Dewberry

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ADDENDUM #2

Project: Wake County Public Safety Center Domestic Water Riser and Shower Renovations

Dewberry Project #: 50146592

Date: July 31, 2025

From: Dewberry

To: All plan holders

Message: Bidders are hereby informed that the following additions, deletions, changes, and clarifications supersede and supplement the Contract Documents for the above referenced project. It forms a part of the previously issued documents dated June 9, 2025.

This addendum may include revised pages and drawings, which shall be inserted before the corresponding page or drawings in the previously issued documents.

MEETING MINUTES

1. Attached are Meeting Minutes from July 22, 2025, mandatory Pre-Bid Meeting held at the project site.

REVISIONS TO SPECIFICATIONS

1. 042000 – Unit Masonry
2. 079200 – Joint Sealant
3. 111900 – Detention Equipment
4. 017000 - Contract Closeout

REVISIONS TO DRAWINGS

1. Architectural Sheet A1100: Sixth floor demolition sheet scope area has been updated.

CLARIFICATIONS

1. Please clarify alternates:
    a. Riser diagrams do not seem to indicate a full riser replacement, only branch. Please clarify if both water and waste risers are being replaced?
        i. Response: Both waste and vent risers are to be replaced within base contract of project.
    b. Is the base bid to reflect standard piping install and replacement with an add for the Sovent Waste System?
        i. Response: Correct. Add alternate pricing shall reflect the Sovent Waste System.
    c. For the shower fixtures: Should base bid reflect generic stainless correctional fixtures with an add for the I-CON fixtures?
        i. Response: Correct. Add Alternate pricing shall reflect the I-CON fixtures.
2. For the Preferred brand of I-CON fixtures:

a. Sheet E-001 Detail 2 Connection Diagram shows the Plumbing Contractor running low voltage and Cat 5 cables. This will need to be placed in the electrical scope of work for running the conduit and cable.
    i. Response: The connection diagram is based off of the manufacturers recommendations for installation, however, the contractor may deviate as they deem necessary to complete the system installation.
b. Will the control panels be located in the new chase?
    i. Response: Yes, the UL listed controller comes in a water and vandal resistant enclosure. They can be located up to approx. 300 feet from the associated fixtures.

3. It was stated in the walk through that work would only be on one floor at a time. This will not be possible as it concerns the plumbing installation and replacing both water and sanitary risers. For example, coring new penetrations alone will require access to both above and below each level. Core drilling will be performed from a floor above through the floor below and drilled 98% complete. The remaining 2% will be removed from below and then the structural steel plate needs to be installed and filled with 4000 psi concrete around the pipe. Also, stubbing up the pipe will also require access on both floors to provide no-hub connections. Please advise the intent that this work is to be accomplished if access to only one floor is provided as this greatly effects labor and logistics.
    a. Response: The intent is that the floor below chase will be built, and access will be granted into this space for the floor above work to be completed. The new chase allows access to each floor without impact to the occupants.
4. Communication: It was stated that only one phone for the GC Superintendent would be allowed and that two-way radios would not be allowed. This will also not be possible as work will need to be done on two different levels and communication is essential between the plumbers on each level.
    a. Response: Only when they are two teams working on 2 different floors, 2nd phone device will be allowed.
5. Inspections: As understood, this project will require permitting and inspections from Wake County. If we only have a 4-hour window to have the services demolished and reconnected, how are we to get inspections during that time frame?
    a. Response: The assumption would be that the piping gets demolished and reconnected within a 4-hour time frame and brought back online for use. Once inspections are needed another shutdown can be performed.
6. How will debris removal and demolished material be handled? Will it have to all come out at the end of the day in one trip?
    a. Response: Materials will be scheduled with the PSC contact for removal and necessary movement through the site to the dumpsters during scheduled demolition days. It does not have to be completed in a single trip; however, material deliveries and debris removal will be scheduled and coordinated with the PSC team during specific hours of the day.)
7. Please provide the ceiling height on the 4th floor.
    a. Response: approx. 16’-6”
8. Please confirm that the General Contractor’s Superintendent will be the only individual allowed to have a cell phone on site.
    a. Response: that is correct.
9. Since an escort is required for construction personnel, what are the procedures for the following:
    a. Are breaks and lunch at designated times for the entire group?
        a. Response: Yes
    b. If a subcontractor employee arrives later in the morning, will an escort be available to bring them to the jobsite?
        a. Response: The intention is for the entire team to arrive in the morning and leave on end of the day as one group If anyone arrives late, there is no guarantee how long he/she may have to wait before PSC member will be available to escort them.

c. Will there always be someone available to escort personnel in and out of the building during normal work hours?
    a. Response: Yes, this communication will need to be through the GC superintendent to the PSC contact for movement throughout the site. The intent is for all deliveries, debris removal, team arrivals, and departures to be coordinated in advance. The project superintendent should always be able to reach a PSC team member for emergencies, as needed.

10. 01 70 00 Contract Closeout – Sheet 6 is overlaid on page 1 of the Project Closeout Checklist and page 7 is blank. Can you please resend?
    a. Response: Checklist has been removed from specification 01 70 00, reference specification 00 08 30 Project Checklist for required contract closeout check list.
11. 03 30 00 CIP Concrete paragraph 1.5 Quality Assurance A. – Installer Qualifications: References an installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Flatwork Technician. With the minimal amount of concrete work required on the project, can this qualification be waived?
    a. Response: Yes.
12. 04 20 00 Unit Masonry paragraph 3.2 E. is missing information. Please provide as the sentence is incomplete.
    a. Response: Updated.
13. 04 20 00 Unit Masonry paragraph 3.11 C. is missing information. Please provide as the sentence is incomplete.
    a. Response: Updated.
14. 07 92 00 Joint Sealant paragraph 1.6 A. Installer Qualifications – In speaking with a joint sealant manufacturer, training is not provided. Can this requirement be waived?
    a. Response: Requirement has been removed.
15. 07 92 00 Joint Sealant paragraph 1.7 A. (1-7) – Please advise whether the Preconstruction Laboratory Testing from the joint-sealant manufacturer can be waived as the lead time on testing is approximately 7 weeks after providing material samples.
    a. Response: No, should be a test they already have on file.
16. 11 19 00 Detention Equipment paragraph A.3. – Coordination of DESC with all electrical security equipment specified in Division 28 is referenced, however, Division 28 was not included in the Specs. Please provide.
    a. Response: the scope is to move/protect as needed to do the elec room floor and column work. Otherwise, there is no new work associated with these systems out on the floors.
17. 11 19 00 Detention Equipment paragraph 1.3 C. 2. & 3. – Both reference paragraph 1.3. D. for exceptions of items, however, no paragraph 1.3. D. was provided. Please provide.
    a. Response: References have been deleted.
18. 11 19 00 Detention Equipment paragraph 1.6 D. Keys – Please confirm that keys shall be shipped to the Catawba County Sherrif's Office.
    a. Response: Revised to ship keys to Wake County Sherrif's Office.
19. 11 19 00 Detention Equipment paragraph 1.7 B. Delineation of Door Control Interface Responsibilities – Division 28 is referenced but not provided with Specs. Please provide.
    a. Response: the scope is to move/protect as needed to do the elec room floor and column work. Otherwise, there is no new work associated with these systems out on the floors.
20. 11 19 00 Detention Equipment paragraph 1.8 C. 2. Electronic Security System and Hardware - Division 28 is referenced but not provided with Specs. Please provide.
    a. Response: the scope is to move/protect as needed to do the elec room floor and column work. Otherwise, there is no new work associated with these systems out on the floors.
21. 11 19 00 Detention Equipment paragraph 2.6 B. 2. Security Caulking & Sealants – References sheet metal work per Division 07. Division 07 includes 07 92 00 Joint Sealant spec only. Please provide applicable specification.
    a. Response: Disregard reference to sheet metal in 2.6 security caulking and sealants, B.2.

22. Sheet A1000 General Notes #11 - Can the mockups of the ADA shower and non-ADA shower become part of the completed work?
    a. Response: Yes, the intention is for the mockups to be part of the completed work and performed at phase 1.
23. Sheet A1000 Detail 106 Sixth Floor – Demo - Please advise whether the demolition area should be extended to show the work at column 9 per Sheet A1100.
    a. Response: Sixth floor demolition sheet scope area has been updated.
24. pec 092900 Gypsum Board calls for ½ sheetrock, 5/8" sheetrock and 5/8" abuse-resistant sheetrock for the Security Gypsum Board Ceiling Assembly (SGB). In the spec nothing is mentioned about moisture-resistant sheetrock. Since these gypsum board ceilings are in showers, should we figure moisture-resistant sheetrock for the ½, 5/8" and 5/8" abuse-resistant?
    a. Response: Yes
25. Spec 092900 Gypsum Board calls for a Level 4 Finish at panel surfaces that will be exposed to view unless otherwise indicated? The drawings indicate that the Security Gypsum Board Ceiling Assembly with receive High Performance Coating (by others). Should we figure Level 5 Finish or will Level 4 Finish be okay?
    a. Response: Level 4 Finish will be ok.
26. Per details on the Architectural Drawings, there is no insulation within the Security Gypsum Board Ceiling Assembly?
    a. Response: No Insulation Required.
27. An allowance of $50,000 is to be included for any additional scope outside the contract scope. Will a portion of this allowance be used for low voltage wiring and provisions for security systems per Division 28?
    a. Response: low voltage wiring and provisions for security systems scope is to move/protect as needed to do the elec room floor and column work. Otherwise, there is no new work associated with these systems out on the floors. The allowance was intended for unforeseen work outside contract scope.

END OF ADDENDUM #2

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MANDATORY PRE-BID MEETING AGENDA

Project: Wake County Public Safety Center Domestic Water Riser and Shower Renovations
Raleigh, North Carolina

Dewberry Project Number: 50146592

RFB# 25-066

Date: July 22, 2025

Time: 2:00-3:00 PM

Location: Project Site 330 Salisbury St, Raleigh, NC

Purpose: Mandatory Pre-Bid Meeting

Prepared By: Logan Hodges

In Attendance – See attached.

Summary of Discussion

1. Introductions:
2. Description of Project: Renovation of the existing showers on floors 5-9 at the Public Safety Center. The reconfiguration and renovations of showers with the removal and replacement of the domestic water piping riser. The project will be performed on the north side from the 4th floor up. Only one floor/two-pods will be available at a time for construction due to occupancy constraints.

   Addendum #1: Consisted of the Pre-Bid and Bid date updates.

   Project Phasing: Anticipated to be in 10 phases, 3 months per phase.

   - Phase 1: North side 4th-5th floor
   - Phase 2: North side 6th floor
   - Phase 3: North side 7th floor
   - Phase 4: North side 8th floor
   - Phase 5: North side 9th floor
   - Phase 6: South side 5th floor
   - Phase 7: South side 6th floor
   - Phase 8: South side 7th floor
   - Phase 9: South side 8th floor
   - Phase 10: South side 9th floor
3. Proposals to be bid:
   a. General Construction Work
   b. Heating and Ventilation and Air Condition Work
   c. Plumbing Work

d. Electrical Work

4. Wake County Design and Construction Guidelines: All work will be in strict compliance with Wake County Design and Construction Guidelines. Dewberry notes that the Guidelines are available on the Wake County FD&C website and recommend all contractors be familiar with the requirements.
    a. Wake County General Conditions**:** Contractors must review the Wake County General Conditions, which contain language that may differ from other municipalities and state construction contracts.
5. Permitting: Contractor is responsible for all permitting. Project is permitted through Wake County and required to meet DHSR requirements.
6. Bid Forms and Bonds: Bidders must use the bid proposal form and bid bond provided in the bid documents. Use of any other form will result in disqualification.
7. Liquidated Damages: Applicable liquidated damages provisions. Paragraph 13.18:
    a. “If the contractor fails to achieve substantial completion of work within the contract time..”.
        i. Three Hundred Dollars ($300) per consecutive calendar day
    b. “If the contractor fails to achieve Final Completion of the Work within thirty (30) consecutive calendar days of the actual date of substantial completion got the work..”
        i. Two Hundred Dollars ($200) per consecutive calendar days
8. Alternates and Allowances:
    a. Alt No.1 (Add) Preferred brand of plumbing fixture: ICON
    b. Alt No.2 (Add) Preferred Brand of Waste System Fittings: SOVENT
    c. Alt No.3 (Add) The removal and replacement of the south side mezzanine block chase to access for the removal and replacement of fixtures, water piping, waste and vent piping as identified on the plumbing and architectural drawings.
    d. Allowance: $50,000 for the execution of any additional work outside the contract scope.
9. Work Hours: Work will only be permitted during normal business hours.
10. Security Requirements**:** All personnel working on the project will be required to pass a background check conducted by the Wake County Sheriff's Office. Approved team members will be issued badges.
    a. Moving around the building will require escorting.
    b. Tool Policy: Contractor must have a job box in the work area to control and lockup tools. Tools will be inventoried when delivered to the site and inventoried when the tools are removed from the site. Contractor will not be allowed to bring tools in and out daily.
    c. No cell phones will be allowed in the facility except for the superintendent.
    d. Reference Summary of Work 01 01 00 for additional requirements.
11. Parking: No parking will be provided on site.
12. Deliveries and Waste Removal: All material deliveries and trash removal activities must be coordinated in advance with the Sheriff's Office.
    a. Dumpster location: The loading dock next to B2.
13. Lay-Down Area: A designated lay-down area will be assigned during the pre-construction meeting.

14. Equipment Disposal: The contractor is responsible for the removal and proper disposal of all equipment being replaced.
15. Riser Continuity: All risers must remain operational at all times. Any required shutdowns must be scheduled in advance and will be limited to a maximum of 4 hours per occurrence.
16. Questions: All questions shall be submitted to:

    Logan Hodges
    Dewberry Engineers Inc.
    2610 Wycliff Road, Suite 410
    Raleigh, NC 27607
    (252) 916-7554 - phone
    lhodges@dewberry.com

    Questions will be accepted until 5:00 pm Tuesday July 29, 2025. Final Addendum will be issued Thursday July 31, 2025.

17. Anticipated Schedule:

Pre-Bid Meeting	July 22, 2025 2:00PM
Receive Bids	August 6, 2025 2:00PM
Construction Agreements	October 1, 2025
Construction Start (NTP)	October 15, 2025
Construction:	30 Months (822 Consecutive calendar days)

18. Opening of Bids:
    a. Bid Opening is scheduled for **Wednesday August 6, 2025, at 2:00 PM.**
    b. Location: Wake County Justice Center
       Purchasing Department, Suite 2900
       301 McDowell Street
       Raleigh, NC 27601

    Note: If you do not plan to Bid, please notify Logan Hodges at (252) 916-7554 or email lhodges@dewberry.com. Please be aware that the Wake County Justice Center is a secure facility, and you will be required to pass thru security checks. Please allow sufficient time for this process.

19. Questions: The following questions were addressed in the meeting:
    a. Plumbing contractor must be trained in Sovent installation. Sovent can provide training to contractor.
    b. Clarifying #10 security requirements C. No cell phones will be allowed in the facility except for the **GC superintendent.**
20. Walk Site:

We believe the foregoing record to be an accurate summary of the meeting and related decisions. We would appreciate notification of exceptions or corrections to these Minutes within three (3) days of receipt. Without notification, we will consider these minutes to be a record of fact.

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SIGN IN SHEET

Project: Wake County PSC Domestic Water

Dewberry Project No: 50146592

Date: July 22, 2025

Time: 2:00PM

Purpose: Pre-Bid Meeting

Location: Room

Wake County Public Safety Center
330 S Salisbury St, Raleigh, NC 27601

In Attendance

Name	✓	Organization	Phone	Email
Lori Higgins		Progressive Contracting	910-4763540	lhiggins@progressivecci.com
Kyle Trebing		Progressive Contracting	7H4L 8520	Ktrebing@progressivecci.com
RANDY JULIANI		EARNHARDT PLUMBING	919-830-3434	RRJULES@GMAIL.co
Daniel Spence		Wake GSA	919-38-8695	Daniel.Spence@wake.G
maged Sedarous		Wake FDC	919-616-0041	maged.Sedarous@wake.
John Wood		Dewberry	919-215-2010	jwood@dewberry.com
Taylor Henderson		McClure Builders	843 694 1795	taylor@mcclurebuilders.com
Logan McClure		McClure Builders	9193699275	logan@mcclurebuilders.com
Bethany Long		Harrod + Assoc	9198287782	estimating@harrod
ANDY COLE		O'BRIEN ATKINS	9198151681	ACOLE@andassoc.com OBRIENATKINS.com
Mildred G. Drayton		WCSO	9849207744	Mildred.Drayton@wake.g
Germaine Byrd		WCSO - Detention	919 291-2034	Germaine.Byrd@wakegov
Christen Parent		WCSO - Detention	919-757-4859	Christen.Parent@wake.gov
J.R. Hopson		STRATEGIC PLUMBING SOLUTIONS	910.494.5678	JHopson@StrategicPlumbingInc.c

SECTION 042000 - UNIT MASONRY

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. Concrete masonry units.
2. Concrete building brick.
3. Mortar and grout.
4. Steel reinforcing bars.
5. Masonry-joint reinforcement.
6. Ties and anchors.
7. Miscellaneous masonry accessories.

B. Products Installed but not Furnished under This Section:

1. Steel lintels in unit masonry.
2. Steel shelf angles for supporting unit masonry.

1.3 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.6 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of the following:

1. Masonry units.

a. Include data on material properties.

2. Integral water repellant used in CMUs.
3. Cementitious materials. Include name of manufacturer, brand name, and type.
4. Mortar admixtures.
5. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
6. Grout mixes. Include description of type and proportions of ingredients.
7. Reinforcing bars.
8. Joint reinforcement.
9. Anchors, ties, and metal accessories.

B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

C. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.

C. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.9 FIELD CONDITIONS

A. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.

B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect sills, ledges, and projections from mortar droppings.
2. Protect surfaces of door frames, as well as similar products with painted and integral finishes, from mortar droppings.

C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work and will be within 20 feet vertically and horizontally of a walking surface.

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.

1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.3 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide bullnose units for outside corners unless otherwise indicated.

B. CMUs: ASTM C 90.

1. Density Classification: Normal weight.
2. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.

C. Concrete Building Brick: ASTM C 55.

1. Density Classification: Normal weight.
2. Size (Actual Dimensions): 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.

2.4 MASONRY LINTELS

A. General: Provide one of the following:

B. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.5 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.

2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

E. Aggregate for Grout: ASTM C 404.

F. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

G. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.

H. Water: Potable.

2.6 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.

B. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.

1. Interior Walls: Mill- galvanized carbon steel.
2. Wire Size for Side Rods: 0.187-inch diameter.
3. Wire Size for Cross Rods: 0.187-inch diameter.
4. Wire Size for Veneer Ties: 0.187-inch diameter.
5. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
6. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

C. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder type with single pair of side rods.

2.7 TIES AND ANCHORS

A. General: Ties and anchors shall extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Mill-Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 641/A 641M, Class 1 coating.
2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 153/A 153M, Class B-2 coating.
3. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304.
4. Galvanized-Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 zinc coating.
5. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.
6. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304.
7. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.8 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

2.9 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.10 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use portland cement-lime mortar unless otherwise indicated.
3. For exterior masonry, use portland cement-lime mortar.
4. For reinforced masonry, use portland cement-lime mortar.
5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
1. For reinforced masonry, use Type S.
2. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type N.
3. For interior nonload-bearing partitions, Type O may be used instead of Type N.

D. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.

2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.
4. Verify that substrates are free of substances that impair mortar bond.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

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

3.2 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet or 1/2-inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets.

Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4 inches. Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

I. Build nonload-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.

1. Install compressible filler in joint between top of partition and underside of structure above.
2. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078443 "Joint Firestopping."

3.5 MORTAR BEDDING AND JOINTING

A. Lay CMUs as follows:

1. Bed face shells in mortar and make head joints of depth equal to bed joints.
2. Bed webs in mortar in all courses of piers, columns, and pilasters.
3. Bed webs in mortar in grouted masonry, including starting course on footings.
4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

D. Cut joints flush for masonry walls to receive High Performance Coating or other direct-applied finishes (other than paint) unless otherwise indicated.

3.6 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:

1. Provide an open space not less than 1/2 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.8 CONTROL AND EXPANSION JOINTS

A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

B. Form control joints in concrete masonry as follows:

1. Install preformed control-joint gaskets designed to fit standard sash block.

C. Provide horizontal, pressure-relieving joints by either leaving an airspace or inserting a compressible filler of width required for installing sealant and backer rod specified in Section 079200 "Joint Sealants," but not less than 3/8 inch.

1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

3.9 LINTELS

A. Install steel lintels where indicated.

B. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.

C. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

3.10 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 60 inches.

3.11 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.
7. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

3.12 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 079200 - JOINT SEALANTS

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. Silicone joint sealants.
2. Mildew-resistant joint sealants.

B. Related Requirements:

1. Section 321373 "Concrete Paving Joint Sealants" for sealing joints in paved roads, parking lots, walkways, and curbing.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency.

C. Preconstruction Laboratory Test Schedule: Include the following information for each joint sealant and substrate material to be tested:

1. Joint-sealant location and designation.
2. Manufacturer and product name.
3. Type of substrate material.
4. Proposed test.
5. Number of samples required.

D. Preconstruction Laboratory Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation are needed for adhesion.

E. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

B. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with glazing and gasket materials.
3. Stain Testing: Use ASTM C 1248 to determine stain potential of sealant when in contact with masonry substrates.

4. Submit manufacturer's recommended number of pieces of each type of material, including joint substrates, joint-sealant backings, and miscellaneous materials.
5. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
6. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures, including use of specially formulated primers.
7. Testing will not be required if joint-sealant manufacturers submit data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, staining of, and compatibility with joint substrates and other materials matching those submitted.

1.8 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.9 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following:

1. Sealants and sealant primers for nonporous substrates shall have a VOC content of 250 g/L or less.

C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

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

a. Dow Corning Corporation; Dow Corning® 791 Silicone Weatherproofing Sealant.
b. GE Construction Sealants; Momentive Performance Materials Inc; SCS2000 SilPruf.
c. Pecora Corporation; PCS.
d. Sika Corporation; Joint Sealants; Sikasil WS-295.

2.3 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

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

a. Dow Corning Corporation; Dow Corning® 791 Silicone Weatherproofing Sealant.
b. GE Construction Sealants; Momentive Performance Materials Inc; SCS2000 SilPruf.
c. Pecora Corporation; PCS.
d. Sika Corporation; Joint Sealants; Sikasil WS-295.

2.4 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

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

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

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

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and

approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.
    b. Masonry.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.
    b. Glass.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.4 FIELD QUALITY CONTROL

A. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Construction joints in cast-in-place concrete.
b. Control and expansion joints in unit masonry.
c. Joints between metal panels.
d. Joints between different materials listed above.
e. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
f. Control and expansion joints in overhead surfaces.
g. Other joints as indicated on Drawings.

2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Vertical joints on exposed surfaces of unit masonry.
c. Joints on underside of plant-precast structural concrete beams and planks.
d. Other joints as indicated on Drawings.

2. Joint Sealant: Security Sealant.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Other joints as indicated on Drawings.

2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 111900 - DETENTION EQUIPMENT

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. All labor, equipment and services required to furnish, deliver and install the following items of detention equipment:

Item Description

2.2 HOLLOW METAL DETENTION DOORS AND FRAMES
2.3 DOOR HARDWARE AND ACCESSORIES FOR DETENTION DOORS
2.4 HARDWARE SET SCHEDULE
2.5 DETENTION ACCESSORIES AND FURNISHINGS
2.6 SECURITY CAULKING AND SEALANTS

B. The Detention Equipment Subcontractor (DESC) shall be responsible for unloading, storage and handling of all material incorporated in this Section that the DESC is to install. Unloading, storage and handling of all other material in this Section are the responsibility of the General Contractor.

C. Related Sections include the following:

1. Division 28 for low voltage wiring and provisions for security systems.

1.3 SCOPE AND RESPONSIBILITY

A. Detention Equipment Subcontractor:

1. A single DESC as pre-approved or having met all requirements listed herein shall be responsible for furnishing and installing Detention Equipment as herein specified.
2. DESC shall be responsible for submitting an aggregate bid utilizing material and equipment as listed herein or as approved by Addendum, to perform all work included in this section.

3. DESC shall be responsible for the furnishing, coordination, installation, integration and interfacing of the products and systems specified in this Section, including coordinating with all electrical security equipment specified in Division 28; and in accordance with shop drawings and submittals as approved by the Architect.

B. Furnished by the DESC, for installation by the Masonry Contractor or Precast Contractor:

1. Embeds required for attachment of Detention Equipment contained in this Section.

C. Furnished and installed by the DESC:

1. Detention hollow metal doors, frames, borrowed lights and vision panels, food passes, document passes, visiting booth counters, steel plate and channels above detention hollow metal work.
2. Security sealants.

D. Interface, coordination, and integration of all products and systems in this specification shall be the responsibility of the DESC.

1. Drawings are diagrammatic and indicate general arrangement of systems and equipment, except when specifically dimensioned or detailed. For exact locations of building elements, refer to dimensioned drawings. Field measurements take precedence over dimensioned drawings. Intention is to show size, capacity, approximate location, direction and general relationship of one work phase to another, but not exact detail or arrangement.
2. Installation of all systems and equipment is subject to clarification as indicated in reviewed shop drawings and field coordination drawings.
3. Dimensions indicated are limiting dimensions. Do not use equipment exceeding dimensions indicated or equipment or arrangements that reduce required clearances or exceed specified maximum dimensions.

1.4 SUBMITTALS

A. General: Comply with the requirements of Division 01 except as amended herein.

1. Develop and submit complete submittals and do so in a timely manner. By failing to do so, the DESC agrees to be fully responsible for any and all damages that might be occasioned by this failure.
2. Submittals for individual systems and equipment assemblies that consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered and will be returned at the expense of the contractor.
3. Shop Drawings: Submit shop drawing of all items indicating design, method of construction, installation and attachment details. Include all information necessary for proper interfacing and coordinating with other trades and building components. Submittals shall also include any additional information listed under PART 2 – PRODUCTS of this Section.
4. Review of shop drawings or schedules by the Architect shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has, in writing (and in letter form), called attention to such deviations at the time of submission and

secured written approval; nor shall it relieve him from responsibility for errors in shop drawings or schedules.

B. Doors and Frames:

1. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, label compliance, fire-resistance rating, and temperature-rise ratings, and finishes for each type of detention door and frame specified.
2. Shop Drawings: In addition to requirements below, provide a schedule using same reference numbers for details and openings as those on Drawings. Include the following information:

    a. Elevations of each door design.
    b. Direction of swing.
    c. Attack and secure sides.
    d. Details of doors, including vertical and horizontal edge details, and metal thicknesses.
    e. Details of frames, including dimensioned profiles, and metal thicknesses.
    f. Locations of reinforcement and preparations for hardware.
    g. Details of each different wall opening condition.
    h. Details of anchorages, joints, field splices, and connections.
    i. Details of moldings, removable stops, and glazing.
    j. Details of conduit, junction boxes, and preparations for electrified door hardware.

3. Coordination Drawings: Drawings of each detention opening, drawn to scale, on which connections and interface with electrified access control systems are shown.
4. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

C. Hardware Schedule: Submit a door hardware schedule in the manner and format prescribed and used herein, complying with the actual construction progress. Hardware schedules are intended for coordination of the work. Review and acceptance by the Architect or Owner does not relieve the Contractor of his exclusive responsibility to fulfill the requirements as shown and specified.

1. Hardware Schedule Content: Based on hardware indicated, organize hardware schedule into groups or sets showing complete designations of every item required for each door opening. Schedule shall be vertical layout similar to the format used herein. Lines shall be double spaced with pages numbered and dated.

    a. For doors of different sizes or where hinges, locks or closers are different, a separate heading shall be used. No labeled openings shall be combined with non-labeled openings. Horizontal hardware schedules are not acceptable. Include the following:

        1) Number, location, hand, fire rating, size and material of each door opening (hands and swings to be determined in relation to key side of opening).
        2) Type, style, function, size, finish and quantity of each hardware item.
        3) Name and manufacturer of each item.
        4) Fastening requirements.
        5) Explanation of abbreviations used.

6) Special mounting locations and instructions.

b. Combined submittals are not acceptable. Do not combine hardware schedules with door and frame shop drawings.
c. Schedules not adhering to these parameters will not be reviewed.

2. Hardware Schedule Index: Furnish an index cross referencing Contract Document door number and hardware set, and supplier's hardware set.
3. Product Data: Submit manufacturers' printed technical product data and catalog sheets indicating product characteristics, performance and limiting criteria.
4. Samples: If requested by the Architect, submit one sample of each type of hardware tagged with full description for coordination with the schedule. These items shall remain on file in the Architect's office until all other similar items have been installed in the project. At that time, items on file will become Owner Maintenance Stock.

D. Detention Accessories and Furnishings:

1. Shop Drawings: Include construction details, material descriptions, and finishes.
2. Product Data: Include manufacturers' printed technical product data and catalog sheets indicating product characteristics, performance and limiting criteria.

E. Informational Submittals:

1. Qualification Data: Submit supplier and installer qualifications verifying years of experience; include list of completed projects having similar scope of work identified by name, location, date, reference names and phone numbers.
2. Templates: Provide necessary templates and/or physical hardware to all trades or factories requiring them so they may cut, reinforce or otherwise prepare their material or product to receive the hardware item. If any manufacturer requires physical hardware, ship to them such hardware via prepaid freight in sufficient time to prevent any delay in the execution of their work.

3. Keying Schedule: Detailed keying system schedule, indicating Owner's approved keying system, for Owner's review and approval. Include the following:

a. Schematic keying diagram
b. Index identifying each key set to unique door designations.
c. Bitting list.

F. Closeout Submittals:

1. Operating/Maintenance Manuals: Furnish two copies of Parts Manual for all detention hardware, all security locking devices, and components. These manuals shall include instructions for the care of the materials, parts list to aid the Owner and ordering replacement parts, as well as instructions for contacting the appropriate personnel not only during the warranty period, but also beyond. The DESC must have full time employees trained in the maintenance and repair of this equipment. Manuals shall also include "as built" shop drawings of all components.

a. Furnish information in electronic format, one for each applicable manufacturer, as well as internet web links for each manufacturer.
b. One complete catalog shall be furnished for each manufacturer listed in the approved hardware schedule.

2. Warranty: Special warranties specified in this Section.
3. TORX Fastener Tools: Provide three drivers and twelve sets of TORX security bits for each size screw used.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain materials and each piece of equipment specified in this Section through one source from a single manufacturer and from sources approved by the manufacturer as compatible with system components.

B. The following Detention Equipment Subcontractors are pre-approved to perform the work of this Section but are not limited to:

1. CCC Group, Inc. – San Antonio, TX.
2. Chief Industries – Grand Island, NE.
3. Cornerstone Detention Products, Inc. – Decatur, AL.
4. G-S Company – Baltimore, MD.
5. ISI Detention Company – San Antonio, TX
6. Maximum Security Products – Albany, NY.
7. Norment – Montgomery, AL.
8. Southern-Folger Company – San Antonio, TX.
9. U.S. Security Systems, Inc. – Montgomery, AL.
10. Willo Products Company – Decatur, AL.

C. Other Detention Equipment Subcontractors interested in bidding this project shall submit the following data to the Architect, in writing, a minimum of 14 days prior to the bid date. If approved, notification shall be issued by Addenda.

1. Evidence of a minimum of five years of experience in successfully completing projects of equal or greater size and magnitude. This evidence shall consist of a list of five new detention or corrections projects. Of the five projects, three must be completed and operational for a minimum of one year.

a. Experience shall be for the DESC as a legal entity only. Experience of individuals, employed by the DESC who were previously employed by another DESC entity, shall not be used to establish the respondent entity's level of experience.
b. For each project on the list, include name and location of the facility, number of cells, date of occupancy by the Owner, and the name, address and telephone number of the Owner's Representative, Architect, Construction Manager and Contractor.

2. Name and address of the respondent DESC. Identify whether the respondent firm is a sole legal entity or is a subsidiary of a parent company and identify the parent company.

3. A letter from the bonding company, verifying their intent to fully bond this project for the respondent DESC. Letters from bonding agents are not acceptable. Bonding companies must demonstrate an AM Best rating of at least A-.
4. Name, title, resume and employment date of the project management team for the respondent DESC. The project management team shall, at a minimum, include the principal-in-charge, project manager, project engineer, and the site-based project superintendent.
5. Letter from the pneumatic device manufacturer certifying DESC is qualified to install and service the specified equipment.

D. Accessibility for Disabled Persons: Special hardware requirements for knurling, slow acting closers or other barrier free opening requirements shall be provided as indicated in the Hardware Set Schedule and as required to comply with the U.S. Department of Justice's "ADA Standards for Accessible Design".

E. Hardware for Fire Doors and Exit Doors: Hardware for fire doors shall conform to NFPA 80; hardware for exit doors shall conform to NFPA 101. Other requirements specified shall also apply.

1. Fire-Rated Door Assemblies: 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.

a. Test Pressure: After five minutes into the test, neutral pressure level in furnace shall be established at 40-inches or less above the sill.

F. Pre-Installation Conference: Conduct conference at Project site. 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.

1.6 DELIVERY, STORAGE AND HANDLING

A. Packing and Marking: Each piece of detention equipment furnished under this Section shall be packaged and marked according to the hardware set and/or door number and/or glazing type on the applicable approved submittal.

B. Deliver all components packaged or crated to provide protection during transit and job storage.

1. Inspect all components upon delivery for damage. Minor damages may be repaired, provided the finish items are equal in all respects to new work and acceptable to the Architect, otherwise, remove and replace damaged items as directed.

C. Store all components under cover. Do not store any materials directly on the ground or concrete. Provide adequate ventilation and protection to insure materials are kept dry, clean and secure. Store all materials in the manner and order as prescribed by the manufacturer. Coordinate storage with the Construction Manager.

D. Keys: All keys shall be shipped direct from manufacturer, via Registered Mail, Restricted Delivery, Return Receipt Requested, to the Wake County Sheriff's Office. A copy of the transmittal, clearly identifying all detention lock keys, shall also be provided. Under no circumstance shall any keys be furnished direct to the Contractor. Keys will be issued to the Contractor on an "as needed" basis.

1. When requested by the Owner, Contractor shall surrender any or all keys assigned to him.
2. Contractor shall provide adequate security for all keys assigned to him to ensure the integrity of the lock security has not been compromised. If, in the opinion of the Owner, key security has been compromised, Contractor shall re-key all locks affected and provide new keys at no additional cost to the Owner.

1.7 DELINEATION OF DOOR CONTROL INTERFACE RESPONSIBILITIES

A. Furnish and install door locks, door position switches, limit switches, lock feature switches, key switches and push buttons, as required for the system to perform the functions as defined herein.

B. Interconnect all components described herein to include cable harnesses where applicable and provide a single point of interconnection for Division 28. For swing doors, the interface point shall be the lock pocket. For sliding doors, the interface point shall be a junction box in the transom and shall be shown on the shop drawings.

C. Provide a wiring interface for Security System Integrator to make connections to the Access Control System. The wiring interface shall be a Molex-Type connector. The mating connector to which the Security System conductors are connected shall be furnished as part of the connector assembly and shall be furnished with conductor "pigtail" having a minimum length of six inches.

D. Furnish wiring drawings and other information as required for design and installation of the control drawings.

E. Provide all switches with a contact rating of a minimum of 2 amps. Push buttons shall be Form C contact configurations.

F. Provide solenoids for direct current (DC) application with diodes for transient protection.

G. Provide boxes or pockets in the door frame as required to accommodate door position switches, locks, key switches, push buttons, intercom stations, etc.

H. Provide interconnecting conduit in the door frame between all feature switches, monitoring devices and the lock pocket.

I. Extend the lock pocket to accommodate jamb mounted push buttons and/or key switches or provide a means to install and maintain these devices where installed.

1.8 COORDINATION WITH OTHER TRADES

A. Examine the Drawings and Specifications of other trades whose work may influence the installation of the detention systems. Include in Bid all services attributed to coordinating the installation of the detention systems with the work of other trades. Prior to the start of work, review the Project Drawings and Specifications and shall coordinate his Work with that of all other trades.

B. Study the entire Specification, both written and illustrated, and be responsible for all requirements, both explicit and implied, to implement the intent of the design of the detention equipment specified herein.

C. Electronic Security System and Hardware:

1. Provide electronic security devices as scheduled.
2. Coordinate installation and connection of electronic security devices with additional security equipment specified in Division 28.
3. Coordinate hardware set schedule and templates for devices.
4. Coordinate installation for proper operation and interface with electronic security system.

D. Provide coordination drawings as required.

1.9 WARRANTY

A. Warranties shall be furnished in accordance with Division 01.

B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fails in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including excessive deflection, cracking, or breakage.
b. Faulty operation of operators and door hardware.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

2. Warranty Periods:
a. Hinges: Life of the Building.
b. Manual Closers: Twenty-five years from date of Substantial Completion.
c. Locksets:

1) Mechanical: Five years from date of Substantial Completion

d. All other hardware items: Three years from date of Substantial Completion.

C. The DESC shall make good any defect at his expense.

PART 2 - PRODUCTS

2.1 GENERAL

A. Security design criterion is based on the requirements and features of the products listed herein. The use of manufacturer's numeric designation does not imply other manufacturer's products will not be accepted.

B. Suppliers, manufacturers, vendors, and installers proposing substitute items shall submit all necessary documentation, price comparisons, dimensions and physical characteristics, test data catalog information and other pertinent data to the DESC for consideration by the Architect. This material must be presented to the Architect at least ten working days prior to bid date and must be submitted by the Detention Equipment Subcontractor. If acceptance is granted, notification will be issued by addenda.

1. Any cost incurred by the Architects, Engineers or Consultants for redesign, or reevaluation of any drawings or specifications shall be paid by the DESC.

2.2 HOLLOW METAL DETENTION DOORS AND FRAMES

A. General: Provide detention hollow metal work manufactured by a single firm specializing in the production of this type of work. Detention hollow metal doors and frames shall include but is not necessarily limited to:

1. Hollow metal detention doors, detention steel frames for detention doors, sidelights, borrowed lights and related openings.
2. Metal trim closures, metal panels and plates used in conjunction with detention hollow metal work.

B. Testing and Performance: All detention doors shall meet the following test criteria and be certified by an independent testing laboratory.

1. Except as may be amended herein, all detention hollow metal shall be manufactured, tested and installed in conformance with the standards established by the National Association of Architectural Metal Manufacturers (NAAMM) Standard HMMA 863 and ASTM F1450.
2. Detention doors and frames shall be fabricated from minimum gages as listed below. Openings shall be tested for static load. Rack load and impact to the minimum values stated herein and shall be tested in accordance with the test standard listed.

Door Face Sheet Gage	Frame Gage	Static Load Test	Rack Load Test	Impact Test 200 ft. lbs.	Test Standard

				Lock	Each Hinge	Glazing	ASTM F1450
14	12	14000	7500	400	150	100	Grade 2

C. Test Reports: Detention hollow metal manufacturers, not listed herein, shall submit independent testing laboratory report certifying the preceding minimum performances.

1. Approved manufacturers listed herein shall submit these certificates of compliance with their approval drawings.
2. All test reports shall include details of test samples and details or photographs of the testing apparatus. The test samples shall be retained at the manufacturer's facilities for possible inspection through the warranty period.

D. Approved Manufacturers:

1. Products: Provide detention hollow metal work as manufactured by one of the following:

   a. American Steel Products – Swainboro, GA.
   b. Architectural Openings, Inc. – Longwood, FL.
   c. Chief Industries – Grand Island, NE.
   d. Habersham Metal Products – Atlanta, GA.
   e. Trussbilt, Inc. – St. Paul, MN.
   f. Willo Products Company – Decatur, AL.

2. Other Detention Hollow Metal manufacturers interested in bidding this project shall submit the following data to the Architect, in writing, a minimum of 14 days prior to the bid date. If approved, notification shall be issued by addendum.

   a. Evidence of a minimum of five years of experience in successfully completing projects of equal or greater size and magnitude. This evidence shall consist of a list of five new detention projects. Of the five projects, three must be completed and operational for a minimum of one year.
   b. Evidence of compliance with required standards as outlined herein. Submit Test Reports as indicated.
   c. For each project on the list, include name and location of the facility, number of cells, data of occupancy by the Owner, and the name, address and telephone number of the Owner's Representative, Architect, and General Contractor.

E. Materials:

1. Hot-Rolled Steel Sheets and Strips: Commercial quality carbon steel pickled and oiled, complying with ASTM A 568 and A 569.
2. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and A 568.
3. Galvanealed Steel Sheets: Commercial quality, zinc-coated carbon steel sheets, complying with ASTM A 653 and A 653M, A60 zinc-iron alloy coating, mill phosphatized.
4. Stainless Steel Sheets: Commercial quality stainless steel Type 302 (non-magnetic), complying with ASTM A 167, with a uniform satin finish similar to NAAMM No. 4.

5. Supports and Anchors: Fabricate from steel plates, bars, angles and channels to sizes and shapes indicated.
6. Inserts, Bolts and Fasteners: Manufacturer's standard units, except hot-dip galvanize items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.
7. Exposed Screws: All exposed screws shall be flat head countersunk TORX security screws with security stud. Other types of security screws are not acceptable unless specifically approved by the Architect. Provide twelve sets of wrenches for each size screw used. Round head TORX screws with security stud shall be furnished for all glazing bead stops.

F. Fabrication: Fabricate detention hollow metal and steel units to be rigid, neat in appearance and free of defects, warp or buckle. Accurately form metal to required sizes and profiles. Wherever practicable, fit and assemble units in the manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at the project site. Weld exposed joints, grind, dress, and make smooth, flush and invisible. Metallic filler to conceal manufacturing defects is not acceptable.

1. Detention Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware, including cutouts, reinforcing, drilling and tapping in accordance with templates provided by hardware manufacturers.

    a. Reinforce units to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at project site or factory at the discretion of the DESC.
    b. Provide wrought metal dust boxes at ALL strikes, including strikes installed in door panels.
    c. In cases where electrically operated hardware is required and where shown on approved shop drawings, hardware enclosures and junction boxes shall be provided and shall be interconnected using UL approved 3/4-inch conduit, elbows and connectors. Also, where shown on submittal drawings junction boxes with access plates shall be provided to facilitate the proper installation of wiring. Access plates shall be the same gage as the frame and fastened with a minimum of four 1/4-20 TORX drive, tamperproof machines screws, but not to exceed 6-inches on center. All conduit ends to be deburred at the factory. Where frames are to be grouted in place, the conduit shall be connected to lock pockets and boxes with compression type, grout tight, fittings.
    d. Provide cutouts and back boxes for intercoms, exit buttons and card readers where installed in frames, coordinate with Division 28.

2. Shop Painting: Clean, treat and paint exposed surfaces of fabricated hollow metal units, including galvanealed surfaces.

    a. Clean steel surfaces of mill scale, rust, oil, grease, dirt and other foreign materials before the application of the shop coat of paint.
    b. Apply pretreatment to cleaned metal surfaces, using cold phosphate solution (SSPC-PT2), hot phosphate solution (SSPC-PT4) or basic zinc chromate-vinyl butyral solution (SSPC-PT3).

c. Apply shop coat of prime paint within time limits recommended by pretreatment manufacturer. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 2.0-mils.
d. For steel surfaces, use rust-inhibiting enamel or paint, either air-drying or baking, suitable as a base for specified finish paints; paint galvanized surfaces with zinc-dust / zinc-oxide primer.

G. Doors and Panels: Provide 2-inch thick, flush design, seamless hollow construction doors and panels. Furnish sound insulation filler of fiberboard, mineral wool or other approved noncombustible material, solidly packed full door height to fill the voids between inner core reinforcing members.

1. Construction: Fabricate all doors of two outer, 14-gage stretcher-leveled steel sheets. Construct panels and doors with smooth, flush surfaces, without visible joints or seams on exposed faces or stile edges. Finish edges at top, bottom and sides flush. Fabricate exterior doors and frames from galvanealed sheet steel.

a. Reinforce inside of doors and panels with vertical, hot-rolled or formed steel channel-shaped sections, not less than 16-gage. Space vertical reinforcing not to exceed 4-inches on center and extend full door height; spot-weld at not more than 4-inches on center to both face sheets.

1) Continuous truss-form inner core reinforcing may be provided as inner reinforcement in lieu of above. Spot-weld truss-form reinforcement 3-inches on center vertically and horizontally over entire surface of both sides.

b. Reinforce tops, sides and bottoms of doors and panels with 10-gage steel channels, spot-welded to the outer sheets. Return outer edges of door face sheets at the edges to a close fit and continuously welded to the 10-gage vertical edge channel and grind smooth. Provide perforated steel plates on bottom of doors indicated. Top and bottoms of doors to be closed flush.
d. Where indicated, provide door panels with manufacturer's standard detention grade louvers. Refer to the Drawings for sizes and locations.

1) Louvers shall be of welded inverted 'V' or 'Y' type construction providing free air delivery as indicated on the Drawings and approved shop drawings. Louvers shall not exceed 18-inches in width without being reinforced at the midpoint with minimum 1/4" x 1-1/2" vertical rectangular steel bars.
2) Vanes shall be not less than 12-gage and shall be spaced so that no rigid flat instrument can be passed through them.
3) Louvers of other designs, which meet the security requirements, may be qualified for this application.

2. Hardware Reinforcement: Reinforce doors for required hardware, as follows:

a. Provide a reinforced pocket in each door to receive mortised locks. Protect lock on each side with 1/8-inch thick steel plates welded inside the door faces.
b. Furnish a 1/4-inch thick hinge-reinforcing channel, swaged not more than necessary to pass mortise butts where required. The top hinge preparation shall be additionally

braced by an angle welded to the back of the hinge reinforcing plate and inside the edge-reinforcing channel at each door face.

c. Where required, a reinforcing plate not less than 3/16" x 1-1/2" x 10" shall be welded inside the door for pull reinforcing. Edge-mounted cover plate shall be the same gage as the door.

d. Minimum reinforcing shall be provided, welded inside the door faces, for all other hardware items. Total thickness of the reinforcing shall be not less than the major diameter of the fastener being used.

H. Frames: Provide detention hollow metal frames for doors, windows, transoms, side-lights, borrowed lights, and other openings, of size and profile as indicated.

1. Construction: Fabricate frames of welded unit construction, with corners mitered, reinforced, and continuously welded full depth and width of frame.

a. Form frames of 12-gage galvanealed steel sheets for exterior and either 12-gage cold or hot-rolled sheet steel for interior. All welds shall be filled, ground smooth and prime painted.

2. Hardware Reinforcement: Reinforce frames for required hardware as follows:

a. For mortise butts, provide a 1/4" x 1-1/2" x 10" height reinforcing plate, offset at each hinge location, and factory drilled and tapped. Top hinge reinforcement shall be additionally braced by a 3/16-inch back-up angle, welded behind the offset reinforcement and to the inside of the frame trim.

b. Lock and keeper preparation shall be in accordance with the recommendations of lock manufacturer. Reinforcement shall be not less than 10-gage steel. All cut outs and reinforcements shall be protected with pressed steel mortar guards on the inside of the frame.

c. Provide manufacturer’s standard recessed pocket for cylinder access at jamb-mounted locks which are keyed both sides.

d. Reinforcement: Reinforce frames for attachment of operators as required.

3. Mullions and Transom Bars: Provide closed or tubular mullions and transom bars where indicated, with no visible seams or joints on the faces. Fasten mullions and transom bars at crossings and to jambs by welding. Reinforce joints between frame members with concealed clip angles or sleeves of same metal and thickness as frame.

4. Jamb Anchors: Furnish jamb anchors as required, and as indicated, to secure frames to adjacent construction, formed of not less than 12-gage galvanized steel.

a. Masonry Construction: Adjustable, non-removable, flat or corrugated or perforated, not less than 2" x 10". Furnish at least three anchors per jamb up to 90-inches in height; four anchors up to 96-inches in height, and one additional anchor for each 24-inches or fraction thereof over 96-inches in height. Tie anchors into masonry walls with vertical reinforcing rods per details.

b. In-Place Concrete or Masonry: Unless otherwise indicated, anchor frame jambs with minimum 3/8-inch concealed bolts into expansion shields or inserts at 6-inches from top and bottom and 16-inches on center. Reinforce frames at anchor locations. Apply removable stop to cover anchor bolts or weld bolt head, fill and grind smooth.

c. Where fire-rated assemblies are indicated, provide anchors to meet UL requirements.

5. Floor Anchors: Provide floor anchors for each jamb and mullion which extends to floor, formed of not less than 12-gage galvanized steel sheet, as follows:

a. Monolithic Concrete Slabs: Clip type anchors, with two holes to receive fasteners, welded to bottom of jambs and mullions, attached to slab with not less than two 1/4" x 2" bolts and expansion anchors per clip.

6. Head Reinforcing: For frames over 48-inches wide in masonry wall openings, provide continuous steel channel or angle stiffeners not less than 12-gage, for full width of opening, welded to back of frame at head. Head reinforcing shall not be used as lintels or load-carrying members.
7. Spreader Bars: Provide removable spreader bars across bottom of frames, tack welded to jambs and mullions.
8. Door Silencers: Except where gasketing is called for in the hardware schedule, prepare frames to receive silencers; three for single-door frames and four for double-door frames.
9. Guards: Provide 26-gage steel mortar guards or dust cover boxes, welded to frame at back of door hardware and electrical cutouts, where mortar or other materials might obstruct hardware installation.
10. Where required, provide access holes for solid grouting of all sections of all frames, sidelights and borrowed lights. Where access holes are not concealed by other hollow metal work, they shall be closed with metal plugs, welded, filled and ground smooth.

a. Frames required to be grout filled shall receive a Bituminous Coating to the inside throats of the frame (jambs, heads, mullions and sills where applicable). The Bituminous Coating shall be a cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

I. Stops and Miscellaneous Trim: Provide stops around solid and glazed panels in detention hollow metal units. Provide flashing, metal closures and miscellaneous trim used in conjunction with detention hollow metal.

1. Stops, flashing, closures and miscellaneous trim shall be formed steel of same gage as the associated items to which they are installed, but in no case shall any glazing stops be less than 10-gage in thickness.
2. Provide non-removable stops on the detention side and removable stops opposite. Factory drill stops for round head or button head machine screws and secure at the factory with slotted machine screws. Detention hollow metal manufacturer shall furnish 1/4-20 round head or button head, TORX drive, tamperproof machine screws and special screwdrivers for installation of glass and panels in the field. Locate screws not more than 2-inches from each end of stop and no more than 6-inches on center. Stops shall be painted to provide corrosion resistance on all surfaces including those concealed when stops or beads are in place.

J. Door Tolerances: Fit detention hollow metal doors accurately in their respective frames, with the following clearances:

1. Jambs and head – 1/8-inch.
2. Meeting edges (pairs of doors) – 1/8-inch.
3. Bottom (where no threshold occurs) – 3/8-inch.
4. Bottom (over threshold) – 1/8-inch.

2.3 DOOR HARDWARE AND ACCESSORIES FOR DETENTION DOORS

A. General: Obtain each type of door hardware from one manufacturer. Door hardware shall include, but is not necessarily limited to, the following:

1. Locks, hinges, closers, stops, pulls, electro-mechanical locks, door position switches, power transfers and strikes as listed in paragraph 2.5 HARDWARE SET SCHEDULE of this Section.

    a. Provide hardware for all mock-ups as defined in paragraph 2.2 HOLLOW METAL DETENTION DOORS AND FRAMES of this Section. All mock-ups shall be fully functional, wired to temporary switches prior to Architect's inspection.

2. Fasteners: Manufacturer hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping or sheet metal screws.

    a. Furnish screws for installation with each hardware item. All exposed screw heads, whether door is open or closed, shall be flat or oval head, TORX drive, tamperproof screws, except as otherwise indicated. Finish screws to match the applied hardware item. Other types of security screws are unacceptable unless specifically approved by the Architect. Provide three drivers and twelve sets of wrenches for each size screw used.

3. Finishes: Finishes shall conform to the quality of finish including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than the standards established by ANSI/BHMA A156.18 or Federal Specifications FF-H-111C as applicable.

    a. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturers standard metal alloy composition, temper and hardness, but in no case of lesser quality than specified or inferred by use of a particular manufacturer's number, style or grade or as established by appropriate referenced specification listed herein.
    b. Unless otherwise noted, all exposed hardware shall be ANSI/BHMA 626/US26D satin chrome plated. Door closers shall be factory-finished to match satin chrome. Hinges on interior doors shall be ANSI/BHMA 600/USP primed for field painting, hinges at galvanized doors shall be ANSI/BHMA 630/US32D satin stainless steel.
    c. Where painting of primed surfaces is required, refer to Division 09 specifications.

4. Keying: Provide keying as directed by the Wake County Sheriff’s Office.

    a. Key Quantities:

1) Paracentric Keys: Furnish a total of three cut keys per lock plus ten blanks.

b. Stamp all keys as directed by the Owner:

B. Mechanical Door Hardware:

1. Hinges: Airteq Systems, Hager Companies, Portland Hardware, Inc. or Southern-Folger Company.

a. Furnish three hinges for doors through 84-inches in height and one additional hinge for each additional 30-inch of height or fraction there-of. Furnish three hinges for doors through 36-inches; furnish minimum four hinges for all doors over 36-inches wide and at all heavy-use doors.
b. Hinges shall be three-knuckle, mortised, 4-1/2"x 4-1/2", cast stainless steel, ball bearing, hospital tip, with pins made non-removable by a concealed hardened roll pin. All hinges shall be furnished with 1/4-20, flat head, TORX drive, and tamperproof machine screws. Hinges furnished for use on labeled fire and smoke doors shall also comply with the requirements of NFPA 80.
c. Where shimming is required, use only metal shims.
d. Hinges shall be certified by an independent testing lab to meet or exceed the cycle requirements of ANSI A156.1 Grade 1, tested on a 3’-0” x 7’-0” door weighing a minimum of 300-lbs. and supported by not more than three hinges. Lateral and vertical wear shall not exceed 1/16-inch.
e. Hinges at hardware sets S2XX, S6XX, S7XX and S8XX shall have reverse studs and be certified by an independent testing lab to successfully pass the ASTM F1758, Grade 1A requirements.

2. Mechanical Locksets and Latchsets: Southern-Folger Company.

a. Detention-grade, mortise type complying with ASTM F 1577, Grade 2 with cast stainless steel lever trim.
b. Furnish complete with armored fronts and stainless steel anti-friction deadlocking latch bolts. For each lock and latchset, provide strike box and square corner ASA strike with curved lips of sufficient length to protect frames.
c. Function: Provide as scheduled.

3. Architectural Door Trim: Hager Companies, Rockwood Manufacturing Company or Triangle Brass Manufacturing Company, Inc.

a. Protection Plates: Beveled on all sides, equal to Hager #194S.

1) Unless otherwise indicated, or where narrow bottom rails dictate a smaller size, kick plates shall be 10-inches high and armor plates 34-inches high. Width shall be 2-inches less than the door width on single doors and 1-inch less than the door width on double doors.
2). Armor plates on labeled doors shall comply with the requirements of NFPA 80.

b. Furnish all flat goods with TORX oval head, tamperproof security screws.

c. Grip Pulls: Grip pulls shall be equal to Hager #P4E; provide a minimum 2-1/4-inches clearance. Installation and door reinforcing shall be per manufacturer's published template.
d. Push Plates: Plates shall be beveled on all sides, equal to Hager #80S.

1) Push plates shall be 6-inches wide and 16-inches high.

4. Closers: LCN Closers.

a. Cast iron construction with forged lever arms, independent non-critical adjusting values for closing, latching and backcheck. Spring power adjustable 50% after closer is installed.

1) Except where otherwise specified, closers shall be LCN #2210 x ST2431 (less DPS), #4511, #4211 and #4211-CUSH as indicated.

b. Install surface closers on the least conspicuous side of the door (side opposite public view and inmate occupancy).

5. Auxiliary Hardware: Hager Companies, Rockwood Manufacturing Company or Triangle Brass Manufacturing Company, Inc.

a. Silencers: Furnish gray, live molded rubber silencers equal to Rockwood #608 for hollow metal frames, three per single door and four per pair. Omit silencers where continuous gasketing is specified.

b. Door Stops: Provide cast wall stops equal to Rockwood #400 wherever trim strikes wall. Where wall stops are not suitable furnish floor stops equal to Rockwood #466. Set floor stops in epoxy grout, Thorogrip® or approved equal.

1) Where wall or floor stops are not suitable, furnish concealed overhead stops equal to Glynn-Johnson #100S-ADJ.

6. Thresholds, Weather-stripping and Seals: National Guard Products, Inc., Pemko Manufacturing Company or Zero International.

a. Refer to paragraph 2.5 HARDWARE SET SCHEDULE for grade and style.
b. Smoke Seals:
2) Swinging Doors: At doors located in Smoke Barrier Partitions, provide smoke seals equal to Pemko #S88BL at the head and jambs; and at pairs of doors, astragal seals equal to Pemko #S772BL. Refer to the Drawings for locations.
3) After installation, razor-nick adhesive gasketing at 12-inch intervals.

7. Thresholds: Provide thresholds as indicated and where shown in the sill details. Fabricate pass resistant security thresholds are covered in paragraph 2.2 HOLLOW METAL DETENTION DOORS AND FRAMES of this Section.
8. Strikes: All locks and latches shall be furnished with manufacturer's standard strikes complete with dust boxes.

2.4 HARDWARE SET SCHEDULE

A. The Hardware Sets listed below indicate the items of hardware required for each opening. It is the bidder's responsibility to accurately furnish the proper sizes, quantities, weights, gauge and functions as required by these specifications and as recommended by manufacturers involved.

Set S110

	Hinges IHTHB953	Hager
1	Door position switch	Airteq
1	Lockset 5080-K1 x dust strike	Airteq
1	Escutcheon 601	Airteq
1	Lockmount	Airteq
1	Outside flush pull	Door Manufacturer
1	Stop	Rockwood

Function: Mechanical deadlock operated manually by Paracentric key from outside only. No monitoring required.

2.5 Detention Accessories and Furnishings:

A. General: The extent of detention accessories and furnishings is indicated on the drawings and by the provisions of this Section.

B. Manufacturers: Except as otherwise specified herein, the equipment and materials of this section shall be products of the following manufacturers:

1. Barker Built Company, Inc. – Fuquay-Varina, NC.
2. Bobrick Washroom Equipment, Inc. – Clifton Park, NY.
3. Bradley Corporation – Menomonee Falls, WI.
4. Chief Industries, Inc. – Grand Island, NE.
5. Cornerstone Detention Products, Inc. – Decatur, AL.
6. Creative Industries, Inc. – Richmond, VA.
7. KLN Steel Products Co. – San Antonio, TX.
8. Maximum Security Products – Albany, NY.
9. Modern Detention Equipment – Cincinnati, OH.
10. Panel Specialties, Inc. – Minneapolis, MN.
11. Peterson Enterprises – Los Angeles, CA.
12. Willo Products Company – Decatur, AL.
13. Jails Correctional Products – Minster, OH.

C. Products: Detention accessories and furnishings shall include, but are not necessarily limited to, the following:

1. Security Grab Bars: Fabricate from 18-gauge, 304 stainless steel. Attach to wall with 1/4-20 x 2", stainless steel TORX drive, tamper-proof expansion bolts. Furnish manufacturer's standard satin finish. Provide with stainless steel closure plate for ligature-resistance. Horizontal 1 ½" diameter two-wall bar for shower stall - size 33" x 18". Vertical 1 ½" diameter bar – size 18". See Drawings for quantity and locations.
2. Security Fold-Down Shower Seat: Fabricate from No. 304 stainless steel. Seating surface and flanges polished to a #3 satin finish. Seat in folded position shall provide 15" x 34" seating surface. Similar to Willoughby Industries FSS Folding Shower Seat. See Drawings for quantity and locations.
3. Embeds: Unless otherwise indicated, fabricate and deliver manufacturer's standard embedded anchorage devices and weld plates to be built into masonry or cast into concrete, for all surface mounted devices as indicated and required.

    a. Form anchors and plates of minimum 1/4-inch thick steel. Where located in floors or exterior walls, furnish anchors and plates hot-dip galvanized after fabrication.
    b. Provide dimensioned embed setting location drawings, templates, instructions for installation of concrete and masonry anchors, inserts, anchor bolts, and miscellaneous items having integral anchors which are to be embedded. Drawings shall be coordinated amongst pertinent prime- and sub-contractors prior to review and approval by Contractor.
    c. Where indicated, provide concrete block size embeds per details. Block embeds in wet areas shall be galvanized G90 zinc coating, mill phosphatized. All embeds shall be shop prime painted.

D. Finishes: All prime paints used must be compatible with all adjacent substrates OR items to be prime painted shall be back-primed with asphalt.

2.6 SECURITY CAULKING AND SEALANTS

A. General: The extent of security caulking and sealants is indicated on the drawings and by the provisions of this Section.

1. Work of this section includes, but is not necessarily limited to, the applications of pick resistant sealant to the inmate or secure side of the following:

    a. Joints between detention hollow metal not requiring epoxy filler.
    b. Joints between detention hollow metal door frames and concrete, masonry or substrate.
    d. Joints between security access panels and concrete, masonry or substrate.
    e. Joints between detention furnishings and fixtures and concrete, masonry or substrate.
    f. All security sealant work not specifically mentioned in other Sections, but required to provide neat appearing and secure construction in inmate areas.

B. Related work, not included under this Section, shall consist of caulking and sealants used in conjunction with the following items:

1. Caulking the non-secure side of the above.
2. Tile and stonework.
3.. Caulking around materials not installed by the DESC as specified in Division 07.

C. Submittals: Submit manufacturer's product data including specifications, handling/installation/curing instructions, and performance test data sheets for all security sealant products required.

D. Job Conditions: Do not proceed with installation of security caulking and sealants under unfavorable weather conditions. Install security caulking and sealants only when temperature is in lower third of temperature range recommended by manufacturer for installation.

E. Special Project Warranty: Provide written warranty agreeing to repair or replace security caulking and sealants which fail in joint adhesion, cohesion, abrasion resistance, stain resistance, or general durability; or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data, as an inherent quality of the material for the exposure indicated.

1. Warranty period is three years from date of substantial completion.

F. Materials: Except as otherwise indicated, provide manufacturer's standard, non-modified, one or two part polyurethane or epoxy based elastomeric sealant (interior sealant and caulking) complying with either ASTM C 920 Type S or M, Class 25, Grade NS; Federal Standard TT-S-00230C, Class A, non-sag, having a Shore A of 55-60; or ASTM C 881-90 Type I, II, IV, and V, Grade 3, epoxy resin adhesive.

1. Acceptable Products:

   a. Products Research & Chemical Corporation – PR-979.
   b. Pecora Corporation – Dynaflex.
   c. Mameco – Vulkem 617.

2. Miscellaneous Materials:

   a. Joint Primer/Sealer: Provide type of joint primer/sealer, recommended by security sealant manufacturer, for joint surfaces to be primed or sealed.
   b. Bond Breaker Tape: Provide polyethylene tape, or other plastic tape as recommended by security sealant manufacturer, to be applied to contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape where applicable.
   c. Sealant Backer Rod: Provide compressible rod stock material recommended by security sealant manufacturer for back up of and compatibility with sealant.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Examine and inspect all surfaces, anchors, and grounds that are to receive materials, fixtures, assemblies, and equipment specified herein. Check location, "rough in", and field dimensions prior to beginning work. Report all unsatisfactory conditions in writing to the Architect and Construction Manager.

1. Do not begin installation until all unsatisfactory conditions have been corrected.

B. Verify all dimensions and be responsible for their correctness. No extra compensation will be allowed for differences between actual measurements and the dimensions indicated on the Drawings.

3.2 INSTALLATION

A. Install detention equipment in accordance with the final shop drawings, manufacturers' data, and as herein specified.

1. All devices shall be mounted tight to ceiling, walls, etc., capable of supporting required loads.

B. Install all components and complete system as indicated and in accordance with manufacturers' recommendations and instructions.

1. Provide manufacturers' supervision of installation, including testing and interfacing of systems.

C. Set all work accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

D. Pre-assemble items in the shop to the greatest extent possible, so as to minimize field splicing and assembly of units at the project site. Disassemble units only to the extent necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.

1. Fit exposed connections accurately together to form tight hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.
2. Make field splices in frames as detailed on final shop drawings, welded and finished to match factory work.

E. Form exposed work true to line and level with accurate angles and surfaces, with straight sharp edges. Unless otherwise indicated, ease exposed edges to a radius of approximately 1/32-inch. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing the work.

F. Weld corners and seams continuously if required for structural or security reasons and in accordance with the recommendations of AWS. At exposed connections, grind exposed welds

smooth and flush to match and blend with adjoining surfaces. Where stitch welding is acceptable, fill voids with filler and grind smooth.

G. Provide for anchorage of the type shown, coordinated with the supporting structure. Fabricate and space anchoring devices to provide adequate support for the intended use of the work.

H. Coordinate grouting requirements of all hollow metal detention frames.

I. Cut, reinforce, drill and tap metal work indicated to receive door hardware and similar items or work. Cut holes in strict accordance with templates. Drilling and tapping shall be done with proper size drills to insure a minimum of 75% full thread.

J. Frame members shall be mitered and/or coped and welded at corners the full depth of the frame and exposed face. Welds shall be dressed smooth.

3.3 BOLTS

A. Exposed nuts of all bolted work shall be drawn tight and threads battered or welded. Bolting may be used in the fabrication and installation of detention equipment provided that the nuts are not accessible to inmates or exposed to view. Bolts shall be special oval head or flat head TORX drive tamperproof type. Other types of security screws are unacceptable unless specifically approved by the Architect. Provide two sets of wrenches for each size bolt used.

3.4 INSTALLATION OF DETENTION PRODUCTS

A. Install all fixtures, materials, assemblies, and equipment as specified herein and as indicated in the Contract Documents, and in strict compliance with manufacturers' recommendations and instructions.

1. Provide installation, coordination, and final adjustment of control, consoles, locking devices, locksets, door position switches, conductors to interconnect locks, push button switches, monitor lights, operators, and all other material (mechanical and electrical) furnished under this Section.

C. Detention Hollow Metal:

1. Install all detention hollow metal frames in position true and plumb, aligned and braced securely until permanent anchors are set. Anchor bottom of frames to floor with expansion bolts or power fasteners, build wall anchors into walls, or secure to adjoining construction as indicated and specified. Where frames require ceiling struts or other structural overhead bracing, anchor securely to ceilings or overhead structural framing as indicated and specified. Install all frames in accordance with the Hollow Metal Manufacturer's Association Standard HMMA 862-87 with ±1/16-inch tolerances for frame squareness, plumb, alignment and twist.

D. Door Hardware: Install each hardware item in accordance with final approved Hardware Schedule and manufacturer's instructions. Adjust and check each operating accessory, item of

hardware, and each door to ensure proper operation and function of every unit. Lubricate moving parts with type lubrication recommended by manufacturer (never-seize if no other recommended). Replace units that cannot be adjusted and lubricated to operate freely and smoothly as intended for the application made.

1. Set hardware level, plumb and true to line and location.
2. Adjust and reinforce attachment substrate as required for proper installation and operation of hardware.
3. Drill and countersink units which are not factory-prepared for anchorage fasteners; space fasteners and anchors uniformly, in accordance with industry standards.
4. Hardware Mounting Heights: Provide heights as indicated on Drawings, except as otherwise required for compliance with governing regulations.

    a. Where heights are not indicated, comply with mounting requirements of DHI "Recommended Locations for Builder's Hardware" on custom steel doors and frames.

5. Fire Doors and Exit Doors: Hardware for labeled fire doors shall be installed in accordance with the requirements of NFPA 80. Hardware for listed exit doors shall be installed in accordance with the requirements of NFPA 101.
6. Hinges: Install steel doors and wood doors to comply with reference standards, as specified in door sections.

    a. Where shimming is required to comply with tolerances, provide metal shims only.

7. Closers:

    a. Do not install parallel arm closers until after weather-stripping or seals have been installed on head frame (where weather-stripping or seals are scheduled).
    b. Do not cut weather-stripping or seals for attachment of closer brackets or shoes.
    c. Adjust closers to control door swing and to provide positive latching of doors; closers shall not exceed following manual opening forces:

        1) Exterior doors: As required to close and latch each leaf.
        2) Interior doors (non-fire-rated): Maximum 5-pound opening force.
        3) Fire-rated doors: As required to close and latch each leaf.

    d. After air-handling system has been balanced, make final adjustment of all closers.

8. Door Stops: Install stops for maximum degree of door opening swing allowed by conditions of installation.

    a. Locate floor stops so as not to create a tripping hazard.
    b. Locate wall stops centered on spindle of lever handles.

9. Weather-stripping and Seals:

    a. Install continuous around door heads and jambs, and meeting stiles of pairs of doors.
    b. Install bottom weather-stripping and automatic door bottoms for full width of door.

c. After installation, razor-nick adhesive gasketing at 12-inch intervals.
d. Set all rain drips and exterior thresholds in full bed of mastic sealant and install with stainless steel fasteners.

3.5 SHOP PAINTING

A. Shop prime-paint miscellaneous detention equipment and accessories, except members that are specified as stainless steel or chrome plated.

1. Primer selected must be compatible with finish coat of paint.

B. Remove scale, rust or other deleterious materials before applying shop coat. Clean off heavy rust and loose mills scale in accordance with SSPC SP-2 "Hand Tool Cleaning" or SSPC SP-3 "Power Tool Cleaning" or SSPC SP-7 "Brush-Off Blast Cleaning".

1. Remove oil, grease and similar contaminants in accordance with SSPC SP-1 "Solvent Cleaning".

C. Immediately after surface preparation, spray on primer in accordance with manufacturer's instructions, and at a rate to provide uniform dry film thickness of 2.0-mils for each coat. Use painting methods that will result in full coverage of joints, corners, edges and exposed surfaces.

3.6 ADJUST AND CLEAN

A. Final Adjustments: Prior to final inspection check and re-adjust all components to operate within their designed capacity. All components shall be adjusted and tested to verify correct operation prior to final inspection.

1. Test all devices for specified and manufacturer described operations.
2. Perform all tests required by local agencies.
3. Perform all tests required by Owner and Owner's Representative.
4. Systems not meeting the minimum level of acceptability as defined in the test procedures shall be repaired and re-tested.

B. Provide documentation of test procedures and results. Equipment manufacturers’ representative shall certify that the systems are installed and operate as specified.

C. All costs to test and retest systems shall be the responsibility of the DESC.

3.7 SPARE PARTS

A. Furnish spare parts packaged to protect from damage and to allow for easy storage and identification.

B. Supplier of equipment shall stock replacement parts for each system and be able to replace any part of the system within 24 hours.

C. Deliver to the Owner the following:

1. Door Hardware:

a. Two door position switches.
b. Two pair hinges Hager IHTHB953-RSS.
c. Two each non-sized surface closers of each type.

D. Package and label all parts and kits to provide for long-term storage.

END OF SECTION 111900

SECTION 017000 - CONTRACT CLOSEOUT

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 contract closeout including, but not limited to, the following:

1. Inspection procedures.
2. Project record document submittal.
3. Operation and maintenance manual submittal.
4. Submittal of warranties.
5. Final cleaning.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.

1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.

    a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

    b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

2. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

3. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

4. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys, and similar final record information.

5. Deliver tools, spare parts, extra stock, and similar items.

6. Complete startup testing of systems and instruction of the Owner's operation and maintenance personnel. Discontinue and remove temporary facilities from the site, along with construction tools, and similar elements.

7. Complete final cleanup requirements, including touchup painting.

8. Touch up and otherwise repair and restore marred, exposed finishes.

B. Inspection Procedures: On receipt of a request for inspection, the Designer will either proceed with inspection or advise the Contractor of unfilled requirements. The Designer will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Designer will repeat inspection when requested and assured that the Work is substantially complete.

2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a certified copy of the Designer's final inspection list of items to be completed or corrected, endorsed and dated by the Designer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Designer.

4. Submit consent of surety to final payment.

5. Submit a final liquidated damages settlement statement.

B. Re-inspection Procedure: The Designer will re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Designer.

1. Upon completion of re-inspection, the Designer will prepare a certificate of final acceptance. If the Work is incomplete, the Designer will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

2. If necessary, re-inspection will be repeated.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Designer's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of

showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.

2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.

3. Note related change-order numbers where applicable.

4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.

1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.

2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.

3. Note related record drawing information and Product Data.

4. Upon completion of the Work, submit record Specifications to the Designer for the Owner's records.

D. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.

1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.

2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.

3. Upon completion of markup, submit complete set of record Product Data to the Designer for the Owner's records.

E. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the Designer for the Owner's records.

F. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Submit digital operation and maintenance manuals at 80% project completion for review by designer and owner. The Contractors shall deliver three complete hard copy sets and PDF Electronic file CD of emergency, operation, and maintenance manuals to the Owner through the Designer prior to requesting inspection for Substantial Completion and at least fifteen (15) days before commencing demonstration and training.

Manual, Electronic Files:

(a) Submit the manuals in the form of multiple file composite electronically indexed PDF file for each manual required. (b) Use electronic files prepared by manufacturer where available. (c) Where scanned documentation is required, configure scanned file for minimum readable file size. (d) Enable bookmarking of individual documents based upon file names. (e) Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. (f) Bookmark should reflect the system, subsystem, and equipment names in a readily navigable file tree. (g) Configure electronic manual to display bookmark panel upon opening file.

Manual, Hardcopy File:

(a) Binders: Heavy-duty three ringed, vinyl-covered, loose-leaf binders in thickness necessary to accommodate contents, sized to hold 8 ½”x 11” paper, with clear plastic sleeve on spine to hold label describing contents and with inside cover pockets to hold folded oversize sheets. (i) If two or more binders are necessary, organize information in each binder into groupings by subsystem and related components. (ii) Each binder shall be identified, on the front and spine with printed title, “OPERATION AND MAINTENANCE MANUAL”, project title, subject matter of contents, and indicate Specification number on bottom of spine. If multiple manuals are required volume number shall also be identified. (b) Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. (i) Mark each tab to indicate contents. (ii) Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number. (c) Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. (d) Drawings: Attach reinforced, punched binder table on drawings and bind with text. (i) Fold oversize drawings to the same size as the text pages and use as foldouts. (ii) Drawings that are too large to be used as foldouts, fold and place drawings in labelled envelopes and bind envelopes in the rear of the manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

Organize operation and maintenance data into suitable sets of manageable size per Wake County guidelines. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions.
2. Spare parts list.
3. Copies of warranties.
4. Wiring diagrams.
5. Recommended "turn-around" cycles.

6. Inspection procedures.
7. Shop Drawings and Product Data.

PART 2 – PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. Operation and Maintenance Instructions: Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Identification systems.
7. Control sequences.
8. Hazards.
9. Cleaning.
10. Warranties and bonds.
11. Maintenance agreements and similar continuing commitments.

3.2 FINAL CLEANING

A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 1 Section "Construction Facilities and Temporary Controls."

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
   a. Remove labels that are not permanent labels.

   b. Leave concrete floors broom clean.

   c. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

d. Clean the site of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.

C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

1. Where extra materials of value remain after completion of associated Work, they become the Owner's property. Dispose of these materials as directed by the Owner.

3.3 PROJECT CLOSE-OUT CHECKLIST

A. At the completion of the project, Project Close-out List must be provided. Reference specification 00 08 30 Project Closeout Checklist for check list.

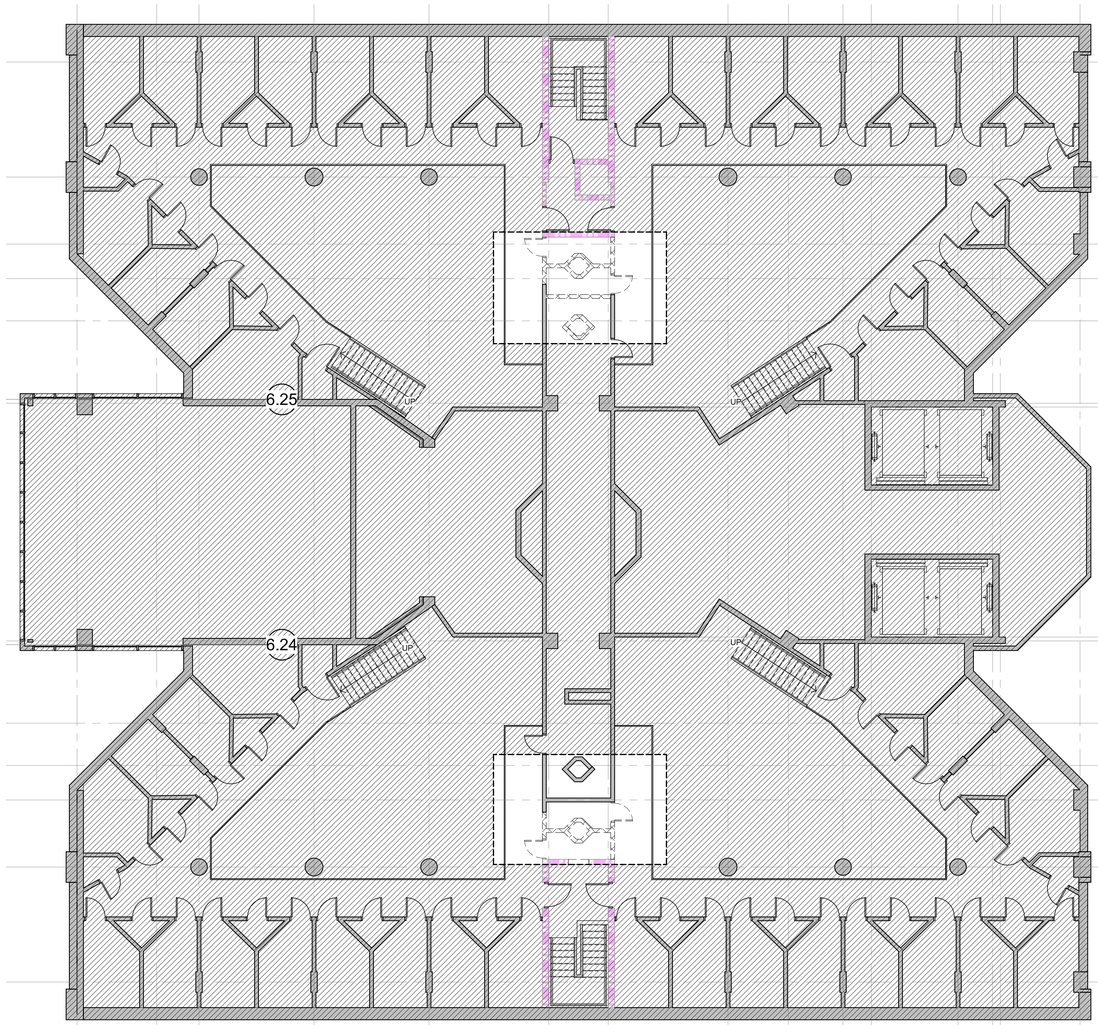
END OF SECTION 017000

GENERAL NOTES

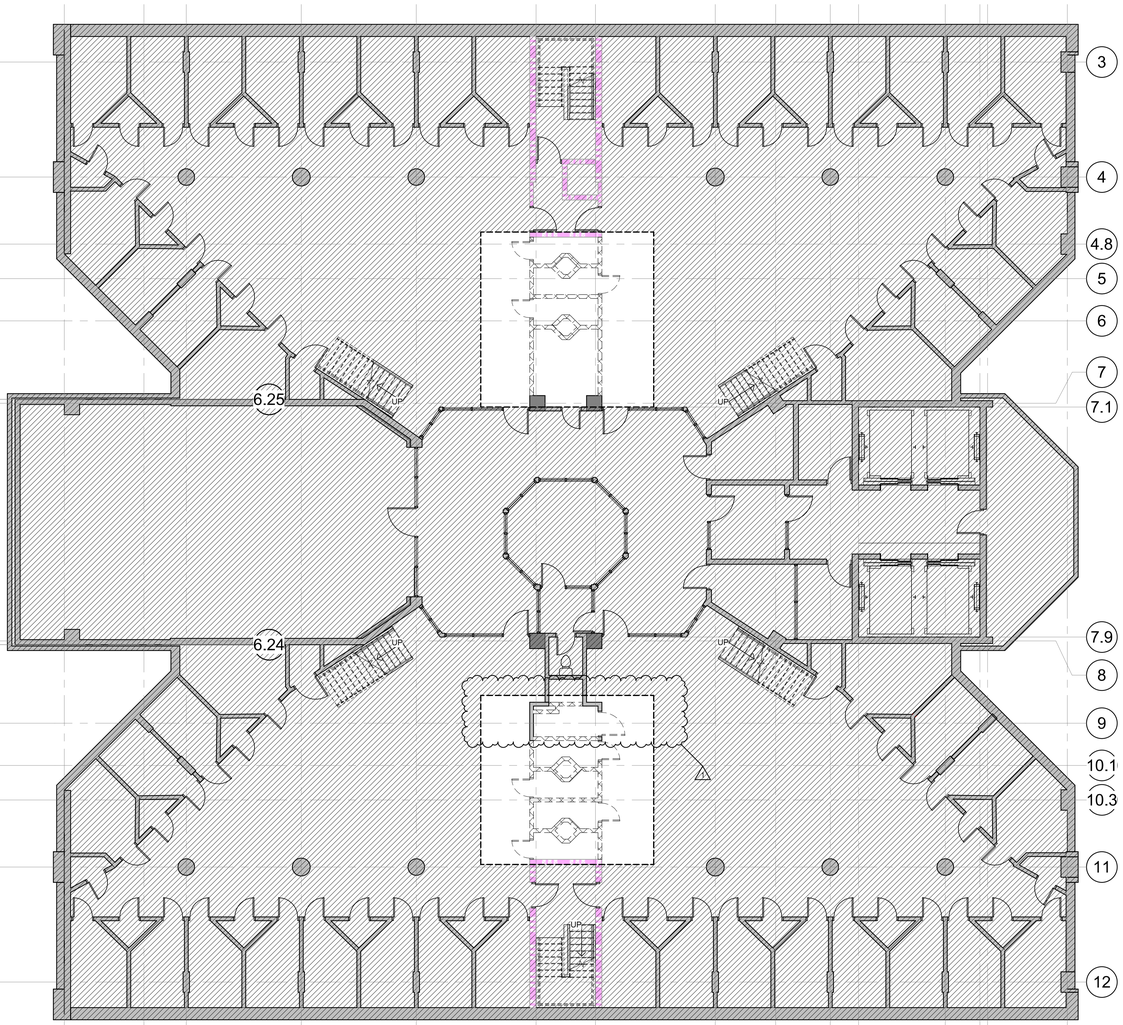
1. INTERIOR DIMENSIONS ARE TO THE FACE OF PARTITION AS INDICATED, UNLESS OTHERWISE NOTED.
2. SEE ENLARGED PLANS (TOILET, STAIRS, ELEVATORS, ETC) FOR DIMENSIONS IN THOSE AREA.
3. PROVIDE FIRE SEALANT / SAFING AT JOINTS BETWEEN RATED WALLS AND STRUCTURE AND AT PENETRATIONS OF RATED WALL, FLOORS, AND ROOF ASSEMBLIES. PROVIDE SMOKE & ACOUSTIC BARRIER AT TOP OF ALL NON-RATED CMU WALLS THAT EXTEND TO STRUCTURE.
4. SEE PLUMBING DRAWINGS FOR FLOOR DRAIN LOCATIONS. PROVIDE SLOPE TO DRAIN WITH BUILD UP OF LEVELING COMPOUND. PROVIDE HIGH PERFORMANCE COATING ON ALL SURACES OF THE SHOWER.
5. "FEC" DENOTES FIRE EXTINGUISHER CABINET AND EXTINGUISHER
"FE" DENOTES FIRE EXTINGUISHER AND BRACKET.
6. M.O. INDICATES MASONRY OPENINGS AS NOMINAL DIMENSIONS
7. PROVIDE THE FOLLOWING STENCILED WORDING ABOVE CEILING "FIRE AND SMOKE BARRIER, PROTECT ALL OPENINGS AT SMOKESTOP PARTITION AND FIRE RATED WALLS." ALSO STENCIL EXACTLY WHAT TYPE OF RATING EACH WALL IS. FOR EXAMPLE: "1-HOUR FIRE BARRIER, 2-HOUR FIRE BARRIER, SMOKE PARTITION, ETC."
8. "OFCI" DENOTES OWNER FURNISHED, CONTRACTOR INSTALLED.
"OFOI" DENOTES OWNER FURNISHED, OWNER INSTALLED.
"CFCI" DENOTES CONTRACTOR FURNISHED, CONTRACTOR INSTALLED.
9. INFILL EXISTING FLOOR CHASE OPENING WITH CONCRETE SECURE REBAR INCLUDE AS REQUIRE. SEE SHEET S-101.
10. REFERENCE SHEETS P901 AND P902 FOR PHASING.
11. GENERAL CONTRACTOR IS TO PROVIDE FULL BUILD OUT MOCK UPS OF ONE ADA SHOWER AND ONE NON-ADA SHOWER PRIOR TO COMMENCING WITH ALL OTHER WORK.

FLOOR & CEILING PLAN LEGEND

- INDICATES CONCRETE MASONRY UNITS
- INDICATES EXISTING DOOR TO REMAIN.
- INDICATES EXISTING DOOR TO BE DEMOLISHED. SAVE FOR REUSE
- INDICATES EXISTING CONSTRUCTION TO REMAIN
- INDICATES EXISTING 2 HOUR RATED WALL CONSTRUCTION TO REMAIN
- INDICATES EXISTING CONSTRUCTION TO BE DEMOLISHED
- INDICATES EXISTING BUILDING AREA NOT IN SCOPE
- CONCEALED PENDANT SPRINKLER, SEE PLUMBING DRAWINGS
- LIGTHING FIXTURE, SEE ELECTRICAL DRAWINGS
- CAN LIGHT



2 / A1000 **MEZZANINE 6 - DEMO**
1/8" = 1'-0"



1 / A1000 **06 SIXTH FLOOR - DEMO**
1/8" = 1'-0"

J J.6 K L M N P Q Q.5 R R.4 S S34 T

3 4 4.8 5 6 7 7.1 7.9 8 9 10.1 10.3 11 12

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OBA
O'BRIEN ATKINS

WAKE COUNTY
NORTH CAROLINA

WAKE COUNTY

Wake County Public Safety Center Domestic Water Riser & Shower Renovation

330 S Salisbury St, Raleigh, NC 27601

100% Bid Set

SEAL

07/30/2025

KEY PLAN

SCALE

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISION 1	7/29/25

DRAWN BY	DT
APPROVED BY	AC
CHECKED BY	AC
DATE	June 9, 2025

TITLE

OVERALL SIXTH FLOOR DEMOLITION PLANS

PROJECT NO. 50146592

A1000

SHEET NO.