ADDENDUM NUMBER TWO

Date: March 22, 2016

To: Plan Holders and Plan Rooms

From: **Jenkins•Peer** *Architects*
Charlotte, N.C.

Re: UNC Charlotte – Residence Dining Hall Renovation
SCO ID: 14-11273-02A
JPA Project #: 15NCC491

NOTICE TO BIDDERS:
Bidder is hereby notified that this Addendum shall hereby become a part of the Bid Set and the official Contract Documents, and shall be attached to the Project Manual for the Project.

The following items are intended to revise and clarify the Drawings and the Project Manual.

The bidder shall see that their Sub-Bidders are in full receipt of the information contained herein.

General Note:
This Addendum includes the following groups and subsequent "items" referring to various parts of the Contract Documents. Note that some "items" may refer to Bulletin Drawings or new Specification Sections which are attached at the back of the Addenda.

GENERAL REQUIREMENTS

Item 1. 00 11 16 – NOTICE TO BIDDERS – Replaced section 00 11 16 Notice to Bidders in its entirety with the attached section. Note the following changes to Bid Date, Bid Location, and Bid Hold.

A. **Bid Date** – **The bid date has been changed to Tuesday, April 5**. Time remains the same.

B. **Bid Location** – **The bid location has been changed to Room 208**, Cone University Center.

C. **Bid Hold Period** – The bid hold period, the period in which no bid may be withdrawn after the scheduled closing time for the receipt of bids, has been changed to a period of **60 Days**. This is also referenced below in the revision to 00 22 13 SUPPLEMENTARY GENERAL CONDITIONS.

Item 2. 00 21 13 – GENERAL CONDITIONS (OC-15) – Article 34 – Minimum Insurance Requirements, Item C. Property Insurance (Builder's Risk/Installation Floater) – Clarification: The owner has and will maintain property insurance on the existing building and property, therefore the General Contractor will only be responsible for builder's risk insurance on the project work itself within the contract.

Item 3. 00 22 13 – SUPPLEMENTARY GENERAL CONDITIONS – Add paragraph as follows:

A. Instructions to Bidders, Item 6. Opening of Bids – Change the second sentence of this paragraph to read, "After the opening of bids, no bid may be withdrawn, except under the provisions of General Statute 143-129.1, for a period of **SIXTY (60) DAYS**."

Item 4. PRE-BID RFI'S AND QUESTIONS ASKED DURING BID PERIOD (Items not already addressed in the other changes issued herein)

A. Bidder Question: Please clarify the parking situation for this project. It was stated at the pre-bid that limited contractor parking would be available at the site. Is the parking lot southwest of Sanford Hall lane available for this project? We see nothing in writing stating otherwise.
   - Designer Response: Refer to Addendum #1 and the Pre-Bid meeting for clarification on parking. The lot to the southwest of Sanford Hall Lane is "Lot 8A" and is NOT for contractor use.

B. Bidder Question: It was stated at the pre-bid that, if the alternate #4 was accepted, the parking lot southwest of Sanford Hall lane which is to be redone would be wanted as soon as possible. Is the alternate to be revised to reflect a timeframe for this work?
   - Designer Response: The design team did NOT state that the Alternate #4 work to redo the parking lot and road alignment would be "wanted as soon as possible." Work involved as a part of Alternate #4 would need to be scheduled by the GC for efficient use of the site and construction costs while allowing this parking lot (Lot 8A) to be open as long as possible. Therefore, the owner would prefer the work on this lot to be pushed later in the construction schedule, but since emergency access and deliveries will need to be maintained at all times to the buildings further down Sanford Hall Lane, temporary traffic would likely need to be routed through the parking lot while the road is realigned, so this must be factored into the GC's construction schedule.

C. Bidder Question: The fire extinguisher symbol is not available from the plan. Would it be possible to receive the counts from the owner?
   - Designer Response: As referenced in Floor Plan General Note #6 on A-101, fire extinguishers and fire extinguisher cabinet locations are referenced on the life safety plans. See sheets G-201 and G-202 for life safety plans.

D. Bidder Question: Is the Contractor responsible for carrying builders risk for the existing building or just for the demolition and renovation work?
   - Designer Response: See clarification herein stating that the owner will cover the insurance for the existing building and the contractor is responsible for just the demolition and renovation work within the project work.

E. Bidder Question: A flooring subcontractor has stated that QT-1 or QT-2 Summitville quarry tile are not available in the scheduled 4" x 4" size. Please clarify product size.
   - Designer Response: See modification on Sheet A-621.

F. Bidder Question: Do blinds need to install window A9, A10, A11, A12?
   - Designer Response: A9: Yes, blinds required at offices; A10 & A11 contractor to provide window shades at storefronts, see A-622; A12: no blinds required.

G. Bidder Question: For window A9, A10, A11, A12, do blinds need to cover the transom (above door area)?
   - Designer Response: Where blinds and / or shades are required, contractor to provide blinds and or shades at transoms as well.

H. Bidder Question: For window A8 and A13, how many blinds to be install? (One or two)?
   - Designer Response: Contractor to install one large blind for window A8 & A13.

I. Bidder Question: Please clarify the footing detail for the 6 column footings for the canopy added in alternate #2
   - Designer Response: Refer to drawings sheet S201 issued in Addendum No. 1.

J. Bidder Question: Please clarify the footing detail for the 4 brick veneer column footings added in alternate #3
   - Designer Response: Refer to drawings sheet S201 issued in Addendum No. 1.

K. Bidder Question: The shaft wall for the elevator is noted as M8.1, which indicates grouted solid but no reinforcement size and spacing. Please confirm the size and spacing of the reinforcement bar required.
   - Designer Response: Refer to drawings sheet S201 issued in Addendum No. 1. Also, refer to detail B5 on drawing sheet S-801: "Typical Detail – Minimum Wall Reinforcing Detail."

TECHINCAL SPECIFICATIONS DIVISIONS

Item 5. Section 04 20 00 – UNIT MASONRY – Paragraph 2.2.C.2.a: Clarification: "minimum thickness" of the CM is actually referring to the "minimum equivalent thickness".

Item 6. Section 10 22 13 – WIREMESH PARTITIONS – Delete section 10 22 13 in its entirety as there are no longer any wire mesh partitions within the project.

Item 7. Section 11 52 13 – PROJECT SCREENS – Paragraph 2.1.B.1.a.: Change "Screen Dimensions: As indicated" to "Screen Dimensions: Basis of Design is Da-Lite 39146 (Fabric, High Contrast Matte White Tensioned 45"x80" HD Pro 1.1 surface with internal low voltage control)".

Item 8. Section 14 24 13 – HYDRAULIC ELEVATOR – Replace section 14 21 13 ELECTRIC TRACTION ELEVATOR in its entirety with attached section 14 24 13 HYDRAULIC ELEVATOR.

Item 9. Section 21 13 13 – WET PIPE SPRINKLER SYSTEM - Replace section 21 13 13 WET PIPE SPRINKLER SYSTEM in its entirety with attached section 21 13 13. Modifications highlighted in bold.

Item 10. Section 21 13 19 – PRE-ACTION SPRINKLER SYSTEM - Replace section 21 13 19 PRE-ACTION SPRINKLER SYSTEM in its entirety with attached section 21 13 19. Modifications highlighted in bold.

Item 11. Section 22 40 00 – PLUMBING FIXTURES - Replace section 22 40 00 PLUMBING FIXTURES in its entirety with attached section 22 40 00. Modifications highlighted in bold.

Item 12. Section 23 34 23 – HVAC POWER VENTILATORS - Replace section 23 34 23 HVAC POWER VENTILATORS in its entirety with attached section 23 34 23.

Item 13. Section 26 51 16 - Provide a 5 percent "attic stock" of all types of fixtures installed by the Contractor, provide one complete fixture if total fixture quantity is less than 20., delivered to the University within 14 days of Beneficial Occupancy.

Item 14. Section 28 31 11 - Paragraph 3.1 E - revise to read "Remote Status and Alarm Indicators: Install near each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position. Provide remote status and alarm indicators for all duct detectors, install in the nearest corridor or public area and identify it with an engraved label affixed to the ceiling or wall.

DRAWING SHEETS:

Item 15. General Drawing Sheet G-101: Replace drawing sheet G-101 CODE SUMMARY (APPENDIX B) in its entirety with included new G-101.

Item 16. General Drawing Sheet G-202: Replace drawing sheet G-202 UPPER LEVEL LIFE SAFETY PLAN in its entirety with included new G-202

Item 17. General Drawing Sheet G-301: Replace drawing sheet in its entirety with included new G-301. Wall & Partition Type Schedule: Change Test No. reference for the M8.2 rated wall type from "UL U906" to "UL U905" so it correlates to the Code Summary Sheet on G-101 and the UL design shown on G-302.

Item 18. Civil Drawing Sheet C-200: Replace drawing sheet C-200 SITE PLAN BASE BID in its entirety with included new C-200.

Item 19. Civil Drawing Sheet C-400: Replace drawing sheet C-400 GRADING & STORM DRAINAGE PLAN in its entirety with included new C-400.

Item 20. Civil Drawing Sheet C-600: Replace drawing sheet C-600 UTILITY PLAN in its entirety with included new C-600.

Item 21. Structural Drawing Sheet S-201: Replace drawing sheet S-201 FOUNDATION PLAN – PLAN NORTH in its entirety with included new S-201.

Item 22. Architectural Sheet AD-102: Replace drawing sheet in its entirety with included new AD-102. Demolition Key Note D10 modified to " Movable kitchen equipment removed by owner; refer to food service dwgs"

Item 23. Architectural Demolition sheet AD-201: Replace drawing sheet in its entirety with included new AD-201. Detail B5 – Change keynote D2 on the lower level near gridline 6 to be D2, as the panel to the left of the door is an existing louver on the exterior and gypsum panel on the interior.

Item 24. Architectural Sheet A-101: Replace drawing sheet A-101 LOWER LEVEL FLOOR PLAN in its entirety with included new A-101

Item 25. Architectural Sheet A-121: Replace drawing sheet in its entirety with included new A-121. Detail A5- Modifications include:

A. Exit sign added to COR2
B. Exit sign near HRL loading dock door modified to show two way egress

Item 26. Architectural Sheet A-131: Replace drawing sheet in its entirety with included new A-131. Detail D1 added to show east elevation of Alternate #3

Item 27. Architectural Sheet A-201: Replace drawing sheet in its entirety with included new A-201. Detail C1 added to show overflow drain detail at precast panel

Item 28. Architectural Sheet A-411: Replace drawing sheet in its entirety with included new A-411. Detail C5 & C3 modified

Item 29. Architectural Sheet A-601: Replace drawing sheet in its entirety with included new A-601. Door Schedule – Change dimensions of cased openings as follows:

A. Door 107 has an aluminum frame
B. Door 150, 151, & 155 have hollow metal frames
C. Door 160 and 160A are 48" wide by 84" tall, and
D. Door 163 is 60" wide by 84" tall.
E. H4 & J3 have been added

Item 30. Architectural Sheet A-611: Replace drawing sheet in its entirety with included new A-611. Detail I6 has been added to show window elevation at south wall of Chef Office 155

Item 31. Architectural Sheet A-612: Replace drawing sheet in its entirety with included new A-612. Detail S1 – Detail adjusted to show interior sill to be quartz

Item 32. Architectural Sheet A-623 – Replace drawing sheet A-623 INFILL PLAN & TILE TRANSISION DETAILS in its entirety with included new A-623

Item 33. Roofing Drawing Sheet R-102: Replace drawing sheet R-102 ROOF PLAN in its entirety with included new R-102.

Item 34. Roofing Drawing Sheet R-301: Replace drawing sheet R-301 ROOF SECTIONS & DETAILS (ROOF AREAS "D", "E" & "F") in its entirety with included new R-301.

Item 35. Roofing Drawing Sheet R-502: Replace drawing sheet R-502 TYPICAL ROOF DETAILS in its entirety with included new R-502.

Item 36. Food Service Equipment Sheet K-301 – Replace drawings sheet K-301 FOOD SERVICE PLUMBING ROUGH-IN SCHEDULE in its entirety with the attached drawing sheet. Note: This sheet has been revised to clarify the installation the hoses and gas pressure regulators & gas-shut-offs for cooking equipment.

Item 37. Fire Protection Drawing Sheet FP-001: Replace drawing sheet FP-001 FIRE PROTECTION LEGEND NOTES & SPECIFICATIONS in its entirety with included new FP-001.

Item 38. Fire Protection Drawing Sheet FP-002 – Replace drawing sheet FP-002 FIRE PROTECTION DETAILS in its entirety with included new FP-002.

Item 39. Fire Protection Drawing Sheet FP-101 – Replace drawing sheet FP-101 FIRE PROTECTION FIRST LEVEL PLAN NEW WORK in its entirety with included new FP-101.

Item 40. Fire Projection Drawing Sheet FP-102 – Replace drawing sheet FP-102 FIRE PROTECTION SECOND LEVEL PLAN NEW WORK in its entirety with included new FP-102.

Item 41. Fire Projection Drawing Sheet FP-103 – Replace drawing sheet FP-103 FIRE PROTECTION ROOF PLAN NEW WORK in its entirety with included new FP-103.

Item 42. Plumbing Drawing Sheet P-002 – Replace drawing sheet P-002 PLUMBING DETAILS in its entirety with included new P-002.

Item 43. Plumbing Drawing Sheet P-003 – Replace drawing sheet P-003 PLUMBING SCHEDULES in its entirety with included new P-003.

Item 44. Plumbing Drawing Sheet P-202 – Replace drawing sheet P-202 PLUMBING SECOND LEVEL PLAN NEW WORK in its entirety with included new P-202.

Item 45. Mechanical Drawing Sheet M-002 – Replace drawing sheet M-002 MECHANICAL SCHEDULE in its entirety with included new M-002.

Item 46. Mechanical Drawing Sheet M-004 – Replace drawing sheet M-004 MECHANICAL SEQUENCE OF OPERATIONS in its entirety with included new M-004.

Item 47. Mechanical Drawing Sheet M-202 – Replace drawing sheet M-202 MECHANICAL UPPER LEVEL PLAN NEW WORK in its entirety with included new M-202.

Item 48. Electrical Drawing Sheet E-001 - Revise description of wall mounted and ceiling mounted strobes to be 75cd unless otherwise noted.

Item 49. Electrical Drawing Sheet E-002A - Revise note calling out the detail for Alternate #8 to reference 3/E-302 and 2/E-202 in lieu of 2/E-002A.

Item 50. Electrical Drawing Sheet E-003 - Fixture type C, delete remark indicating 2000 lumens. Fixture type F, revise model number to be LXEM-8-L32/835. Fixture types L, L2, L3, L4 and L5 by ALW are approved for bidding.

Item 51. Electrical Drawing Sheet E-004 - Provide a molded case circuit breaker at the generator to serve the fire pump. The breaker shall be 60A, 3P, 14KAIC. The breaker shall selectively coordinate with the short circuit protection provided in the fire pump controller.

Item 52. Electrical Drawing Sheet E-201 -Provide direction arrows in two directions on the exit sign in COR2 at door 012. Provide an exit sign in COR2 above door COR1.

Item 53. Electrical Drawing Sheet E-202 - Provide fixture type V in fire pump room 167.

Item 54. Electrical Drawing Sheet E-301 - Circuit Area of Rescue Assistance to 1S-3 and provide voice telephone outlet, coordinate locations with equipment supplied. The 3 circuit homerun shown at the elevator should be circuited to 1LA-36,38,40. Provide an additional circuit, 1LB-3 to serve the elevator sump pump alarm panel, see 5/E007.

Item 55. Electrical Drawing Sheet E-302 - Provide a power connection to the sprinkler system electric bell in fire pump room 167, circuit to 1LB-1. Provide a ceiling mounted fire alarm strobe in room 134 and 136.

Item 56. Electrical Drawing Sheet E-401 - Provide fire alarm connection to fire suppression systems E-47A and E-48A. Circuit fire suppression system E-47A to KC-41. Provide power and control wiring to gas valves and shunt trip main breaker in panel KA from the suppression system cabinets. Unlabeled junction box in production 153 is for heat tracing of oil lines (E67), coordinate location, circuit to KB-7.

Item 57. Electrical Drawing Sheet E-501 - Provide GF breakers in panels KA, KB, KC, and KD for all circuits that serve receptacles Hot Prep room 167, COR9 and cold prep 161. In addition, provide GF protection for two of the 20A spare breakers in each panel. Provide 20/1 spare breakers KC-34,36,38,42.

Item 58. Electrical Drawing Sheet E-502 - Panels 1HE, 1LE, CB-E and the breaker at the generator serving CB-E shall be provided so they selectively coordinated per the requirements of NEC 700.

END OF ADDENDUM NUMBER TWO

Attachments:

- Revised Specification Sections as noted above
- Revised Drawing Sheets as noted above

N O T I C E TO B I D D E R S

Sealed proposals will be received by the University of North Carolina at Charlotte, NC, in **Room 208** of the Cone University Center (# 5 on the campus map – http://facilities.uncc.edu/maps) until 2:00 p.m. Tuesday, **April 5,** 2016 and immediately thereafter publicly opened and read for the furnishing of labor, material and equipment entering into the construction of

Residence Dining Hall Renovation

The project will provide for the renovations of the former South Village Residence Dining Hall (RDH) building. This existing two story building was originally constructed in 1969. The total existing 36,915 square foot building will be completely gutted and re-purposed for use as Housing and Resident Life Offices, Shops, and Facilities on the lower level and a portion of the upper level. The remaining portion of the upper level will house a new catering kitchen with all new equipment, requiring installation of new hoods, freezers, coolers, floor sinks, etc. This renovation will also update the mechanical, electrical, information technology and plumbing systems and modernize the interior as a whole. The project will also include window, door, and roof replacements and ADA modifications to meet existing code requirements, as well as some façade modifications and construction of a new loading dock. There will be substantial site work to include extension of HW/CW lines from the recently constructed South Village Regional Utility Plant and other site amenities to include screen walls, stairs, patios, walkways and paving. The construction will begin in May 2016 and will complete in March 2017.

Bids will be received for a single prime contract from *Prequalified General Contractors only.*

1. ***DPR Construction***
   Attn: Mr. Steve Gray
   Telephone: (704)413-3890
   Email: *steveg@dpr.com*

2. ***J.M. Thompson Company***
   Attn: Mr. John Thompson
   Telephone: (919)851-1611
   Email: *john.thompson@jmthompsonco.com*

3. ***Messer Construction Co.***
   Attn: Mr. Stephen Keckeis
   Telephone: (704)679-6000
   Email: *SKeckeis@Messer.com*

4. ***Monteith Construction Corp.***
   Attn: Mr. Brian Stamp
   Telephone: (910)791-8101
   Email: *bstamp@monteithco.com*

5. ***PRO Construction, Inc.***
   Attn: Mr. Bob Warden
   Telephone: (910)455-0647
   Email: *estimating.proconstruction@gmail.com*

6. ***Samet Corporation/SRS Incorporated***
   Attn: Mr. Charles Blankinship
   Telephone: (704)697-2125
   Email: *cblankinship@sametcorp.com*

7. ***Shiel Sexton Company, Inc.***
   Attn: Mr. Ben Wilhelm
   Telephone: (704)679-4050
   Email: *bwilhelm@shielsexton.com*

Visitor parking is located in Cone Deck 1 & 2 adjacent the Cone University Center.

All proposals shall be lump sum.

Mandatory Pre-Bid Meeting

A mandatory pre-bid meeting (for prequalified bidders) will be held at 10:00 a.m. Tuesday, March 15, 2016, in Room 113 of the Cone University Center. The meeting will address project-specific questions, issues, bidding procedures, bid forms, and owner-preferred alternates. This meeting is open to the public.

In accordance with GS133-3 and SCO procedures the following preferred brand items are being considered as Alternates by the owner for this project:

a. UNCC Infrastructure System standard detailed vendor equipment specifications for Telecommunications Wiring System.
b. Simplex Grinnell to provide the fire alarm system
c. "English Edge" pavers by Pine Hall
d. Door Hardware:
    a. Schlage locksets and cylinders
    b. Medeco door electronic cylinders
    c. Von Duprin exit devices
    d. Yale exit devices
    e. LCN closers

Complete plans, specifications and contract documents will be open for inspection as of March 1, 2016 at:

1. Jenkins Peer Architects, 112 South Tryon Street, Suite 1300, Charlotte, NC 28284, Phone: (704)372-6665
2. Owner – UNC Charlotte, Facilities Management/Police Building, 2nd floor – Capital Projects, 9151 Cameron Blvd, Charlotte, NC 28223, Phone: (704) 687-0615
3. Metrolina Minority Contractors Association (MMCA), 2848 Queen City Drive, Suite B, Charlotte, NC 28208, Phone: (877) 526-6205, mmca@mmcaofcharlotte.org.

Digital copies of the plans, specifications and contract documents will be available as of March 1, 2016 at the following;

1. Associated General Contractors (AGC) Carolinas Branch and the Hispanic Contractors Association of the Carolinas (HCAC) – (800) 364-2059 or sales@isqft.com
2. North Carolina Offices of McGraw-Hill Dodge Corporation – (877) 784-9556 or (800) 393-6343 – http://construction.com/dodge
3. Construction Market Data – (800) 424-3996

Digital plans and specifications can be obtained by e-mailing a request to the architect Steve Houser at shouser@jenkinspeer.com

Physical hard copies of the construction documents can also be obtained for a refundable deposit of Two Hundred Fifty Dollars ($250.00) per set. Deposit fee will be returned upon receipt of a clean set of documents in good condition. Contact Steven Houser at shouser@jenkinspeer.com for instructions to obtain hard copies.

NOTE: The bidder shall include with the bid proposal the form *Identification of Minority Business Participation* identifying the minority business participation it will use on the project and shall include either *Affidavit **A*** or *Affidavit **B*** as applicable. Forms and instructions are included within the Proposal Form in the bid documents. Failure to complete these forms is grounds for rejection of the bid. (GS143-128.2c Effective 1/1/2002.)

All contractors are hereby notified that they must have proper license as required under the state laws governing their respective trades.

General contractors are notified that Chapter 87, Article 1, General Statutes of North Carolina, will be observed in receiving and awarding general contracts. General contractors submitting bids on this project must have license classification for Building Contractor with unlimited license required by the NC General Contractors Licensing Board under G.S. 87-1

NOTE--SINGLE PRIME CONTRACTS: Under GS 87-1, a contractor that superintends or manages construction of any building, highway, public utility, grading, structure or improvement shall be deemed a "general contractor" and shall be so licensed. Therefore a single prime project that involves other trades will require the single prime contractor to hold a proper General Contractors license.

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company, insured by the Federal Deposit Insurance Corporation, of an amount equal to not less than five percent (5%) of the proposal, or in lieu thereof a bidder may offer a bid bond of five percent (5%) of the bid executed by a surety company licensed under the laws of North Carolina to execute the contract in accordance with the bid bond. Said deposit shall be retained by the owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten days after the award or to give satisfactory surety as required by law.

A performance bond and a payment bond will be required for one hundred percent (100%) of the contract price.

Payment will be made based on ninety-five percent (95%) of monthly estimates and final payment made upon completion and acceptance of work.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of **60 days**.

The owner reserves the right to reject any or all bids and to waive informalities.

Note: Bidders who do not plan on attending the bid opening must ensure their sealed bids are received by 1:00 p.m. bid day (**April 5, 2016**) to the following;

Mailed:
Attn: Ms. Joyce Clay
The University of North Carolina at Charlotte
Facilities Management – Capital Project
9201 University City Boulevard
Charlotte, NC 28223-0001

or

Hand Delivered:
Attn: Ms. Joyce Clay – 2nd Floor Capital Projects

Facilities Management/Campus Police Building (#55 on the campus map)
9151 Cameron Boulevard
Charlotte, NC 28223
(704) 687-0615

otherwise,

Bidders should hand carry their sealed bids to Room 208, Cone University Center, by 2:00 p.m. on bid day.

Designer:	Owner:
_____	_____
_____	_____
_____	_____

SECTION 14 24 13 - HYDRAULIC ELEVATOR

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK AND REFERENCES

A. This Section covers and includes the furnishing and installing of passenger hydraulic elevator equipment as hereinafter described.

B. All terms of this specification shall have their meaning defined in the American Society of Mechanical Engineers A17.1 Safety Code for Elevators and Escalators and hereinafter referred to as ANSI A17.1 Code, including all revisions and authorized changes to date.

C. All work shall be performed in a first-quality manner and is to include all work and material in accordance with the drawings and as specified herein.

D. In all cases where a device or part of the equipment is herein referred to as a single component, it is intended that such reference shall apply to as many such devices as are required to complete the installation.

E. All work shall be performed in accordance with the latest revised edition of the American Society of Mechanical Engineers ASME/ANSI A17.1 Safety Code for Elevators and Escalators, the National Electrical Code and N. C. State Building Code(s) and other required codes that are applicable. Additional payments or changes in the contract work by the contractor are to be accomplished by a properly executed change order. This process must be in accordance with the North Carolina Construction Manuel.

1.2 RELATED WORK BY OTHERS

A. General contractor shall provide the following in accordance with the requirements of the ANSI A17.1 Code, NC State Building Codes, NFPA 70 National Electrical Code and other required codes.

1. A properly framed clear, plumb hoistway with variations not to exceed ½” at any point, including adequate guards and protection of hoistway during the erection period.

2. Access to the machine room and machinery space as required by the ANSI A17.1 Code and NC State Building Code.

3. Legal size machine room with ventilation and temperature to be maintained between 65° - 90° F. Consult elevator contractor to verify this temperature range.

4. Projections, recesses and setbacks in hoistway enclosures exceeding 4” shall be beveled at an angle not less than 75° with the horizontal.

5. Supports for rail brackets at pit, each floor and roof. Maximum allowable vertical spacing of rail supports, without backing. Divider beams between hoistway at each floor and roof, for guide rail bracket support.

6. Light and convenience outlets (GFCI) in machine room with light switches located within 18” of lock jamb side of machine room door.

7. A fused disconnect for the main power supply conductors for each elevator as per the NFPA 70, NEC, Article 620-51.

8. A separate branch circuit with fused disconnect switch in the machine room for each elevator car lighting power source.

9. A separate branch circuit for elevator signal circuit, when required by the elevator control system.

10. Convenience outlet (GFCI) and a minimum of two light fixtures per elevator located in elevator pit. Locate pit light switch adjacent to the pit access ladder(s) 48” above the lowest landing hoistway entrance sill.

11. Provide a vertical iron ladder for access to each elevator pit. Extend pit ladder a minimum of 48” above the lowest landing hoistway entrance sill. Consult elevator contractor for location.

12. Provide ventilation of the hoistway as required by the NC State Building Code.

13. Recesses, supports and patching, as required to accommodate hall button boxes, signal fixtures, oil lines, etc..

14. Provide a dry waterproof pit reinforced to sustain vertical forces on car rails and impact loads from car buffers and cylinder head.

15. Front entrance partition walls to be constructed after door frames and sills are set in place. If entrance walls are poured concrete bearing walls, rough openings are to be provided to accept entrance frames and filled in after frames are set.

16. Level surface of finish floor at each landing to be continuous for full width of hoistway. Adequate support or sill angle across full width of hoistway at each landing. Vertical surface of entrance sill support to be plumb, one above the other, and square with the hoistway. Grout, if required, between door frames to sill line to provide a smooth level surface.

17. Any cutting, patching and painting of walls, floors or partitions.

18. Electric power for lights, tools, hoist, etc., during erection as well as required power for installing, testing and adjustment of the elevator.

19. Fire recall initiating devices (smoke, heat, etc.) or products of combustion sensing devices connected to elevator machine room controller terminals. Provide fire alarm panel as required.

20. Requirements for elevators, if emergency power is provided, as per the ANSI A17.1 Code and NC State Building Code.

21. Telephone line wiring routed to elevator controller for each elevator cab.

22. Suitable means of access to and egress from location of cylinder wall, for truck mounted drill rig. Location and marking of hydraulic well hole or hoistway walls from building lines.

23. Removal of well hole drillings from building.

24. Proper trenching and backfilling for any underground piping or conduit.

25. Class “ABC” fire extinguishers provided in electrical machinery and control spaces. Locate convenient to the access door.

26. Pit drain or sump pump for elevator pits. Cover shall be secure and level with pit floor.

27. Cutout through machine room wall for oil line, etc. Coordinate location and size with elevator contractor.

1.3 QUALITY ASSURANCE

A. In the interest of unified responsibility, the elevator contractors shall be one regularly engaged in the business of installing and servicing of the type and character required by these specifications.

1. The contractor shall have technical qualifications of at least five years experience, trained supervisory and installation personnel, and facilities to install specified items.

2. Any manufacturer's product submitted shall have been in satisfactory and efficient operation on not less than twenty-five installations similar to this project and for not less than one and one-half years. Contractor shall submit a list of installations, including names and addresses to the Designer for approval, as per the North Carolina Construction Manual, General Conditions of the Contract, Article 16.

3. There shall be a permanent service organization maintained or trained by contractor which will render satisfactory service to this installation within two hours of receipt of notification that service is needed. Submit name and address of service organization.

4. All designs, clearances, construction, workmanship and material shall be in accordance with the ANSI A17.1 Code, NC State Building Codes, NFPA 70 National Electrical Code and all codes having legal jurisdiction.

B. The major elevator components shall be the products of one manufacturer of established reputation, except they may be the products, either wholly or in part, of another manufacturer of established reputation provided such items are engineered and produced under coordinated specifications. Any contractor who proposes to install any major elevator component not manufactured or normally assembled by him, as part of his equipment, shall have such product

approved by the North Carolina Department of Labor, Elevator Bureau, prior to bidding this specification. Also, the major components to be furnished shall be of a make or makes that have performed satisfactorily together under conditions of normal use in not less than twenty-five other elevator installations of equal or greater capacity and speed for a minimum of one and one-half years within the United States, and a minimum of three installations in North Carolina. Upon request the names and addresses of the building and the names of the owners or managers thereof, in which the proposed combination of major components has so performed, shall be furnished.

1. The term major elevator components as mentioned above shall mean such items as a hydraulic jack, hydraulic machine, controller, door operator and related equipment.

2. The hydraulic machine, tank, and associated control system shall be mounted in the elevator machine room. Equipment shall be so arranged that parts can be removed for repairs or replacement by conventional means, without dismantling or removing other equipment components in the machine room. Adequate work space for maintenance and repair operations shall be provided around the elevator equipment in the machine room with clear passage to any access or trap doors.

1.4 SUBMITTALS

A. The elevator contractor shall, after structural and architectural drawings are furnished, submit complete working drawings, showing the location of all equipment, loads, and all other information necessary to render a totally functional elevator.

B. The elevator contractor shall provide finish samples upon request, and cab entrance and fixture cutsheets.

C. The elevator contractor shall provide two complete sets of electrical and solid state wiring diagrams, operating and maintenance manuals. These shall include:

1. Description of the elevator system's sequence of operation and control including the functions of signals, door devices and other features;

2. Written instructions for the trouble-shooting, adjustment and care of the entire equipment;

3. Electrical prints shall be reproducible type, non-fading;

4. One set shall be sealed in a clear material and mounted in the elevator machine room;

5. All electrical wiring diagrams shall be as built drawings. If standard drawings are used they shall be marked up according to the installation for which they apply;

6. The identification label for each diagram and manual shall include the subject, building name, location, contract number, and the specified state assigned elevator number to which the diagrams and manuals apply;

7. One set of diagrams and manuals shall be delivered to the Designer who will deliver them to the engineering officer of the facility; and

8. The elevator contractor shall notify the North Carolina Department of Labor for scheduling of a final inspection as per code and specifications. Approval must be given that all code requirements have been met and that installation complies with the specifications before final payment will be made.

9. Tools, programmers, laptops, etc. necessary to maintain and/or trouble-shoot the elevator system shall be furnished to the owner. Provide instructions manuals, etc., in the operation of these special tools.

1.5 TEMPORARY USE

A. Should the service of an elevator be required before completion and final acceptance, permission in writing must first be obtained for the Designer. In addition, the user shall sign the elevator contractors temporary acceptance form and be bound by the terms and conditions.

1.6 DELIVERY, STORAGE AND HANDLING

A. A dry and protected area, conveniently located to the elevator hoistway will be assigned to the elevator contractor without cost for storage of his materials and tools.

B. Should the building or site not be prepared to receive the elevator equipment at the agreed upon date, the General Contractor shall provide a proper and suitable storage area on or off the premises.

1.7 WARRANTY

A. The elevator contractor shall guarantee the materials and workmanship against defect due to faulty materials or faulty workmanship or negligence for a period of twelve (12) months following the final acceptance of the work. Where items of equipment or material carry a manufacturer’s warranty for any period in excess of twelve (12) months, then the manufacturer’s warranty shall apply for that particular piece of equipment or material. The contractor shall replace such defective materials, equipment, or workmanship without cost to the owner within the stipulated guarantee period.

B. This warranty is not intended to supplement normal maintenance service and shall not be construed to mean the elevator contractor will provide free service for periodic examination, lubrication, or adjustment due to normal use, beyond that included in the specifications; nor will the elevator contractor correct, without charge, breakage maladjustments or other trouble arising from abuse, misuses, or improper use of the equipment, which may develop within twelve (12) months from the date of acceptance.

1.8 MAINTENANCE

A. Maintenance Service: The elevator contractor shall furnish an all-inclusive first-quality maintenance and call-back service on each elevator after it is completed and placed in operation for a period of twelve (12) months, concurrent with warranty period. This service shall consist of examinations of the equipment at a minimum of once a month. Service shall include adjustments, lubrication, cleaning, supplies and parts to keep the equipment in proper operation, except for such adjustments, replacement of parts or repairs made necessary by abuse, misuse or any other causes beyond the control of the elevator contractor. All work will be done by trained employees of the elevator contractor during regular working hours of the trade.

Emergency call-back service shall be provided at no cost to the owner and included for all hours and days during the maintenance period.

1. Thirty days before expiration of the twelve (12) month maintenance service, the elevator contractor shall schedule an inspection of the elevator equipment with the Owner or his representative. This inspection is to assure that the elevator equipment is in safe first-quality, operating condition and the equipment is operating in line with its original design. An authorized representative of the elevator contractor shall accompany the Owner or his representative.

B. Examinations and Log: During the warranty maintenance period the elevator contractor shall maintain maintenance records as per ANSI A17.1 Code for each elevator. The records shall be located in the elevator machine room and be used to indicate all call backs, repairs, replacement of parts, fire service test and adjustments performed by the mechanic. Each entry in the maintenance records shall be signed by the mechanic who performs the work and be kept up-to-date at all times.

1.9 PAINTING - EQUIPMENT/FLOORS

A. All exposed metal work and equipment furnished by the elevator contractor under these specifications shall be properly painted after installation in order to present a new appearance, as otherwise specified.

1. Minimum requirements shall include one coat of metal primer, and one coat of semi-gloss industrial grade enamel.

2. All surfaces painted must be clean before painting.

3. Machine room floors and pit floors shall be cleaned and painted with two coats of semi-gloss industrial grade enamel.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products of one of the following manufacturers, or approved equal:

1. Otis Elevator Corporation

2. Schindler Elevator Corporation

3. Kone Elevator Corporation

4. ThyssenKrupp Elevator Americas (Basis of Design)

2.2 SYSTEM DESCRIPTION: ELEVATOR ARRANGEMENT

A. Elevator Equipment Summary

1. Building: Residence Dining Hall Renovation
2. Location: UNC Charlotte, Charlotte, North Carolina
3. Quantity of Passenger Elevators: One.
4. Type:
    a. Twin direct acting hydraulic cylinder without well hole.
5. Number of Stops:
    a. 2 front & 0 rear.
6. Number of Openings: 2 at front, 0 at rear
7. Rise: 11 feet 6 inches.
8. Rated Capacity/Speed:
    a. 3500 pounds, 150 fpm (1,588 kg, 0.77m/sec.)
9. Minimum Car Inside: 6' - 8" wide x 5' - 5" deep
10. Inside Cab Height: 8 feet 10 inches.
11. Entrance Width & Type: Two speed 3'-6" wide x 7'-0" high.
12. Main Power Supply
    a. 460.
    b. Volts + or – 5% of normal, 3 phase, with a separate equipment grounding conductor.
13. Cab Lighting Power Supply: 120 volts, 1 phase, 20 amp, 60 hz.
14. Stopping Accuracy: ± ¼” (6.4 mm) under any loading condition or direction of travel.
15. Simplex Collective Operation: Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served.

B. Car Operating Features:

1. Full Collective Operation

2. Single Speed Fan

3. On/Off Light switch and Fan switch

4. Solid State Starting

5. Car Stall Protection

6. Firefighters' Service Phase I and Phase II

7. Top of Car Inspection Operation

8. Independent Service with key switch

2.3 MATERIALS, GENERAL

A. All Elevator Cab materials including frame, buttons, lighting, wall and ceiling assembly, laminates and carpet shall have an EPD and an HPD, and shall meet the California Department of Public Health Standard Method V1.1-2010, CA Section 01350 as mentioned in 1.03.9 of this specification.

1. Colors, patterns, and finishes: As selected by the Architect from manufacturer's standard colors, patterns, and finish charts.

2. Steel:

a. Shapes and bars: Carbon.

b. Sheet: Cold-rolled steel sheet, commercial quality, Class 1, matte finish.

c. Finish: Factory-applied baked enamel.

3. Plastic laminate: Decorative high-pressure type, complying with NEMA LD3, Type GP-50 General Purpose Grade, nominal 0.050" thickness.

4. Cab Flooring: By others.

2.4 HOISTWAY EQUIPMENT

A. Platform: Fabricated frame of formed or structural steel shapes, gusseted and rigidly welded with a wood subfloor. Underside of the platform shall be fireproofed. The car platform shall be designed and fabricated to support one-piece loads weighing up to 25% of the rated capacity.

1. Sling: Steel stiles affixed to a steel crosshead and bolstered with bracing members to remove strain from the car enclosure.

2. Guide Rails: Steel, omega shaped, fastened to the building structure with steel brackets.

3. Guide Shoes: Slide guides shall be mounted on top and bottom of the car.

4. Buffers: Provide substantial buffers in the elevator pit. Mount buffers on a steel template that is fastened to the pit floor or continuous channels fastened to the elevator guide rail or securely anchored to the pit floor. Provide extensions if required by project conditions.

5. Jack: Jack unit shall be of sufficient size to lift the gross load the height specified. Factory test jack to insure adequate strength and freedom from leakage. Brittle material, such as gray cast iron, is prohibited in the jack construction. Provide the following jack type: Twin post holeless telescopic 2-stage. Two jacks piped together, mounted one on each side of the car with each having two telescopic sections designed to extend in a synchronized manner when oil is pumped into the Assembly. Each jack section will be guided from within the casing or the plunger assembly used to house the section. Each plunger shall have a high pressure sealing system which will not allow for seal movement or displacement during the course of operation. Each Jack Assembly shall have a check valve built into the assembly to allow for automatically re-syncing the two plunger sections by moving the jack to its fully contracted position. The jack shall be designed to be mounted on the pit floor or in a recess in the pit floor. Each jack section shall have a bleeder valve to discharge any air trapped in the section.

6. Automatic Self-Leveling: Provide each elevator car with a self-leveling feature to automatically bring the car to the landings and correct for overtravel or undertravel. Self-leveling shall, within its zone, be automatic and independent of the operating device. The car shall be maintained approximately level with the landing irrespective of its load.

7. Wiring, Piping, and Oil: Provide all necessary hoistway wiring in accordance with the National Electrical Code. All necessary code compliant pipe and fittings shall be provided to connect the power unit to the jack unit. Provide proper grade readily biodegradable oil as specified by the manufacturer of the power unit (see Power Unit section 2.04.G for further details)

2.5 POWER UNIT

A. Power Unit (Oil Pumping and Control Mechanism): A self-contained unit consisting of the following items:

1. Oil reservoir with tank cover.

2. An oil hydraulic pump.

3. An electric motor.

4. Oil control valve with the following components built into single housing; high pressure relief valve, check valve, automatic unloading up start valve, lowering and leveling valve, and electro-magnetic controlling solenoids.

B. Pump: Positive displacement type pump specifically manufactured for oil-hydraulic elevator service. Pump shall be designed for steady discharge with minimum pulsation to give smooth and quiet operation. Output of pump shall not vary more than 10 percent between no load and full load on the elevator car.

C. Motor: Standard manufacture motor specifically designed for oil-hydraulic elevator service. Duty rating shall be selected for specified speed and load.

D. Control System: Shall be microprocessor based and protected from environmental extremes and excessive vibrations in a NEMA 1 enclosure.

E. Oil Control Unit: The following components shall be built into a single housing. Welded manifolds with separate valves to accomplish each function are not acceptable. Adjustments shall be accessible and be made without removing the assembly from the oil line.

1. Relief valve shall be externally adjustable and be capable of bypassing the total oil flow without increasing back pressure more than 10 percent above that required to barely open the valve.

2. Up start and stop valve shall be adjustable and designed to bypass oil flow during start and stop of motor pump assembly. Valve shall close slowly, gradually diverting oil to or from the jack unit, ensuring smooth up starts and up stops.

3. Check valve shall be designed to close quietly without permitting any perceptible reverse flow.

4. Lowering valve and leveling valve shall be adjustable for down start speed, lowering speed, leveling speed and stopping speed to ensure smooth "down" starts and stops. The leveling valve shall be designed to level the car to the floor in the direction the car is traveling after slowdown is initiated.

F. Solid State Starting: Provide an electronic starter featuring adjustable starting currents.

G. Oil Type: USDA certified bio-based product, ultra low toxicity, readily biodegradable, energy efficient, high performing fluid made from canola oil with antioxidant, anticorrosive, antifoaming, and metal-passivating additives. Especially formulated for operating in environmentally sensitive areas. USDA certified bio-based product, >90% bio-based content, per ASTM D6866

2.6 HOISTWAY ENTRANCES

A. Doors and Frames: Provide complete hollow metal type hoistway entrances at each hoistway opening bolted-down construction.

1. Manufacturer's standard entrance design consisting of hangers, doors, hanger supports, hanger covers, fascia plates, sight guards, and necessary hardware.

2. Main landing door & frame finish: Stainless steel panels, no. 4 brushed finish.

3. Typical door & frame finish: Stainless steel panels with no. 4 brushed finish.

B. Interlocks: Equip each hoistway entrance with an approved type interlock tested as required by code. Provide door restriction devices as required by code.

C. Door Hanger and Tracks: Provide sheave type two point suspension hangers and tracks for each hoistway horizontal sliding door.

1. Sheaves: Polyurethane tires with ball bearings properly sealed to retain grease.

2. Hangers: Provide an adjustable device beneath the track to limit the up-thrust of the doors during operation.

3. Tracks: Drawn steel shapes, smooth surface and shaped to conform to the hanger sheaves.

D. Hoistway Sills: Extruded metal, with groove(s) in top surface. Provide mill finish on aluminum.

2.7 CAR ENCLOSURE

A. Car Enclosure:

1. Walls: Cab type TKAP, reinforced cold-rolled steel with two coats factory applied baked enamel finish, with applied vertical wood core panels covered on both sides with high pressure plastic laminate.

a. Reveals and frieze: Stainless steel, no. 4 brushed finish

2. Canopy: Cold-rolled steel with hinged exit.

3. Ceiling: Downlight type, metal pans with suspended LED downlights.

4. Cab Fronts, Return and Transom, Soffit and Strike: Provide panels faced with brushed stainless steel.

5. Doors: Horizontal sliding car doors reinforced with steel for panel rigidity. Hang doors on sheave type hangers with polyurethane tires that roll on a polished steel track and are guided at the bottom by non-metallic sliding guides.

    a. Door Finish: Stainless steel panels: No. 4 brushed finish.

    b. Cab Sills: Extruded aluminum, mill finish.

6. Handrail: Provide 2 inch' flat metal bar on side and rear walls on front opening cars and side walls only on front and rear opening cars. Handrails shall have a stainless steel, no. 4 brushed finish.

7. Ventilation: Manufacturer’s standard exhaust fan, mounted on the car top.

B. Car Top Inspection: Provide a car top inspection station with an “Auto-Inspection” switch, an "emergency stop" switch, and constant pressure "up and down" direction and safety buttons to make the normal operating devices inoperative. The station will give the inspector complete control of the elevator. The car top inspection station shall be mounted in the door operator assembly.

2.8 DOOR OPERATION

A. Door Operation: Provide a direct current motor driven heavy duty operator designed to operate the car and hoistway doors simultaneously. Door movements shall be electrically cushioned at both limits of travel and the door operating mechanism shall be arranged for manual operation in event of power failure. Doors shall automatically open when the car arrives at the landing and automatically close after an adjustable time interval or when the car is dispatched to another landing. Closed-loop, microprocessor controlled motor-driven linear door operator, with adjustable torque limits, also acceptable. AC controlled units with oil checks or other deviations are not acceptable.

1. No Un-Necessary Door Operation: The car door shall open only if the car is stopping for a car or hall call, answering a car or hall call at the present position or selected as a dispatch car.

2. Door Open Time Saver: If a car is stopping in response to a car call assignment only (no coincident hall call), the current door hold open time is changed to a shorter field programmable time when the electronic door protection device is activated.

3. Double Door Operation: When a car stops at a landing with concurrent up and down hall calls, no car calls, and no other hall call assignments, the car door opens to answer the hall call in the direction of the car's current travel. If an onward car call is not registered before the door closes to within 6 inches of fully closed, the travel will reverse and the door will reopen to answer the other call.

4. Nudging Operation: The doors shall remain open as long as the electronic detector senses the presence of a passenger or object in the door opening. If door closing is prevented for a field programmable time, a buzzer will sound. When the obstruction is removed, the door will begin to close at reduced speed. If the infra-red door protection system detects a

person or object while closing on nudging, the doors will stop and resume closing only after the obstruction has been removed.

5. Limited Door Reversal: If the doors are closing and the infra-red beam(s) is interrupted, the doors will reverse and reopen partially. After the obstruction is cleared, the doors will begin to close.

6. Door Open Watchdog: If the doors are opening, but do not fully open after a field adjustable time, the doors will recycle closed then attempt to open six times to try and correct the fault.

7. Door Close Watchdog: If the doors are closing, but do not fully close after a field adjustable time, the doors will recycle open then attempt to close six times to try and correct the fault.

8. Door Close Assist: When the doors have failed to fully close and are in the recycle mode, the door drive motor shall have increased torque applied to possibly overcome mechanical resistance or differential air pressure and allow the door to close.

B. Door Protection Devices: Provide a door protection system using 150 or more microprocessor controlled infra-red light beams. The beams shall project across the car opening detecting the presence of a passenger or object. If door movement is obstructed, the doors shall immediately reopen.

2.9 CAR OPERATING STATION

A. Car Operating Station, General: The main car control in each car shall contain the devices required for specific operation mounted in an integral swing return panel requiring no applied faceplate. Swing return shall have a brushed stainless steel finish. The main car operating panel shall be mounted in the return and comply with handicap requirements. Pushbuttons that illuminate using long lasting LED’s shall be included for each floor served, and emergency buttons and switches shall be provided per code. Switches for car light and accessories shall be provided.

B. Emergency Communications System: Integral phone system provided.

C. Auxiliary Operating Panel: Not Required

D. Column Mounted Car Riding Lantern: A car riding lantern shall be installed in the elevator cab and located in the entrance. The lantern, when illuminated, will indicate the intended direction of travel. The lantern will illuminate and a signal will sound when the car arrives at a floor where it will stop. The lantern shall remain illuminated until the door(s) begin to close.

E. Special Equipment: Not Applicable

2.10 CONTROL SYSTEMS

A. Controller: The elevator control system shall be microprocessor based and software oriented. Control of the elevator shall be automatic in operation by means of push buttons in the car numbered to correspond to floors served, for registering car stops, and by "up-down" push buttons at each intermediate landing and "call" push buttons at terminal landings.

B. Automatic Light and Fan shut down: The control system shall evaluate the system activity and automatically turn off the cab lighting and ventilation fan during periods of inactivity. The settings shall be field programmable.

C. Special Operation: Not Applicable

D. Emergency Power Operation: (10-DOA) Upon loss of the normal power supply, building-supplied standby power is available on the same wires as the normal power supply. Once the loss of normal power is detected and standby power is available, the elevator is lowered to a pre-designated landing and the doors are opened. After passengers have exited the elevator, the doors are closed and the car is shut down. When normal power is restored, the elevator automatically resumes operation.

2.11 HALL STATIONS

A. Hall Stations, General: Provide buttons with red-illuminating LED halos to indicate that a call has been registered at that floor for the indicated direction. Provide 1 set of pushbutton risers.

1. Provide one pushbutton riser with faceplates having a brushed stainless steel finish.

a. Phase 1 firefighter’s service key switch, with instructions, shall be incorporated into the hall station at the designated level.

B. Floor Identification Pads: Provide door jamb pads at each floor. Jamb pads shall comply with Americans with Disabilities Act (ADA) requirements.

C. Hall Position Indicator: Not Applicable

D. Hall lanterns: Not Applicable

E. Special Equipment: Not Applicable

2.12 MISCELLANEOUS ELEVATOR COMPONENTS

A. Oil Hydraulic Silencer: Install an oil hydraulic silencer (muffler device) at the power unit location. The silencer shall contain pulsation absorbing material inserted in a blowout proof housing arranged for inspecting interior parts without removing unit from oil line.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to commencing elevator installation, inspect hoistways, hoistway openings, pit and machine rooms as constructed. Verify that hoistway, pit, machine room and openings are of correct size and within tolerance and are ready for work of this section. Notify the General Contractor in writing of any dimensional discrepancies or other conditions detrimental to the proper installation or performance of elevator work. Do not proceed with elevator installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer. Arrange for temporary electrical power to be available for installation work and testing of elevator components.

3.2 INSTALLATION OF ELEVATOR SYSTEM

A. Components will be arranged in machine room so equipment can be removed for repairs or replaced without dismantling or removing other equipment components.

B. Coordinate elevator work with work of other trades, for proper time and sequence to avoid construction delays.

C. Set entrances in vertical alignment with car openings, and aligned with plumb hoistway lines.

D. Adjust for smooth acceleration and deceleration of car so not to cause passenger discomfort. Adjust doors to prevent opening of doors at any landing on the corridor side unless the car is at rest at that landing or is in the leveling zone and stopped at that landing. Adjust automatic floor leveling feature at each floor to achieve within ¼" of the landing.

E. Elevator contractor shall drill the jack hole to accommodate the jack assembly. If necessary, a casing shall also be provided. Drilling conditions shall be determined by the Designer as outlined in the North Carolina Construction Manual, Chapter 2, Planning Procedures. General contractor shall properly locate hole from building lines and shall provide for suitable ingress and egress of drilling conditions.

1. Note: Designer shall include the requirements in this section that will determine the reimbursement for additional cost incurred subsequent to encountering any physical obstruction or hindrance, other than normal soil or clay below the ground.

3.3 PERMITS AND TEST

A. The elevator contractor shall obtain and pay for all necessary permits relating to the installation of the elevator at his expense, shall make all test as required by the governing codes in effect at the time of the award.

3.4 DEMONSTRATION

A. The elevator contractor shall make a final check of each elevator operation with the Owner or Owner's representative present prior to turning each elevator over for use. The elevator contractor shall determine and demonstrate that control systems and operating devices are functioning properly.

3.5 ADDITIONAL WARRANTY BID PRICE

A. Warranty:

1. In addition to the warranty/maintenance required by 1.7 and 1.8, provide the same for an additional forty-eight (48) months. This all inclusive full maintenance service shall begin at the conclusion of the warranty/ maintenance.

2. The elevator contractor shall quote a firm price for the forty-eight (48) months of extended all inclusive full maintenance service.

3. The cost of this additional service shall not be taken from the construction contract funds, but will be paid by the owner (at the conclusion of the warranty/maintenance) in forty-eight (48) equal payments.

END OF SECTION 14 24 13

SECTION 21 13 13 - WET-PIPE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes wet-pipe sprinkler system guidelines for system design, installation, and certification.

B. Related Sections:
   1. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections to equipment specified by this section.

1.2 REFERENCES

A. National Fire Protection Association:
   1. NFPA 13 - Installation of Sprinkler Systems.

1.3 SYSTEM DESCRIPTION

A. System to provide coverage for entire building.

B. Provide a hydraulically designed system to NFPA 13 occupancy requirements.

C. All components shall be listed by Underwriter's Laboratories and approved by Factory Mutual for their intended use, as applicable.

D. Obtain up-to-date flow test data. Determine volume and pressure of incoming water supply from water flow test data. Provide flow test data on the Shop Drawings.

E. Interface sprinkler system with building fire and smoke alarm system.

F. For new systems, provide fire department connections as indicated on Drawings.

1.4 **PERFORMANCE REQUIREMENTS**

A. Standard-Pressure Piping System Component: Listed for 175-psig (1200-kPa) minimum working pressure.

B. Delegated Design: Design sprinkler system using performance requirements and design criteria indicated

1. Obtain fire-hydrant flow test records to indicate the following conditions:

a. **Time of test**
b. **Name and Company of person performing the test**
c. **Location of Residual Fire Hydrant**
d. **Location of Flow Fire Hydrant**
e. **Static Pressure at Residual Fire Hydrant**
f. **Measured Flow at Flow Fire Hydrant**
g. **Residual Pressure at Residual Fire Hydrant**

C. Sprinkler system design shall be approved by authorities having jurisdiction.

1. Margin of Safety for Available Water Flow and Pressure: 10 percent, including losses through water-service piping, valves, and backflow preventers.

2. Recommended Sprinkler Occupancy Hazard Classifications:
- a. **Building Service Areas: Ordinary Hazard, Group 1**
- b. **Electrical Equipment Rooms: Ordinary Hazard, Group 1**
- c. **General Storage Areas: Ordinary Hazard, Group 1**
- d. **Mechanical Equipment Rooms: Ordinary Hazard, Group 1**
- e. **Office and Public Areas: Light Hazard**
- f. **Food Service Areas: Ordinaty Hazard, Group 1**

3. Recommended Minimum Density for Automatic-Sprinkler Piping Design:
- a. **Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm over 1500-sq. ft. area.**
- b. **Ordinary-Hazard, Group 2 Occupancy: 0.20 gpm over 1500-sq. ft. area.**

4. Maximum Protection Area per Sprinkler: Per UL listing.

5. Maximum Protection Area per Sprinkler:
- a. **Office Spaces: 225 sq. ft.**
- b. **Storage Areas: 130 sq. ft.**
- c. **Mechanical Equipment Rooms: 130 sq. ft. Electrical Equipment Rooms: 130 sq. ft.**
- d. **Other Areas: According to NFPA 13 recommendations unless otherwise indicated.**

6. Total Combined Hose-Stream Demand Requirement: According to NFPA 13 unless otherwise indicated:
- a. **Light-Hazard Occupancies: 100 gpm for 30 minutes.**
- b. **Ordinary-Hazard Occupancies: 250 gpm for 60 to 90 minutes.**

7. Seismic Performance: Refer to section 21 05 00

1.13 SUBMITTALS

A. Division 01 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Provide layout of finished ceiling areas indicating sprinkler locations coordinated with ceiling installation and the work of other trades (ductwork, lights and any other ceiling mounted devices). Show detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.

C. Product Data: Submit data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

D. Design Data: Submit design calculations signed and sealed by a professional engineer.

E. Sprinklers shall be referred to on drawings, submittals, and other documentation, by the sprinkler identification or model number as specifically published in the appropriate agency listing or approval. Trade names or other abbreviated designations shall not be allowed.

1.14 CLOSEOUT SUBMITTALS

A. Division 01 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and inspector's test locations.

C. Operation and Maintenance Data: Submit components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.

1.15 QUALITY ASSURANCE

A. Perform Work in accordance with NFPA 13.

1.16 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

C. Design system under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location (state).

1.17 DELIVERY, STORAGE, AND HANDLING

A. Division 01 - Product Requirements: Product storage and handling requirements.

B. Store products in shipping containers until installation.

C. Furnish piping with temporary inlet and outlet caps until installation.

1.18 WARRANTY

A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.

B. Furnish five (5) year manufacturer warranty for system components.

1.19 EXTRA MATERIALS

A. Division 01 - Execution and Closeout Requirements: Spare parts and maintenance products.

B. Furnish extra sprinklers under provisions of NFPA 13.

C. Furnish suitable wrenches for each sprinkler type.

D. Furnish metal storage cabinet in location designated by Architect, adjacent to system riser.

PART 2 PRODUCTS

2.1 SPRINKLERS

A. Sprinklers shall be UL listed or FMG approved, with 175-psig minimum pressure ratings.

B. Manufacturers:
1. Central
2. Victaulic
3. Viking

C. Automatic Sprinklers: Sprinklers shall be the products of a single manufacturer and shall be UL listed with a ½" orifice, ½" threaded connection, and glass bulb or soldered metal thermal element. Sprinklers incorporating O-rings shall not be used. Unless specified or noted otherwise on the drawings or as required by NFPA 13, temperature rating shall be ordinary. Thermal element shall be quick response.

D. Suspended Ceiling Type:
1. Type: Concealed pendant type with coverplate.
2. Coverplate color: Coordinate with architect.
3. Body: Brass body
4. Fusible Link: temperature rated for specific area hazard.

E. Exposed Area Type:
1. Type: Standard upright type.
2. Finish: Brass.
3. Fusible Link: temperature rated for specific area hazard.

F. Guards: Finish to match sprinkler finish.

2.2 PIPING SPECIALTIES

A. Wet Pipe Sprinkler Riser Check Valve: Ductile iron body, swing check type valve with brass seat and rubber-faced or aluminum-bronze clapper with elastomer seal. Provide complete with main drain valve and pressure gauges. Rated for 250 psi working pressure. Valve internal components shall be replaceable without removing from the installed position.

B. Electric Alarm: Electrically operated gong with pressure alarm switch.

C. Water Flow Switch: Vane type switch for mounting horizontal or vertical, with two contacts; rated 10 amp at 125 volt AC and 2.0 amp at 24 volt DC.

D. Flexible Connectors
1. Manufacturers:
a. Victualic
b. Viking
c. Flexhead

2. Stainless steel hose / Stainless steel pipe, flexible connectors: Corrugated, stainless steel, inner tubing covered with stainless steel wire braid. Include stainless steel nipples or flanges, welded to hose.

E. Fire Department Connections:
   1. Type: Flush mounted wall type with chrome plated finish.
   2. Outlets: Two-way with fire department thread size. Threaded dust-cap and chain of matching material and finish.
   3. Drain: 3/4 inch automatic drip, outside or connected to drain.
   4. Label: "Sprinkler - Fire Department Connection"
   5. At the low-point near each fire department connection, install a 90-degree elbow with drain connection to allow for system drainage to prevent freezing.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with NFPA 13.

B. Install approved reduced-pressure back-flow preventer assembly at sprinkler system water source connection.

C. Locate fire department connection with sufficient clearance from walls, obstructions, or adjacent fire department connectors to allow full swing of fire department wrench handle.

D. Locate outside alarm-gong on building wall as indicated on Drawings.

E. Place pipe runs to minimize obstruction to other work.

F. Install piping in concealed spaces above finished ceilings.

G. Center sprinklers in two directions in ceiling tile and install piping offsets.

H. Do not install sprinklers that have been dropped, damaged, or show a visible loss of fluid. Never install sprinklers with cracked bulbs.

I. Sprinkler bulb protector shall be removed by hand after installation. Do not use tools or any other device(s) to remove the protector that could damage the bulb in any way.

J. Install guards on sprinklers where required to protect sprinklers from physical damage.

K. Hydrostatically test entire system.

L. Require test be witnessed by authority having jurisdiction.

3.2 INTERFACE WITH OTHER PRODUCTS

A. Verify signal devices are installed and connected to fire alarm system.

3.3 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Flush entire piping system of foreign matter.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 70 00 - Execution and Closeout Requirements: Protecting installed construction.

B. Apply masking tape or paper cover to protect concealed sprinklers, cover plates, and sprinkler escutcheons not receiving field paint finish. Remove after painting. Replace painted sprinklers with new.

END OF SECTION 21 13 13

SECTION 21 13 19 - PRE-ACTION SPRINKLER SYSTEMS (DESIGN-BUILD SPECIFICATIONS)

PART 1 GENERAL

1.1 SUMMARY

A. Section includes pre-action sprinkler system guidelines for system design, installation, and certification.

B. Related Sections:
   1. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections to equipment specified by this section.

1.2 REFERENCES

A. National Fire Protection Association:
   1. NFPA 13 - Installation of Sprinkler Systems.

1.3 SYSTEM DESCRIPTION

A. Preaction Sprinkler System: Automatic sprinklers are attached to piping containing air. Actuation of fire-detection system in same area as sprinklers opens deluge valve, permitting water to flow into piping and to discharge from sprinklers that have opened.

B. System to provide coverage for building areas noted.

C. Provide a hydraulically designed system to NFPA 13 occupancy requirements.

D. Obtain up-to-date flow test data. Determine volume and pressure of incoming water supply from water flow test data. Provide flow test data on the Shop Drawings.

E. Interface pre-action sprinkler system with building fire and smoke alarm system.

1.4 PERFORMANCE REQUIREMENTS

A. Standard-Pressure Piping System Component: Listed for 175-psig (1200-kPa) minimum working pressure.

B. Delegated Design: Design sprinkler system(s), including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

   1. Provide fire-hydrant flow test records to indicate the following conditions:
      a. Date of test
      b. Time of test
      c. Name and Company of person performing the test
      d. Location of Residual Fire Hydrant
      e. Location of Flow Fire Hydrant
      f. Static Pressure at Residual Fire Hydrant
      g. Measured Flow at Flow Fire Hydrant
      h. Residual Pressure at Residual Fire Hydrant

C. Sprinkler system design shall be approved by authorities having jurisdiction.

1. Margin of Safety for Available Water Flow and Pressure: 10 percent, including losses through water-service piping, valves, and backflow preventers.
2. **Recommended Minimum Density for Pre Action -Sprinkler Piping Design:**
    a. **Light-Hazard Occupancy: 0.10 gpm over 1950-sq. ft. area.**
    b. **Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm over 1950-sq. ft. area.**
3. Maximum Protection Area per Sprinkler: Per UL listing.
4. Maximum Protection Area per Sprinkler:
    a. Residential Areas: 400 sq. ft.
    b. Office Spaces: 225 sq. ft.
    c. Storage Areas: 130 sq. ft.
    d. Mechanical Equipment Rooms: 130 sq. ft.
    e. Electrical Equipment Rooms: 130 sq. ft.
    f. Other Areas: According to NFPA 13 recommendations unless otherwise indicated.
5. Total Combined Hose-Stream Demand Requirement: According to NFPA 13 unless otherwise indicated:
    a. Light-Hazard Occupancies: 100 gpm for 30 minutes.
    b. Ordinary-Hazard Occupancies: 250 gpm for 60 to 90 minutes.
    c. Extra-Hazard Occupancies: 500 gpm for 90 to 120 minutes
6. Seismic Performance: Refer to section 21 05 00

1.9 SUBMITTALS

A. Division 01 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Provide layout of finished ceiling areas indicating sprinkler locations coordinated with ceiling installation and the work of other trades (ductwork, lights and any other ceiling mounted devices). Show detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.

C. Product Data: Submit data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

D. Design Data: Submit design calculations signed and sealed by a professional engineer.

E. Sprinklers shall be referred to on drawings, submittals, and other documentation, by the sprinkler identification or model number as specifically published in the appropriate agency listing or approval. Trade names or other abbreviated designations shall not be allowed.

1.10 CLOSEOUT SUBMITTALS

A. Division 01 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and inspector’s test locations.

C. Operation and Maintenance Data: Submit components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.

1.11 QUALITY ASSURANCE

A. Perform Work in accordance with NFPA 13.

1.12 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

C. Design system under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location (state).

1.13 DELIVERY, STORAGE, AND HANDLING

A. Division 01 - Product Requirements: Product storage and handling requirements.

B. Store products in shipping containers until installation.

C. Furnish piping with temporary inlet and outlet caps until installation.

1.14 WARRANTY

A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.

B. Furnish five (5) year manufacturer warranty for system components.

1.15 EXTRA MATERIALS

A. Division 01 - Execution and Closeout Requirements: Spare parts and maintenance products.

B. Furnish extra sprinklers under provisions of NFPA 13.

C. Furnish suitable wrenches for each sprinkler type.

D. Furnish metal storage cabinet in location designated by Architect, adjacent to system riser.

PART 2 PRODUCTS

2.1 SPRINKLERS

A. Suspended Ceiling Type:

1. Type: Semi-recessed pendant type with matching escutcheon plate.
2. Finish: Chrome plated.
3. Escutcheon Plate Finish: Chrome plated.
4. Fusible Link: temperature rated for specific area hazard.

2.2 PIPING SPECIALTIES

A. Deluge Valves: UL 260, cast-iron body, hydraulically operated, differential-pressure type. Include bronze seat with O-ring seals, trim sets for bypass, drain, electrical sprinkler alarm switch, pressure gages, drip cup assembly piped without valves and separate from main drain line, fill-line attachment with strainer, and push-rod chamber supply connection. Basis of Design: Vicatulic Series 769.

1. Double Interlocked, Electric /Pneumatic Dry Trim Set: Include electric/pneumatic actuator; air- and water-pressure gages; low-air-pressure warning switch; air relief valve; and actuation device. Dry, pilot-line actuator includes cast-iron, operated, diaphragm-type valve with resilient facing plate, resilient diaphragm, and replaceable bronze seat. Valve includes threaded water and air inlets and water outlet. Loss of air pressure on dry, pilot-line side allows pilot-line actuator to open and causes deluge valve to open immediately.

C. Electric Alarm: Electrically operated gong with pressure alarm switch. Basis of Design: System Sensor.

D. Water Flow Switch: Vane type switch for mounting horizontal or vertical, with two contacts; rated 10 amp at 125 volt AC and 2.0 amp at 24 volt DC. Basis of Design: System Sensor.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with NFPA 13.

B. place pipe runs to minimize obstruction to other work.

C. Install piping in concealed spaces above finished ceilings.

D. Center sprinklers in two directions in ceiling tile and install piping offsets.

E. Do not install sprinklers that have been dropped, damaged, or show a visible loss of fluid. Never install sprinklers with cracked bulbs.

F. Sprinkler bulb protector shall be removed by hand after installation. Do not use tools or any other device(s) to remove the protector that could damage the bulb in any way.

G. Hydrostatically test entire system.

H. Require test be witnessed by authority having jurisdiction.

3.2 INTERFACE WITH OTHER PRODUCTS

A. Verify signal devices are installed and connected to fire alarm system.

3.3 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Flush entire piping system of foreign matter.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 70 00 - Execution and Closeout Requirements: Protecting installed construction.

B. Apply masking tape or paper cover to protect concealed sprinklers, cover plates, and sprinkler escutcheons not receiving field paint finish. Remove after painting. Replace painted sprinklers with new.

END OF SECTION

SECTION 224000 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Faucets for lavatories and sinks provided under this division.
2. Flush valves.
3. Toilet seats.
4. Protective shielding guards.
5. Fixture supports.
6. Water closets.
7. Urinals.
8. Lavatories.
9. Kitchen sinks.
10. Service sinks.

B. Related Sections include the following:

1. Division 22 Section "Plumbing General."

1.2 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.

C. FRP: Fiberglass-reinforced plastic.

D. PMMA: Polymethyl methacrylate (acrylic) plastic.

E. PVC: Polyvinyl chloride plastic.

F. Solid Surface: Nonporous, homogeneous, cast-polymer-plastic material with heat-, impact-, scratch-, and stain-resistance qualities.

1.3 SUBMITTALS

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

B. Shop Drawings: In addition to the requirements of Division 1 and Section 22 05 00, provide power, signal, and control wiring diagram.

C. Operation and maintenance data.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; for plumbing fixtures for people with disabilities.

C. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.

D. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

E. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.

F. Comply with the following applicable standards and other requirements specified for plumbing fixtures:

1. Porcelain-Enameled, Formed-Steel Fixtures: ASME A112.19.4M.
2. Solid-Surface-Material Lavatories and Sinks: ANSI/ICPA SS-1.
3. Vitreous-China Fixtures: ASME A112.19.2M.
4. Water-Closet, Flush Valve Trim: ASME A112.19.5.

G. Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:

1. Backflow Protection Devices for Faucets with Side Spray: ASME A112.18.3M.
2. Backflow Protection Devices for Faucets with Hose-Thread Outlet: ASME A112.18.3M.
3. Diverter Valves for Faucets with Hose Spray: ASSE 1025.
4. Faucets: ASME A112.18.1.
5. Hose-Connection Vacuum Breakers: ASSE 1011.
6. Hose-Coupling Threads: ASME B1.20.7.
7. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
8. NSF Potable-Water Materials: NSF 61.
9. Pipe Threads: ASME B1.20.1.
10. Sensor-Actuated Faucets and Electrical Devices: UL 1951.
11. Supply Fittings: ASME A112.18.1.
12. Brass Waste Fittings: ASME A112.18.2.

H. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:

1. Atmospheric Vacuum Breakers: ASSE 1001.

2. Brass and Copper Supplies: ASME A112.18.1.
3. Dishwasher Air-Gap Fittings: ASSE 1021.
4. Manual-Operation Flushometers: ASSE 1037.
5. Plastic Tubular Fittings: ASTM F 409.
6. Brass Waste Fittings: ASME A112.18.2.
7. Sensor-Operation Flushometers: ASSE 1037 and UL 1951.

I. Comply with the following applicable standards and other requirements specified for miscellaneous components:

1. Grab Bars: ASTM F 446.
2. Hose-Coupling Threads: ASME B1.20.7.
3. Off-Floor Fixture Supports: ASME A112.6.1M.
4. Pipe Threads: ASME B1.20.1.
5. Plastic Toilet Seats: ANSI Z124.5.
6. Supply and Drain Protective Shielding Guards: ICC A117.1.

PART 2 - PRODUCTS

2.1 LAVATORY FAUCETS

A. Lavatory Faucets:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

    a. Chicago Faucets.
    b. Kohler Co.
    c. T & S Brass and Bronze Works, Inc.
    d. Zurn Plumbing Products Group; Commercial Brass Operation.

4. Description: Single-control mixing valve. Include hot- and cold-water indicators where applicable; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.

    a. Body Material: Commercial, solid brass.
    b. Finish: Polished chrome plate.
    c. Maximum Flow Rate: 0.5 gpm for manually operated faucets; 0.25 gpm per 15 second cycle for sensor operated faucets.
    d. Spout: Rigid type.
    e. Spout Outlet: Flow limiting aerator.
    f. Operation: Sensor or manual as indicated on the Drawings.
    g. Drain: Grid.
    h. Tempering Device: Thermostatic, where indicated on the Drawings.

2.2 SINK FAUCETS

A. Sink Faucets:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

    a. Chicago Faucets.
    b. Kohler Co.
    c. T & S Brass and Bronze Works, Inc.
    d. Zurn Plumbing Products Group; Commercial Brass Operation.

4. Description: Kitchen faucet with spray, four-hole fixture. Service sink faucet with stops in shanks, vacuum breaker, hose-thread outlet, and pail hook. Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.

    a. Body Material: Commercial, solid brass.
    b. Finish: Polished chrome plate for sink faucets; Polished or rough brassfor service sink faucets.
    c. Maximum Flow Rate: 2.5 gpm, unless otherwise indicated.
    d. Mixing Valve: Single control or Two-lever handle as specified.
    e. Backflow Protection Device for Hose Outlet: Required for service sink faucets.
    f. Mounting: Deck or Back/wall as applicable.
    g. Handle(s): Lever.
    h. Spout Type: As specified.

2.3 FLUSH VALVES

A. Flush Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide [**the product indicated on Drawings**] <**Insert manufacturer's name; product name or designation**> or a comparable product by one of the following:

    a. Sloan Valve Company.
    b. Zurn Plumbing Products Group; Commercial Brass Operation.
    c. TOTO USA, Inc.

4. Description: Flush valves for **urinal** and/or **water-closet** type fixture. Include brass body with corrosion-resistant internal components, control stop with check valve, vacuum breaker, copper or brass tubing, and polished chrome-plated finish on exposed parts.

    a. Internal Design: Diaphragm operation.
    b. Style: Exposed.
    c. Inlet Size: 3/4 inch for urinal; 1 inch for water-closet.
    d. Trip Mechanism: Battery-operated sensor actuator.
    e. Consumption: As indicated on the Drawings.

2.4 TOILET SEATS

A. Toilet Seats:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

    a. Bemis Manufacturing Company.
    b. Centoco Manufacturing Corp.
    c. Church Seats.
    d. Kohler Co.
    e. Olsonite Corp.

4. Description: Toilet seat for water-closet-type fixture.

    a. Material: Molded, solid plastic with antimicrobial agent.
    b. Configuration: Open without cover.
    c. Size: Elongated.
    d. Hinge Type: SS, self-sustaining or SC, self-sustaining, check.
    e. Class: Heavy-duty commercial.
    f. Color: White.

2.5 PROTECTIVE SHIELDING GUARDS

A. Protective Shielding Pipe Covers:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. TRUEBRO, Inc.
    b. McGuire Manufacturing Co., Inc.

c. Plumberex Specialty Products Inc.
d. Zurn Plumbing Products Group; Tubular Brass Plumbing Products Operation.

Description: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies, trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.

2.6 FIXTURE SUPPORTS

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

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Smith, Jay R. Mfg. Co
2. Zurn Plumbing Products Group; Specification Drainage Operation.
3. Josam Company.

C. Water-Closet Supports:

1. Description: Combination carrier designed for **accessible** and/or **standard** mounting height of wall-mounting, water-closet-type fixture. Include single or double, vertical or horizontal, hub-less waste fitting as required for piping arrangement; faceplates; couplings with gaskets; feet; and fixture bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space.

D. Urinal Supports:

1. Description: Urinal carrier with fixture support plates and coupling with seal and fixture bolts and hardware matching fixture for wall-mounting, urinal-type fixture. Include steel uprights with feet.
2. Accessible-Fixture Support: Include rectangular steel uprights.

E. Lavatory Supports:

1. Description: Lavatory carrier with concealed arms and tie rod for wall-mounting, lavatory-type fixture. Include steel uprights with feet.
2. Accessible-Fixture Support: Include rectangular steel uprights.

F. Sink Supports:

1. Description: Sink carrier with hanger plate, bearing studs, and tie rod for sink-type fixture. Include steel uprights with feet.

2.7 WATER CLOSETS

A. Water Closets:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. American Standard Companies, Inc.
    b. Kohler Co.
    c. TOTO USA, Inc.

3. Description: Accessible, and/or standard height floor mounting, floor-outlet, vitreous-china fixture designed for flush valve] operation.
4. Style: One piece.

    a. Bowl Type: Elongated with siphon-jet design. Include bolt caps matching fixture.
    b. Height: As indicated on the Drawings.
    c. Color: White.

5. Flush valve: As specified on the Drawings
6. Toilet Seat: As specified on the Drawings

2.8 URINALS

A. Urinals:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. American Standard Companies, Inc.
    b. Kohler Co.
    c. TOTO USA, Inc.

3. Description: **Accessible, wall** mounting, back-outlet, vitreous-china fixture designed for flush valve operation.

    a. Type: Siphon jet.
    b. Strainer or Trapway: Open trapway with integral trap.
    c. Design Consumption: As specified on the Drawings
    d. Color: White
    e. Supply Spud Size: 3/4 inch.
    f. Outlet Size: 2 inch.
    g. Flush Valve: As specified on the Drawings
    h. Fixture Support: Urinal carrier.

2.9 LAVATORIES

A. Lavatories:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. American Standard Companies, Inc.
    b. Kohler Co.
    c. TOTO USA, Inc.

3. Description: Refer to Plumbing Fixture Schedule.

2.10 KITCHEN SINKS

A. Kitchen Sinks:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Elkay Manufacturing Co.
    b. Franke Consumer Products, Inc., Kitchen Systems Div.
    c. Just Manufacturing Company.

3. Description: One or two-bowl as specified on the Drawings; counter-mounting, 18 ga. stainless-steel kitchen sink.

    a. Overall Dimensions: As indicated on the Drawings
    b. Metal Thickness: 18 ga.
    c. Sink Faucet: As specified on the Drawings.

2.11 SERVICE SINKS

A. Service Sinks (Mop Sinks, Can Wash):

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Fiat Products
    b. Florestone.

c. Stern-Williams
d. Zurn Plumbing Products Group

3. Description: Floor mounted terrazzo basin.

a. Size: As specified on the Drawings
b. Faucet: Service Sink faucet as specified on the Drawings.
c. Drain: Grid with 3-inch outlet.
d. Fixture Support: not applicable, floor mounted.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Assemble plumbing fixtures, trim, fittings, and other components according to manufacturers' written instructions.

B. Install off-floor supports, affixed to building substrate, for wall-mounting fixtures.

1. Use carrier supports with waste fitting and seal for back-outlet fixtures.
2. Use carrier supports without waste fitting for fixtures with tubular waste piping.
3. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.

C. Install back-outlet, wall-mounting fixtures onto waste fitting seals and attach to supports.

D. Install floor-mounting fixtures on closet flanges or other attachments to piping or building substrate.

E. Install wall-mounting fixtures with tubular waste piping attached to supports.

F. Install fixtures level and plumb according to roughing-in drawings.

G. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.

H. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.

I. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.

J. Install flush valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.

K. Install toilet seats on water closets.

L. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

M. Install water-supply flow-control fittings with specified flow rates in fixture supplies at stop valves.

N. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

O. Install traps on fixture outlets.

1. Exception: Omit trap on fixtures with integral traps.
2. Exception: Omit trap on indirect wastes, unless otherwise indicated.

P. Install hot-water dispensers in back top surface of sink or in countertop with spout over sink.

Q. Install escutcheons at piping wall and ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding fittings. Escutcheons are specified in Division 22 Section "Common Work Results for Plumbing."

R. Seal joints between fixtures and walls, floors, and countertops using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Sealants are specified in Division 07.

3.2 CONNECTIONS

A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.

C. Ground equipment according to Division 26.

3.3 FIELD QUALITY CONTROL

A. Verify that installed plumbing fixtures are categories and types specified for locations where installed.

B. Check that plumbing fixtures are complete with trim, faucets, fittings, and other specified components.

C. Inspect installed plumbing fixtures for damage. Replace damaged fixtures and components.

D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

E. Install fresh batteries in sensor-operated mechanisms.

3.4 PROTECTION

A. Provide protective covering for installed fixtures and fittings.

B. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 224000

SECTION 23 34 23 - HVAC POWER VENTILATORS

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.

B. See fan schedule on drawings for additional requirements and specific options required for each fan.

1.2 SUMMARY

A. This Section includes the following:

1. In-line centrifugal fans.
2. Centrifugal roof ventilators

1.3 PERFORMANCE REQUIREMENTS

A. Project Altitude: Base fan-performance ratings on sea level.

B. Operating Limits: Classify according to AMCA 99.

1.4 ACCEPTABLE MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Greenheck
2. Loren Cook Company
3. Penn Ventilation

4. Twin City Fans

B. Listing of manufacturers name does not guarantee approval. All equipment must meet or exceed quality and capacities of specified equipment. Final approval will be based on equipment submittals. Any manufacturer not listed but wishing to bid this project shall submit a written request 14 days prior to bid date, prior approval is required for all manufacturers not listed.

1.5 SUBMITTALS

A. Product Data: Include rated capacities, furnished specialties, and accessories for each type of product indicated and include the following:

1. Certified fan performance curves with system operating conditions indicated.

2. Certified fan sound-power ratings.

3. Motor ratings and electrical characteristics, plus motor and electrical accessories.

4. Material thickness and finishes, including color charts.

5. Dampers, including housings, linkages, and operators.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, wiring diagrams, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

C. Operation and Maintenance Data: For power ventilators to include operation and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. AMCA Compliance: Products shall comply with performance requirements and shall be licensed to use the AMCA-Certified Ratings Seal.

C. NEMA Compliance: Motors and electrical accessories shall comply with NEMA standards.

D. UL Standard: Power ventilators shall comply with UL 705.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver fans as factory-assembled unit, to the extent allowable by shipping limitations, with protective crating and covering.

B. Disassemble and reassemble units, as required for moving to final location, according to manufacturer's written instructions.

C. Lift and support units with manufacturer's designated lifting or supporting points.

1.8 COORDINATION

A. Coordinate size and location of structural-steel support members.

B. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

PART 2 - PRODUCTS

2.1 IN-LINE CENTRIFUGAL FANS

A. Description: In-line, direct- or belt-driven centrifugal fans consisting of housing, wheel, outlet guide vanes, fan shaft, bearings, motor and disconnect switch, drive assembly, mounting brackets, and accessories.

B. Housing: Split, spun aluminum with aluminum straightening vanes, inlet and outlet flanges, and support bracket adaptable to floor, side wall, or ceiling mounting.

C. Belt-Driven Units: Motor mounted on adjustable base, with adjustable sheaves, enclosure around belts within fan housing, and lubricating tubes from fan bearings extended to outside of fan housing.

D. Fan Wheels: Aluminum, airfoil blades welded to aluminum hub.

E. Accessories:

1. Companion Flanges: For inlet and outlet duct connections.

2. Fan Guards: 1/2- by 1-inch mesh of galvanized steel in removable frame. Provide guard for inlet or outlet for units not connected to ductwork.

3. Motor and Drive Cover (Belt Guard): Galvanized steel.

F. Capacities and Characteristics: As indicated on the drawings.

2.2 CENTRIFUGAL ROOF VENTILATORS

A. Description: Direct- or belt-driven centrifugal fans consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, curb base, and accessories.

B. Housing: Removable, spun-aluminum, dome top and outlet baffle; square, one-piece, aluminum base with venturi inlet cone.

1. Upblast Units: Provide spun-aluminum discharge baffle to direct discharge air upward, with rain and snow drains and grease collector for UL 762 kitchen hood exhaust fans.

2. Hinged Subbase: Galvanized-steel hinged arrangement permitting service and maintenance.

C. Fan Wheels: Aluminum hub and wheel with backward-inclined blades.

D. Belt-Driven Drive Assembly: Resiliently mounted to housing, with the following features:

1. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.

2. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.

3. Pulleys: Cast-iron, adjustable-pitch motor pulley.

4. Fan and motor isolated from exhaust airstream.

E. Accessories: (See drawings for required accessories).

1. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted inside fan housing, factory wired through an internal aluminum conduit.

2. Bird Screens: Removable, 1/2-inch mesh, aluminum or brass wire.

3. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.

4. Motorized Dampers: Parallel-blade dampers mounted in curb base with electric actuator; wired to close when fan stops. Backdraft dampers on all roof mounted supply fans shall be motorized.

F. Roof Curbs: Galvanized steel; welded corners; 1-1/2-inch- thick, rigid, fiberglass insulation adhered to inside walls; and 1-1/2-inch wood nailer. Size as required to suit roof opening and fan base.

1. Configuration: Self-flashing without a cant strip, with mounting flange.

2. Overall Height: 8 inches (unless noted otherwise).

3. Pitch Mounting: Manufacture curb for roof slope.

4. Metal Liner: Galvanized steel.

5. Burglar Bars: 1/2-inch- thick steel bars welded in place to form 6-inch squares (where indicated on the drawings).

6. Vented Curb: Unlined with louvered vents in vertical sides (where indicated on the drawings).

G. Capacities and Characteristics: As indicated on the drawings.

2.3 KITCHEN SUPPLY FANS WITH PACKAGED HEATING AND DX COOLING

A. Unit with Integral Indirect gas-fired Heating and Packaged DX Cooling shall be fully assembled at the factory and consist of an insulated metal cabinet, outdoor air intake with aluminum bird screen, motorized intake damper, filter assembly for intake air, packaged DX cooling system, condensate drain pan, P trap, sensors, supply air blower assembly, and electrical control unit with all specified components and internal accessories factory installed and tested and prepared for single-point high voltage connection.

CABINET

A. Materials: Formed, single wall metal cabinet with fiberglass duct liner insulation, fabricated to permit access to internal components for maintenance.

1. Outside casing: 18 gauge, galvanized (G90) steel meeting ASTM A653 for components that do not receive a painted finish. Pre-painted components as supplied by the factory shall have polyester urethane paint on 18 gauge G60 galvanized steel. Base rail is 12 gauge, galvazined (G90) steel.

2. Internal Assemblies: 24 gauge galvanized (G90) steel except for motor supports which shall be minimum 14 gauge galvanized (G90) steel.

B. Comply with NFPA 90A and NFPA 90B and erosion requirements of UL 181.

1. Materials: Fiberglass insulation. If insulation other than fiberglass is used, it must also meet the Fire Hazard Classification shown below.

a. Thickness: 1 inch (25 mm)

b. Fire Hazard Classification: Maximum flame spread of 25 and smoke developed of 50, when tested in accordance with ASTM C 411.

c. Location and application: Floor of each unit shall be insulated with either one half inch thick or 1 inch thick rigid fiberglass insulation, covered on one surface with integral aluminum foil.

C. Access panels: Unit shall be equipped with removable access panels to provide easy access to all major components. Access panels shall be fabricated of 18 gauge steel. Removable access panels shall incorporate a formed drip edge.

D. Supply Air blower assembly: Blower assembly consists of an electric motor and a belt driven, double width, double inlet forward curve blower. Assembly shall be mounted on heavy gauge galvanized rails and further mounted on minimum 1.125 inch thick neoprene vibration isolators.

E. Control panel / connections: Unit shall have an electrical control center where all high and low voltage connections are made. Control center shall be constructed to permit single-point high voltage power supply connections.

F. Indirect Gas-Fired Furnace:

1. Shall be ETL Certified as a component of the unit.

2. Shall have an integral combustion gas blower.

3. Shall be ETL Certified for installation downstream of a cooling coil.

4. Shall have fault sensors to provide fault conditions to optional digital controller or building controls.

5. Shall have 4-pass tubular heat exchangers, constructed of type 409 stainless steel. Heat exchanger tubes shall be installed on the vest plate by means of swaged assembly, welded connections are not acceptable. Heat exchanger tubes shall be supported by a minimum of two fabricated assemblies that support the tubes and also permit expansion and contraction of the tubes.

6. Heat exchanger shall have a one year warranty.

7. Shall be encased in a weather-tight metal housing with intake air vents. Large, metal lift-off or hinged door shall provide easy access to the enclosed vest plate, control circuitry, gas train, burner assembly and exhaust blower.

8. Shall include a kit for Outdoor mounting with Standard venting.

G. Condensate drain pan: Drain Pan shall be an integral part of the MAU whenever a cooling option is included. Pan shall be formed of welded austenitic stainless steel sheet material and provided with a welded stainless steel drain connection at the front for connection to a P trap. Drain pan shall be sloped in two directions to provide positive draining and drain connector shall be sealed at penetration through cabinet wall.

H. P trap: If the unit is equipped with a condensate drain pan, contractor shall provide, or fabricate, and install an appropriate P trap, in accordance with all local and area codes and Best Practices.

I. Packaged DX: Unit shall be equipped with a Packaged DX system to include compressor(s), evaporator and condenser coil(s), condenser fans and all appurtenant controls as specified elsewhere in this section. The Packaged DX system is to be an integral module, incorporated into the unit. Stand-alone Packaged DX systems that are connected to the MAU, or systems that require hardware or equipment that is not integral to the MAU are not acceptable.

J. Dampers: Motorized Intake Air dampers of low leakage type shall be factory installed.

K. Sensors are considered to be part of various optional operational modes or device controllers and are to be factory supplied and installed as specified by the A/E.

BLOWER

A. Blower section construction, Supply Air: Belt drive motor and blower shall be assembled onto a minimum 14 gauge galvanized steel platform and must have neoprene vibration isolation devices, minimum of 1 - 1/8 inches thick.

B. Blower assemblies: Shall be statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and horsepower.

C. Centrifugal blower housing: Formed and reinforced steel panels to make curved scroll housing

with shaped cutoff.

D. Forward curved blower (fan) wheels: Galvanized or aluminum construction with inlet flange and shallow blades curved forward in direction of airflow. Mechanically attached to shaft with set screws.

E. Blower section motor source quality control: Blower performance shall be factory tested for flow rate, pressure, power, air density, rotation speed and efficiency. Ratings are to be established in accordance with AMCA 210, "Laboratory Methods of Testing Fans for Rating".

MOTORS

A. General: Blower motors greater than .75 horsepower shall be "NEMA Premium" unless otherwise indicated. Compliance with EPAct minimum energy-efficiency standards for single speed ODP and TE enclosures is not acceptable. Motors shall be heavy-duty, permanently lubricated type to match the fan load and furnished at the specified voltage, phase and enclosure. Drives shall be sized for a minimum of 150% of driven horsepower and pulleys shall be fully machined cast-type, keyed and fully secured to the fan wheel and motor shafts. Electric motors of ten horsepower or less shall be supplied with an adjustable drive pulley. Comply with requirements in Division 23 05 13, matched with fan load.

B. Motors shall be 60 cycle, 3 phase, 460 volt.

UNIT CONTROLS

A. The unit shall be constructed so that it can function as a stand-alone heating and cooling system controlled by factory-supplied controllers, thermostats and sensors or it can be operated as a heating and cooling system controlled by a Building Management System (BMS).

B. Sensors to be provided with the unit include:

1. Cooling Inlet Air Sensor

FILTERS

A. Unit shall have 2" thick permanent metal filters located in the outdoor air intake and shall be accessible from the exterior of the unit.

2.4 MOTORS

A. Comply with requirements in Division 23 Section "Common Motor Requirements for HVAC Equipment."

B. Enclosure Type: Totally enclosed, fan cooled.

2.5 SOURCE QUALITY CONTROL

A. Sound-Power Level Ratings: Comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Factory test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Label fans with the AMCA-Certified Ratings Seal.

B. Fan Performance Ratings: Establish flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests and ratings according to AMCA 210, "Laboratory Methods of Testing Fans for Rating."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install power ventilators level and plumb.

B. Support units using spring isolators having a static deflection of 1 inch. Vibration control devices are specified in Division 23 Section "Vibration Control for HVAC Piping and Equipment."

1. Secure vibration controls to concrete bases using anchor bolts cast in concrete base.

C. Secure roof-mounting fans to roof curbs with cadmium-plated hardware. Refer to Division 07 Section "Roof Accessories" for installation of roof curbs.

D. Ceiling Units: Suspend units from structure; use steel wire or metal straps.

E. Support suspended units from structure using threaded steel rods and spring hangers having a static deflection of 1 inch. Vibration-control devices are specified in Division 23 Section "Vibration and Seismic Controls for HVAC Piping and Equipment."

F. Install units with clearances for service and maintenance.

G. Label units according to requirements specified in Division 23 Section "Identification for HVAC Piping and Equipment."

3.2 CONNECTIONS

A. Duct installation and connection requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Division 23 Section "Air Duct Accessories."

B. Install ducts adjacent to power ventilators to allow service and maintenance.

C. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

D. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Verify that shipping, blocking, and bracing are removed.

2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.

3. Verify that cleaning and adjusting are complete.

4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.

5. Adjust belt tension.

6. Adjust damper linkages for proper damper operation.

7. Verify lubrication for bearings and other moving parts.

8. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.

9. Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.

10. Shut unit down and reconnect automatic temperature-control operators.

11. Remove and replace malfunctioning units and retest as specified above.

B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.4 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Adjust belt tension.

C. Refer to Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing procedures.

D. Replace fan and motor pulleys as required to achieve design airflow.

E. Lubricate bearings.

END OF SECTION 23 34 23

2012 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: University of North Carolina Charlotte – Residence Dining Hall Renovation (RDH)
Address: 9201 University City Blvd, Charlotte, NC 28223
Proposed Use: Business offices and storage for the Housing and Residence Life department and a commissary/catering kitchen + storage for the Business Services/Auxiliary Services department
Owner/Authorized Agent: UNCC / Donia Schauble Phone # (704) 687-0520 E-Mail dschauble@uncc.edu
Owned By: ☐ City/County ☐ Private ☒ State
Code Enforcement Jurisdiction: ☐ City_____ ☐ County_____ ☒ State

LEAD DESIGN PROFESSIONAL: Jenkins Peer Architects

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	Jenkins Peer Architects	Victor Jones	9507	704-372-6665	vjones@jenkinspeer.com
Civil	Land Design	Marc Momsen	033804	704-333-0325	mmomsen@landdesign.com
Electrical	Optima Engineering	John Chapman	027409	704-338-1292	jchapman@optimapa.com
Fire Alarm	Optima Engineering	John Chapman	027409	704-338-1292	jchapman@optimapa.com
Plumbing	Optima Engineering	George Fowler	026023	704-338-1292	gfowler@optimapa.com
Mechanical	Optima Engineering	Ronald Almond	017228	704-338-1292	ralmond@optimapa.com
Sprinklers/Standpipes	Optima Engineering	George Fowler	026023	704-338-1292	gfowler@optimapa.com
Structural	SKA	Charles Cardwell	015765	704-424-9663	ccecardwell@skaeng.com
Structural	SKA	Garrett Overcash	037472	704-424-9663	gloverceash@skaeng.com
Retaining Walls >5' High	SKA	Charles Cardwell	015765	704-424-9663	ccecardwell@skaeng.com
Retaining Walls >5' High	SKA	Garrett Overcash	037472	704-424-9663	gloverceash@skaeng.com
Roofing	SKA	Jeffrey Miller	019338	704-424-9663	jsmiller@skaeng.com

2012 EDITION OF NC CODE FOR: ☐ New Construction ☒ Addition ☐ Upfit
EXISTING: ☐ Reconstruction ☒ Alteration ☐ Repair ☒ Renovation
CONSTRUCTED: (date) **1969**
RENOVATED: (date) _____
ORIGINAL USE(S) (Ch. 3): **Assembly [A-2]**
CURRENT USE(S) (Ch. 3): **Assembly [A-2]**
PROPOSED USE(S) (Ch. 3): **Factory Industrial [F-1], Business [B], Storage [S-1]**

BASIC BUILDING DATA
Construction Type: (check all that apply) ☐ I-A ☒ II-A ☐ III-A ☐ IV ☐ V-A ☐ I-B ☒ II-B (Penthouse) ☐ III-B ☐ V-B
Sprinklers: ☐ No ☐ Partial ☒ Yes ☒ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☐ No ☒ Yes (Primary) **Flood Hazard Area:** ☒ No ☐ Yes
Building Height: (feet) **38'**
Gross Building Area:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
2nd Floor	23,531	0	23,531
2nd Floor (boiler house)	800	0	800
1st Floor	12,584	0	12,584
TOTAL	36,915	0	36,915

ALLOWABLE AREA

Occupancy:
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☒
Educational ☐
Factory ☒ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Accessory Occupancies:
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☐
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☒ S-1 Moderate ☐ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Incidental Uses (Table 508.2.5):
☐ Furnace room where any piece of equipment is over 400,000 Btu per hour input
☐ Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
☐ Refrigerant machine room
☐ Hydrogen cutoff rooms, not classified as Group H
☐ Incinerator rooms
☐ Paint shops, not classified as Group H, located in occupancies other than Group F
☐ Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy
☐ Laundry rooms over 100 square feet
☐ Group I-3 cells equipped with padded surfaces
☐ Group I-2 waste and linen collection rooms
☐ Waste and linen collection rooms over 100 square feet
☐ Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
☒ Rooms containing fire pumps (See room numbered 167 on sheet A-103)
☐ Group I-2 storage rooms over 100 square feet
☐ Group I-2 commercial kitchens
☐ Group I-2 laundries equal to or less than 100 square feet
☐ Group I-2 rooms or spaces that contain fuel-fired heating equipment

Special Uses: ☐ 402 ☐ 403 ☐ 404 ☐ 405 ☐ 406 ☐ 407 ☐ 408 ☐ 409 ☐ 410 ☐ 411 ☐ 412 ☐ 413 ☐ 414 ☐ 415 ☐ 416 ☐ 417 ☐ 418 ☐ 419 ☐ 420 ☐ 421 ☐ 422 ☐ 423 ☐ 424 ☐ 425 ☐ 426 ☐ 427

Special Provisions: ☐ 509.2 ☐ 509.3 ☐ 509.4 ☐ 509.5 ☐ 509.6 ☐ 509.7 ☐ 509.8 ☐ 509.9
Mixed Occupancy: ☐ No ☒ Yes Separation: **0** Hr. Exception: **508.3**
☐ Incidental Use Separation (508.2.5) **(not applicable since building is protected w/ automatic sprinkler.)**

This separation is not exempt as a Non-Separated Use (see exceptions).
☒ Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
☐ Separated Use (508.4) - See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

$$\frac{\quad}{\quad} + \frac{\quad}{\quad} + \ldots = \frac{\quad}{\quad} \leq 1.00$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503[1] AREA	(C) AREA FOR FRONTAGE INCREASE[2]	(D) AREA FOR SPRINKLER INCREASE[2]	(E) ALLOWABLE AREA OR UNLIMITED[3]	(F) MAXIMUM BUILDING AREA[4]
2nd Floor	F-1*	24,866	25,000	12,500	Not used**	37,500	75,000
1st Floor	F-1*	12,504	25,000	12,500	Not used**	37,500	

Allowable Area is based on most restrictive use (F-1)
****Area increase for sprinklers not used here in order to take Exception in Table 601, footnote d, in order to eliminate the 1-hour fire-resistance-rating requirement for building elements of Type IIA Construction.***

[1] Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = **752 FT** (F)
b. Total Building Perimeter = **752 FT** (P)
c. Ratio (F/P) = **1.00** (F/P)
d. W = Minimum width of public way = **20 FT** (W)
e. Percent of frontage increase $I_f = 100 [F/P - 0.25] \times W/30$ = **50** (%)
[2] The sprinkler increase per Section 506.3 is as follows:
a. Multi-story building I_s = 200 percent
b. Single story building I_s = 300 percent
[3] Unlimited area applicable under conditions of Section 507.
[4] Maximum Building Area = total number of stories in the building x E (506.4).
[5] The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Type of Construction	IIA			
Building Height in Feet	65 FT*	Not used**	38 FT	
Building Height in Stories	4*	Not used**	2	

Allowable height is based on most restrictive use (F-1)
****Height increase for sprinklers not used here in order to take Exception in Table 601, footnote d, in order to eliminate the 1-hour fire-resistance-rating requirement for building elements of Type IIA Construction.***

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes

Fire Alarm: ☐ No ☒ Yes
Smoke Detection Systems: ☐ No ☒ Yes ☒ Partial - ***Detection in Storage and Equipment Rooms and in corridors per owner preference.***
Panic Hardware: ☐ No ☒ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: G-201 and G-202

☒ Fire and/or smoke rated wall locations (Chapter 7)
☒ Assumed and real property line locations **(only assumed property line with 60 FT is to east of building.)**
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8) **(per Table 705.8, there is no limit requirement for unprotected, sprinklered at distance of 20 FT or greater.)**
☒ Existing structures within 30' of the proposed building
☒ Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
☒ Occupant loads for each area
☒ Exit access travel distances (1016)
☒ Common path of travel distances (1014.3 & 1028.8)
☒ Dead end lengths (1018.4)
☒ Clear exit widths for each exit door
☒ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
☒ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation **(not applicable)**
☒ Location of doors with panic hardware (1008.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1008.1.9.7) **(not applicable)**
☐ Location of doors with electromagnetic egress locks (1008.1.9.8) **(not applicable)**
☐ Location of doors equipped with hold-open devices **(not applicable)**
☐ Location of emergency escape windows (1029) **(not applicable)**
☐ The square footage of each fire area (902) **(not applicable)**
☐ The square footage of each smoke compartment (407.4) **(not applicable)**
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

Exit Requirements

NUMBER AND ARRANGEMENT OF EXITS
(TABLE 1021.1)

FLOOR, ROOM OR SPACE DESIGNATION	MINIMUM[1] NUMBER OF EXITS		TRAVEL DISTANCE		ARRANGEMENT MEANS OF EGRESS[2] (SECTION 1015.2)	
	REQUIRED T1021.1 (SINGLE EXIT 1021.2)	SHOWN ON PLANS	ALLOWABLE TRAVEL DISTANCE (TABLE 1016.1)	ACTUAL TRAVEL DISTANCE SHOWN ON PLANS	REQUIRED DISTANCE BETWEEN EXIT DOORS	ACTUAL DISTANCE SHOWN ON PLANS
2ND FLOOR	2	5	250'/300'	--	71'	170'
1ST FLOOR	2	5	250'	--	63'	91'

[1] Corridor dead ends (Section 1018.4)
[2] Buildings with single exits (Table 1021.2), Spaces with one means of egress (Table 1015.1)
[3] Common Path of Travel (Section 1014.3)

OCCUPANT LOAD AND EXIT WIDTH
(TABLE 1004.1.1)

USE GROUP OR SPACE DESCRIPTION[7]	(a) AREA[4] sq. ft.	(b) AREA[4] PER OCCUPANT	(1004.1.1) CALCULATED OCCUPANT	(c) EGRESS WIDTH PER OCCUPANT (SECTION 1005.1)	EXIT WIDTH (in)[5,6,8,9] REQUIRED WIDTH (SECTION 1005.1) (a÷b) x c	ACTUAL WIDTH SHOWN ON PLANS
(F-1) 2nd Floor Kitchen-Commercial	13,342	200 gross	67	0.3	20.1	48
(B) 2nd Floor Offices	14,528	100 gross	146	0.3	43.8	48
(B) 1st Floor Offices	7378	100 gross	74	0.2	14.8	n/a
(S-2) 1st Floor Storage	4500	300 gross	15	n/a	3	n/a
(S-2) 1st Floor Mechanical / Electrical	694	300 gross	3	0.2	0.6	n/a
Total			305			

☐ Moment Frame ☐ Inverted Pendulum
Seismic base shear: V_X = **n/a** V_Y = **n/a**
Analysis Procedure: ☐ Simplified ☒ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☒ Yes ☐ No

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☒ **(NEW PENTHOUSE)**

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) **3000** psf
Presumptive Bearing capacity _____ psf
Pile size, type, and capacity _____

SPECIAL INSPECTIONS REQUIRED: ☐ Yes ☒ No

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

USE		WATER CLOSETS		URINALS	LAVATORIES		SHOWERS/ TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE
HRL OFFICES	EXISTING	0	0	0	0	0	0	0	0
	NEW	2	4	2	3	3	0	2	2
	REQUIRED	4	4	0	3	3	0	1	1
CATERING KITCHEN	EXISTING	0	0	0	0	0	0	0	0
	NEW	1	2	1	1	1	0		0
	REQUIRED	2	2	0	1	1	0		0

THE FOLLOWING TABLE IS PROVIDED TO DOCUMENT CALCULATIONS:

OCCUPANCY USE GROUP AND/OR SPACE DESIGNATION	LOAD	WATER CLOSETS			LAVATORIES			DF	DRINKING FOUNTAINS
		RATIO	MALE	FEMALE	RATIO	MALE	FEMALE	RATIO	
HRL (B) Offices	110m + 110f	1/25 for 1st 50 and 1/50 after	3.2	3.2	1/40 for 1st 50 and 1/80 after	2.4	2.4	101-250=2	2
HRL (S-2) Storage (first floor)	9m + 9f	1 per 100	0.1	0.1	1 per 100	0.1	0.1	N/A	N/A
TOTAL FOR Housing & Residence Life Offices	**238 Total (119male+ 119female)**		**4 REQ.**	**4**		**3**	**3**		**2**
Catering (F-1)Kitchen	34m + 34f	Osha 29 CFR 1910.141	2	2	Osha 29 CFR 1910.141	1	1	N/A	N/A
TOTAL FOR Catering Kitchen	**70 Total (34m + 34f)**		**2**	**2**		**1**	**1**		**0**

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ 1-HR* REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses		1 Hour	0 Hour				
Bearing Walls							
Exterior	> 30 FT	1 Hour	1 Hour***		NCBC 721.3.2 (CMU)	n/a	n/a
Interior		1 Hour	n/a				
Nonbearing Walls and Partitions Exterior walls		0 Hour	0 Hour				
Interior walls and partitions		0 Hour	0 Hour				
Floor Construction Including supporting beams and joists		1 Hour	0 Hour				
Roof Construction Including supporting beams and joists		1 Hour	0 Hour				
Shaft Enclosures - Exit		1 Hour	1 Hour	G-301 A-411	NCBC 721.3.2 (CMU)	UL C-AJ-5091	UL HW-D-0244 UL WW-D-0028
Shaft Enclosures – Other (Elevator Shaft)		1 Hour	1-Hour	G301/G302 A-411 M502/P001	NCBC 721.3.2 (CMU) NCBC 722.2.2.1 (Concrete Cap)	UL C-AJ-5091	UL HW-D-0244 UL WW-D-0028
Corridor Separation		n/a	n/a				
Occupancy Separation		n/a	n/a				
Party/Fire Wall Separation		n/a	n/a				
Smoke Barrier Separation		n/a	n/a				
Tenant Separation		n/a	n/a				
Incidental Use Separation		n/a**	n/a				
Fire Pump Room Separation		2 Hour	2 Hour	G301/G302 M502/P001	UL U905	UL C-AJ-5091	UL HW-D-0244 UL WW-D-0028

For NCBC Table 601, footnote d, the 1-hour fire-resistance-rating requirement for building elements of Type IIA Construction is being substituted for the fire sprinkler system, which is NOT being used for any area or height increases as stated in the above two sections of this code summary.

****Incidental Use Separation fire-resistance-rating of 1-hour is not required with fire sprinkler system according to NCBC 508.2.5.***

*****In accordance with NCBC 1509.2.4, rated exterior bearing walls are not required for the new penthouse construction. Also, the only load bearing walls of the building are at the projections to the main building and former boiler building – these walls are shown as being rated on the floor plans and in accordance with NCBC 704.10 this 1-hour rating applies to the structural members of the wall and not the opening within the wall (doors and windows.)***

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes

			LOAD (a+b)	STAIR	LEVEL	STAIR	LEVEL	STAIR	LEVEL
(F-1) 2nd Floor Kitchen-Commercial	13,342	200 gross	67	0.3	0.2	20.1	13.4	48	170
(B) 2nd Floor Offices	14,528	100 gross	146	0.3	0.2	43.8	29.2	48	204
(B) 1st Floor Offices	7378	100 gross	74	n/a	0.2	n/a	14.8	n/a	68
(S-2) 1st Floor Storage	4500	300 gross	15	n/a	0.2	n/a	3	n/a	34
(S-2) 1st Floor Mechanical / Electrical	694	300 gross	3	n/a	0.2	n/a	0.6	n/a	102
Total			305						

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	
Lot 8A Existing	n/a	61	4	0	0	4
Lot 8A Reconfigured	n/a	62	6	0	0	6

Note: Parking is considered via a campus-wide approach by the owner and not a requirement per each building. The parking provide in the loading areas are for service vehicles necessary for the operation of the building and not for personnel parking. The existing Lot 8A adjacent to the building will remain as is in the base bid, but will be reconfigured by Alternate Bid, if more funding is made available.

STRUCTURAL DESIGN

DESIGN LOADS:

Importance Factors: Wind (I_W) **1.0** Snow (I_S) **1.0** Seismic (I_E) **1.0**

Live Loads: Roof **20** psf Mezzanine **n/a** psf Floor **100** psf

Ground Snow Load: **15** psf

Wind Load: Basic Wind Speed **90** mph (ASCE-7) Exposure Category **C** Wind Base Shears (for MWFRS) Vx = **n/a** Vy = **n/a**

SEISMIC DESIGN CATEGORY: ☐ A ☒ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☒ II ☐ III ☐ IV
Spectral Response Acceleration S_S **392** %g S_1 **106** %g
Site Classification (Table 1613.5.2) ☐ A ☐ B ☒ C ☐ D ☐ E ☐ F
Data Source: ☒ Field Test ☐ Presumptive ☐ Historical Data
Basic structural system (check one)
☒ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel

Energy Summary (New Construction, Additions, Change of use and upfits)

BUILDING ENVELOPE:

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the 2012 North Carolina Energy Conservation Code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Climate Zone: (North Carolina Energy Conservation Code NCECC 301.1) ☒ 3 ☐ 4 ☐ 5

Method of Compliance:
☒ Prescriptive (NCECC)

THERMAL ENVELOPE: (NCECC Chapter 4 and or 5)

Roof/ceiling Assembly (each assembly)
Description of assembly: **Thermoplastic roof membrane over 5" (average depth) tapered rigid insulation, on existing concrete deck**
U-Value of total assembly: **0.048**
R-Value of insulation: **R20**
Skylights in each assembly: **n/a**
U-Value of skylight: **n/a**
total square footage of skylights in each assembly: **n/a**

Exterior Walls (each assembly)
Description of assembly: **Existing**
U-Value of total assembly:
R-Value of insulation:
Openings (windows or doors with glazing)
U-Value of assembly: **0.28**
Solar heat gain coefficient: **.024**
projection factor: **n/a**
Door R-Values: **R1.92**

Walls below grade (each assembly)
Description of assembly: **Existing**

Floors over unconditioned space (each assembly)
Description of assembly: **n/a**

Floors slab on grade
Description of assembly: **Existing**

REFERENCE MECHANICAL SHEET M-001 FOR 2012 NORTH CAROLINA ENERGY CONSERVATION CODE SUMMARY – MECHANICAL SUMMARY.

REFERENCE ELECTRICAL SHEET E-001 FOR 2012 NORTH CAROLINA ENERGY CONSERVATION CODE SUMMARY – ELECTRICAL SUMMARY.

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MARCH
1ST, 2016

UNC CHARLOTTE

UNC CHARLOTTE RESIDENCE DINING HALL BUILDING RENOVATION

SCO ID #: 14-11273-02A

TAG	DESCRIPTION	DATE
2	ADDENDUM #2	3/22/16

Project: 15NCC491
Drawn By:
Checked By:
Date: MARCH 1ST, 2016

CODE SUMMARY (APPENDIX B)

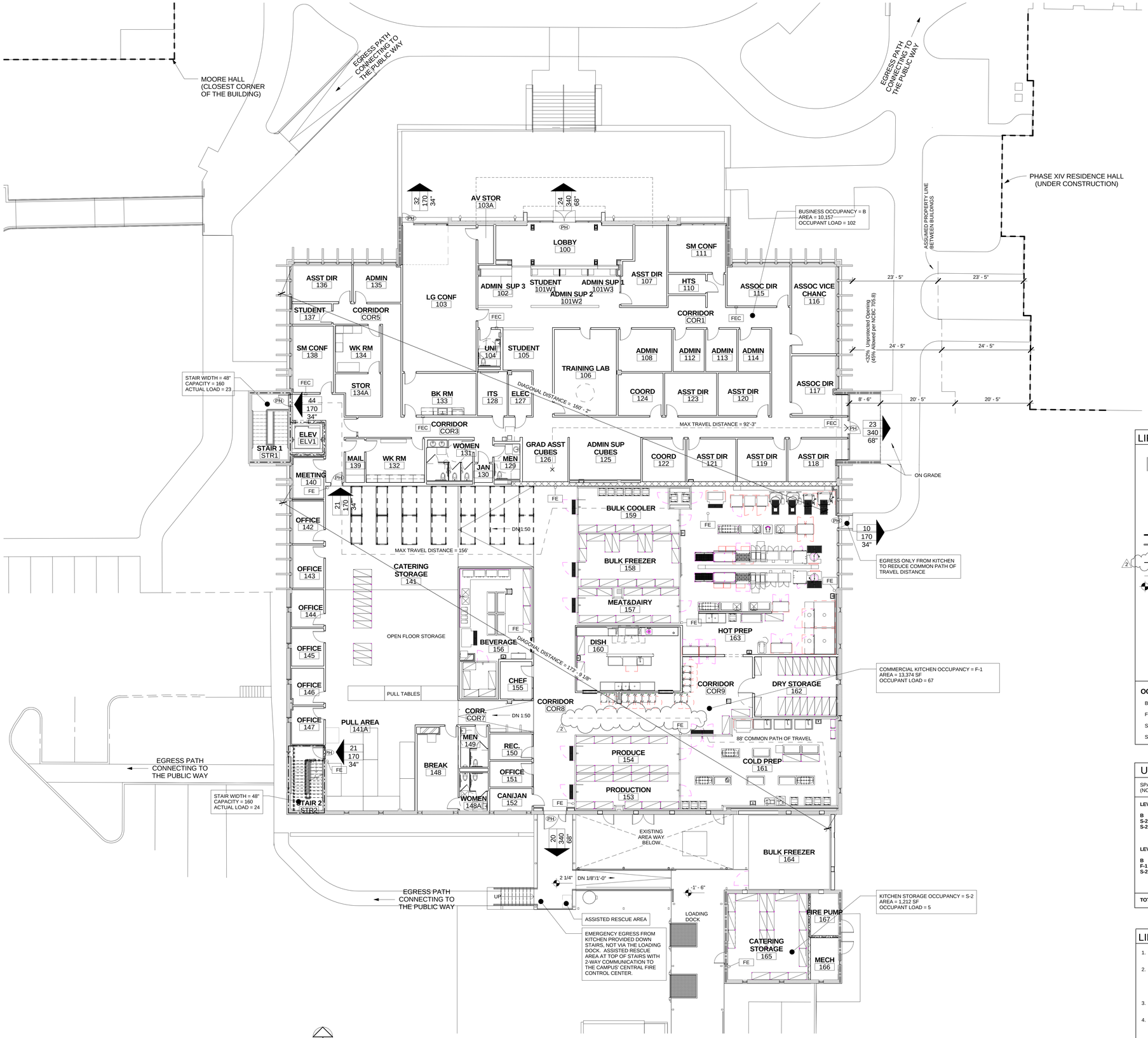
CONSTRUCTION DOCUMENTS

G-101

A1 CODE SUMMARY APPENDIX B
12" = 1'-0"

D C B A

5 4 3 2 1



A2 UPPER LEVEL LIFE SAFETY PLAN
3/32" = 1'-0"

LIFE SAFETY LEGEND

- 000 / AB / 150 SF — OCCUPANCY GROUP CLASSIFICATION - FUNCTION OF SPACE (NCBC T1004.1.1)
- SPACE SF
- OCCUPANCY COUNT
- 0" / 0" / 0" — EGRESS LOAD (ACTUAL OCCUPANT COUNT); EGRESS CAPACITY (ALLOWABLE PER EGRESS WIDTH); ACTUAL CLEAR EXIT WIDTH
- 1 HOUR RATED FIRE BARRIER
- 1 HOUR RATED EXTERIOR BEARING WALL Note: This is for STRUCTURAL MEMBERS of the wall PER NCBC 704.10.
- 2 HOUR RATED FIRE BARRIER
- 100'-0" — DISTANCE CALCULATIONS
- 100'-0" — MAX. TRAVEL DISTANCE
- 75'-0" CPT — COMMON PATH OF TRAVEL DISTANCE
- FE = FIRE EXTINGUISHER; FEC = FIRE EXTINGUISHER WITH RECESSED CABINET
- PH — DOOR WITH PANIC HARDWARE
- HO — DOOR WITH HOLD-OPEN DEVICE
- P — FIRE ALARM PULL STATION

OCCUPANCY LOAD DESCRIPTIONS (NCBC 1004.1.1):

B	BUSINESS = 1/100 GROSS
F-1	COMMERCIAL KITCHEN = 1/200 GROSS
S-2	STORAGE = 1/300 GROSS
S-2	MECHANICAL = 1/300 GROSS

USE & OCCUPANCY CALCULATIONS

SPACE FUNCTION (NCBCT1004.1.1)		AREA (SF)	OCCUPANT LOAD
LEVEL ONE			
B	(HRL OFFICES)	7,212	73
S-2	(HRL FACILITIES STORAGE)	4,678	16
S-2	(MECH / ELEC)	694	3
	SUBTOTAL		**92**
LEVEL TWO			
B	(HRL OFFICES)	10,157	102
F-1	(COMMERCIAL KITCHEN)	13,374	67
S-2	(KITCHEN STORAGE)	701	3
	SUBTOTAL		**172**
TOTAL			**264**

LIFE SAFETY GENERAL NOTES

1. FURNITURE SHOWN ON LIFE SAFETY PLANS IS PROVIDED BY OWNER AND ONLY SHOWN AS SUGGESTED LAYOUT IN ROOMS TO COORDINATE PLACEMENT OF ELECTRICAL AND DATA OUTLETS.
2. THE HOUSING AND RESIDENCE LIFE DEPARTMENT (HRL) OCCUPIES LEVEL ONE AND THE NORTH HALF OF LEVEL TWO, WHILE THE AUXILIARY SERVICES DEPARTMENT'S COMMISSARY / CATERING KITCHEN OCCUPIES THE SOUTH HALF OF LEVEL TWO. BOTH DEPARTMENTS ARE PART OF THE UNIVERSITY ARE THEREFORE NOT CONSIDERED SEPARATE TENANTS.
3. REFERENCE CIVIL DRAWINGS FOR PEDESTRIAN AND VEHICULAR CIRCULATION OUTSIDE OF THE BUILDING AS WELL AS ACCESSIBLE ROUTE FROM THE NEAREST PARKING LOT AND PUBLIC STREETS.
4. THE CONSTRUCTION OF THE ADJACENT PHASE XIV RESIDENCE HALL IS UNDERWAY AND WILL BE NEARING COMPLETION AT THE ONSET OF CONSTRUCTION OF THIS RESIDENCE DINING HALL (RDH) RENOVATION PROJECT.
5. FIRE EXTINGUISHERS WITHIN COMMERICAL KITCHEN (CATERING KITCHEN) TO BE CLASS K RATED PORTABLE EXTINGUISHERS PER NFPA 10.

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SCO ID #: 14-11273-02A

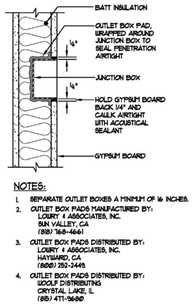
TAG	DESCRIPTION	DATE
2	ADDENDUM #2	3/22/16

Project: 15NCC491
Drawn By:
Checked By:
Date: MARCH 1ST, 2016

UPPER LEVEL LIFE SAFETY PLAN

CONSTRUCTION DOCUMENTS

G-202



NOTES:

1. SEPARATE OUTLET BOXES A MINIMUM OF 16 INCHES.
2. OUTLET BOX PADS MANUFACTURED BY:
   LOSBY + ASSOCIATES, INC.
   SAN VALLEY, CA
   (888) 768-4661
3. OUTLET BOX PADS DISTRIBUTED BY:
   LOSBY + ASSOCIATES, INC.
   HAYWARD, CA
   (800) 252-2449
4. OUTLET BOX PADS DISTRIBUTED BY:
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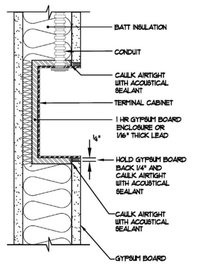
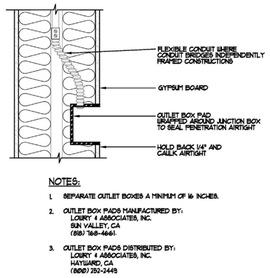
   CRYSTAL LAKE, IL
   (815) 471-3648

OUTLET BOX DETAIL



LARGE OUTLET BOX PENETRATION



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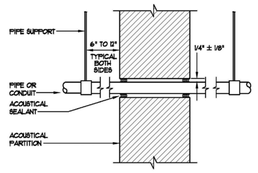
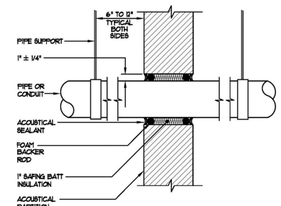
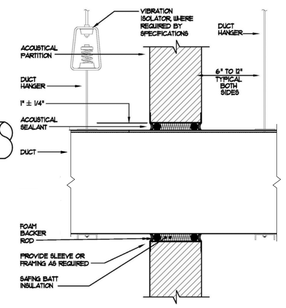
DOUBLE STUD WALL/CONDUIT DETAIL



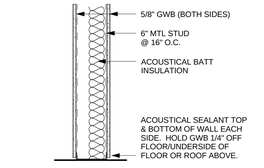
SMALL PIPE/CONDUIT PENETRATION THROUGH ACOUSTICAL PARTITION



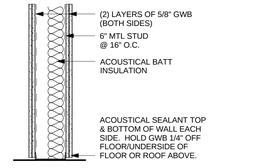
LARGE PIPE/CONDUIT PENETRATION THROUGH ACOUSTICAL PARTITION



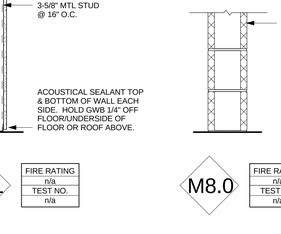
DUCT PENETRATION THROUGH ACOUSTICAL PARTITION



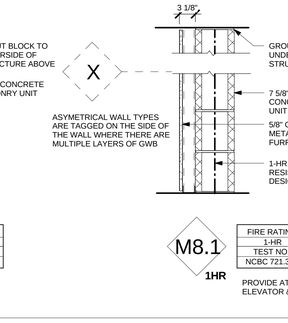
CONDITION PARALLEL TO DECK; NON-RATED



CONDITION PERPENDICULAR TO DECK; NON-RATED



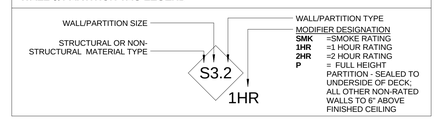
CONDITION @ UNDERSIDE OF STEEL BEAM; NON-RATED



TYPICAL SLIP TRACK HEAD DETAIL

TYPICAL ACOUSTICAL DETAILS

WALL & PARTITION TAG LEGEND



WALL & PARTITION NOTES

1. REFERENCE FLOOR PLANS FOR CORRESPONDING WALL TAGS.
2. REFERENCE FINISH SCHEDULE FOR WALL FINISHES.
3. REFERENCE BUILDING SECTIONS AND WALL SECTIONS FOR EXTERIOR WALL CONSTRUCTION TYPES.
4. ALL GYPSUM WALL BOARD IS 5/8" THICK UNLESS OTHERWISE INDICATED.
5. PROVIDE MOISTURE RESISTANT GYPSUM WALL BOARD IN RESTROOMS AND JANITOR CLOSETS UNLESS INDICATED OTHERWISE ON THE FINISH SCHEDULE.
6. PROVIDE TILE BACKER BOARD FOR ALL METAL SUD WALLS AND PARTITION THAT ARE TO REVEIVE CERAMIC TILE FINISH IN LIEU OF GYPSUM WALL BOARD.
7. ALL PARTITIONS ARE TO BE BRACED TO STRUCTURE AS SPECIFIED.
8. ALL PARTITIONS TO EXTEND A MINIMUM OF 4" ABOVE FINISHED CEILING UNLESS OTHERWISE INDICATED.
9. ALL FIRE- RATED WALLS ARE TO BE SEALED TO DECK ABOVE AND ALL PENETRATIONS SEALED.
10. ALL WALLS INCLUDING GYPSUM BOARD EXTEND FULL HEIGHT (FLOOR TO DECK) UNLESS OTHERWISE INDICATED.
11. ALL ACOUSTICAL BATT INSULATION IS 3 1/2" UNLESS OTHERWISE INDICATED.
12. ALLOW 1/4" GAP AT BASE AND HEAD TRACK FOR ALL ACOUTICALLY RATED PARTITION TYPES. SEAL GAP WITH ACOUSTICAL SEALANT, TYPICAL.
13. REFERENCE G-101 FOR CODE SUMMARY AND G-302 FOR UL DETAILS.
14. PROVIDE TYPE "X" GYPSUM BOARD AT ALL RATED PARTITIONS / WALLS.

WALL & PARTITION SIZE AND TYPE LEGEND

F STEEL FURRING
- F0 = 7/8"
- F1 = 1"
- F2 = 2"

S STEEL STUD NON-BEARING
- S1 = 1 5/8"
- S2 = 2 1/2"
- S3 = 3 5/8"
- S4 = 4" "
- S6 = 6"
- S8 = 8"

B STEEL STUD BEARING
- B2 = 2 1/2"
- B3 = 3 5/8"
- B4 = 4"
- B6 = 6"
- B8 = 8"

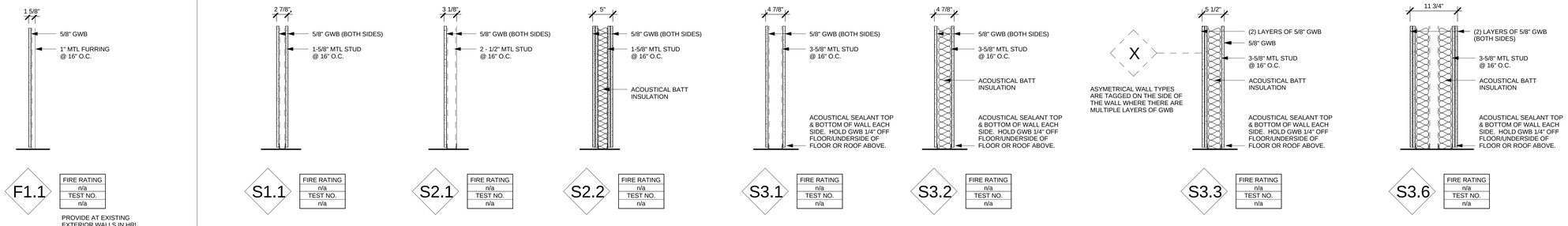
M CONCRETE MASONRY
- M4 = 3 5/8"
- M6 = 5 5/8"
- M8 = 7 5/8"
- M10 = 9 5/8"
- M12 = 11 5/8"

C CAST IN PLACE CONCRETE
- C4 = 4"
- C6 = 6"
- C8 = 8
- C10 = 10"
- C12 = 12"

H SHAFTWALL
- H2 = 2 1/2"
- H4 = 4"

NOTE:
DIMENSIONS ONLY INDICATE THE STRUCTURAL/NON-STRUCTURAL COMPONENT OF THE WALL OR PARTITION ASSEMBLY, FINISHES OF THE PARTITIONS ARE NOT INCLUDED IN THE DIMENSIONS.

B



A

WALL & PARTITION TYPE SCHEDULE

5 4 3 2 1

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Charlotte, North Carolina 28212
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MARCH
1ST, 2016

UNC CHARLOTTE

UNC CHARLOTTE

RESIDENCE DINING HALL BUILDING RENOVATION

SCO ID #: 14-11273-02A

TAG	DESCRIPTION	DATE
2	ADDENDUM #2	3/22/16

Project: 15NCC491
Drawn By:
Checked By:
Date: MARCH 1ST, 2016

PARTITION TYPES & DETAILS

CONSTRUCTION DOCUMENTS

G-301

LAYOUT NOTES:

1. STATE CONSTRUCTION OFFICE AND UNC CHARLOTTE TO BE GIVEN 24 HOUR NOTICE PRIOR TO START OF CONSTRUCTION.
2. ALL CONSTRUCTION SHALL COMPLY WITH UNC CHARLOTTE DESIGN AND CONSTRUCTION MANUAL, NORTH CAROLINA CONSTRUCTION MANUAL AND NORTH CAROLINA BUILDING CODE.
3. ALL DRAINAGE FACILITIES, CURB CUTS AND CURB RAMPS MUST BE COORDINATED WITH UNC CHARLOTTE'S DEPARTMENT OF FACILITIES MANAGEMENT.
4. IN ORDER TO KEEP PROPER DRAINAGE, KEEP A MINIMUM OF 0.5% SLOPE ON THE CURB.
5. ELECTRICAL, TELEPHONE, AND CABLE LINES AND POLES TO BE ELIMINATED OR RELOCATED, SHALL BE COORDINATED WITH UNC CHARLOTTE.
6. AT TIME OF STAKING, CONTRACTOR TO CONTACT CIVIL ENGINEER FOR DIGITAL SITE PLAN FILE FOR COORDINATION OF STAKING.
7. TREE PROTECTION FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF THE TREE PROTECTION AREA. REFER TO EROSION CONTROL PLAN FOR TREE PROTECTION FENCING.
8. ALL DIMENSIONS ARE TO THE BACK OF CURB, FACE OF WALL OR FACE OF BUILDING, UNLESS OTHERWISE NOTED.
9. CURB AND GUTTER SHOWN ON PLANS MAY BE ADJUSTED BASED ON FIELD STAKING.
10. ALL TRAFFIC SIGNAGE AND MARKINGS TO COMPLY WITH CURRENT UNC-CHARLOTTE DESIGN GUIDELINES, STANDARDS AND SPECIFICATIONS.
11. WITHIN THE PAVERS AND CURB LINE ABOVE EACH END OF THE IRRIGATION CONDUIT, SAW CUT AN "I" INTO THE PAVER FOR IDENTIFYING THE LOCATION OF THE UNDERGROUND CONDUIT.
12. ALL EXISTING PAVEMENT, HARDSCAPE AND LANDSCAPE ADJACENT TO THE PROJECT LIMITS SHALL BE RESTORED TO THEIR PRE CONSTRUCTION CONDITION.

FLOODPLAIN INVOLVEMENT:

NO CONSTRUCTION, DEVELOPMENT, OR STORAGE OF MATERIALS SHALL BE ALLOWED BELOW THE 100 YEAR FLOODPLAIN ELEVATION OF 600.90.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033804 MARC D. MOHSEN 3/22/16

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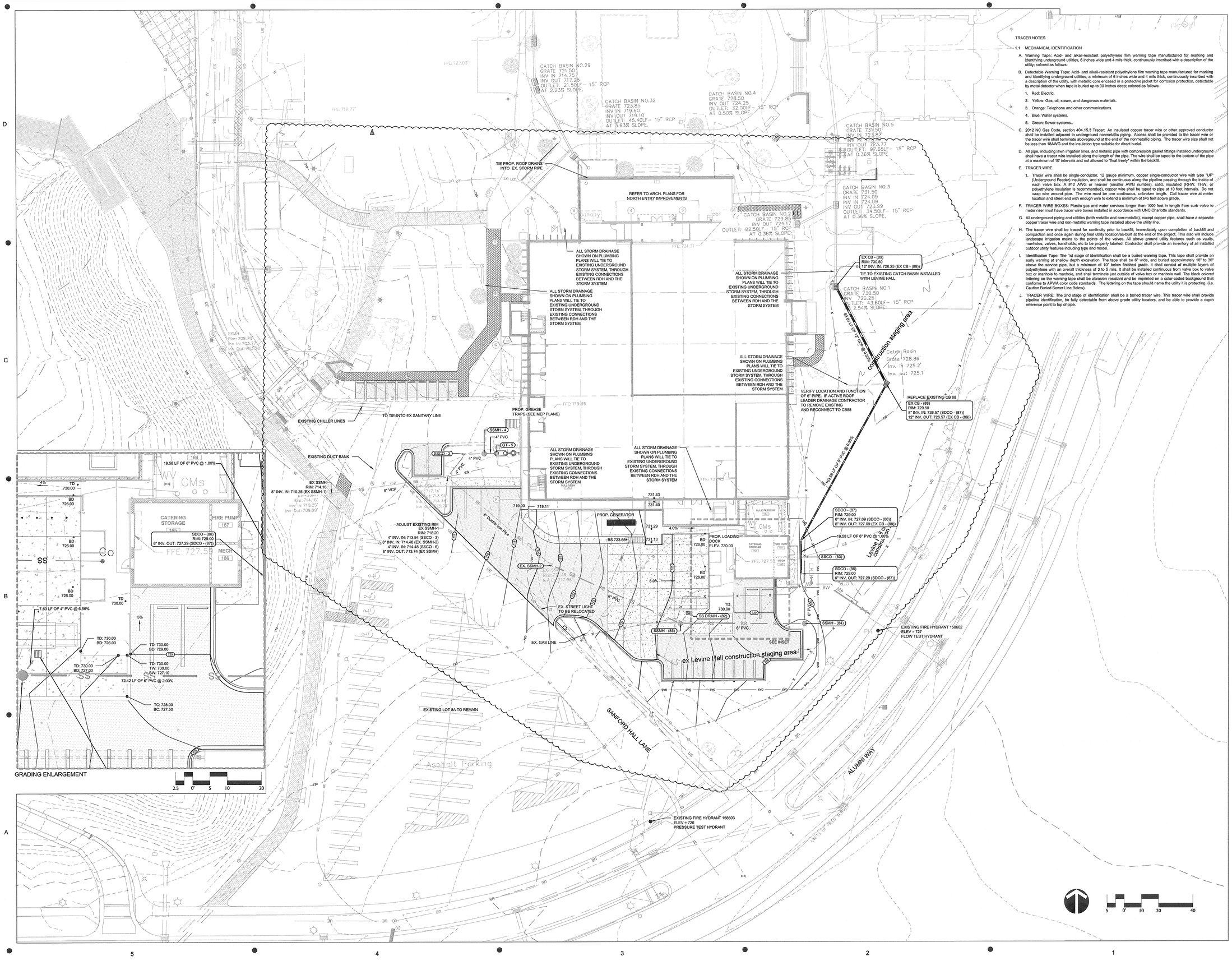
SITE PLAN BASE BID

CONSTRUCTION DOCUMENTS

C-200



TRACER NOTES

1.1 MECHANICAL IDENTIFICATION

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems..

C. 2012 NC Gas Code, section 404.15.3 Tracer: An insulated copper tracer wire or other approved conductor shall be installed adjacent to underground nonmetallic piping. Access shall be provided to the tracer wire or the tracer wire shall terminate aboveground at the end of the nonmetallic piping. The tracer wire size shall not be less than 18AWG and the insulation type suitable for direct burial.

D. All pipe, including lawn irrigation lines, and metallic pipe with compression gasket fittings installed underground shall have a tracer wire installed along the length of the pipe. The wire shall be taped to the bottom of the pipe at a maximum of 10' intervals and not allowed to "float freely" within the backfill.

E. TRACER WIRE

1. Tracer wire shall be single-conductor, 12 gauge minimum, copper single-conductor wire with type "UF" (Underground Feeder) insulation, and shall be continuous along the pipeline passing through the inside of each valve box. A #12 AWG or heavier (smaller AWG number), solid, insulated (RHW, THW, or polyethylene insulation is recommended), copper wire shall be taped to pipe at 10 foot intervals. Do not wrap wire around pipe. The wire must be one continuous, unbroken length. Coil tracer wire at meter location and street end with enough wire to extend a minimum of two feet above grade.

F. TRACER WIRE BOXES: Plastic gas and water services longer than 1000 feet in length from curb valve to meter riser must have tracer wire boxes installed in accordance with UNC Charlotte standards.

G. All underground piping and utilities (both metallic and non-metallic), except copper pipe, shall have a separate copper tracer wire and non-metallic warning tape installed above the utility line.

H. The tracer wire shall be traced for continuity prior to backfill, immediately upon completion of backfill and compaction and once again during final utility location/as-built at the end of the project. This also will include landscape irrigation mains to the points of the valves. All above ground utility features such as vaults, manholes, valves, handholds, etc to be properly labeled. Contractor shall provide an inventory of all installed outdoor utility features including type and model.

I. Identification Tape: The 1st stage of identification shall be a buried warning tape. This tape shall provide an early warning at shallow depth excavation. The tape shall be 6" wide, and buried approximately 18" to 30" above the service pipe, but a minimum of 10" below finished grade. It shall consist of multiple layers of polyethylene with an overall thickness of 3 to 5 mils. It shall be installed continuous from valve box to valve box or manhole to manhole, and shall terminate just outside of valve box or manhole wall. The black colored lettering on the warning tape shall be abrasion resistant and be imprinted on a color-coded background that conforms to APWA color code standards. The lettering on the tape should name the utility it is protecting. (i.e. Caution Buried Sewer Line Below).

J. TRACER WIRE: The 2nd stage of identification shall be a buried tracer wire. This tracer wire shall provide pipeline identification, be fully detectable from above grade utility locators, and be able to provide a depth reference point to top of pipe.

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT SEAL 033804 MARC D. MONSEN 3/12/16

UNC CHARLOTTE

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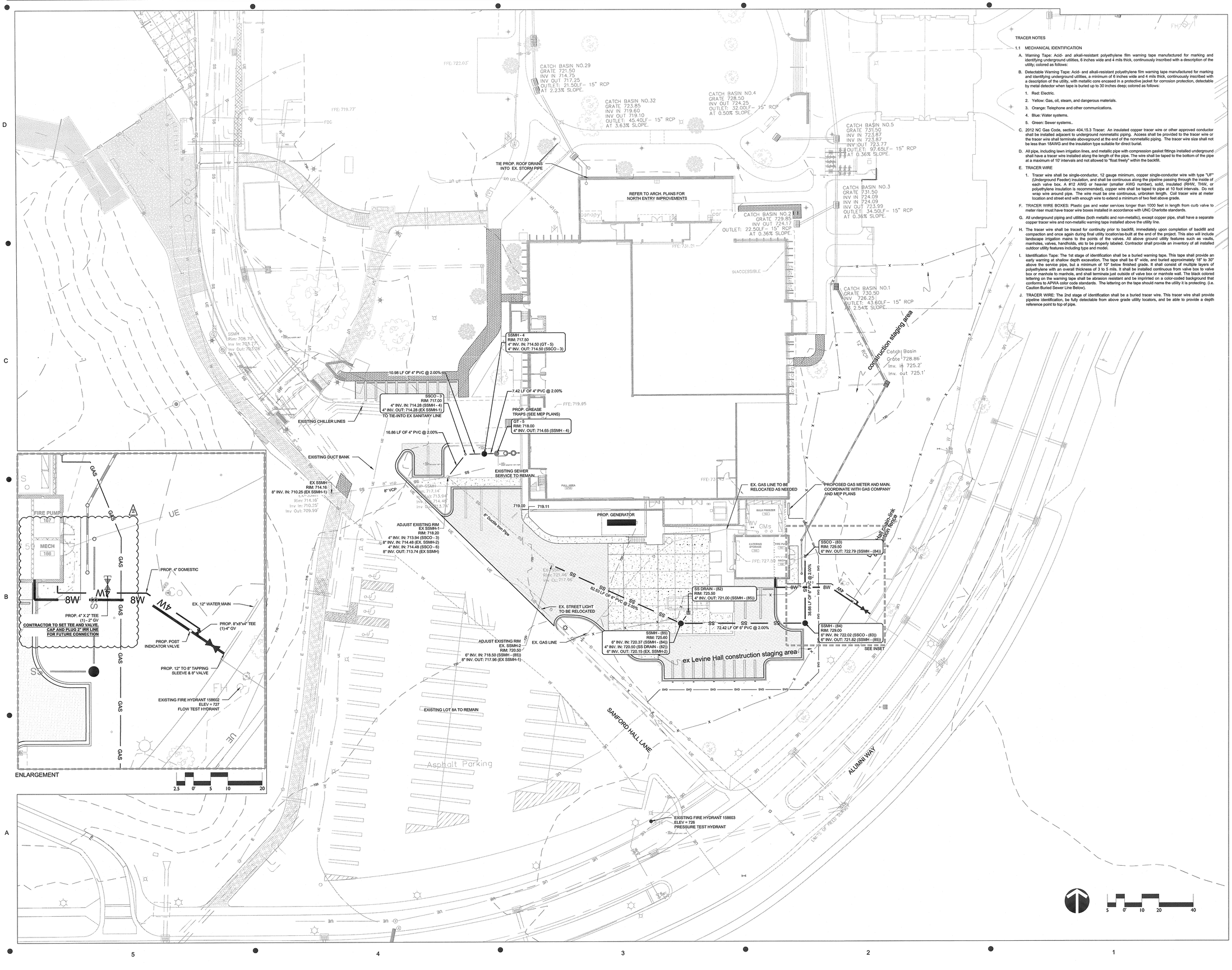
GRADING & STORM DRAINAGE PLAN

CONSTRUCTION DOCUMENTS

C-400



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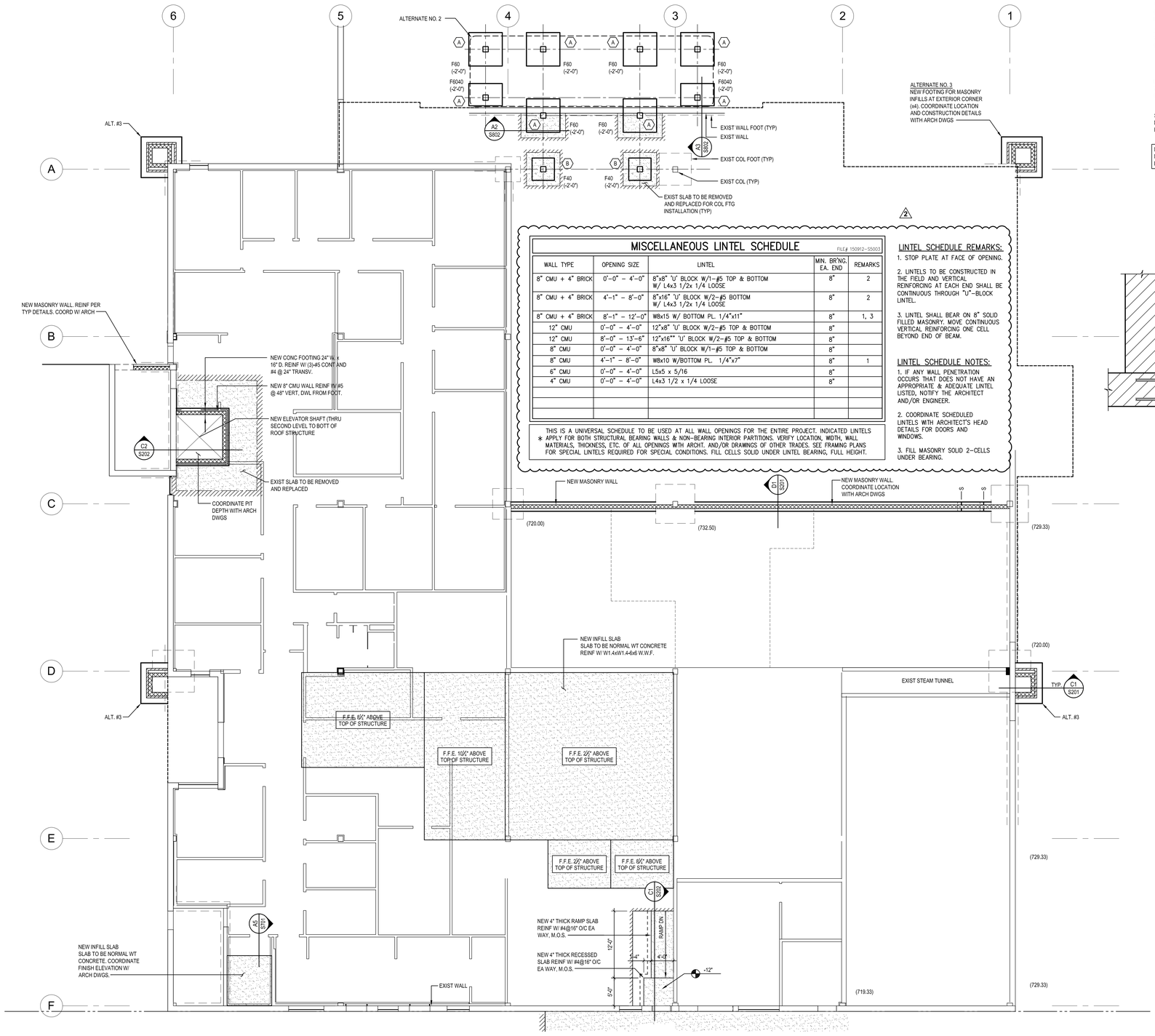
UTILITY PLAN

CONSTRUCTION DOCUMENTS

C-600



MISCELLANEOUS LINTEL SCHEDULE

FILE# 150912-S5003

WALL TYPE	OPENING SIZE	LINTEL	MIN. BR'NG. EA. END	REMARKS
8" CMU + 4" BRICK	0'-0" – 4'-0"	8"x8" 'U' BLOCK W/1-#5 TOP & BOTTOM W/ L4x3 1/2x 1/4 LOOSE	8"	2
8" CMU + 4" BRICK	4'-1" – 8'-0"	8"x16" 'U' BLOCK W/2-#5 BOTTOM W/ L4x3 1/2x 1/4 LOOSE	8"	2
8" CMU + 4" BRICK	8'-1" – 12'-0"	W8x15 W/ BOTTOM PL. 1/4"x11"	8"	1, 3
12" CMU	0'-0" – 4'-0"	12"x8" 'U' BLOCK W/2-#5 TOP & BOTTOM	8"	
12" CMU	8'-0" – 13'-6"	12"x16"* 'U' BLOCK W/2-#5 TOP & BOTTOM	8"	
8" CMU	0'-0" – 4'-0"	8"x8" 'U' BLOCK W/1-#5 TOP & BOTTOM	8"	
8" CMU	4'-1" – 8'-0"	W8x10 W/BOTTOM PL. 1/4"x7"	8"	1
6" CMU	0'-0" – 4'-0"	L5x5 x 5/16	8"	
4" CMU	0'-0" – 4'-0"	L4x3 1/2 x 1/4 LOOSE	8"	

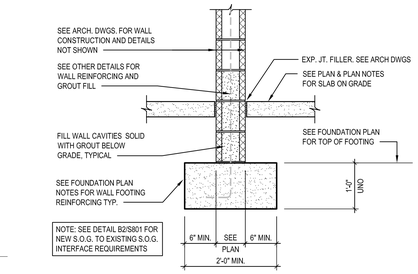
THIS IS A UNIVERSAL SCHEDULE TO BE USED AT ALL WALL OPENINGS FOR THE ENTIRE PROJECT. INDICATED LINTELS * APPLY FOR BOTH STRUCTURAL BEARING WALLS & NON-BEARING INTERIOR PARTITIONS. VERIFY LOCATION, WIDTH, WALL MATERIALS, THICKNESS, ETC. OF ALL OPENINGS WITH ARCHT. AND/OR DRAWINGS OF OTHER TRADES. SEE FRAMING PLANS FOR SPECIAL LINTELS REQUIRED FOR SPECIAL CONDITIONS. FILL CELLS SOLID UNDER LINTEL BEARING, FULL HEIGHT.

LINTEL SCHEDULE REMARKS:

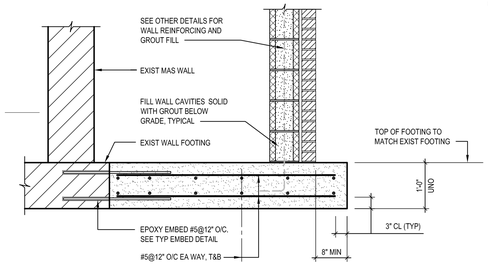
1. STOP PLATE AT FACE OF OPENING.
2. LINTELS TO BE CONSTRUCTED IN THE FIELD AND VERTICAL REINFORCING AT EACH END SHALL BE CONTINUOUS THROUGH "U"-BLOCK LINTEL.
3. LINTEL SHALL BEAR ON 8" SOLID FILLED MASONRY. MOVE CONTINUOUS VERTICAL REINFORCING ONE CELL BEYOND END OF BEAM.

LINTEL SCHEDULE NOTES:

1. IF ANY WALL PENETRATION OCCURS THAT DOES NOT HAVE AN APPROPRIATE & ADEQUATE LINTEL LISTED, NOTIFY THE ARCHITECT AND/OR ENGINEER.
2. COORDINATE SCHEDULED LINTELS WITH ARCHITECT'S HEAD DETAILS FOR DOORS AND WINDOWS.
3. FILL MASONRY SOLID 2-CELLS UNDER BEARING.



D1 SECTION
1/8" = 1'-0"



C1 SECTION
1/8" = 1'-0"

STEEL COLUMN SCHEDULE

MARK	A	B
CAP PLATE	¾"x SIZE TO SUIT	¾"x SIZE TO SUIT
SIZE	HSS 12x12x ¼"	HSS 12x12x ¼"
BASE PLATE	1"x18x 1'-6"	¾"x18"x 1'-6"
ANCHOR BOLTS	(8)-1"ø	(4)-¾"ø
REMARKS	1	1

COLUMN SCHEDULE NOTES:
1. SEE DETAILS: TYPICAL COLUMN BASE AND FOOTING DETAIL SHOWN ON S801
2. UNLESS OTHERWISE NOTED THE TOP OF COLUMNS SHALL BE AT THE DECK BEARING ELEVATION.
3. ANCHOR BOLTS TO EXTEND TO WITHIN 3" OF BOTTOM OF FOOTING.

COLUMN SCHEDULE REMARKS:
1. COLUMN BASE PLATES SHALL BE SHOP WELDED

FOUNDATION PLAN NOTES:

File # 150102/0101DWG

1. DISTANCE TO TOP OF FINISHED FLOOR ABOVE OR BELOW ELEVATION XX IS SHOWN THUS (⟲) ON PLAN. SEE ARCHITECTURAL DRAWINGS FOR TOP OF FINISH FLOOR SLAB ELEVATIONS NOT SHOWN.
2. THE FOLLOWING SYMBOLS ARE USED ON PLAN TO REPRESENT ELEVATIONS ABOVE OR BELOW THE REFERENCE ELEVATION OF X
   (——) TOP OF FOUND. CONC. (SPREAD FOOTING, WALL FOOTING).
3. UNLESS NOTED ON PLAN, THE SLAB-ON-GRADE IS TO BE A 4-INCH THICK CONCRETE SLAB REINFORCED WITH 6 x 6 - W1.4 x W1.4 W.W.F. PLACED 1 INCH CLEAR FROM TOP. PLACE SLAB DIRECTLY ON TOP OF A VAPOR BARRIER AND OVER 4 INCHES OF CLEAN WASHED STONE. SEE SPECIFICATIONS FOR REQUIREMENTS OF VAPOR BARRIER.
4. SLAB-ON-GRADE CONTROL JOINTS ARE INDICATED ON PLAN WITH THE SYMBOL 'C.J.'. THESE JOINTS MAY BE EITHER CONSTRUCTION JOINTS OR SAWCUT JOINTS. SEE "TYPICAL SLAB-ON-GRADE CONTROL JOINT" DETAILS ON SHEET S8.1. COORDINATE ALL SLAB JOINT LOCATIONS WITH JOINTS IN ARCHITECTURAL FLOOR FINISHES TO ASSURE ALIGNMENT IS APPLICABLE.
5. TOP OF ALL EXTERIOR FOOTINGS ARE TO BE A MINIMUM OF 2'-0" BELOW FINISHED EXTERIOR GRADE.
6. SEE SHEET S-801 FOR TYPICAL DETAILS.
7. FOR GENERAL NOTES AND NOTES PERTAINING TO FOUNDATION DESIGN AND CONSTRUCTION, SEE SHEET S-101.
8. "F40" DENOTES SPREAD FOOTING 4'-0"x4'-0"x 1'-4" THICK, REINFORCED WITH (5)-#5 EACH WAY, BOTT. & TOP. "F60" DENOTES SPREAD FOOTING 6'-0" x 6'-0" x 1'-8" THICK, REINFORCED WITH (7)-#5 EACH WAY, BOTT. & TOP. "F6040 DENOTES SPREAD FOOTING 6'-0"x4'-0" x 1'-8" THICK, REINFORCED WITH #5 @ 12" O/C EACH WAY BOTT. & TOP. SEE TYPICAL DETAIL ON S-801.
9. VERIFY LOCATION AND SIZE OF WALLS SHOWN ON THE FOUNDATION PLANS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
10. FILL ALL CMU CELLS BELOW GRADE WITH CONCRETE GROUT.
11. UNLESS OTHERWISE INDICATED ON PLAN OR IN DETAILS, ALL WALL FOOTINGS SHALL BE 12" DEEP, PROJECT 6" BEYOND EACH FACE OF THE WALL SUPPORTED, AND SHALL BE REINFORCED WITH 3-#5 BARS CONTINUOUS LONGITUDINALLY.
12. TOP OF FOOTING ELEVATIONS SHOWN ON PLAN ARE FOR ESTIMATING PURPOSES AND MAY VARY DUE TO SITE OR UTILITY CONDITIONS. FOOTINGS MAY BE VARIED FROM PLAN ELEVATION TO SUITE SITE AND/OR UTILITY CONDITIONS BY STEPPING AT A RATE OF 1 TO 2 VERTICAL TO HORIZONTAL. SEE TYPICAL DETAILS.
13. SEE DETAIL B2/S801 FOR NEW SLAB-ON-GRADE TO EXISTING SLAB-ON-GRADE INTERFACE REQUIREMENTS.

A5 FOUNDATION PLAN - PLAN NORTH
1/8" = 1'-0"

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15765 CHARLES E. CHRONISTER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037472 GREGORY L. OVERCASH

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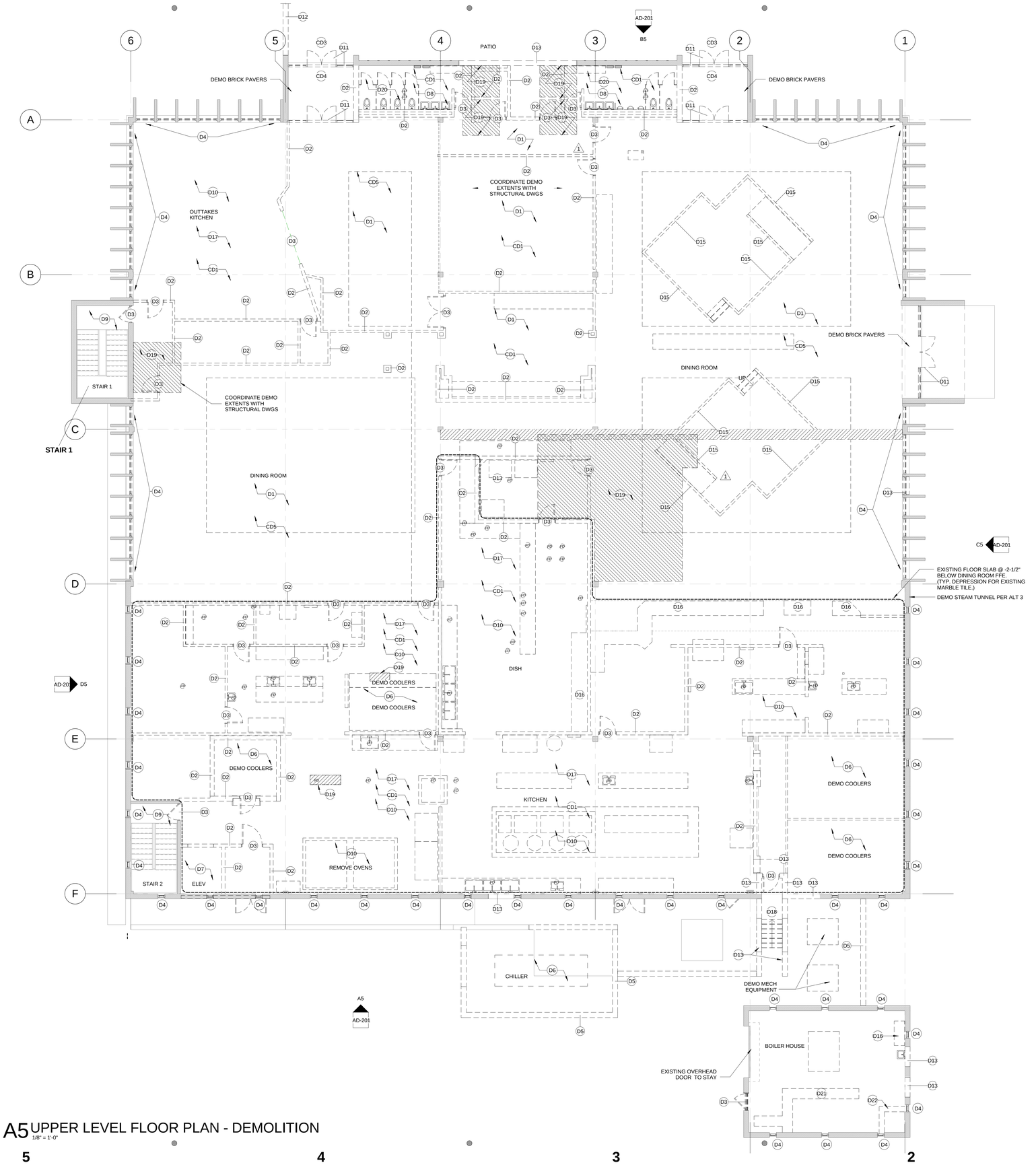
FOUNDATION PLAN - PLAN NORTH

NORTH

CONSTRUCTION DOCUMENTS

S-201



DEMOLITION GENERAL NOTES

1. ELEMENTS TO BE DEMOLISHED SHOWN WITH DASHED LINES UNLESS OTHERWISE NOTED.
2. NO LOAD BEARING WALLS, STRUCTURE, STRUCTURAL FLOOR, OR STRUCTURAL ELEMENT SHALL BE WEAKENED OR REMOVED UNLESS NOTED OTHERWISE BY THE STRUCTURAL ENGINEER.
3. DO NOT DISTURB STRUCTURAL RATINGS, ALL BEAMS & COLUMN RATINGS TO BE MAINTAINED.
4. G.C. SHALL FIELD VERIFY ALL EXISTING CONDITIONS. ANY DISCREPANCIES OR INCONSISTENCIES BETWEEN THE CONTRACT DOCUMENTS AND THE ACTUAL EXISTING CONDITIONS SHALL BE DOCUMENTED AND NOTICE MADE TO THE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
5. DIMENSIONS GIVEN ON DEMOLITION PLAN SHALL BE FIELD VERIFIED AND COORDINATED WITH FLOOR PLANS FOR NEW LAYOUT PRIOR TO DEMOLITION. G.C. SHALL DOCUMENT AND NOTIFY ARCHITECT OF ANY DISCREPANCIES OR INCONSISTENCIES PRIOR TO DEMOLITION.
6. ANY OPENINGS CREATED OR EXPOSED IN THE BUILDING ENVELOPE (EXISTING FLOORS, WALLS AND ROOFS) TO REMAIN SHALL BE SEALED WITH TEMPORARY WEATHERTIGHT INFILL CONSTRUCTION SIMULTANEOUS WITH DEMOLITION TO RESIST INTRUSION OF MOISTURE, WEATHER AND PESTS.
7. EXISTING STRUCTURE AND FINISHED SURFACES SCHEDULED TO REMAIN WHICH ARE DAMAGED IN THE COURSE OF DEMOLITION SHALL BE REPAIRED OR REPLACED WHERE REPAIRS ARE OBJECTIONABLE TO ARCHITECT.
8. G.C. SHALL BE RESPONSIBLE FOR COORDINATING DEMOLITION SUCH THAT DUST, SMOKE, AND OTHER CONTAMINANTS ARE NOT INTRODUCED TO ANY OCCUPIED SPACE.
9. NEWLY MADE, NEWLY UNCOVERED, EXISTING ABANDONED AND EXISTING UNPROTECTED PENETRATIONS IN FLOORS, WALLS AND PARTITIONS SHALL BE PATCHED. INFILL SHALL BE OF FIRE RATED CONSTRUCTION WHERE REQUIRED.
10. REF. MECHANICAL/PLUMBING/ELECTRICAL DRAWINGS FOR EXTENTS OF MEP DEMOLITION NOT SHOWN HERE.
11. REF. STRUCTURAL DRAWINGS FOR EXTENTS OF STRUCTURAL DEMOLITION NOT SHOWN HERE.
12. ALL ELECTRICAL, FIRE ALARM & TELECOM EQUIPMENT, WIRING, RACEWAY, FIXTURES, DEVICES, CONDUIT, HANGERS AND ASSOCIATED ITEMS WHICH ARE ACCESSIBLE OR UNCOVERED AND ARE NOT A PART OF FUNCTIONING SYSTEMS SCHEDULED TO REMAIN SHALL BE COMPLETELY REMOVED UNLESS NOTED OTHERWISE. THIS INCLUDES THOSE ON OR IN EXPOSED SURFACES, FLOOR CAVITIES, ROOFS, ATTICS AND CRAWL SPACES.
13. IN GENERAL ALL EXISTING OUTLETS, DEVICES, ETC. ON WALLS OR CEILINGS BEING REMOVED SHALL BE REMOVED WHETHER INDICATED OR NOT. REMOVE ALL CONDUIT BACK TO OUTLET BOX NEAREST THE LIGHTING PANEL.
14. SEE ABATEMENT DESIGN SPECIFICATION FOR REMOVAL OF HAZARDOUS MATERIALS

DEMOLITION KEY NOTES

- D1 REMOVE VCT IN ITS ENTIRETY.
- D2 REMOVE WALL IN ITS ENTIRETY. MAJORITY OF WALLS ARE CMU CONSTRUCTION.
- D3 REMOVE DOOR, DOOR FRAME, AND ANY SIDELITE IN ITS ENTIRETY.
- D4 REMOVE GLAZING OR LOUVER AND FRAME IN ITS ENTIRETY.
- D5 REMOVE RETAINING WALL IN ITS ENTIRETY. SEE STRUCTURAL & CIVIL DWGS
- D6 REMOVE FOOD SERVICE OR MECHANICAL EQUIPMENT IN ITS ENTIRETY.
- D7 REMOVE ELEVATOR IN ITS ENTIRETY & ALL ELEVATOR EQUIPMENT
- D8 REMOVE TILE FLOORING IN ITS ENTIRETY.
- D9 REMOVE FLOOR FINISHES.
- D10 MOVABLE KITCHEN EQUIPMENT REMOVED BY OWNER; REFER TO FOOD SERVICE DWGS
- D11 REMOVE STOREFRONT IN ITS ENTIRETY; INCLUDING ANY ASSOCIATED DOORS.
- D12 REMOVE PORTION OF RETAINING WALL NECESSARY FOR NEW CONSTRUCTION; SEE STRUCTURAL & CIVIL DWGS
- D13 REMOVE PORTION OF EXTERIOR WALL NECESSARY FOR NEW CONSTRUCTION.
- D14 REMOVE STAIR IN ITS ENTIRETY.
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- D16 REMOVE MILLWORK IN ITS ENTIRETY IN THIS AREA
- D17 REMOVE STONE TILE FLOORING & SETTING BED IN ITS ENTIRETY.
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- D19 REMOVE FLOOR SLAB AND/OR STRUCTURAL CONCRETE TEES IN THIS AREA; COORDINATE W/ NEW FLOOR PLANS; RE: STRUCTURAL DWGS
- D20 REMOVE ALL RESTROOM FIXTURES
- D21 REMOVE TRENCH GRATE AND ASSOCIATED HARDWARE.
- D22 REMOVE GUARDRAIL
- CD1 REMOVE CEILING TILES, GRID AND ASSOCIATED FIXTURES IN ITS ENTIRETY.
- CD2 REMOVE EXTERIOR CEILING GRID SYSTEM IN ITS ENTIRETY. OVERHANG TO REMAIN.
- CD3 REMOVE EXTERIOR CANOPY.
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- CD5 REMOVE GYPSUM COVE CEILING AND ASSOCIATED FIXTURES IN ITS ENTIRETY.
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- RD2 REMOVE MECHANICAL PENTHOUSE AND ALL EQUIPMENT IN ITS ENTIRETY.
- RD3 REMOVE ROOF DRAINS, DRAIN LINES AND DRAIN SUMPS.
- RD4 REMOVE ROOF DRAINS, DRAIN LINES, DRAIN SUMPS AND ALL ASSOCIATED PLUMBING LINES.
- RD5 REMOVE ALL MECHANICAL UNITS AND EQUIPMENT.

1 = REMOVAL EXTENT

*NOTE: UNDERLINED NOTES HAVE BEEN ADJUSTED

2

A5 UPPER LEVEL FLOOR PLAN - DEMOLITION
1/8" = 1'-0"

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VICTOR A. JONES JR. — REGISTERED ARCHITECT — 15850 — CHARLOTTE, NC

MARCH
1ST, 2016

UNC CHARLOTTE

UNC CHARLOTTE RESIDENCE DINING HALL BUILDING RENOVATION

SCO ID #: 14-11273-02A

TAG	DESCRIPTION	DATE
1	ADDENDUM # 1	3/16/16
2	ADDENDUM #2	3/22/16

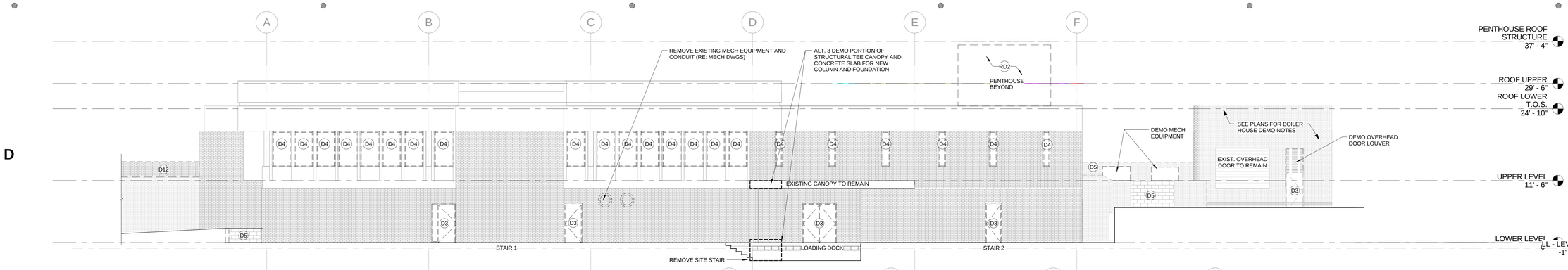
Project: 15NCC491
Drawn By:
Checked By:
Date: MARCH 1ST, 2016

UPPER LEVEL DEMOLITION PLAN

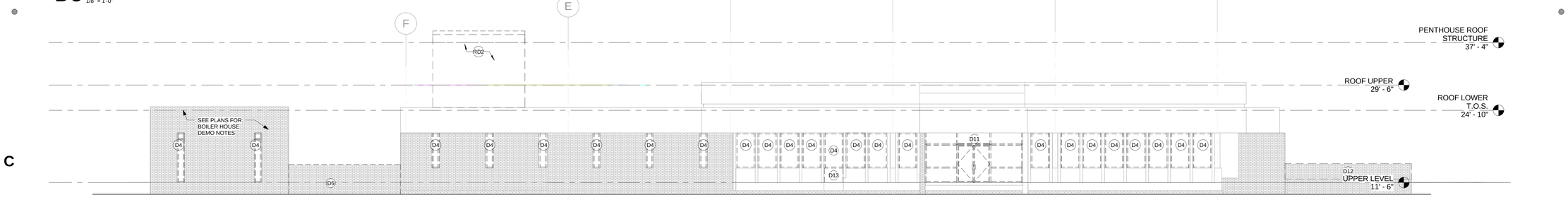
NORTH

CONSTRUCTION DOCUMENTS

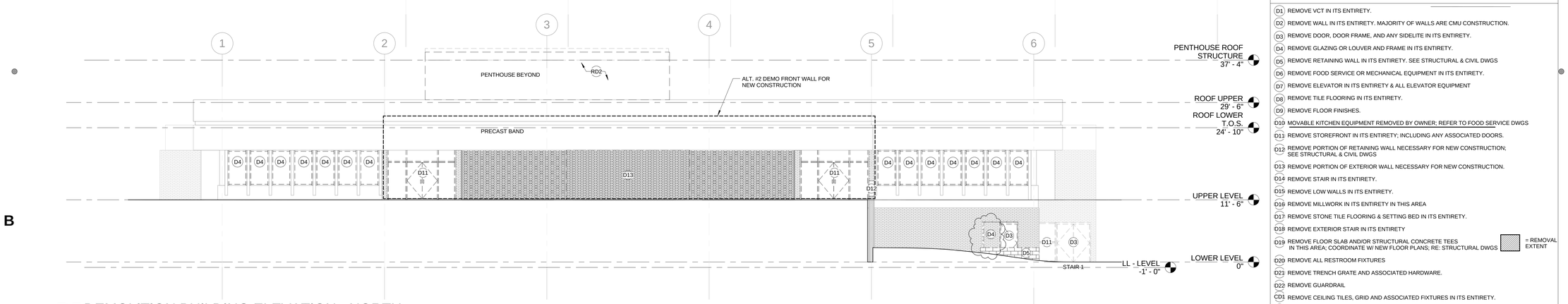
AD-102



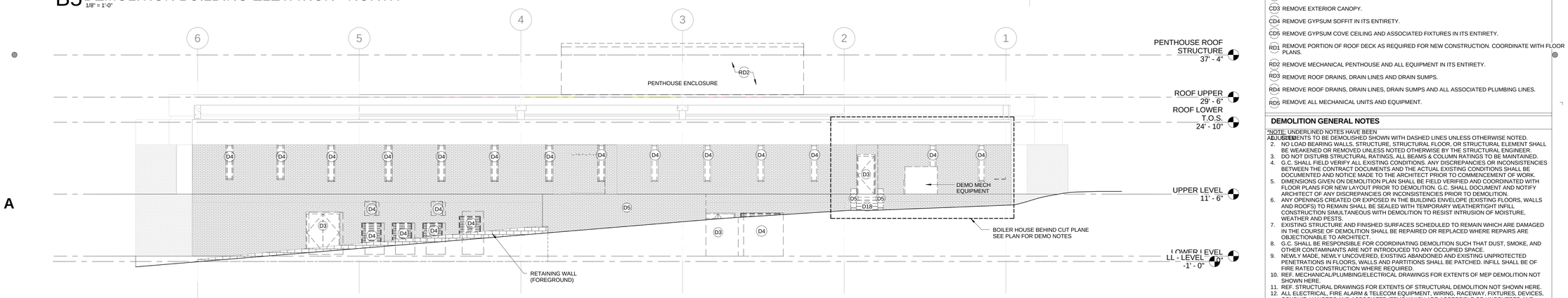
D5 DEMOLITION BUILDING ELEVATION - WEST
1/8" = 1'-0"



C5 DEMOLITION BUILDING ELEVATION - EAST
1/8" = 1'-0"



B5 DEMOLITION BUILDING ELEVATION - NORTH
1/8" = 1'-0"



A5 DEMOLITION BUILDING ELEVATION - SOUTH
1/8" = 1'-0"

5 4 3 2 1

DEMOLITION KEY NOTES

- D1 REMOVE VCT IN ITS ENTIRETY.
- D2 REMOVE WALL IN ITS ENTIRETY. MAJORITY OF WALLS ARE CMU CONSTRUCTION.
- D3 REMOVE DOOR, DOOR FRAME, AND ANY SIDELITE IN ITS ENTIRETY.
- D4 REMOVE GLAZING OR LOUVER AND FRAME IN ITS ENTIRETY.
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DEMOLITION GENERAL NOTES

*NOTE: UNDERLINED NOTES HAVE BEEN ADJUSTED

1. ELEMENTS TO BE DEMOLISHED SHOWN WITH DASHED LINES UNLESS OTHERWISE NOTED.
2. NO LOAD BEARING WALLS, STRUCTURE, STRUCTURAL FLOOR, OR STRUCTURAL ELEMENT SHALL BE WEAKENED OR REMOVED UNLESS NOTED OTHERWISE BY THE STRUCTURAL ENGINEER.
3. DO NOT DISTURB STRUCTURAL RATINGS. ALL BEAMS & COLUMN RATINGS TO BE MAINTAINED.
4. G.C. SHALL FIELD VERIFY ALL EXISTING CONDITIONS. ANY DISCREPANCIES OR INCONSISTENCIES BETWEEN THE CONTRACT DOCUMENTS AND THE ACTUAL EXISTING CONDITIONS SHALL BE DOCUMENTED AND NOTICE MADE TO THE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
5. DIMENSIONS GIVEN ON DEMOLITION PLAN SHALL BE FIELD VERIFIED AND COORDINATED WITH FLOOR PLANS FOR NEW LAYOUT PRIOR TO DEMOLITION. G.C. SHALL DOCUMENT AND NOTIFY ARCHITECT OF ANY DISCREPANCIES OR INCONSISTENCIES PRIOR TO DEMOLITION.
6. ANY OPENINGS CREATED OR EXPOSED IN THE BUILDING ENVELOPE (EXISTING FLOORS, WALLS AND ROOFS) TO REMAIN SHALL BE SEALED WITH TEMPORARY WEATHERTIGHT INFILL CONSTRUCTION SIMULTANEOUS WITH DEMOLITION TO RESIST INTRUSION OF MOISTURE, WEATHER AND PESTS.
7. EXISTING STRUCTURE AND FINISHED SURFACES SCHEDULED TO REMAIN WHICH ARE DAMAGED IN THE COURSE OF DEMOLITION SHALL BE REPAIRED OR REPLACED WHERE REPAIRS ARE OBJECTIONABLE TO ARCHITECT.
8. G.C. SHALL BE RESPONSIBLE FOR COORDINATING DEMOLITION SUCH THAT DUST, SMOKE, AND OTHER CONTAMINANTS ARE NOT INTRODUCED TO ANY OCCUPIED SPACE.
9. NEWLY MADE, NEWLY UNCOVERED, EXISTING ABANDONED AND EXISTING UNPROTECTED PENETRATIONS IN FLOORS, WALLS AND PARTITIONS SHALL BE PATCHED. INFILL SHALL BE OF FIRE RATED CONSTRUCTION WHERE REQUIRED.
10. REF. MECHANICAL/PLUMBING/ELECTRICAL DRAWINGS FOR EXTENTS OF MEP DEMOLITION NOT SHOWN HERE.
11. REF. STRUCTURAL DRAWINGS FOR EXTENTS OF STRUCTURAL DEMOLITION NOT SHOWN HERE.
12. ALL ELECTRICAL, FIRE ALARM & TELECOM EQUIPMENT, WIRING, RACEWAY, FIXTURES, DEVICES, CONDUIT, HANGERS AND ASSOCIATED ITEMS WHICH ARE ACCESSIBLE OR UNCOVERED AND ARE NOT A PART OF FUNCTIONING SYSTEMS SCHEDULED TO REMAIN SHALL BE COMPLETELY REMOVED UNLESS NOTED OTHERWISE. THIS INCLUDES THOSE ON OR IN EXPOSED SURFACES, FLOOR CAVITIES, ROOFS, ATTICS AND CRAWL SPACES.
13. IN GENERAL ALL EXISTING OUTLETS, DEVICES, ETC. ON WALLS OR CEILINGS BEING REMOVED SHALL BE REMOVED WHETHER INDICATED OR NOT. REMOVE ALL CONDUIT BACK TO OUTLET BOX NEAREST THE LIGHTING PANEL.
14. SEE ABATEMENT DESIGN SPECIFICATION FOR REMOVAL OF HAZARDOUS MATERIALS

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DEMOLITION ELEVATIONS

NORTH

CONSTRUCTION DOCUMENTS

AD-201