Manufacturing Company (RM).
   5. Stanley Commercial Hardware; Div. of The Stanley Works (STH).

B. Materials: Fabricate from stainless steel, unless otherwise indicated.

C. Push-Pull Design: As illustrated on Drawings.

2.9 ACCESSORIES FOR PAIRS OF DOORS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Coordinators:
      a. Glynn-Johnson; an Ingersoll-Rand Company (GJ).
      b. Hager Companies (HAG).
      c. Ives: H. B. Ives (IVS).
      d. Rockwood Manufacturing Company (RM).

2. Removable Mullions:
   a. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
   b. Von Duprin; an Ingersoll-Rand Company (VD).

B. Fire-Exit Removable Mullions: Provide removable mullions for use with fire exit devices complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252. Mullions shall be used only with exit devices for which they have been tested.

2.10 CLOSERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Surface-Mounted Closers:
   a. LCN
   b. Sargent 281 Series
   c. Dorma 6000

B. Certified Products: Provide door closers listed in BHMA's "Directory of Certified Door Closers."

C. Hold-Open Closers/Detectors: Coordinate and interface integral smoke detector and closer device with fire alarm system.

D. Size of Units: Unless otherwise indicated, comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

2.11 PROTECTIVE TRIM UNITS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Metal Protective Trim Units:
   a. Hager Companies (HAG).
   b. NT Quality Hardware; an Ingersoll-Rand Company (NTQ).
   c. Rockwood Manufacturing Company (RM).

B. Materials: Fabricate protection plates from the following:
1. Stainless Steel: 0.050 inch (1.3 mm) thick; beveled top and 2 sides.

C. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine or self-tapping screws.

D. Furnish protection plates sized 2 inches (50.7 mm) less than door width on push side and 1/2 inch (13 mm) less than door width on pull side, by height specified in Door Hardware Schedule.

2.12 STOPS AND HOLDERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Hager Companies (HAG).
2. NT Quality Hardware; an Ingersoll-Rand Company (NTQ).
3. Rockwood Manufacturing Company (RM).

B. Electromagnetic Door Holders for Labeled Fire Door Assemblies: Coordinate with fire detectors and interface with fire alarm system.

C. Floor Stops: For doors, unless wall or other type stops are scheduled or indicated. Do not mount floor stops where they will impede traffic.
1. Where floor or wall stops are not appropriate, provide overhead holders.

D. Silencers for Wood Door Frames: BHMA Grade 1; neoprene or rubber, minimum 5/8 by 3/4 inch (16 by 19 mm); fabricated for drilled-in application to frame.

E. Silencers for Metal Door Frames: BHMA Grade 1; neoprene or rubber, minimum diameter 1/2 inch (13 mm); fabricated for drilled-in application to frame.

2.13 DOOR GASKETING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Door Gasketing:
   a. Hager Companies (HAG).
   b. National Guard Products, Inc. (NGP).
   c. Pemko Manufacturing Co., Inc. (PEM).
   d. Zero International, Inc. (ZRO).

B. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.
1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
3. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

C. Air Leakage: Not to exceed 0.50 cfm per foot (0.000774 cu. m/s per m) of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.

D. Smoke-Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke-control ratings indicated, based on testing according to UL 1784.
1. Provide smoke-labeled gasketing on 20-minute-rated doors and on smoke-labeled doors.

E. Fire-Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL 10B or NFPA 252.

F. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

G. Gasketing Materials: Comply with ASTM D 2000 and AAMA 701/702.

2.14 THRESHOLDS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Hager Companies (HAG).
   2. National Guard Products, Inc. (NGP).
   3. Pemko Manufacturing Co., Inc. (PEM).
   4. Reese Enterprises, Inc. (RE).

2.15 FABRICATION

A. Manufacturer's Nameplate: Do not provide 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 approved by Architect.
   1. Manufacturer's identification will be permitted on rim of lock cylinders only.

B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.

C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to commercially recognized industry standards for application intended. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
   1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
   2. Steel Machine or Wood Screws: For the following fire-rated applications:
      a. Mortise hinges to doors.
      b. Strike plates to frames.
      c. Closers to doors and frames.
   3. Steel Through Bolts: For the following fire-rated applications, unless door blocking is provided:
      a. Surface hinges to doors.
      b. Closers to doors and frames.
      c. Surface-mounted exit devices.
   4. Spacers or Sex Bolts: For through bolting of hollow metal doors.
   5. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."

2.16 FINISHES

A. Standard: Comply with BHMA A156.18.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable,

temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

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

3.2 PREPARATION

A. Steel Doors and Frames: Comply with DHI A115 series.
   1. Surface-Applied Door Hardware: Drill and tap doors and frames according to SDI 107.

B. Wood Doors: Comply with DHI A115-W series.

3.3 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
   2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
   1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
   2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

C. Key Control System: Place keys on markers and hooks in key control system cabinet, as determined by final keying schedule.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
   1. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
   2. Door Closers: Adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.

B. Six-Month Adjustment: Approximately six months after date of Substantial Completion, Installer shall perform the following:
   1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
   2. Consult with and instruct Owner's personnel on recommended maintenance procedures.
   3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

3.5 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.7 DOOR HARDWARE SCHEDULE

HW SET: 01

1	EA	CONTINUOUS HINGE	112HD	612	IVE
1	EA	PANIC HARDWARE	98L 996L	612	VON
1	EA	RIM CYLINDER	34	20D	SAR
1	EA	SURFACE CLOSER	4041 EDA MC	691	LCN
1	EA	OVERHEAD STOP	100S-ADJ	613	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW	612	IVE
1	SET	SEALS	700SA	DKB	NGP
1	EA	DOOR SWEEP	C627A	DKB	NGP
1	EA	THRESHOLD	425HD	DKB	NGP

HW SET: 02

1	EA	CONTINUOUS HINGE	112HD	612	IVE
1	EA	PUSH PLATE	8200 8" X 16"	612	IVE
1	EA	PULL PLATE	8305-0 4" X 16"	612	IVE
1	EA	SURFACE CLOSER	4041 EDA MC	691	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	612	IVE
1	EA	WALL STOP	WS401CCV	612	IVE
1	SET	SEALS	122NA	DKB	NGP
1	EA	DOOR BOTTOM	220NA	DKB	NGP

HW SET: 03

3	EA	HINGE	5BB1 4.5 X 4.5	612	IVE
1	EA	PUSH PLATE	8200 8" X 16"	612	IVE
1	EA	PULL PLATE	8305-0 4" X 16"	612	IVE
1	EA	SURFACE CLOSER	4041 EDA MC	691	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	612	IVE
1	EA	WALL STOP	WS401CCV	612	IVE
1	SET	SEALS	122NA	DKB	NGP
1	EA	DOOR BOTTOM	220NA	DKB	NGP

HW SET: 04

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	639	IVE
1	EA	PANIC HARDWARE	98L 996L	612	VON
1	EA	RIM CYLINDER	34	20D	SAR
1	EA	SURFACE CLOSER	4041 EDA MC	691	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	612	IVE
1	EA	WALL STOP	WS401CCV	612	IVE
1	SET	SEALS	5020B	BRN	NGP

HW SET: 05

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	639	IVE
2	EA	MANUAL FLUSH BOLT	FB458	612	IVE
1	EA	DUST PROOF STRIKE	DP2	612	IVE
1	EA	ENTRANCE LOCK	10-28-10G05 LL	612	SAR
2	EA	OVERHEAD STOP	900S-J	612	GLY
2	EA	KICK PLATE	8400 10" X 2" LDW	612	IVE
2	EA	SILENCER	SR64	GRY	IVE

HW SET: 06

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	639	IVE
1	EA	ENTRANCE LOCK	10-28-10G05 LL	612	SAR
1	EA	KICK PLATE	8400 10" X 2" LDW	612	IVE
1	EA	WALL STOP	WS401CCV	612	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 07

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	639	IVE
1	EA	CLASSROOM LOCK	10-28-10G37 LL	612	SAR
1	EA	SURFACE CLOSER	4041 EDA MC / 4041 RW/PA MC	691	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	612	IVE
1	EA	WALL STOP	WS401CCV	612	IVE
1	SET	SEALS	5020B	BRN	NGP

HW SET: 08

1			HARDWARE BY DOOR MFG		B/O

HW SET: 09

1			RE-USE EXISTING HARDWARE		

HW SET: A

2	EA	CONTINUOUS HINGE	112HD	313	IVE
1	EA	MULLION	5754	313	VON
1	EA	PANIC HARDWARE	CD35A-EO	313	VON
1	EA	PANIC HARDWARE	CD35A-NL-OP	313	VON
1	EA	RIM CYLINDER	34	20D	SAR
3	EA	MTSE CYL, SGT CAM	41	20D	SAR
2	EA	OFFSET DOOR PULL	8190-0	313	IVE
2	EA	SURFACE CLOSER	4041 EDA X 18 MC	695	LCN
2	EA	OVERHEAD STOP	100S-ADJ	613	GLY
1			THRESHOLD AND PERIMETER SEAL BY DOOR MFG		B/O

HW SET: B

2	EA	CONTINUOUS HINGE	112HD	313	IVE
2	EA	DUMMY TOUCH BAR	350	313	VON
2	EA	OFFSET DOOR PULL	8190-0	313	IVE
2	EA	SURFACE CLOSER	4041 EDA X 18 MC	695	LCN
2	EA	OVERHEAD STOP	100S-ADJ	613	GLY
1			THRESHOLD AND PERIMETER SEAL BY DOOR MFG		B/O

END OF SECTION 08 71 00

SECTION 09 66 23 - RESINOUS MATRIX TERRAZZO FLOORING July 31, 2008

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. Thin-set epoxy-resin terrazzo flooring and base.

B. Related Section:

1. Division 07 Section "Joint Sealants" for sealants installed with terrazzo.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include terrazzo installation requirements. Include plans, elevations, sections, component details, and attachments to other work. Show layout of the following:

1. Divider strips.
2. Control-joint strips.
3. Accessory strips.
4. Abrasive strips.
5. Terrazzo patterns.

C. Samples for Selection: Manufacturer's color plates showing the full range of colors and patterns available for each terrazzo type indicated. Prepare samples of same thickness and from same material to be used for the Work in size indicated below:

1. Terrazzo: 6-inch- (150-mm-) square Samples.
2. Accessories: 6-inch- (150-mm-) long Samples of each exposed strip item required.

D. Installer Certificates: Signed by manufacturers certifying that installers comply with requirements.

E. Qualification Data: For qualified Installer.

F. Material Certificates: For each type of terrazzo material or product, from manufacturer.

G. Maintenance Data: For terrazzo to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who is acceptable to terrazzo manufacturer to install manufacturer's products.

1. Engage an installer who is certified in writing by terrazzo manufacturer as qualified to install manufacturer's products.
2. Engage an installer who is a contractor member of NTMA.

B. Source Limitations: Obtain primary terrazzo materials from one source from a single manufacturer. Provide secondary materials including patching and fill material, joint sealant, and repair materials of type and from source recommended by manufacturer of primary materials.

C. NTMA Standards: Comply with NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for terrazzo type indicated unless more stringent requirements are specified.

D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Build mockups for terrazzo including accessories.

a. Size: Minimum 100 sq. ft. (9 sq. m) of typical poured-in-place flooring and base condition for each color and pattern in locations directed by Architect.

2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to terrazzo including, but not limited to, the following:

a. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
b. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
c. Review special terrazzo designs and patterns.
d. Review dust-control procedures.
e. <Insert agenda items>.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in supplier's original wrappings and containers, labeled with source's or manufacturer's name, material or product brand name, and lot number if any.

B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting terrazzo installation.

B. Field Measurements: Verify actual dimensions of construction contiguous with precast terrazzo by field measurements before fabrication.

C. Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during terrazzo installation.

D. Close spaces to traffic during terrazzo application and for not less than 24 hours after application unless manufacturer recommends a longer period.

E. Control and collect dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.

1. Provide dustproof partitions and temporary enclosures to limit dust migration and to isolate areas from noise.

PART 2 - PRODUCTS

2.1 EPOXY-RESIN TERRAZZO

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. General Polymers Corporation; Terrazzo 1100.

B. Materials:

1. Flexible Reinforcing Membrane: Manufacturer's resinous membrane for substrate crack preparation and reflective crack reduction.

a. Reinforcement: Fiberglass scrim.

2. Primer: Manufacturer's product recommended for substrate and use indicated.
3. Epoxy-Resin Matrix: Manufacturer's standard recommended for use indicated and in color required for mix indicated.

a. Physical Properties without Marble Chips:

1) Hardness: 60 to 85 per ASTM D 2240, Shore D.
2) Minimum Tensile Strength: 3000 psi (20.7 MPa) per ASTM D 638 for a 2-inch (51-mm) specimen made using a "C" die per ASTM D 412.
3) Minimum Compressive Strength: 10,000 psi (6.9 MPa) per ASTM D 695, Specimen B cylinder.
4) Chemical Resistance: No deleterious effects by contaminants listed below after seven-day immersion at room temperature per ASTM D 1308.

a) Distilled water.
b) Mineral water.
c) Isopropanol.

d) Ethanol.
e) 0.025 percent detergent solution.
f) 1.0 percent soap solution.
g) 10 percent sodium hydroxide.
h) 10 percent hydrochloric acid.
i) 30 percent sulfuric acid.
j) 5 percent acetic acid.

b. Physical Properties with Marble Chips: For resin blended with Georgia white marble, ground, grouted, and cured per requirements in NTMA's "Terrazzo Specifications and Design Guide," comply with the following:

1) Flammability: Self-extinguishing, maximum extent of burning 0.25 inch (6.35 mm) per ASTM D 635.
2) Thermal Coefficient of Linear Expansion: 0.0025 inch/inch per deg F (0.0025 mm/mm per 0.5556 deg C) for temperature range of minus 12 to plus 140 deg F (minus 24 to plus 60 deg C) per ASTM D 696.

4. Marble Chips: Complying with NTMA gradation standards for mix indicated and containing no deleterious or foreign matter.

a. Abrasion and Impact Resistance: Less than 40 percent loss per ASTM C 131.
b. 24-Hour Absorption Rate: Less than 0.75 percent.
c. Dust Content: Less than 1.0 percent by weight.
d. Recycled Content: Provide products with average recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content is not less than <Insert value> percent.

5. Finishing Grout: Resin based.

C. Terrazzo: Comply with NTMA's "Terrazzo Specifications and Design Guide" and manufacturer's written instructions for matrix and marble-chip proportions and mixing.

1. Custom Mix Color and Pattern: Match Architect's sample.

2.2 STRIP MATERIALS

A. Thin-Set Divider Strips: L-type angle or T-type, 1/4 inch (6.4 mm) deep.

1. Material: White-zinc alloy.
2. Top Width: 1/8 inch (3.2 mm).

B. Heavy-Top Divider Strips: L-type angle in depth required for topping thickness indicated.

1. Bottom-Section Material: Matching top-section material.
2. Top-Section Material: White-zinc alloy.
3. Top-Section Width: 1/8 inch (3.2 mm).

C. Control-Joint Strips: Separate, double L-type angles, positioned back to back, that match material, thickness, and color of divider strips and in depth required for topping thickness indicated.

D. Accessory Strips: Match divider strip width, material, and color unless otherwise indicated. Use the following types of accessory strips as required to provide a complete installation:

1. Base-bead strips for exposed top edge of terrazzo base.
2. Edge-bead strips for exposed edges of terrazzo.
3. Nosings for terrazzo stair treads and landings.

E. Abrasive Strips: Silicon carbide or aluminum oxide, or combination of both, in epoxy-resin binder and set in channel.

1. Width: 1/2 inch (12.7 mm).
2. Depth: As required by terrazzo thickness.
3. Length: 4 inches (100 mm) less than stair width.
4. Color: As selected by Architect from manufacturer's full range.

2.3 MISCELLANEOUS ACCESSORIES

A. Strip Adhesive: Epoxy-resin adhesive recommended by adhesive manufacturer for this use and acceptable to terrazzo manufacturer.

B. Anchoring Devices:

1. Strips: Provide mechanical anchoring devices for strip materials as required for secure attachment to substrate.

C. Patching and Fill Material: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.

D. Joint Compound: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.

E. Cleaner: Chemically neutral cleaner with pH factor between 7 and 10 that is biodegradable, phosphate free, and recommended by sealer manufacturer for use on terrazzo type indicated.

F. Sealer: Slip- and stain-resistant penetrating-type sealer that is chemically neutral with pH factor between 7 and 10; does not affect color or physical properties of terrazzo; is recommended by sealer manufacturer; and complies with NTMA's "Terrazzo Specifications and Design Guide" for terrazzo type indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions, including levelness tolerances, have been corrected.

3.2 PREPARATION

A. Clean substrates of substances, including oil, grease, and curing compounds, that might impair terrazzo bond. Provide clean, dry, and neutral substrate for terrazzo application.

B. Concrete Slabs:

1. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with terrazzo.

    a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
    b. Repair damaged and deteriorated concrete according to terrazzo manufacturer's written recommendations.
    c. Use patching and fill material to fill holes and depressions in substrates according to terrazzo manufacturer's written instructions.

2. Verify that concrete substrates are visibly dry and free of moisture.
3. Moisture Testing:

    a. Test for moisture by anhydrous calcium chloride method according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    b. Test for moisture by relative humidity probe and digital meter method according to ASTM F 2170. Proceed with installation only after substrates have a maximum relative-humidity-measurement reading of 70 to 75 percent in 24 hours.

C. Protect other work from dust generated by grinding operations. Control dust to prevent air pollution and comply with environmental protection regulations.

1. Erect and maintain temporary enclosures and other suitable methods to limit dust migration and to ensure adequate ambient temperatures and ventilation conditions during installation.

D. Installation of terrazzo indicates acceptance of surfaces and conditions.

3.3 EPOXY-RESIN TERRAZZO INSTALLATION

A. General:

1. Comply with NTMA's written recommendations for terrazzo and accessory installation.
2. Place, rough grind, grout, cure grout, fine grind, and finish terrazzo according to manufacturer's written instructions and NTMA's "Terrazzo Specifications and Design Guide."
3. Installation Tolerance: Limit variation in terrazzo surface from level to 1/4 inch in 10 feet (6 mm in 3 m); noncumulative.
4. Ensure that matrix components and fluids from grinding operations do not stain terrazzo by reacting with divider and control-joint strips.
5. Delay fine grinding until heavy trade work is complete and construction traffic through area is restricted.

B. Thickness: Not less than 1/4 inch (6.4 mm) nor more than 3/8 inch (9.5 mm) nominal.

C. Flexible Reinforcing Membrane:

1. Prepare and prefill substrate cracks with membrane material.

2. Install membrane to produce full substrate coverage in areas to receive terrazzo.
3. Reinforce membrane with fiberglass scrim.
4. Prepare membrane according to manufacturer's written instructions before applying substrate primer.

D. Primer: Apply to terrazzo substrates according to manufacturer's written instructions.

E. Strip Materials:

1. Divider and Control-Joint Strips:

   a. Locate divider strips in locations indicated.
   b. Install control-joint strips back to back directly above concrete-slab control joints and in other locations indicated.
   c. Install control-joint strips with 1/4-inch (6.4-mm) gap between strips, and install sealant in gap.
   d. Install strips in adhesive setting bed without voids below strips, or mechanically anchor strips as required to attach strips to substrate, as recommended by strip manufacturer.

2. Accessory Strips: Install accessory strips as required to provide a complete installation and in locations indicated.
3. Abrasive Strips: Install with surface of abrasive strip positioned 1/16 inch (1.6 mm) higher than terrazzo surface.

F. Fine Grinding: Grind with stones 120 grit or finer until all grout is removed from surface. Repeat rough grinding, grout coat, and fine grinding if large voids exist after initial fine grinding. Produce surface with a minimum of 70 percent aggregate exposure.

G. Repair: Remove and replace terrazzo areas that evidence lack of bond with substrate. Cut out terrazzo areas in panels defined by strips and replace to match adjacent terrazzo, or repair panels according to NTMA's written recommendations, as approved by Architect.

3.4 CLEANING AND PROTECTION

A. Cleaning:

1. Remove grinding dust from installation and adjacent areas.
2. Wash surfaces with cleaner according to NTMA's written recommendations and manufacturer's written instructions; rinse surfaces with water and allow to dry thoroughly.

B. Sealing:

1. Seal surfaces according to NTMA's written recommendations.
2. Apply sealer according to sealer manufacturer's written instructions.

C. Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure that terrazzo is without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 66 23

SECTION 09 68 13 - CARPET TILE July 31, 2008

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes carpet tile and carpet accessories as shown on the drawings and specified herein.

B. General Contractor is directed to purchase and coordinate the installation of carpet tile through the State-wide contract with Wall 2 Wall Flooring, the State Carpet Contractor.

C. Pre-determined prices for carpet tile, including installation, are available for State-owned facilities. Any recent modifications to the State-wide contract prices are to be itemized.

D. Related Sections include the following:
1. Division 09 Section "Resilient Tile Flooring" for resilient wall base and accessories installed with carpet tile.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation methods.

B. Shop Drawings: Show the following:
1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
2. Carpet tile type, color, and dye lot.
3. Type of installation.
4. Pattern of installation.
5. Pattern type, location, and direction.
6. Pile direction.
7. Type, color, and location of edge, transition, and other accessory strips.
8. Transition details to other flooring materials.

C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
1. Carpet Tile: Full-size Sample.
2. Exposed Edge Stripping and Accessory: 12-inch- (300-mm-) long Samples.

D. Product Schedule: Use same room and product designations indicated on Drawings and in schedules.

E. Maintenance Data: For carpet tile to include in maintenance manuals specified in Division 1. Include the following:
1. Methods for maintaining carpet tile, including cleaning and stain-removal products

and procedures and manufacturer's recommended maintenance schedule.

2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.

B. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

C. Product Options: Products and manufacturers named in Part 2 establish requirements for product quality in terms of appearance, construction, and performance. Other manufacturers' products comparable in quality to named products and complying with requirements may be considered.

1.5 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with CRI 104, Section 5, "Storage and Handling."

1.6 PROJECT CONDITIONS

A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."

B. Environmental Limitations: Do not install carpet tile until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

C. Do not install carpet tile over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

D. Where demountable partitions or other items are indicated for installation on top of carpet tile, install carpet tile before installing these items.

1.7 WARRANTY

A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Carpet Tile Warranty: Written warranty, signed by carpet tile manufacturer agreeing to replace carpet tile that does not comply with requirements or that fails within specified warranty period. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.

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

1.8 EXTRA MATERIALS

A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd. (8.3 sq. m).

PART 2 - PRODUCTS

2.1 CARPET TILE (Type No. 1)

A. Approved Product:
1. Mill: Shaw Contract Group
b. Style: Brilliance Tile
c. Style Number: 59529

B. Carpet Type: Modular tile.

B. Construction: Multilevel Pattern Loop.

C. Fiber Type: Eco Solution Q

D. Filament: BCF

E. Dye Method: 100% Solution Dyed.

F. Protective Treatment: SSP Shaw Soil Protection, Florsept Antimicrobial.

G. Primary Backing: Synthetic

H. Secondary Backing: Ecoworx

I. Gauge: 1/12

J. Average Yarn Weight: 26 oz/sq yd

K. Stitches per Inch: 9

L. Tufted Pile Thickness: 3/32-7/32 inches

M. Total Thickness: 0.273 inches

N. Finished Pile Thickness: 0.123 inches

O. Average Density: 7,610 oz/yd3

P. Weight Density: sq oz/yd5

Q. Total Weight: 102.98

R. Collection: Shade

S. Installation: Ashlar, Brick, ¼ Turn, Mono

T. Size: 24 x 24 inches

U. Performance Characteristics: As follows:
1. Critical Radiant Flux Classification: Not less than 0.45 W/sq. cm.
2. Dry Breaking Strength: Not less than 100 lbf per ASTM D 2646.
3. Resistance to Insects: Comply with AATCC-24.
4. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.
5. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.
6. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria; not less than 1-mm halo of inhibition for gram-negative bacteria; no fungal growth; per AATCC-174.

2.2 CARPET TILE (Type No. 2)

A. Approved Product:
1. Mill: Shaw Contract Group
   a. Style: Striking Tile
   b. Style Number: 59530

B. Carpet Type: Modular tile.

C. Construction: Multilevel Pattern Loop.

D. Fiber Type: Eco Solution Q

E. Filament: BCF

F. Dye Method: 100% Solution Dyed.

G. Protective Treatment: SSP Shaw Soil Protection, Florsept Antimicrobial.

H. Primary Backing: Synthetic

I. Secondary Backing: Ecoworx

J. Gauge: 1/12

K. Average Yarn Weight: 26 oz/sq yd

L. Stitches per Inch: 9

M. Tufted Pile Thickness: 3/32-7/32 inches

N. Total Thickness: 0.273 inches

O. Finished Pile Thickness: 0.123 inches

P. Average Density: 7,610 oz/yd3

Q. Weight Density: sq oz/yd5

R. Total Weight: 102.98

S. Collection: Shade

T. Installation: Ashlar, Brick, ¼ Turn, Mono

U. Size: 24 x 24 inches

V. Performance Characteristics: As follows:
1. Critical Radiant Flux Classification: Not less than 0.45 W/sq. cm.
2. Dry Breaking Strength: Not less than 100 lbf per ASTM D 2646.
3. Resistance to Insects: Comply with AATCC-24.
4. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.
5. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.
6. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria; not less than 1-mm halo of inhibition for gram-negative bacteria; no fungal growth; per AATCC-174.

2.3 INSTALLATION ACCESSORIES (By State Carpet Contract)

A. Trowelable Leveling and Patching Compounds: Where required on other than raised access floor panels provide latex-modified, hydraulic-cement-based formulation provided by or recommended by carpet tile manufacturer.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

D. Rubber Accessory Molding: Provide rubber accessory molding complying with the following:
1. Color: As selected by Architect from manufacturer's full range of colors produced for rubber accessory molding complying with requirements indicated.
2. Product Description: Including but not limited to carpet edge for glue-down applications, carpet nosing, tile and carpet joiner.
3. Profile and Dimensions: As indicated and as required.

PART 3 - EXECUTION

3.1 EXAMINATION (By State Carpet Contract)

A. Examine substrates, areas, and conditions for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Verify that substrates and conditions are satisfactory for carpet tile installation and comply with requirements specified.

B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other

materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.

2. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.

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

3.2 PREPARATION

A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.

C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.

D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION (By State Carpet Contract)

A. General: Comply with CRI 104, Section 13, "Carpet Modules (Tiles)."

B. Installation Method: As recommended in writing by carpet tile manufacturer.

C. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

D. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.

F. Install pattern parallel to walls and borders.

G. Roll with appropriate roller for complete contact of carpet with mill-applied adhesive to sub-floor. Carpet to be securely adhered in accordance with ADA requirements (Section 4.5.3).

3.4 CLEANING AND PROTECTION

A. (By State Carpet Contract):Perform the following operations immediately after installing carpet tile:

1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner

recommended by carpet tile manufacturer.

2. Remove yarns that protrude from carpet tile surface.
3. Vacuum carpet tile using commercial machine with face-beater element.

B. (By General Contractor): Protect installed carpet tile to comply with CRI 104, Section 15, "Protection of Indoor Installations."

C. (By General Contractor): Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 09 68 13

SECTION 10 26 13 - IMPACT-RESISTANT WALL PROTECTION July 31, 2008

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Corner guards.

B. Related Sections include the following:
   1. Division 5 Section "Metal Fabrications" for metal angle corner guards and pipe guards.
   2. Wood blocking and grounds for surface-mounted corner guards, are included in Division 6 Section "Miscellaneous Carpentry."
   3. Division 8 Section "Door Hardware" for metal armor, kick, mop, and push plates.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, impact strength, dimensions of individual components and profiles, and finishes for each impact-resistant wall-protection unit.

B. Shop Drawings: For each impact-resistant wall-protection unit showing locations and extent. Include sections, details, and attachments to other work.

C. Samples for Selection: For each type of impact-resistant wall-protection unit indicated.
   1. Include similar Samples of accent strips and accessories involving color selection.

D. Maintenance Data: For each impact-resistant wall-protection unit to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain impact-resistant wall-protection units through one source from a single manufacturer.

B. Product Options: Drawings indicate size, profiles, and dimensional requirements of impact-resistant wall-protection units and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
   1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store impact-resistant wall-protection units in original undamaged packages and containers inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
   1. Store corner-guard covers in a vertical position.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install impact-resistant wall-protection units until building is enclosed and weatherproof, wet work is complete and dry, and HVAC system is operating and maintaining temperature at 70 deg F (21 deg C) for not less than 72 hours before beginning installation and for the remainder of the construction period.

B. Field Measurements: Verify actual locations of walls, columns, and other construction contiguous with impact-resistant wall-protection units by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 MATERIALS

A. Stainless-Steel Sheet: ASTM A 240/A 240M.

B. Fasteners: Aluminum, nonmagnetic stainless-steel, or other noncorrosive metal screws, bolts, and other fasteners compatible with items being fastened. Use security-type fasteners where exposed to view.

C. Adhesive: Type recommended by manufacturer for use with material being adhered to substrate indicated.

2.3 CORNER GUARDS

A. Surface-Mounted, Metal Corner Guards: Fabricated from 1-piece, formed or extruded metal with formed edges; with 90- or 135-degree turn to match wall condition.
   1. Available Manufacturers:
      a. ARDEN Architectural Specialties, Inc.
      b. Balco, Inc.
      c. Boston Retail Products.
      d. Construction Specialties, Inc.
      e. IPC Door and Wall Protection Systems; Division of InPro Corporation.
   2. Material: Stainless steel, Type 304.
      a. Thickness: Minimum 0.0625 inch (1.6 mm).
      b. Finish: Directional satin, No. 4.

3. Wing Size: Nominal 3-1/2 by 3-1/2 inches (90 by 90 mm).
4. Corner Radius: 1/8 inch (3 mm).
5. Mounting: Flat-head, countersunk screws through factory-drilled mounting holes with adhesive.

2.4 FABRICATION

A. Fabricate impact-resistant wall-protection units to comply with requirements indicated for design, dimensions, and member sizes, including thicknesses of components.

B. Assemble components in factory to greatest extent possible to minimize field assembly. Disassemble only as necessary for shipping and handling.

C. Fabricate components with tight seams and joints with exposed edges rolled. Provide surfaces free of wrinkles, chips, dents, uneven coloration, and other imperfections. Fabricate members and fittings to produce flush, smooth, and rigid hairline joints.

2.5 METAL FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
1. Remove tool and die marks and stretch lines or blend into finish.
2. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

B. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

C. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and wall areas, with Installer present, for compliance with requirements for installation tolerances, fire rating, and other conditions affecting performance of work.
1. Examine walls to which impact-resistant wall protection will be attached for blocking, grounds, and other solid backing that have been installed in the locations required for secure attachment of support fasteners.
2. For impact-resistant wall-protection units attached with adhesive or foam tape, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Complete finishing operations, including painting, before installing impact-resistant wall-protection system components.

B. Before installation, clean substrate to remove dust, debris, and loose particles.

3.3 INSTALLATION

A. General: Install impact-resistant wall-protection units level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
   1. Install impact-resistant wall-protection units in locations and at mounting heights indicated on Drawings.
   2. Provide splices, mounting hardware, anchors, and other accessories required for a complete installation.
      a. Provide anchoring devices to withstand imposed loads.

3.4 CLEANING

A. Remove excess adhesive using methods and materials recommended in writing by manufacturer.

END OF SECTION 10 26 13

SECTION 12 48 13 - ENTRANCE FLOOR MATS AND FRAMES July 31, 2008

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. This Section includes the following:
   1. Entrance mats in surface-mounted frames.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Show the following:

   1. Items penetrating floor mats and frames, including the following:

      a. Door control devices.

   2. Divisions between mat sections.
   3. Perimeter floor moldings.

C. Samples for Selection: For each type of product indicated.

   1. Floor Mat: 12-inch- (300-mm-) square, assembled sections of floor mat.

D. Maintenance Data: For floor mats and frames to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain floor mats through one source from a single manufacturer.

B. Accessibility Requirements: Provide installed floor mats that comply with Section 4.5 in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)." and Sections 302 and 303 in ICC A117.1.

1.5 PROJECT CONDITIONS

A. Field Measurements: Indicate measurements on Shop Drawings.

1.6 COORDINATION

A. Coordinate size and location of recesses in concrete with installation of finish floors to receive floor mats.

PART 2 - PRODUCTS

2.1 ENTRANCE TILES

A. Basis-of-Design Product: Subject to compliance with requirements, provide Mannington Commercial; Recoarse/Modular or a comparable product.

B. Carpet-Type Tiles: Nylon carpet bonded to a flexible vinyl backing to form mats with nonraveling edges and meeting the following criteria:
1. Construction: Pattern Textured Loop.
2. Face Fiber: Type 6,6 nylon.
3. Dye Method: Solution dyed.
4. Gauge: 1/12
5. Stitches per Inch: 10.33
6. Pile Thickness: 0.186 inches.
7. Tufted Yarn Weight: 38 ounces per square yard.
8. Primary Backing: 100% Woven Synthetic
9. Primary Precoat: 100% Vinyl Non-Aqueous Closed Cell Polymer.
10. Secondary Backing: Infinity RE with a minimum 10% post-consumer and 20% pre-consumer recycled content by total product weight.
11. Average Density: 7354
12. Weight Density: 279,483
13. Tile Size: 24” x 24”

14. Colors, Textures, and Patterns: As selected by Architect from manufacturer's full range.

C. Surface-Mounted Frames:

1. Tapered Frames: Tapered flexible vinyl edge-frame members, not less than 2 inches (50 mm) wide with welded mitered corners.
2. Color: As selected by Architect from manufacturer's full range.

2.2 FABRICATION

A. Floor Mats: Shop fabricate units to greatest extent possible in sizes indicated. Unless otherwise indicated, provide single unit for each mat installation; do not exceed manufacturer's recommended maximum sizes for units that are removed for maintenance and cleaning. Where joints in mats are necessary, space symmetrically and away from

normal traffic lanes. Miter corner joints in framing elements with hairline joints or provide prefabricated corner units without joints.

B. Surface-Mounted Frames: As indicated for permanent surface-mounted installation, complete with corner connectors, splice plates or connecting pins, and postinstalled expansion anchors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and floor conditions for compliance with requirements for location, sizes, and other conditions affecting installation of floor mats and frames.

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

3.2 INSTALLATION

A. Install surface-type units to comply with manufacturer's written instructions at locations indicated; coordinate with entrance locations and traffic patterns.

1. Anchor fixed surface-type frame members to floor with devices spaced as recommended by manufacturer.

3.3 PROTECTION

A. After completing frame installation and concrete work, provide temporary filler of plywood or fiberboard in recesses and cover frames with plywood protective flooring. Maintain protection until construction traffic has ended and Project is near Substantial Completion.

END OF SECTION 12 48 13

SECTION 31 10 00 - SITE CLEARING July 31, 2008

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. This Section includes the following:
1. Removing trees and other vegetation.
2. Clearing and grubbing.
3. Topsoil stripping.
4. Removing above-grade and below-grade site improvements.
5. Disconnecting, capping or sealing, and removing site utilities.

B. Related Sections include the following:
1. Division 01 Section "Field Engineering" for verifying utility locations and for recording field measurements.
2. Division 01 Section "Construction Facilities and Temporary Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities, and environmental protection measures during site operations.
3. Division 31 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.

1.3 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of weeds, roots, and other deleterious materials.

1.4 MATERIALS OWNERSHIP

A. Except for materials indicated to be stockpiled or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

1.5 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

B. Record drawings according to Division 01 Section "Contract Closeout."
1. Identify and accurately locate capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE

A. Preinstallation Conference: Conduct conference at Project site to comply with requirements

in Division 01 Section "Project Meetings."

1.7 PROJECT CONDITIONS

A. Traffic: Conduct site clearing operations to ensure minimum interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing indicated removal and/or access on property adjoining Owner's property will be obtained by Owner before award of Contract.

C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

D. Notify utility locator service for area where Project is located before site clearing.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Locate and clearly flag trees and vegetation to remain or to be relocated.

D. Protect existing site improvements to remain from damage during construction.
   1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to a sediment and erosion control plan, specific to the site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE PROTECTION

A. Erect and maintain a temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain. Remove fence when construction is complete.
   1. Do not store construction materials, debris, or excavated material within drip line of remaining trees.
   2. Do not permit vehicles, equipment, or foot traffic within drip line of remaining trees.

B. Do not excavate within drip line of trees, unless otherwise indicated.

C. Where excavation for new construction is required within drip line of trees, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
   1. Cover exposed roots with burlap and water regularly.
   2. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
   3. Coat cut faces of roots more than 1-1/2 inches (38 mm) in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
   4. Cover exposed roots with wet burlap to prevent roots from drying out. Backfill with soil as soon as possible.

D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.
   1. Employ a qualified arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
   2. Replace trees that cannot be repaired and restored to full-growth status, as determined by the qualified arborist.

3.4 UTILITIES

A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
   1. Arrange to shut off indicated utilities with utility companies.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Architect not less than two days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Architect's written permission.

C. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, asphalt & concrete paving, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.
   1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
   2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
   3. Completely remove stumps, roots, obstructions, and debris extending to a depth of 18 inches (450 mm) below exposed subgrade.

4. Use only hand methods for grubbing within drip line of remaining trees.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
   1. Place fill material in horizontal layers not exceeding 8-inch (200-mm) loose depth, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod, grass, asphalt and concrete paving before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
   1. Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   1. Limit height of topsoil stockpiles to 72 inches (1800 mm).
   2. Do not stockpile topsoil within drip line of remaining trees.
   3. Dispose of excess topsoil as specified for waste material disposal.
   4. Stockpile surplus topsoil and allow for respreading deeper topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
   1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

3.8 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 31 10 00

SECTION 31 23 00 - EARTHWORK July 31, 2008

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns, and plantings.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks and pavements.
5. Base course for asphalt paving.
6. Subsurface drainage backfill for walls and trenches.
7. Excavating and backfilling trenches within building lines.
8. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.

B. Related Sections include the following:
1. Division 22, 23 and 26 Sections for excavating and backfilling buried mechanical and electrical utilities and buried utility structures.

1.3 DEFINITIONS

A. Backfill: Soil materials 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: Layer placed between the subbase course and asphalt paving.

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

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

E. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations.
1. Bulk Excavation: Excavations more than 10 feet (3 m) in width and pits more than 30 feet (9 m) in either length or width.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, 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. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 SUBMITTALS

A. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
   1. Classification according to ASTM D 2487 of each on-site or borrow soil material proposed for fill and backfill.
   2. Laboratory compaction curve according to ASTM D 1557 for each on-site or borrow soil material proposed for fill and backfill.

1.5 PROJECT CONDITIONS

A. Site Information: A Geotechnical Investigation of this site has been prepared. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data are made available for convenience of Contractor.
   1. Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.

B. No additional monies for exporting or importing of soil.
   1. As part of the Construction Documents, Owner may have provided Contractor with a Topographic Survey performed by manual or aerial means. Such Survey was prepared for project design purposes and is provided to the Contractor as a courtesy. It is expressly understood that such survey may not accurately reflect existing topographical conditions and typically will vary from actual conditions by a significant degree. It is the Contractor's responsibility to verify actual existing conditions by whatever means the Contractor deems appropriate. The Contractor shall be responsible for determining their own earthwork quantities and not rely on any estimate prepared by the Owners, it's Agents or outside parties. The Contractor is responsible as part of it's lump sum bid price for the project, for importing and/or exporting soils to achieve final sub-grades with suitable soils per the plans and specifications. No additional monies will be allowed beyond the Contractor's Lump Sum Bid Price for the project, for the exporting and/or importing of soils.

C. Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.
   1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

2. Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated:
3. Notify Architect not less than two days in advance of proposed utility interruptions.
4. Do not proceed with utility interruptions without Architect's written permission.
5. Contact utility-locator service for area where Project is located before excavating.

D. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

E. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.
1. Operate warning lights as recommended by authorities having jurisdiction.

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: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.
1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Backfill and Fill: Satisfactory soil materials.

E. Subbase: 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 (38-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

F. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; conforming to the 1 inch gradation requirements of Section 301 of the UDOT Standard Specification for Road and Bridge Construction.

G. 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 (38-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

H. Bedding: 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.

I. Drainage Fill: Washed, 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 (38-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

J. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch (25-mm) sieve and 0 to 5 percent passing a No. 4 (4.75-mm) sieve.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

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 as follows:

B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of 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 as follows:
1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

C. Trace Wire: Insulated 10 gage copper, suitable for direct bury.

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 earthwork operations.

B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.
   1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). 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 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.
   2. Excavation for Underground Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch (25 mm). Do not disturb bottom of excavations intended for bearing surface.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

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

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.
   1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide a working 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: 12 inches (300 mm) on each side of pipe or conduit.

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. For pipes and conduit less than 6 inches (150 mm) in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
   2. For pipes and conduit 6 inches (150 mm) or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
   3. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trench Bottoms: Excavate trenches 4 inches (100 mm) deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.
   1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.8 APPROVAL OF SUBGRADE

A. Notify Architect when excavations have reached required subgrade.

B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect.

3.9 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 may be used when approved by Architect.
   1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile 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.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:
   1. Construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
   2. Surveying locations of underground utilities for record documents.
   3. Inspecting and testing underground utilities.
   4. Removing concrete formwork.
   5. Removing trash and debris.
   6. Removing temporary shoring and bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.12 UTILITY TRENCH BACKFILL

A. 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.

B. Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings; fill with concrete to elevation of bottom of footings.

C. 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.

D. Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm), to a height of 12 inches (300 mm) over the utility pipe or conduit.
   1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

E. Coordinate backfilling with utilities testing.

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

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.

3.13 FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

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

C. 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.

3.14 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
   1. Do not place backfill or fill 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.

3.15 COMPACTION OF BACKFILLS AND FILLS

A. Place backfill and fill 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 materials evenly on all sides of structures to required elevations, and

uniformly along the full length of each structure.

C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
   1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill material at 95 percent.
   2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 95 percent.
   3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 90 percent.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

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

3.17 SUBBASE AND BASE COURSES

A. Under pavements and walks, place subbase course on prepared subgrade and as follows:
   1. Place base course material over subbase.
   2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
   3. Shape subbase and base to required crown elevations and cross-slope grades.
   4. When thickness of compacted subbase or base course is 6 inches (150 mm) or less, place materials in a single layer.
   5. When thickness of compacted subbase or base course exceeds 6 inches (150 mm), place materials in equal layers, with no layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick when compacted.

B. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders, at least 12 inches (300 mm) wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.18 DRAINAGE COURSE

A. Under slabs-on-grade, place drainage course on prepared subgrade and as follows:
   1. Compact drainage course to required cross sections and thickness to not less than

95 percent of maximum dry unit weight according to ASTM D 698.

2. When compacted thickness of drainage course is 6 inches (150 mm) or less, place materials in a single layer.
3. When compacted thickness of drainage course exceeds 6 inches (150 mm), place materials in equal layers, with no layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick when compacted.

3.19 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork 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 Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 1000 sq. ft. (186 sq. m) or less of paved area or building slab, but in no case fewer than three tests.
2. Foundation Wall/Continuous Footing Backfill: At each compacted backfill layer, at least one test for each 15 linear feet or less of wall length, but no fewer than two tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 40 feet or less of trench length, but no fewer than two tests.
4. Spot Footings: Minimum of 1 compaction test for each lift for each spot footing.
5. Sidewalks, Curbs, Gutters, Pads: Minimum of 1 test for each lift for each 40 lineal feet or 1 test for every 1000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.

E. 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 to depth required; recompact and retest until specified compaction is obtained.

3.20 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.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

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 the greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 31 23 00

SECTION 31 25 13 - EROSION CONTROL July 31, 2008

PART 1 - GENERAL

1.1 SUMMARY

A. This Section covers the work required for erosion control during construction. Any local or State Agency requirements will be considered part of these specifications.

B. Obtain the National Pollution Discharge Elimination System (NPDES) Permit for stormwater discharge associated with construction activity.

PART 2 - PRODUCTS

2.1 SILT FENCE

A. Silt fence shall be a woven fabric that meets the following criteria:

Property	Unit	Test Method	Values
Grab Strength	lbs	ASTMD-4632	90 min
Grab Elongation	%	ASTMD-4632	40 max
Water Flow Rate	gal/min/ft^2	ASTMD-4491	15 min
Ultraviolet Stability%		ASTMD-4355	70% min

2.2 STRAW BALES

A. Straw Bales shall be clean free of dirt, hay, grass or weeds. They shall be bound with twine or wire. Bales when placed shall be dry and capable of passing water

B. Stakes shall be 2" x 2" x 4 feet, hardwood or 4 feet, #4 rebar

PART 3 - EXECUTION

A. Silt fence and/or Bales shall be placed in accordance with plans and details. The placement of silt fence and/or bales shall consider drainage paths and intercept drainage prior to leaving the site or entering a storm sewer system. Removal of silt and replacement of silt fence and/or bales shall be on going through the duration of the project to maintain an effective silt removing barrier.

B. Sediment Basin and/or sinks shall be constructed to dimensions shown on the plans. The basins and/or sinks shall be cleaned as required to maintain specified size and depth.

C. All temporary grading of drainage channels, slopes or fills shall be in accordance with Section 31 23 00 Earthwork.

END OF SECTION 31 25 13

SECTION 32 12 16 - HOT-MIX ASPHALT PAVING July 31, 2008

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Hot-mix asphalt paving.
   2. Hot-mix asphalt patching.
   3. Hot-mix asphalt paving overlay.
   4. Asphalt surface treatments.
   5. Pavement-marking paint.

B. Related Sections include the following:
   1. Division 31 Section "Earthwork" for aggregate subbase and base courses and for aggregate pavement shoulders.

1.3 DEFINITIONS

A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

B. UDOT: Utah Department of Transportation.

1.4 SYSTEM DESCRIPTION

A. Provide hot-mix asphalt paving according to materials, workmanship, and other applicable requirements of standard specifications of UDOT.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.

B. Material Certificates: For each paving material, signed by manufacturers, certifying that each material item complies with, or exceeds, specified requirements.

1.6 QUALITY ASSURANCE

A. Codes and Standards: Comply with UDOT's Standard Specifications, latest edition.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 deg.F (10 deg.C), and when temperature has not been below 35 deg.F (1 deg.C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.
   1. Construct asphalt concrete surface course when atmospheric temperature is above

40 deg.F (4 deg.C), and when base is dry. Base course may be placed when air temperature is above 30 deg. F (-1 deg.C) and rising.

B. Grade Control: Establish and maintain required lines and elevations.

C. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F (4 deg C) for oil-based materials, 50 deg F (10 deg C) for water-based materials, and not exceeding 95 deg F (35 deg C).

PART 2 - PRODUCTS

2.1 MATERIALS

A. Use locally available materials and gradations which exhibit a satisfactory record of previous installations.

B. Base Course Aggregate: Sound, non-expansive angular crushed stone, crushed gravel, or crushed slag, sand, stone or slag screenings, conforming to the 1 inch gradation requirements of Section 301 of the Utah Department of Transportation, Standard Specifications for Road and Bridge Construction.
1. Uncrushed gravel may be used in base course mixture if required to suit local material availability.

C. Base Course Gradation Table (1 inch gradation)

Sieve Size	Ideal Gradation (Percent Passing)
1"	100
1/2"	79-91
No. 4	49-61
No. 16	27-35
No. 200	7-11

D. Base Course Thickness: Minimum 6 inches in automobile parking areas, and 8 inches in truck and entry areas.

E. Surface Course Aggregate: Crushed stone, crushed gravel, crushed slag, and sharp-edged natural sand.

F. Sand prepared from stone, blast-furnace slag, or gravel, or combinations thereof may be used if required to suit local material availability.

G. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with AASHTO M 17 (ASTM D 242).

H. Asphalt Cement: AASHTO M 226 (ASTM D 3381) for viscosity-graded material and AASHTO M 20 (ASTM D 946) for penetration-graded material.

I. Prime Coat: Cut-back asphalt type; AASHTO M 82 (ASTM D 2027) MC-30, MC-70 or MC-250.

J. Tack Coat: Emulsified asphalt, AASHTO M 140 (ASTM D 997) or M 208 (D 2397); SS-1

SS-1h, CSS-1 or CSS-1h, diluted with one part water to one part emulsified asphalt.

K. Paving Marking Paint: Alkyd-resin type, ready-mixed, complying with FS TT-P-115, Type I, or AASHTO M-248, Type N or latex, water-base emulsion, ready-mixed, complying with FS TT-P-1952., colors: White, Yellow, Red, Blue. Submit for approval.

2.2 ASPHALT-AGGREGATE MIXTURE:

A. Provide plant-mix, hot-laid asphalt-aggregate mixture complying with ASTM D 3515 and as recommended by local paving authorities to suit project conditions.

B. The percentage of bituminous material by weight added to aggregate will be between 4% and 7% of the weight of the bituminous mixture. Aggregate gradation shall conform to the 1/2 inch gradation requirements of Section 402 of the Utah Department of Transportation, Standard Specifications for Road and Bridge Construction.:

Ideal Gradation per Grading Table “C” (1/2" Maximum)

Sieve Size	(Percent Passing)
1/2"	100
No. 4	60-80
No. 16	28-42
No. 50	11-23
No. 200	5-9

PART 3 - EXECUTION

3.1 SURFACE PREPARATION:

A. Remove loose material from compacted base coarse surface immediately before applying herbicide treatment or prime coat.
1. Proof roll prepared base coarse surface to check for unstable areas and areas requiring additional compaction.
2. Notify Architect of unsatisfactory conditions. Do not begin paving work until deficient base coarse areas have been corrected and are ready to receive paving.

B. Herbicide Treatment: Apply chemical weed control agent in strict compliance with manufacturer's recommended dosages and application instructions. Apply to compacted dry base coarse prior to application of prime coat.

C. Prime Coat: Apply at rate of 0.20 to 0.50 gal. per sq. yd., over compacted base coarse. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile.

D. Tack Coat: Apply to contact surfaces of previously constructed asphalt or Portland Cement Concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of 0.05 to 0.15 gal. per sq. yd. of surface.
1. Allow to dry until at proper condition to receive paving.
2. Exercise care in applying bituminous materials to avoid smearing on adjoining concrete surfaces. Remove and clean damaged surfaces.

3.2 PATCHING

A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches (300 mm) into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m).
   1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
   2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Patching: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.3 PLACING MIX:

A. General: Place asphalt concrete mixture on prepared surface, spread and strike-off. Spread mixture at minimum temperature of 225 deg.F (107 deg.C). Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness.

B. Paver Placing: Place in strips not less than 10' wide, unless otherwise acceptable to Engineer. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

C. Joints: Make joints between old and new pavements or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat.

D. Asphalt adjacent to concrete curb and gutter, concrete waterways, catch basins or other drainage structures shall be compacted to an elevation of 1/4 inch above adjacent drainage structure (edge of concrete).

E. Asphalt Concrete Thickness: Provide a minimum compacted asphalt thickness in automobile parking areas of 3 inches and 4 inches in truck and entry areas.

3.4 COMPACTION:

A. Percentage of Maximum Density Requirements: Compact asphalt to 96% of reference laboratory density according to ASTM D-1559, but not less than 94 percent nor greater than 100 percent.

3.5 ROLLING:

A. General: Begin rolling when mixture will bear roller weight without excessive displacement.
   1. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

2. Complete compaction before mix temperature cools to 185 deg. F. (85 deg. C.).

B. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.

C. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.

D. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.

E. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut-out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.

F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 LANE, CURB, AND TRAFFIC MARKINGS

A. Striping: Use water-based or oil-based “traffic” grade lane-marking paint, factory-mixed, quick-drying, and non-bleeding manufactured specifically for this purpose.
1. Colors:
   a. White: Traffic, lane, and parking stalls.
   b. Yellow: Bus Zones.
   c. Red: No parking, and fire zone curbs.
   d. Blue: Handicap stalls.

B. Do not apply traffic and lane marking paint until layout and placement has been verified with Architect.

C. Apply paint with mechanical equipment to produce uniform straight edges. Apply in 2 coats at manufacturer's recommended rates.

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Owner will employ and pay a qualified independent testing agency to perform field quality-control testing services specified in this section. Retesting of materials failing to meet specified requirements shall be done at Contractor’s expense.

B. Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by Engineer.

C. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:
1. Base Course: 1/2-inch, plus or minus.
2. Surface Course: 1/4-inch, plus or minus.

D. Base Course Testing: Contractor shall perform at least one density test on aggregate base course for each 200 c.y. (1200 s.y. at 6-inch) of material placed.

E. Asphalt Testing: Contractor shall have at least one (1) coring sample of asphalt taken for every 100 C.Y. (1200 S.Y. at 3-inches) of asphalt installed to verify asphalt density, temperature and thicknesses are in conformance with specifications. Locate coring sites as directed by Architect. Contractor is responsible for costs of tests and repair of core holes. Contractor shall also provide laboratory testing for materials check on bituminous materials, including but not limited to: gradation, extraction, compaction, marshall density, stability, flow and % AC.

F. Surface Smoothness: Test finished surface of each asphalt concrete courses for smoothness, using 10-foot straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness.
   1. Base Course Surface: 1/4-inch.
   2. Wearing Course Surface: 3/16-inch.
   3. Check surface areas at intervals as directed by Engineer.

3.8 DISPOSAL

A. Remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
   1. Do not allow excavated materials to accumulate on-site.

END OF SECTION 32 12 16

SECTION 32 13 13 - CEMENT CONCRETE PAVEMENT July 31, 2008

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:
   1. Pavements.
   2. Curbs and gutters.
   3. Walkways.

B. Related Sections include the following:
   1. Division 31 Section "Earthwork" for subgrade preparation, grading, and subbase course.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, expansive hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.4 SUBMITTALS

A. Product Data: For each type of manufactured material and product indicated.

B. Design Mixes: For each concrete pavement mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed pavement work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

C. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.

D. Concrete Testing Service: The Owner will engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixes.

E. Comply with local governing regulations and the following:
   1. UOSH Construction Standards Chapter G: Signs, Signals, and Barricades.
   2. UDOT Instructions to Flaggers.

3. ANSI D6.1: Manual on Uniform Traffic Control Devices for Streets and Highways.
4. ATSSA: American Traffic Safety Services Association.
5. State of Utah Standard Specifications for Road and Bridge Construction, latest edition.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
   1. Use flexible or curved forms for curves of a radius 100 feet (30.5 m) or less.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

C. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60 (Grade 420), deformed bars; assembled with clips.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Joint Dowel Bars: Plain steel bars, ASTM A 615/A 615M, Grade 60 (Grade 420). Cut bars true to length with ends square and free of burrs.

F. Tie Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

G. Hook Bolts: ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6), internally and externally threaded. Design hook-bolt joint assembly to hold coupling against pavement form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

H. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement bars, welded wire fabric, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
   1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

2.3 CONCRETE MATERIALS

A. General: Use the same brand and type of cementitious material from the same manufacturer throughout the Project.

B. Portland Cement: ASTM C 150, Type I or II.
   1. Fly Ash: ASTM C 618, Class F or C.

C. Aggregate: ASTM C 33, uniformly graded, from a single source, with coarse aggregate as follows:
   1. Class: 4S.
   2. Maximum Aggregate Size: 1 inch (25 mm) nominal.
   3. Do not use fine or coarse aggregates containing substances that cause spalling.

D. Water: ASTM C 94.

2.4 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures.

B. Air-Entraining Admixture: ASTM C 260.

2.5 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.6 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.7 CONCRETE MIXES

A. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.

B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the trial batch method.
   1. Do not use Owner's field quality-control testing agency as the independent testing agency.

C. Proportion mixes to provide concrete with the following properties:
   1. Compressive Strength (28 Days): 4000 psi (27.6 MPa).
   2. Maximum Water-Cementitious Materials Ratio: 0.45.
   3. Slump Limit: 3 inches (75 mm).

D. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
   1. Fly Ash: 25 percent.

E. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus or minus 1.5 percent:
   1. Air Content: 6.0 percent for 1-inch (25-mm) maximum aggregate.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94.

PART 3 - EXECUTION

3.1 PREPARATION

A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating reinforcement and with recommendations in CRSI's "Placing Reinforcing Bars" for placing and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch (50-mm) overlap to adjacent mats.

3.4 JOINTS

A. General: Construct construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
   1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour, unless pavement terminates at isolation joints.
   1. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
   2. Provide tie bars at sides of pavement strips where indicated.
   3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
   1. Locate expansion joints at intervals of 50 feet (15.25 m), unless otherwise indicated.
   2. Extend joint fillers full width and depth of joint.
   3. Terminate joint filer less than 1/2 inch (12 mm) or more than 1 inch (25 mm) below finished surface if joint sealant is indicated.
   4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
   5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
   6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

E. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
   1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with groover tool to the following radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
      a. Radius: 1/4 inch (6 mm).
   2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.

F. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to the following radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.
   1. Radius: 1/4 inch (6 mm).

3.5 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.

D. Comply with requirements and with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery, at Project site, or during placement.

F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

G. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete according to recommendations in ACI 309R.
   1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.

H. Screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.

I. Curbs and Gutters: When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove and replace with formed concrete.

J. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength.

K. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
   1. When air temperature has fallen to or is expected to fall below 40 deg F (4.4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
   2. Do not use frozen materials or materials containing ice or snow.
   3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.

L. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows when hot-weather conditions exist:
   1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F (32 deg C). Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
   2. Cover reinforcement steel with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
   3. Fog-spray forms, reinforcement steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.6 CONCRETE FINISHING

A. General: Wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots, and fill low spots. Refloat surface immediately to uniform granular texture.
   1. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and follow recommendations in ACI 305R for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.

D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
   1. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:
   1. Elevation: 1/4 inch (6 mm).
   2. Thickness: Plus 3/8 inch (9 mm), minus 1/4 inch (6 mm).
   3. Surface: Gap below 10-foot- (3-m-) long, unleveled straightedge not to exceed 1/4

inch (6 mm).

4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch (25 mm).
5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch (6 mm).
6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch (13 mm).
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches (6 mm per 300 mm).
8. Joint Spacing: 3 inches (75 mm).
9. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
10. Joint Width: Plus 1/8 inch (3 mm), no minus.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.

B. Testing Services: Testing shall be performed according to the requirements of Section 03 30 00 - Concrete Work.

3.10 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section.

B. Drill test cores where directed by Architect when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 32 13 13

SECTION 33 11 19 - FIRE WATER SYSTEM July 31, 2008

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes fire water systems.

B. Related Sections:
1. Refer to Division-31 section "Earthwork" for excavation and backfill required for fire water systems; not work of this section.
2. Refer to Division-3 sections for concrete work required for fire water systems; not work of this section.
3. Refer to Division-21 section "Fire Protection" for interior building systems including sprinklers and standpipes; not work of this section.
   a. Refer to Section 211000. Exterior water piping shall meet all requirements of this section. Test certificates are required.

1.2 QUALITY ASSURANCE:

A. Codes and Standards:
1. NFPA Compliance: Install fire water systems in accordance with NFPA 24 "Standard for Installation of Private Fire Service Mains and Their Appurtenances".

B. Local Fire Department/Marshall Regulations: Comply with governing regulations pertaining to hydrants, including hose unit threading and similar matching of connections.

C. UL Compliance: Provide fire hydrants that comply with UL 246 "Hydrants for Fire-Protection Service", and are listed by UL.

1.3 SUBMITTALS:

A. Product Data: Submit manufacturer's technical product data and installation instructions for fire water system materials and products.

B. Maintenance Data: Submit maintenance data and parts lists for fire water system materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual; in accordance with requirements of Division 01.

PART 2 - PRODUCTS

2.1 MANUFACTURER:

A. Acceptable manufacturers: Subject to compliance with requirements, provide products of one of the following:
1. Line Markers:
   a. Allen Systems Inc.
   b. Seton Name Plate Corp.
2. Pipe Strainers:
   a. "Automatic" Sprinkler Corp. of America; Div. A-T-O Inc.
   b. Cleveland Gear Co.; Sub of Vesper Corp.

c. Grinnell Fire Protection Systems Co., Inc.
d. Hersey Products Inc.; Hersey Div.
e. Mueller Steam Specialty; Div. of Core Industries Inc.
f. Neptune Water Meter Co.
g. Rockwell International Corp.; Municipal & Utility Div.
h. Rockwood Systems Corp.
i. Zurn Industries Inc.; Fluid Handling Div.

3. Detector Meter:
   a. Hersey Products Inc.
4. Gate Valves:
   a. American Valve Mfg. Corp.
   b. American-Darling Valve; Div. of American Cast Iron Pipe Co.
   c. Clow Corp.; Valve Div.
   d. Fairbanks Co.
   e. Kennedy Valve; Div. of ITT Grinnell Valve Co., Inc.
   f. Stockham Valves & Fittings Inc.
   g. United Brass Works Inc.
   h. United States Pipe and Foundry Co.
   i. Waterous Co.
5. Check Valves:
   a. American-Darling Valve; Div. of American Cast Iron Pipe Co.
   b. Clow Corp.; Valve Corp.
   c. Fairbanks Co.
   d. Kennedy Valve; Div. of ITT Grinnell Valve Co., Inc.
   e. Mueller Co.
   f. Nibco Inc.
   g. Stockham Valves & Fittings Inc.
   h. Walworth Co.
   i. Waterous Co.
6. Fire Hydrants: Approved by authority having jurisdiction.

2.2 IDENTIFICATION:

A. Underground-Type Detectable Warning Tape (refer to Specification 31 23 00): Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6" wide x 4 mils thick. Provide blue tape with black printing reading "CAUTION WATER LINE BURIED BELOW".

2.3 PIPES AND PIPE FITTINGS:

A. Provide materials and products complying with NFPA 24 where applicable. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in fire water piping systems. Where more than one type of materials or products are indicated, selection is Installer's option.

B. Piping: Provide pipe fittings and accessories of same material and weight/class as pipes, with joining method as indicated. Minimum size of Fire Main serving Building Fire sprinkler system on Fire Hydrants shall be 8 inches in diameter.
   1. Ductile Iron Pipe: AWWA C151, with cement mortar lining complying with AWWA C104; Class 51 unless otherwise indicated.
      a. Fittings: Ductile-Iron complying with AWWA C110, cement lined, with rubber gaskets conforming to AWWA C111.
   2. PVC Pipe: AWWA C-900, Class 150 unless otherwise indicated.
      a. Fittings: Schedule 80 PVC fittings complying with ASTM 1785.

2.4 PIPING SPECIALTIES:

A. Pipe Line Strainers: UL-listed, 175 psi working pressure, Y-type or basket type, with ends to suit piping connections.

2.5 METERS:

A. Detector-Type Meters: UL-listed, 175 psi working pressure, with disc meter bypass.

2.6 VALVES:

A. Gate Valves: UL-listed, 175 psi working pressure for 12" and smaller, 150 psi for sizes larger than 12". Threaded, flanged, hub, or other end configurations to suit size of valve and piping connection. Inside screw type for use with indicator post, iron body bronze mounted, non-rising stem, solid wedge disc.

B. Check Valves: UL-listed, 175 psi working pressure for 2" through 12", 150 psi for sizes larger than 12". Swing type, iron body bronze mounted with metal-to-metal or rubber-faced checks. Threaded, flanged, or hub end, to suit size and piping connections.

2.7 FIRE HYDRANTS:

A. Provide cast-iron body fire hydrants, compression type, opening against pressure and closing with pressure, base valve design, 200 psi working pressure, with 1/4" gage tapping and bronze plug in standpipe, conforming to the latest edition of AWWA C-502, "Dry Barrel Fire Hydrants."

B. Features: Provide the following features:
   1. Size: 5" valve opening.
   2. Direction to Open Hydrant: Left.
   3. Size and Shape of Operating and Cap Nuts: Pentagon 1-1/2" point to flat.
   4. Hose Nozzles: 2-1/2" National Standard Thread, cap and chain.
   5. Pumper Nozzles: 5" National Standard Thread, cap and chain.
   6. Depth of Trench: 4'-6".
   7. Connection to Main: 6" mechanical joint.
   8. Contractor shall verify exact requirements and features with governing jurisdication.

2.8 ACCESSORIES:

A. Anchorages: Provide anchorages for tees, wyes, crosses, plugs, caps, bends, valves, and hydrants. After installation, apply full coat of asphalt or other acceptable corrosion-retarding material to surfaces of ferrous anchorages.

B. Clamps, Straps, and Washers: Steel, ASTM A 506.

C. Rods: Steel, ASTM A 575.

D. Rod Couplings: Malleable-iron, ASTM A 197.

E. Bolts: Steel, ASTM A 307.

F. Cast-Iron Washers: Gray-iron, ASTM A 126.

G. Thrust Blocks: Concrete, 2,500 psi.

PART 3 - EXECUTION:

3.1 INSTALLATION

A. Identification: During back-filling/top-soiling of underground fire water piping systems, install continuous underground-type plastic line marker, located directly over buried line at 6" to 8" below finished grade.

B. Pipe and pipe fittings:
   1. Ductile-Iron Pipe: Install in accordance with AWWA C600 "Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances".
   2. PVC Pipe: Install in accordance with manufacturers recommendations and provide pipe bedding as required by authroity having jusidiction.
   3. Depth of Cover: Provide minimum depth of cover over underground piping in accordance with NFPA 24, Figure A-8-11 "Recommended Depth of Cover Above Top of Underground Yard Mains" or 60" below finish grade, whichever is greater.

C. Piping Specialties:
   1. Pipe Line Strainers: Install as indicated, with valved blowoff piped to drain.

D. Meters: Install as indicated with shutoff valve on either side of meter and valved bypass full line size.

E. Valves: Provide post indicator for control valves.
   1. Shutoff Valves: Install shutoff valve ahead of each hydrant.

F. Hydrants: Install fire hydrants in accordance with AWWA M17 "Installation, Operation, and Maintenance of Fire Hydrants".
   1. Location: Install fire hydrants minimum of 40'-0" from building outside wall, as indicated, or if not shown.

G. Runs shall be as close as possible to those shown on drawings.

H. Backfill only after pipe lines have been tested, inspected, and approved by the Architect.

3.2 FIELD QUALITY CONTROL:

A. Testing Agency: The Owner will employ and pay a qualified independent testing agency to perform field quality-control testing services specified in this section. Retesting of materials failing to meet specified requirements shall be done at Contractor's expense.

B. Piping Tests: Conduct piping tests before joints are covered, and after thrust blocks have sufficiently hardened. Fill pipeline with water 24-hrs prior to testing, and apply test pressure to stabilize system.

C. Hydrostatic Tests: Test at not less than 200 psi for 2-hrs, or at 50 psi above maximum static pressure if it is greater than 150 psi.
   1. Test fails if leakage exceeds 2-qts per hour per 100 gaskets or joints irrespective of pipe diameter.

2. Increase pressure in 50 psi increments and inspect each joint between increments. Hold at test pressure for one hour, decrease to 0 psi. Slowly increase again to test pressure and hold for one more hour.

D. Operating Tests: Open and close all valves and hydrants under system water pressure. Check dry barrel hydrants for proper drainage.
1. For systems with fire pumps, run pumps during operating tests.

3.3 ADJUSTING AND CLEANING:

A. Flushing: Flush underground mains and lead-in connections to sprinkler risers before connection is made to sprinklers, standpipes, or other fire protection system piping.
1. Flush at flow rate not less than that indicated in NFPA 24, or at hydraulically calculated water demand rate of the system, whichever is greater.

END OF SECTION 33 11 19

SECTION 33 40 00 - STORM DRAINAGE July 31, 2008

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. This Section includes storm drainage outside the building.

B. Related Sections include the following:
1. Refer to Division-31 section "Earthwork" for excavation and backfill required for storm drainage systems; not work of this section.
2. Refer to Division-03 sections for concrete work required for storm drainage systems; not work of this section.
3. Refer to Division-22 section "Plumbing Piping" for interior building systems including connections to roof and deck drains; not work of this section.

1.3 PROJECT CONDITIONS

A. Site Information: Perform site survey, and verify existing utility locations.

B. Locate existing structures and piping to be closed and abandoned.

C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Stormwater Disposal Systems:
   a. Advanced Drainage Systems, Inc.
   b. Cultec, Inc.
   c. Hancor, Inc.
   d. Infiltrator Systems, Inc.
   e. PSA, Inc.

2.2 PIPES AND FITTINGS

A. Provide pipe fittings and accessories of same material and weight/class as pipes, with joining method as indicated.

B. Corrugated PE Drainage Tubing and Fittings: AASHTO M 252, Type S, with smooth waterway for coupling joints.
   1. Soiltight Couplings: AASHTO M 252, corrugated, matching tube and fittings to form soiltight joints.

C. Corrugated PE Pipe and Fittings: AASHTO M 294, Type S, with smooth waterway for coupling joints.
   1. Soiltight Couplings: AASHTO M 294, corrugated, matching pipe and fittings to form soiltight joints.

D. Reinforced-Concrete Sewer Pipe and Fittings: ASTM C 76 (ASTM C 76M), Class III, Wall B, for gasketed joints.
   1. Gaskets: ASTM C 443 (ASTM C 443M), rubber.

E. Polyvinyl Chloride (PVC) Sewer Pipe: ASTM D 3034, Type PSM, SDR 35.
   1. Fittings: ASTM 3034, bell and spigot joints. 12" diameter and smaller.

2.3 MANHOLES

A. Provide precast reinforced concrete storm drain manholes as indicated, complying with ASTM C 478.
   1. Top: Precast concrete, of concentric cone, eccentric cone, or flat slab top type, as indicated.
   2. Base: Precast concrete, with base riser section and separate base slab, or base riser section with integral floor, as indicated.
   3. Steps: Ductile-iron or aluminum, integrally cast into manhole sidewalls.
   4. Frame and Cover: Ductile-iron, 21-3/4" diameter cover, heavy-duty, indented top design, with lettering cast into top reading "STORM SEWER", conforming to ASTM A-48.
   5. Pipe Connections: Resilient, complying with ASTM C 923.

2.4 CATCH BASINS

A. Precast or cast in place reinforced concrete catch basins as indicated.
   1. Basin: Precast or cast in place reinforced concrete, flat slab top.
   2. Frame and Grate: Ductile-iron or galvanized steel grate, heavy- duty, bicycle proof.
   3. Pipe Connectors: Resilient, complying with ASTM C 923.

2.5 PIPE OUTLETS

A. Head Walls: Cast-in-place reinforced concrete, with apron and tapered sides.

B. Riprap Basins: Broken, irregular size and shape, graded stone.
   1. Average Size: NSA No. R-5, screen opening 5 inches (127 mm).

2.6 POLYMER-CONCRETE, CHANNEL DRAINAGE SYSTEMS

A. Description, General: Modular system of precast, polymer-concrete channel sections, grates, and appurtenances; designed so grates fit into channel recesses without rocking or rattling. Include number of units required to form total lengths indicated.

B. Sloped-Invert, Polymer-Concrete Systems: Include the following components:

1. Channel Sections: Interlocking-joint, precast, modular units with end caps. Include 4-inch (102-mm) inside width and deep, rounded bottom, with built-in invert slope of 0.6 percent and with outlets in number, sizes, and locations indicated. Include extension sections necessary for required depth.

   a. Frame: Include gray-iron or steel frame for grate.

2. Grates with manufacturer's designation "Heavy Duty," with slots or perforations that fit recesses in channels, bicycle-safe.

   a. Material: Gray iron.

3. Locking Mechanism: Manufacturer's standard device for securing grates to channel sections.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 31 Section "Earthwork."

3.2 INSTALLATION, GENERAL

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line, and pull past each joint as it is completed.

C. Use manholes for changes in direction, unless fittings are indicated. Use fittings for branch connections, unless direct tap into existing sewer is indicated.

D. Install gravity-flow piping and connect to building's storm drains, of sizes and in locations indicated. Terminate piping as indicated.
   1. Install piping pitched down in direction of flow, at minimum slope of 1 percent, unless otherwise indicated.

3.3 PIPE JOINT CONSTRUCTION AND INSTALLATION

A. General: Join and install pipe and fittings according to installations indicated.

B. PE Pipe and Fittings: As follows:
   1. Join pipe, tubing, and fittings with couplings for soiltight joints according to manufacturer's written instructions.
   2. Install according to ASTM D 2321 and manufacturer's written instructions.
   3. Install corrugated piping according to the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings."

C. Concrete Pipe and Fittings: Install according to ACPA's "Concrete Pipe Installation Manual." Use the following seals:
   1. Round Pipe and Fittings: ASTM C 443 (ASTM C 443M), rubber gaskets.

3.4 MANHOLE INSTALLATION

A. General: Install manholes, complete with appurtenances and accessories indicated.

B. Form continuous concrete channels and benches between inlets and outlet.

C. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 3 inches (76 mm) above finished surface elsewhere, unless otherwise indicated.

D. Install precast concrete manhole sections with gaskets according to ASTM C 891.

3.5 CATCH-BASIN INSTALLATION

A. Construct catch basins to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

3.6 STORM DRAINAGE OUTLET INSTALLATION

A. Construct riprap of broken stone, as indicated.

B. Install outlets that spill onto grade, with flared end sections that match pipe, where indicated.

3.7 DRAIN INSTALLATION

A. Install type of drains in locations indicated.

B. Fasten grates to drains if indicated.

C. Set drain frames and covers with tops flush with pavement surface.

3.8 DRAINAGE SYSTEM INSTALLATION

A. Assemble and install components according to manufacturer's written instructions.

B. Install with top surfaces of components, except piping, flush with finished surface.

C. Assemble channel sections to form slope down toward drain outlets. Use sealants, adhesives, fasteners, and other materials recommended by system manufacturer.

D. Embed channel sections and drainage specialties in 4-inch (102-mm) minimum concrete around bottom and sides.

E. Fasten grates to channel sections if indicated.

F. Assemble channel sections with flanged or interlocking joints.

3.9 FIELD QUALITY CONTROL

A. Clear interior of piping and structures of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed.
   1. In large, accessible piping, brushes and brooms may be used for cleaning.
   2. Place plug in end of incomplete piping at end of day and when work stops.
   3. Flush piping between manholes and other structures to remove collected debris.

B. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches (600 mm) f backfill is in place, and again at completion of Project.
   1. Submit separate reports for each system inspection.
   2. Defects requiring correction include the following:
      a. Alignment: Less than full diameter of inside of pipe is visible between structures.
      b. Crushed, broken, cracked, or otherwise damaged piping.
      c. Infiltration: Water leakage into piping.
      d. Exfiltration: Water leakage from or around piping.
   3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
   4. Reinspect and repeat procedure until results are satisfactory.

END OF SECTION 33 40 00

Utah Valley University
Noorda Theatre

Structural Addendum #1
August 1, 2008

Sheet SE001

1. Add the following to the end of not V, S1: “Steel Fabricators shall be approved by DFCM.”
2. Ad the following to the end of note V, S7, A: “Joist Fabricators shall be approved by DFCM.”

Sheet SE100

1. See revised partial plan.

Sheet SE101

1. See revised partial plan.

Sheet SE102

1. See revised partial plan.

Sheet SE103

1. See revised partial plan
2. See revised plan notes.

Sheet SE302

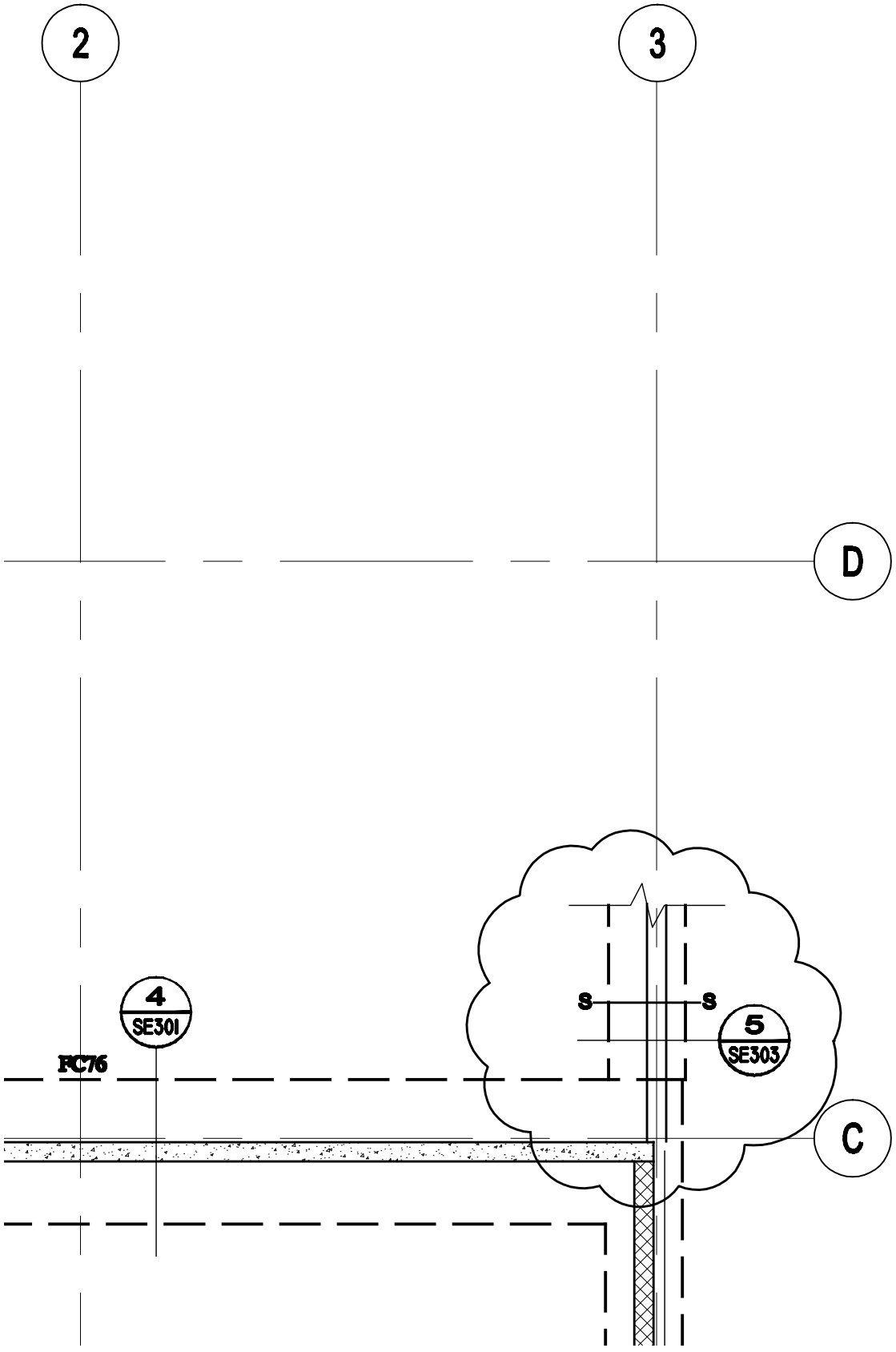
1. In detail 1/SE302, revise the joist bearing shoe note to read: “Coordinate depth with joist supplier.”
2. In detail 2/SE302, revise the joist bridging note to read: “Bridging by joist supplier.”
3. See revised details 5 and 7/SE303.
4. See new details 10, 11, and 12/SE302.

Sheet SE303

1. See revised details 5 and 7/S303.

Sheet SE304

1. See revised detail 1/SE304.
2. See new details 5/SE304.



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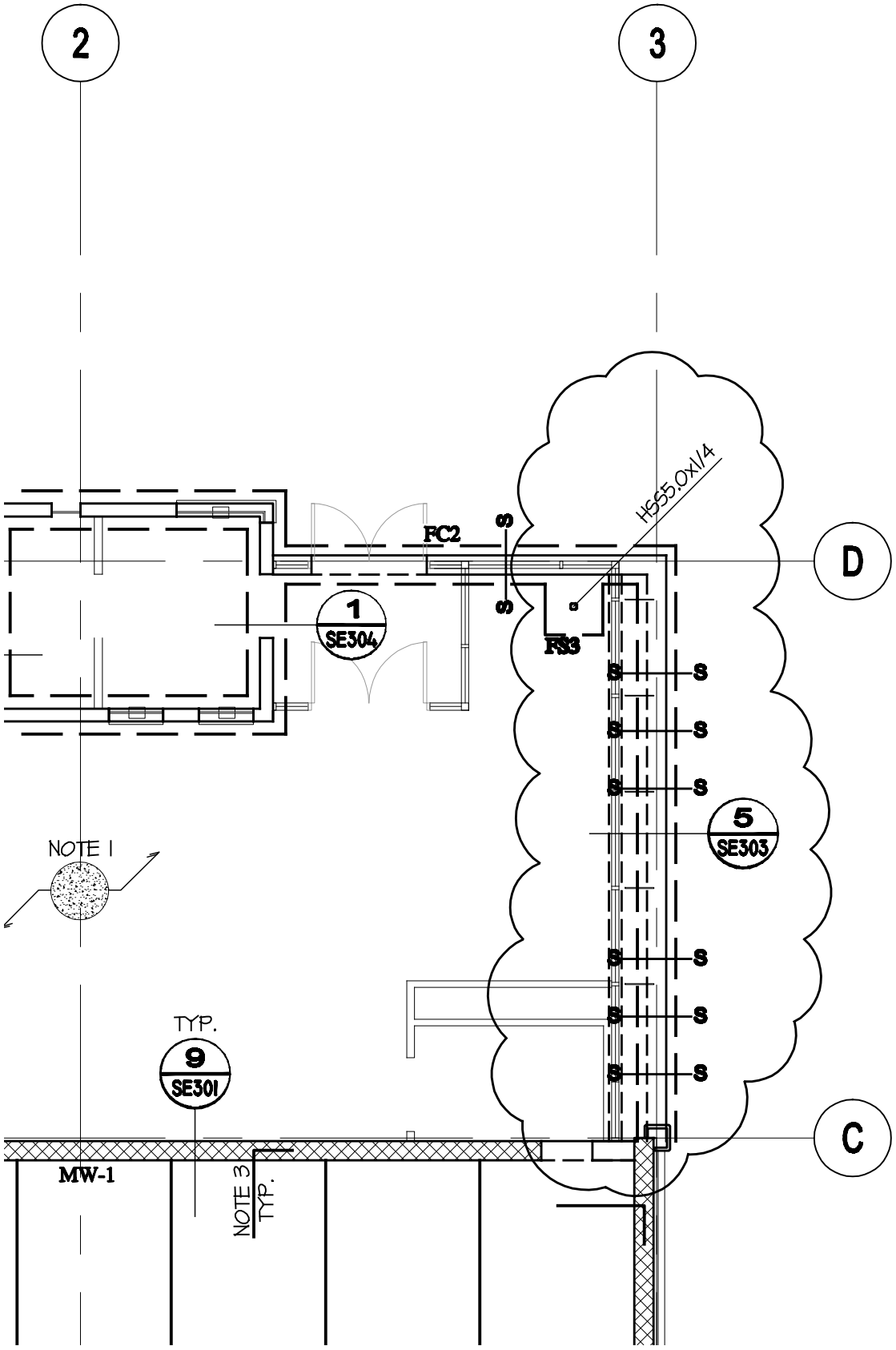

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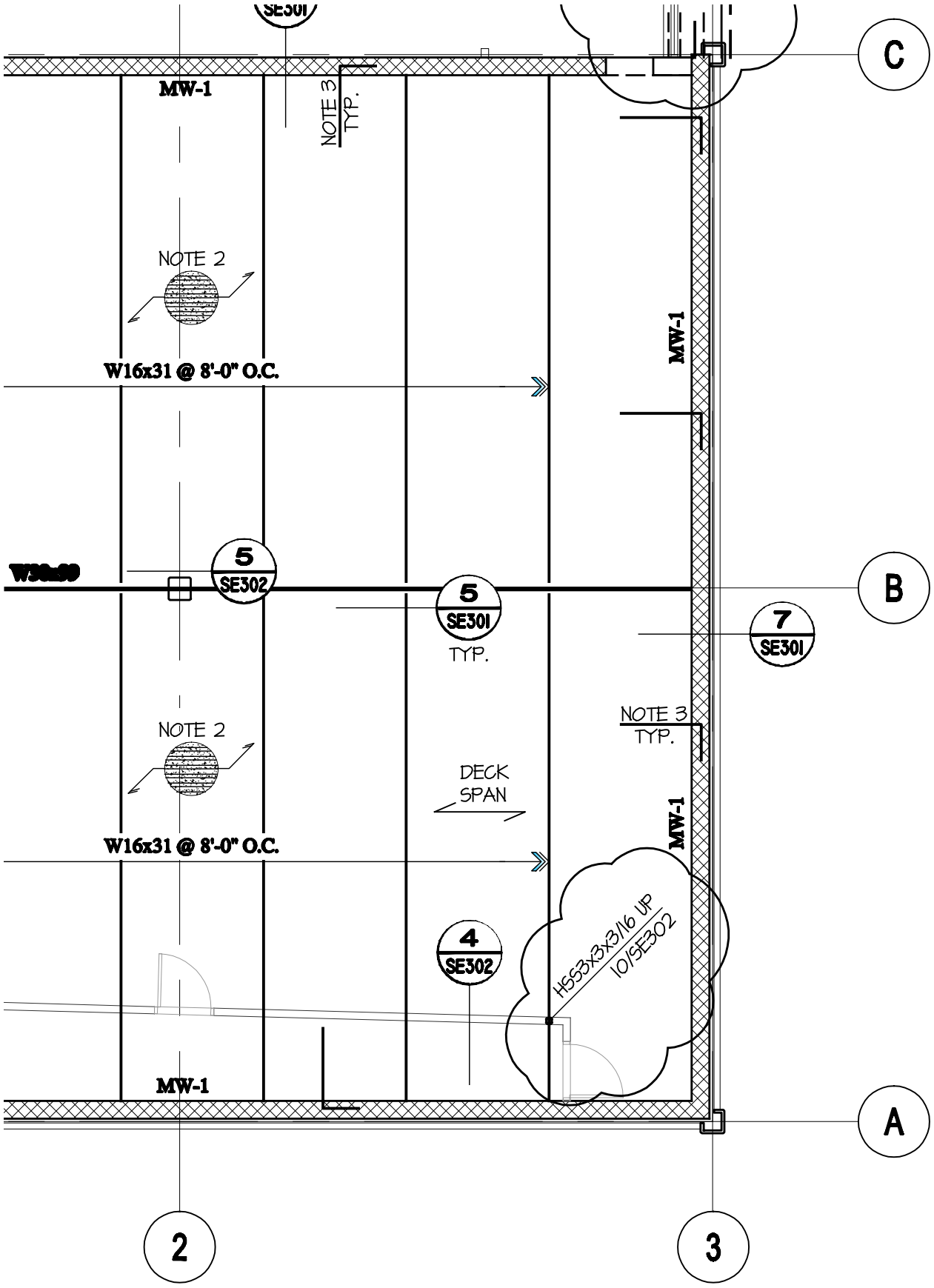

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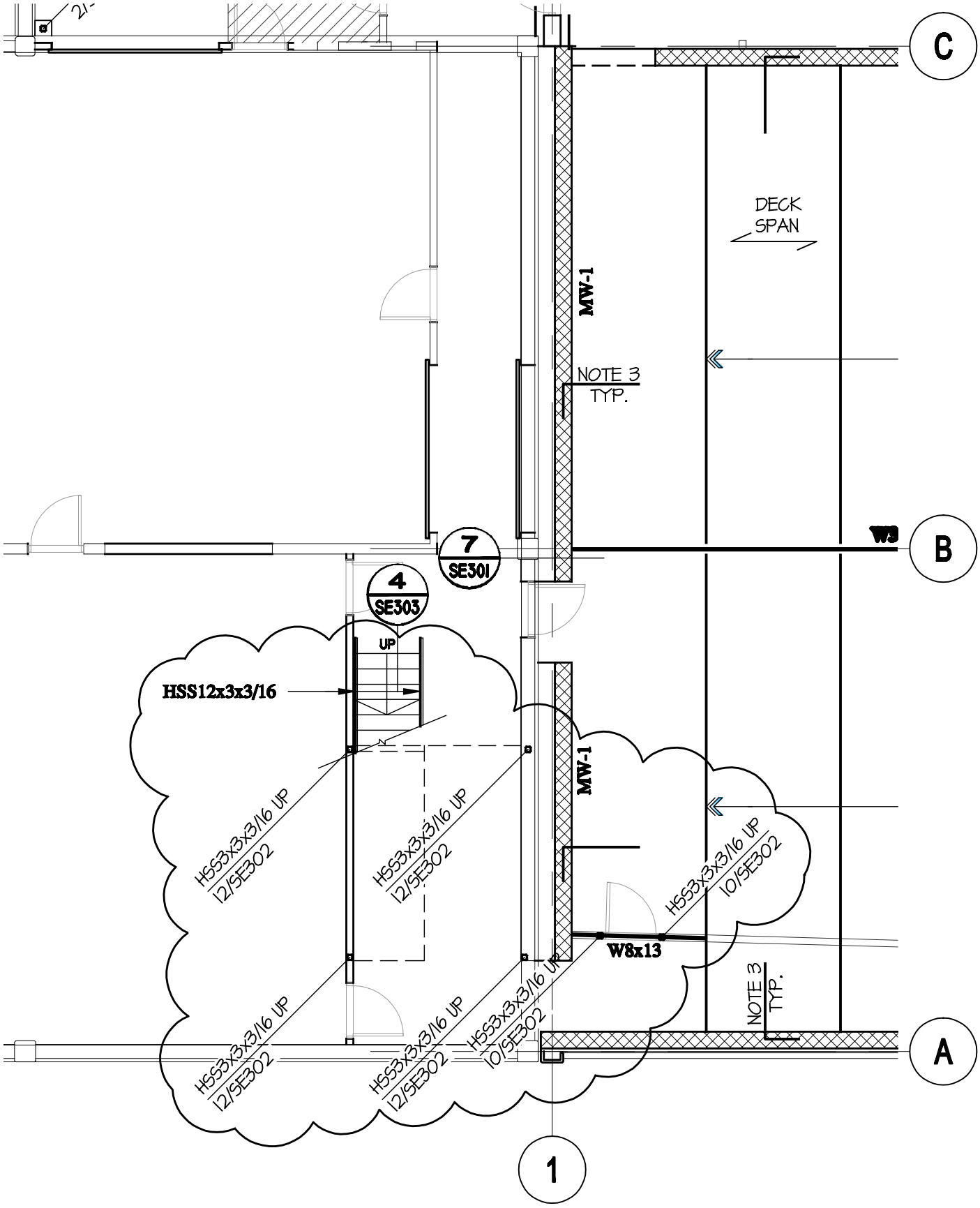

UTAH VALLEY UNIVERSITY
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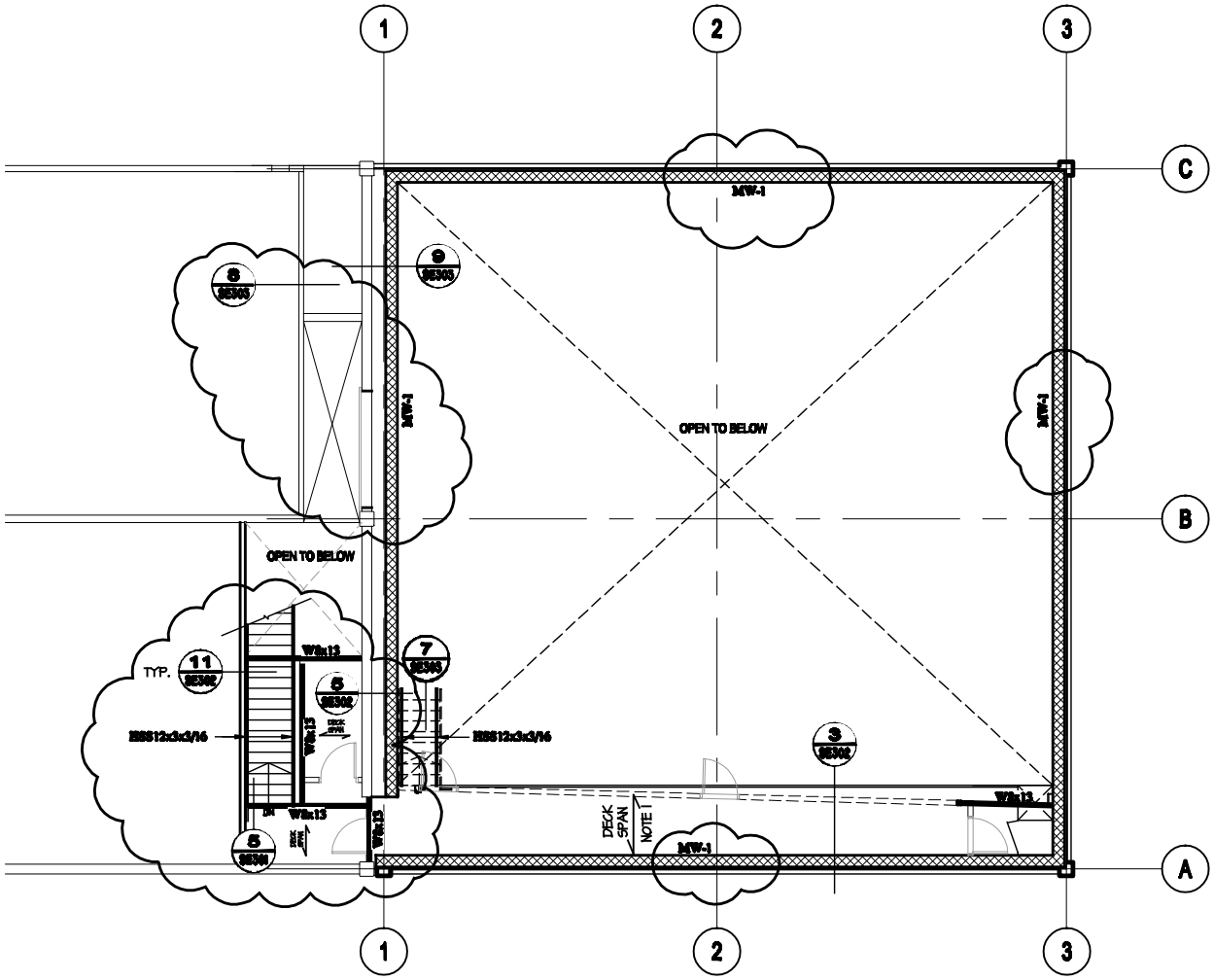
Orem, UT

DRAWING TITLE: **PARTIAL PLAN SHEET SE101**

ADDENDUM #1	DATE: 09-11-2009	SCALE: 1/8" = 1'-0"



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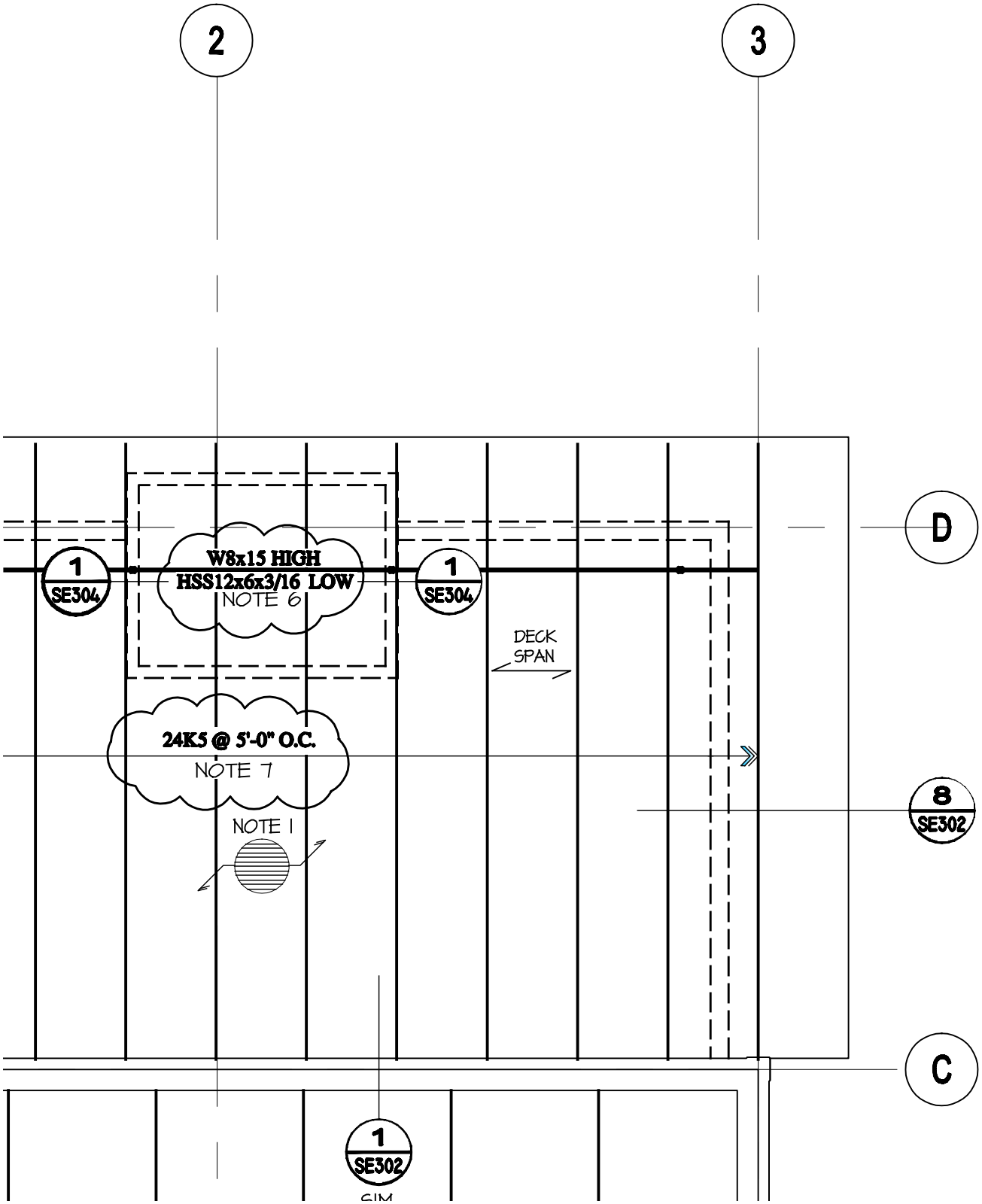

UTAH VALLEY UNIVERSITY NOORDA THEATRE Orem, UT	DRAWING TITLE: PARTIAL PLAN SHEET SE103		
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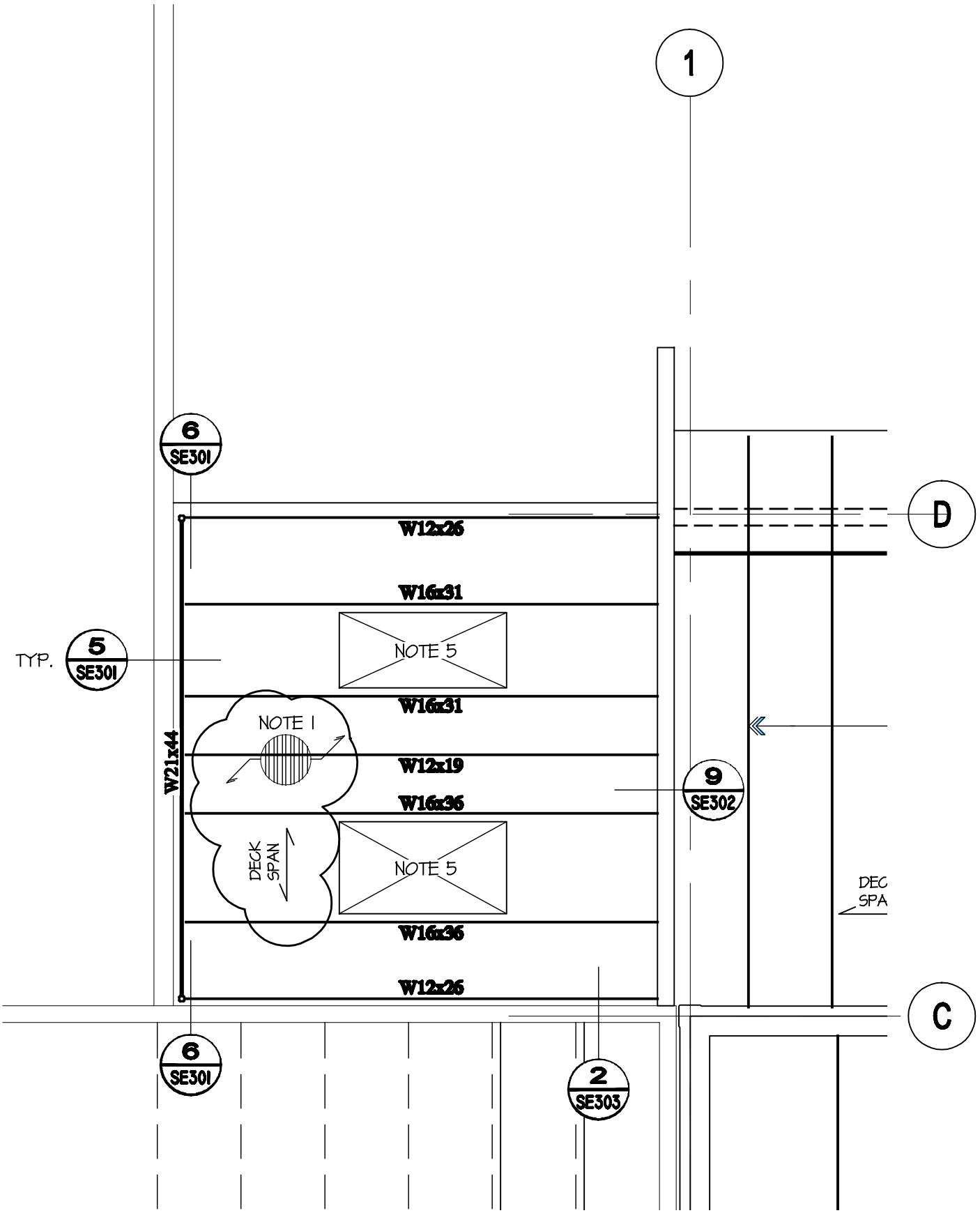


UTAH VALLEY UNIVERSITY **NOORDA THEATRE** Orem, UT	DRAWING TITLE: **PARTIAL PLAN SHEET SE103**		
	ADDENDUM #1	DATE: 09-11-2009	SCALE: 1/8" = 1'-0"

PLAN NOTES

1. 1 1/2" x 20 GAGE METAL ROOF DECK (3-SPANS MIN.)
2. 3" x 20 GAGE N-DECK (3-SPANS MIN.)
3. 52 DLH15 SPECIAL OPEN WEB STEEL JOISTS. 433/270plf TL/LL TOP CHORD LOAD AND 1300# DL / 6700# LL BOTTOM CHORD POINT LOADS @ 8'-2" O.C. COORDINATE BOTTOM CHORD LOAD LOCATIONS / SPACING WITH SUSPENDED RIGGING PLAN. LIMIT DEFLECTION TO 1.0" FROM 6700# LIVE LOADS PLUS HALF OF TOP CHORD LOAD. SEE 6/SE304 FOR RIGGING CONNECTION TO BOTTOM CHORD.
4. REINFORCE JOIST AS PER DETAILS 1/SE303 AND 2/S303.
5. ROOF TOP MECHANICAL UNIT. SEE MECHANICAL PLANS FOR EXACT LOCATION.
6. LOW BEAM OVER BOX OFFICE SEE DETAIL 1/SE304.
7. SEE DETAIL 7/SE302 FOR BOTTOM CHORD LIMIT AT NORTH END.

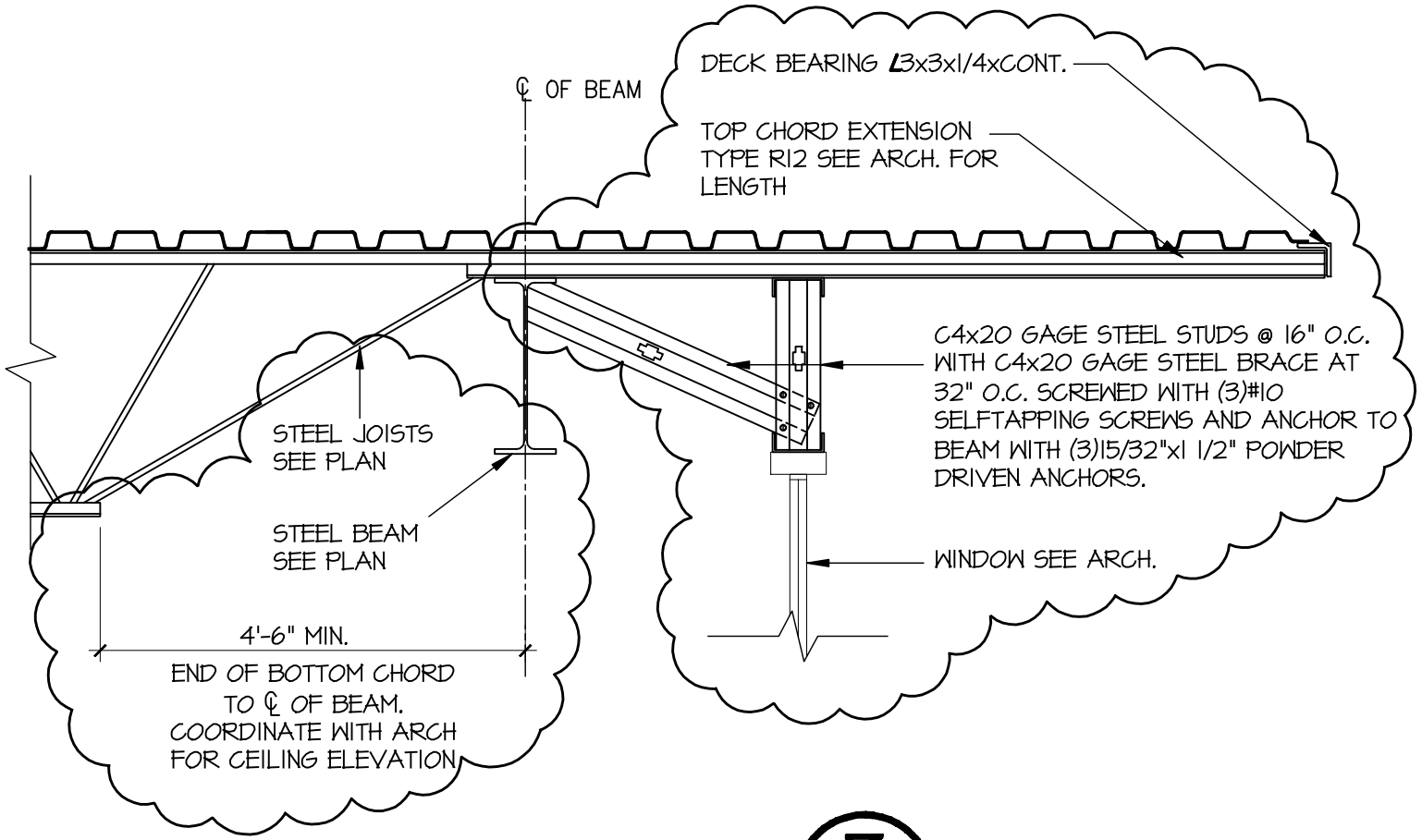
DRAWING TITLE: PLAN NOTES SHEET SE103

ADDENDUM #1

DATE: 08-11-2008

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

UTAH VALLEY UNIVERSITY
NOORDA THEATRE
Orem, UT



7
SCALE: 3/4" = 1'-0" SE302

DETAIL

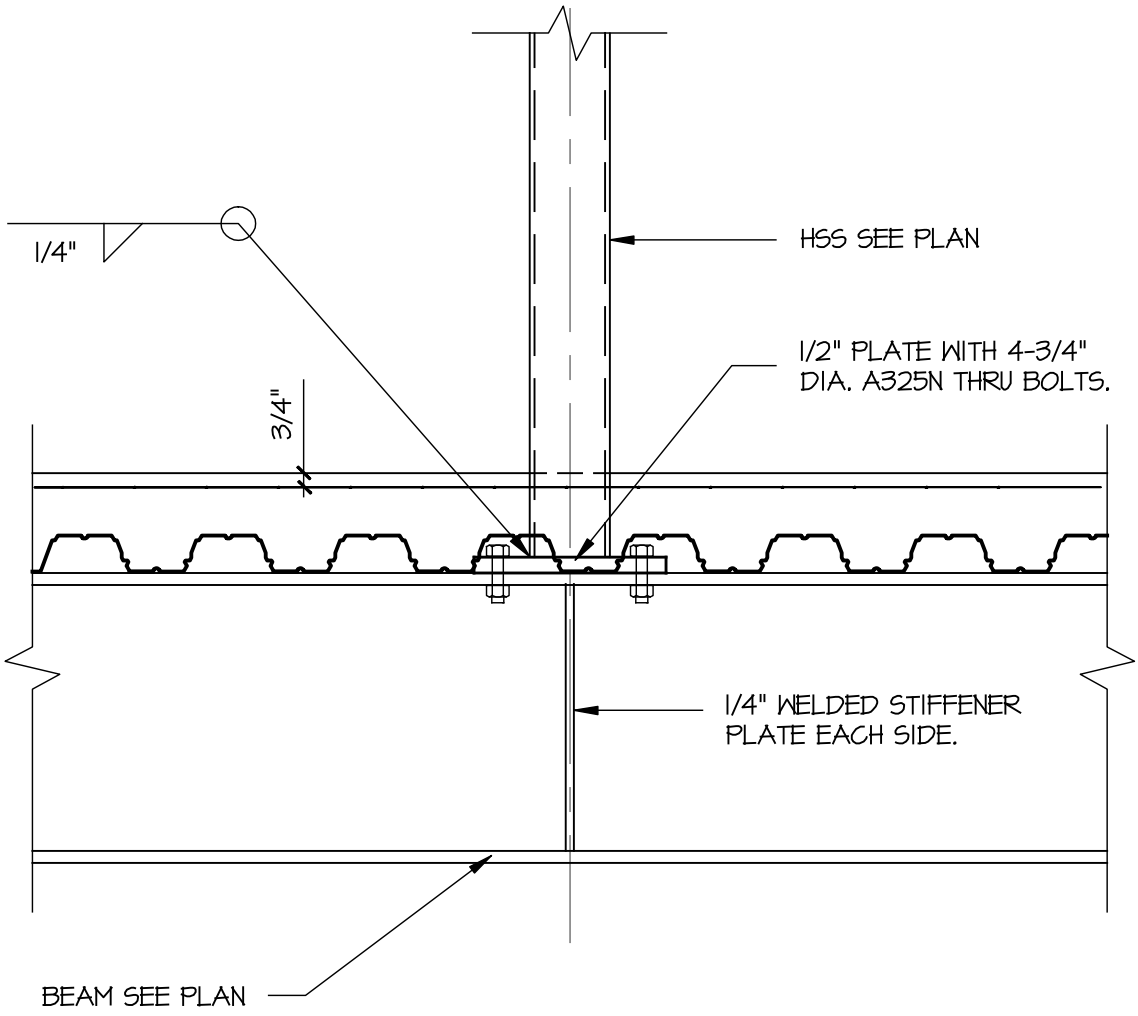
DRAWING TITLE:

ADDENDUM #1

DATE: 08-11-2008

SCALE: 3/4" = 1'-0"

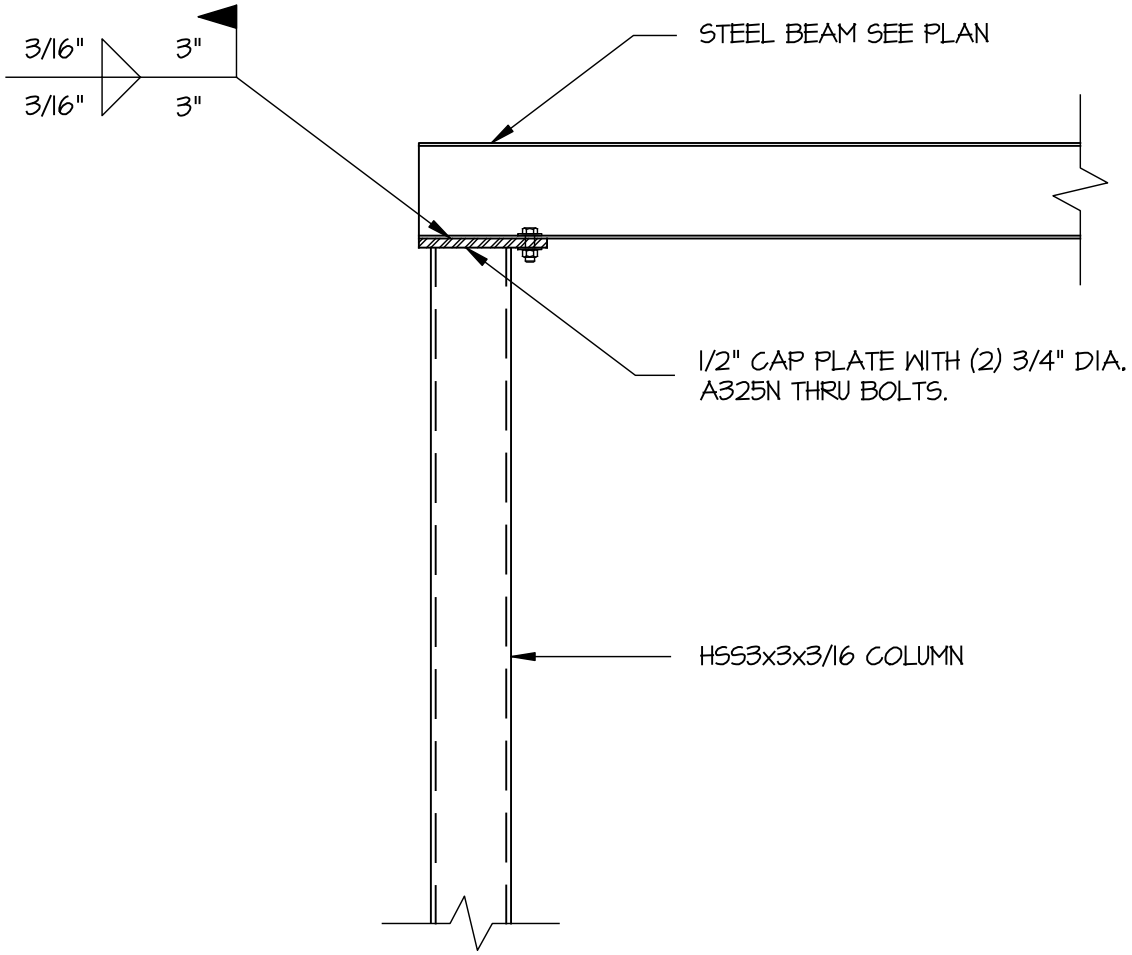
UTAH VALLEY UNIVERSITY
NOORDA THEATRE
Orem, UT



10
SE302

SCALE: N.T.S. = 1'–0"

UTAH VALLEY UNIVERSITY NOORDA THEATRE Orem, UT	DRAWING TITLE: DETAIL		
	ADDENDUM #1	DATE: 09-11-2009	SCALE: N.T.S. = 1'-0"



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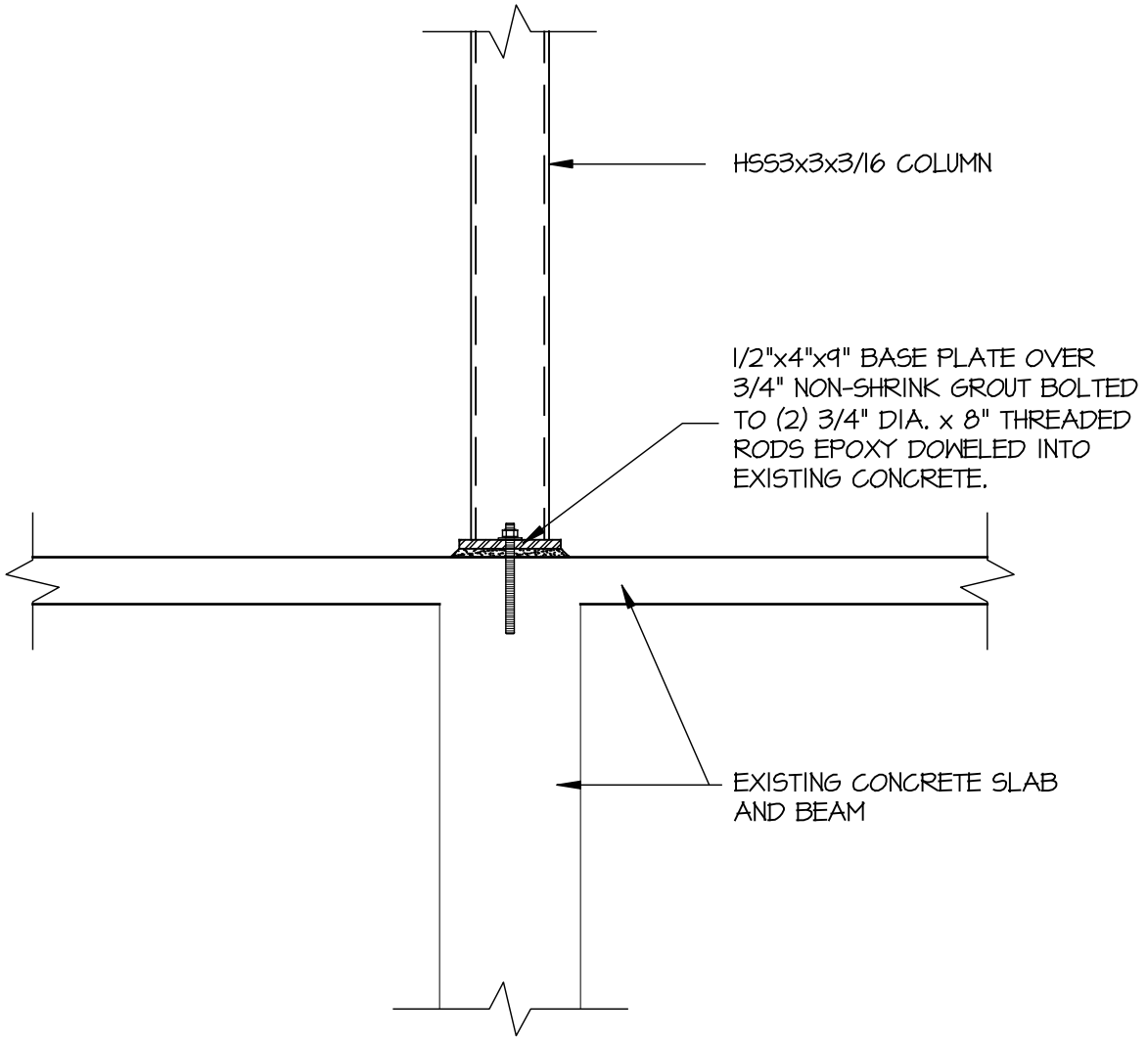
SCALE: 3/4" = 1'-0" SE302

UTAH VALLEY UNIVERSITY NOORDA THEATRE Orem, UT	DRAWING TITLE: DETAIL		
	ADDENDUM #1	DATE: 09-11-2009	SCALE: 3/4" = 1'-0"

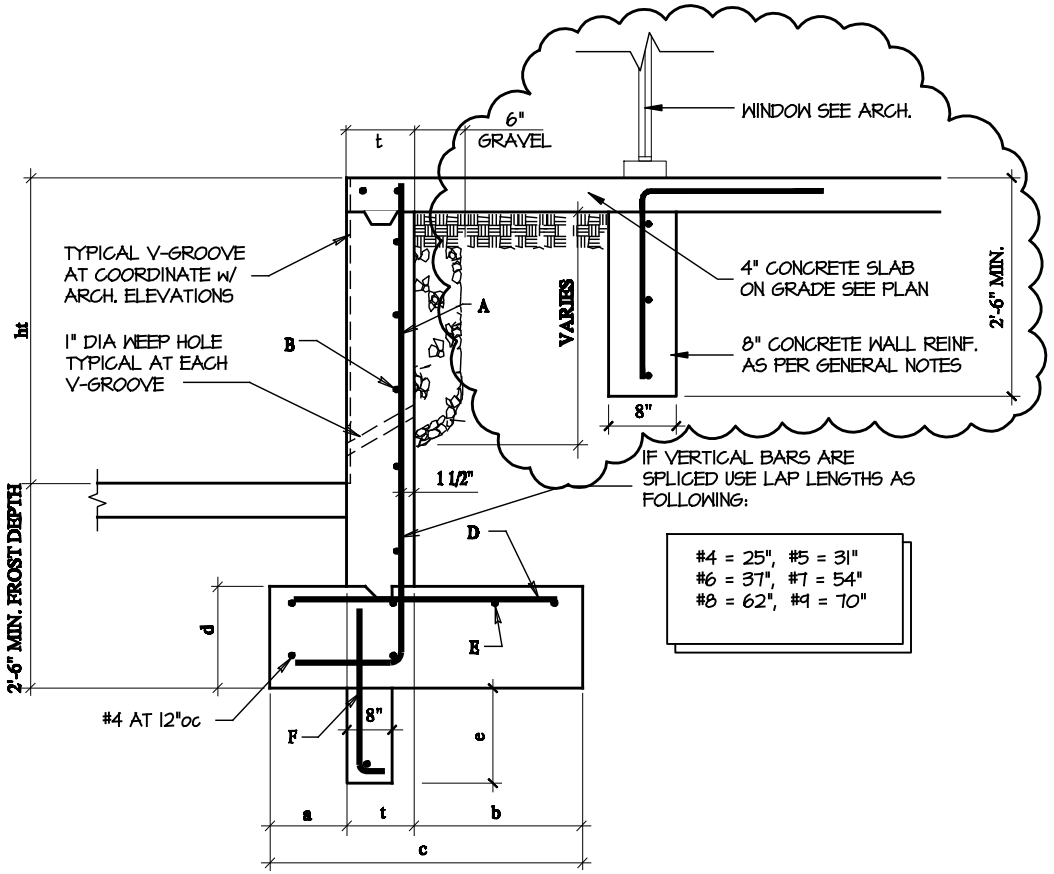


12
SE302

SCALE: 3/4" = 1'-0"

UTAH VALLEY UNIVERSITY NOORDA THEATRE Orem, UT	DRAWING TITLE: DETAIL		
	ADDENDUM #1	DATE: 09-11-2009	SCALE: 3/4" = 1'-0"

SCALE



TYPICAL RETAINING WALL SCHEDULE				
Max. ht	5'-0"	7'-0"	11'-0"	15'-0"
t	12"	12"	12"	14"
d	12"	12"	14"	16"
e	5'-0"	7'-0"	10'-0"	15'-6"
a	1'-0"	2'-5"	3'-5"	5'-0"
b	1'-0"	3'-5"	5'-5"	9'-4"
c			14"	16"
A	#5 @ 12"	#5 @ 12"	#7 @ 11"	#9 @ 9"
B	#5 @ 12"	#5 @ 12"	#5 @ 12"	#5 @ 10"
D	#4 @ 18"	#4 @ 16"	#6 @ 15"	#8 @ 8"
E	#4 @ 12"	#4 @ 12"	#5 @ 10"	#5 @ 9"
F			#4 @ 28"	#4 @ 28"

TYPICAL RETAINING WALL SECTION

5 / SE303

SCALE: N.T.S. = 1'-0"

DETAIL

DRAWING TITLE:

ADDENDUM #1

DATE: 08-11-2008

SCALE: N.T.S. = 1'-0"

UTAH VALLEY UNIVERSITY
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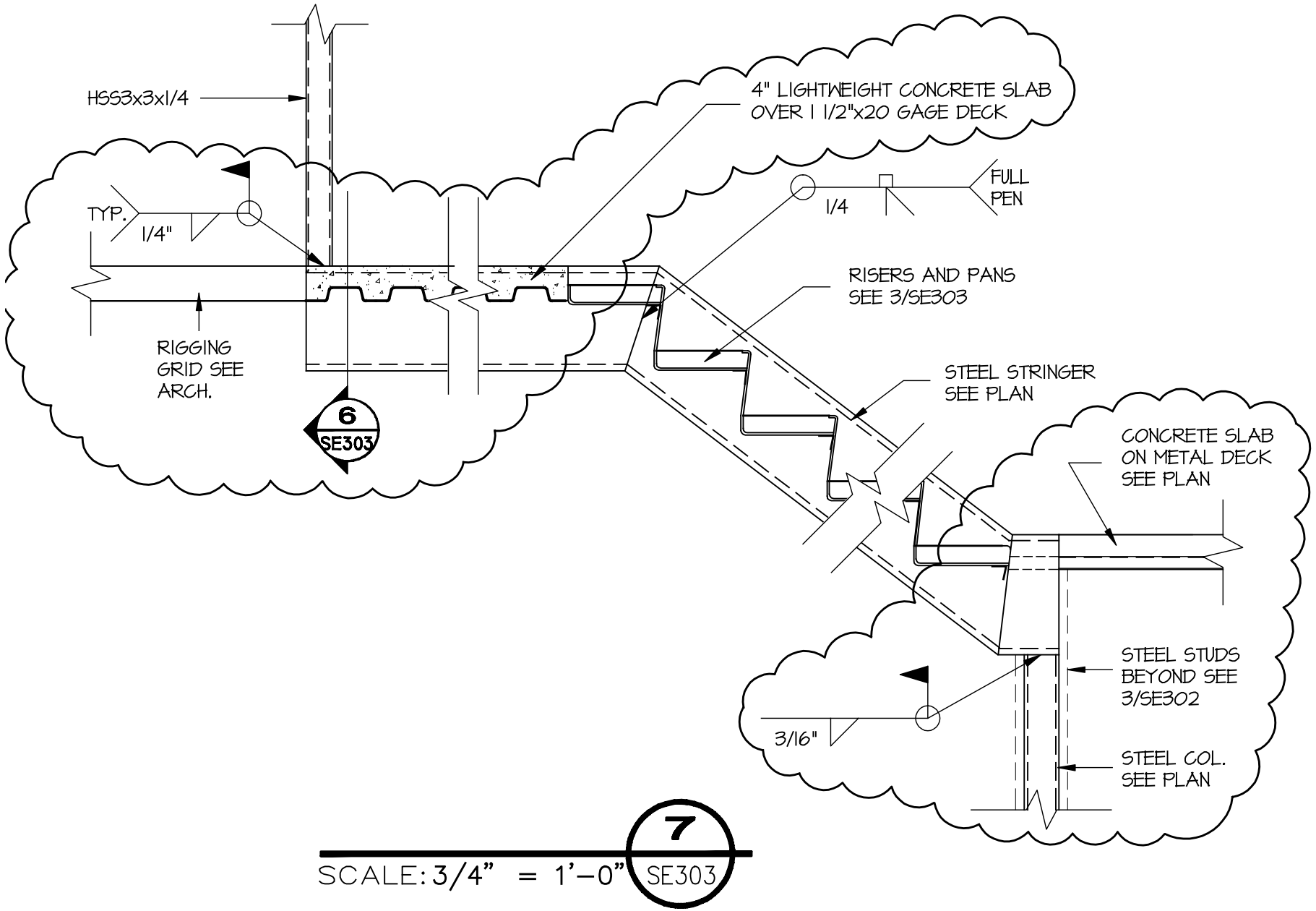


7
SCALE: 3/4" = 1'-0" SE303

DETAIL

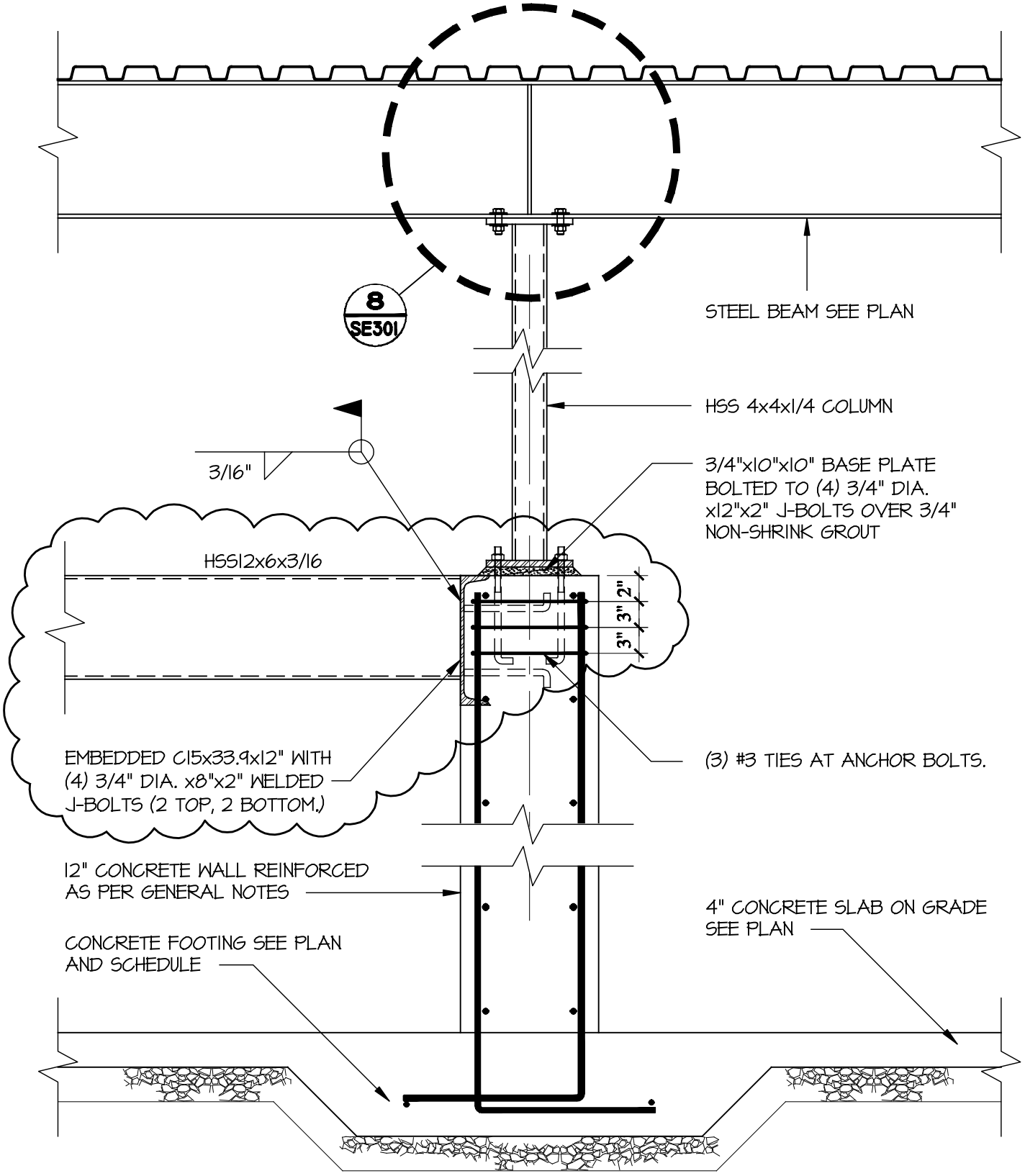
DRAWING TITLE:

ADDENDUM #1

DATE: 08-11-2008

SCALE: 3/4" = 1'-0"

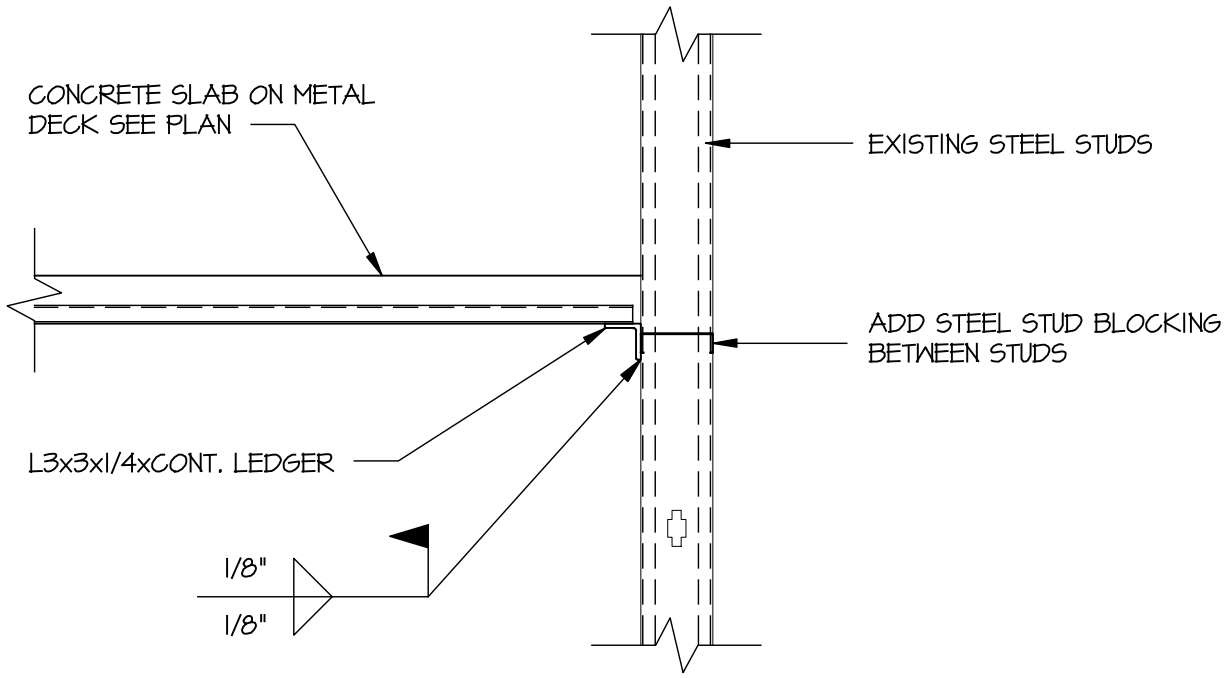
UTAH VALLEY UNIVERSITY
NOORDA THEATRE
Orem, UT



1 / SE304

SCALE: 3/4" = 1'-0"

UTAH VALLEY UNIVERSITY **NOORDA THEATRE** Orem, UT	DRAWING TITLE: **DETAIL**		
	ADDENDUM #1	DATE: 09-11-2009	SCALE: 3/4" = 1'-0"



5

SCALE: 3/4" = 1'-0" SE304

UTAH VALLEY UNIVERSITY NOORDA THEATRE Orem, UT	DRAWING TITLE: DETAIL		
	ADDENDUM #1	DATE: 09-11-2009	SCALE: 3/4" = 1'-0"

ADDENDUM

DATE: 1 August 2008

PROJECT NO: 08193

PROJECT: UVU Noorda Theatre

DIVISION - 21

SPECIFICATIONS

SECTION - 211000

1. Revise Paragraph 1.4 A 1 to read as follows:
    1. Design Sprinkler system after performing a flow test, reduced by 10%, on the hydrants in the area. The flow test is to be witnessed by the campus fire marshal -Sgt. Justin Sprague 801 863-5555. Submit a copy of the flow test to the Engineer to review prior to design. Verify with the fire marshal that the pressure issue has been resolved prior to performing the flow test.

DIVISION - 23

GENERAL

1. Refer to plumbing fixture schedule (Sheet P401) for fixture descriptions.

DRAWINGS

SHEET - MD101

1. Delete this sheet from the project.

SHEET - MP102

1. Add this sheet to the project.

SHEET - M401

1. Provide integral condensate pump with split system heat pump unit AC-1. Route condensate drain pipe through structure above Green Room to Media Control. Connect condensate drain into condensate drain from Media Control AC-1 unit below height of AC-1 drain pan.

SHEET - P401

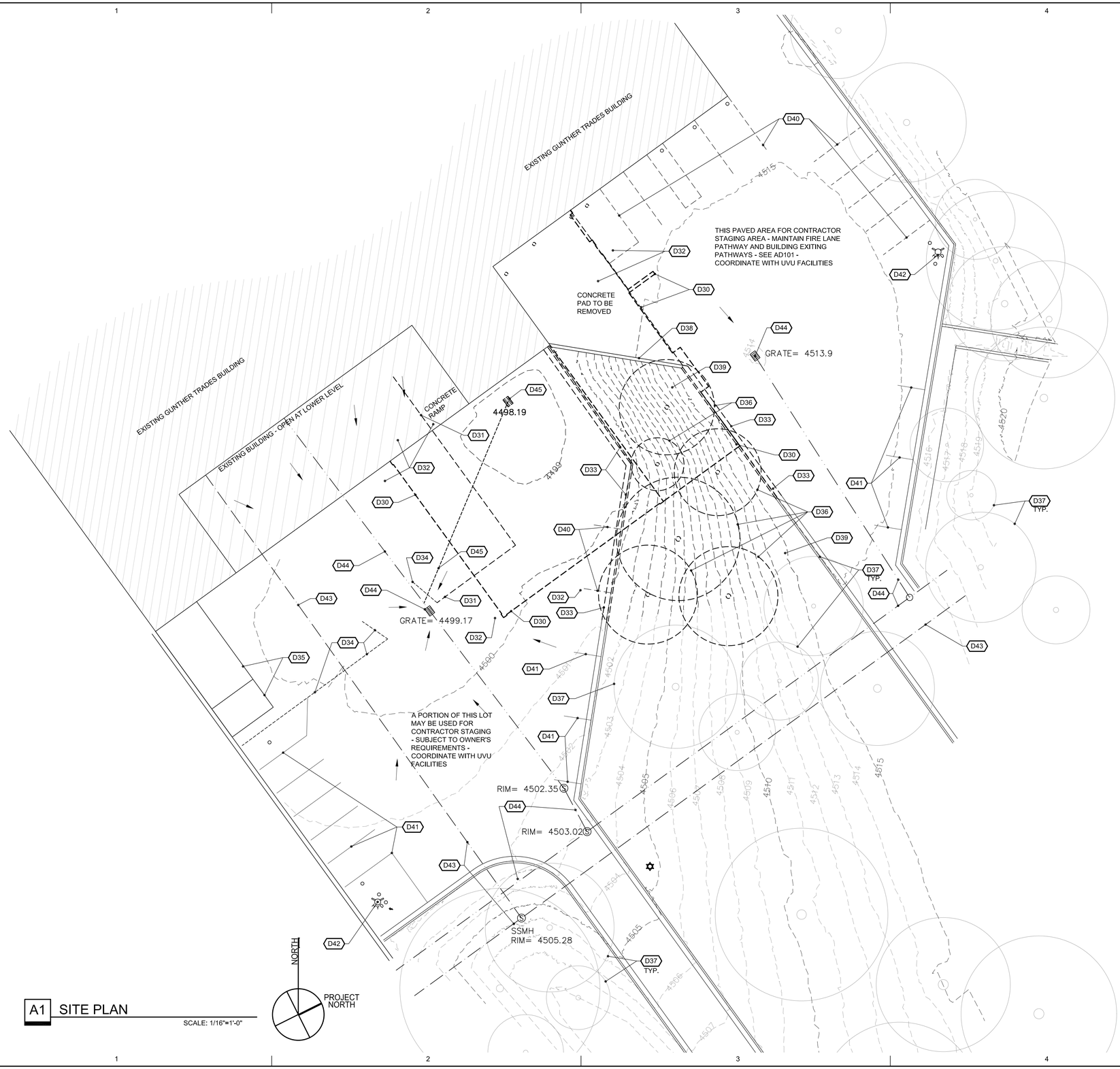
1. Refer to 2/P401
    A. Change (4) lavatories to L-1 in lieu of L-2
2. Refer to PLUMBING FIXTURE SCHEDULE
    A. WC-1 and WC-2. Provide Sloan Model 111 – SMO battery sensor operated flush valves in lieu of scheduled flush valves for Water Closets
    B. WC-2. Provide Smith 0210 horizontal (left or right hand as required) or Smith 0230 vertical adjustable carrier with foot support.
    C. Provide Sloan Model 186 1.0– SMO battery sensor operated flush valve in lieu of scheduled flush valves for Urinal U-1
    D. Add WC-3. Water closet shall be same as WC-2 with modification above.

E. For Lavatories L-1 and L-2 Provide Sloan EBF-187 Optima Plus battery powered sensor faucet with 4" trim plate and Sloan BDT below deck thermostatic mixing valve. In lieu of scheduled faucet.

PRIOR APPROVALS

The following manufacturers, trade names and products are allowed to bid on a name brand only basis with the provision that they completely satisfy all and every requirement of the drawings, specifications and all addenda shall conform to the design, quality and standards specified, established and required for the complete and satisfactory installation and performance of the building and all its respective parts.

Item	Manufacturer	Comments
Louvers	Greenheck	**Approved**
Custom Air Handling Units	Governair, Huntair	**Approved**
Split System Air Conditioners	Daikin AC	**Approved**



A1 SITE PLAN

SCALE: 1/16"=1'-0"

KEYNOTE LEGEND - SITE DEMO.

- D30 EXTENT OF FUTURE BUILDING - SEE GEN. NOTE 1
- D31 REMOVE PORTION OF FENCE
- D32 REMOVE CONCRETE / ASPHALT FOR EXCAVATION FOR NEW PAVINGS AND FOOTINGS. SEE GEN. NOTE 1 AND AE001
- D33 EXISTING CURB TO BE REMOVED AS NECESSARY - SEE AE001
- D34 EXISTING FENCE TO REMAIN
- D35 EXISTING SHED TO REMAIN
- D36 EXISTING TREES TO BE REMOVED - TYP. OF 6
- D37 EXISTING TREE TO REMAIN, EXCEPT AS NOTED
- D38 TOP OF EXISTING RETAINING WALL TO BE REMOVED AS NECESSARY FOR NEW BUILDING. MOST OF THIS RETAINING WALL SHALL REMAIN.
- D39 GRASS AND EARTH TO BE REMOVED AS NECESSARY FOR WORK AND FOR NEW GRADING - SEE AE001
- D40 PARKING STRIPING TO BE REMOVED OR PAINTED OVER
- D41 EXISTING PARKING STRIPING TO REMAIN
- D42 EXISTING FIRE HYDRANT TO REMAIN
- D43 EXISTING SANITARY SEWER LINE TO REMAIN. SEE GEN. NOTES 3, 4
- D44 EXISTING STORM DRAIN GRATE / CATCH BASIN / LINE TO REMAIN - SEE GEN. NOTES 3, 4
- D45 EXISTING STORM DRAIN GRATE / CATCH BASIN / LINE TO BE REMOVED

GENERAL NOTES - SITE

1. CONTRACTOR SHALL DETERMINE EXTENT OF EXCAVATION NECESSARY TO ACCOMPLISH THE WORK. SOILS ARE SANDY AND LOOSE
2. ALL EXISTING SITE CONDITIONS, PAVEMENT, AND ETC. SHALL BE PROTECTED AND PRESERVED, EXCEPT AS NOTED HERE AND AS NECESSARY TO ACCOMPLISH THE WORK. ALL DAMAGED PAVING, LANDSCAPING, BUILDING ELEMENTS TO REMAIN SHALL BE PROTECTED OR REPAIRED / REPLACED.
3. UNDERGROUND UTILITY LINES SHOWN ARE APPROXIMATE AND SUBJECT TO VERIFICATION BEFORE EXCAVATION - GRATES, CLEANOUTS, AND MANHOLES HAVE BEEN SURVEYED, BUT UNDERGROUND UTILITY LINES ARE SHOWN BASED ON AS-BUILTS AND INFORMATION FROM UVU. CONTRACTOR SHALL HAVE THE SITE "BLUE-STAKED" PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL PAY FOR AND PERFORM A CAMERA SURVEY OF SANITARY SEWER AND STORM SEWER LINES PRIOR TO EXCAVATION.
5. CONTRACTOR SHALL PROVIDE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) TO MMET OREM CITY'S REQUIREMENTS FOR REVIEW AND SHALL IMPLEMENT THE SWPPP AS REVIEWED FOR ALL CONSTRUCTION ACTIVITIES.

Axis Architects
352 DENVER STREET SUITE 205, SALT LAKE CITY, UT 84111 P 355-0003 F 355-8578

LICENSED ARCHITECT
PIERRE LANGUE
5327918
STATE OF UTAH

UTAH VALLEY UNIVERSITY
NOORDA THEATRE
Orem, UT

REVISION NUMBER AND DATE:
ADD1 08/01/2008

AXIS JOB #:	0804
OWNER JOB #:	08017790
DATE:	August 01, 2008
DRAWN BY:	-
CHECKED BY:	-

DEMOLITION SITE PLAN

AD001

A1 SITE PLAN

SCALE: 1/16"=1'-0"

KEYNOTE LEGEND - SITE PLAN

- S01 NEW CONCRETE PAVEMENT. SLOPE AWAY FROM BUILDING @ 1/ 4"=1'-0" MIN. AND 1:20 MAX. TOOLED CRACK CONTROL JOINTS AS SHOWN
- S02 NEW PIPE BOLLARDS - SEE DETAIL A1 / AE605
- S03 OUTLINE OF NEW MAIN BUILDING - SEE FLOOR PLANS
- S04 NEW ASPHALT PAVEMENT - SLOPE AWAY FROM BUILDING @ 1/ 4"=1'-0" MIN. AND 1:20 MAX. PATCH AND REPAIR ASPHALT AROUND THE BUILDING WHERE DAMAGED / REMOVED
- S05 NEW CHAIN LINK FENCE TO MATCH EXISTING ADJACENT FENCE. STOP @ 4" FROM NEW BUILDING
- S06 FOUNDATION / RETAINING WALL DRAIN LINE TIE TO EXISTING STORM DRAIN LINE AS SHOWN AND AS PER DETAIL 3/P401
- S07 PERFORATED DRAIN LINE @ FOUNDATION OF RETAINING WALL W/ COMPACTED GRAVEL DRAINAGE CHIMNEY, WRAPPED IN FILTER FABRIC. SEE SECTION A4 / AE302 AND WALL SECTION A1 / AE402
- S08 EXISTING STORM DRAINAGE LINE / GRATE / CATCH BASIN TO REMAIN. SEE GEN. NOTES 3 - 5
- S09 EXISTING SANITARY SEWER LINE TO REMAIN. SEE GEN. NOTES 3 - 5
- S10 NEW ROOF DRAIN TIE-IN TO EXISTING STORM DRAIN LINE - SEE A1 / D101. PROVIDE FOR AN ADDITIONAL 30 FEET OF EXTENSION IF NECESSARY, TO BE CREDITED TO THE OWNER IF NOT USED. ASSUME 10'-0' DEPTH AND PROVIDE CREDIT TO OWNER IF LESS
- S11 NEW SANITARY SEWER TIE-IN TO EXISTING SANITARY SEWER LINE - SEE A1 / P101. PROVIDE FOR AN ADDITIONAL 30 FEET OF EXTENSION IF NECESSARY, TO BE CREDITED TO THE OWNER IF NOT USED. ASSUME 10'-0' DEPTH AND PROVIDE CREDIT TO OWNER IF LESS
- S12 EXISTING SHED TO REMAIN
- S13 EXISTING PARKING STRIPING - REPAINT
- S14 EXISTING FIRE HYDRANT TO REMAIN
- S15 NEW CURB AND GUTTER - MATCH PROFILE OF EXISTING
- S16 12" WIDE MOW STRIP
- S17 NEW GRADING AND SOD - INTEGRATE WITH EXISTING GRADING
- S18 EXISTING TREES TO REMAIN, EXCEPT WHERE NOTED OTHERWISE

GENERAL NOTES - SITE

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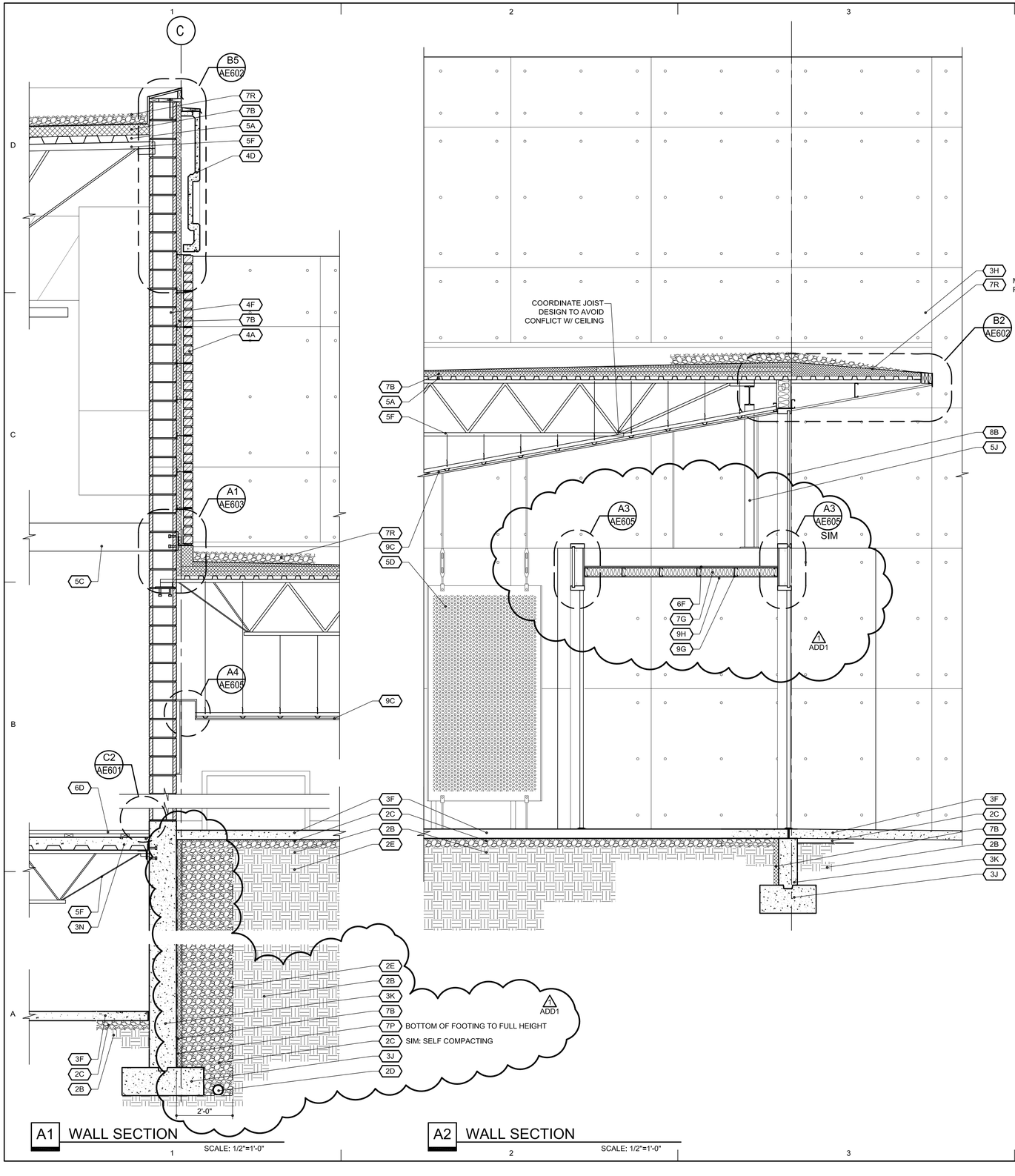
SITE PLAN

AE001



A1 WALL SECTION

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

A2 WALL SECTION

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

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BID.
2. CONTRACTOR TO VERIFY FIELD DIMENSIONS PRIOR TO CONSTRUCTION.
3. PATCH WALLS AND CEILINGS AFTER DEMOLITION AS REQUIRED FOR NEW FINISH.
4. WALLS ARE CENTERED ON 5' GRID UNLESS NOTED OTHERWISE.
5. PROTECT ALL EXISTING WORK DURING CONSTRUCTION.

KEYNOTE LEGEND - WALL SECT.

1 - DEMOLITION
- 1P EXISTING CONC. COLUMN TO REMAIN
- 1Q EXISTING CONC. BEAM TO REMAIN
- 1R EXISTING WALL TO REMAIN

2 - SITE
- 2A FINISHED GRADE
- 2B COMPACTED FILL
- 2C 4" FREE DRAINING GRAVEL
- 2D 4" PERIMETER DRAIN
- 2E GEOTECHNICAL FABRIC

3 - CONCRETE
- 3A CONCRETE COLUMN BEYOND
- 3B CONCRETE BEAM
- 3C RECESS IN CONC. BEAM - PAINTED
- 3F 4" CONCRETE SLAB
- 3H ARCHITECTURAL CONCRETE WALL
- 3J CONCRETE FOOTING
- 3K CONCRETE CONCRETE FOUNDATION WALL
- 3L THICKENED CONCRETE SLAB
- 3N COMPOSITE CONRETE DECK

4 - MASONRY
- 4A BRICK VENEER
- 4B WEEP HOLES AT 2' O.C.
- 4C BRICK TIES 16" HORIZONTALLY AND VERT.
- 4D GLASS FIBER REINFORCED CONCRETE
- 4F 12" SMOOTH-FACED CMU
- 4G 1" AIR GAP BETWEEN INSULATION AND BRICK

5 - METALS
- 5A 1 1/2" STEEL DECK
- 5B STEEL ANGLE - PAINTED
- 5C STEEL BEAM - PAINTED
- 5F STEEL JOIST - PAINTED
- 5G STEEL EMBED PLATE
- 5H STEEL ANGLE
- 5J STEEL COLUMN

6 - WOODS AND PLASTIC
- 6A 2x TREATED WOOD BLOCKING
- 6B SHAPED 2x TREATED WOOD BLOCKING
- 6C EXTERIOR SHEATHING
- 6D PLYWOOD FLOOR - SEE DETAIL
- 6E HARDWOOD 2x CAP
- 6F 3/4" FIRE TREATED PLYWOOD

7 - THERMAL AND MOISTURE PROTECTION
- 7A PRE-FINISHED METAL COPING
- 7B EXTRUDED POLYSTYRENE RIGID INSULATION
- 7C PRE-FINISHED COUNTER FLASHING AND EMBEDDED REGLET
- 7D PRE-FINISHED METAL FASCIA
- 7E PRE-FINISHED METAL SOFFIT PANEL
- 7F VAPOR BARRIER
- 7G R-19 BATT INSULATION
- 7H SINGLE PLY ROOFING MEMBRANE W/ BALLAST
- 7J PRE-FINISHED METAL FLASHING
- 7K R-30 POLY-ISOCYANURATE INSULATION
- 7L INFILTRATION BARRIER
- 7M SOUND BATT INSULATION
- 7N ISOLATION JOINT
- 7P WATERPROOF MEMBRANE
- 7R GRAVEL ROOF BALLAST

8 - DOORS AND WINDOWS:
- 8A SCHEDULED DOOR AND FRAME
- 8B SCHEDULED WINDOW SYSTEM

9 - FINISHES:
- 9A 5/8" GYPSUM BOARD PAINTED
- 9B SCHEDULED FLOOR FINISH
- 9C SCHEDULED CEILING SYSTEM
- 9D 4x4" GLAZED CERAMIC TILE WAINSCOT TO 5'-0" A.F.F., U.N.O.
- 9E 5/8" CEMENTITIOUS BACKER BOARD
- 9F 5/8" GYPSUM BOARD - EPOXY PAINTED
- 9G STEEL STUD FRAMING

12 - FURNISHINGS
- 12A CASEWORK
- 12B S.S. COUNTERTOP
- 12C THEATER GRID - SEE QT502

15 - MECHANICAL:
- 15H MECHANICAL DUCT

16 - ELECTRICAL:
- 16A LIGHT FIXTURE

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CHECKED BY:	-

WALL SECTIONS

AE402

GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BID.
2. CONTRACTOR TO VERIFY FIELD DIMENSIONS PRIOR TO CONSTRUCTION.
3. PATCH WALLS AND CEILINGS AFTER DEMOLITION AS REQUIRED FOR NEW FINISH.
4. WALLS ARE CENTERED ON 5' GRID UNLESS NOTED OTHERWISE.
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KEYNOTE LEGEND - WALL SECT.

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- 1Q EXISTING CONC. BEAM TO REMAIN
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- 5H STEEL ANGLE
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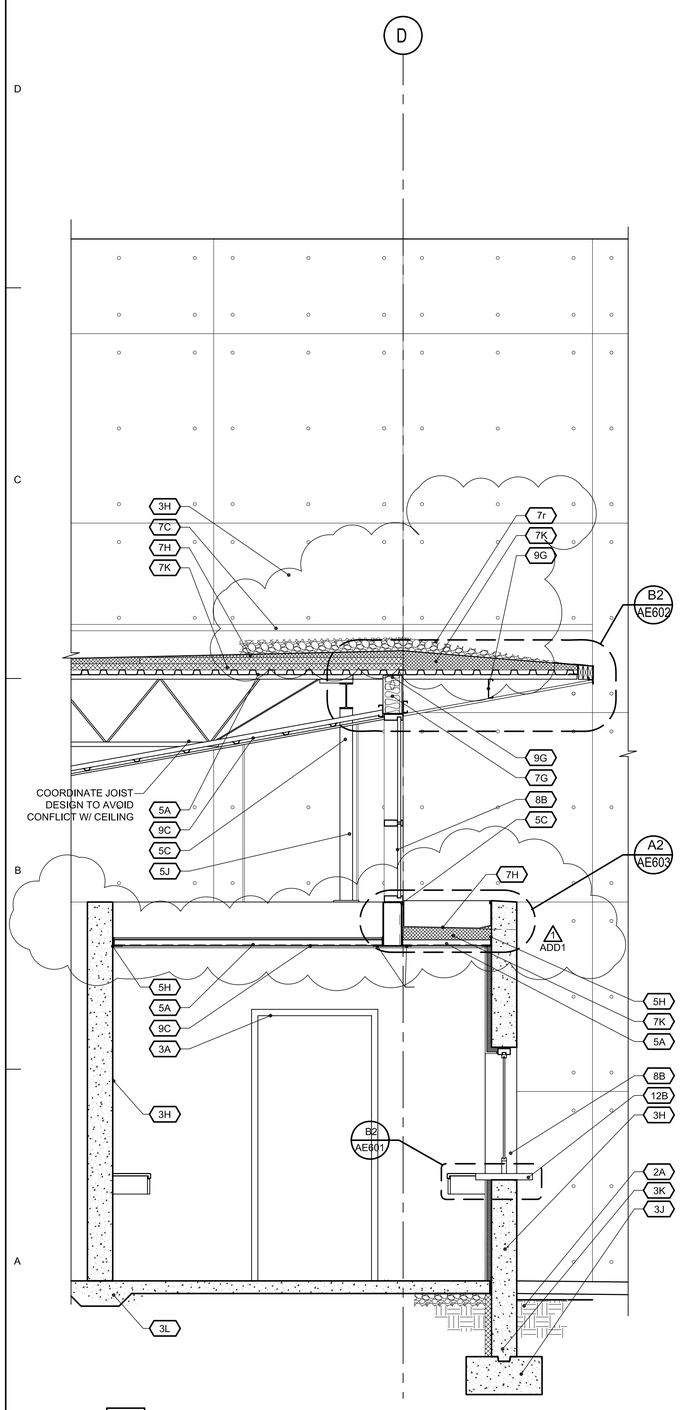
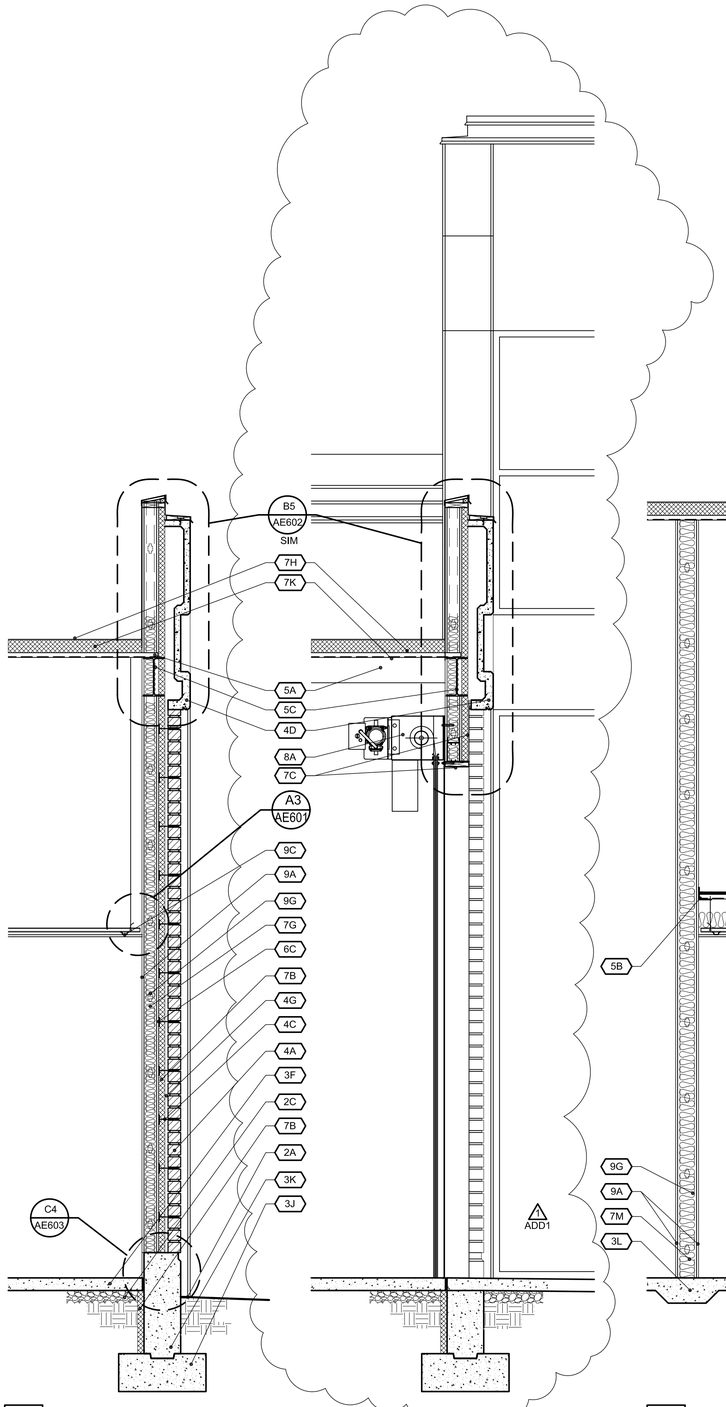


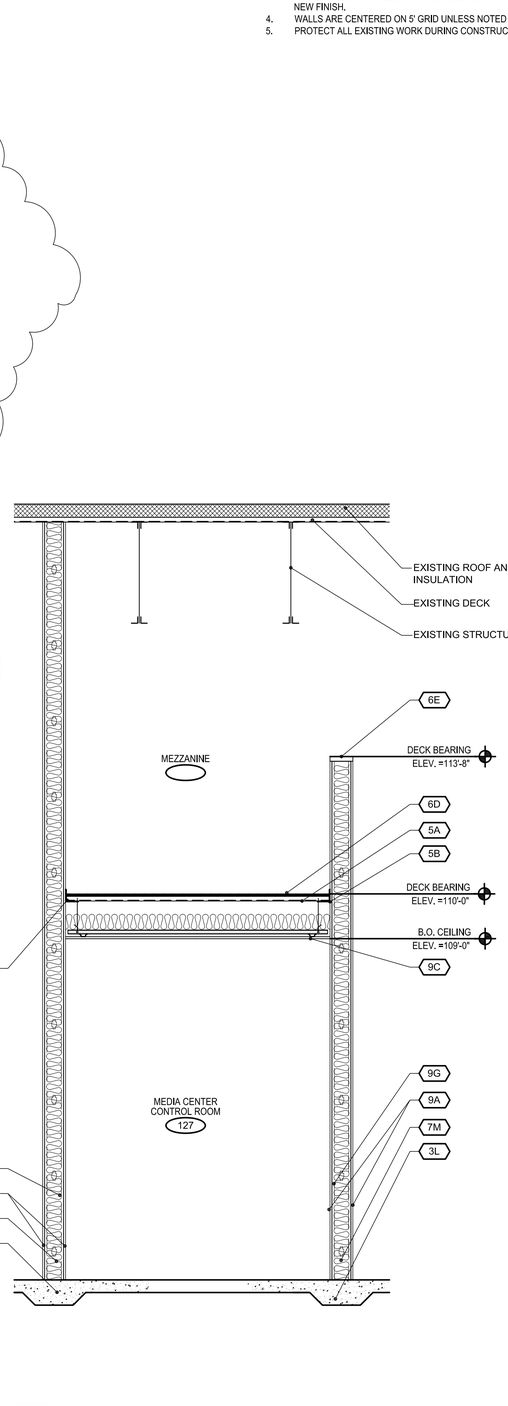
A1 WALL SECTION

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



A2 WALL SECTION

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



A3 WALL SECTION

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

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PIERRE LANGUE
5327918
STATE OF UTAH

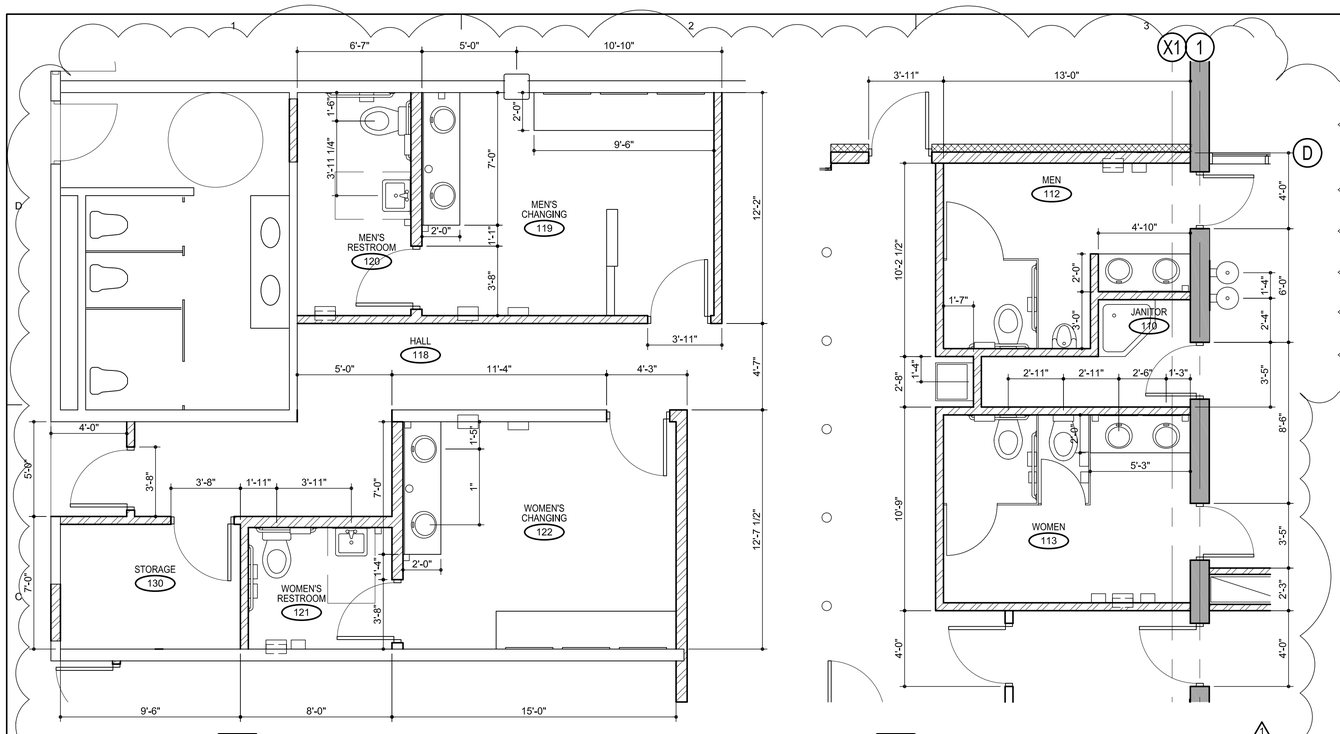
UTAH VALLEY UNIVERSITY
NOORDA THEATRE
Orem, UT

REVISION NUMBER AND DATE:	
1 ADD1	08/01/2008

AXIS JOB #:	0804
OWNER JOB #:	08017790
DATE:	August 01, 2008
DRAWN BY:	-
CHECKED BY:	-

WALL SECTIONS

AE403



C1 CHANGING ROOMS

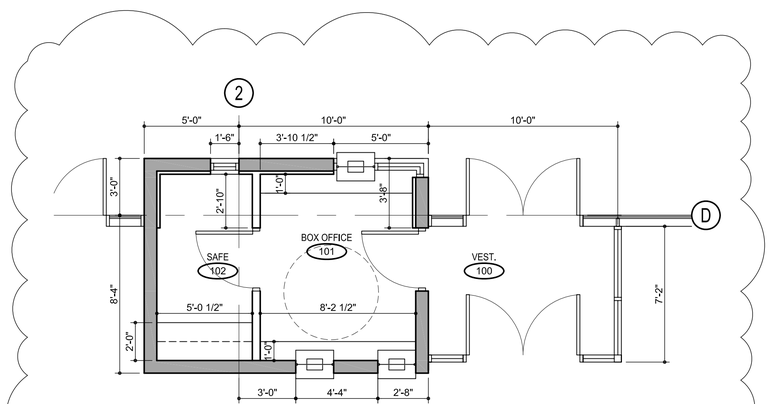
SCALE: 1/4"=1'-0"

ADD1

C3 PUBLIC RESTROOMS

SCALE: 1/4"=1'-0"

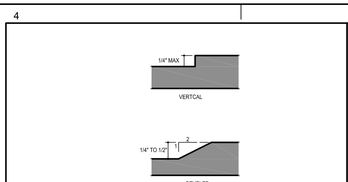
ADD1



A3 BOX OFFICE

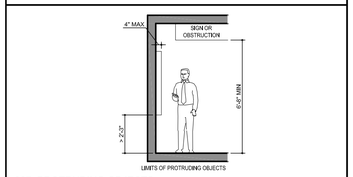
SCALE: 1/4"=1'-0"

ADD1

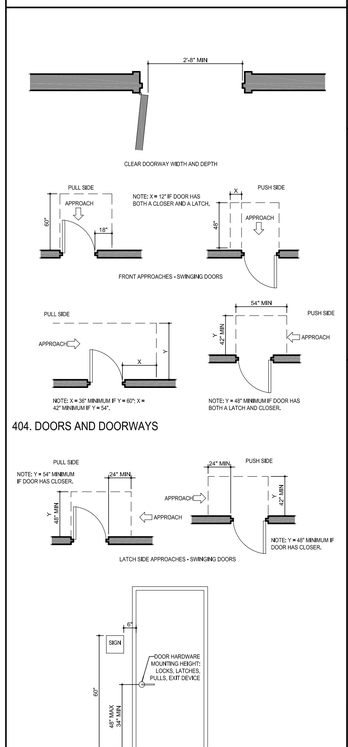


303. CHANGES IN LEVEL

306. KNEE AND TOE CLEARANCE



307. PROTRUDING OBJECTS



404. DOORS AND DOORWAYS

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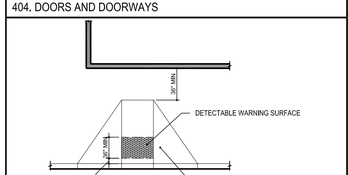
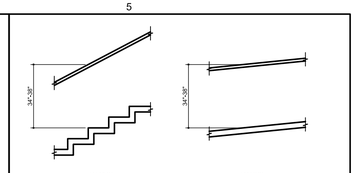
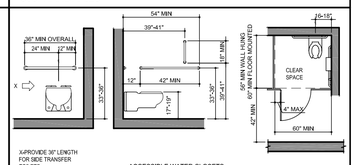


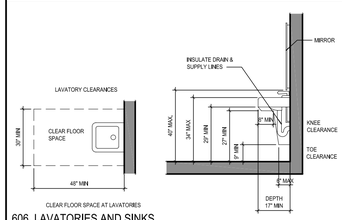
406. CURB RAMPS



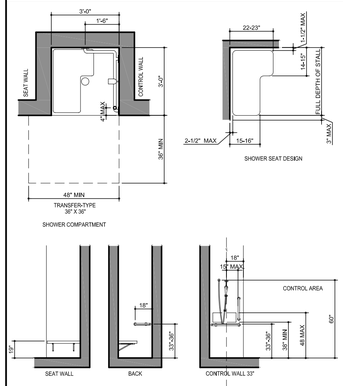
505. HANDRAILS



604. TOILETS AND TOILET COMPARTMENTS



606. LAVATORIES AND SINKS



608. SHOWER COMPARTMENTS

GENERAL NOTES

1 - THREE DIGIT NUMBERS REFER TO ANSI 117.1 CHAPTER SECTION NUMBERS.

2 - ACCESSIBLE ROUTES SHALL HAVE WALKING SURFACES WITH A RUNNING SLOPE NO STEEPER THAN 1:20, CROSS SLOPE NO STEEPER THAN 1:48. SITE WALKWAYS WITH SLOPES EXCEEDING 1:20 SHALL BE TREATED AS RAMPS WITH RUNNING SLOPES NO STEEPER THAN 1:12, PROVIDE HANDRAILS AND EDGE PROTECTION PER ANSI 117.1.

3 - CLEAR FLOOR OR GROUND SURFACES SHALL HAVE A SLOPE NO STEEPER THAN 1:48.

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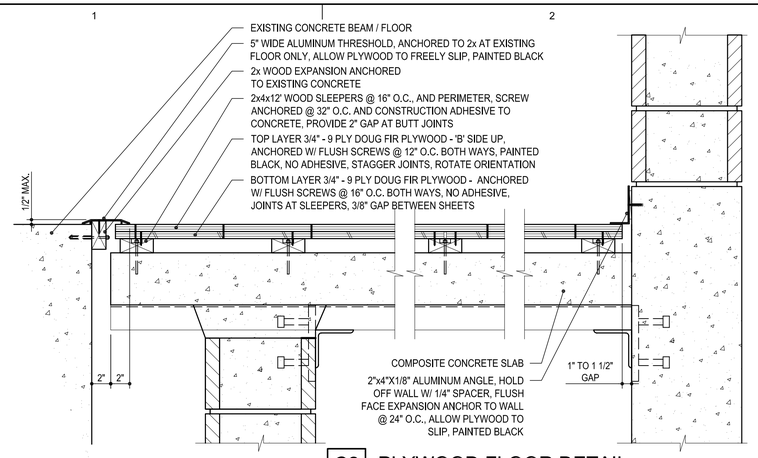
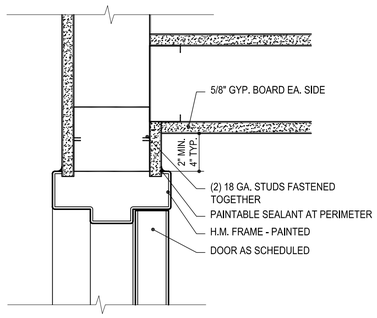
ACCESSIBILITY COMPLIANCE

A500



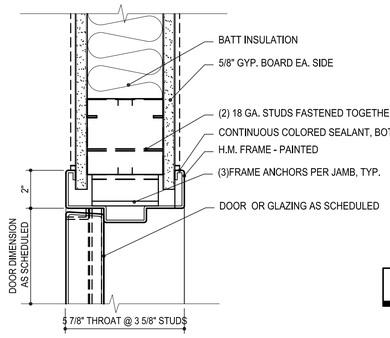
C2 PLYWOOD FLOOR DETAIL

SCALE: 3"=1'-0"



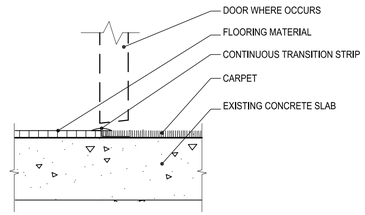
C3 DOOR DETAIL

SCALE: 3"=1'-0"



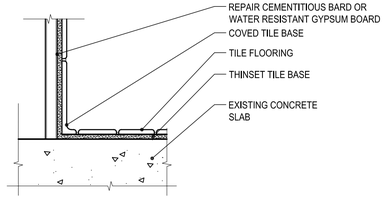
C4 DOOR DETAIL

SCALE: 3"=1'-0"



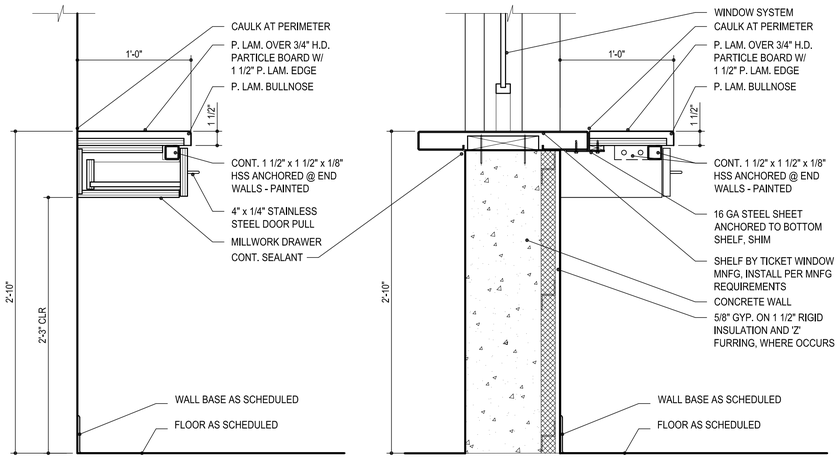
D5 TRANSITION DETAIL

SCALE: 3"=1'-0"



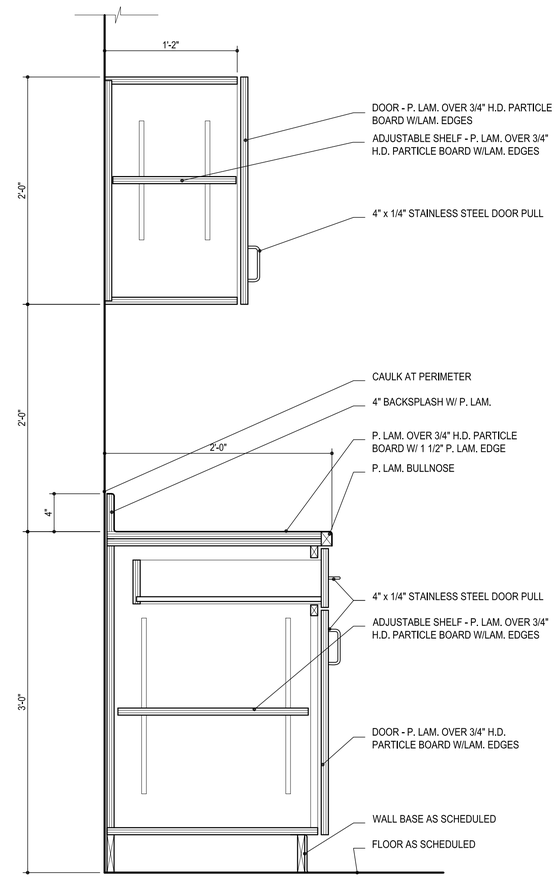
C5 TILE BASE DETAIL

SCALE: 3"=1'-0"



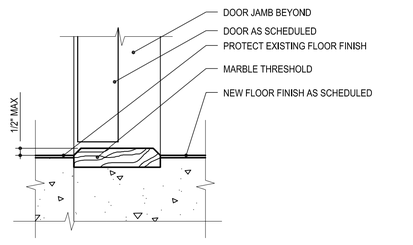
B2 MILLWORK SECTION

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



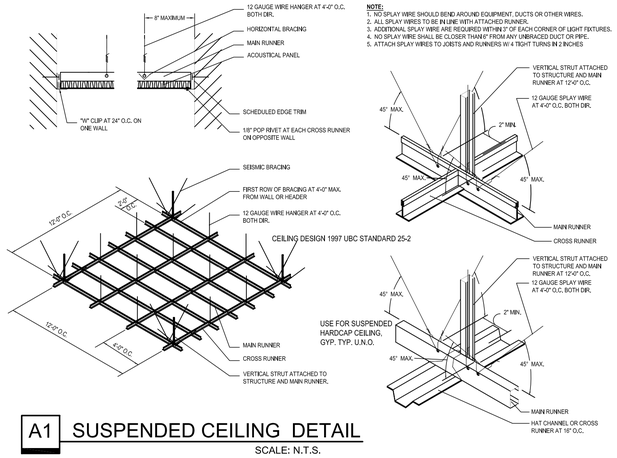
A4 MILLWORK SECTION

SCALE: 1 1/2"=1'



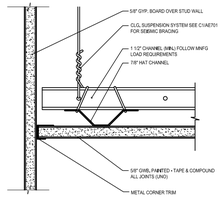
B5 THRESHOLD DETAIL

SCALE: 3"=1'-0"



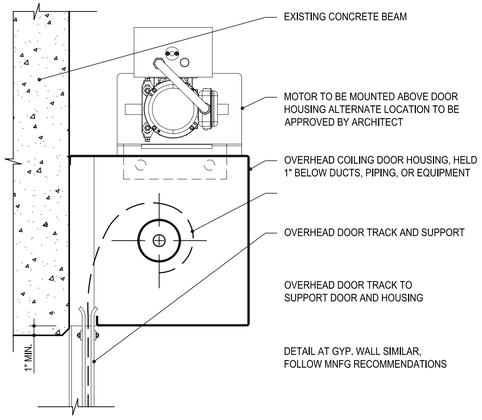
A1 SUSPENDED CEILING DETAIL

SCALE: N.T.S.



A3 GYP. BD. CEILING DETAIL

SCALE: 3"=1'



A5 OVERHEAD DOOR

SCALE: 1 1/2"=1'

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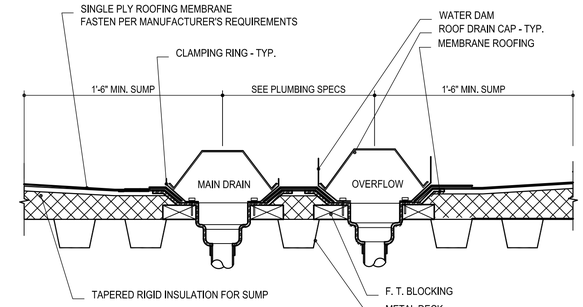
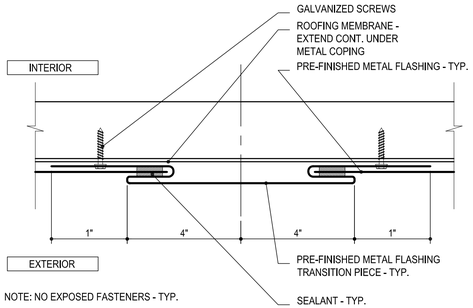
DETAILS

AE601



C1 ROOF DRAIN DETAIL

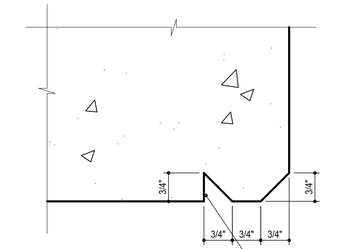
SCALE: 1 1/2"=1'-0"



NOTE: NO EXPOSED FASTENERS - TYP.

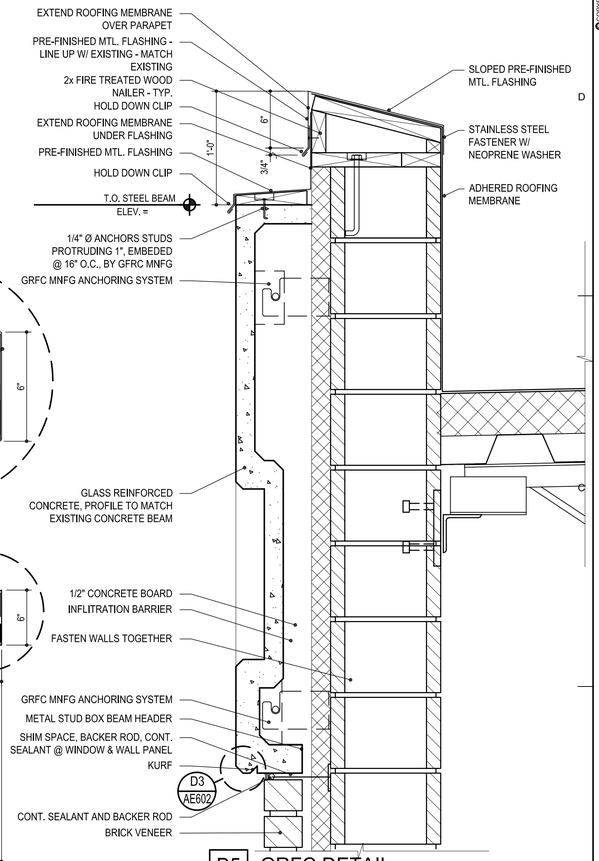
C2 VERT. JOINT DETAIL

SCALE: N.T.S.



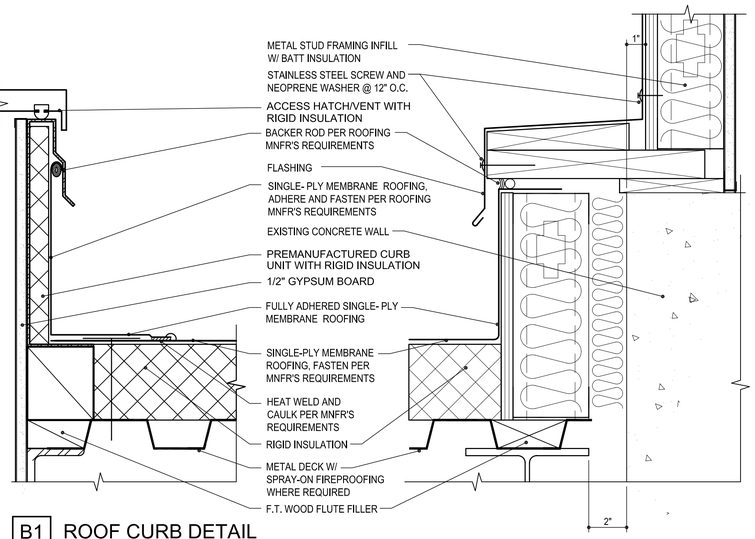
D3 DRIP DETAIL

SCALE: 6"=1'-0"



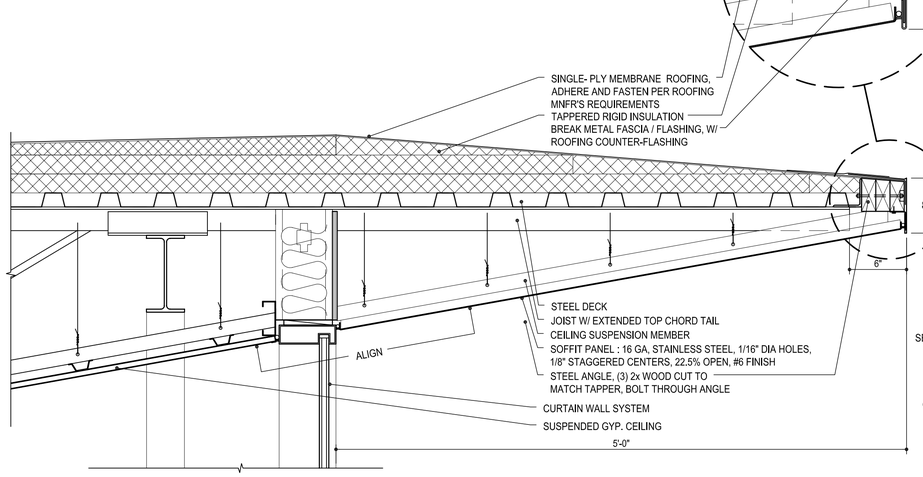
B5 GRFC DETAIL

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



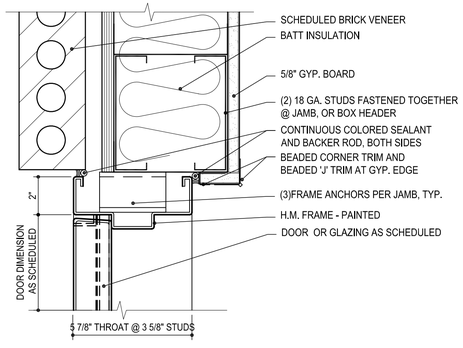
B1 ROOF CURB DETAIL

SCALE: 3"=1'-0"



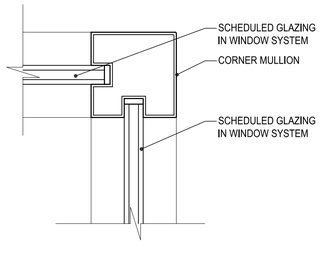
B2 ROOF EDGE DETAIL

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



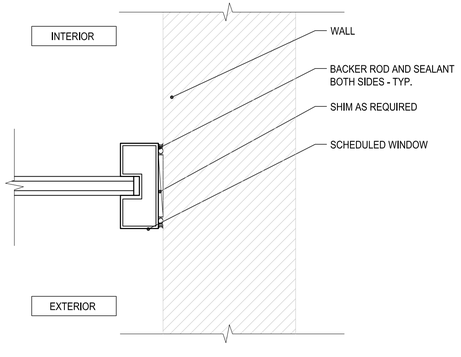
A1 JAMB / HEAD @ BRICK

SCALE: 3"=1'



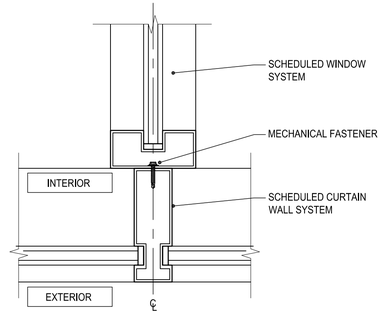
A2 VESTIBULE CORNER

SCALE: 3"=1'



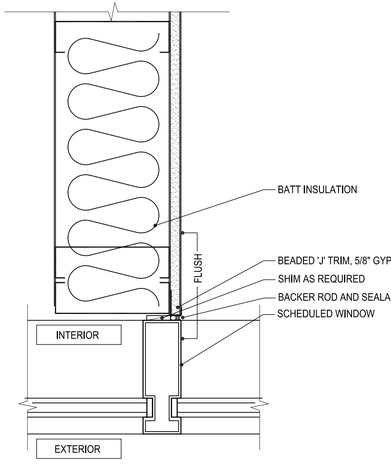
A3 JAMB @ PERP. WALL

SCALE: 3"=1'



A4 STOREFRONT TO CURTAINWALL

SCALE: 3"=1'



A5 PERP WALL BEYOND

SCALE: 3"=1'

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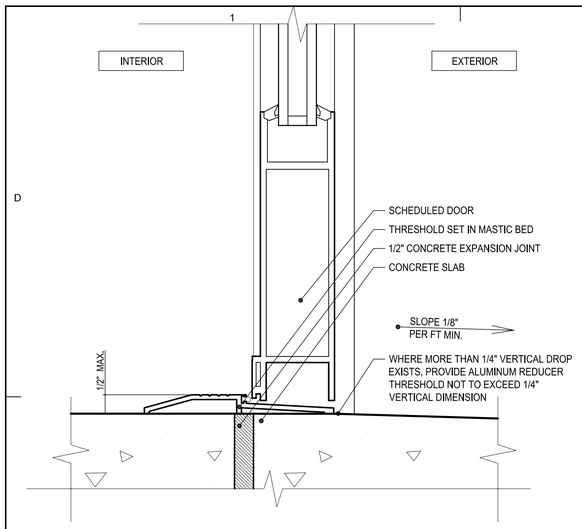
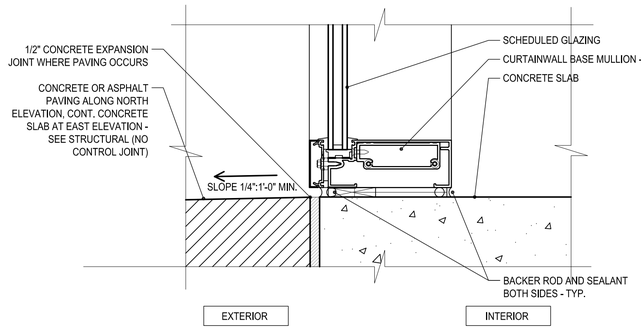
DETAILS

AE602



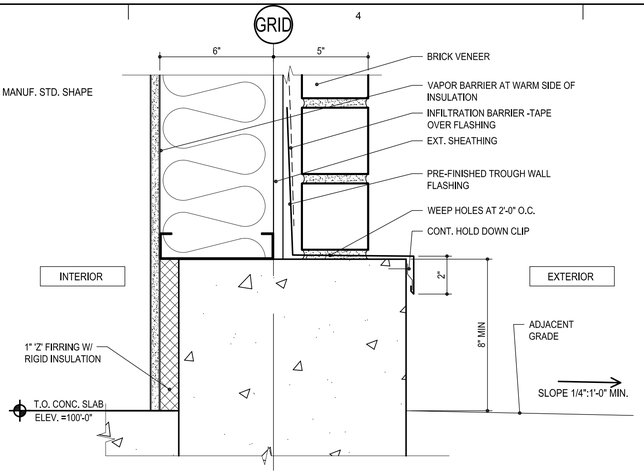
C1 THRESHOLD DETAIL

SCALE: 6"=1'-0"



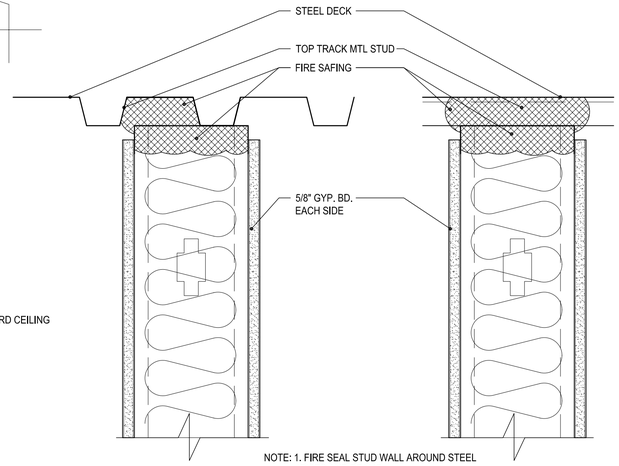
C2 WINDOW SILL DETAIL

SCALE: 3"=1'



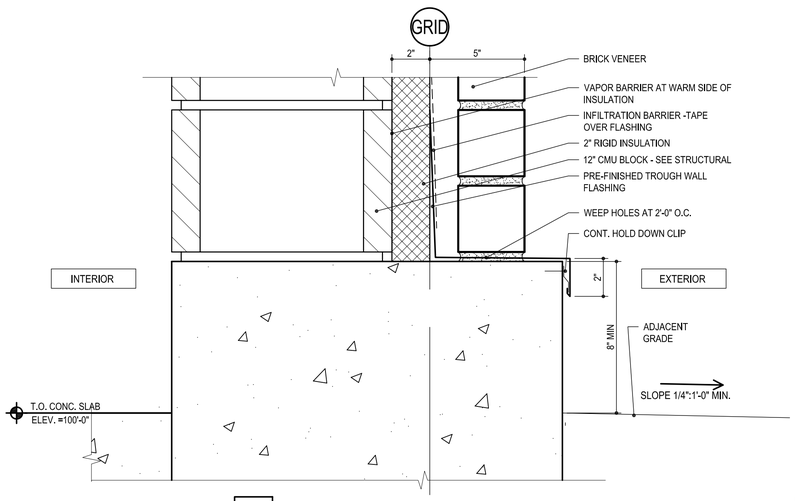
C4 WALL BASE DETAIL

SCALE: 3"=1'-0"



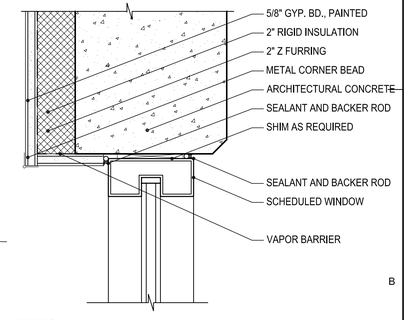
B2 STUD WALL AT DECK

SCALE: 3"=1'-0"



B4 WALL BASE DETAIL

SCALE: 3"=1'-0"

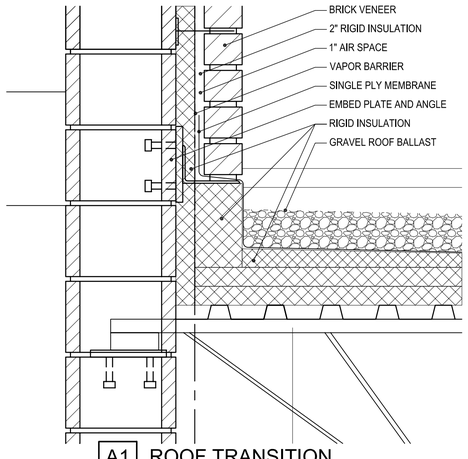


B5 WINDOW HEAD DETAIL

SCALE: 3"=1'-0"

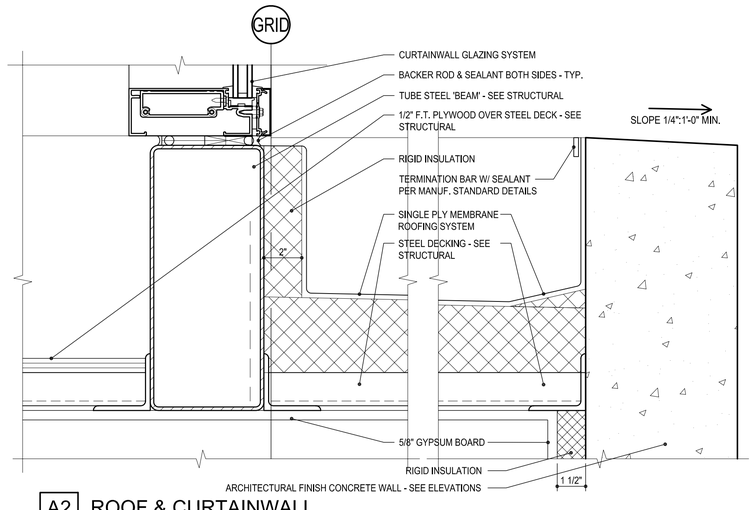
B1 CEILING DETAIL

SCALE: 3"=1'-0"



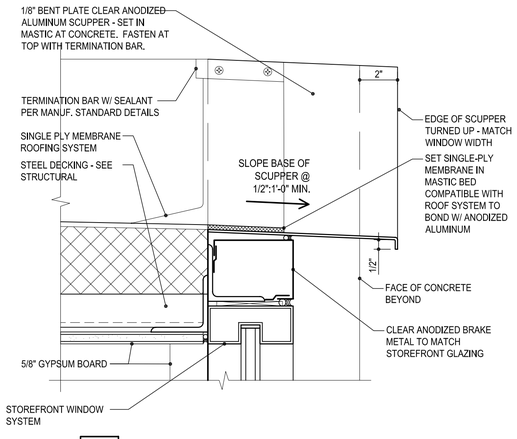
A1 ROOF TRANSITION

SCALE: 3"=1'-0"



A2 ROOF & CURTAINWALL

SCALE: 3"=1'-0"



A4 SCUPPER OVER WINDOW

SCALE: 3"=1'-0"

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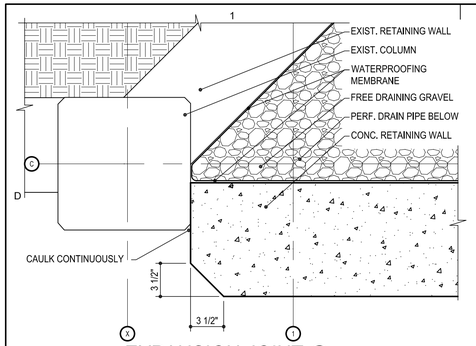
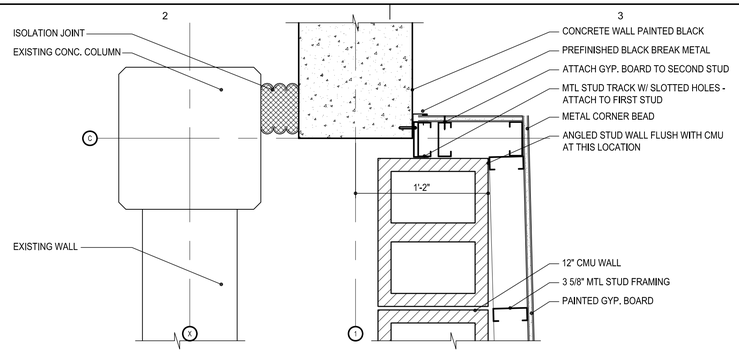
DETAILS

AE603



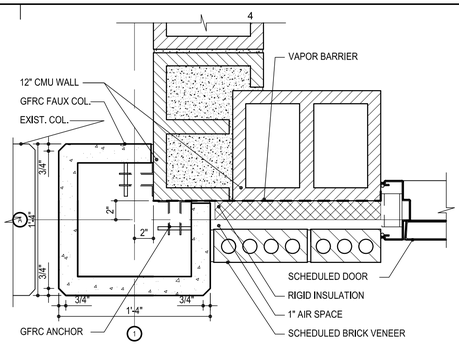
D1 EXPANSION JOINT @ RETAINING WALL

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



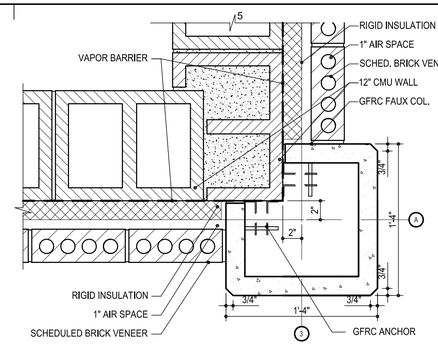
D2 INTERIOR EXPANSION JOINT

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



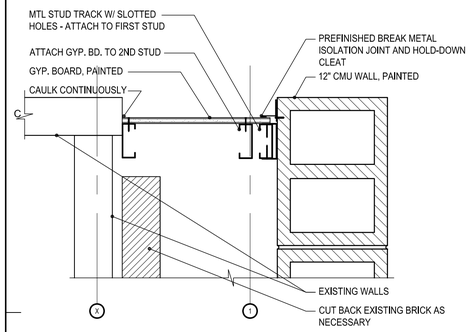
D4 CORNER OF WALL @ GFRC

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



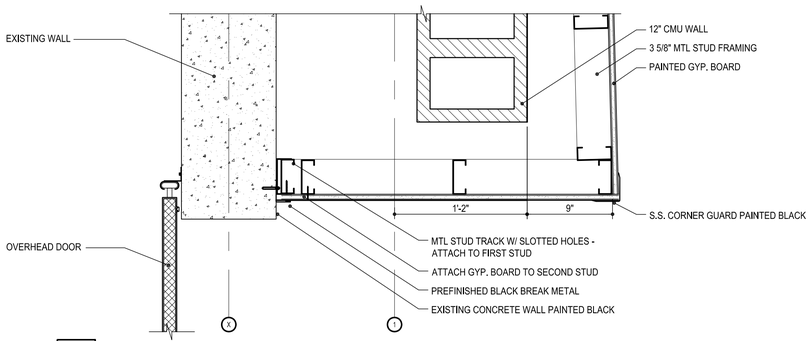
D5 COERNER OF WALL AT GFRC

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



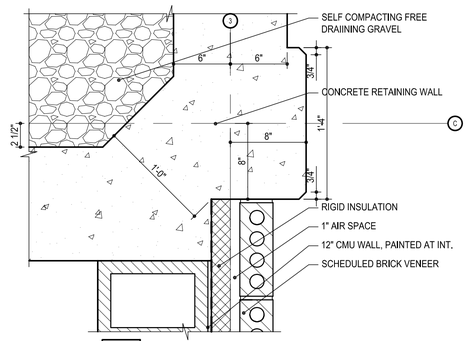
B1 INTERIOR EXPANSION JOINT

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



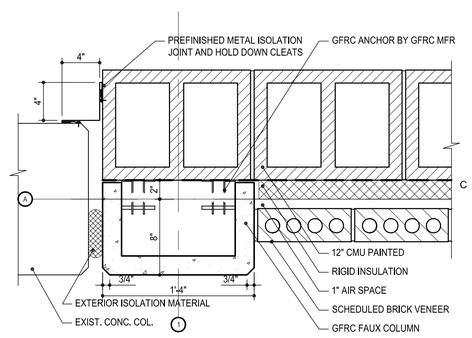
C2 INTERIOR EXPANSION JOINT

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



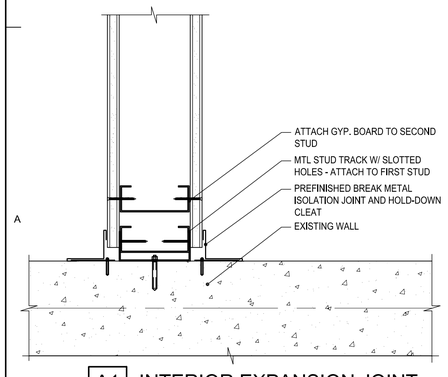
B4 WALL @ RETAINING WALLS

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



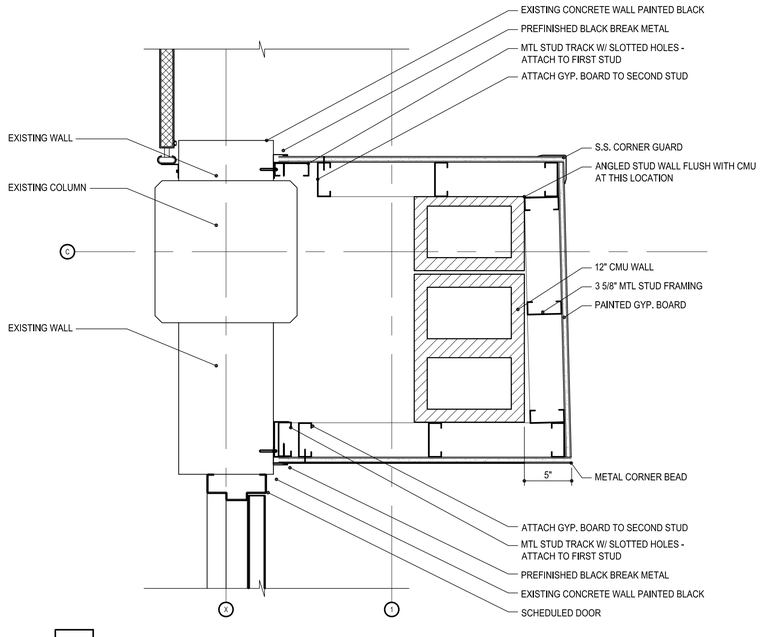
B5 EXPANSION JOINT AT COLUMN

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



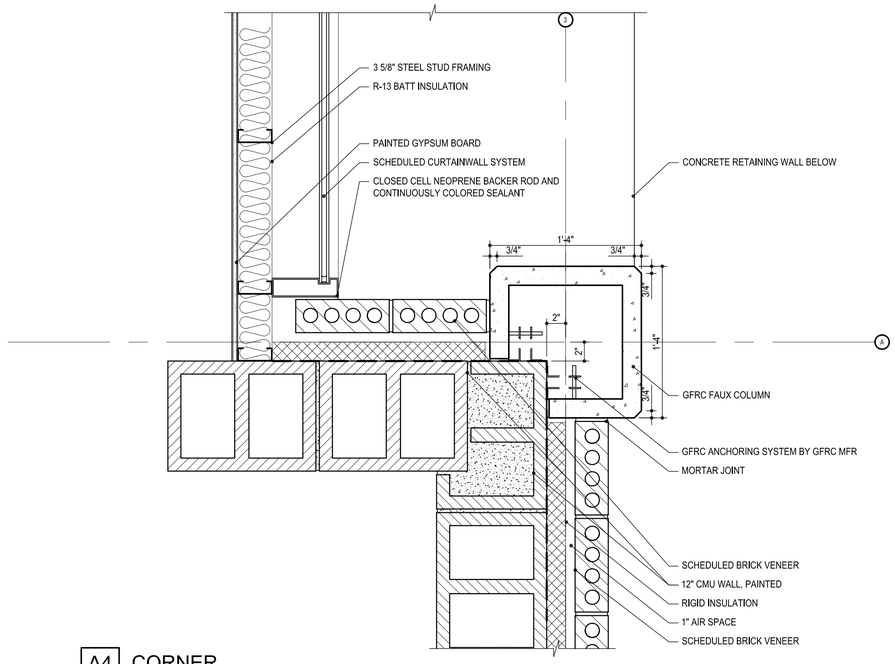
A1 INTERIOR EXPANSION JOINT

SCALE: 3"=1'-0"



A2 INTERIOR EXPANSION JOINT

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



A4 CORNER

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

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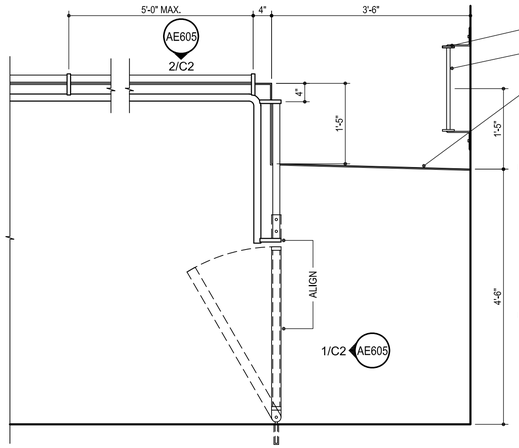
REVISION NUMBER AND DATE:
1 ADD1 08/01/2008

AXIS JOB #:	0804
OWNER JOB #:	08017790
DATE:	August 01, 2008
DRAWN BY:	-
CHECKED BY:	-

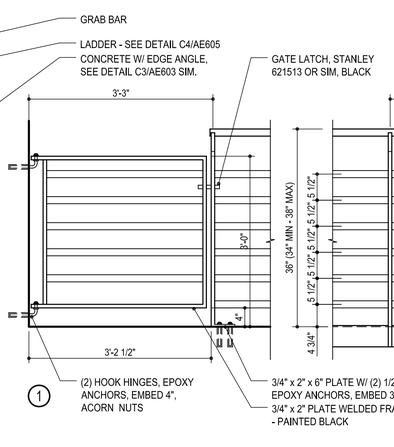
DETAILS

AE604



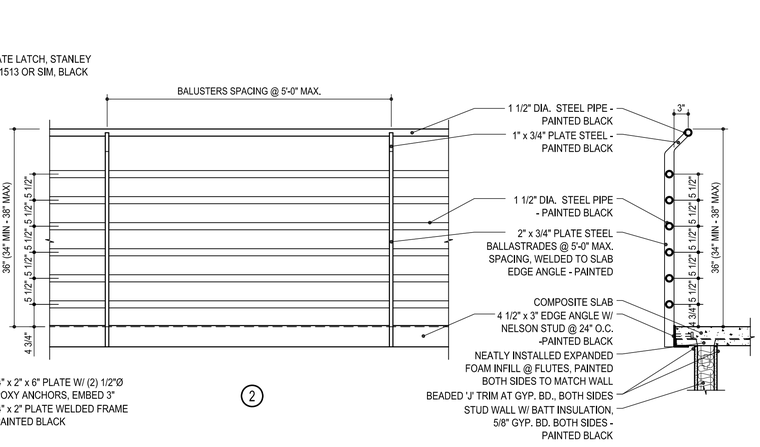
C1 GUARDRAIL PLAN

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



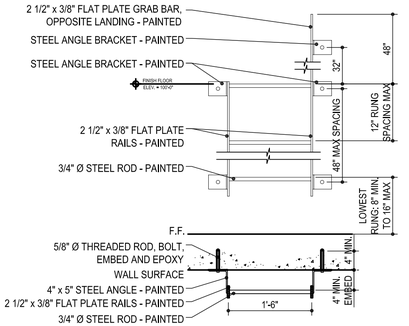
C2 GUARDRAIL ELEVATION

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



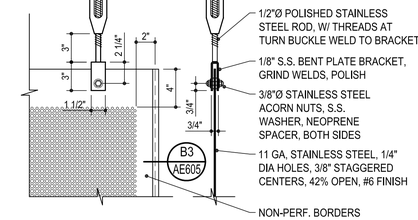
C3 GUARDRAIL DETAIL

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



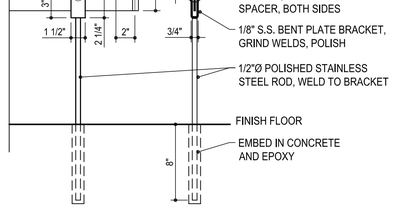
C4 LADDER DETAIL

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



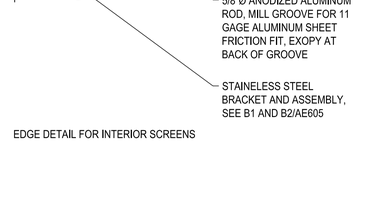
B1 SCREEN TENSION ROD

SCALE: 3"=1'-0"



B2 SCREEN TENSION ROD

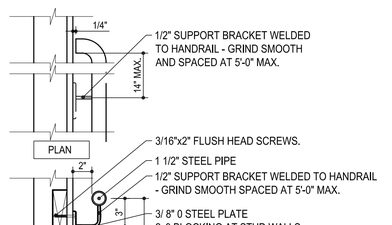
SCALE: 3"=1'-0"



EDGE DETAIL FOR INTERIOR SCREENS

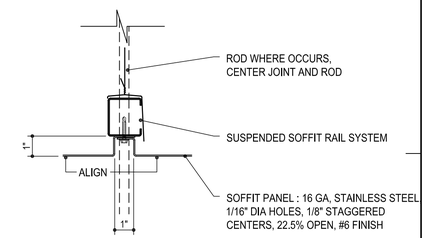
B3 SCREEN EDGE DETAIL

SCALE: 6"=1'-0"



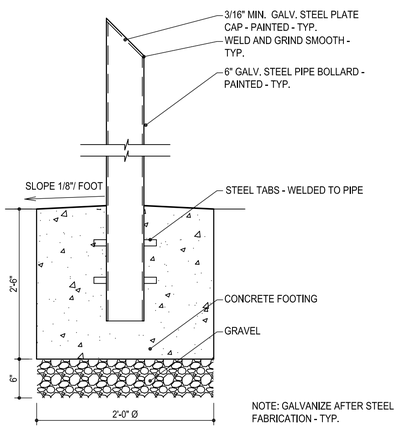
B4 HANDRAIL DETAIL

SCALE: 3"=1'-0"



B5 SOFFIT DETAIL

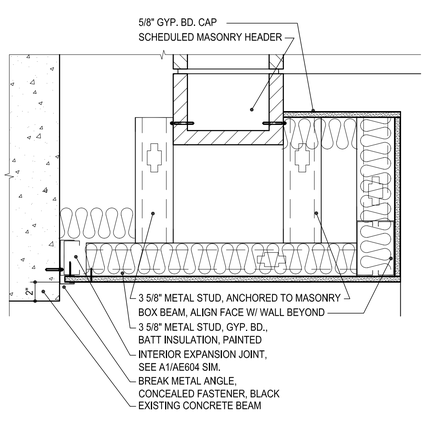
SCALE: 6"=1'-0"



NOTE: GALVANIZE AFTER STEEL FABRICATION - TYP.

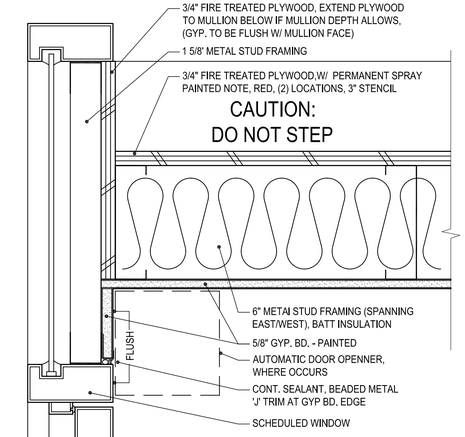
A1 PIPE BOLLARD

SCALE: 1"=1'-0"



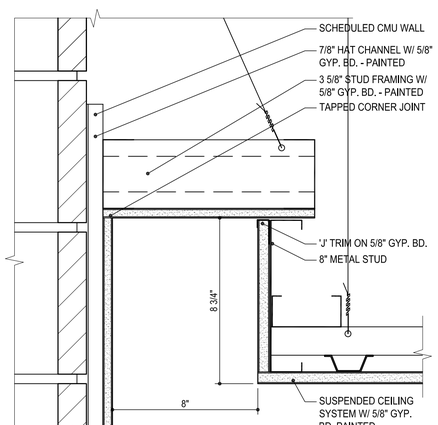
A2 EXPANSION JOINT COVER

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



A3 STOREFRONT/CEILING

SCALE: 3"=1'-0"



A4 REVEAL

SCALE: 3"=1'-0"

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DETAILS

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