Archimages
architecture | interiors

ADDENDUM #02

Project Name: Central County Fire & Rescue House #06
Project Number: 24057
Date: July 15, 2026

PLEASE NOTE

The following clarifications, deletions, additions, and supplemental instructions have been incorporated into the Project Manual, Construction Drawings and represent a portion of said Construction Documents.

In the event of a conflict between this Addendum, Project Manual and/or Construction Drawings, ***this Addendum shall supersede*** *all previous instructions, pertaining to said items.*

CLARIFICATIONS and REQUESTS FOR INFORMATION

1. Door 119B and 119C and 125 – there is no jamb dimensions – the code is not listed in the drawings that I could find for the head and jamb (C6/A504 and A5/A507).
   a. **Response: Details C6/A504 and A5/A507 updated to include jamb dimensions**

2. Door 125 – the door is shown to have a lite kit installed, however there is no glazing listed for what type of glass it needs to get.
   a. **Response: Door Schedule on A601 has been corrected to reflect the glass type used.**

3. Door 129 – No door type listed or hardware – Is this just a walkthrough frame?
   a. **Response: Not in door schedule, not in project.**

4. Garage Doors – the reference by the door schedule shows (2) types-full view glass and some glass in the other. The actual door schedule doesn't specify which doors get which style and the drawing is showing full view on all (4) doors.
   a. **Response: Door Schedule is updated to indicate overhead door type A for all 4 doors.**

5. The logos on both sides of the building are supposed to be Non-Illuminated letters? What material?
   a. **Response: TBD, Signage by others.**

6. The Dimensional Letters Above the doors is supposed to be Halo Lit Stainless Steel Reverse Channel Letters Correct?
   a. **Response: See E301 for lighting design.**

7. There are also no drawings for the interior room signage, but from the specs I think I understand what type of frames they're asking for. I just don't see any drawings for them or quantities, color, etc.
    a. **Response: TBD, Signage by others.**

8. Please provide a complete Owner Furnished / Owner Installed schedule for the project so that we may better coordinate scope.
    a. **Response: Response will be provided in forthcoming addendum.**

9. Please confirm whether an interior signage package will be provided for this project. If not, please confirm whether the interior signage scope is limited to code-required signage only.
    a. **Response: TBD, Signage by others.**

10. The drawings reference building identification signs. Please provide the required dimensions.
    a. **Response: Dimensions for exterior signage have been added to exterior elevations on sheet A201.**

11. Please provide the dimensions and design requirements for the logo sign located on the south exterior wall. Please also provide the artwork file for the logo. A vector file format is preferred.
    a. **Response: TBD, Signage by others.**

12. The documents reference a monument sign; however, no design details appear to be provided. Please provide the monument sign design and any other applicable details.
    a. **Response: Monument sign has power provided to in in the electrical drawings and civil and architectural drawings have been revised to graphically show the sign and its rough location. Final sign design will be by others.**

13. I can't find where any of the project plans include specifics for signage. 10 14 19 calls for dimensional letters and calls out materials, but does not specify size dimensions for letters and logo. Section 10 14 23 calls for panel signage, but does not specify sign content, sizes, quantities, or other information in the plans or specs. Can you please provide sizes and specifics for the signage for the project?
    a. **Response: TBD, signage will be provided by others.**

14. Please confirm if there has been any discussion or intent to add a Safe Haven Baby Box to this project. If this is being considered, please advise on the anticipated location, required system interfaces, and any fire alarm, security, access control, monitoring, or notification requirements that should be included our scope.
    a. **Response: There is a Safe Haven Baby Box already included in this project. Please review the drawings for more information.**

15. Insurance limits between the A101 Exhibit A and the Supplementary Conditions are somewhat different.
    a. **Response: Response will be provided in forthcoming addendum.**

16. Are the general contractor or the subcontractors required to provide OCPL coverage.
    a. **Response: This question will be addressed in the next addendum.**

17. Please clarify or further explain Unit Prices No. 01 & 02.
    a. **Response: Please refer to Geotech report for information related to the disposal, import, and treatment of soils.**

18. Does Unit Price No. 07 include haul-off of unsatisfactory soils.
    a. **Response: Unit Price No. 08 covers this.**

19. Please confirm if waste recycling is required.
    a. **Response: See section 01 74 19.**

20. Who employs the Commissioning Provider.
    a. **Response: See section 01 91 13, paragraph 1.01, line E. ignore line D.**

21. Please confirm that the AWI (QCP) certification program and labels only apply to the Finish Carpentry and Countertops specifications scope of work.
    a. **Response: AWI is referenced s a standard in spec sections 062000, 064100, 081416, 123200, and 123600**

22. Regarding engineered fill, please ask PSI to define soil type GW (well-graded gravel) in terms of crushed stone (2" minus, 1" minus, etc.).
    a. **Response: response from PSI - They may use 2" minus or 1" minus crushed stone as engineered fill..**

23. The exterior wall sections appear to call for densglass sheathing, there is no densglass sheathing in the spec. The sheathing spec calls for plywood/OSB at exterior walls. Please advise which is intended.
    a. **Response: Fiberglass faced gypsum board sheathing (densglass) is intended for all sheathing locations not intended to be required for shear in the structural drawings. An updated spec will be provided as part of the next addendum.**

24. What height AFF are the typical gyp board soffits in the bunk rooms to be? Not called out on RCPs.
    a. **Response: RCP revised to show the AFF, see attached.**

25. At the trash enclosure it is calling for colored 8" split face cmu to match building at the interior. Is this correct?
    a. **Response: Detail A4 on sheet AS112 has been updated to indicate typical 8" CMU.**

26. On A4/AS1 12. What is the top of masonry dimension?
    a. **Response: Detail A4/AS112 now has top of masonry dimension indicated.**

27. Would Earthworks Limestone be an acceptable substitute for Semco Limestone?
    a. **Response: There is a substitution process outlined in the spec, all products will be reviewed to determine if they are equals to what has been indicated in the documents.**

28. Can you please clarify the Liquidated Damages for this project? (Pg 77 suggests $1,000 per calendar day while Pg 137 states $3,000 per calendar day).
    a. **Response: This was addressed in Addendum #1.**

29. Who is responsible for Builders Risk?
    a. **Response: Please see added spec section 01 23 00 Alternates and modified bid form 00 41 00. Builders Risk is to be provided as an add alternate for the purpose of pricing and to determine if the owner can receive a better rate.**

30. Section Doors: Is 20 gauge required on both sides of the door?
    a. **Response: Per specifications, yes both sides of the sectional door are to be 20 gauge.**

31. There is a spec section for Roof Accessories in the book. It has roof curbs, roof hatches, snow guards all listed. I don't see those anywhere on the plans.
    a. **Response: Roof Accessories spec is all encompassing. Not all sections within the spec will be used.**

32. There is a spec for Sound Absorptive Panels. Is this for the panels in the Day Room? If so, you have two different manufacturers called out between the specs and the plans.
    a. **Response: Product indicated on the plans is the product that is intended to be used or an approved equal.**

33. There is a spec for Dimensional Letter Signage. I believe the plans state that work is by owner.
    a. **Response: Signage and signage package will be by others.**

34. You have a spec for Exterior Grills and Screens. The produce specified in the section is a RTU attached Envisor screen by CityScapes. Don't think that applies tot his project.
    a. **Response: No roof top screening required as part of project.**

35. Do we know the current building automation system, and is there a preference for one? The specifications are open to many options.
    a. **Response: It will be a new BAS system bid per drawings and specs. The location of the BAS control panel is called out and the space is reserved in the set.**

36. Project Schedule – is there a required minimum of weather days to be included?
    b. **Response: Please refer to sections in the A201 general conditions for guidance on adverse weather days.**

37. Signage – Please verify the ID Building Sign dimensions, none are currently shown.
    a. **Response: Exterior elevations have been updated with additional dimensions.**

38. Signage – Can the architect please issue an artwork (Vector) file for the South exterior logo sign, with dimensions?
    a. **Response: The artwork Vector file will be distributed to the winning bidder. Signage package by others.**

39. Signage – There is a reference to a monument sign on the electrical drawings, can you please provide more details for this?
    a. **Response: Additional referenced to the monument sign have been provided on the architectural and civil drawings. Signage package by others.**

40. Will there be a lane closure permit required for site access (where the sign is to be removed on the South side) once phase 1 construction starts?
    a. **Response: contractor will need to secure a permit from the City of St. Peters for work in the right of way.**

41. Are there any 'no access' areas or points to be defined by the fire house or school prior to the start of construction?
    a. **Response: Currently, there are no 'no access" zones as defined by the fire house or school. This will need to be a larger discussion in tandem with mobilization to ensure the school and fire house have appropriate access and parking during each phase.**

42. Please define what utilities the 'Combined Meter' is to service, besides the private water service line, as shown on drawing C5.0?
    a. **Response: we are coordinating with MOAW regarding the meter relocation. We assume it provides domestic service as well as fire protection to the school.**

43. What are the limits of the electrical line to be removed from the existing entrance sign? Noted on drawing C6.0.
    a. **Response: Contractor to coordinate with electric service to new sign.**

44. At this time, is there a designated area for laydown and job site trailers? Or is it up to the discretion of the general contractors logistics plan?
    a. **Response: Correct, this is up to the discretion of the general contractors logistics plan.**

45. Will the Notice to Proceed (NTP) be issued upon Board approval or after contract, insurance and bonds have been executed and received by CCF&R?
    a. **Response: Notice to Proceed will be issued after contract, insurance and bonds have been executed and received by CCF&R?**

46. The drywall spec calls for moisture resistant drywall at all locations. Is that the design intent? This will drive up cost as opposed to only using moisture resistant at wet walls.
    a. **Response: Gypsum Wallboard, Backing board for wet areas, and backing board for non wet areas are the only board materials listed with gypsum wallboard being the main board material for vertical and ceiling surfaces. Gypsum wallboard has a mold resistance rating but not a moisture resistance rating.**

47. The shaft wall shown at the top of CMU walls on wall section A6 on A314 & A316 being only 1'8" tall will likely not be constructable as there is not enough clearance to physically build it. Can this be achieved by continuing CMU?
    a. **Response: Alternative construction methods will be discussed with the winning bidder at the appropriate time.**

48. I was reviewing the soils report and they mention aggregate piers/stone columns. I don't see anything on the plans depicting this. Also, why in the world would you use aggregate piers for this building? Totally unnecessary and wasteful spending. Please address.
    a. **Response: Geotech report was received late. Structural has now coordinated with the Geotech report in the attached documents.**
    b. **Response: from PSI - Based on the soil borings, relatively soft//weak near-surface soils were encountered beneath the proposed building pad. In Borings B-3 and B-4, the upper approximately 5 feet of soil had SPT N-values of approximately 3, 4, and 5 blows per foot-which denotes soft/weak soil. In addition, the maximum SPT N-values encountered within the upper approximately 10 feet were generally about 7 to 8 blows per foot, along with below fat clay which has also 5 to 8 blow counts in B-4.**
    These relatively low blow counts, together with the elevated moisture contents, indicate that the near-surface soils have limited strength and may be susceptible to settlement under the proposed building loads. If the footings are supported directly on the existing natural soils, they will have lower bearing capacity, which could result in larger footing sizes and may still require careful evaluation of total and differential settlement.
    These conditions are the primary basis for recommending aggregate piers as a ground-improvement option. Aggregate piers could improve the composite bearing capacity, reduce settlement, and potentially allow for more economical shallow foundation sizes. It is our understanding that the fill thickness required to achieve final grades in the building area will vary approximately between 1.5 and 8.5 feet. The variable fill thickness, in addition to the variable soil conditions, can contribute to differential settlements within the building footprint.

49. Is there a lead time for transformer from Ameren/When will Ameren have the transformer installed?
    a. **Response: Ameren has communicated with the Owner and is waiting for once an electrical contractor has been identified.**

50. Is there a designated laydown / temp parking area? If not, can we use any of the following three locations? (please see attached)
    a. **Response: No designated laydown space has been indicated, this is up to the discretion of the general contractors logistics plan, and will be discussed in more detail with the winning bidder.**

51. Can you please clarify the handrail post location for the retaining wall on C14.0. Typical section-reinforced retaining wall detail appears to show the handrail behind the retaining wall however post detail-section shows the post on top of the retaining wall. Can you please clarify which is correct. We believe the best course of action would be to set these posts on top of the wall in sono tubes.
    a. **The railing should be placed close to the wall. The location in the section view is generic. Retaining walls are a delegated design and we have noticed different details for fences or railings at the top. The detail is ultimately up to the wall designer.**

52. Please clarify whether the gas utility will provide, and install the complete gas service lateral, street crossing, tap, meter, and service regulator at no cost to the Contractor. If not, identify which portions of the gas utility work and associated fees are to be included in the Contractor's bid.
    a. **Response: Spire brings the service line to the building. Cost is typically paid for by owner.**

53. Specifications Sections 33 11 16 and 33 13 00 reference the City of Festus Water Department; however, this project is not located within the City of Festus, and these specifications do not appear to apply to this project. Please clarify the applicable utility provider and confirm whether the Contractor is responsible for payment of the water tap fee and any associated water service connection fees, or if these fees will be paid directly by the Owner.
    a. **Response: The domestic and fire to the fire house will be per City of St. Peters water. The relocated meter for the school will be per Missouri American Water rules & regulations. MOAW water's contractor will tap and install the right of way valve.**

54. Sheet C5.0 contains notes identifying portions of the concrete drive as "by CCFPD." Division 01 indicates there is no Work by Owner for this project. Please clarify whether the concrete drive is to be included in the Contractor's base bid or if the noted areas are intended to be provided by the Owner under a separate contract.
    a. **Response: The notation is to indicate that it is part of the House #6 work as the City has a sidewalk & road project happening in the near future. Coordination between the City and the contractor for CCF&R will need to be reviewed as schedules for each project are determined.**

55. Section 00 31 00 - 3.01 States "Contractor shall pay for, secure, all necessary Permits, particular to this Project and Submit copies of same, including all receipts to Owner, Architect for review. No Overhead or Profit costs may be included within any portion of this pricing. If approved, Owner shall reimburse Contractor these costs, via Project Change Order."
    However - Addendum 1 Item 21 of the Pre-Bid Meeting Agenda states: "General Contractor will pay for permits."
    Please confirm that the General Contractor will be reimbursed by the Owner for the full cost of all Building and Fire Permits.
        a. **Response: Please follow the outlined process that is indicated in Section 00 31 00 -3.01**

56. Temporary parking and staging appear to be extremely limited. Are we able to use the existing parking area between the new House #6 and the Barnwell MS. We are thinking we would need (20) temporary parking spaces plus a drive lane for the duration of the project. The (20) temporary spaces would act as parking and staging through construction of the building envelop and then most likely all parking through completion of the project. A possible option: there seems to be a green space to the south of the MS, could that area be used as temporary parking/staging for either the MS or contractors.
    a. **Response: Any use of the school site will need to be coordinated by the contractor.**

57. The soils report mentions ground improvements; I don't see where ground improvements are called out on the drawings. Please confirm one way or the other.
    a. **Response: Coordination for ground improvement between the Geotech and the structural drawings will be reflected in the structural documents attached to this addendum.**

58. The soils report mentions fill and settlement, do we need to figure settlement plates and a settlement period in our bid.
    a. **Response: Response will be provided in forthcoming addendum.**

59. Landscape drawing L3.01 shows a 1" irrigation tap and meter off of the City's water main, please confirm this is correct.
    a. **Response: Irrigation meter and tap have been added to C8.0**

60. Water line size not identified on C5.0. Please provide.
    a. **Response: match the existing-requesting confirmation from owner/MOAW**

61. Please specify which of the Heavy Duty Trench Drain models to include at the area shown on C13.0
    a. **Response: Response will be provided in forthcoming addendum.**

62. Is Door 129 on the Door Schedule supposed to be the door that leads to the equipment platform? Please provide info.
    a. **Response: This is a misnomer, door 129 is not in the project or door schedule. Please see attached door schedule sheet with revisions.**

63. Who is responsible for the Baby Box Safe Haven. If contractor, please provide specs.
    a. **Response: Contractor is responsible for the procurement and install of the baby box. Baby boxes do have an accompanying spec.**

64. Can the Equipment Schedule be clarified to show who is responsible for supplying and installing each item. There are discrepancies in the plans.
    a. **Response: Equipment schedule on sheet A701 has been updated with contractor/owner indications for furnishment and install.**

65. What is detail A1/A415 for? Please clarify.
    a. **Response: A1 is for the owner in the event that they would ever need to convert the room 127 to accept ada access. This is to show that it can be done, in the event it would ever be needed, but the additional dashed in walls, transfer bench, shower pan, and relocated shower head as noted are not part of this project. please refer to enlarged plan D1/a415 on the same sheet for the plan of this room as it is to be built as part of this project.**

66. We can't get a custom color in 20 gauge skin both sides clopay can provide it but only 20 gauge outside, otherwise white or brown is available from Haas 20 both sides.
    a. **Response: Please select a door that meets the design and color requirements of the project and its specifications. The skin gauge will be evaluated and reviewed during the shop drawing process with the GC that is awarded the project.**

67. What is the project duration?
    a. **The project is expected to take anywhere from 12 to 18 months.**

PRODUCT SUBSTITUTIONS

1. Specification Section 03 35 11 – Concrete Floor Finishes.
    a. **Response: This Product Substitution request is approved. Reference attached Substitution Request Form, TCC Materials.**

2. Specification Section 07 25 00 – Weather Barriers.
    a. **Response: This Product Substitution request is not approved. Reference attached Substitution Request Form, TK Products.**

3. Specification Section 09 65 66 – Resilient Athletic Flooring.
    a. **Response: This Product Substitution request is approved. Reference attached Substitution Request Form, Dynamic Sports Construction.**

PROJECT MANUAL

1. 00 01 10 – Table of Contents
    a. **Updated Revision column.**
    b. **Added Alternates Section.**
    c. **Reference attached Revised Section.**

2. 00 31 00.00 – Available Project Information
    a. **Updated with geotechnical information.**
    b. **Reference attached Revised Section.**

3. 00 31 00.03 – Geotechnical Report
    a. **Added to project manual**
    b. **Reference attached Revised Section.**

4. 00 41 00 – Bid Form
    a. **Alternate added to bid form.**
    b. **Reference attached Revised Section.**

5. 01 21 00 – Allowances
    a. **Allowances updated.**
    b. **Reference attached Revised Section.**

6. 01 23 00 – Alternates
    a. **Section added in its entirety.**
    b. **Reference attached New Section.**

7. 04 42 00 – Exterior Stone Cladding
    a. **Section added in its entirety.**
    b. **Reference attached New Section.**

8. 06 10 53 – Miscellaneous Rough Carpentry
    a. **Modified section 2.03.**
    b. **Reference attached Revised Section.**

9. 08 71 01 – Door Hardware Groups
    a. **Updated hardware groups based off electrical and feathershark drawing access power requirements.**
    b. **Reference attached Revised Section.**

10. 09 21 16 – Gypsum Board Assemblies
    a. **Updated section.**
    b. **Reference attached Revised Section.**

11. 31 46 80 – Ground Improvement
    a. **Section added in its entirety.**
    b. **Reference attached New Section.**

CONSTRUCTION DRAWINGS

GENERAL:

1. Sheet G000: COVER SHEET
    a. **Updated sheet index to reflect addendum 02 revised sheets.**
    b. **Reference attached Revised Sheet.**

CIVIL:

1. C3.0 – Phase 1 – Existing Conditions & Facilities Removal Plan
    a. **Revise limits of removal as coordinated with City project**
    b. **Reference attached Revised Sheet.**

2. C4.0 – Phase 1 – Site and Grading Plan
    a. **Included grading required for MOAW fireflow meter**
    b. **Reference attached Revised Sheet.**

3. C5.0 – Phase 1 – site Geometry and Utility Plan
    a. **Add MOAW detail for fireflow meter**
    b. **Add valves per MOAW**
    c. **Added label for concrete drive per City detail**
    d. **Reference attached Revised Sheet.**

4. C6.0 – Phase 2 – Existing Conditions & Facilities Removal Plan
    a. **Revised limits of pavement and sidewalk removal as coordinated with City project**
    b. **Reference attached Revised Sheet.**

5. C8.0 – Phase 2 – Site Geometry and Utility Plan
    a. **Revised water service, added irrigation meter**
    b. **Moved water tap to City of St. Peters main**
    c. **Reference attached Revised Sheet.**

6. C9.0 – Phase 3 – Existing Conditions & facilities Removal Plan
    a. **Add City of St. Peters note regarding traffic signal work**
    b. **Reference attached Revised Sheet.**

7. C11.0 – Phase 3 – Site Geometry and Utility Plan
    a. **Add traffic signal note**
    b. **Reference attached Revised Sheet.**

8. C12.0 – Sewer Profiles and Hydraulic Calculations
    a. **Add note to contractor regarding the need to coordinate installation with each phase**
    b. **Added granular backfill to sanitary reach between structures B & C as the phasing will require pavement to be installed during the phasing**
    c. **Reference attached Revised Sheet.**

9. C14.0 – Site Details
    a. **Add City detail for concrete entrance**
    b. **Add note from geotechnical report as it pertains to pavement subgrade**
    c. **Add note that the City will require separate permit for retaining walls**
    d. **Reference attached Revised Sheet.**

10. C14.1 – Site Details
    a. **Removed detail**
    b. **Add City note regarding backflow devices**
    c. **Reference attached Revised Sheet.**

11. C15.1 – Best management Practices plan
   a. **Add detail for Arcadia HDS unit**
   b. **Reference attached Revised Sheet.**

LANDSCAPING:

- ***No documents issued within this Addendum.***

ARCHITECTURAL:

1. Sheet A131 – Roof Plan
   a. **Roof drain calculation and Attic ventilation calculations have been updated.**
   b. **Reference attached Revised Sheet.**

2. Sheet A201 – Exterior Elevations
   a. **Added dimensions to locate exterior signage on views C1 and D1.**
   b. **Reference attached Revised Sheet.**

3. Sheet A504 – Details
   a. **Added dimensions to dtl C6 hollow metal head.**
   b. **Reference attached Revised Sheet.**

4. Sheet A507 – Details
   a. **Added dimensions to Dtl A5 Jamb Section at HM Door Frame.**
   b. **Reference attached Revised Sheet.**

5. Sheet A601 – Door Schedule & Details
   a. **Removed door type elevation: OVERHEAD DOOR B, updated door schedule comments, and updated door panel glass type on doors 119B & 125.**
   b. **Reference attached Revised Sheet.**

6. Sheet A701 – Equipment & Furniture Plan
   a. **Schedules Updated to indicate Owner and contractor responsibilities for furnishment and install.**
   b. **Reference attached Revised Sheet.**

STRUCTURAL:

1. Sheet S001
   a. **Revised list of delegated design elements to include aggregate piers per Geotech requirements**
   b. **Revised site classification and seismic spectral response coefficients to coordinate with Geotech report**
   c. **Revised foundations division to coordinate with Geotech report**
   d. **Reference attached Revised Sheet.**

2. Sheet S002
    a. **Added Aggregate ground improvement special inspections table**
    b. **Reference attached Revised Sheet.**
3. Sheet S003
    a. **Revised detail 2 and 5 to show ground improvement requirements**
    b. **Reference attached Revised Sheet.**
4. Sheet S121
    a. **Foundation plan note added to clarify ground improvement requirements**
    b. **Reference attached Revised Sheet.**
5. Sheet S301
    a. **Note added to section 1 to clarify ground improvement requirements**
    b. **Reference attached Revised Sheet.**

MECHANICAL:

- ***No documents issued within this Addendum.***

PLUMBING:

- ***No documents issued within this Addendum.***

FIRE PROTECTION:

- ***No documents issued within this Addendum.***

ELECTRICAL:

- ***No documents issued within this Addendum.***

END OF ADDENDUM #02

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

PROJECT: Central County Fire & Rescue House #06

SUBSTITUTION REQUEST NUMBER: 1

FROM: Barb Macdonald - TCC Materials

TO: Archimages, Joe McKinney

DATE: 7-7-2026

jmckinney@archumages-stl.com

A/E PROJECT NUMBER: 24057

RE: Prebid Substitution Request

CONTRACT FOR: Central County Fire & Rescue District

SPECIFICATION TITLE: 03 35 11 Concrete Floor Finishes

DESCRIPTION: Troweling Aid, Densifier and Curing Agent

SECTION: 03 35 11, 2.02. A. 1.

PAGE: 03 35 11- 2

ARTICLE/PARAGRAPH: 2.02 Surface Treatments, A. Troweling Aid

PROPOSED SUBSTITUTION: Tenon - Trowel Ice

MANUFACTURER: TCC Materials

ADDRESS: 2025 Centre Pointe Blvd, Mendota Heights, MN 55120

PHONE: 651-688-9116

TRADE NAME: Trowel Ice

MODEL NO.: 651-688-9116

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY: Barb Macdonald

SIGNED BY: Barb Macdonald

FIRM: TCC Materials

ADDRESS: 2025 Centre Pointe Blvd, Mendota Heights, MN 55120

TELEPHONE: 651-688-9116 office, 651-478-8726 direct

A/E's REVIEW AND RECOMMENDATION:

- ☐ Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Reject Substitution—Use specified materials.
- ☐ Substitution Request received too late—Use specified materials.

SIGNED BY: **DATE:**

SUPPORTING DATA ATTACHED: ☐ Drawings ☒ Product Data ☐ Samples ☐ Tests ☒ Reports ☐ _____

© 2020 The Construction Specifications Institute (CSI)

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Phase)

PROJECT: Central County Fire & Rescue
House #6

TO: ArchImages, Inc.

RE: Substitution request for product approval

SUBSTITUTION REQUEST NUMBER:

FROM: Dynamic Sports Construction, Inc.

DATE: 7/8/2026

A/E PROJECT NUMBER: 24057

CONTRACT FOR: Fitness Room Flooring

SPECIFICATION TITLE: 096566 Resilient Athletic Flooring

DESCRIPTION: ECORE Everlast 8mm

SECTION: 096566

PAGE: Drawing I101

ARTICLE/PARAGRAPH:

PROPOSED SUBSTITUTION: DynaFit™ 8mm

MANUFACTURER: Dynamic Sports Construction, Inc.

ADDRESS: 4338 W Highway 82, Gainesville, TX 76240

PHONE: 512-260-6722

TRADE NAME: Dynamic Sports Construction, Inc.

MODEL NO.: N/A

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.
Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:
- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

SUBMITTED BY: Robert Wolesensky

SIGNED BY: Robert Wolesensky

FIRM: Dynamic Sports Construction, Inc.

ADDRESS: 4338 W Highway 82, Gainesville, TX 76240

TELEPHONE: 512-260-6722

A/E's REVIEW AND RECOMMENDATION:

- ☐ Approve Substitution—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Approve Substitution as noted—Make submittals in accordance with Specification Section 01 33 00 Submittal Procedures.
- ☐ Reject Substitution—Use specified materials.
- ☐ Substitution Request received too late—Use specified materials.

SIGNED BY: **DATE:**

SUPPORTING DATA ATTACHED: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

© 2020 The Construction Specifications Institute (CSI)

SECTION 00 01 10

TABLE of CONTENTS

PROCUREMENT ~ CONTRACTING ~ GENERAL REQUIREMENTS

DIVISION No. 00	PROCUREMENT, CONTRACTING REQUIREMENTS	REVISIONS	AUTHOR
00 01 10	**Table of Contents**	**Adnd. #02**	**Archimages**
00 01 11	Architectural Professional Seal		Archimages
00 01 12	Structural Professional Seal		kpff
00 01 13	Fire Protection Professional Seal		H&S
00 01 14	Plumbing Professional Seal		H&S
00 01 15	Heating, Ventilating and Air Conditioning Professional Seal		H&S
00 01 16	Electrical Professional Seal		H&S
00 01 19	Civil Professional Seal		CEDC
00 21 13	Instructions to Bidders		Archimages
00 31 00	**Available Project Information**	**Adnd. #02**	**Archimages**
00 41 00	**Bid Form**	**Adnd. #02**	**Archimages**
00 41 01	Supplemental Bid Information		Archimages
00 41 10	Contractor's Affidavit for Public Construction Projects		Archimages
00 41 20	Non Collusion Affidavit		Archimages
00 52 00	A.I.A. Standard Form of Agreement		Archimages
00 72 00	A.I.A. General Conditions of the Contract for Construction		Archimages
00 73 00	Supplementary Conditions	Adnd. #01	Archimages

DIVISION No. 01	GENERAL REQUIREMENTS	REVISIONS	AUTHOR
01 10 00	Summary	Adnd. #01	Archimages
01 20 00	Price and Payment Procedures		Archimages
01 21 00	**Allowances**	**Adnd. #02**	**Archimages**
01 22 00	Unit Prices		Archimages
01 23 00	**Alternates**	**Adnd. #02**	**Archimages**
01 30 00	Administrative Requirements		Archimages
01 32 16	Construction Progress Schedule		Archimages
01 40 00	Quality Requirements		Archimages
01 50 00	Temporary Facilities and Controls		Archimages
01 57 13	Temporary Erosion and Sediment Control		CEDC
01 60 00	Product Requirements		Archimages
01 70 00	Execution and Closeout Requirements		Archimages
01 74 19	Construction Waste Management and Disposal		Archimages
01 78 00	Closeout Submittals		Archimages
01 79 00	Demonstration and Training		Archimages
01 91 13	General Commissioning Requirements		Archimages

TECHNICAL ~ SECTIONS

DIVISION No. 02	EXISTING CONDITIONS	REVISIONS	AUTHOR
02 41 00	Demolition		Archimages

DIVISION No. 03	CONCRETE	REVISIONS	AUTHOR
03 05 16	Underslab Vapor Barrier		Archimages
03 20 00	Concrete Reinforcing		kpff
03 30 00	Cast in Place Concrete		kpff
03 35 11	Concrete Floor Finishes		Archimages

DIVISION No. 04	MASONRY	REVISIONS	AUTHOR
04 20 00	Unit Masonry		kpff
04 26 00	Single Wythe Unit Masonry		Archimages
04 26 13	Masonry Veneer	Adnd. #01	Archimages
04 42 00	**Exterior Stone Cladding**	**Adnd. #02**	**Archimages**

DIVISION No. 05	METALS	REVISIONS	AUTHOR
05 12 00	Structural Steel Framing		kpff
05 31 00	Steel Decking		kpff
05 40 00	Cold Formed Metal Framing		kpff
05 44 00	Cold Formed Metal Trusses		kpff
05 50 00	Metal Fabrications		Archimages
05 51 33	Metal Ladders		Archimages

DIVISION No. 06	WOODS, PLASTICS and COMPOSITES	REVISIONS	AUTHOR
06 10 53	**Miscellaneous Rough Carpentry**	**Adnd. #02**	**Archimages**
06 16 00	Sheathing		kpff
06 20 00	Finish Carpentry		Archimages
06 41 00	Architectural Wood Casework		Archimages
06 83 16	Fiberglass Reinforced Paneling		Archimages

DIVISION No. 07	THERMAL and MOISTURE PROTECTION	REVISIONS	AUTHOR
07 14 00	Fluid Applied Waterproofing		Archimages
07 21 00	Thermal Insulation		Archimages
07 24 00	Exterior Insulation and Finish Systems		Archimages
07 25 00	Weather Barriers		Archimages
07 31 13	Asphalt Shingles		Archimages
07 42 93	Preformed Aluminum Soffit Panels Solid and Vented	Adnd. #01	Archimages
07 62 00	Sheet Metal Flashing and Trim		Archimages
07 71 00	Roof Specialties		Archimages
07 71 23	Manufactured Gutters and Downspouts	Adnd. #01	Archimages
07 72 00	Roof Accessories		Archimages
07 84 00	Firestopping		Archimages
07 92 00	Joint Sealants		Archimages

DIVISION No. 08	OPENINGS	REVISIONS	AUTHOR
08 11 13	Hollow Metal Doors and Frames		Archimages
08 11 16	Aluminum Doors and Frames		Archimages
08 14 16	Flush Wood Doors		Archimages
08 31 00	Access Doors and Panels		Archimages
08 36 13	Sectional Doors		Archimages
08 43 13	Aluminum Framed Storefronts		Archimages
08 71 00	Door Hardware		Archimages
08 71 01	**Door Hardware Groups**	**Adnd. #02**	**Archimages**
08 80 00	Glazing		Archimages
08 83 00	Mirrors		Archimages

DIVISION No. 09	FINISHES	REVISIONS	AUTHOR
09 05 61	Common Work Results for Flooring Preparation		Archimages
09 21 16	**Gypsum Board Assemblies**	**Adnd. #02**	**Archimages**
09 30 00	Tiling		Archimages
09 51 00	Acoustical Ceilings		Archimages
09 65 66	Resilient Athletic Flooring		Archimages
09 67 00	Fluid Applied Flooring		Archimages
09 68 13	Tile Carpeting		Archimages
09 78 00	Interior Wall Paneling		Archimages
09 84 13	Sound Absorptive Panels		Archimages
09 91 13	Exterior Painting		Archimages
09 91 23	Interior Painting		Archimages

DIVISION No.10	SPECIALTIES	REVISIONS	AUTHOR
10 14 19	Dimensional Letter Signage		Archimages
10 14 23	Panel Signage		Archimages
10 21 13.13	Metal Toilet Compartments		Archimages
10 21 13.17	Phenolic Toilet Compartments		Archimages
10 26 01	Wall Protection		Archimages
10 28 00	Toilet, Bath and Laundry Accessories		Archimages
10 43 00	Emergency Aid Specialties		Archimages
10 44 00	Fire Protection Specialties		Archimages
10 50 31	Turnout Gear Lockers		Archimages
10 51 13	Metal Lockers		Archimages
10 75 00	Flagpoles		Archimages
10 82 13	Exterior Grilles and Screens		Archimages

DIVISION No.11	EQUIPMENT (Not Applicable)	REVISIONS	AUTHOR

DIVISION No.12	FURNISHINGS	REVISIONS	AUTHOR
12 00 00	NewBorn Safety Devices		Archimages
12 24 00	Window Shades		Archimages
12 32 00	Manufactured Wood Casework		Archimages
12 36 00	Countertops		Archimages

DIVISION No.13	SPECIAL CONSTRUCTION (Not Applicable)	REVISIONS	AUTHOR

DIVISION No.14	CONVEYING EQUIPMENT (Not Applicable)	REVISIONS	AUTHOR

DIVISION No. 20	BASIC FIRE SUPPRESSION, PLUMBING and (HVAC) (Not Applicable)	REVISIONS	AUTHOR

DIVISION No. 21	FIRE PROTECTION	REVISIONS	AUTHOR
21 05 00	Common Work Requirements		H&S
21 05 49	Fire Protection Systems		H&S
21 06 00	Hangers and Supports		H&S
21 07 50	Fire Protection Identification		H&S
21 14 00	Fire Protection Meters and Gages		H&S
21 32 60	Standpipe and Sprinkler Systems		H&S

DIVISION No. 22	PLUMBING	REVISIONS	AUTHOR
22 05 00	Basic Plumbing Materials and Methods		H&S
22 05 49	Plumbing Systems Supports, Bracing and Seismic Restraints		H&S
22 06 00	Plumbing Hangers and Supports		H&S
22 07 50	Plumbing Identification		H&S
22 08 40	Plumbing Pipe Insulation		H&S
22 11 00	Plumbing Valves		H&S
22 14 00	Plumbing Meters and Gages		H&S
22 34 00	Fuel Fired Domestic Water Heaters		H&S
22 41 10	Water Distribution Piping		H&S
22 42 00	Drainage and Vent Piping		H&S
22 43 00	Plumbing Specialties		H&S
22 44 00	Plumbing Fixtures		H&S
22 44 35	Domestic Hot Water Return Pumps		H&S

DIVISION No. 23	HEATING, VENTILATING and AIR CONDITIONING (HVAC)	REVISIONS	AUTHOR
23 00 00	Mechanical General Requirements		H&S
23 00 50	Basic Mechanical Materials and Methods		H&S
23 05 13	Motors		H&S
23 05 29	Hangers and Pipe Supports		H&S
23 05 48	Mechanical Systems Vibration Control		H&S
23 05 49	Mechanical Supports, Bracing and Seismic Requirements		H&S
23 05 93	Testing, Adjusting and Balancing		H&S
23 07 00	Mechanical Insulation		H&S
23 09 00	Direct Digital Control Systems		H&S
23 09 90	(HVAC) Instrumentation and Controls		H&S
23 11 23	Facility Natural Gas Piping		H&S
23 31 13	Metal Ducts		H&S
23 33 00	Air Duct Accessories		H&S
23 34 23	(HVAC) Fans and Power Ventilators		H&S
23 37 13	Diffusers, Registers, Griles and Louvers		H&S
23 37 23	(HVAC) Gravity Ventilators		H&S
23 38 13	Kitchen Hoods		H&S
23 55 23	Low Intensity Radiant Heaters		H&S
23 81 26	Split System Air Conditioners		H&S
23 81 33	Variable Refrigerant Flow Systems		H&S
23 82 16	Electric Resistance Air Coils		H&S

DIVISION No. 24	AIR DISTRIBUTION (Not Applicable)	REVISIONS	AUTHOR

DIVISION No. 25	BUILDING AUTOMATION SYSTEMS (Not Applicable)	REVISIONS	AUTHOR

DIVISION No. 26	ELECTRICAL	REVISIONS	AUTHOR
26 00 00	Electrical General Requirements and Common Work Results		H&S
26 05 19	Low Voltage Electrical Power Conductors and Cables		H&S
26 05 26	Grounding and Bonding for Electrical Systems		H&S
26 05 29	Hangers and Supports for Electrical Systems		H&S
26 05 33	Conduits for Electrical Systems		H&S
26 05 33.16	Boxes and Covers for Electrical Systems		H&S
26 05 48	Vibration and Seismic Controls for Electrical Systems		H&S
26 05 53	Identification for Electrical Systems		H&S
26 05 73	Overcurrent Protective Device Arc Flash Study		H&S
26 09 23	Lighting Control Devices		H&S
26 24 16	Panelboards		H&S
26 27 26	Wiring Devices		H&S
26 28 13	Fuses		H&S
26 28 16	Enclosed Switches and Circuit Breakers		H&S
26 32 13	Engine Generators		H&S
26 33 16	Floor Boxes		H&S
26 36 00	Transfer Switches		H&S
26 41 13	Lightning Protection for Structures		H&S
26 43 13	Surge Protection for Low Voltage Electrical Power Circuits		H&S
26 51 19	Light Emitting Diode Interior Lighting		H&S
26 56 00	Exterior Lighting		H&S

DIVISION No. 27	COMMUNICATIONS	REVISIONS	AUTHOR
27 05 28	Pathways for Communications Systems		H&S
27 05 44	Sleeves, Sleeve Seals for Communications Pathways and Cabling		H&S
27 11 00	Communications Equipment Room Fittings		H&S
27 13 00	Communications Backbone Cabling		H&S
27 15 00	Communications Horizontal Cabling		H&S

DIVISION No. 28	ELECTRONIC SAFETY and SECURITY	REVISIONS	AUTHOR
28 05 13	Conductors, Cables for Electronic Safety and Security		H&S
28 05 28	Pathways for Electronic Safety and Security		H&S
28 05 44	Sleeves, Sleeve Seals for Electronic Safety, and Security Pathways, Cabling		H&S
28 31 11	Digital, Addressable Fire Alarm System		H&S

DIVISION No. 31	EARTHWORK	REVISIONS	AUTHOR
31 00 00	Earthwork		CEDC
31 10 00	Site Clearing		CEDC
31 23 16	Excavation		CEDC
31 23 16.13	Trenching		CEDC
31 23 23	Fill		CEDC
31 46 80	**Ground Improvement**	**Adnd. #02**	**CEDC**

DIVISION No. 32	EXTERIOR IMPROVEMENTS	REVISIONS	AUTHOR
32 11 23	Aggregate Base Courses		CEDC
32 12 16	Asphalt Paving		CEDC
32 13 13	Concrete Paving		CEDC
32 17 23.13	Painted Pavement Markings		CEDC
32 31 13	Chain Link Fences and Gates		CEDC
32 32 23	Segmental Retaining Wall Systems		CEDC

DIVISION No. 33	UTILITIES	REVISIONS	AUTHOR
33 11 16	Site Water Utility Distribution Piping		CEDC
33 13 00	Disinfecting of Water Utility Distribution		CEDC
33 31 00	Site Sanitary Utility Sewerage Piping		CEDC
33 41 00	Site Storm Utility Drainage Piping		CEDC
33 46 00	Subdrainage		CEDC

END OF SECTION

THIS PAGE INTENTIONALL LEFT BLANK

SECTION 00 31 00

AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.01 Annual WAGE ORDER No. 33

A. Annual Wage Order No. 33, issued via State of Missouri, **St. Charles County**, is effective at time of performance, this Work and constitutes a portion of Contract Documents. Annual Wage Order No. 33 (in effect as of March 10, 2026), has been attached to this Section.

B. It is the responsibility of all Bidders, to fully comply with all minimum wage rates, as set forth within Annual Wage Order No. 33, including any subsequent Annual Wage Order regulations that may be issued, whenever Annual Wage Order No. 33 expires. Reference Section 00 73 00 - Supplementary Conditions for additional Content.

C. Contractor, each SubContractor shall maintain a detailed accurate record, indicating names, occupations, all laborers, workers, vendors and mechanics employed, in connection with this particular Project and shall also provide actual hourly wages paid each person. This record shall be open, all reasonable business hours to inspection by Owner, their Officers, Agents and Director of Labor, Deputies, Agents. These Records of Employees and Wages Paid are required by Annual Wage Order No. 33. Architect will require an affidavit be submitted, stating full compliance with Annual Wage Order No. 33, within each Application for Payment. In addition, a weekly Certified Payroll submittal will be required. **Payment will not be made, unless all certified payroll documentation has been provided for said time period covered, within Pay Application.**

D. Contractor shall forfeit, as penalty to Owner, $10.00 Ten dollars, each worker employed, each calendar day, or portion thereof, if Worker is paid less than said stipulated rates, for any Work done in relation to this Contract.

E. All Contractor's Bonds shall include such provisions, as required to guarantee faithful performance of prevailing hourly wage clause, as delineated within Contract Documents.

F. Additional Content may be found within Missouri Department of Labor website, http://www.labor.mo.gov.

1.02 Buy AMERICAN Act; "NOT APPLICABLE, THIS PARTICULAR PROJECT"

1.03 Geotechnical Report

A. A Geotechnical Report was previously prepared for Owner by Professional Service Industries, Inc. and Dated July 6, 2026.

1. A copy of said Geotechnical Report has been attached to end, this Section.
2. This Geotechnical Report identifies existing soils properties within below grade conditions and offers Professional recommendations, prepared primarily for use by Architect, Engineers of Record.
3. Those recommendations outlined within Geotechnical Report shall not be construed as a requirement of Contract, unless specifically identified within these particular Contract Documents.
4. A Geotechnical Report, by its very nature, cannot reveal all existing conditions within an Existing Project Site. Should any existing subsurface conditions be discovered to vary substantially from this Geotechnical Report, revisions within proposed designs will be incorporated, with any resulting expenditures, credits to Contract Sum, accruing to Owner.

1.04 Water Pressure Flow Test

A. A Water Pressure Flow Test was performed **on Thursday April 23, 2026 at 10:12 a.m. local time by Hakenwerth Fire Sprinkler, L.L.C., for this particular Project, results as follows:**

B. Gauge Hydrant Readings as follows:

1. Static Pressure (psi): **62**
2. Residual Pressure (psi): **54**

C. Flow Hydrant 1:

1. Pitot Pressure (psi): **8**
2. Outlet Diameter (in): **4**
3. Number of Outlets: **1**
4. Outlet Coefficient: **1**
5. Pumper Coefficient: **1**
6. Adjusted Coefficient: **1**
7. Flow (gpm): **1083**

D. Flow Hydrant 2:

1. Pitot Pressure (psi): **0**
2. Outlet Diameter (in): **2.5**
3. Number of Outlets: **1**
4. Outlet Coefficient: **0.9**
5. Pumper Coefficient: **1**
6. Adjusted Coefficient: **1**
7. Flow (gpm): **0**
8. Total Flow (gpm): **1083**
9. Minimum Desired Pressure (psi): **20**
10. Expected Flow at Minimum Desired pressure (gpm): **2652**
11. Minimum Desired Flow (gpm): **1500**
12. Expected Pressure at Minimum Desired Flow (psi): **47**
13. Expected Flow at 0 psi: **3273**

PART 2 PRODUCTS; " NOT APPLICABLE, THIS PARTICULAR PROJECT "

PART 3 EXECUTION

3.01 OBTAINMENT of PERMITS by CONTRACTOR

A. Contractor shall pay for, secure, all necessary Permits, particular to this Project and Submit copies of same, including all receipts to Owner, Architect for review. **No Overhead or Profit costs may be included within any portion of this pricing.** If approved, Owner shall reimburse Contractor these costs, via Project Change Order.

B. Following Permits, Approvals shall be secured prior to Mobilization upon or commencing any Scope of Work, within this particular Existing Project Site;

1. Zoning Board of Appeals, written notice of approval.
2. Planning Commission, written notice of approval.
3. Existing Project Site, Entire Scope of Work, written Permit documentation.

4. Entire Demolition Scope of Work, written Permit documentation.
5. All Foundation, Earthwork, Exterior Improvements, Utilities Scope of Work, written Permit documentation.
6. All Building Structure Scope of Work, written Permit documentation, all Trades.
7. Any, all Scope of Work, this particular Project, written Permit documentation, as may be required by those Local Authorities having Jurisdiction.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

Intertek-PSI
11826 Borman Drive
Saint Louis, Missouri 63146

Tel +1 314 432 8073
Fax +1 314 432 5119
intertek.com/building

July 6, 2026

John LeDoux
Central County Fire & Rescue (CCFR)
1220 Cave Springs Boulevard
Saint Peters, Missouri 63376

Attn: Roy Mangan
Archimages, Inc.
rmangan@archimages-stl.com

Subject: Geotechnical Exploration Report
Proposed CCFR#6 Fire Station and Pavement
1151 Jungs Station Road
Saint Charles, Missouri 63303
PSI Proposal No: 0040-478784_Rev1
PSI Project No. 0040547-1

Dear Mr. LeDoux:

Professional Service Industries, Inc (PSI), an Intertek Company, is pleased to transmit our Geotechnical Exploration Report for the proposed CCFR#6 Fire Station and Pavement to be located at 1151 Jungs Station Road, in Saint Charles, Missouri. This report includes the results of field exploration and laboratory testing, as well as recommendations for site preparation and foundation design.

If you have questions pertaining to this report, or if we may be of further service, please contact us at your convenience.

PSI thanks you for your business and we look forward to finding ways to grow our partnership, expand our services, and continue Building Better Together.

Respectfully Submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Tanzila Tabassum

Tanzila Tabassum, PhD, PE
Project Manager

STATE OF MISSOURI
PAUL C. MARSHALL
7/6/26
NUMBER PE-2004000061
PROFESSIONAL ENGINEER

P. Chris Marshall

P. Chris Marshall, PE, BC.GE
Regional Engineer/Principal Consultant

intertek psi

REPORT OF GEOTECHNICAL EXPLORATION

Proposed CCFR#6 Fire Station and Pavement
1151 Jungs Station Road
Saint Charles, Missouri 63303

PSI Project Number: 0040547-1

Prepared for

Central County Fire & Rescue (CCFR)
1220 Cave Springs Boulevard
Saint Peters, Missouri 63376

Prepared by

Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, Missouri 63146

July 6, 2026

Tanzila Tabassum

Tanzila Tabassum, PhD., PE
Project Manager



P. Chris Marshall

P. Chris Marshall, PE, BC.GE
Regional Engineer/
Principal Consultant
Missouri: 2004000061

The Professional Engineering Seal is an electronic reproduction of the original seal. This electronic reproduction shall not be construed as an original or certified document.

TABLE OF CONTENTS

1. INTRODUCTION 3
2. PROJECT INFORMATION 4
3. SUBSURFACE INFORMATION 6
3.1 GENERAL AREA GEOLOGY 6
3.2 EXPLORATION PROCEDURES 6
3.3 SUBSURFACE PROFILE 6
3.4 WATER LEVEL MEASUREMENTS 8
3.5 LABORATORY TESTING 8
4. GEOTECHNICAL EVALUATION AND RECOMMENDATIONS 9
5. SITE GRADING RECOMMENDATIONS 11
5.1 ENGINEERED FILL 11
5.2 FILL PLACEMENT AND TESTING 11
6. GEOTECHNICAL RECOMMENDATIONS 13
6.1 SHALLOW FOOTING FOUNDATIONS 13
6.2 SLABS ON GRADE 13
6.3 SEISMIC PARAMETERS 14
6.4 LATERAL EARTH PRESSURE COEFFICIENTS FOR RETAINING WALLS 16
6.5 PAVEMENT SECTION RECOMMENDATIONS 17
7. CONSTRUCTION CONSIDERATIONS 20
7.1 MOISTURE SENSITIVE SOILS/WEATHER RELATED CONCERNS 20
7.2 DRAINAGE AND GROUNDWATER CONSIDERATIONS 20
7.3 RECOMMENDED CONSTRUCTION SERVICES 20
7.4 EXCAVATIONS 21
8. GEOTECHNICAL RISK 22
9. REPORT LIMITATIONS 23

APPENDIX A: Topographic Map
APPENDIX B: Aerial Photograph
APPENDIX C: Boring Location Plan
APPENDIX D: Boring Logs with Laboratory Tests
APPENDIX E: Drilling, Field, and Lab Testing Procedures
APPENDIX F: General Notes/Soil Classification Chart

1. INTRODUCTION

Professional Service Industries, Inc. (PSI), an Intertek Company, has conducted a geotechnical engineering evaluation for the proposed CCFR#6 Fire Station and pavement to be located at 1151 Jungs Station Road, Saint Charles, Missouri. The purpose of our study was to characterize the subsurface strata at the proposed building location and to develop recommendations for site preparation and provide geotechnical parameters for foundation and pavement design. Our services on this project were provided in general accordance with the PSI Proposal Number 0040-478784-Rev1 dated May 22, 2026, authorized by Mr. John LeDoux of CCFR on May 26, 2026.

PSI's scope of services for the geotechnical study did not include an assessment of environmental conditions in the soil, bedrock, surface water, groundwater, or air, on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

PSI did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminates in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence of the amplification of the same. The client acknowledges that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. Client further acknowledges that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or recurrence of mold amplification.

The report, which follows, presents a brief review of our understanding of the project, a discussion of the site and subsurface conditions encountered, and our recommendations for design and construction of foundations, pavements and slabs.

2. PROJECT INFORMATION

PSI was provided with the project information by Mr. Roy Mangan of Archimages, which included files titled "Central County Fire Station#6_Geotech Borings-2026-05-08.pdf" containing the proposed site and grading plan dated April 17, 2026. Based on the provided information, we understand the project will feature a new one-story fire station located south of the existing CCFR fire station, and associated pavement and parking improvements. The proposed building is anticipated to have an approximate footprint of 11,937 square feet.

The site is currently developed with an existing one-story CCFR building and associated pavement areas, which are currently in use. Based on the information provided, the proposed building will include two truck bays on the west side and two truck bays on the east side of the building. The existing building is anticipated to be demolished, and new pavement will be constructed in the area of the demolished structure.

Based on the information provided by the client, a retaining wall is planned along the north-west side of the proposed building. The retaining wall is anticipated to be approximately 360 feet in length with a maximum retained height of about 8 feet. Detailed retaining wall information, including wall type, surcharge loading, wall geometry, and structural design details, has not been provided to PSI at this time. Therefore, retaining wall design recommendations and dedicated geotechnical exploration for the retaining wall are not included within the current scope of this proposal. Additional geotechnical evaluation may be required depending on the final retaining wall design and project requirements.

Review of historical aerial imagery from Google Earth Pro indicates that the existing CCFR building and ancillary pavement areas were developed sometime prior to 1990. Aerial imagery from approximately 2002 indicates that grading activities and construction of pavement and parking areas occurred south of the existing CCFR building. Since that time, no significant site development or major site changes are apparent from the reviewed aerial imagery.

The property is bounded by existing buildings and parking areas to the north, Jungs Station Road to the east, vacant land and single-family residential development to the south, and Barnwell Middle School and vacant land to the west. The proposed development areas are currently covered with grass and existing concrete/asphalt pavement.

According to the grading plan provided by the client, existing ground surface elevations across the site range from approximately 569 feet to 560 feet, generally sloping downward from northeast to southwest. Within the proposed building footprint, existing elevations range from approximately 567 feet to 560 feet. Based on the information provided, the planned finished floor elevation is anticipated to be approximately 568 ½ feet. PSI anticipates maximum fills on the order of approximately 8 ½ feet within portions of the proposed building pad area, fills of approximately 3 to 4 feet along portions of the proposed pavement areas south of the building, and cuts of approximately 4 to 5 feet within portions of the proposed pavement areas north of the building.

Structural loads were not provided to PSI; however, based on understanding of this project, maximum isolated column loads of 100 kips, continuous wall loads of 6 kips per linear foot, and slab loads not exceeding 125 psf are anticipated.

The geotechnical recommendations presented in this report are based on the provided or anticipated project information and the subsurface materials described in this report. If the noted information is incorrect, please inform PSI in writing so that we may amend the recommendations presented in this report if appropriate and

if desired by the client. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

The following Figures show the current site and the proposed development:



Figure: Photo of the Existing Site

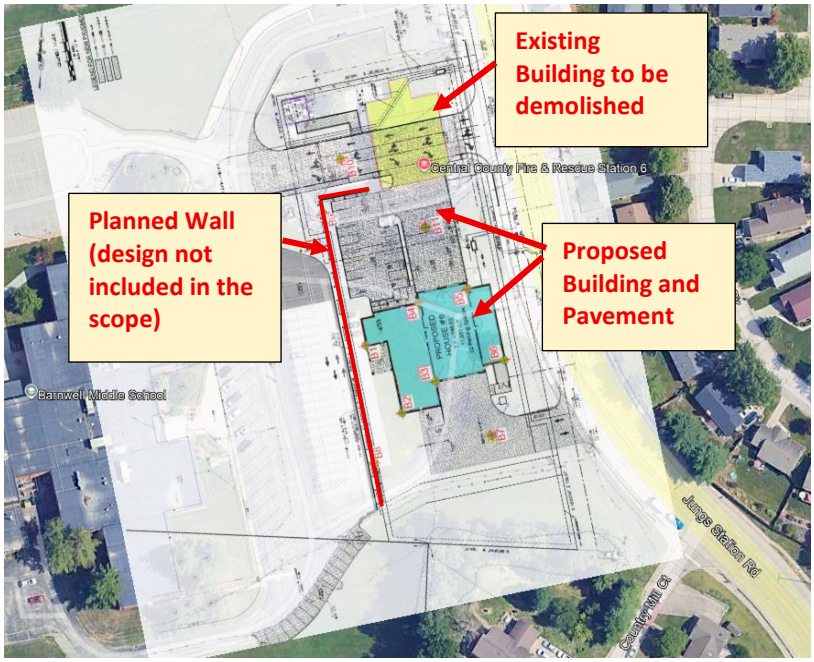


Figure: Photo of the Proposed Development

3. SUBSURFACE INFORMATION

3.1 GENERAL AREA GEOLOGY

A review of geological data from the United States Geological Survey (USGS) and the Missouri Department of Natural Resources indicates that the St. Charles area in eastern Missouri is located along the Missouri River floodplain near its confluence with the Mississippi River. The area is underlain by Quaternary-age alluvial deposits and loess-covered uplands. These unconsolidated materials, consisting primarily of clay, silt, sand, and gravel, were deposited by the Missouri River, Mississippi River, and their tributaries over thousands of years. The thickness and composition of these alluvial deposits can vary significantly across the floodplain, influencing groundwater conditions, drainage characteristics, and geotechnical behavior at the site.

Beneath the surficial alluvial and loess deposits, the regional bedrock geology consists primarily of sedimentary rock formations of Ordovician age, including dolomite, limestone, and sandstone units. Notable formations in the region include the Cotter Dolomite, Jefferson City-Cotter formations, Roubidoux Formation, and Gasconade Formation. These bedrock units were deposited in shallow marine environments during the Paleozoic Era and may locally contain fossils such as brachiopods, gastropods, and stromatolites.

The presence of alluvial deposits associated with the Mississippi River floodplain plays a critical role in soil behavior, site drainage, and construction planning in the St. Charles area, necessitating thorough geotechnical evaluation for development projects.

3.2 EXPLORATION PROCEDURES

The soil borings were performed using a CME-45C truck-mounted rotary head drill rig and were advanced with 3¼-inch inside diameter hollow-stem augers. Representative soil samples were obtained using split-spoon and thin-walled Shelby tube sampling procedures in general accordance with ASTM standards. Individual logs of the borings are presented in Appendix D.

It should be noted that the subsurface conditions shown on the boring logs represent conditions at the specific locations drilled. Variations should be anticipated across the site. The soil stratigraphy reflects approximate boundaries between different subsurface materials; these transitions may be gradual and indistinct. Groundwater level observations made during the field exploration, if any, are also included on the boring logs. Ground surface elevations were referenced from Google Earth and should be considered approximate.

3.3 SUBSURFACE PROFILE

The site subsurface conditions were explored with nine (9) soil test borings. Four borings (B-01 to B-04) were drilled in the approximate footprint of the proposed new building, two borings (B-05 and B-06) were drilled within the planned retaining wall area, and three borings (B-07 to B-09) were drilled within the proposed pavement areas (Figure below). The boring depths ranged from approximately 10 feet to 30 feet below the existing ground surface.



Figure: Boring Location Plan

The proposed boring locations and depths were reviewed with the client prior to drilling. PSI personnel staked the borings in the field using a non-survey grade handheld GPS. The locations should be considered accurate only to the degree implied by the means and methods used to define them. PSI's scope of services did not include surveying of the location or surface elevation of the borings. Surface elevations presented within this report were estimated based on publicly available topographic information obtained from the topographical drawing provided by the client. Therefore, the coordinates/locations of the borings and their estimated surface elevations as provided within this report and the Appendices should be considered approximate and are only provided as a general reference.

Approximately 4 inches of topsoil-like materials (grass and roots) were present at the ground surface of borings B-01 through B-04, B-07, and B-08. Approximately 6 inches of asphalt pavement underlain by approximately 4 inches of base rock was encountered at the ground surface in borings B-05, B-06, and B-09.

Fine-grained apparent fill was encountered in borings B-05, B-06, and B-09, l beneath the asphalt pavement section and extended to depths of approximately 2½ to 5½ feet below existing grade. As the site has been previously developed, it is likely that the majority of the shallow materials have been disturbed or placed as fill during previous construction activities. In the absence of deleterious materials, it can be difficult to differentiate between disturbed in-situ soils and fill.

In all borings, below the asphalt pavement section, gravel base layer, or topsoil layer, fine-grained soils consisting of soft to stiff lean clay (CL) were encountered. These lean clay (CL) soils extended to depths ranging from approximately 10 to 18 feet below existing site grades. Below the lean clay (CL) soils, fine-grained soils consisting of medium stiff to hard fat clay (CH) were encountered. In boring B-08, alternating layers of lean clay (CL) and fat clay (CH) were observed.

Building borings B-01, B-02, and B-03, and planned retaining wall borings B-05 and B-06, were terminated upon auger refusal, which occurred at depths ranging from approximately 17 to 28½ feet below existing ground surface. The refusal materials generally appeared to consist of weathered limestone and shale.

The Boring Logs illustrated in Appendix D should be reviewed for specific information at individual boring locations. These records include soil descriptions, stratifications, penetration resistances, locations of the samples and laboratory test data.

3.4 WATER LEVEL MEASUREMENTS

Free water was observed in borings B-01, B-03, and B-06 at depths ranging from approximately 13 to 27 feet below the existing ground surface. Groundwater levels can fluctuate seasonally due to variations in rainfall, proximity to surface water bodies such as creeks or rivers, soil infiltration characteristics, and changes in land use or surface topography. In relatively impervious soils, such as clays, water levels observed in open boreholes may not provide an accurate representation of the actual groundwater table, even after several days. Perched water zones may also exist or develop within the overburden soils following construction activities. The groundwater conditions presented in this report reflect observations made at the time of field exploration. We recommend that the contractor confirm groundwater levels prior to construction and evaluate any potential impacts on construction methods and foundation performance.

3.5 LABORATORY TESTING

The soil samples obtained during the field exploration were transported to the laboratory and selected soil samples were tested in the laboratory to measure material properties for our geotechnical evaluation. Laboratory testing was accomplished in general accordance with ASTM and other applicable procedures. Laboratory testing was performed on selected samples to evaluate the classification, and other engineering characteristics of the subsurface materials. Laboratory test data along with detailed descriptions of the soils can be found on the logs of borings and in Appendix D. The samples that were not altered by laboratory testing will be retained for 90 days from the date of this report and then will be discarded without further notice.

4. GEOTECHNICAL EVALUATION AND RECOMMENDATIONS

The following geotechnical-related recommendations have been developed based on the subsurface conditions encountered and PSI's understanding of the proposed development. If changes in the project criteria occur, PSI should review the changes to determine whether modifications to the recommendations provided herein are required.

The following factors influenced the site preparation and foundation recommendations presented in this report:

- Variable site grading, including fills on the order of approximately 8 ½ feet within portions of the proposed building pad area, fills of approximately 3 to 4 feet within portions of the proposed pavement areas south of the building, and cuts of approximately 4 to 5 feet within portions of the proposed pavement areas north of the building;
- Presence of soft clays at relatively shallow depths;
- Moist to very moist soil conditions;
- Undocumented fill within the top 5½ feet;
- Design frost depth of 30 inches;
- Auger refusal encountered at depths ranging from approximately 17 to 28½ feet below existing ground surface; and
- Limited characterization of the auger refusal material.

Demolition of Existing Building

Based on the information provided to PSI, the existing building at the north of the site is planned to be demolished to accommodate the proposed new pavement. All components of the existing construction including walls, floor slabs, foundations, and any associated subgrade elements—should be completely removed. In addition, existing underground utilities that are to be abandoned should be fully removed or properly capped and grouted in accordance with project requirements.

PSI recommends that all demolition debris and unsuitable materials be removed from the site to avoid the presence of soft or uncontrolled fill zones that could adversely affect the performance of the new pavement. After demolition and debris removal, the site should be re-established to design grades using properly placed and compacted Engineered Fill.

Proposed Building Area

Based on the subsurface conditions encountered at this site and expected variable fill thicknesses in the proposed building area, shallow foundations and floor slabs supported on unimproved site soils may experience excessive total and differential settlement, which could result in building distress or damage. Therefore, shallow foundations and slabs supported directly on engineered fill over unimproved site soils are not considered a suitable foundation alternative.

Ground Improvement

PSI recommends that the proposed building be supported on shallow foundations and slabs in conjunction with a ground improvement system, such as aggregate piers, vibro stone columns, rammed aggregate piers, or rigid inclusions. The ground improvement system should be designed and constructed by a qualified specialty contractor to improve the underlying soft native soils and reduce the potential for excessive total and differential settlement.

Some ground improvement systems require a load transfer platform (LTP). PSI recommends that the earthwork contractor coordinate with the specialty ground improvement contractor prior to beginning site preparation so that subgrade preparation and Engineering Fill placement can be designed to meet any additional requirements (e.g. LTP) of the ground improvement specialty contractor.

Formal determination on the feasibility of each ground improvement system, and subsequent design, including allowable bearing pressure and settlement calculations for the system, should be performed by the specialty contractor after reviewing the subsurface information provided in this report and the design parameters and objectives for the planned structures.

PSI can refer you to Specialty Contractors for the methods mentioned above and, if desired, can assist with the evaluation of their technical proposals.

Pavement and Parking Areas

Surficial apparent undocumented fill materials were encountered in Borings B-08, and B-09. In pavement areas where undocumented fill materials are encountered, PSI recommends that such materials be undercut and replaced to provide at least 1 foot of approved Engineered Fill beneath the proposed pavement subgrade.

5. SITE GRADING RECOMMENDATIONS

The site should be stripped of vegetation and landscaping in the proposed development areas. If organic material and/or debris are encountered, it should be removed to the extent encountered and replaced with Engineered Fill. Loose soils or stockpiled soils resulting from the over-excavation may be incorporated and placed as Engineered Fill if it meets the recommended specifications. Trash and debris should be removed from the site and disposed of in accordance with local and state regulations. Over-excavation should be performed in accordance with our recommendations and should extend at least 5 feet beyond the building footprint, and at least 3 feet beyond the pavement footprint in all directions in all directions.

Following site stripping and excavation to design subgrade, the exposed grade should be proof rolled to identify potential areas of soft soils prior to placement of the Engineered Fill. The proof-roll should be conducted with a loaded tandem-axle dump truck or similar pneumatic-tired equipment with a minimum weight of 15 tons.

Excavations may be impacted by any perched groundwater. The contractor should evaluate groundwater levels prior to excavation and implement groundwater control and management techniques, as necessary, to maintain dry working conditions in the excavations.

5.1 ENGINEERED FILL

Engineered Fill should be free of organic or other deleterious materials, have a maximum particle size less than 3 inches, and have a liquid limit less than 40 and a plasticity index less than 20. Soils classified as CL, ML, CL-ML, SM, SC, SC-SM, SW, and GW are generally suitable for use as Engineered Fill provided, they are free of organic matter or debris. Soils classified as MH, CH, GC, GM, GP, SP, OL, OH, and PT should not be used.

On-site material can be reused as Engineered Fill if it meets the recommended specifications, it is properly mixed, cleaned of debris and deleterious material (if necessary), moisture conditioned and recompacted in accordance with Section 5.2 of this report.

5.2 FILL PLACEMENT AND TESTING

Engineered Fill placed shall be tested and documented by a geotechnical technician and directed by a geotechnical engineer to evaluate the placement of new fill material. The geotechnical engineer of record can only review the testing that is performed under the geotechnical engineer of record's direct supervision. In general, a separate Standard Proctor test should be performed for every change in material. The following table summarizes the recommended compactive effort for various types of fills.

MATERIAL TESTED	PROCTOR TYPE	MIN % DRY DENSITY	MOISTURE CONTENT RANGE	FREQUENCY OF TESTING*
Engineered Fill (Building and Pavement Area)	Standard	95%	-2 to +2 %	1 per 2,500 sq. ft of fill placed per lift
Utility Trench Backfill / Wall Backfill	Standard	95%	-2 to +2 %	1 per 100 lineal feet of trench per lift

*Minimum of 3 tests per lift

Fill material should be placed in maximum eight-inch loose lifts. A sample(s) of the proposed backfill soil(s) should be obtained for moisture density relationship (proctor test) three to four days prior to backfilling operations to expedite compaction and moisture content testing by the materials testing service provider.

Weather conditions in the site area are typically dry in the summer and early fall. While grading can be inhibited for short periods during and following times of precipitation, grading can generally be conducted year-round. The major factor that must be considered during the winter months is ground freezing. During extended periods of sub-freezing weather, it can be difficult to properly moisture conditions and compact soils. Grading must be conducted during the warmer parts of the day in freezing weather.

6. GEOTECHNICAL RECOMMENDATIONS

6.1 SHALLOW FOOTING FOUNDATIONS

The planned construction can be supported on conventional spread-type footing foundations if ground improvement elements are installed to improve the underlying soils. The ground improvement system should be designed by the specialty ground improvement contractor to meet the allowable bearing and settlement performance criteria established by the structural engineer. Minimum footing dimensions for isolated and continuous wall footings should be at least 24 inches and 18 inches, respectively.

Exterior footings and footings in unheated areas should be located at a depth of 30 inches or deeper below the final exterior grade to provide adequate frost protection. Interior footings within heated areas should be located at a depth of at least 18 inches. If the building is to be constructed during the winter months, footings should be protected from freezing.

The uplift capacity of shallow foundations should be limited to the weight of the foundation concrete plus the weight of the soil immediately above the footing. The base adhesion/frictional resistance and the passive soil resistance will resist the horizontal loads on shallow foundations. For a footing cast against natural clay soil or compacted soil, the adhesion/frictional resistance and the passive soil resistance values for both transient and sustained loading conditions are given herein. For transient loading conditions, an ultimate base adhesion resistance of 500 psf and an ultimate passive resistance of 1,000 psf can be used. For sustained loading conditions, a frictional co-efficient of 0.3 and an ultimate passive resistance of 120 psf per foot depth is recommended. A factor of safety of 2.0 is recommended to arrive at the allowable values. Passive resistance from the upper two feet of soil should be neglected. Also, the passive resistance of any un-compacted fill material should be neglected.

After the foundations have been excavated and inspected, steel reinforcement and concrete should be placed as quickly as possible to avoid exposure of the footing bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. If possible, the foundation concrete should be placed during the same day the excavation is made. If it is required that the excavation be left open for more than one day, they should be protected to reduce evaporation or entry of moisture.

6.2 SLABS ON GRADE

A slab-on-grade interior floor system (supported by ground improvement elements) may be utilized for the proposed structures provided the building area is prepared in accordance with the site preparation recommendations provided in Section 4 Geotechnical Evaluation of this report.

It is recommended that the floor slab be grade supported on 4 to 6 inches layer of crushed limestone or sand/gravel mix of MODOT Type 5 or similar. Where additional drainage capabilities are desired, a more open-graded material may be used. Crushed limestone or MODOT Type 5 containing 6% fines or less would be suitable for this use. If the floor slab is to be supported on MODOT Type 5 crushed limestone or other open-graded material, PSI recommends utilizing a geo-textile fabric between the subgrade soils and this base material to prevent the migration of the subgrade soil into the voids of the open graded “clean” crushed limestone.

Where concrete slabs will be covered with tile or other moisture sensitive covering, we recommend the use of a vapor retarder beneath the slabs on grade to reduce vapor transmission through the slab.

The precautions listed below are considered good construction practice. These recommendations are not required but can be followed to prevent moisture content variation and help reduce potential damage caused by movement of the supporting subgrade.

- Cracking of slabs-on-grade can occur as a result of heaving or compression of the supporting soil, but also as a result of concrete curing stresses. The occurrence of concrete shrinkage cracks, and problems associated with concrete curing may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement, finishing, and curing, and by the placement of crack control joints at frequent intervals, particularly, where re-entrant slab corners occur. The American Concrete Institute (ACI) recommends a maximum panel size (in feet) equal to approximately three times the thickness of the slab (in inches) in both directions. For example, joints are recommended at a maximum spacing of 12 feet based on using a four-inch thick slab. We also recommend that control joints be scored three feet in from and parallel to all foundation walls. Using fiber reinforcement in the concrete can also control shrinkage cracking.

- Slabs should be separated from exterior walls, column posts, interior bearing members and utility lines to allow independent vertical movement of the slab. If project structural and architectural details require the slab on grade to be structurally tied to the exterior wall/foundation system, then control joints should be placed in the slab within approximately 3 feet of the wall. The owner must understand and accept the risk of cracking at or near the control joints if the slab on grade is tied to the foundation system.

- Some increase in moisture content is inevitable as a result of development and associated landscaping. However, extreme moisture content increases can be largely controlled by proper and responsible site drainage, building maintenance and irrigation practices.

- Utility backfill in areas supporting slabs should be moisture conditioned and compacted. Backfill in all interior and exterior water and sewer line trenches should be uniformly compacted.

- Exterior slabs should be isolated from the building. These slabs should be reinforced to function as independent units. Movement of these slabs should not be transmitted to the building foundation or superstructure.

6.3 SEISMIC PARAMETERS

The project site is located within a municipality that employs the International Building Code (IBC), 2021 edition. As part of this code, the design of structures must consider dynamic forces resulting from seismic events. These forces are dependent upon the magnitude of the earthquake event as well as the properties of the soil that underlie the site. As part of the procedure to evaluate seismic forces, the code requires the evaluation of the Seismic Site Class, which categorizes the site based upon the characteristics of the subsurface profile within the upper 100 feet of the ground surface. To define the Site Class for this project, we have interpreted the expected results of soil test borings drilled with the project site and estimated appropriate soil properties below grade to a depth of 100 feet, as permitted by Section 20 of the code. The estimated soil properties were based upon data available in published geologic reports and our experience with subsurface conditions in the general site area.

Based on the soil profile, SPT blow counts and our understanding of the geology, PSI recommends that a Site **Class "C"** be used for design.

Site Class "C" Recommendations

The USGS-NEHRP probabilistic ground motion values, interpolated for Site **Class "C"** soils and in accordance with ASCE 7-16, based on the nearest four grid points to latitude 38.7423° and longitude -90.5628°, are as follows:

Period (seconds)	2% Probability of Event in 50 years (g)	Site Coefficients	Maximum Spectral Acceleration Parameters	Design Spectral Acceleration Parameters	
0.2 (S_s)	0.351	F_a = 1.3	S_{ms} = 0.456	S_{Ds}= 0.304	T_0= 0.093
1.0 (S_1)	0.141	F_v = 1.5	S_{m1} = 0.212	S_{D1}= 0.141	T_s= 0.464

$S_{ms} = F_aS_s$ $S_{Ds} = ⅔*S_{ms}$ $T_0= 0.2*S_{D1}/S_{Ds}$
$S_{m1} = F_vS_1$ $S_{D1} = ⅔*S_{m1}$ $T_s= S_{D1}/S_{Ds}$

The Site Coefficients, F_a and F_v presented in the above table were interpolated from Chapter 20.3-1 as a function of the site classification and mapped spectral response acceleration at the short (S_s) and 1 second (S_1) periods.

Based on the Spectral Acceleration values for this site, structures with a Risk Category of I, II, and III (Table 1604.5) could be designed as a **Seismic Design Category C** as defined in Tables 1613.2.5(1) and 1613.2.5(2). Structures with a Risk Category IV could be designed as a **Seismic Design Category D**. The Risk Category is based on the nature of the occupancy of the structure and is typically determined by the design team (Architect/Structural Engineer) or building official. The determination of the Risk Category is beyond PSI's scope of service.

According to IBC 2021, Section 1803.5.11 requires that sites with a **Seismic Design Categories C through F** be evaluated for slope instabilities, liquefaction, surface rupture due to faulting or lateral spreading and estimates on the differential settlement, lateral movement or reduction in foundation soil bearing capacity due to liquefaction. A detailed study of these effects was beyond PSI's scope of services. However, the following table presents a qualitative assessment of these issues considering the site class, the subsurface soil properties, the groundwater elevation, and probabilistic ground motions:

HAZARD	RELATIVE RISK	COMMENTS
Slope Stability	Low-Moderate	The site will be graded to achieve the proposed finished floor elevation. This grading will include fills of approximately 8½ feet in portions of the building pad area, fills of approximately 3 to 4 feet in pavement areas south of the building, and cuts of approximately 4 to 5 feet in pavement areas north of the building. No slope stability analyses have been performed. No significant slopes are expected near structures. Stability of planned retaining wall should be evaluated during retaining wall design.
Liquefaction	Low	The soil within the upper 30 feet of the subsurface profile is cohesive soil, which is less susceptible to liquefaction during a significant earthquake event if the layer is below the ground water table. Ground improvement will improve liquefaction resistance.
Settlements	Low	Ground improvement will reduce the possibility of seismic-induced settlements.
Surface Rupture	Low	The site is not underlain by a mapped Holocene-aged fault

6.4 LATERAL EARTH PRESSURE COEFFICIENTS FOR RETAINING WALLS

PSI understands that the proposed site grading may include approximately 3 to 7 feet of fill and approximately 4 to 5 feet of cut to achieve the proposed site grades and finished floor elevation. PSI also understands that a retaining wall is planned along the northwest side of the proposed building. At the time of this report, detailed retaining wall information was not provided, including wall height, wall type, foundation type, final grades in front of and behind the wall, backfill configuration, drainage details, surcharge loads, and wall connection details.

Retaining walls should be designed to resist lateral earth pressures. Lateral earth pressure is developed from the soils present within a wedge formed by the vertical retaining wall and an imaginary line extending upward and away from the bottom of the wall at an approximate 45-degree angle. The lateral earth pressures are determined by multiplying the vertical applied pressure by the appropriate lateral earth pressure coefficient, K.

If the retaining walls are rigidly attached to the structure and are not free to rotate or deflect at the top, PSI recommends designing the walls for the "at-rest" lateral earth pressure condition using K_o. Retaining walls that are permitted to rotate and deflect at the top may be designed for the active lateral earth pressure condition using K_a. Passive pressure may be determined using K_p with a factor of safety of 2.0. Earth pressure values for the above water table condition should correspond to the total unit weight of soil and earth pressure values for the below water table condition should correspond to the buoyant or submerged unit weight of soil.

The recommended lateral earth pressure values are based on a level backfill surface and fully drained conditions so that hydrostatic pressure is not allowed to develop behind the wall. External or surcharge loads from adjacent footings, slabs, pavement areas, construction equipment, traffic, or sloping ground were not considered and should be evaluated by the retaining wall designer, where applicable.

Drainage systems should be provided to collect/remove water and to prevent hydrostatic pressure on the walls. If provisions to prevent accumulation of water behind the walls are not provided, the walls should be designed to resist the hydrostatic head in addition to the buoyant lateral earth pressures. The hydrostatic pressures should be accounted for the full height of the wall.

Any additional lateral loads due to surcharge and live loads should also be included in the design. A minimum uniform surcharge pressure of 240 psf should be included in the design for the pavement and traffic loads. The lateral pressure on the wall due a uniform surcharge load can be taken as earth pressure coefficient values shown in the following table multiplied by the surcharge pressure. PSI should be contacted to assess the earth pressures, if any structures are located within close proximity of the retaining wall.

PSI understands that the planned retaining wall will be designed and wall stability will be evaluated by others. In addition, slope stability analyses were not performed as part of this study. Once wall layout plans are developed, PSI should review the final grading and retaining wall plans to determine whether additional retaining wall stability investigation and global stability evaluation are required.

The table below shows the recommended lateral earth pressure coefficients for typical backfill materials to be used in the design of retaining walls. These values should not be used for walls that will retain in-situ materials or walls greater than 10 feet in height.

Parameters specific to soil type	Clayey Sand or Silty Sand	Crushed Stone
Friction Factor for Base	0.38	0.60
Coefficient of Active Pressure (K_a)**	0.33	0.20
Coefficient of Passive Pressure (K_p)**	3.0	5.0
Coefficient of At-Rest Pressure (K_o)**	0.50	0.33

** These values may be used for design only if the backfill extends a horizontal distance approximately equal to or greater than the total height of the wall at the surface, and at least one-foot beyond the heel of the wall footing. Earth pressure coefficients valid for level backfill conditions with no surcharge

Horizontal shear forces can be resisted partially or completely by frictional forces developed between the base of spread footings and the underlying soil. The total frictional resistance between the footing and the soil is the sum of vertical forces (dead load) times the coefficient of friction between the soil and the base of the footing. If additional lateral resistance is required, passive soil resistance from embedded retaining walls and/or foundations bearing on undisturbed native soil may be evaluated on the basis of an equivalent fluid having a unit weight of 120 pcf. We recommend a factor of safety of at least 2 be applied to the calculated passive resistance.

6.5 PAVEMENT SECTION RECOMMENDATIONS

PSI's scope of services did not include extensive sampling and CBR testing of existing subgrade or potential sources of imported fill for the specific purpose of detailed pavement section analysis. Instead, PSI has based this report on pavement-related design parameters that are considered to be typical for the area soil types.

In large areas of pavement, or where pavements are subject to significant traffic, a more detailed analysis of the subgrade and traffic conditions should be made. The results of such a study will provide information necessary to design an economical and serviceable pavement.

The recommended thicknesses presented below are considered typical and minimum for the parameters used in this report. PSI understands that given budgetary considerations, it may be desirable to place thinner pavement sections than those presented. However, the client, the owner, and the project principals should be aware that thinner pavement sections might result in increased maintenance costs and lower than anticipated pavement life. The pavement subgrade should be prepared as discussed in the "Site Grading" section of this report.

PSI has estimated the subgrade soils will be prepared to achieve a CBR of at least 3. Based on this information for the subject pavement, the following minimum pavement sections were determined, as presented in the following table:

Recommended Minimum Thicknesses (Inches)*		
Pavement Materials **	**Car Parking**	**Driveways**
Asphaltic Surface Course	1½	1½
Asphaltic Binder Course	3½	4½
Base Rock	6	6
Or		
Portland Cement Concrete	5	6
Base Rock	4	4

* Pavement sections were evaluated using Pavement Assessment Software (PAS) which is based on the 1993 AASHTO Design guides; a reliability of 80%; and a 20-year 18-kip single axle load (ESAL) of **120,000** for heavy-duty areas and **30,000** for standard-duty areas. Flexible Pavements were evaluated based on an initial serviceability of 4.2 and a terminal service of 2.0. Rigid Pavements were evaluated based on an initial serviceability of 4.5 and a terminal service of 2.0; an unreinforced concrete mix with a 28-day modulus of rupture of 550 psi (approx. 4,000 psi compressive strength)
** Pavement materials should conform to local and state guidelines, if applicable.

Rigid concrete pavement is recommended where trash dumpsters or semi-trailers are to be parked on the pavement or where a considerable load is transferred from relatively small steel wheels. This should provide better distribution of surface loads to the subgrade without causing deformation of the surface. Trash dumpster pads should be at least 8 inches thick and properly reinforced.

Pavement may be placed after the subgrade has been properly compacted, fine graded and proof rolled. The work should be done in accordance with State Department of Transportation guidelines.

Asphalt Pavement Section

The granular base course should be built at least 2 feet wider than the pavement on each side to support the tracks of the slipform paver. This extra width is structurally beneficial for wheel loads applied at pavement edges.

The asphaltic surface mixture should conform to MODOT Section 450 specifications and utilize APWA Type 5 or Type 6 Superpave designs. PSI recommends the surface course should be compacted to 96% ± 2% of the maximum density as determined by the applicable Superpave gyratory compaction method. For the surface mix, BP-1 is typically used, while BP-2 may be selected for base mixes based on anticipated traffic loads and site conditions. To reduce the potential for thermal cracking in this region, the use of an asphalt binder grade of PG 64-28 is recommended for surface mixes. For base mixes placed 4 inches or more below the surface, PG 64-22 is sufficient.

Concrete Pavement Section

Because the pavement at this site will be subjected to freeze-thaw cycles, PSI recommends that an air entrainment admixture be added to the concrete mix to achieve an air content in the range of 5% to 7% to provide freeze-thaw durability in the concrete. Concrete with a 28-day specified compressive strength of 4,000

psi should be adequate in this area. A mixture with a maximum slump of 4 inches is acceptable. If a water reducing admixture is specified, the slump can be higher. It is recommended that admixtures are submitted in advance of use in the concrete.

Pavement for the dumpster area should be constructed of Portland cement concrete with a load transfer device installed where construction joints are required. A thickened edge is recommended on the outside of slabs subjected to wheel loads. This thickened edge usually takes the form of an integral curb. Fill material should be compacted behind the curb or thickened edge of the outside slabs. The following are recommended to enhance the quality of the pavement.

- Moisten subgrade just prior to placement of concrete.
- Cure fresh concrete with a liquid membrane-forming curing compound.
- Keep automobile traffic off the slab for 3 days and truck traffic off the slab for 7 days, unless tests are made to determine that the concrete has gained adequate strength (i.e., usually 4,000 psi)

Base Rock Section

PSI recommends that a MODOT Type 5 aggregate base rock (MODOT Specifications Handbook, Sec. 1007.3.2) be used under both asphalt and concrete pavements.

Sieve Size	**Percent Passing by Weight (Mass)**
1-inch (25.0 mm)	100
1/2-inch (12.5 mm)	60-90
No. 4 (4.75 mm)	35-60
No. 30 (600 µm)	10-35
No. 200 (75 µm)	0-15

Pavement Drainage & Maintenance

PSI recommends pavements be sloped to provide rapid surface drainage. Water allowed to pond on or adjacent to the pavement could saturate the subgrade and cause premature deterioration of pavements, and removal and replacement may be required. Consideration should be given to the use of an interceptor drain to collect and remove water collecting in the granular base. The interceptor drains could be incorporated with the storm drains of other utilities located in the pavement areas.

Periodic maintenance of the pavement should be anticipated. This should include sealing of cracks and joints and by maintaining proper surface drainage to avoid ponding of water on or near the pavement area.

7. CONSTRUCTION CONSIDERATIONS

PSI should be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. PSI cannot accept responsibility for conditions that deviate from those described in this report, nor for the performance of the foundation system if not engaged to also provide construction observation and testing for this project.

7.1 MOISTURE SENSITIVE SOILS/WEATHER RELATED CONCERNS

The upper fine-grained soils encountered at this site are expected to be sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

7.2 DRAINAGE AND GROUNDWATER CONSIDERATIONS

PSI recommends that the Contractor determine the actual groundwater levels at the site at the time of the construction activities to assess the impact groundwater may have on construction. Water should not be allowed to collect in the foundation excavation, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of collected rainwater, groundwater, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building.

It is possible that seasonal variations will cause fluctuations in groundwater levels. Additionally, perched water may be encountered in discontinuous zones within the overburden. Water should be removed from excavations by pumping. The Geotechnical engineer should be consulted if excessive and uncontrolled amounts of seepage occur.

7.3 RECOMMENDED CONSTRUCTION SERVICES

The information provided in this report may be based on interpretation of client supplied information, publicly available databases, exploration data, and PSI's experience and knowledge. The client must recognize that some geological variations are expected to occur between boring locations and physical characteristics are expected to vary with time; therefore, it is important to retain the geotechnical engineer throughout the construction period. Though the geotechnical engineer may be needed during other phases of the project, PSI recommends the geotechnical engineer, or their representative, be present during the following at a minimum to confirm the materials are consistent with our design recommendations:

- Stripping of the subgrade
- Removal of unsuitable soils
- Proof-rolling of the subgrade prior to fill placement, and slab construction
- Engineered fill placement to establish grade
- Foundation excavations prior to concrete placement
- Slab subgrade prior to concrete placement
- Backfilling of retaining walls

If conditions are observed that vary from those stated in this report, PSI can provide updated recommendations based on the site conditions at the time of construction.

7.4 EXCAVATIONS

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better enhance the safety of workers entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is PSI's understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The soils encountered in the soil borings can generally be classified as "Type B" soils, but layers of "Type C" soils were encountered in some borings. Soil conditions may vary between boring locations.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

PSI is providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor's or other party's compliance with local, state, and federal safety or other regulations.

8. GEOTECHNICAL RISK

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding section constitutes PSI's professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and reference during this evaluation, and PSI's experience in working with these conditions.

9. REPORT LIMITATIONS

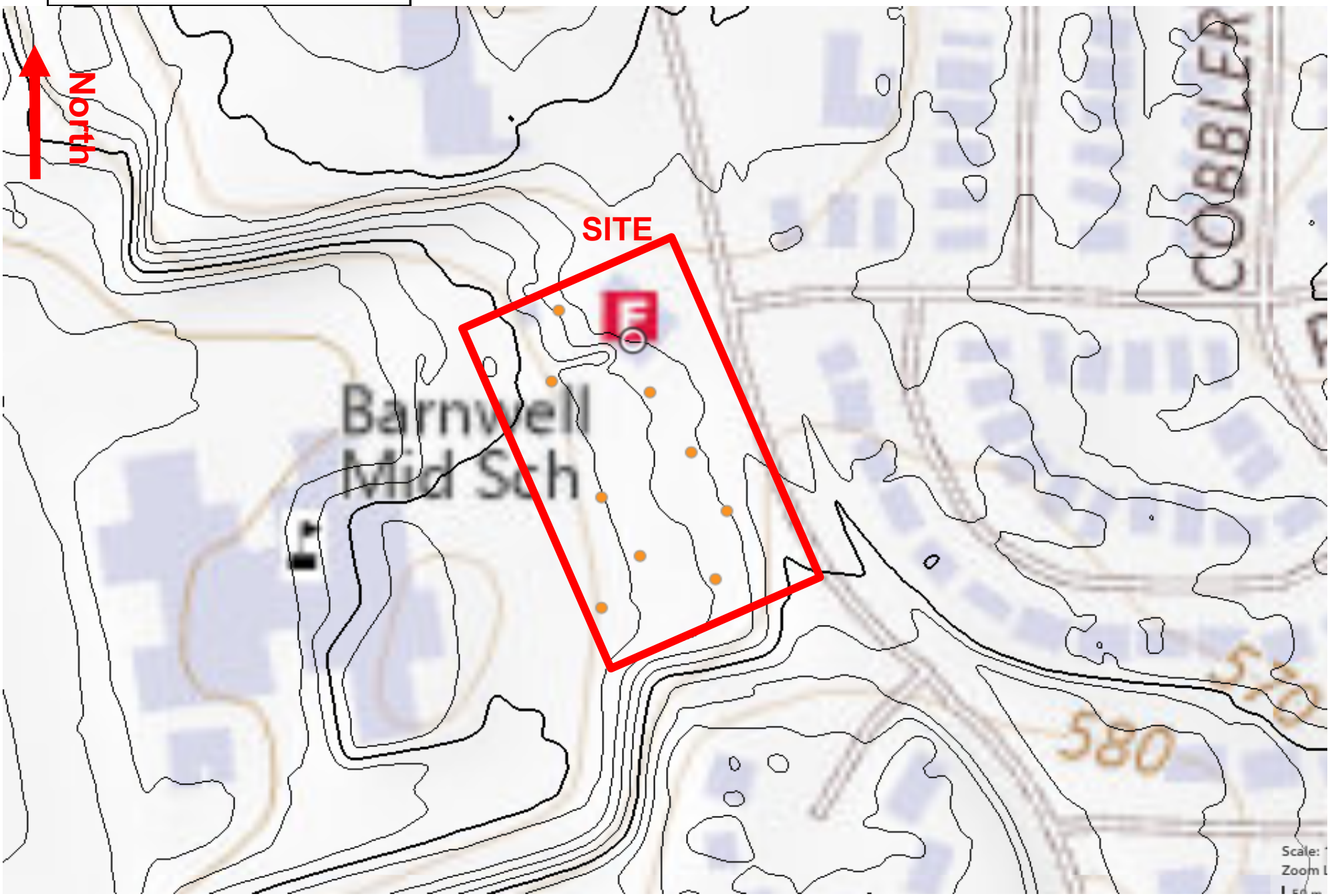
The recommendations submitted are based on the subsurface information obtained by PSI and design details furnished by **Central County Fire & Rescue (CCFR)** and the design team. If there are revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the foundation recommendations are required. If PSI is not retained to perform these functions, PSI will not be responsible for the impact of those conditions on the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of **Central County Fire & Rescue (CCFR)** for the specific application to the proposed **CCFR#6 Fire Station and Pavement** in Saint Charles, Missouri.

APPENDIX A - TOPOGRAPHIC MAP

Professional Service Industries, Inc.



Topographic Map **Provided by the USGS**	**Proposed CCFR#6** **1151 Jungs Station Rd** **St. Charles, MO**	PSI Project Number	0040547-1	Drawn By:	TT
				Date:	6/30/2026
		Contour Elevation (ft)	10 ft	Map Name:	TOPO

APPENDIX B – AERIAL PHOTOGRAPH

Professional Service Industries, Inc.



Aerial Photograph **Provided by Google Earth™**	**Proposed CCFR#6** **1151 Jungs Station Rd** **St. Charles, MO**	PSI Project Number	0040547-1	Drawn By:	TT
		Photograph Date	6/29/2023	Date:	6/30/2026

APPENDIX C – BORING LOCATION PLAN

Professional Service Industries, Inc.



Indicates Approximate Location of Boring

Boring Location Plan	Proposed CCFR#6 St. Charles, MO	PSI Project Number 0040547-1	Drawn By: TT Date: 06/30/2026

APPENDIX D – BORING LOGS WITH LABORATORY TESTS

BORING B-01

DATE STARTED:	6/9/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/9/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	20.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	560 ft	**SAMPLING METHOD:**	2-in SS/3-in ST
LATITUDE:	38.7423°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.5628°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TT

REMARKS:

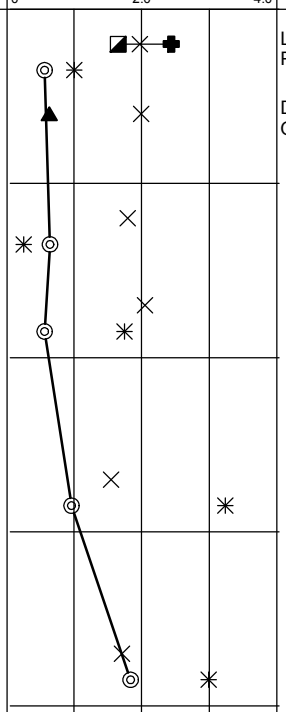
Water

While Drilling	20 feet
Upon Completion	Not Encountered
Delay	N/A

BORING LOCATION:
Proposed New Building

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS) Push Pressure (ST)	Moisture, %
	0			**TOPSOIL:** Gray and brown, lean CLAY (CL), with root and grass (Topsoil 4")	CL		
		1	11	**LEAN CLAY (CL):** Brown, lean CLAY (CL), medium stiff		3-3-4 N=7	25
		2	20			445 psi	25
555	5	3	18		CL	2-4-4 N=8	22
		4	18			1-3-4 N=7	26
550	10			**FAT CLAY (CH):** Brown, fat CLAY (CH), very stiff to hard			
		5	16			1-5-7 N=12	19
545	15				CH		
		6	6	-red		7-11-12 N=23	21
540	20			Auger Refusal at 20 ft Boring Terminated at 20 ft			

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
Moisture × PL ◪ LL ✚
0 25 50
STRENGTH, tsf
Qu ▲ Qp ✳
0 2.0 4.0



Additional Remarks

LL = 30
PL = 21

DD = 101 pcf
Q_u = 0.6 tsf

intertek psi

Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.: 0040547-1
PROJECT: CCFR#6 Fire Station
LOCATION: 1151 Jungs Station
St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-02

DATE STARTED:	6/9/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/9/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	23.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	561 ft	**SAMPLING METHOD:**	2-in SS/3-in ST
LATITUDE:	38.742°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.5626°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TT

REMARKS:

Water

While Drilling	Not Encountered
Upon Completion	Not Encountered
Delay	N/A

BORING LOCATION:
Proposed New Building

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS) Push Pressure (ST)	Moisture, %	Additional Remarks
560	0					**TOPSOIL:** Gray and brown, lean CLAY (CL), with root and grass (Topsoil 4")	CL			
				1	6	**LEAN CLAY (CL):** Brown, lean CLAY (CL), stiff		3-4-3 N=7	18	
				2	10			3-3-4 N=7	21	
555	5			3	19		CL	450 psi	30	DD = 93 pcf Q_u = 1.3 tsf
				4	18	-gray		4-4-4 N=8	23	
550	10					**FAT CLAY (CH):** Brown, gray, fat CLAY (CH), stiff to hard				
				5	16			2-6-9 N=15	20	
545	15						CH			
				6	16	-gray, red		7-24-36 N=60	9	>>
540	20					**SHALE:** Tan, Shale, hard				
				7	6			27-50/3"		>>
						Auger Refusal at 23 ft Boring Termianted at 23 ft			9	

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
Moisture ✕ PL ◪ LL ✚
0 25 50
STRENGTH, tsf
Qu ▲ Qp ✳
0 2.0 4.0

intertek psi

Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.: 0040547-1
PROJECT: CCFR#6 Fire Station
LOCATION: 1151 Jungs Station
St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-03

DATE STARTED:	6/9/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/9/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	27.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	567 ft	**SAMPLING METHOD:**	2-in SS/3-in ST
LATITUDE:	38.7423°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.5623°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TT

REMARKS:

Water

While Drilling	27 feet
Upon Completion	Not Encountered
Delay	N/A

BORING LOCATION:
Proposed New Building

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS) Push Pressure (ST)	Moisture, %	Additional Remarks
	0			**TOPSOIL:** Gray and brown, lean CLAY (CL), with root and grass (Topsoil 4")	CL			
565		1	18	**LEAN CLAY (CL):** Brown, lean CLAY (CL), soft to medium stiff		1-2-3 N=5	23	
		2	16			1-2-2 N=4	24	
	5							
560		3	21			500 psi	22	DD = 105 pcf Q_u = 1.4 tsf
		4	18	-gray	CL	3-4-4 N=8	27	
	10							
555		5	18			2-2-5 N=7	23	
	15							
550				**FAT CLAY (CH):** Brown, gray, fat CLAY (CH), very stiff to hard				
		6	18			3-9-11 N=20	21	>>*
	20				CH			
545		7	8	-light brown		7-12-15 N=27	16	>>*
	25							
540				**WEATHERED LIMESTONE:** Tan, brown, limestone pieces, some lean CLAY (CL), hard				
		8	6			50-50/5"	16	>>◎
				Auger Refusal at 28.5 ft Boring Terminated at 28.5 ft				

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

intertek psi
Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.: 0040547-1
PROJECT: CCFR#6 Fire Station
LOCATION: 1151 Jungs Station
St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-04

DATE STARTED:	6/10/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/10/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	30.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	566 ft	**SAMPLING METHOD:**	2-in SS/ ST
LATITUDE:	38.7425°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.5624°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TT

REMARKS:

Water

While Drilling	Not Encountered	
Upon Completion	Not Encountered	
Delay	N/A	

BORING LOCATION:
Proposed New Building

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS) Push Pressure (ST)	Moisture, %	Additional Remarks
565	0	1	18	**TOPSOIL:** Gray and brown, lean CLAY (CL), with root and grass (Topsoil 4") **LEAN CLAY (CL):** Brown, lean CLAY (CL), soft to medium stiff	CL	2-2-2 N=4	29	
		2	18			1-2-1 N=3	30	LL = 33 PL = 21
560	5	3	18		CL	1-2-3 N=5	25	
		4	20			300 psi	24	DD = 103 pcf Q_u = 1.0 tsf
555	10			**FAT CLAY (CH):** Brown, gray, fat CLAY (CH), medium stiff to stiff				
		5	18			1-3-3 N=6	27	
550	15							
		6	18	-gray		2-3-4 N=7	24	
545	20				CH			
		7	16	-light brown		2-3-4 N=7	24	
540	25							
		8	18	-dark brown		3-2-3 N=5	44	
	30			Boring Terminated at 30 ft				

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
Moisture × 0 25 50
PL ◪
LL ✚
STRENGTH, tsf
Qu ▲ 0 2.0 4.0
Qp ✳

Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.: 0040547-1
PROJECT: CCFR#6 Fire Station
LOCATION: 1151 Jungs Station
St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-05

DATE STARTED:	6/9/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/9/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	20.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	558 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	38.742°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.5628°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TT

REMARKS:

Water

While Drilling	Not Encountered
Upon Completion	Not Encountered
Delay	N/A

BORING LOCATION:
Planned Retaining wall

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ / Moisture × / PL ◪ / LL ✚ (0, 25, 50) / STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					Asphaltic Concrete (6")					
						Base Rock (4")					
				1	7	**FILL:** Brown, lean CLAY (CL), trace limestone fragments and powder, medium stiff to stiff	CL	3-3-4 N=7	22		
555											
				2	16			2-5-5 N=10	22		
	5					**LEAN CLAY (CL):** Brown, lean CLAY (CL), trace limestone fragments and powder, stiff					
				3	18			2-4-5 N=9	24		
550											
				4	18	-gray	CL	3-5-6 N=11	21		LL = 40 PL = 17
	10										
						FAT CLAY (CH): Light brown, fat CLAY (CH), hard					
545									15		
				5	10		CH	5-10-21 N=31		>>✳	
	15										
						SHALE: Tan, SHALE, with some limestone pieces, hard					
540									14		
				6	15			15-20-31 N=51		>>●	
	20					Auger Refusal at 20 ft Boring Terminated at 20 ft					

intertek psi

Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.: 0040547-1
PROJECT: CCFR#6 Fire Station
LOCATION: 1151 Jungs Station
St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-06

DATE STARTED:	6/10/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/10/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	17.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	561 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	38.7427°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.563°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TT

REMARKS:

Water

While Drilling	13 feet
Upon Completion	Not Encountered
Delay	N/A

BORING LOCATION:
Planned Retaining wall

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ Moisture × PL ◪ LL ✚ (0, 25, 50) STRENGTH, tsf Qu ▲ Qp ✳ (0, 2.0, 4.0)	Additional Remarks
560	0					Asphaltic Concrete (6")					
						Base Rock (4")					
				1	2	**FILL:** Brown, lean CLAY (CL), soft to stiff	CL	4-4-5 N=9	20		
				2	5			1-1-2 N=3	27		
555	5			3	18	**LEAN CLAY (CL):** Brown, lean CLAY (CL), medium stiff	CL	2-3-4 N=7	24		
				4	18			1-3-4 N=7	23		
550	10					**FAT CLAY (CH):** Light brown, fat CLAY (CH), stiff					
				5	11		CH	4-4-5 N=9	22	>>✳	
545	15			6	2	**WEATHERED LIMESTONE:** Tan, brown, weathered limestone pieces, little fat CLAY (CH), hard Auger Refusal at 17 ft Boring Terminated at 17 ft		50/4"	14	>>◎	

intertek psi

Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.: 0040547-1
PROJECT: CCFR#6 Fire Station
LOCATION: 1151 Jungs Station
St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-07

DATE STARTED:	6/10/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/10/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	10.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	564 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	38.7421°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.5624°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TT

REMARKS:

Water

While Drilling	Not Encountered
Upon Completion	Not Encountered
Delay	N/A

BORING LOCATION:
Proposed New Pavement

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / STRENGTH, tsf	Additional Remarks
	0					**TOPSOIL:** Gray and brown, lean CLAY (CL), with root and grass (Topsoil 4")	CL				
				1	11	**LEAN CLAY (CL):** Brown, lean CLAY (CL), stiff to very stiff		2-4-5 N=9	19		
560				2	9	-red	CL	3-6-6 N=12	23		LL = 39 PL = 19
	5			3	9			5-11-14 N=25	15		
555				4	8			4-8-9 N=17	16		
	10					Boring Terminated at 10 ft					

Moisture: 0 / 25 / 50 — PL, LL
Strength, tsf: Qu, Qp — 0 / 2.0 / 4.0

intertek psi
Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.: 0040547-1
PROJECT: CCFR#6 Fire Station
LOCATION: 1151 Jungs Station
St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-08

DATE STARTED:	6/10/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/10/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	10.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	565 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	38.7429°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.5629°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** 10FT NW	**REVIEWED BY:**	TT

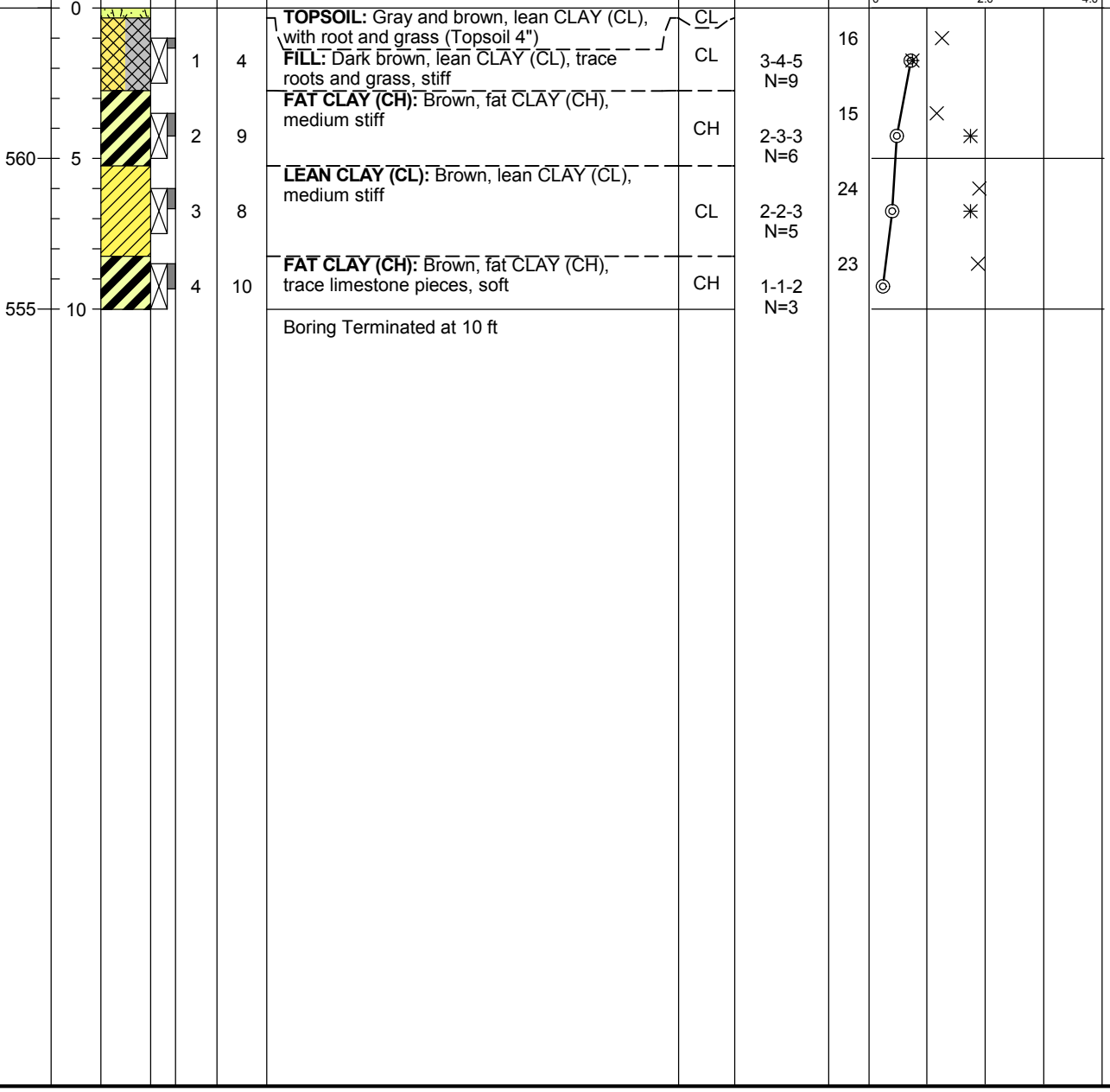
REMARKS:

Water

While Drilling	Not Encountered	
Upon Completion	Not Encountered	
Delay	N/A	

BORING LOCATION:
Proposed New Pavement

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					**TOPSOIL:** Gray and brown, lean CLAY (CL), with root and grass (Topsoil 4")	CL				
				1	4	**FILL:** Dark brown, lean CLAY (CL), trace roots and grass, stiff	CL	3-4-5 N=9	16		
						FAT CLAY (CH): Brown, fat CLAY (CH), medium stiff	CH				
				2	9			2-3-3 N=6	15		
560	5					**LEAN CLAY (CL):** Brown, lean CLAY (CL), medium stiff					
				3	8		CL	2-2-3 N=5	24		
						FAT CLAY (CH): Brown, fat CLAY (CH), trace limestone pieces, soft	CH				
				4	10			1-1-2 N=3	23		
555	10					Boring Terminated at 10 ft					



intertek psi

Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.: 0040547-1
PROJECT: CCFR#6 Fire Station
LOCATION: 1151 Jungs Station
St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-09

DATE STARTED:	6/10/26	**DRILL COMPANY:**	HOLLAND ENGINEERS
DATE COMPLETED:	6/10/26	**DRILLER:** Chad	**LOGGED BY:** Priya
COMPLETION DEPTH	10.0 ft	**DRILL RIG:**	CME 45 C
BENCHMARK:	N/A	**DRILLING METHOD:**	Hollow Stem Auger
ELEVATION:	565 ft	**SAMPLING METHOD:**	2-in SS
LATITUDE:	38.7427°	**HAMMER TYPE:**	Automatic
LONGITUDE:	-90.5626°	**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	TT

REMARKS:

Water

While Drilling	Not Encountered
Upon Completion	Not Encountered
Delay	N/A

BORING LOCATION:
Proposed New Pavement

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					Asphaltic Concrete (6")					
						Base Rock (4")					
				1	8	**FILL:** Gray, brown, lean CLAY (CL), medium stiff	CL	3-3-4 N=7	22		LL = 40 PL = 21
				2	16	**LEAN CLAY (CL):** Brown, lean CLAY (CL), medium stiff		1-3-4 N=7	27		
560	5			3	18		CL	2-2-4 N=6	25		
				4	18			2-2-4 N=6	23		
555	10					Boring Terminated at 10 ft					

intertek psi
Professional Service Industries, Inc.
11826 Borman Drive
Saint Louis, MO 63146
Telephone: (314) 432-8073

PROJECT NO.:	0040547-1
PROJECT:	CCFR#6 Fire Station
LOCATION:	1151 Jungs Station
	St, Charles, MO 63303

The stratification lines represent approximate boundaries. The transition may be gradual.

APPENDIX E – DRILLING, FIELD, AND LAB TESTING PROCEDURES

FIELD TESTS AND MEASUREMENTS

Penetration Tests and Split-Barrel Sampling of Soils

During the sampling procedures, Standard Penetration Tests (SPT) were performed at regular intervals (2½-foot intervals to 10 feet and 5-foot intervals thereafter) to obtain the standard penetration (N) values of the soil. The results of the standard penetration test indicate the relative density and comparative consistency of the soils, and thereby provide a basis for estimating the relative strength and compressibility of the soil profile components. The split-barrel sampler provides a soil sample for identification purposes and for laboratory tests appropriate for soil obtained from a sampler that may produce large shear strain while obtaining the sample.

Thin-Walled (Shelby) Tube Geotechnical Sampling of Soils

Thin-walled tube samples are utilized to obtain a relatively undisturbed specimen suitable for laboratory tests of structural properties or other tests that might be influenced by soil properties. A relatively undisturbed sample is obtained by pressing a thin-walled metal tube (typically an outside diameter 3 inches) into the in-situ soil, removing the soil-filled tube, and sealing the ends to reduce the soil disturbance or moisture loss. These samples may be utilized in the laboratory to obtain the following information or perform the following tests: Unconfined Compressive Strength (q_u), Laboratory Determination of Water Content, Wet and Dry Density, Void Ratio, Percent Saturation, Grain Size, and Atterberg Limits.

Water Level Measurements

Water level observations were attempted during and upon completion of the drilling operation using a 100-foot tape measure. The depths of observed water levels in the boreholes are noted on the boring logs presented in the Appendix of this report. In the borings where water is unable to be observed during the field activities, in relatively impervious soils, the accurate determination of the groundwater elevation may not be possible even after several days of observation. Seasonal variations, temperature and recent rainfall conditions may influence the levels of the groundwater table and volumes of water will depend on the permeability of the soils.

Ground Surface Elevations

The elevations at the ground surface of the borings were estimated based on publicly available topographic information provided by Google Earth Pro. These elevations should not be used for design purposes in lieu of a survey of the boring locations and respective surface elevations at this site. These elevations are indicated on the attached boring logs that are in the Appendix of this report.

LABORATORY TESTING PROGRAM

In addition to the field investigation, a supplemental laboratory-testing program was conducted to determine additional engineering characteristics of the foundation materials necessary in analyzing the behavior of the soils as it relates to the construction of the proposed development. Laboratory results may be found on the boring logs and individual test results are included in the Appendix. The laboratory testing program is as follows:

Laboratory Determination of Water (Moisture) Content of Soil by Mass

The water content is a significant index property used in establishing a correlation between soil behavior and its index properties. The water content is used in expressing the phase relationship of air, water, and solids in a given volume of material. In fine grained cohesive soils, the behavior of a given soil type often depends on its water content. The water content of a soil, along with its liquid and plastic limits as determined by Atterberg Limit testing, is used to express its relative consistency or liquidity index.

Atterberg Limits

The Atterberg Limits are defined by the liquid limit (LL) and plastic limit (PL) states of a given soil. These limits are used to determine the moisture content limits where the soil characteristics changes from behaving more like a fluid on the liquid limit end to where the soil behaves more like individual soil particles on the plastic limit end. The liquid limit is often used to indicate if a soil is a low or high plasticity soil. The plasticity index (PI) is the difference between the liquid limit and the plastic limit. The plasticity index is used in conjunction with the liquid limit to assess if the material will behave like a silt or clay. The material can also be classified as an organic material by comparing the liquid limit of the natural material to the liquid limit of the sample after being oven-dried.

Unconfined Compressive Strength of Cohesive Soil (q_u)

The primary purpose of the unconfined compressive strength test is to obtain the undrained compressive strength of soils that possess sufficient cohesion to permit testing in the unconfined state. Unconfined compressive strength (q_u) is the compressive stress at which an unconfined cylindrical specimen of soil will fail in a simple compression test. In this test method, unconfined compressive strength is taken as the maximum load obtained per unit area or the load per unit area at 15% axial strain, whichever is obtained first during the performance of a test. For the unconfined compressive strength test, the shear strength (s_u) is calculated to be half of the compressive stress at failure.

APPENDIX F – GENERAL NOTES/SOIL CLASSIFICATION CHART

GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System (USCS), AASHTO 1988 and ASTM designations D2487 and D-2488 are used to identify the encountered materials unless otherwise noted. Coarse-grained soils are defined as having more than 50% of their dry weight retained on a #200 sieve (0.075mm); they are described as: boulders, cobbles, gravel or sand. Fine-grained soils have less than 50% of their dry weight retained on a #200 sieve; they are defined as silts or clay depending on their Atterberg Limit attributes. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size.

DRILLING AND SAMPLING SYMBOLS

SFA: Solid Flight Auger - typically 4" diameter flights, except where noted.
HSA: Hollow Stem Auger - typically 3¼" or 4¼ I.D. openings, except where noted.
M.R.: Mud Rotary - Uses a rotary head with Bentonite or Polymer Slurry
R.C.: Diamond Bit Core Sampler
H.A.: Hand Auger
P.A.: Power Auger - Handheld motorized auger

SS: Split-Spoon - 1 3/8" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
RC: Rock Core
TC: Texas Cone
BS: Bulk Sample
PM: Pressuremeter
CPT-U: Cone Penetrometer Testing with Pore-Pressure Readings

SOIL PROPERTY SYMBOLS

N: Standard "N" penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch O.D. Split-Spoon.
N_{60}: A "N" penetration value corrected to an equivalent 60% hammer energy transfer efficiency (ETR)
Q_u: Unconfined compressive strength, TSF
Q_p: Pocket penetrometer value, unconfined compressive strength, TSF
w%: Moisture/water content, %
LL: Liquid Limit, %
PL: Plastic Limit, %
PI: Plasticity Index = (LL-PL),%
DD: Dry unit weight, pcf
▼,▽,▼ Apparent groundwater level at time noted

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Relative Density	N - Blows/foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	50 - 80
Extremely Dense	80+

ANGULARITY OF COARSE-GRAINED PARTICLES

Description	Criteria
Angular:	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular:	Particles are similar to angular description, but have rounded edges
Subrounded:	Particles have nearly plane sides, but have well-rounded corners and edges
Rounded:	Particles have smoothly curved sides and no edges

GRAIN-SIZE TERMINOLOGY

Component	Size Range
Boulders:	Over 300 mm (>12 in.)
Cobbles:	75 mm to 300 mm (3 in. to 12 in.)
Coarse-Grained Gravel:	19 mm to 75 mm (¾ in. to 3 in.)
Fine-Grained Gravel:	4.75 mm to 19 mm (No.4 to ¾ in.)
Coarse-Grained Sand:	2 mm to 4.75 mm (No.10 to No.4)
Medium-Grained Sand:	0.42 mm to 2 mm (No.40 to No.10)
Fine-Grained Sand:	0.075 mm to 0.42 mm (No. 200 to No.40)
Silt:	0.005 mm to 0.075 mm
Clay:	<0.005 mm

PARTICLE SHAPE

Description	Criteria
Flat:	Particles with width/thickness ratio > 3
Elongated:	Particles with length/width ratio > 3
Flat & Elongated:	Particles meet criteria for both flat and elongated

RELATIVE PROPORTIONS OF FINES

Descriptive Term	% Dry Weight
Trace:	< 5%
With:	5% to 12%
Modifier:	>12%

GENERAL NOTES

(Continued)

CONSISTENCY OF FINE-GRAINED SOILS

Q_U - TSF	N - Blows/foot	Consistency
0 - 0.25	0 - 2	Very Soft
0.25 - 0.50	2 - 4	Soft
0.50 - 1.00	4 - 8	Firm (Medium Stiff)
1.00 - 2.00	8 - 15	Stiff
2.00 - 4.00	15 - 30	Very Stiff
4.00 - 8.00	30 - 50	Hard
8.00+	50+	Very Hard

MOISTURE CONDITION DESCRIPTION

Description	Criteria
Dry:	Absence of moisture, dusty, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water, usually soil is below water table

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term	% Dry Weight
Trace:	< 15%
With:	15% to 30%
Modifier:	>30%

STRUCTURE DESCRIPTION

Description	Criteria
Stratified:	Alternating layers of varying material or color with layers at least ¼-inch (6 mm) thick
Laminated:	Alternating layers of varying material or color with layers less than ¼-inch (6 mm) thick
Fissured:	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided:	Fracture planes appear polished or glossy, sometimes striated
Blocky:	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed:	Inclusion of small pockets of different soils
Layer:	Inclusion greater than 3 inches thick (75 mm)
Seam:	Inclusion 1/8-inch to 3 inches (3 to 75 mm) thick extending through the sample
Parting:	Inclusion less than 1/8-inch (3 mm) thick

SCALE OF RELATIVE ROCK HARDNESS

Q_U - TSF	Consistency
2.5 - 10	Extremely Soft
10 - 50	Very Soft
50 - 250	Soft
250 - 525	Medium Hard
525 - 1,050	Moderately Hard
1,050 - 2,600	Hard
>2,600	Very Hard

ROCK BEDDING THICKNESSES

Description	Criteria
Very Thick Bedded	Greater than 3-foot (>1.0 m)
Thick Bedded	1-foot to 3-foot (0.3 m to 1.0 m)
Medium Bedded	4-inch to 1-foot (0.1 m to 0.3 m)
Thin Bedded	1¼-inch to 4-inch (30 mm to 100 mm)
Very Thin Bedded	½-inch to 1¼-inch (10 mm to 30 mm)
Thickly Laminated	1/8-inch to ½-inch (3 mm to 10 mm)
Thinly Laminated	1/8-inch or less "paper thin" (<3 mm)

ROCK VOIDS

Voids	Void Diameter
Pit	<6 mm (<0.25 in)
Vug	6 mm to 50 mm (0.25 in to 2 in)
Cavity	50 mm to 600 mm (2 in to 24 in)
Cave	>600 mm (>24 in)

GRAIN-SIZED TERMINOLOGY

(Typically Sedimentary Rock)

Component	Size Range
Very Coarse Grained	>4.76 mm
Coarse Grained	2.0 mm - 4.76 mm
Medium Grained	0.42 mm - 2.0 mm
Fine Grained	0.075 mm - 0.42 mm
Very Fine Grained	<0.075 mm

ROCK QUALITY DESCRIPTION

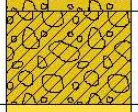
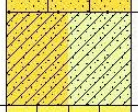
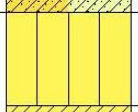
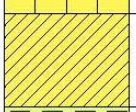
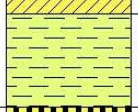
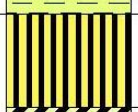
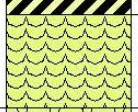
Rock Mass Description	RQD Value
Excellent	90 -100
Good	75 - 90
Fair	50 - 75
Poor	25 -50
Very Poor	Less than 25

DEGREE OF WEATHERING

Slightly Weathered:	Rock generally fresh, joints stained and discoloration extends into rock up to 25 mm (1 in), open joints may contain clay, core rings under hammer impact.
Weathered:	Rock mass is decomposed 50% or less, significant portions of the rock show discoloration and weathering effects, cores cannot be broken by hand or scraped by knife.
Highly Weathered:	Rock mass is more than 50% decomposed, complete discoloration of rock fabric, core may be extremely broken and gives clunk sound when struck by hammer, may be shaved with a knife.

SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

Graphic Symbols for Materials and Rock Deposits



CONCRETE
Portland Cement Concrete



BITUMINOUS CONCRETE



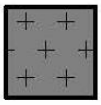
CLAYSTONE



COAL
Coal, Anthracite Coal



CONGLOMERATE/BRECCIA
Conglomerate, Breccia



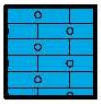
IGNEOUS ROCK
Anorthsite, Basalt, Metabasalt, Diabase (Gabbro), Gabbro, Granite/Granodionite, Homfels, Pegmatite, Rhyolite/Metarhyolite



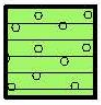
LIMESTONE
Limestone, Dolomite



METAMORPHIC ROCK
Amphibolite, Gneiss, Marble, Phyllite, Quartzite, Schist, Serpentinite, Slate



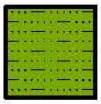
CHERT



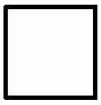
SANDSTONE
Sandstone, Orthoquarzite (Sandstone)



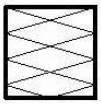
SHALE



SILTSTONE



NO RECOVERY



VOID

Section 00 41 00
Bid Form

Bid Form must be completed, received by Owner, Architect no later than 3:00 p.m. local time, Wednesday July 22, 2026. All Bidders are required to submit (2) Two copies of sealed Bid Package, in person, to; Central County Fire & Rescue 1220 Cave Springs Boulevard St. Peters, Mo. 63376-6517. Faxed or emailed Bid Packages are not acceptable, will not be permitted.

Bidder both proposes and agrees, if this Bid Package is accepted, to enter into an agreement with Owner, with Form included within Bidding Documents and shall perform all Work delineated within Contract Documents, for those prices and within those times delineated within this Bid Form and in full accordance with all other terms, conditions of Contract Documents.

Stated below is contact data for Bidder, submitting this Bid Package, who shall be responsible for all questions that may arise during Bid review and who may also be contacted to discuss acceptance or rejection of this Bid:

Company Name: _____

Contact Person Name, Title: _____

Street Address: _____

City, State Zip Code: _____

Office Phone Number: _____

Cell Phone Number: _____

Email Address: _____

Bidder accepts all terms, conditions of Contract Documents, including, but not limited to "Instructions to Bidders," without any limitations.

STIPULATED SUM BID FORM

Name of Project: **Central County Fire & Rescue, House #06**

Date: _____

Proposal from: _____

(Hereinafter called Bidder), a Corporation organized and existing under those Laws of State of

_____, a partnership, or an individual doing business as

_____ (cross out inapplicable).

To: **Mr. John LeDoux, Assistant Chief**
Central County Fire & Rescue
1220 Cave Springs Boulevard
St. Peters, Mo.63376-6517

Bidder, in full compliance with "Invitation for Bid", this particular Project and having carefully, thoroughly examined all Contract Documents, which documents are made a part hereof, as well as having thoroughly examined this particular Existing Project Site and any, all conditions that may affect said Work, agrees to furnish all Labor, Materials, Supplies as necessary, required to perform this particular entire Project Scope of Work, in full accordance with these Contract Documents and within time, prices stated below.

BASE BID

Central County Fire & Rescue, House #06		
Item No.:	Item Description:	Sub Total:
01	Performance Assurance Bonds	
02	Independent Inspections, Testing Services Allowance	**$ 50,000.00**
03	Vehicular Traffic Light Structure Allowance	**$ 85,000.00**
04	Unforeseen Existing Conditions Allowance	**$ 100,000.00**
05	Entire Project Scope of Work	

All applicable Federal and State Taxes have been excluded from our Bid Package.

Total all lines above shall equal Total Lump Sum Bid, this particular Project.

Furnish all Labor, Materials, Supplies as required to perform entire Scope of Work for: Central County Fire & Rescue, House #06, as delineated within Contract, Bid Documents, for a total Lump Sum Dollar Amount of:

$ _____

TIME

Pending Board approval, if required, an issuance of Conditional Notice to Proceed via Archimages, Inc. is anticipated to take place no later than; **Additional Content to Follow**. Bidder does hereby state, all time required to perform entire Scope of Work, this particular Project, as delineated within Contract, Bid Documents, including all previously accepted Project Alternates and any necessary Work required to complete said Project by previously indicated duration, proposed within this Bid Form. All Liquidated Damages shall be assessed for any delays to previously established Project Substantial Completion Date.

Bidders shall propose a contractual duration for achieving this particular Project Substantial Completion Date, per AIA A201-2017 Section 9.8, within blank space, provided below. This proposed duration shall be utilized as criteria for selection of General Contractor.

Complete entire Scope of Work, this particular Project, as required to achieve Project Substantial Completion within _____ calendar days, from issue date, Notice to Proceed.

ALTERNATES: Complete the following alternate bid items on this form. Bids will not be accepted if these alternates are not provided at the time of bid. Altnerate bid items are further described in Section 01 23 00 Alternates.

Alternate No. One – Builder's Risk Insurance

Add $_____

VOLUNTARY ALTERNATES - Not Applicable, This Particular Project

BID FORM SUPPLEMENTS

Following Supplements have been attached to this Bid Form and are integral part of same:

- Document 00 41 10 - Contractor's Affidavit for Public Construction Projects
- Document 00 41 20 - Non Collusion Affidavit

We agree to submit following Supplements to Bid Forms, within (24) Twenty Four Hours of Bid Date, Time:

- Any, all Supplemental Bid Information, pertinent, this particular Project.
- Any, all Supplemental Bid Information, requested by Owner.

BID DOCUMENTS

A. Bidder acknowledges receipt of following Documents:

1. All Drawings, Specifications;

2. Addenda;
   a. Addenda No. _____ Dated _____
   b. Addenda No. _____ Dated _____
   c. Addenda No. _____ Dated _____
   d. Addenda No. _____ Dated _____
   e. Addenda No. _____ Dated _____

MISCELLANEOUS BID REQUIREMENTS

A. This Offer shall be open to acceptance, is irrevocable for period of (60) Sixty Business days from Bids Due Date.

B. Said undersigned understands, acknowledges, Owner reserves right to reject any, all Bids, Subcontractors, Vendors, Employees.

C. Said undersigned further agrees to indemnify, save, protect Owner from and against any losses, judgments of every nature and description made, brought, or recovered against Owner by reason of any act or omission of undersigned, his agents, subcontractors, vendors, or employees within execution, Scope of Work, this particular Project.

D. Said undersigned hereby declares Stipulated Sum Bid is based solely upon those materials, equipment described within Contract, Bidding Documents (including all Addenda), **and that no Substitutions apply.**

E. Said undersigned declares they had ample opportunity, time to thoroughly examine Existing Project Site, Contract Documents and have carefully authored their Bid Package upon the basis thereof, also, that they have thoroughly examined, verified said Bid Package, including all Labor, Materials and Supplies required thereunder, said cost, figures therefore and hereby states those amounts set forth within Bid Package are accurate, correct and that no mistakes, errors have been included within same.

F. See next page for signatures.

VIA CORPORATION;

_____ _____

Corporation Name Officer Signature

_____

Officer Name, Title

Incorporated under Laws of the State of _____ (print)

Licensed to do business within said State (check one) [ ] Yes [ ] No

Business Street Address, all future Communications: _____

_____

(Seal if Bid Package provided by Corporation)

VIA PARTNERSHIP; Provide Business Street Address, Names all Partners. Each Partner shall execute said Bid Form under their respective seals. Attach a copy Partnership, Joint Venture agreement to Bid Form.

_____	_____
Partnership Name	Authorized Partner Signature
	_____
	Authorized Partner Name, Title (print)

VIA INDIVIDUAL;

_____	_____
Firm Name	Individual Signature
	_____
	Individual Name (print)

Business Street Address all future Communications: _____

VIA JOINT VENTURE; List all Parties, indicate that one who will be designated as the "Lead," this particular Project. Each party of Venture shall execute Bid Form under their respective seals. Attach copy of the Partnership, Joint Venture agreement to Bid Form.

_____	_____
_____	_____

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 21 00
ALLOWANCES

PART 1 GENERAL

2.01 SECTION INCLUDES

A. Allowances.

2.02 RELATED REQUIREMENTS

A. Section 01 20 00 - Price and Payment Procedures.

2.03 INSPECTIONS & TESTING ALLOWANCES

A. Those costs incurred, as required to engage an independent Inspections and Testing Firm, previously selected and approved by Owner. Execution of said Inspections, Testing and Reporting of all results.

B. Payment Procedures:
   1. Submit copy of Inspections and Testing Firms Invoice's for Owner ~ Architect review, within next scheduled Pay Application Package.
   2. Pay said Invoice's, **only upon receipt of approval from Architect**, Owner.

2.04 ALLOWANCES SCHEDULE

A. **Allowance for Building Floor Slab on Grade, Ground Improvement System per Geotechnical Engineer:** Total Dollar Amount, previously included within Submitted Bid Package and based solely upon Allowance for entire amount of cubic yards required **to completely remediate entire Building Floor Slab**. This Work shall be performed in conjunction with all recommendations for Scope of Work required via Geotechnical Report, attached to Specifications Section 00 31 00 - Available Project Information. This Allowance shall be based solely upon Contractor's previously received Unit Pricing data as it relates to the removal and disposal of all unsatisfactory soils and imports. Placement and compaction of previously approved Geotechnical Engineered Soils and imports. Reference Section 01 22 00 - Unit Prices Form for additional Content. All non-utilized Allowance funds shall be reimbursed to Owner via Architect's Project Change Order.

B. **Allowance for Building Footings, Ground Improvement System per Geotechnical Engineer:** Total Dollar Amount, previously included within Submitted Bid Package and based solely upon Allowance for entire amount of cubic yards required **to completely remediate all Building Footings**. This Work shall be performed in conjunction with all recommendations for Scope of Work required via Geotechnical Report, attached to Specifications Section 00 31 00 - Available Project Information. This Allowance shall be based solely upon Contractor's previously received Unit Pricing data as it relates to the removal and disposal of all unsatisfactory soils and imports. Placement and compaction of previously approved Geotechnical Engineered Soils and imports. Reference Section 01 22 00 - Unit Prices Form for additional Content. All non-utilized Allowance funds shall be reimbursed to Owner via Architect's Project Change Order.

C. **Allowance for Existing Project Site Paving, Ground Improvement System per Geotechnical Engineer:** Total Dollar Amount, previously included within Submitted Bid Package and based solely upon Allowance for entire amount of cubic yards required **to completely remediate all Existing Project Site Paving**. This Work shall be performed in conjunction with all recommendations for Scope of Work required via Geotechnical Report, attached to Specifications Section 00 31 00 - Available Project Information. This Allowance shall be based solely upon Contractor's previously received Unit Pricing data as it relates to the removal and disposal of all unsatisfactory soils and imports. Placement and compaction of previously approved Geotechnical Engineered Soils and imports. Reference Section 01 22 00 - Unit Prices Form for additional Content. All non-utilized Allowance funds shall be reimbursed to Owner via Architect's Project Change Order.

D. **Allowance for Inspections and Testing:** Contractor shall include Sum of **$50,000.00 dollars** within their Bid Package, for those Payments relating to Independent Firm's Inspections and Testing as required, this particular Project Site. This Work shall be performed in full conjunction with all recommendations, Scope of Work required via Geotechnical Report, attached, this Section. Reference Section 00 41 01 - Supplemental Bid Information for additional Content. All non-utilized Allowance funds shall be reimbursed to Owner via Architect's Project Change Order.

E. **Allowance for Vehicular Traffic Light Structure:** Contractor shall include Sum of **$85,000.00 dollars** within their Bid Package, for those Payments relating to entire Scope of Work, as required to provide, install Vehicular Traffic Light Structure. All non-utilized Allowance funds shall be reimbursed to Owner via Architect's Project Change Order.

F. **Allowance for Unforeseen Existing Conditions:** Contractor shall include Sum of **$100,000.00 dollars** within their Bid Package, for those Payments relating to previously Unforeseen Existing Conditions, that were not anticipated. All non-utilized Allowance funds shall be reimbursed to Owner via Architect's Project Change Order.

PART 2 PRODUCTS - "NOT APPLICABLE, THIS PARTICULAR PROJECT"

PART 3 EXECUTION - "NOT APPLICABLE, THIS PARTICULAR PROJECT"

END OF SECTION

SECTION 01 23 00
ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Description of Alternates.

B. Procedures for pricing Alternates.

C. Documentation of changes to Contract Sum and Contract Time.

1.02 RELATED REQUIREMENTS

A. Document 00 21 13 - Instructions to Bidders: Instructions for preparation of pricing for Alternates.

B. Document 00 52 00 - Agreement Form: Incorporating monetary value of accepted Alternates.

1.03 DEFINITIONS

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

1. Alternates described in this Section shall form part of the Work, only if enumerated within said Agreement.
2. The cost or credit of each Alternate is the net addition to or deduction from the Contract Sum, as required to incorporate said Alternate into Work. No other adjustments shall be made to the Contract Sum.

1.04 PROCEDURES

A. Coordination: Revise, adjust, coordinate any and all affected General Construction, Architectural, Structural, Fire Protection, Plumbing, Heating, Ventilating and Air Conditioning, Air Distribution, Building Automation Systems, Electrical, Communications, Electronic Safety and Security, Earthwork, Exterior Improvements and Utilities Scopes of Work, required to completely integrate said Work of Alternates into this particular Project.

1. Include as part of each Alternate, miscellaneous devices, accessory objects and all similar items incidental to, or required for, a complete installation, whether or not indicated as part of said Alternate.
2. Pricing for each alternate is to result in and provide a complete installation which is usable to the Owner for its intended purpose.

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

C. Execute accepted Alternates under same conditions as all other Work of Contract.

D. Unless otherwise directed, complete all Work described within Alternates, with no increase in Subcontract Time.

E. This section includes non-technical descriptions of Alternates. Reference specific sections of Specifications and Drawings for technical descriptions of Alternates.

F. Owner reserves right to award none, any one or more in any order, or all Alternates in combination with Work covered by Base Bid.

G. Owner reserves right to determine low bid as Base Bid alone, or sum of Base Bid and any combination of Alternates.

H. Each Alternate shall include all Work required for a complete and finished Scope of Work.

I. Alternates are additive or deductive to the Base Bid. Provide costs in appropriate spaces delineated within Bid Form.

J. Submit Bids for Base Bid and all Alternates listed within Bid Form. Failure to quote an amount, or insertion of the words "no bid," "none" or words with a similar meaning, shall be considered as not completing the proposal and may constitute disqualification of entire Bid, upon Owner's discretion. When there is no change in Base Bid, due to using an Alternate, insert the words "No Change". The words "No Change" shall be interpreted to mean that said Work described within the Alternate, shall be completed at no adjustment or change in cost to Base Bid.

K. Base Bid and Alternates are exclusive within their Scope of Work. There is no overlap between or among Base Bid and Alternates. The cost of any item of Work shall be included only once, within Base Bid or Alternates.

L. Schedule: A schedule of Alternates is included at the end of this Section. Specification Sections referenced within schedule contain requirements for materials necessary to achieve said Work delineated within each Alternate.

1.05 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.06 DEFINITIONS

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

1. 1. Alternates described in this Section shall form part of the Work, only if enumerated within said Agreement.
2. 2. The cost or credit of each Alternate is the net addition to or deduction from the Contract Sum, as required to incorporate said Alternate into Work. No other adjustments shall be made to the Contract Sum.

1.07 SCHEDULE OF ALTERNATES

A. Pricing for each base bid and alternate is to result in and provide a complete installation which is usable to the Owner for its intended purpose.

1. Drawing references below are provided for bidder convenience. These are not intended to be all-inclusive of all drawings and/or specifications that effect the scope of the bid or alternate bid item. Bidders must consider the entirety of the drawings and specifications of all design disciplines when calculation this pricing.

B. Alternate No. One - Builder's Risk Insurance:

1. Base Bid Item: No Builder's Risk Insurance is provided by the Bidder.
2. Alternate Item: Provide Builder's Risk Insurance for the Work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 04 42 00
EXTERIOR STONE CLADDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior Stone Cladding.

1.02 RELATED REQUIREMENTS

A. Section 07 62 00 - Sheet Metal Flashing and Trim.

B. Section 07 92 00 - Joint Sealants.

1.03 REFERENCE STANDARDS; "USE CURRENT EDITION, ONLY"

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

C. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

D. ASTM A480/A480M - Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.

E. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

F. ASTM C119 - Standard Terminology Relating to Dimension Stone.

G. ASTM C270 - Standard Specification for Mortar for Unit Masonry.

H. ASTM C503/C503M - Standard Specification for Marble Dimension Stone.

I. ASTM C568/C568M - Standard Specification for Limestone Dimension Stone.

J. ASTM C615/C615M - Standard Specification for Granite Dimension Stone.

K. ASTM C616/C616M - Standard Specification for Quartz-Based Dimension Stone.

L. ASTM C629/C629M - Standard Specification for Slate Dimension Stone.

M. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.

N. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants.

O. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.

P. ASTM C1526 - Standard Specification for Serpentine Dimension Stone.

Q. ASTM C1527/C1527M - Standard Specification for Travertine Dimension Stone.

R. ASTM C1528/C1528M - Standard Guide for Selection of Dimension Stone.

S. ILI (HB) - Indiana Limestone Handbook.

T. NBGQA (SPEC) - Specifications for Architectural Granite.

U. NSI (DSDM) - Dimensional Stone Design Manual.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene (21) Twenty One calendar days prior to commencing any Work, this Section.

1.05 SUBMITTALS

A. Reference Section 01 30 00 - Administrative Requirements for additional Content.

B. Product Data: Provide thoroughly detailed Product Data, particular to this Project.

C. Shop Drawings: Provide thoroughly detailed Shop Drawing Submittal, particular to this Project, including plan, elevations, sections, details, all pertinent dimensions, anchorges and jointing methods.

D. Product Samples: Submit (2) Two Product Samples, Manufacturer's standard size, as required to accurately represent construction, accessories, color, finish and sheen.

E. Installation Instructions: Submit stone fabricator's written installation instructions, field erection, setting drawings; indicate all identifying marks, locations on setting drawings.

F. Designer's Qualification Statement.

G. Stone Fabricator's Qualification Statement.

H. Installer's Qualification Statement.

I. NSI Installer Qualification: Documentation of Natural Stone Institute Accreditation.

J. Thoroughly detailed Warranty Documentation for Materials and Installation. Ensure all forms have been completed in Owner's name and registered with installer.

1.06 QUALITY ASSURANCE

A. Design all anchors, supports under direct supervision of Professional Structural Engineer, registered within State in which the Project is located.
   1. Design all anchors, as required to resist positive, negative wind pressures and all other loads as required by applicable codes.
   2. Design anchor attachment to stone with a factor of safety of 5:1.
   3. Design each individual anchor with a factor of safety in the vertical dead-load-bearing direction of 4:1 and in the horizontal lateral-load-bearing direction of 2:1.

B. Perform all Work in full accordance with ILI Indiana Limestone Handbook.

C. Perform all Work in full accordance with NBGQA (SPEC).

D. Perform all Work in full accordance with NSI (DSDM).

E. Maintain (1) one copy, each, upon Existing Project Site.

F. Stone Fabricator: Company specializing in fabricating cut stone, minimum (15) Fifteen Years documented experience.

G. Installer Qualifications: Company specializing in performing Work, Section, minumum (10) Ten Years documented experience.

1.07 MOCK UP

A. Construct stone wall mock up, (8) Eight Feet Wide x (4) Four Feet Tall, including all necessary flashings, anchorage accessories.

B. Reference Section 01 40 00 - Quality Requirements for additional Content.

C. Locate as directed by Architect.

D. **Mock up structure may not remain as portion of permanent Work, this particular Project.**

1.08 DELIVERY, STORAGE, HANDLING

A. Store all stone panels vertically on edge, resting weight on panel edge.

1.09 FIELD CONDITIONS

A. During temporary storage upon Existing Project Site, at end of working day and during any rainy weather, cover all stone Work exposed to weather with non-staining waterproof coverings, securely anchored.

PART 2 PRODUCTS

2.01 STONE

A. Stone, General: Reference those recommendations; ASTM C1528/C1528M.

B. Limestone:
   1. Grade: ILI Standard.
   2. Color: As selected by Architect from Manufacturer's full range of options.
   3. Grain Direction: As directed by Architect.
   4. Surface Finish: As delineated within Contract Documents.
   5. Acceptable Producers: “Basis of Design; Semco Stone.
      a. Alabama Stone Co.: www.alabamastone.com.
      b. Continental Cut Stone, Inc.: www.continentalcutstone.com.
      c. Indiana Limestone Company: www.indianalimestonecompany.com.
      d. Substitutions: Reference Section 01 60 00 - Product Requirements for additional Content.

C. Granite:
   1. Grade: As delineated within Contract Documents.
   2. Color: As selected by Architect from Manufacturer's full range of options.
   3. Surface Finish: As delineated within Contract Documents.
   4. Nominal Thickness: As delineated within Contract Documents.
   5. Acceptable Producers:
      a. Cold Spring Granite Company: www.coldspringusa.com.
      b. North Carolina Granite Corporation: www.ncgranite.com.
      c. Polycor Natural Stone: www.polycor.com.
      d. Substitutions: Reference Section 01 60 00 - Product Requirements for additional Content.

2.02 MORTAR

A. Mortar: ASTM C270, Type N.

2.03 ANCHORS, ACCESSORIES

A. Anchors and Other Components in Contact with Stone: Stainless steel, ASTM A666 Type 304.
   1. Sizes and configurations: As required for vertical and horizontal support of stone and all applicable loads.

B. Bond Breaker: 10 mil (0.25 mm) thick plastic sheet.

C. Joint Sealant: ASTM C920 silicone sealant with movement capability of at least plus/minus 25 percent and non-staining to stone when tested in accordance with ASTM C1248.

D. Joint Backer Rod: ASTM C1330 open cell polyurethane of size 40 to 50 percent larger in diameter than joint width.

E. Back Coating: Cementitious parging of mortar to minimum thickness as directed by Manufacturer.

F. Cleaning Solution: Type that will not harm stone, joint materials, or adjacent surfaces.

2.04 STONE FABRICATION

A. Thickness: As delineated within Contract Documents,.

B. Panel Size: As delineated within Contract Documents.

C. Fabrication Tolerances: In full accordance with NBGQA (SPEC).

D. Fabricate units for uniform coloration between adjacent units and over the full area of the installation.

E. Where corner detail is not indicated, form external corners to quirk joint profile.

F. Slope exposed top surfaces of stone and horizontal sill surfaces for natural wash.

G. Cut drip slot in bottom surface of work projecting more than 1/2 inch over wall openings. Size slot not less than 3/8 inch wide and 1/4 inch deep; full width of projection.

PART 3 EXECUTION

3.01 EXAMINATION

A. All verify support Work and Existing Project Site conditions are ready to receive Work, this Section.

B. Confirm all items built in, under all other Sections, are properly located and sized.

3.02 PREPARATION

A. Thoroughly clean all stone prior to erection. **Do not use** wire brushes or implements that will mark or damage exposed surfaces.

B. Coat all back surfaces with back coating. Allow coating to fully cure.

3.03 INSTALLATION

A. Erect all Work, this Section, in full accordance with stone supplier's written instructions, erection drawings.

B. Set all stone with consistent joint width, as directed by Architect.

C. Install all anchors, place all setting buttons, as required to adequately support stone, establish joint dimensions.

D. Install weep cavity vents within vertical stone joints, per Manufacturer's written instructions, do not permit any mortar accumulation within cavity space.

E. Joints within Exterior Work: Seal all joints with joint sealant over backer rod, following sealant Manufacturer's instructions; tool sealant surface to concave profile.

F. Joints within Interior Work: Leave perimeter joints and expansion joints open for sealant; fill all other joints with pointing mortar; pack and work into voids; tool surface to concave joint.

3.04 TOLERANCES

A. Positioning of Elements: Maximum 1/4 inch from true position.

B. Maximum Variation from Plane of Wall: 1/4 inch in 10 feet; 1/2 inch in 50 feet.

C. Maximum Variation Between Face Plane of Adjacent Panels: 1/16 inch.

D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in any two stories.

E. Maximum Variation from Level Coursing: 1/8 inch in 3 feet; 1/4 inch in 10 feet; 1/2 inch maximum.

F. Maximum Variation of Joint Thickness: 1/8 inch in 3 feet.

3.05 CUTTING, FITTING

A. Obtain Architect's approval prior to cutting or fitting any item not so indicated within Contract Documents.

B. Do not impair appearance or strength of stone work by cutting.

3.06 CLEANING, PROTECTION

A. **Thoroughly clean all Work, this Section.**

B. **Protect all Work, this Section, from Damage.**

C. **Replace all Damaged Work, this Section, immediately.**

END OF SECTION

SECTION 06 10 53
MISCELLANEOUS ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roof mounted curbs.
B. Roofing nailers.
C. Roofing cant strips.
D. Preservative treated wood materials.
E. Fire retardant treated wood materials.
F. Communications and electrical room mounting boards.
G. Concealed wood blocking, nailers, and supports.
H. Miscellaneous wood nailers, furring and grounds.

1.02 RELATED REQUIREMENTS

A. Section 00 30 00 - Cast in Place Concrete.
B. Section 06 16 00 - Sheathing
C. Section 09 21 16 - Gypsum Board Assemblies.

1.03 REFERENCE STANDARDS; " USE CURRENT EDITION, ONLY"...

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.
C. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing; 2003 (Reapproved 2026).
D. ASTM D2898 - Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing; 2010 (Reapproved 2024).
E. ASTM D3498 - Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing; 2019a.
F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2025.
G. ASTM E518/E518M - Standard Test Methods for Flexural Bond Strength of Masonry; 2022.
H. AWPA U1 - Use Category System: User Specification for Treated Wood; 2025.
I. PS 1 - Structural Plywood; 2023.
J. PS 20 - American Softwood Lumber Standard; 2025.
K. RIS (GR) - Standard Specifications for Grades of California Redwood Lumber; 2019.
L. SPIB (GR) - Standard Grading Rules; 2021.
M. WCLIB (GR) - WCLB Standard Grading Rules for West Coast & Imported Softwood Lumber No.18; 2024.
N. WWPA G-5 - Western Lumber Grading Rules; 2025.

1.04 SUBMITTALS

A. Reference Section 01 30 00 - Administrative Requirements for additional Content.
B. Product Data: Provide technical data on wood preservative materials and application instructions.

C. Warranty Documentation: Submit Manufacturer warranty and ensure that forms have been completed in Owner's name and registered with Manufacturer.

1.05 DELIVERY, STORAGE, HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

1.06 WARRANTY

A. Reference Section 01 78 00 - Closeout Submittals for additional Content.

B. Correct all defective Work, immediately.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Douglas Fir-Larch, Western Woods, and Southern Pine, unless otherwise indicated.
   2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
   3. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.02 DIMENSION LUMBER, CONCEALED APPLICATIONS

A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).

B. Grading Agency: West Coast Lumber Inspection Bureau; WCLIB (GR).

C. Grading Agency: Western Wood Products Association; WWPA G-5.

D. Sizes: Nominal sizes as indicated on drawings, S4S.

E. Moisture Content: S-dry or MC19.

F. Stud Framing for sizes 2 by 2 through 2 by 6:
   1. Grade: No.2.

G. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No.2 or Standard Grade.
   2. Boards: Standard or No.3.

H. Parapet Caps: 1-1/2 inch thick, laminated strand lumber.
   1. Comply with AWPA U1 use category 2.
   2. R-Value: 1.86 when tested in accordance with ASTM E518/E518M.
   3. Products:
      a. Prebuck, LLC; Parapet Cap: www.tremcosealants.com/#sle.
      b. Substitutions: Reference Section 01 60 00 - Product Requirements for additional Content.

2.03 CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: PS 1, A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

B. Other Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.

3. Other Locations: PS 1, C-D Plugged or better.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Anchors: Toggle bolt type for anchorage to hollow masonry.

B. Die Stamped Connectors: Hot dipped galvanized steel, sized to suit framing conditions.
   1. For contact with preservative treated wood in exposed locations, provide minimum G185 galvanizing complying with ASTM A653/A653M.
   2. Manufacturers:
      a. Substitutions: Reference Section 01 60 00 - Product Requirements for additional Content.

C. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

D. Sill Flashing: Reference Drawings and Contract Documents for additional Content.

E. Construction Adhesives: Adhesives complying with ASTM C557 or ASTM D3498.

2.05 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   2. Preservative Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Fire Retardant Treatment:
   1. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Treat exterior rough carpentry items.
      c. Do not use treated wood in direct contact with ground.
   2. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature, low hygroscopic type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Interior rough carpentry items are to be fire retardant treated.
      c. Treat rough carpentry items as indicated.
      d. **Do not** use treated wood in applications exposed to weather or where the wood may become wet.

C. Preservative Treatment:
   1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber exposed to weather.

c. Treat lumber in contact with roofing, flashing, or waterproofing.
d. Treat lumber in contact with masonry or concrete.
e. Treat lumber less than 18 inches above grade.
f. Treat lumber in other locations as indicated.

2. Preservative Pressure Treatment of Plywood Above Grade: AWPA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative to 0.25 lb/cu ft retention.
   a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
   b. Treat plywood in contact with roofing, flashing, or waterproofing.
   c. Treat plywood in contact with masonry or concrete.
   d. Treat plywood less than 18 inches above grade.
   e. Treat plywood in other locations as indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.

B. Install sill gasket under sill plate bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION, GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 BLOCKING, NAILERS, SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

C. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

D. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

E. Where ceiling mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

F. Provide the following specific nonstructural framing and blocking:
   1. Cabinets and shelf supports.
   2. Wall brackets.
   3. Handrails.
   4. Grab bars.
   5. Towel and bath accessories.
   6. Wall-mounted door stops.
   7. Chalkboards and marker boards.
   8. Wall paneling and trim.
   9. Joints of rigid wall coverings that occur between studs.

3.04 ROOF RELATED, CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Provide wood curb at roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.

3.05 INSTALLATION, CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on edges and into studs in field of board.
   1. At all fire rated walls, install board over wall board indicated as part of the fire rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.
   4. Size and Location: As delineated within Contract Documents.

3.06 SITE APPLIED, WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment, all site sawn cuts, as required to fully comply with Manufacturer's written instructions.

B. Allow preservative to dry prior to erecting members.

3.07 CLEANING, PROTECTION

A. Waste Disposal: Construction Waste Management, Disposal, Reference Contract Documnets and those requirements set forth by all Local Authorities having Jurisdiction for additional Content.
   1. Fully comply, all applicaple regulations.
   2. **Do not burn any materials, within Existing Project Site.**

B. **Do not leave any wood, shavings, sawdust upon Existing Project Site.**

C. **Prevent any sawdust or wood shavings from entering drainage systems.**

D. **Protect all Work, this Section, from Damage.**

E. **Replace all Damaged Work, this Section, immediately.**

END OF SECTION

This page intentionally left blank

SECTION 087101 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Electromechanical door hardware.
3. Cylinders specified for doors in other sections.

C. Related Sections:

1. Division 01 Section "General Conditions".
2. Division 06 Section "Rough Carpentry".
3. Division 06 Section "Finish Carpentry".
4. Division 08 Section "Operations and Maintenance".
5. Division 08 Section "Door Schedule".
6. Division 08 Section "Hollow Metal Doors and Frames".
7. Division 08 Section "Flush Wood Doors".
8. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
9. Division 26 Section "Electrical"
10. Division 28 Section "Integrated Access Control Hardware Devices".

D. Codes and References: Comply with the version adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:

    a. Type, style, function, size, label, hand, and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols, and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
    h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

    a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
    b. Complete (risers, point-to-point) access control system block wiring diagrams.
    c. Wiring instructions for each electronic component scheduled herein.

2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.4 CLOSEOUT SUBMITTALS

A. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

B. Project Record Documents: Provide record documentation of as-built door hardware sets in digital format (.pdf, .docx, .xlsx, .csv) and as required in Division 01, Project Record Documents.

1.5 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.6 DELIVERY, STORAGE AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

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

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.7 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.8 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 BUTT HINGES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

a. Two Hinges: For doors with heights up to 60 inches.
b. Three Hinges: For doors with heights 61 to 90 inches.
c. Four Hinges: For doors with heights 91 to 120 inches.
d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for all out-swinging lockable doors.

5. Manufacturers:

a. McKinney (MK) - TA/T4A Series, 5-knuckle.

2.2 CONTINUOUS HINGES

A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:.

a. Pemko (PE).

2.3 POWER TRANSFER DEVICES

A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

    a. Pemko (PE) - EL-CEPT Series.
    b. Securitron (SU) - EL-CEPT Series.

B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

1. Provide one each of the following tools as part of the base bid contract:

    a. McKinney (MK) - Electrical Connecting Kit: QC-R001.
    b. McKinney (MK) - Connector Hand Tool: QC-R003.

2. Manufacturers:

    a. McKinney (MK) - QC-C Series.

2.4 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.

1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
2. Furnish dust proof strikes for bottom bolts.
3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
5. Manufacturers:

    a. Rockwood (RO).

B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls shall be provided with a 10” clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets. When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
6. Manufacturers:

    a. Rockwood (RO).

2.5 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Manufacturer’s Standard.

C. Large Format Interchangeable Cores: Provide removable cores (LFIC) as specified, core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware.

D. Patented Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer’s United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting.

1. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.

2. Manufacturers:

a. Corbin Russwin (RU) - Access 3 AP.
b. Sargent (SA) - Degree DG1.

E. Keying System: Each type of lock and cylinders to be factory keyed.

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. New System: Key locks to a new key system as directed by the Owner.

F. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).
4. Construction Control Keys (where required): Two (2).
5. Permanent Control Keys (where required): Two (2).

G. Construction Keying: Provide construction master keyed cylinders.

H. Construction Keying: Provide temporary keyed construction cores.

I. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 MORTISE LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): Provide ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed mortise locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide locksets with functions and features as follows:

a. Heavy duty 12-gauge wrought steel case.
b. Stainless steel 3/4" one-piece anti-friction reversible latchbolt with a one-piece hardened stainless steel 1” projection deadbolt.
c. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
d. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
e. Meets UL Certification Directory ZHLL.R21744 for products used in windstorm rated assemblies.

f. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.13 requirements to 16 million cycles or greater.
g. Status indicators inside, outside, or on both sides of doors as specified; available with wording for “locked/unlocked”, “vacant/occupied” or custom wording options. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status.
h. Ten-year limited warranty for mechanical functions.

2. Manufacturers:

a. Corbin Russwin Hardware (RU) - ML2000 Series.
b. Sargent Manufacturing (SA) - 8200 Series.

2.1 INTEGRATED WIRED OUTPUT LOCKING DEVICES - MULTI-CLASS READER

A. Integrated Wired Output Multi-Class Mortise Locks: Wiegand or Open Supervised Device Protocol (OSDP) output ANSI A156.13, Grade 1, mortise lockset with integrated card reader with or without keypad option, request-to-exit signaling, door position status switch, and latchbolt monitoring in one complete unit. Hard wired, solenoid driven locking/unlocking control of the lever handle trim, 3/4" deadlocking anti-friction latch, and 1" case-hardened steel deadbolt. Lock is U.L listed and labeled for use on up to 3 hour fire rated openings. Available with or without keyed high security cylinder override.

1. Open architecture, hard wired platform supports centralized control of locking units with new or existing Wiegand or OSDP compatible access control systems. Latchbolt monitoring and door position switch act in conjunction to report door-in-frame (DPS) and door latched (door closed and latched) conditions.
2. Integrated reader supports the following credentials:

a. 125kHz proximity credentials: HID, AWID, Indala, and EM4102.
b. 13.56 MHz proximity credentials: HID Secure Identity Object™ (SIO) on iCLASS Seos, HID iCLASS, HID iCLASS SE/SR, MIFARE Classic, DESFire EV1 and EV2.
c. 2.4 GHz credentials: Secure Identity Object™ (SIO) on Mobile IDs (Bluetooth Smart)
d. ISO14443A/B (PIV-compatible Transparent FASC-N read) available with pivCLASS variant
e. NFC-enabled mobile phones
f. PIN code only or PIN + credential with keypad option.

3. 12VDC external power supply required for reader and lock, with optional 24VDC lock solenoid. Fail safe or fail secure options.
4. Energy Efficient Design: Provide lock bodies which have a holding current draw of 500mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
5. Support end-of-line resistors contained within the lock case.
6. Installation requires only one cable run from the lock to the access control panel without requirements for additional proprietary lock panel interface boards or modules.

7. Installation to include manufacturer's access control panel interface board or module where required for Wiegand or OSDP output protocol.
8. Manufacturers:

    a. Corbin Russwin (RU) - ML2000 SN Series.
    b. Sargent Manufacturing (SA) - SN200/SN210 8200 Series.

2.2 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.3 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. Exit devices shall have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide exit devices with functions and features as follows:

a. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
b. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
c. No catch points: addition of applied deflectors or other added components are not allowed.
d. No visible plastic.
e. Heavy duty end caps with flush and overlapping options made of stainless steel, brass, or bronze with architectural finishes.
f. Constructed of all stainless steel.
g. Stainless steel pullman type latch with deadlock feature.
h. Narrow or wide style exterior trim as specified in the hardware sets.
i. Center case adjustability on concealed vertical rod exit devices; single operation with hex key individually adjusts top or bottom latches. No retainer screws or clips required to maintain adjustment.
j. Ten-year limited warranty for mechanical features.

2. Electromechanical exit devices shall have the following functions and features:

a. Universal Molex plug-in connectors that have standardized color-coded wiring and are field configurable in fail safe or fail secure and operate from 12vdc to 24vdc regulated.
b. Wire routing for all non-access control electromechanical functions and EcoFlex trim to be contained within the carrier of the device eliminating the need for cavities in doors to be drilled. Include a protective film so that wires don't get damaged if the rail needs to be removed.
c. EcoFlex or equivalent technology that reduces energy consumption up to 92% as certified by GreenCircle.
d. Options to be available for request-to-exit or enter signaling, latchbolt and touchbar monitoring.

e. Field configurable electrified trim to fail-safe or fail-secure that operates from 12-24VDC.

3. Manufacturers:

a. Corbin Russwin Hardware (RU) - PED4000 / PED5000 Series.
b. Sargent Manufacturing (SA) - PE80 Series.

2.4 INTEGRATED WIRED OUTPUT EXIT DEVICES - MULTI-CLASS READER

A. Integrated Wired Output Multi-Class Exit Hardware: Wiegand output ANSI 156.3 Grade 1 rim, mortise, and vertical rod exit device hardware with integrated card reader with or without keypad option, latchbolt and touchbar monitoring, and request-to-exit signaling, in one complete unit. Hard wired, solenoid driven locking/unlocking control of the lever handle exit trim with 3/4" throw latch bolt. U.L listed and labeled for either panic or "fire exit hardware" for use on up to 3 hour fire rated openings. Available with or without keyed high security cylinder override.

1. Open architecture, hard wired platform supports centralized control of locking units with new or existing Wiegand or OSDP compatible access control systems. Inside push bar (request-to-exit) signaling and door position (open/closed status) monitoring (via separately connected DPS).
2. Integrated reader supports the following credentials:

a. 125kHz proximity credentials: HID, AWID, Indala, and EM4102.
b. 13.56 MHz proximity credentials: HID Secure Identity Object™ (SIO) on iCLASS Seos, HID iCLASS, HID iCLASS SE/SR, MIFARE Classic, DESFire EV1 and EV2.
c. 2.4 GHz credentials: Secure Identity Object™ (SIO) on Mobile IDs (Bluetooth Smart)
d. ISO14443A/B (PIV-compatible Transparent FASC-N read) available with pivCLASS variant
e. NFC-enabled mobile phones
f. PIN code only or PIN + credential with keypad option

3. 12VDC external power supply required for reader. 24VDC required for solenoid operated exit trim. Fail safe or fail secure options.
4. Installation requires only one cable run from the exit hardware to the access control panel without requirements for additional proprietary lock panel interface boards or modules.
5. Competitor Alternates Allowed Option: Installation to include manufacturer's access control panel interface board or module where required for Wiegand or OSDP output protocol.
6. Manufacturers:

a. Corbin Russwin (RU) - ED5000 SN Series.
b. Sargent Manufacturing (SA) - SN200/SN210 80 Series.

2.5 SURFACE DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Heavy duty surface mounted door closers shall have a 30-year warranty.

2. Manufacturers:

a. Corbin Russwin Hardware (RU) - DC6000 Series.
b. Norton Rixson (NO) - 7500 Series.
c. Sargent Manufacturing (SA) - 351 Series.

2.6 ARCHITECTURAL TRIM AND ACCESSORIES

A. Door, Frame and Wall Protective Trim: ANSI/BHMA A156.6, protective products as specified in the hardware sets. Door protection plates shall be not more than 2" less than door width on stop side and 1” less door width on the pull side or on stop side of pairs of doors. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide protective trim with functions and features as follows:

a. Meets ADA requirements for smooth bottom door surfaces.
b. UL Classified options for use on fire-rated doors up to 3 hours.
c. Fabricated from stainless steel, brass, bronze, aluminum, or high-impact plastic.

d. Available in a variety of sizes, finishes, and profiles to suit aesthetic and functional requirements.
e. Designed to protect doors, frames, and adjacent walls from damage due to impact, abrasion, or traffic.
f. Fasteners included; adhesive-backed options available for select models.
g. Ten-year limited warranty.

2. Manufacturers:

a. Rockwood (RO).

2.7 DOOR STOPS AND HOLDERS

A. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

a. Rockwood (RO).

B. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:

a. Norton Rixson (NO).
b. Rockwood (RO).
c. Sargent Manufacturing (SA).

2.8 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

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

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

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

F. Manufacturers:

1. Pemko (PE).

2.9 ELECTRONIC ACCESSORIES

A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.

1. Manufacturers:

a. Alarm Controls (AK) - CP1-1026 Series.
b. Securitron (SU) - DPS Series.

B. Switching Power Supplies: Provide the least number of power supplies at the appropriate amperage level sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.

1. Power supplies shall meet all functions and features as specified herein.

a. UL listed dual voltage 12 or 24 VDC field selectable continuous output.
b. Tolerates brownout or overvoltage input ± 15% of nominal voltage.
c. Thermal shutdown protection with auto restart.
d. Circuit breaker protection against overcurrent and reverse battery faults.
e. Integrated battery charging circuit to prevent overvoltage on locking devices.
f. Available with a single relay fire trigger or individually triggered relayed outputs.
g. Monitoring options as specified.

2. Manufacturers:

a. Securitron (SU) - AQD Series.

2.10 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.11 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

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

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

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

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

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Integrated Wiegand access control products are required to be installed through current members of the ASSA ABLOY "Certified Integrator" (CI) program.

D. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

E. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.

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

G. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing and sizing all products.
3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.

B. Manufacturer’s Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. SU - Securitron
4. RO - Rockwood
5. SA - SARGENT
6. NO - Norton Rixson
7. OT - Other

Hardware Sets

Set: 1.0

Doors: 100, 104, 109

1	Continuous Hinge	CFM_SLF-HD1 PT x Length Required		PE	087100
1	Electric Power Transfer	EL-CEPT	630	SU	087100
1	Narrow Rim Exit Device w/Pull (NL, RX, ELR, Cyl. Dogging)	DG164 16 55 56 PE8504 863	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Closer	351 CPS (HD Cush STP Arm)	EN	SA	087100
1	Drop Plate	351D (as required)	EN	SA	087100
1	Blade Stop Spacer Kit	581-1 or 2 (as required)	EN	SA	087100
1	Rain Guard	346C x Width of Frame Head		PE	087100
1	Gasketing	Provided By Door/Frame Supplier		OT	
1	Sweep	3452CNB x Length Required		PE	087100
1	Threshold	273x224AFGT MSES25SS x Length Required		PE	087100
1	Card Reader/Keypad	Provided by Security Supplier			
1	ElectroLynx Harness (Door)	QC-Cxxx (Size as Required)		MK	087100
1	ElectroLynx Harness (Frame)	QC-C3000P		MK	087100
1	Position Switch	DPS-MW-BK/GY/WH (as required)		SU	087100
1	Power Supply	AQD (Size and Options as required)		SU	087100
1	Wiring Diagram	Elevation and Point to Point as Specified		OT	

Notes: Perimeter gasket by door / frame manufacturer.

Operation:
• Door is normally closed and latched. Exit Device has Night Latch Function, Key retracts latch, door is locked when key is removed)
• Access by valid credential presentation, releasing the exit latch to allow authorized entry and then relocking.
• Manual egress is always available by pressing the exit device push bar. Request to exit switch in the exit device push bar will signal an authorized egress to that access control system.
• Door position switch will signal the doors OPEN/CLOSED status to the access control panel.
• The exit device is fail secure and will remain latched on activation of fire alarm or in the absence of power.

Set: 2.0

Doors: 119B, 119C, 125

3	Hinge, Full Mortise, Hvy Wt	T4A3386 (NRP and Size as required)	US32D	MK	087100
1	Electric Power Transfer	EL-CEPT	630	SU	087100
1	Rim Exit Device (EL Trim-Fail Sec., RX, Cyl. Dogging)	DG164 16 55 8876-24v ETL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Closer	351 UO (RA, TJ or PA Mount as Required)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Exterior Door Stop	467-RKW	Black	RO	087100
1	Perimeter Gasketing	303AS (Head & Jambs)		PE	087100
1	Rain Guard	346C x Width of Frame Head		PE	087100
1	Sweep	3452CNB x Length Required		PE	087100
1	Threshold	273x224AFGT MSES25SS x Length Required		PE	087100
1	Card Reader/Keypad	Provided by Security Supplier			
1	ElectroLynx Harness (Door)	QC-Cxxx (Size as Required)		MK	087100
1	ElectroLynx Harness (Frame)	QC-C3000P		MK	087100
1	Position Switch	DPS-MW-BK/GY/WH (as required)		SU	087100
1	Power Supply	AQD (Size and Options as required)		SU	087100
1	Wiring Diagram	Elevation and Point to Point as Specified		OT	

Notes: Operation:
• Door is normally closed and latched. (Exit Trim is Storeroom Function, Key retracts latch, door is locked when key is removed)
• Access by valid credential presentation, releasing the exit trim lever to allow authorized entry and then relocking.
• Manual egress is always available by pressing exit device push bar. Request to exit switch integrated in the exit device will signal an authorized egress to that access control system.
• Door position switch will signal the doors OPEN/CLOSED status to the access control panel.
• The electrified exit trim is fail secure and will remain locked on activation of fire alarm or in the absence of power.

Set: 3.0

Doors: 129A, 130A

3	Hinge, Full Mortise, Hvy Wt	T4A3386 (NRP and Size as required)	US32D	MK	087100
1	Electric Power Transfer	EL-CEPT	630	SU	087100

1	Rim Exit Device (EL Trim-Fail Sec., RX, Cyl. Dogging)	DG164 16 55 8876-24v ETL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Closer	351 UO (RA, TJ or PA Mount as Required)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Wall or Floor Stop (as Required)	403 (or) 441CU (As Required)	US26D	RO	087100
1	Perimeter Gasketing	S88BL (Head and Jambs)		PE	087100
1	Card Reader/Keypad	Provided by Security Supplier			
1	ElectroLynx Harness (Door)	QC-Cxxx (Size as Required)		MK	087100
1	ElectroLynx Harness (Frame)	QC-C3000P		MK	087100
1	Position Switch	DPS-MW-BK/GY/WH (as required)		SU	087100
1	Power Supply	AQD (Size and Options as required)		SU	087100
1	Wiring Diagram	Elevation and Point to Point as Specified		OT	

Notes: Operation:
• Door is normally closed and locked. Exit Trim is Storeroom Function, (Key retracts latch, door is locked when key is removed)
• Access by valid credential presentation, releasing the exit trim lever to allow authorized entry and then relocking.
• Manual egress is always available by pressing the exit device push bar. Request to exit switch integrated in the exit device will signal an authorized egress to the access control system.
• Door position switch will signal the doors OPEN/CLOSED status to the access control panel.
• The exit trim is fail secure and will remain locked on activation of fire alarm or in the absence of power.

Set: 4.0

Doors: 129B, 130B

3	Hinge, Full Mortise, Hvy Wt	T4A3386 (NRP and Size as required)	US32D	MK	087100
1	Fire Rated Rim Exit Device (PASS)	12 PE8815 WEL	US32D	SA	087100
1	Surface Closer	351 CPS (HD Cush STP Arm)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Perimeter Gasketing	303AS (Head & Jambs)		PE	087100
1	Perimeter Gasketing	S88BL (Head and Jambs)		PE	087100
1	Sweep	3452CNB x Length Required		PE	087100
1	Threshold	273x224AFGT MSES25SS x Length Required		PE	087100

Set: 5.0

Doors: 105A

3	Hinge, Full Mortise, Hvy Wt	T4A3786 (NRP and size as required)	US26D	MK	087100
1	Office/Entry Lock	DG164 8205 LNL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Wall or Floor Stop (as Required)	403 (or) 441CU (As Required)	US26D	RO	087100
1	Silencer	608		RO	087100

Set: 6.0

Doors: 121

3	Hinge, Full Mortise, Hvy Wt	T4A3786 (NRP and size as required)	US26D	MK	087100
1	Electric Power Transfer	EL-CEPT	630	SU	087100
1	Electrified Mortise Lock (Fail Sec., RX, LX)	DG164 NAC-82271-24v LNL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Closer	351 CPS (HD Cush STP Arm)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
3	Silencer	608		RO	087100
1	ElectroLynx Harness (Door)	QC-Cxxx (Size as Required)		MK	087100
1	ElectroLynx Harness (Frame)	QC-C3000P		MK	087100
1	Power Supply	AQD (Size and Options as required)		SU	087100
1	Wiring Diagram	Elevation and Point to Point as Specified		OT	

Notes: Operation:
• Door is normally closed and locked. Lockset is Storeroom Function, (Key retracts latch, door is locked when key is removed)
• Access by valid credential presentation, releasing the lockset lever to allow authorized entry and then relocking.
• Manual egress is always available by turning the interior lockset lever. Request to exit switch integrated in the lockset will signal an authorized egress to that access control system.
• Door position switch will signal the doors OPEN/CLOSED status to the access control panel.
• The electrified lockset is fail secure and will remain locked on activation of fire alarm or in the absence of power.

Set: 7.0

Doors: 105B

3	Hinge, Full Mortise, Hvy Wt	T4A3386 (NRP and Size as required)	US32D	MK	087100
1	Office/Entry Lock	DG164 8205 LNL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Overhead Holder/Stop	9-X36 (Size as Required)	630	NO	087100
1	Surface Closer	351 OZ (Top Jamb Mount)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Perimeter Gasketing	303AS (Head & Jambs)		PE	087100
1	Sweep	3452CNB x Length Required		PE	087100
1	Threshold	273x224AFGT MSES25SS x Length Required		PE	087100

Set: 7.1

Doors: 102

3	Hinge, Full Mortise, Hvy Wt	T4A3786 (NRP and size as required)	US26D	MK	087100
1	Electric Power Transfer	EL-CEPT	630	SU	087100
1	Electrified Mortise Lock (Fail Sec., RX, LX)	DG164 NAC-82271-24v LNL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Closer	351 UO (RA, TJ or PA Mount as Required)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Perimeter Gasketing	S88BL (Head and Jambs)		PE	087100
1	Card Reader/Keypad	Provided by Security Supplier			
1	ElectroLynx Harness (Door)	QC-Cxxx (Size as Required)		MK	087100
1	ElectroLynx Harness (Frame)	QC-C3000P		MK	087100
1	Position Switch	DPS-MW-BK/GY/WH (as required)		SU	087100
1	Power Supply	AQD (Size and Options as required)		SU	087100
1	Wiring Diagram	Elevation and Point to Point as Specified		OT	

Notes: Operation:
• Door is normally closed and locked. Lockset is Storeroom Function, (Key retracts latch, door is locked when key is removed)
• Access by valid credential presentation at card reader, releasing the lockset lever to allow authorized entry and then relocking.

• Manual egress is always available by turning the interior lockset lever. Request to exit switch integrated in the lockset will signal an authorized egress to that access control system.
• Door position switch will signal the doors OPEN/CLOSED status to the access control panel.
• The electrified lockset is fail secure and will remain locked on activation of fire alarm or in the absence of power.

Set: 8.0

Doors: 106

3	Hinge, Full Mortise	TA2714 (NRP and size as required)	US26D	MK	087100
1	Storeroom/Closet Lock	DG164 8204 LNL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Closer	351 CPS (HD Cush STP Arm)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
3	Silencer	608		RO	087100

Set: 9.0

Doors: 115, 120, 122

3	Hinge, Full Mortise, Hvy Wt	T4A3386 (NRP and Size as required)	US32D	MK	087100
1	Electric Power Transfer	EL-CEPT	630	SU	087100
1	Electrified Mortise Lock (Fail Sec., RX, LX)	DG164 NAC-82271-24v LNL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Overhead Holder/Stop	9-X36 (Size as Required)	630	NO	087100
1	Surface Closer	351 OZ (Top Jamb Mount)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Perimeter Gasketing	S88BL (Head and Jambs)		PE	087100
1	Card Reader/Keypad	Provided by Security Supplier			
1	ElectroLynx Harness (Door)	QC-Cxxx (Size as Required)		MK	087100
1	ElectroLynx Harness (Frame)	QC-C3000P		MK	087100
1	Position Switch	DPS-MW-BK/GY/WH (as required)		SU	087100
1	Power Supply	AQD (Size and Options as required)		SU	087100
1	Wiring Diagram	Elevation and Point to Point as Specified		OT	

Notes: Operation:
• Door is normally closed and locked. Lockset is Storeroom Function, (Key retracts latch, door is locked when key is removed)
• Access by valid credential presentation at card reader, releasing the lockset lever to allow authorized

entry and then relocking.
• Manual egress is always available by turning the interior lockset lever. Request to exit switch integrated in the lockset will signal an authorized egress to that access control system.
• Door position switch will signal the doors OPEN/CLOSED status to the access control panel.

Set: 10.0

NOT USED

3	Hinge, Full Mortise, Hvy Wt	T4A3786 (NRP and size as required)	US26D	MK	087100
1	Classroom Lock	DG164 8237 LNL	US32D	SA	087100
1	LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1	Surface Overhead Holder/Stop	9-X36 (Size as Required)	630	NO	087100
1	Surface Closer	351 OZ (Top Jamb Mount)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Perimeter Gasketing	S88BL (Head and Jambs)		PE	087100

Set: 11.0

Doors: 123

3	Hinge, Full Mortise	TA2714 (NRP and size as required)	US26D	MK	087100
1	Privacy Lock w/OCC IND	V21 8265 LNL	US32D	SA	087100
1	Surf Overhead Stop	10-X36 (Size as Required)	630	NO	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Silencer	608		RO	087100
1	Coat Hook	RM801	US26D	RO	087100

Set: 12.0

Doors: 107

3	Hinge, Full Mortise	TA2714 (NRP and size as required)	US26D	MK	087100
1	Privacy Lock w/OCC IND	V21 8265 LNL	US32D	SA	087100
1	Surface Closer	351 UO (RA, TJ or PA Mount as Required)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Wall or Floor Stop (as Required)	403 (or) 441CU (As Required)	US26D	RO	087100
3	Silencer	608		RO	087100
1	Coat Hook	RM801	US26D	RO	087100

Set: 13.0

Doors: 110, 111, 114, 116, 117, 118

3	Hinge, Full Mortise, Hvy Wt	T4A3786 (NRP and size as required)	US26D	MK	087100
1	Privacy Lock w/OCC IND	V21 8265 LNL	US32D	SA	087100
1	Surface Closer	351 UO (RA, TJ or PA Mount as Required)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Wall or Floor Stop (as Required)	403 (or) 441CU (As Required)	US26D	RO	087100
1	Perimeter Gasketing	S88BL (Head and Jambs)		PE	087100
1	Coat Hook	RM801	US26D	RO	087100

Set: 14.0

Doors: 112, 113, 115A

3	Hinge, Full Mortise, Hvy Wt	T4A3786 (NRP and size as required)	US26D	MK	087100
1	Privacy Lock w/OCC IND	V21 8265 LNL	US32D	SA	087100
1	Surface Overhead Holder/Stop	9-X36 (Size as Required)	630	NO	087100
1	Surface Closer	351 OZ (Top Jamb Mount)	EN	SA	087100
1	Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1	Perimeter Gasketing	S88BL (Head and Jambs)		PE	087100
1	Coat Hook	RM801	US26D	RO	087100

Set: 15.0

Doors: 127

6	Hinge, Full Mortise	TA2714 (NRP and size as required)	US26D	MK	087100
1	Self Latching Flush Bolt Set	2845 / 2945 (as required)	US26D	RO	087100
1	Dust Proof Strike	570	US26D	RO	087100
1	Passage Latch	8215 LNL	US32D	SA	087100
2	Surf Overhead Stop	10-X36 (Size as Required)	630	NO	087100
2	Silencer	608		RO	087100

Set: 16.0

Doors: 103, 108, 124

3	Hinge, Full Mortise	TA2714 (NRP and size as required)	US26D	MK	087100
1	Passage Latch	8215 LNL	US32D	SA	087100
1	Wall or Floor Stop (as Required)	403 (or) 441CU (As Required)	US26D	RO	087100
1	Silencer	608		RO	087100

Set: 17.0

Doors: 101

3 Hinge, Full Mortise	TA2714 (NRP and size as required)	US26D	MK	087100
1 Passage Latch	8215 LNL	US32D	SA	087100
1 Surf Overhead Stop	10-X36 (Size as Required)	630	NO	087100
3 Silencer	608		RO	087100

Set: 18.0

NOT USED

3 Hinge, Full Mortise, Hvy Wt	T4A3786 (NRP and size as required)	US26D	MK	087100
1 Passage Latch	8215 LNL	US32D	SA	087100
1 Surface Closer	351 UH	EN	SA	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall or Floor Stop (as Required)	403 (or) 441CU (As Required)	US26D	RO	087100
3 Silencer	608		RO	087100

Set: 19.0

NOT USED

3 Hinge, Full Mortise, Hvy Wt	T4A3786 (NRP and size as required)	US26D	MK	087100
1 Passage Latch	8215 LNL	US32D	SA	087100
1 Surface Closer	351 UO (RA, TJ or PA Mount as Required)	EN	SA	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall or Floor Stop (as Required)	403 (or) 441CU (As Required)	US26D	RO	087100
1 Perimeter Gasketing	S88BL (Head and Jambs)		PE	087100

Set: 20.0

Doors: 119D, 119E, 119F, 119G

1 LFIC Core	Large Format Interchangeable Core - Keyed as directed by Owner	US15	SA	087100
1 LFIC Mortise Cylinder Housing	Size and Cam as required	US32D	SA	087100
1	All Hardware Provided By Door Supplier			

END OF SECTION 087100

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.
B. Metal stud wall framing.
C. Metal channel ceiling framing.
D. Acoustic insulation.
E. Gypsum sheathing.
F. Cementitious backing board.
G. Gypsum wallboard.
H. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 05 40 00 - Cold Formed Metal Framing.
B. Section 06 10 53 - Miscellaneous Rough Carpentry.
C. Section07 21 00 - Thremal Insulation.
D. Section 07 29 00 - Weather Barriers.
E. Section 07 26 00 - Vapor Retarders.
F. Section 07 27 00 - Air Barriers.
G. Section 07 84 00 - Firestopping.
H. Section 07 92 00 - Joint Sealants.

1.03 REFERENCE STANDARDS; "USE CURRENT EDITION, ONLY "...

A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).
B. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing; 2020.
C. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing; 2015, with Errata (2020).
D. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2023.
E. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2023.
F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.
G. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.
H. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).
I. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2024.
J. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.
K. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2024.

L. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.

M. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories; 2020 (Reapproved 2024).

N. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2024.

O. ASTM C1325 - Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units; 2025.

P. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2024.

Q. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.

R. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2025.

S. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

T. ASTM E413 - Classification for Rating Sound Insulation; 2022.

U. GA-216 - Application and Finishing of Gypsum Panel Products; 2024.

V. GA-600 - Fire Resistance and Sound Control Design Manual; 2024.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate the installation of gypsum board assemblies with size, location and installation of service utilities.

B. Sequencing: Install service utilities in an orderly and expeditious manner.

1.05 SUBMITTALS

A. Reference Section 01 30 00 - Administrative Requirements for additional Content.

B. Product Data:
   1. Provide data on metal framing, gypsum board, accessories, and joint finishing system.
   2. Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

C. Test Reports: For stud framing products that do not comply with AISI S220 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing Work of this Section, minimum (20)Twenty years documented experience.

1.07 DELIVERY, STORAGE, HANDLING

A. Reference Section 01 74 19 - Construction Waste Management and Disposal for additional Content.

B. Store all gypsum Products, accessories indoors and keep above freezing. Elevate boards above floor, on nonwicking supports, in full accordance with Manufacturer's written recommendations.

C. Store all metal products, as required to prevent corrosion.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies, while fully complying with ASTM C840 and GA-216.

B. Fire Resistance Rated Assemblies: Provide completed assemblies in full compliance with all applicable codes,

2.02 METAL FRAMING MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S220 or equivalent.
   1. Structural Grade: As required to meet design criteria.
   2. Corrosion Protection Coating Designation: G40, or equivalent in accordance with AISI S220.

B. Nonstructural Framing System Components: AISI S220; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
   1. Studs: "C" shaped with knurled or embossed faces.
   2. Runners: U shaped, sized to match studs.
   3. Ceiling Channels: "C" shaped.
   4. Flexible Track: Flexible framing consisting of adjustable leg straps and pivoting, hinged track brackets designed to provide curved framing assemblies of varying radii.

C. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection and prevent rotation of studs while maintaining structural performance of partition.
   1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100.
   2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.
   3. Provide components UL listed for use in UL listed fire resistance rated head of partition joint systems as delineated within Contract Documents.
   4. Provide mechanical anchorage devices as described above that accommodate deflection while maintaining the fire resistance rating of the wall assembly.

D. Deflection and Firestop Track: Intumescent strip factory applied to track flanges expands when exposed to heat or flames to provide a perimeter joint seal.

2.03 BOARD MATERIALS

A. Manufacturers, Gypsum Based Board:
   1. American Gypsum Company: www.americangypsum.com.
   2. CertainTeed Corporation: www.certainteed.com.
   3. Georgia-Pacific Gypsum: www.gpgypsum.com.
   4. Gold Bond Building Products, LLC provided by National Gypsum Company: www.goldbondbuilding.com.
   5. USG Corporation: www.usg.com.
   6. Substitutions: Reference Section 01 60 00 - Product Requirements for additional Content.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Mold Resistance: Score of 10, when tested in full accordance with ASTM D3273.
      a. Mold resistant board is required at all locations.
   3. At thoseAssemblies Indicated with Fire Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.

C. Backing Board For Wet Areas: One of the following products:
   1. Application: Surfaces behind tile in wet areas, including tub and shower surrounds and shower ceilings.
   2. Application: Horizontal surfaces behind tile in wet areas including countertops and throughout toilet rooms.
   3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

4. ANSI Cement-Based Board: Non gypsum based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
    a. Thickness: 5/8 inch.

D. Backing Board For Non Wet Areas: Water resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
1. Application: Vertical surfaces behind thinset tile, except in wet areas.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
4. Type: Regular and Type X, in locations indicated.
5. Type X Thickness: 5/8 inch.
6. Regular Board Thickness: 5/8 inch.
7. Edges: Tapered.

E. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
1. Application: Exterior sheathing, unless otherwise indicated.
2. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
3. Regular Board Thickness: 1/2 inch.
4. Edges: Square.
5. Glass Mat Faced Products:
    a. CertainTeed Corporation; GlasRoc 1/2" Exterior Sheathing: www.certainteed.com/#sle.
    b. Georgia-Pacific Gypsum; DensGlass Sheathing: www.gpgypsum.com/#sle.
    c. USG Corporation; Securock Brand UltraLight Glass-Mat Sheathing Firecode X 5/8 in. (15.9 mm): www.usg.com/#sle.
    d. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 GYPSUM BOARD ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed mineral fiber, friction fit type, unfaced; thickness 2 inches.

B. Fire and Sound Attenuating Insulation: Sprayed cellulose fire rated material for cavities in wall assemblies.
1. Surface Burning Characteristics: Provide assemblies with Class I rating, when tested in accordance with ASTM E84.
2. Sound Transmission Class (STC): 56, calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

C. Water-Resistive Barrier: See Section 07 25 00.

D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
1. Fiberglass Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
2. Joint Compound: Setting type, field mixed.

E. Finishing Compound: Surface coat and primer.

F. Screws for Fastening of Gypsum Panel Products to Cold Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self piercing tapping screws, corrosion-resistant.

G. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 EXECUTION

3.01 EXAMINATION

A. Confirm all Existing Poject Site conditions are appropriate to all Work, this Section, prior to commencing any Work, this Section.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in full accordance with ASTM C1007AISI S220 and Manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.

C. Studs: Space studs as indicated.
   1. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

E. Furring for Fire Resistance Ratings: Install as required for fire resistance ratings indicated and to GA-600 requirements.

F. Blocking: Install mechanically fastened steel sheet blocking for support of:
   1. All framed openings.
   2. All wall mounted cabinets.
   3. All plumbing fixtures.
   4. All toilet partitions.
   5. All toilet accessories.
   6. All wall mounted door hardware.
   7. All other miscellaneous Work, as directed by Architect.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Sound Isolation Tape: Apply to vertical studs and top and bottom tracks, runners in full accordance with Manufacturer's written instructions.

C. Acoustic Sealant: Install in full accordance with Manufacurer's written instructions.

3.04 BOARD INSTALLATION

A. Fully comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Fire Resistance Rated Construction: Install gypsum board in full compliance with requirements of assembly listing.

C. Exposed Gypsum Board in Interior Wet Areas: Seal all joints, cut edges and holes with water resistant sealant.

D. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in full accordance with ANSI A108.11 and Manufacturer's written instructions.

E. Installation on Metal Framing: Use screws for attachment of gypsum board.

3.05 INSTALLATION, TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

B. Corner Beads: Install at external corners, using longest practical lengths.

3.06 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:

1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
2. Level 1: Fire resistance rated wall areas, above finished ceilings, whether or not accessible in the completed construction.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
1. Feather coats of joint compound so that camber is maximum 1/32 inch.

C. Fill and finish all joints and corners of cementitious backing board as recommended by Manufacturer.

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch within (6) Six feet, any direction.

3.08 PROTECTION

A. **Protect all Work, this Section from Damage.**

B. **Replace all Damaged Work, this Section, immediately.**

END OF SECTION

SECTION 31 46 80
GROUND IMPROVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes designing, furnishing, and installing aggregate piers used to locally or globally reinforce the ground to increase bearing capacity and reduce settlement of the structure. Various proprietary design and installation methods may be employed, including, but not limited to, down-hole vibrator and down-hole tamper.

B. The aggregate piers shall meet the minimum performance criteria of these specifications.

C. Related Sections include the following:

1. Division 1 Section "Unit Prices."
2. Division 1 Section "Temporary Facilities and Controls."
3. Division 1 Section "Closeout Procedures."
4. Division 1 Section "Quality Requirements."
5. Division 3 Section "Cast-in-Place Concrete."
6. Division 31 Section "Earthwork."
7. Geotechnical Report and Recommendations

1.3 DEFINITIONS

A. Vibrated Aggregate Pier: A pier element consisting of a column of displaced soil that is replaced by vibrated and compacted aggregate. The aggregate and surrounding soil is compacted by means of a special down-hole vibrator.

B. Rammed Aggregate Pier: A pier element constructed by compacting aggregate in an excavated hole using a special down-hole tamper.

C. Down-Hole Vibrator: Specially-designed, high-energy vibrator. Horizontal vibrations are created by a motor and eccentric weight located near the tip of the vibrator. Extension tubes are bolted to the vibrator to allow it to be lowered to the necessary treatment depth.

D. Bottom Feed Vibrator: Down-hole vibrator which is equipped with a tremie pipe through which the aggregate is fed to the tip of the vibrator.

E. Down-Hole Tamper: Specially designed, round, beveled tamping plate attached to vibratory equipment at the surface. The vertical vibration energy is provided by a vibratory hammer which is connected to the tamper. The apparatus is lowered into a pre-drilled hole to the required treatment depth.

1.4 LUMP SUM

A. Installer shall design, install, and monitor the aggregate pier foundation system, including required load tests, as a lump sum price.

1.5 UNIT PRICES

A. Basis for Payment: Payment for aggregate pier elements will be made on a per pier basis for actual number of piers in place and approved.

1. Unit prices include labor, materials, tools, equipment, and incidentals required for excavation, trimming, shoring, casings, dewatering, aggregate, load tests, and other items for complete aggregate pier installation meeting the specified performance requirements.
2. Quantities of aggregate piers may be increased or decreased at the direction of the Owner's Geotechnical Representative, based on construction procedures and actual site conditions.
3. See Division 1 Section "Unit Prices" for list of unit prices.

1.6 PERFORMANCE REQUIREMENTS

A. General: Provide aggregate pier foundation system capable of supporting the loads of the designed structure. The design submitted by the Installer shall consider the bearing capacity and settlement of all footings, walls, slabs, and other structural elements supported by aggregate piers and shall be in accordance with acceptable engineering practice and the Contract Documents.

B. The design life of the structure shall be assumed to be 100 years**.**

C. Aggregate piers shall be designed in accordance with generally accepted engineering practice.

D. For sites with highly variable subsurface conditions, consideration shall be given to varying the design parameters or the installation procedures to account for actual site characteristics.

E. Construct appropriate aggregate piers with granular backfill material beneath all column foundations, load-bearing wall foundations, and other structural elements as indicated to provide the following criteria upon completion:
1. A minimum allowable uniform soil bearing capacity of 3,500 pounds per square foot (psf) under service dead plus live load for spread or continuous footings.
   a. Bearing capacity of 500 psf at slabs on grade.
2. A maximum estimated total long-term settlement of one inch of any one structural element.
3. A maximum estimated differential settlement of 0.002 times the adjacent bay spacing or a maximum of one half inch between adjacent elements.
4. A minimum allowable coefficient of sliding friction between the bottom of footing and soil bearing strata of 0.5.

1.7 SUBMITTALS

A. Authorization: Signed and sealed letter from the project Geotechnical Engineer of Record that authorizes the use of the proposed ground improvement system as an appropriate system for this site.

B. Documentation: A ground improvement design based on information contained in the project geotechnical report and acceptable engineering practice that demonstrates that the proposed system can achieve the specified performance requirements. The design shall be prepared, signed and sealed by the Installer's qualified Professional Engineer. Documentation may be in the form of calculations, supporting literature, technical documentation, etc.

C. Settlement Analysis: Detailed geotechnical settlement analysis data signed and sealed by the Installer's qualified engineer.

D. Aggregate Pier Layout Plan: Referenced to the structural grid system including a numbering system capable of identifying each individual pier. Details of piers including quantity, size, depth, and locations at each foundation location shall be included.

E. Pier Load Test Procedure: A dimensioned sketch of the loading arrangement, including sizes of primary members, data on testing and measuring equipment including required jack and/or gauge calibrations, load increments, load decrements, and load durations.

F. Qualification Data: Installer shall provide a list of at least five previously completed projects of similar scope and purpose. The list shall include a description of the project, relative size, and contact person with phone number.

G. Material Certificates: Signed by the supplier certifying that the aggregate complies with requirements.

H. Warranties: Special warranties specified in this Section.

I. Record drawings at Project closeout according to Division 1 Section "Closeout Procedures."

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is legally licensed to install the proposed system. Installer must be experienced in the construction of similar size and types of projects. Installer shall have successfully completed a minimum of 5 aggregate pier supported structures within the past three years. The Installer's superintendent shall have successfully completed a minimum of 3 aggregate pier projects.

B. Survey Work: Installer shall engage a qualified land surveyor to perform surveys, layouts, and measurements for aggregate piers. Before excavating, lay out each aggregate pier to lines and levels required. Record actual measurements of each aggregate pier's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, and other specified data.

1. Record and maintain information pertinent to each aggregate pier and cooperate with Owner's testing and inspecting agency to provide data for required reports.

C. Professional Engineer Qualifications: A Professional Engineer who is legally authorized to practice in the jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.

D. Land Surveyor Qualifications: A land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing layout services of the kind indicated.

E. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

F. Source Limitations: Obtain aggregate from one source.

G. Aggregate Pier Load Tests: Prior to installation of production aggregate piers, provide pier load tests as specified.
1. The tested aggregate piers shall be installed at locations coordinated with and approved by the General Contractor so as not to interfere with other Project site activities.
2. The load tests shall be performed on the Project site in soil representative of the actual soil conditions at the final locations of the aggregate piers.

3. The load tests shall be observed by the Owner's Geotechnical Representative.
4. Installer shall provide all necessary equipment to perform the aggregate pier load tests.
5. Test piers shall not become part of the permanent foundation system.
6. Modulus test procedures, load increments, load decrements, and load duration, shall be determined using ASTM D 1194 as a general guideline.

    a. Minimum number of Modulus tests: two for each different installation method to be used on the project.

H. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.9 PROJECT CONDITIONS

A. Existing Utilities: Contractor shall locate existing underground utilities before installing aggregate piers. If utilities are to remain in place, provide protection from damage during aggregate pier installation operations.

1. Should uncharted or incorrectly charted piping or other utilities be encountered during installation, adapt installation procedure if necessary to prevent damage to utilities. Cooperate with Owner and utility companies in keeping services and facilities in operation without interruption.

2. Repair damaged utilities to satisfaction of utility owner.

B. Site Information: A geotechnical report has been prepared for this Project and is included elsewhere in the Project Manual for information only.

1.10 WARRANTY

A. Installer shall provide a warranty as follows:

1. Installer warrants that the ground improvement system for this Project will limit long term consolidation settlements from structural loads to the design settlement or less if actual structural loads are equal to or less than those provided in the design. In the unlikely event that long term consolidation settlements from structural loads are greater than the design settlement, and if such settlements result in structural distress to supported structure(s), then Installer shall pay for the cost of structural remediation. Installer shall have the right of first refusal to subcontract any such remediation work. This warranty does not include possibly vertical or lateral displacements of the structure as a result of other causes such as tornadoes, floods, landslides, nearby excavations, explosions, etc.

B. Warranty Period: 30 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aggregate

1. Down-Hole Vibrator Method: Backfill aggregate should consist of hard, angular to sub-angular durable rock fragments; with the majority of particles in the range of 1/8 inch to 1-1/2 inches such as ASTM C33 size No. 57.

2. Down-Hole Tamper Method: Aggregate used for piers constructed above the water table shall be Type I Gradation B in accordance with ASTM D 1241. It shall be compacted to a densification and strength, which provides resistance to the dynamic penetration test (ASTM STP 399) of a minimum average of 15 blows per 1.75-inch vertical movement.

    a. The number of tests performed during a workday by the Testing Agency shall depend on the consistency of achieving this minimum penetration resistance. Penetration tests need not be performed on every pier. If average penetration resistances measured exceed 15 blows, and less than 10 percent of tests fall below 15 blows, then testing may be reduced to spot checks at the discretion of the Testing Agency. A pattern of successful tests is sufficient to reduce testing to several tests per day. Observation of questionable aggregate moisture content or questionable aggregate gradation appearance may determine the need for additional dynamic penetration testing to verity that proper densification and strength are being achieved.

3. Aggregate used for piers constructed below the water table shall be Type I Gradation B in accordance with ASTM D 1241, except that particles passing the No. 40 sieve shall be eliminated.

    a. Dynamic penetration resistance testing is inappropriate for this material.

B. Water: Potable.

PART 3 - EXECUTION

3.1 GENERAL

A. If an adjacent building is within 15 ft of the aggregate pier work area, a relevant building examination shall be performed prior to initiating work to document preexisting cracks/damage. The adjacent building must also be monitored for movement during any work within 15 ft of the structure. The work shall be stopped and the Architect notified if any building settlement or damage is observed.

3.2 EXCAVATION

A. Obstructions.

1. Should any obstruction be encountered during drilling or excavation for piers, the Contractor shall be responsible for removing such obstructions, or the pier shall be relocated or abandoned. Obstructions include, but are not limited to, boulders, timbers, concrete, bricks, utility lines, etc., which shall prevent placing the piers to the required depth, or shall cause the pier to drift from the required locations. Dense natural rock or weathered rock layers shall not be deemed obstructions, and piers may be terminated short of design lengths on such materials.

B. Footing Subgrade: All excavations for footing subgrade supported by the aggregate pier foundations shall be prepared in the following manner:

1. Over-excavation below the bottom of the footing shall be limited to 3 inches. This includes limiting the teeth from excavators from over-excavation beyond 3 inches below the plan footing elevation.

2. Footing excavations shall be made shortly before concrete is placed in the footing excavation. Footing concrete shall be placed on the same day as footing excavation.

3. Prior to placing footing concrete, the top of the excavated soil and aggregate pier elements shall be compacted with a standard, hand-operated impact compactor ("Whacker-Packer" or equivalent). Vibrating plate type compactors should not be used to compact aggregate pier tops installed in predominantly fine-grained soils. Compaction shall be performed over the entire footing bottom to compact any loose surface soils or surface pier aggregate.

3.3 INSTALLATION TOLERANCES

A. Horizontal Alignment: Deviation from center of pier as indicated on the approved Shop Drawing at top of aggregate pier shall not be more than 6 inches.

B. Level Alignment: Deviation of top of pier elevation as indicated on the approved Shop Drawing shall not be more than +/-2 inches.

1. The final measurement for the top of pier elevation shall be the lowest point on the aggregate in the last compacted lift.

3.4 REJECTED AGGREGATE PIER ELEMENTS

A. Aggregate pier elements improperly located or installed beyond the maximum allowable tolerances shall be abandoned and replaced with new piers, unless other remedial measures are suggested and designed by the Installer.

B. All material and labor required to replace the rejected piers shall be provided at no additional cost to the Owner, unless the cause of rejection is due to an obstruction.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.

B. Modulus Test: Testing will consist of at least one modulus test of an aggregate pier. The Modulus Test shall generally follow ASTM D-1194 and the following criteria:

1. The geotechnical engineer shall approve of the location of the Modulus Test.
2. Deflections shall be measured by means of a telltale installed at the bottom of the test aggregate pier. Performance will be deemed acceptable when, at the specified design stress, deflection at the bottom of the pier does not exceed 20% of the deflection at the top of the pier.
3. Hold-time for load increments shall be a minimum of 15 minutes. Maximum hold-time shall not exceed 1 hour. Loads shall be held until the deflection rate has reduced to a maximum of 0.01 inch per hour.
4. For the load increment which reflects approximately 115% of the design maximum stress, the minimum hold-time shall be 15 minutes. The maximum hold-time need not be greater than 4 hours. Loads shall be held until the deflection rate reduces to a maximum of 0.01 inches per hour.
5. Surficial disturbance shall be compensated for by applying a seating load equal to 5% of the total load to the loaded steel plate before applying load increments.
6. Verification that the modulus test results meet or exceed the specified performance requirements shall be reported. If the specified performance requirements are not met by the modulus test, the cause of failure shall be investigated and new modulus tests shall be performed until the requirements are met. No production piers shall be installed until the test proves that the specified performance requirements are met.

C. Down-Hole Tamper Method:

1. After completion of the bottom pier bulb, or at anytime during the process of constructing the pier, the energy source may be turned off, and bottom stabilization verification test may be performed. These tests shall be performed when a new soil formation is encountered, or at the beginning of a project to provide quantitative information on pier stabilization.

2. A reference bar is placed over the cavity, and a mark is made on the tamper shaft that rests on top of the compacted aggregate. The energy to the tamper is restarted. If the measured vertical movement exceeds 150 percent of the value achieved during the load tests, added energy is applied to re-densify the bulb. The procedure for measure is then repeated. If there is still movement greater than 150 percent of that achieved during the load test and greater than ½ inch, a lift of loose aggregate may be placed on top of the compacted aggregate, and the verification test may be performed on this next lift after it is densified. If there is excessive movement on this lift, another lift may be placed and tested.

3. Movement must be limited to below 150 percent of the values achieved for the load test before completion of 2/3 of the pier depth.

D. Down-Hole Vibrator Method:

1. Down-hole vibrator shall be capable of providing at least 80 HP of rated energy and a centrifugal force of 15 tons. An appropriate metering device should be provided at such a location that inspection of amperage increase may be verified during the operation of the equipment. The metering device may be an ammeter directly indicating the performance of the vibrator tip.

2. The vibrator shall be lowered to the design depth, and aggregate added as necessary to construct the aggregate pier. The vibrator will be raised and lowered repeatedly, such that on each re-penetration, the tip of the vibrator advances to within 12 inches of the previous penetration depth.

E. Daily Aggregate Pier Progress Reports: Testing Agency shall furnish a complete and accurate record of aggregate pier installation. The record shall indicate the pier location and number, length, average lift thickness, final elevations of the base and top of piers, the type and size of the densification equipment used, and reports of any unusual conditions encountered during installation.

F. Footing Subgrade: Testing Agency shall inspect each compacted footing bottom and approve it in writing on the same day that the concrete is poured in the footing excavation. The approval shall state that the footing bottom and exposed aggregate pier tops have been reasonably densified.

G. Test results will be reported in writing to Architect, Contractor, and Installer within 48 hours of testing.

H. Remove and replace applications of Work where test results indicate that it does not comply with specified requirements.

I. Additional testing and inspecting, at Installer's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.6 DISPOSAL OF MATERIALS

A. Remove surplus excavated material and legally dispose of it off Owner's property.

END OF SECTION 31 46 80

CENTRAL COUNTY FIRE & RESCUE - HOUSE #6

1151 JUNGS STATION RD.
ST. CHARLES, MO 63303

ADDENDUM 2

2026/07/15



ARCHITECTURAL

ARCHIMAGES, INC
143 WEST CLINTON PLACE
SAINT LOUIS, MISSOURI 63122
T: 314-965-7445 F: 3114-965-7477
www.archimages-stl.com

MEP/FP

HORNER & SHIFRIN
401 D. 18TH STREET, SUITE 400
ST. LOUIS, MO 63103
T: 314.531.4321

CIVIL ENGINEER

CEDC
10820 SUNSET OFFICE DRIVE, SUITE 200
SUNSET HILLS, MO 63127
T: 314.729.1400 F: 314.729.1404

STRUCTURAL ENGINEER

KPFF
1630 DES PERES ROAD , SUITE 100
ST. LOUIS, MO 63131
T: 314.835.0524 F: 314.835.0749

OWNER

CENTRAL COUNTY
1220 CAVE SPRINGS BLVD.
ST. PETERS, MO 63376
T: 636. 970.9700

PROJECT ADDRESS

CENTRAL COUNTY FIRE
1151 JUNGS STATION RD
ST. CHARLES, MO 63303

CODE INFORMATION

- 2021 INTERNATIONAL BUILDING CODE
- 2021 INTERNATIONAL FIRE CODE
- 2020 NATIONAL ELECTRICAL CODE (NFPA 70)
- 2021 INTERNATIONAL ENERGY CONSERVATION CODE
- 2021 INTERNATIONAL MECHANICAL CODE
- 2021 INTERNATIONAL FUEL GAS CODE
- 2021 INTERNATIONAL PLUMBING CODE
- 2021 INTERNATIONAL PROPERTY MAINTENANCE CODE
- 2020 ICC 500 (STORM SHELTER CODE)

PROJECT LOCATION



STATE MAP

MO



SHEET INDEX

SHEET NUMBER	SHEET NAME	04/17/2026 - DD	06/08/2026 - CD	07/07/2026 - ADD 01	07/15/2026	XX/XX/2026
GENERAL						
G000	COVER SHEET	■	■	■	■	
CIVIL						
C1.0	TITLE SHEET	■	■			
C2.0	SPECIFICATION SHEET	■	■			
C3.0	PHASE 1 - EXISTING CONDITIONS & FACILITIES REMOVAL PLAN	■	■		■	
C4.0	PHASE 1 - SITE AND GRADING PLAN	■	■		■	
C5.0	PHASE 1 - SITE GEOMETRY AND UTILITY PLAN	■	■		■	
C6.0	PHASE 2 - EXISTING CONDITIONS & FACILITIES REMOVAL PLAN	■	■		■	
C7.0	PHASE 2 - SITE AND GRADING PLAN	■	■			
C8.0	PHASE 2 - SITE GEOMETRY AND UTILITY PLAN	■	■		■	
C9.0	PHASE 3 - EXISTING CONDITIONS & FACILITIES REMOVAL PLAN	■	■		■	
C10.0	PHASE 3 - SITE AND GRADING PLAN	■	■			
C11.0	PHASE 3 - SITE GEOMETRY AND UTILITY PLAN	■	■		■	
C12.0	SEWER PROFILES AND HYDRAULIC CALCULATIONS	■	■		■	
C13.0	SEWER DETAILS	■	■			
C14.0	SITE DETAILS		■		■	
C14.1	SITE DETAILS		■		■	
C15.1	BEST MANAGEMENT PRACTICES PLAN		■		■	
C16.0	DRAINAGE AREA PLAN		■			
C17.0	STORMWATER POLLUTION PREVENTION PLAN		■			
C17.1	STORMWATER POLLUTION PREVENTION PLAN DETAILS		■			
LANDSCAPE						
L1.01	LANDSCAPE PLAN		■			
L2.01	LANDSCAPE SPECIFICATIONS		■			
L3.01	WATERING DIAGRAM		■			
ARCHITECTURAL						
A001	TYP NOTES, SYMB, & RULES	■	■			
A002	TYPICAL MOUNTING HEIGHTS	■	■			
A003	FRAMING DETAILS	■				
A004	LIFE SAFETY PLAN	■	■	■		
AS111	ARCHITECTURAL SITE PLAN	■	■			
AS112	ARCHITECTURAL SITE PLAN	■	■			
A111	FLOOR PLAN	■	■	■		
A112	DIMENSION FLOOR PLAN		■			
A113	SLAB EDGE PLAN	■	■			
A121	REFLECTED CEILING PLAN	■	■			
A131	ROOF PLAN	■	■		■	
A201	EXTERIOR ELEVATIONS	■	■	■	■	
A301	BUILDING SECTIONS	■	■			
A311	WALL SECTIONS	■	■			
A312	WALL SECTIONS	■	■			
A313	WALL SECTIONS	■	■			
A314	WALL SECTIONS	■	■			
A315	WALL SECTIONS	■				
A316	WALL SECTIONS	■	■			
A411	ENLARGED FLOOR PLANS	■	■	■		
A412	ENLARGED FLOOR PLAN	■	■	■		
A413	ENLARGED FLOOR PLANS	■	■			
A414	ENLARGED FLOOR PLANS	■	■	■		
A415	ENLARGED FLOOR PLANS	■	■	■		
A441	INTERIOR ELEVATIONS	■	■	■		
A442	INTERIOR ELEVATIONS	■	■			
A501	PARTITION DETAILS	■	■			
A502	PARTITION DETAILS	■	■			
A503	DETAILS	■	■			
A504	DETAILS	■	■		■	
A505	DETAILS	■				
A506	DETAILS	■	■			
A507	DETAILS	■	■		■	
A521	CABINET SECTION DETAILS	■	■			
A522	CABINET SECTION DETAILS	■	■			
A601	DOOR SCHEDULE & DETAILS	■	■	■	■	
A602	STOREFRONT ELEVATIONS	■	■			
A701	EQUIPMENT & FURNITURE PLAN	■	■		■	
I101	FINISH FLOOR PLAN, FINISH SCHED.	■	■			
STRUCTURAL						
S001	GENERAL NOTES	■	■		■	
S002	SPECIAL INSPECTIONS	■	■		■	
S003	TYPICAL DETAILS	■	■		■	
S004	TYPICAL DETAILS	■	■			
S005	TYPICAL DETAILS	■	■			
S006	SHEARWALL SCHEDULE, ELEV, & DETAILS	■	■			
S007	TYPICAL DETAILS	■	■			
S008	TYPICAL DETAILS	■	■			
S009	SNOW LOADING DIAGRAM	■	■			
S010	STORM SHELTER LOADING INFORMATION	■	■			
S121	FOUNDATION PLAN	■	■		■	
S201	LOW ROOF AND ATTIC FRAMING PLAN	■	■			
S202	HIGH ROOF FRAMING PLAN	■	■			
S301	FOUNDATION SECTIONS AND DETAILS	■	■		■	
S401	FRAMING SECTIONS AND DETAILS	■	■			
S402	FRAMING SECTIONS AND DETAILS		■			
S403	FRAMING SECTIONS AND DETAILS		■			
MECHANICAL						
M001	MECHANICAL SYMBOLS & ABBR.	■	■			
M201	MECHANICAL DUCTWORK PLAN	■	■			
M202	MECHANICAL PIPING PLAN	■	■	■		
M203	MECHANICAL DUCTWORK ATTIC PLAN	■	■			
M204	MECHANICAL PIPING ATTIC PLAN	■	■			
M205	MECHANICAL ROOF PLAN	■	■			
M501	MECHANICAL DETAILS	■	■			
M502	MECHANICAL DETAILS	■	■	■		
M601	MECHANICAL SCHEDULES	■	■			
M701	MECHANICAL SCHEMATIC DIAGRAMS	■	■			
PLUMBING						
P001	PLUMBING SYMBOLS & ABBREVIATIONS	■	■			
P200	PLUMBING UNDERFLOOR PLAN	■	■	■		
P201	PLUMBING FLOOR PLAN	■	■	■		
P202	PLUMBING ROOF PLAN	■	■			
P501	PLUMBING DETAILS	■	■			
P502	PLUMBING DETAILS	■	■			
P601	PLUMBING SCHEDULES	■	■	■		
FIRE PROTECTION						
FP001	FIRE PROTECTION SYMBOLS & ABBR.	■	■			
FP201	FIRE PROTECTION PLAN	■	■			
FP202	FIRE PROTECTION ATTIC PLAN		■			
FP501	FIRE PROTECTION DETAILS	■	■			
ELECTRICAL						
E001	ELECTRICAL SYMBOLS & ABBREVIATIONS	■	■	■		
E101	ELECTRICAL SITE PLAN	■	■			
E201	POWER PLAN	■	■			
E202	EQUIPMENT POWER PLAN	■	■			
E203	EQUIPMENT POWER ATTIC PLAN	■	■			
E204	ROOF EQUIPMENT POWER PLAN	■	■			
E301	LIGHTING PLAN	■	■			
E401	AUXILARY PLAN		■	■		
E402	FEATHERSHARK DETAILS	■	■			
E403	FEATHERSHARK DETAILS		■			
E501	ELECTRICAL DETAILS AND SCHEMATICS	■	■			
E502	ELECTRICAL DETAILS AND SCHEMATICS	■	■			
E601	ELECTRICAL SCHEDULES	■	■			
E602	ELECTRICAL SCHEDULES AND ONE-LINE	■	■			

Grand total: 114

Roy A. Manoan
MO Architect License No: A-6661
Expires: 12/31/26

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000650
143 West Clinton Place St. Louis, Missouri 63122
p: (314) 965.7445 f: (314) 965.7477
www.archimages-stl.com

Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD ST. CHARLES, MO 63303

No.	Date	Revision

COVER SHEET

Project No. 24057
Sheet No. G000
Date 2026/07/15

SCALE: 3" = 1'-0" SCALE: 1 1/2" = 1'-0" SCALE: 1" = 1'-0" SCALE: 3/4" = 1'-0" SCALE: 1/2" = 1'-0" SCALE: 3/8" = 1'-0" SCALE: 1/4" = 1'-0" SCALE: 1/8" = 1'-0" SCALE: 3/32" = 1'-0" SCALE: 1/16" = 1'-0"

7/14/2026 4:48:35 PM
\\HINGE\users\csallas\docs\24057_Central County Fire Station_House#6_R25_csallas8FMDVI.rvt

N/F
REORGANIZED SCHOOL DIST NO 3
PARCEL
ID: 3-0015-S015-00-0003.1000000
BK.870 PG.718
PARENT PARCEL

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

LEGEND FOR REMOVAL
PAVEMENT REMOVAL
BUILDING REMOVAL
TREE REMOVAL
18" (T.B.R.)

UNINCORPORATED
ST. CHARLES
COUNTY

UNINCORPORATED
ST. CHARLES COUNTY

(EXISTING STATION TO REMAIN OPERATIONAL)
1 STORY BUILDING
CONCRETE BLOCK & METAL FRAME
#1151 (POSTED)
"CENTRAL COUNTY FIRE AND
RESCUE STATION 6"
F.F. = 569.03
BUILDING HEIGHT = 583.71

JUNGS STATION ROAD
(WIDTH VARIES)
SHOWN PER PARENT DEED
BK.870 PG.718

FULL DEPTH SAWCUT
185'± (T.B.R.)
N 12°23'24" W 314.41'
ASPHALT CURB
REMOVE CURB & PAVEMENT
REMOVE CURB & PAVEMENT
ASPHALT
ASPHALT CURB
FULL DEPTH SAWCUT
N 88°19'44" W 194.11'
S 12°23'24" E 136.57'
N 77°36'36" E 20.00'
REMOVE AT NEAREST JOINT
REMOVE WALK AT NEAREST JOINT
FULL DEPTH SAWCUT
REMOVE & RELOCATE SIGN
COORD. ALL WORK WITH CITY PROJECT
S 12° 23' 24" E 375.00'
10' W. EASEMENT
FULL DEPTH SAWCUT
WATER LINE (U.I.P.)
WATER LINE (U.I.P.)
SANITARY (REC INFO)
FL: 547.0±
SANITARY MH (REC INFO)
DEPTH: 4.5'±
FL: 545.6±
FL: 548.1±
25' X 25' LEASE AREA (BK. 2655 PG. 438) (U.I.P.)
TOWER AREA (NO ACCESS)
K.E.S. F.L.= 560.93
EASEMENT BK.2505 PG.911
LESS & EXCEPTING (BK. 870 PG. 714)
LESS & EXCEPTING (BK. 1162 PG. 1439) & (BK. 1193 PG. 1857)
LESS & EXCEPTING (BK. 1383 PG. 517) EXHIBIT "A-1"
EX. WATER MAIN (CITY OF ST. PETERS)
EX. WATER MAIN (MOAW)
WATER VAULT FOR SCHOOL BUILDINGS (U.I.P.)
WATER LINE (U.I.P.)
WATER VALVE (U.I.P.)
FOUND IRON ROD WITH CAP (U.I.P.)
(T.B.R.)
(T.B.R.) (orm)
L O T 206
L O T 207
STORM MANHOLE TOP = 549.51 F.L. = 543.98
GRATE INLET TOP = 548.77 F.L. = 544.82
GRATE INLET TOP = 548.82 F.L. = 545.42
AREA INLET TOP = 554.76 F.L. = 547.76
AREA INLET TOP = 556.28 DROP = 553.33 F.L. = 551.23
GRATE INLET TOP=553.75 F.L.=549.75
CURB INLET TOP = 553.73 F.L. = 551.38
CURB INLET TOP 558.78 F.L.: 551.38
GENERATOR
STORM MH (R) TOP=558.18 F.L.=552.18
GRATE INLET TOP = 559.18 F.L.= 553.48
GRATE INLET TOP=559.80 F.L.: 556.50
INLET TOP = 558.61 F.L. = 555.21
CURB INLET TOP=569.98 DROP=563.48 F.L.=561.58
CURB INLET TOP = 570.11 F.L. = 565.01
CURB INLET TOP = 572.27 F.L. = 567.97
CURB INLET TOP = 577.76 F.L. = 573.46
CURB INLET TOP=569.34 DROP=564.04 F.L.=562.92
AREA INLET TOP = 568.37 F.L. = 561.27
SANITARY M.H. TOP = 589.91 F.L. = 560.90
CURB INLET TOP = 570.60 F.L. = 566.80
AREA INLET TOP = 570.38 F.L. = 567.20
GRATE INLET TOP = 570.43 F.L. = 565.73
STORM MH TOP=566.36 F.L.=561.36
SANITARY M.H.
12" RCP
15" RCP
24" RCP
18" RCP
8" PVC
6" WOOD FENCE
4' CHAIN LINK FENCE
4' METAL FENCE
CONCRETE CURB
ASPHALT CURB
CONCRETE
ASPHALT
BRICK BUILDING
CONCRETE BENCH
SUMP PUMP
BRICK WALLS
RETAINING WALL
DONATION BOX
TRUNCATED DOME (TYPICAL)
CURB STOP (TYPICAL)
HANDRAIL (TYPICAL)
TRENCH DRAIN F.L.: 555.16
CAMERA
SPEAKER
UNKNOWN PVC
F.F. = 562.36
F.F. = 568.07
F.F. = 569.13
F.F. = 569.04
F.F. = 569.08
F.F. = 569.08
F.F. = 569.08

Proposed:

CENTRAL COUNTY FIRE & RESCUE HOUSE #6

1151 Jungs Station Road
St. Peters, Missouri 63303

No.	Date	Revision
2	7/15/2026	Addendum 02

PHASE 1 - SITE AND GRADING PLAN

Project No. 2589
Sheet No. C4.0
Date 2026/06/08

CEDC
CIVIL ENGINEERING
DESIGN CONSULTANTS
10820 Sunset Office Drive
Suite 200
Saint Louis, Missouri 63127
314.729.1400
Fax: 314.729.1404
www.cedc.net

Archimages
architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000650
143 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com | p: [314] 965.7445 | f: [314] 965.7477

Professional Engineer No. E-36550
Missouri Certificate of Authority No. 2003008214

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

N/F
REORGANIZED SCHOOL DIST NO 3
PARCEL
ID: 3-0015-5015-00-0003.1000000
BK:870 PG:718
PARENT PARCEL

UNINCORPORATED
ST. CHARLES
COUNTY

JUNGS STATION ROAD
(WIDTH VARIES)
SHOWN PER PARENT DEED
BK:870 PG:718

10' W. EASEMENT

25' X 25'
AT&T EASE.
(BK. 4555
PG. 439)

LESS & EXCEPTING
BK:870 PG:714

LESS & EXCEPTING
BK:870 PG:714

LESS & EXCEPTING
BK:1162 PG:1439
7193 SQ. FEET

1 STORY BUILDING
CONCRETE BLOCK & METAL FRAME
#7101 (POSTED)
"CENTRAL COUNTY FIRE AND
RESCUE STATION 6"

FF = 569.03
BUILDING HEIGHT = 583.77
FF = 569.07
FF = 568.08

EQUIPMENT CANOPY
FLL 555.76

HANDRAIL (TYPICAL)
CONCRETE WALL (TYPICAL)

FRENCH DRAIN

EX. WATER MAIN
(8" DIP, 30" PIPE)

EX. WATER MAIN
(8" DIP, 30" PIPE)

EX. WATER MAIN
(MIXAW)

EX. WATER MAIN
(MIXAW)

WATER VAULT
FOR SCHOOL BUILDINGS

WATER LINE

EASEMENT
BK:2505
PG:911

S 12° 23' 24" E 375.00'

N 12°23'24" W 314.41'

S 12°23'24" E 136.57'

N 77°36'36" E
20.00'

N 88°19'44" W 194.11'

N 89°21' E 2337.21' (R)
S 88° 19' 08" E 2334.51' (S)

PHASE 1 GRADING

SANITARY (REC INFO)

FL=547.01

FL=546.8±

SANITARY MH (R)
RIM=563.40
DEPTH=4.5'±
FL=545.6±

STORM MH (R)
RIM=562.40
FL=552.2±

STORM MANHOLE
RIM = 552.82
FL = 543.98

SANITARY MH
RIM = 560.80
FL = 549.30

SANITARY MH
RIM = 569.97
FL = 560.80

GRATE INLET
TOP = 548.82
FL = 545.42

GRATE INLET
TOP = 548.77
FL = 544.82

GRATE INLET
TOP = 548.77
FL = 544.82

AREA INLET
TOP = 554.76
FL = 551.76

AREA INLET
TOP = 563.53
DROP = 563.53
FL = 551.25

AREA INLET
TOP = 570.38
FL = 560.20

AREA INLET
TOP = 570.43
DROP = 560.43

AREA INLET
TOP = 570.31
DROP = 564.04
FL = 564.02

CURB INLET
TOP = 570.60
FL = 560.60

CURB INLET
TOP = 570.31
FL = 564.31

CURB INLET
TOP = 570.27
FL = 567.19

CURB INLET
TOP = 570.46
FL = 573.46

CURB INLET
TOP = 569.80
FL = 556.80

CURB INLET
TOP = 569.80
FL = 556.80

CURB INLET
TOP = 565.76
FL = 555.26

CURB INLET
TOP = 565.76
FL = 555.26

CURB INLET
TOP = 565.76
FL = 555.26

CURB INLET
TOP = 565.76
FL = 555.26

CURB INLET
TOP = 565.76
FL = 555.26

CURB INLET
TOP = 565.76
FL = 555.26

STORM MH (R)
RIM=562.40
FL=552.2±

STORM MH
RIM = 562.53
FL = 552.53

STORM MH
RIM = 562.53
FL = 552.53

DONATION BOX

DONATION BOX

DROP INLET

DROP INLET

DROP INLET

N/F
REORGANIZED SCHOOL DIST NO 3
PARCEL
ID: 3-0015-S015-00-0003.1000000
BK.870 PG.718
PARENT PARCEL

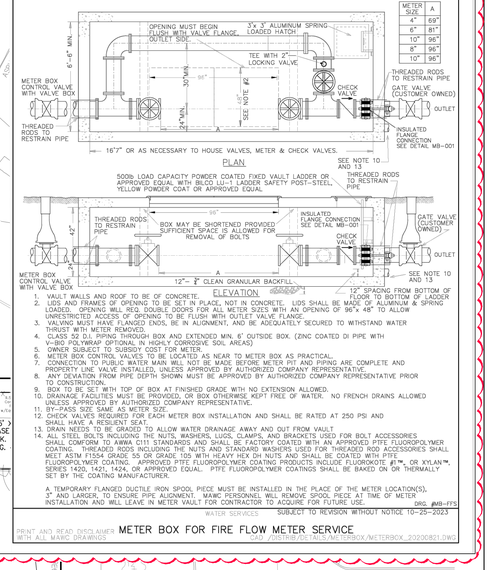
GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

LEGEND FOR NEW PAVEMENT

- PROPOSED CONCRETE WALK
- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

MISSOURI AMERICAN WATER

FILE NO.
INDEX NO.
ISSUED DATE 07-2022
AMENDED DATE 10-25-2023



1. VAULT WALLS AND ROOF TO BE OF CONCRETE.
2. LIDS AND FRAMES OF OPENING TO BE SET IN PLACE, NOT IN CONCRETE. LIDS SHALL BE MADE OF ALUMINUM & SPRING LOADED. OPENING WILL REQ. DOUBLE DOORS FOR ALL METER SIZES WITH AN OPENING OF 96"x 48" TO ALLOW UNRESTRICTED ACCESS OF OPENING TO BE FLUSH WITH OUTLET VALVE FLANGE.
3. VALVING MUST HAVE FLANGED ENDS, BE IN ALIGNMENT, AND BE ADEQUATELY SECURED TO WITHSTAND WATER THRUST WITH METER REMOVED.
4. CLASS 52 D.I. PIPING THROUGH BOX AND EXTENDED MIN. 6" OUTSIDE BOX. (ZINC COATED DI PIPE WITH V-BIO POLYWRAP OPTIONAL IN HIGHLY CORROSIVE SOIL AREAS)
5. OWNER SUBJECT TO SUBSIDY COST FOR METER.
6. METER BOX TO BE SET AS CLOSE AS NEAR TO METER BOX AS PRACTICAL.
7. CONSTRUCTION TO PUBLIC WATER MAIN WILL NOT BE MADE BEFORE METER PIT AND PIPING ARE COMPLETE AND PROPERTY LINE VALVE INSTALLED, UNLESS APPROVED BY AUTHORIZED COMPANY REPRESENTATIVE.
8. ANY DEVIATION FROM PIPE DEPTH SHOWN MUST BE APPROVED BY AUTHORIZED COMPANY REPRESENTATIVE PRIOR TO CONSTRUCTION.
9. BOX TO BE SET WITH TOP OF BOX AT FINISHED GRADE WITH NO EXTENSION ALLOWED.
10. DRAINAGE FACILITIES MUST BE PROVIDED, OR BOX OTHERWISE KEPT FREE OF WATER. NO FRENCH DRAINS ALLOWED UNLESS APPROVED BY AUTHORIZED COMPANY REPRESENTATIVE.
11. BY-PASS SIZE SAME AS METER SIZE.
12. CHECK VALVES REQUIRED FOR EACH METER BOX INSTALLATION AND SHALL BE RATED AT 250 PSI AND SHALL HAVE A RESILIENT SEAT.
13. DRAIN NEEDS TO BE GRADED TO ALLOW WATER DRAINAGE AWAY AND OUT FROM VAULT.
14. ALL STEEL BOLTS INCLUDING THE NUTS, WASHERS, LUGS, CLAMPS, AND BRACKETS USED FOR BOLT ACCESSORIES SHALL CONFORM TO AWWA C111 STANDARDS AND SHALL BE FACTORY COATED WITH AN APPROVED PTFE FLUOROPOLYMER COATING. THREADED RODS INCLUDING THE NUTS AND STANDARD WASHERS USED FOR THREADED ROD ACCESSORIES SHALL MEET ASTM F1554 GRADE 55 OR GRADE 105 WITH HEAVY HEX DH NUTS AND SHALL BE COATED WITH PTFE FLUOROPOLYMER COATING. APPROVED PTFE FLUOROPOLYMER COATING PRODUCTS INCLUDE FLUOROKOTE #1™, OR XYLAN™, SERIES 1420, 1421, 1424, OR APPROVED EQUAL. PTFE FLUOROPOLYMER COATINGS SHALL BE BAKED ON OR THERMALLY SET BY THE COATING MANUFACTURER.

A TEMPORARY FLANGED DUCTILE IRON SPOOL PIECE MUST BE INSTALLED IN THE PLACE OF THE METER LOCATION(S), 3" AND LARGER, TO ENSURE PIPE ALIGNMENT. MAWC PERSONNEL WILL REMOVE SPOOL PIECE AT TIME OF METER INSTALLATION AND WILL LEAVE IN METER VAULT FOR CONTRACTOR TO ACQUIRE FOR FUTURE USE.

DRG #W0-175
WATER SERVICES SUBJECT TO REVISION WITHOUT NOTICE 10-25-2023

PRINT AND PLOT DIRECTLY FROM MICROSTATION WITH ALL MAWC DRAWINGS

METER BOX FOR FIRE FLOW METER SERVICE

J:\MAWC_PROJECTS\ALL\STDBOX\METERBOX_20230821.DWG

Professional Engineer No. E-28650
Missouri Certificate of Authority No. 2003004674

Archimages | architecture | interiors
MO Architectural Corporation Archimages, Inc.# 000550
143 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com | p: (314) 965-7445 | f: (314) 965.7477

CEDC
CIVIL ENGINEERING
DESIGN CONSULTANTS
10820 Sunset Office Drive
Suite 200
St. Louis, Missouri 63127
314-729-1400
Fax: 314-729-1404
www.cedc.net

Proposed:
CENTRAL COUNTY FIRE & RESCUE HOUSE #6

1151 Jungs Station Road
St. Peters, Missouri 63303

No.	Date	Revision
2	7/15/2026	Addendum 02

PHASE 1 - SITE GEOMETRY AND UTILITY PLAN

Project No.
2589

Sheet No.
C5.0

Date
2026/06/08

17
LOT 206
LOT 207
UNINCORPORATED ST. CHARLES COUNTY
JUNGS STATION ROAD
(WIDTH VARIES)
SHOWN PER. PARENT DEED
BK.870 PG.718
ASPHALT PAVEMENT
6" CONC. VERT. CURB
TEMPORARY ASPHALT PAVEMENT
PHASE 1 CONCRETE PAVEMENT
CONNECT TO EXISTING WATER LINE
1" WATER SERVICE (PRIVATE)
GATE VALVE
FIREFLOW METER
CONTROL VALVE
WET TAP & VALVE BY MOAW CONTRACTOR
PRIMARY CONDUIT TO TRANSFORMER AS COORD. WITH AMEREN
SIDEWALK IMPROVEMENTS BY CITY OF ST. PETERS (FEDERAL PROJECT NO. STP-7305(623))
CURB RAMP (BY CCF&R)
CONCRETE DRIVE ENTRANCE SS40.41 (BY CCF&R)
SIDEWALK IMPROVEMENTS BY CITY OF ST. PETERS (FEDERAL PROJECT NO. STP-7305(623))
N 12°23'24" W 314.41'
N 88°19'44" W 194.11'
S 12°23'24" E 375.00'
N 77°36'36" E 20.00'
S 88°19'08" E 232.21' (S)
R25.00'
R15.00'
R40.00'
39.00'
64.0'
10' W. EASEMENT
TRENCH DRAINS
20' WIDE EASEMENT BK.4665 PG.2444
EASEMENT BK.2505 PG.911
LESS & EXCEPTING (BK.1389, PG.517) EXHIBIT "A-3"
LESS & EXCEPTING (BK. 1643 PG. 776)
LESS & EXCEPTING (BK. 870 PG. 714)
LESS & EXCEPTING (BK.1389 PG.517) EXHIBIT "A-1"
15' X 15' S.W.B.T. ESMT. (BK. 1162 PG. 1439) & (BK. 1193 PG. 1137)
EX. WATER MAIN (MOAW)
EX. WATER MAIN (CITY OF ST. PETERS)
EX. WATER MAIN (CITY OF ST. PETERS) (EX. WATER MAIN (MOAW))
1 STORY BUILDING CONCRETE BLOCK & METAL FRAME #1151 (POSTED) "CENTRAL COUNTY FIRE AND RESCUE STATION 6"
F.F. = 569.03
BUILDING HEIGHT = 583.71
F.F. = 569.07
F.F. = 569.13
F.F. = 569.04
F.F. = 569.08
BRICK BUILDING
CONCRETE CURB
ASPHALT
BENCH
CAMERA
FLAGPOLE
BLOCK WALLS
STONE WALL
DONATION BOX
GENERATOR
CURB STOP (TYPICAL)
HANDRAIL (TYPICAL)
BLOCK WALL (TYPICAL)
TRENCH DRAIN F.L.: 555.76
WATER LINE
WATER VALVE
WATER VAULT FOR SCHOOL BUILDINGS
NOTE 1
6' WOOD FENCE
4' CHAIN LINK FENCE
4' METAL FENCE
CONCRETE WALL

N/F
REORGANIZED SCHOOL DIST NO 3
PARCEL
ID: 3-0015-S015-00-0003.1000000
BK.870 PG.718
PARENT PARCEL

UNINCORPORATED
ST. CHARLES
COUNTY

UNINCORPORATED
ST. CHARLES COUNTY

JUNGS STATION ROAD
(WIDTH VARIES)
SHOWN PER PARENT DEED
BK.870 PG.718

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

LEGEND FOR REMOVAL
PAVEMENT REMOVAL
BUILDING REMOVAL
TREE REMOVAL
(T.B.R.)

WATER LINE (U.I.P.)
WATER LINE TO BE ABANDONED
REMOVE STRIPING, ARROWS, STOPBAR, AND LINES
FULL DEPTH SAWCUT
ELECTRIC LINE (T.B.R.)
EXISTING CURB (U.I.P.)
WATER LINE (TO BE ABANDONED) WATER VALVE (T.B.R.)
WATER VAULT FOR SCHOOL BUILDING (T.B.R.)
ENTRANCE, SIGN & LIGHTING (T.B.R.)
ENTRANCE AND SIDEWALK REMOVED BY CITY CONTRACTOR TO SAWCUT AS COORDINATED WITH C207 OF CITY PROJECT
PHASE 1 GRADING
10' W. EASEMENT
25' X 25' LEASE AREA (BK. 2655 PG. 438)
TOWER AREA (NO ACCESS)
1 STORY BUILDING CONCRETE BLOCK & METAL FRAME #1151 (POSTED) "CENTRAL COUNTY FIRE AND RESCUE STATION 6"

N 12°23'24" W 314.41'
S 12°23'24" E 136.57'
N 88°19'44" W 194.11'
N 77°36'36" E 20.00'
S 12° 23' 24" E 375.00'
S 89°19'08" E 232.21' (M)

Professional Engineer No. E-28650
Missouri Certificate of Authority No. 2003004674

Archimages
architecture | interiors
MO Architectural Corporation Archimages, Inc.# 000550
1443 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com | P: (314) 965-7445 | f: (314) 965-7477

CEDC
CIVIL ENGINEERING
DESIGN CONSULTANTS
10820 Sunset Office Drive
Suite 200
St. Louis, Missouri 63127
314-729-1400
Fax: 314-729-1404
www.cedcstl.com

Proposed:
CENTRAL COUNTY FIRE & RESCUE HOUSE #6
1151 Jungs Station Road
St. Peters, Missouri 63303

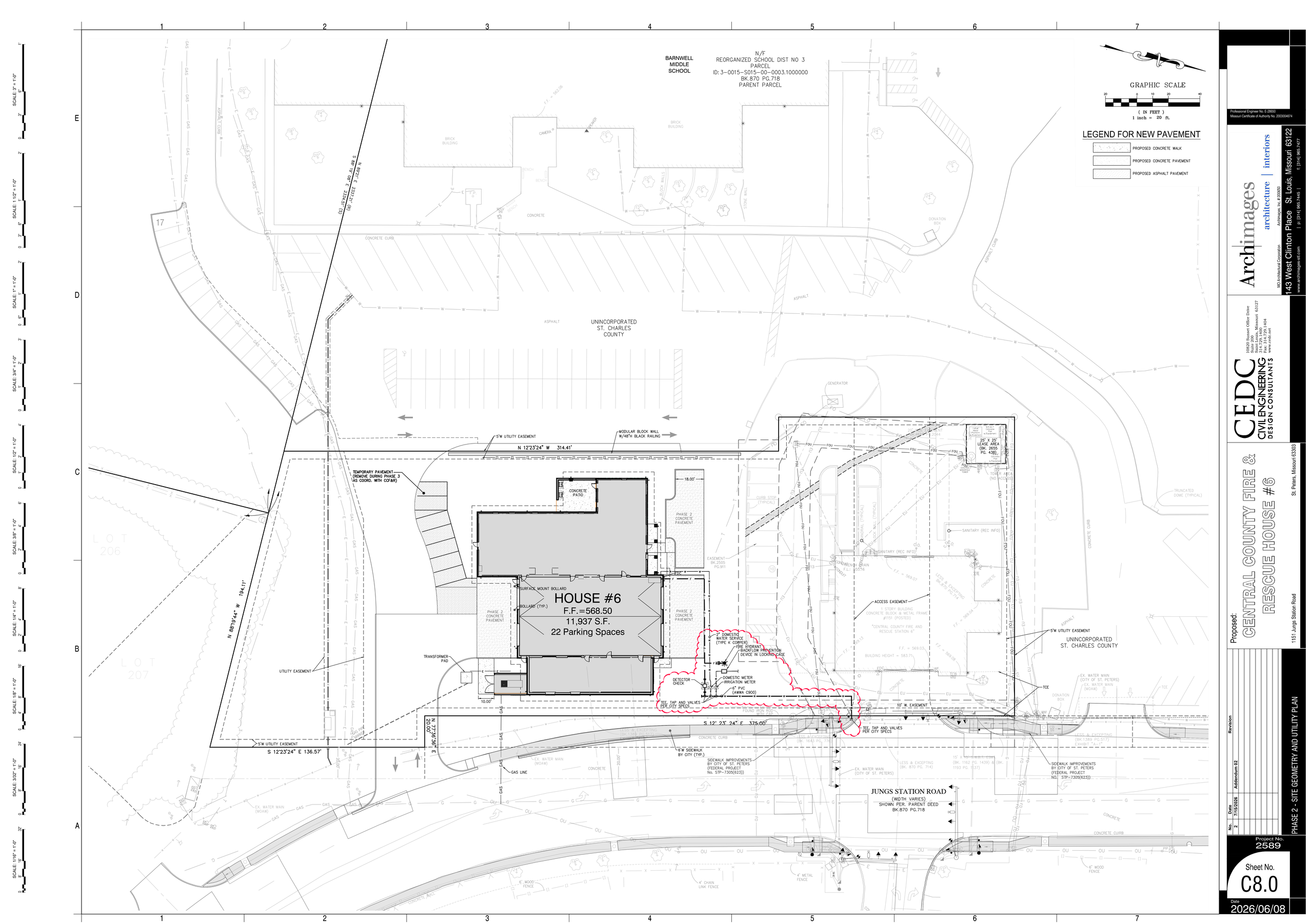
No.	Date	Revision
2	7/15/2026	Addendum 02

PHASE 2 - EXISTING CONDITIONS & FACILITIES REMOVAL PLAN

Project No.
2589

Sheet No.
C6.0

Date
2026/06/08



Professional Engineer No. E-28650
Missouri Certificate of Authority No. 2003004674

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc.# 000550
143 West Clinton Place St. Louis, Missouri 63122
t. (314) 965.7477 | p. (314) 965.7445 | www.archimages-stl.com

CEDC CIVIL ENGINEERING DESIGN CONSULTANTS
10820 Sunset Office Drive
Suite 200
Sunset Hills, Missouri 63127
314-729-1400
Fax: 314-729-1404
www.cedcstl.com

Proposed:
CENTRAL COUNTY FIRE & RESCUE HOUSE #6
1151 Jungs Station Road
St. Peters, Missouri 63303

No.	Date	Revision
2	7/15/2026	Addendum 02

PHASE 2 - SITE GEOMETRY AND UTILITY PLAN

Project No.
2589

Sheet No.
C8.0

Date
2026/06/08

Traffic Signal Notes

- All work associated with the existing signal and proposed signal shall be coordinated with the City and the traffic engineer.
- reconnection of the EVP that is wired to the existing button at the station garage door to the new signal and station to be coordinated with the City and signal designer. a. The City's project will temporarily relocate the existing EVP cables to the new signal, but when the existing station is torn down they will need to disconnect the existing EVP all the way back to the cabinet. Just cutting the cable at the station will not be acceptable. b. If the garage door EVP is relocated to the new station garage doors, they need to show the conduit, cable, traffic signal cabinet wiring changes, and how it is intended to operate. I. If they will solely be using the GGL Opticom vehicle system and there will no longer be a hardwired connection to the station garage doors then I do not need anything else. The City will coordinate with GGL to make sure the Opticom EVP settings are set up in the new signal controller. c. They will need to have one of the City's approved traffic signal electrical contractors complete all of the removal and relocation work in the signal controller cabinet. When they plan to work on the EVP at the signal, Traffic will need to be notified to send someone out. d. The City's project will rebuild the signal, the part that has to be coordinated will be the EVP system. Our project will relocate the existing hardwired EVP for the existing station to the new signal. The new signal has been designed to accommodate the new station entrance. CCFR needs to remove/replace/relocate the EVP system when they tear down the existing station and show me how they are connecting the new station. The City needs to know if they are reconnecting the new station to the signal or using the Opticom cloud system with the new station only.

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

LEGEND FOR REMOVAL

PAVEMENT REMOVAL

BUILDING REMOVAL

TREE REMOVAL (T.B.R.)

N/F
REORGANIZED SCHOOL DIST NO 3
PARCEL
ID: 3-0015-S015-00-0003.1000000
BK.870 PG.718
PARENT PARCEL

UNINCORPORATED
ST. CHARLES COUNTY

HOUSE #6
F.F.=568.50
11,937 S.F.
22 Parking Spaces

JUNGS STATION ROAD
(WIDTH VARIES)
SHOWN PER. PARENT DEED
BK.870 PG.718

FULL DEPTH SAWCUT

PHASE 2 WALL (SEE C14.0)

PHASE 2 GRADING

CONTRACTOR TO COORDINATE THE REMOVAL OF TEMPORARY PAVEMENT WITH CCFAR AND FRANCIS HOWELL

REMOVE TEMPORARY ASPHALT AFTER NORTH DRIVE IS OPEN (SEE C11.0)

N 12°23'24" W 314.41'

S 12° 23' 24" E 375.00'

S 12°23'24" E 136.57'

N 86°19'44" W 194.11'

N 77°36'36" E 20.00'

S 89° 19' 08" E 214.57' (S)
S 89°21' E 212.21' (R)

FENCE, GATE ALL-INTERIOR (U.I.P.)

25' X 25' LEASE AREA (BK. 2655 PG. 438)

(BUILDING, FOOTINGS, FOUNDATION & UTILITIES (T.B.R.)

"CENTRAL COUNTY FIRE AND RESCUE STATION 6"

10' W. EASEMENT

LIGHT & FLAG POLE T.B.R. (COORDINATE WITH OWNER)

Archimages
architecture | interiors
Archimages, Inc.#305050
MO Architectural Corporation
143 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com | p: (314) 965-7445 | f: (314) 965-7477

CEDC
CIVIL ENGINEERING
DESIGN CONSULTANTS
10820 Sunset Office Drive
Suite 200
Sunset Hills, Missouri 63127
314-729-1400
Fax: 314-729-1404
www.cedcstl.com

Professional Engineer No. E-28650
Missouri Certificate of Authority No. 2003004674

Proposed:
CENTRAL COUNTY FIRE & RESCUE HOUSE #6
1151 Jungs Station Road
St. Peters, Missouri 63303

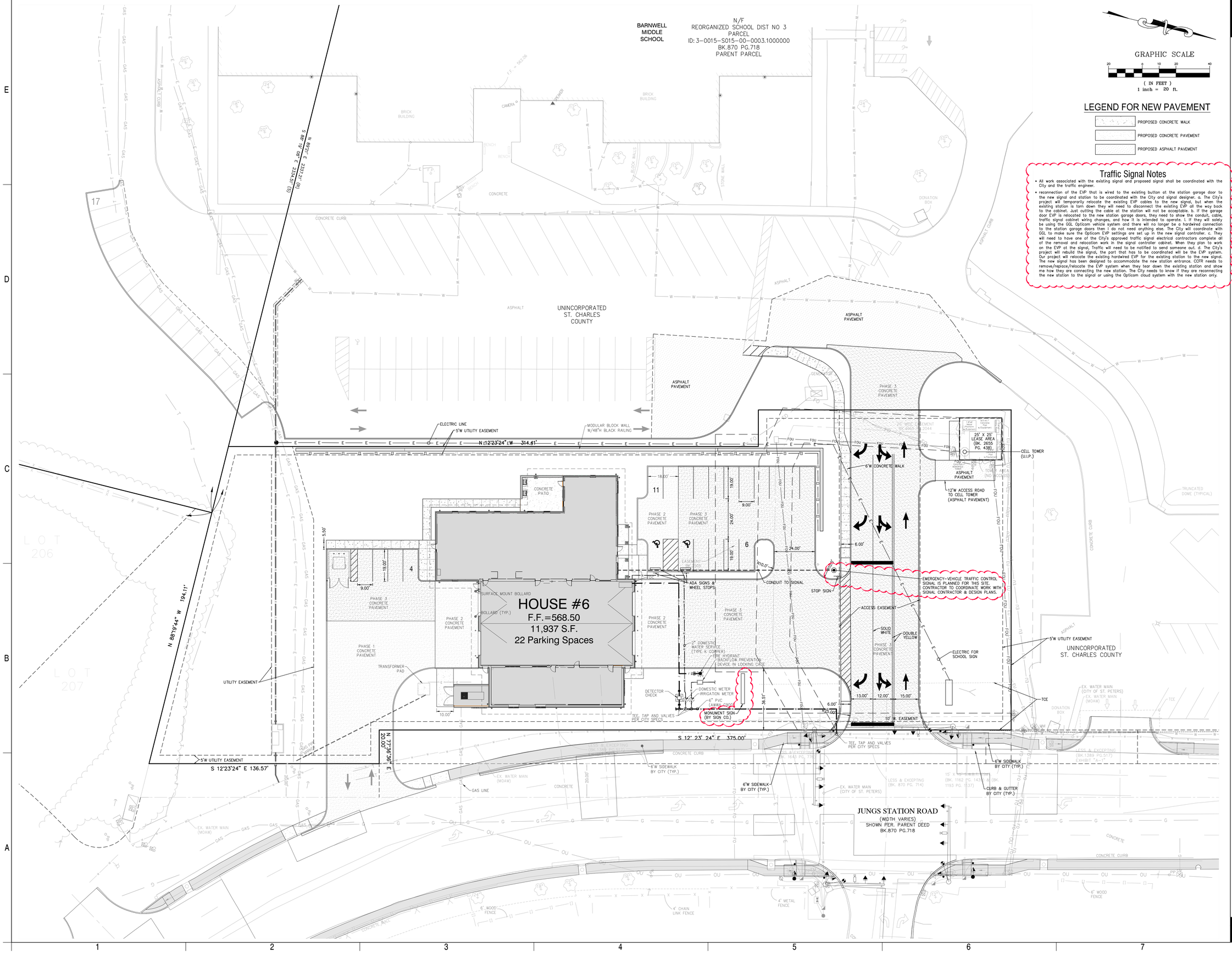
No.	Date	Revision
2	7/15/2026	Addendum 02

PHASE 3 - EXISTING CONDITIONS & FACILITIES REMOVAL PLAN

Project No.
2589

Sheet No.
C9.0

Date
2026/06/08



SCALE: 3" = 1'-0" 1' 0 3' 6'
SCALE: 1 1/2" = 1'-0" 1' 0 3' 6'
SCALE: 1" = 1'-0" 1' 0 6" 3' 6'
SCALE: 3/4" = 1'-0" 1' 0 3' 6'
SCALE: 1/2" = 1'-0" 1' 0 2' 1'
SCALE: 3/8" = 1'-0" 2' 0 4' 2'
SCALE: 1/4" = 1'-0" 2' 0 8' 4'
SCALE: 1/8" = 1'-0" 4' 0 16' 8'
SCALE: 3/32" = 1'-0" 8' 0 24' 16'
SCALE: 1/16" = 1'-0" 8' 0 32' 16'

Professional Engineer No. E-28650
Missouri Certificate of Authority No. 2003004674

Archimages
architecture | interiors
MO Architectural Corporation
Archimages, Inc.# 000550
143 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com | p: (314) 965-7445 | f: (314) 965-7477

CEDC
CIVIL ENGINEERING
DESIGN CONSULTANTS
10820 Sunset Office Drive
Suite 200
St. Louis, Missouri 63127
314-729-1400
Fax: 314-729-1404
www.cedcstl.com

Proposed:
CENTRAL COUNTY FIRE & RESCUE HOUSE #6
1151 Jungs Station Road
St. Peters, Missouri 63303

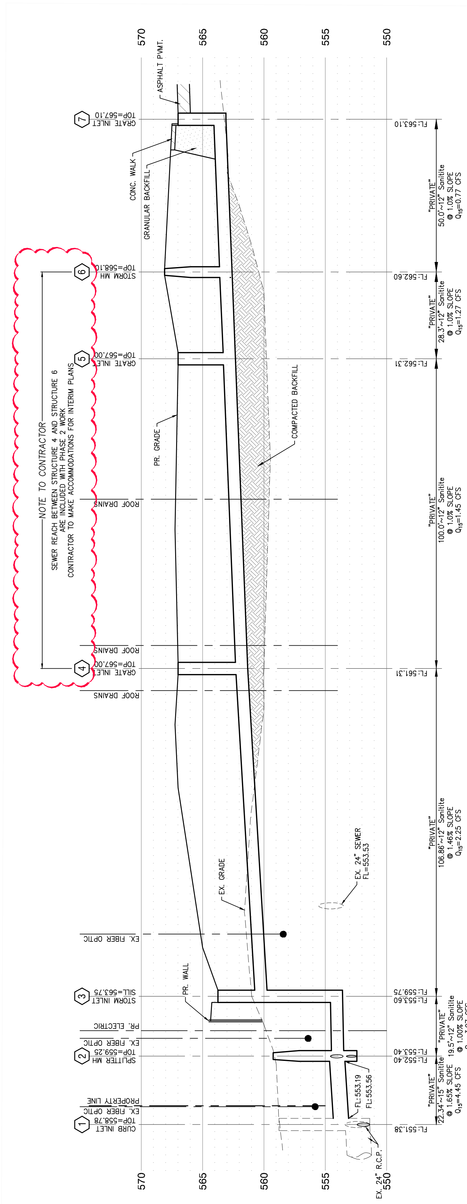
No.	Date	Revision
2	7/15/2026	Addendum 02

PHASE 3 - SITE GEOMETRY AND UTILITY PLAN

Project No.
2589

Sheet No.
C11.0

Date
2026/06/08



SEWER PROFILES AND HYDRAULIC CALCULATIONS

No.	Date	Revision
2	7/15/2026	Addendum 02

Proposed:

CENTRAL COUNTY FIRE & RESCUE HOUSE #6

1151 Jungs Station Road
St. Peters, Missouri 63303

CEDC
CIVIL ENGINEERING
DESIGN CONSULTANTS
10520 Sunset Office Drive
Suite 200
Saint Louis, Missouri 63127
314.729.1400
Fax: 314.729.1404
www.cedc.net

Archimages
architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000650
143 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com | p: [314] 965.7445 | f: [314] 965.7477

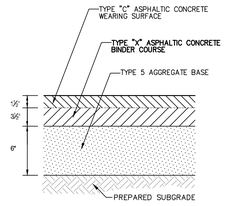
Professional Engineer No. E-26050
Missouri Certificate of Authority No. 2020006824

Project No.
2589

Sheet No.
C12.0

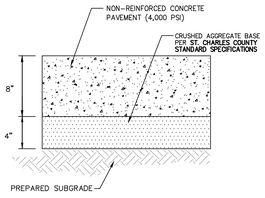
Date
2026/06/08

SCALE: 3" = 1'-0"
SCALE: 1 1/2" = 1'-0"
SCALE: 1" = 1'-0"
SCALE: 3/4" = 1'-0"
SCALE: 1/2" = 1'-0"
SCALE: 3/8" = 1'-0"
SCALE: 1/4" = 1'-0"
SCALE: 1/8" = 1'-0"
SCALE: 3/32" = 1'-0"
SCALE: 1/16" = 1'-0"



LIGHT DUTY ASPHALT PAVEMENT DETAIL

(N.T.S.)



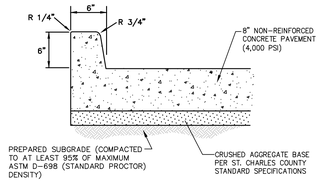
CONCRETE PAVEMENT DETAIL

(FOR USE IN APPROACHES, DUMPSTER PAD AND PRIMARY DRIVE AREAS)

IN PAVEMENT AREAS WHERE UNDOCUMENTED FILL MATERIALS ARE ENCOUNTERED, PSI RECOMMENDS THAT SUCH MATERIALS BE UNDERCUT AND REPLACED TO PROVIDE AT LEAST 1 FOOT OF APPROVED ENGINEERED FILL BENEATH THE PROPOSED PAVEMENT SUBGRADE.

NOTES:

1. REFER TO SITE PLAN FOR AREAS OF PAVEMENT TYPE AND THICKNESS.
2. EXPANSION MATERIAL SHALL BE INSTALLED EVERY 20' IN CURB. EXPANSION MATERIAL SHALL BE OF A TYPE EQUAL TO THE ASPHALT IMPREGNATED FIBERBOARD CONFORMING TO ASTM C 175 FOR EXTERIOR WORK. EXPANSION MATERIAL SHALL EXTEND FULL DEPTH OF CURB AND GUTTER, LESS 1/4" AT TOP OF CONCRETE.
3. CURBS TO BE PROVIDED WITH SAW CUT OR TOOLED JOINT AT 10' INTERVALS.
4. JOINTS AND SAW CUTS TO BE SEALED WITH LIMESTONE COLORED SEALANT.
5. TYPE 5 AGGREGATE REFERS TO **ST. CHARLES COUNTY** SPECIFICATION

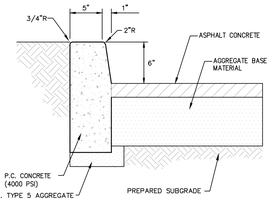


BARRIER CURBING DETAIL

N.T.S.

NOTES:

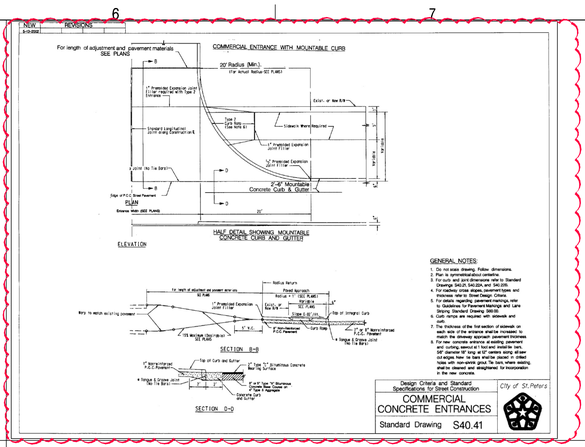
1. REFER TO SITE PLAN FOR AREAS OF PAVEMENT TYPE AND THICKNESS.
2. EXPANSION MATERIAL SHALL BE INSTALLED EVERY 20' IN CURB. EXPANSION MATERIAL SHALL BE OF A TYPE EQUAL TO THE ASPHALT IMPREGNATED FIBERBOARD CONFORMING TO ASTM C 175 FOR EXTERIOR WORK. EXPANSION MATERIAL SHALL EXTEND FULL DEPTH OF CURB AND GUTTER, LESS 1/4" AT TOP OF CONCRETE.
3. CURBS TO BE PROVIDED WITH SAW CUT OR TOOLED JOINT AT 10' INTERVALS.
4. JOINTS AND SAW CUTS TO BE SEALED WITH LIMESTONE COLORED SEALANT.
5. TYPE 5 AGGREGATE REFERS TO **ST. CHARLES COUNTY** SPECIFICATION.

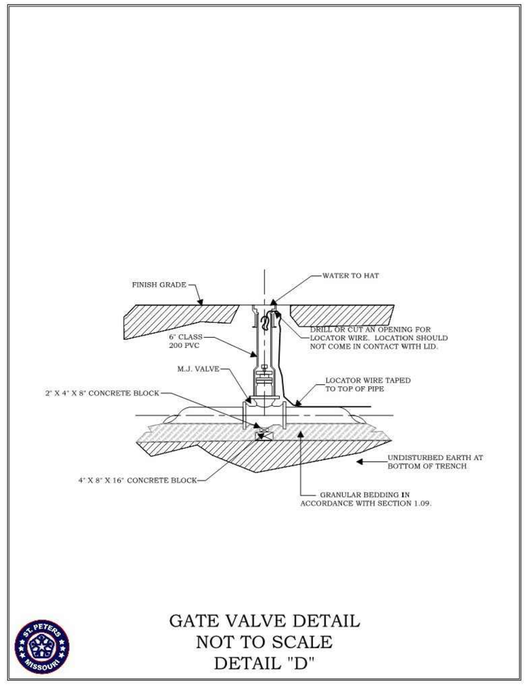


CONCRETE VERTICAL CURB DETAIL

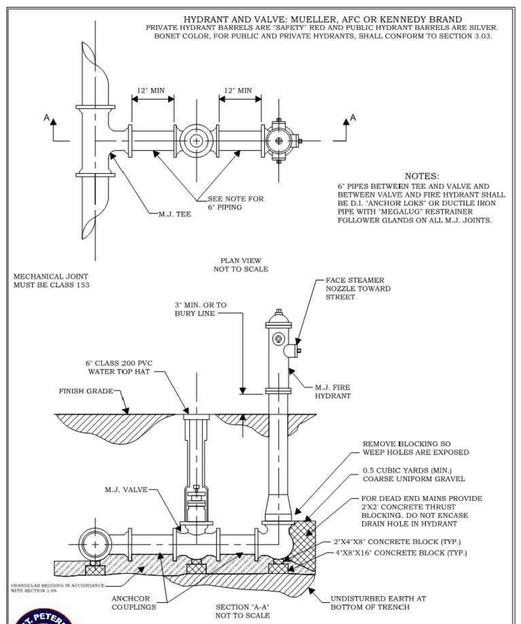
N.T.S.
(NOT FOR USE IN RIGHT-OF-WAY)

NO.	REVISIONS
1	Initial Issue

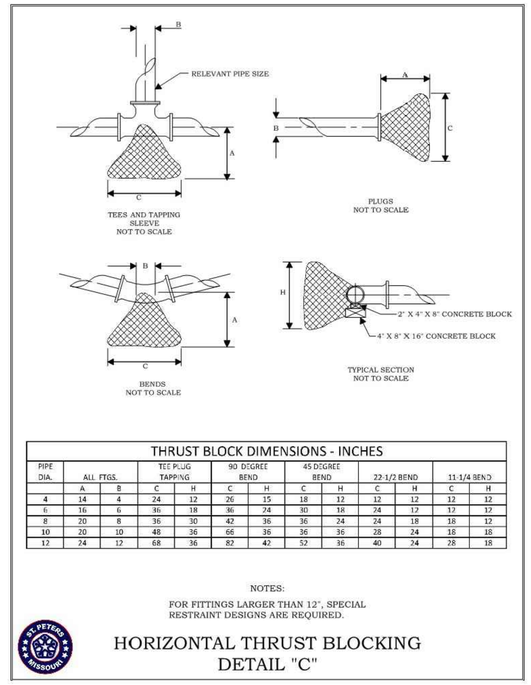

COMMERCIAL ENTRANCE WITH MOUNTABLE CURB
For length of adjustment and pavement materials SEE PLANS
20' Radius (Min.) For actual Radius SEE PLANS
Existing Asphaltic Concrete Surface Material to be Removed
Subgrade Preparation
Type 5 Aggregate Base (see note 6)
Sidewalk Ramp Required
1" Asphaltic Expansion Joint Filler
Asphaltic Concrete Surface Course
Asphaltic Concrete Binder Course
Type 5 Aggregate Base
Existing Asphaltic Concrete Pavement
Match Existing Pavement Thickness
Varies
Slope Varies
Slope Varies
Match Existing Pavement Thickness
Slope Varies
Slope Varies
Slope Varies



GATE VALVE DETAIL
NOT TO SCALE
DETAIL "D"



FIRE HYDRANT DETAIL
DETAIL "B"



THRUST BLOCK DIMENSIONS - INCHES

PIPE DIA.	ALL FTGS.		TEE PLUG TAPPING		90 DEGREE BEND		45 DEGREE BEND		22-1/2 BEND		11-1/4 BEND	
	A	B	C	H	C	H	C	H	C	H	C	H
4	14	4	24	12	26	15	18	12	12	12	12	12
6	16	6	36	18	36	24	30	18	24	12	12	12
8	20	8	36	30	42	36	36	24	24	18	18	12
10	20	10	48	36	66	36	36	36	28	24	18	18
12	24	12	68	36	82	42	52	36	40	24	28	18

NOTES:
FOR FITTINGS LARGER THAN 12", SPECIAL RESTRAINT DESIGNS ARE REQUIRED.

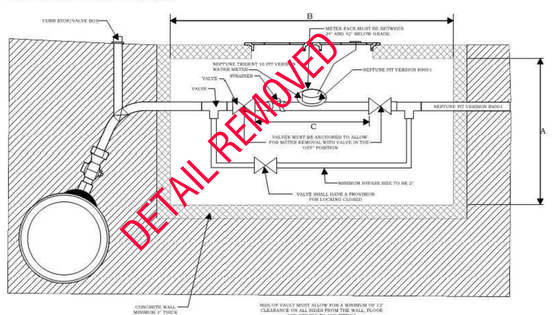
HORIZONTAL THRUST BLOCKING
DETAIL "C"

City of St. Peters Water Notes

- All water infrastructure will be private except water meters.
- Water meters to be supplied by developer. Water meters shall be Neptune Mach 10 model.
- Irrigation meter shall have inline curb stop valves upstream and downstream of meter pit.
- An approved reduced pressure zone (RPZ) backflow prevention device must be installed on all potable water service lines entering the premises, on all lawn irrigation and sprinkler systems and all fire protection systems with chemical additives present. An approved reduced pressure zone (RPZ) or double check (DC) backflow prevention device must be installed on all fire protection systems without chemical additives. If any of these items are present on your site, you must install the appropriate device(s) as indicated on each applicable item.
- All backflow devices shall be tested at the time of installation and the report submitted to the City of St. Peters to backflow@stpetersmo.net within 30 days after completion of the test. The tester must be certified by the Missouri Department of Natural Resources. Note that all backflow devices must be tested every year, with the reported results submitted to the City prior to June 1.

METER SETTING REQUIREMENTS FOR THE CITY OF ST. PETERS

NOTES:
3" AND LARGER COMMERCIAL SINGLE METER SETTING
1. VAULT MUST NOT HOLD WATER
2. COMPLETE FRAME AND LID SHALL BE REMOVABLE, NOT CAST IN CONCRETE.
3. DOUBLE FRAME AND LID OPENINGS ARE REQUIRED AND SHALL BE CENTERED OVER THE METER ITSELF.
4. BRONZE SADDELS SHALL BE USED WITH ALL MATER MAINS.
5. SEE ATTACHED APRROVED PART LIST.



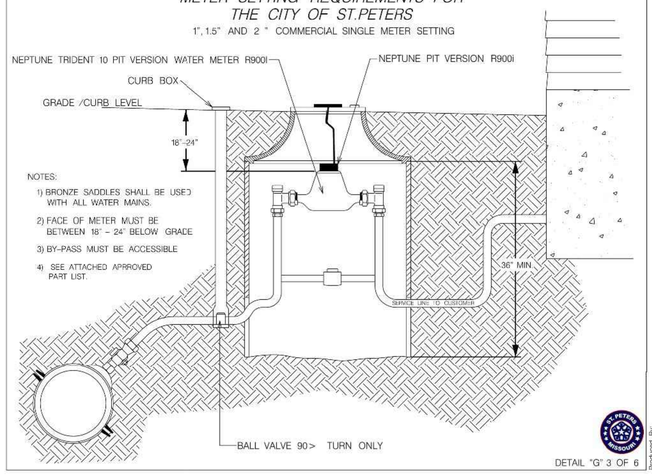
DETAIL REMOVED

SIZE		MIN. DIM. IN.		
SERVICE IN.	BYPASS MIN-IN	A	B	C
6	6	60	144	60
8	8	60	144	66
3	2	48	102	54
4	2	48	102	54

DETAIL "G" 3 OF 6

METER SETTING REQUIREMENTS FOR THE CITY OF ST.PETERS

1", 1.5" AND 2 " COMMERCIAL SINGLE METER SETTING

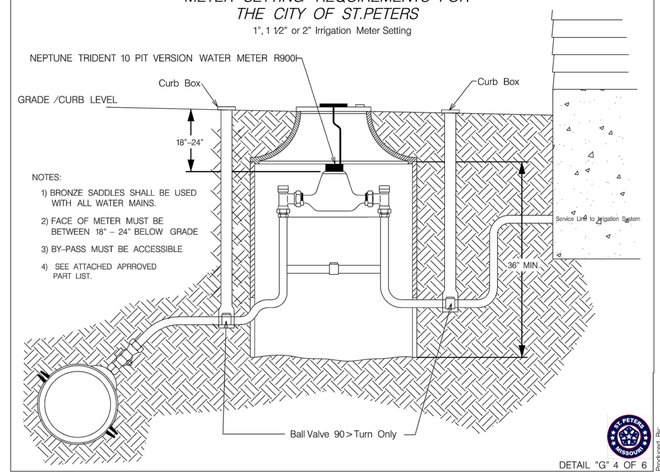


DETAIL "G" 3 OF 6

Produced By:
CEDC Engineering
DETAIL "G" 3 OF 6

METER SETTING REQUIREMENTS FOR THE CITY OF ST.PETERS

1", 1 1/2" or 2" Irrigation Meter Setting



DETAIL "G" 4 OF 6

Produced By:
CEDC Engineering
DETAIL "G" 4 OF 6

Professional Engineer No. E-28650
Missouri Certificate of Authority No. 2003004674

Archimages | architecture | interiors
MO Architectural Corporation Archimages, Inc.# 900550
1143 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com | P: (314) 965-7445 | f: (314) 965-7477

CEDC
CIVIL ENGINEERING
DESIGN CONSULTANTS
10820 Sunset Office Drive
Suite 200
Sunset Hills, Missouri 63127
314-729-1400
Fax: 314-729-1404
www.cedcstl.net

Proposed:
CENTRAL COUNTY FIRE & RESCUE HOUSE #6
1151 Jungs Station Road
St. Peters, Missouri 63303

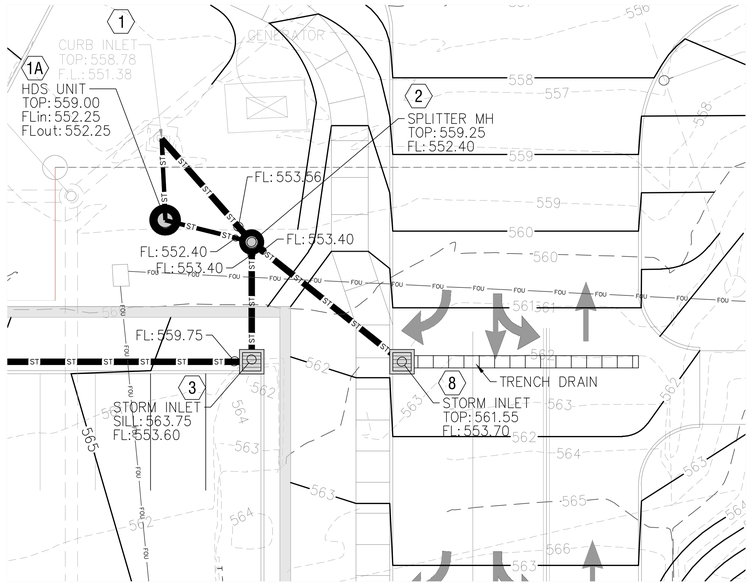
No.	Date	Revision
2	7/15/2026	Addendum 02

SITE DETAILS

Project No.
2589

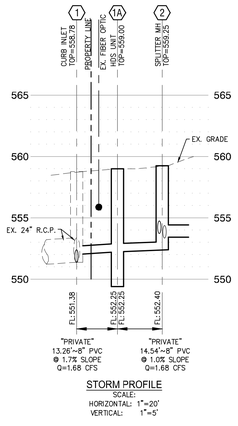
Sheet No.
C14.1

Date
2026/06/08



HDS UNIT PLAN
SCALE: 1"= 10'

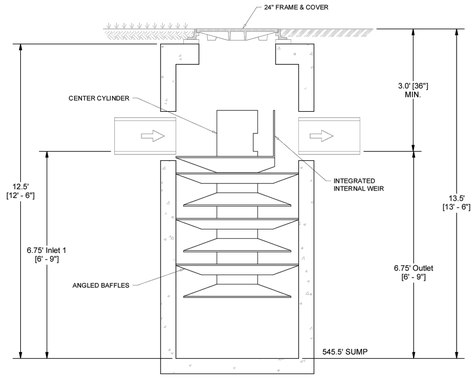
GRAPHIC SCALE
10 0 5 10 20
(IN FEET)
1 inch = 10 ft.



STORM PROFILE
SCALE:
HORIZONTAL: 1"=20'
VERTICAL: 1"=5'

ARCADIA AR4

				1A
NJDEP MAXIMUM TREATMENT RATE				1.68 CFS
BYPASS RATE	-		RIM ELEVATION ±	559.00'
	DIAMETER	ANGLE	TYPE	INVERT
INLET 1	8"	106°	PVC	552.25'
INLET 2	-	-	-	-
INLET 3	-	-	-	-
OUTLET	8"	0°	PVC	552.25'
SUMP ELEVATION				545.5'



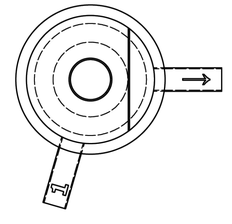
PROFILE VIEW
NTS

PRODUCT SPECIFICATIONS

- THE STORMWATER TREATMENT UNIT SHALL BE AN INLINE UNIT CAPABLE OF CONVEYING 100% OF THE DESIGN PEAK FLOW. IF PEAK FLOW RATES EXCEED MAXIMUM HYDRAULIC RATE, THE UNIT SHALL BE INSTALLED OFFLINE.
- THE ARCADIA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 80% OF THE SUSPENDED SOLIDS ON AN ANNUAL AGGREGATE REMOVAL BASIS. SAID REMOVAL SHALL BE BASED ON FULL-SCALE THIRD PARTY VERIFIED TESTING USING OK-110 MEDIA GRADATION OR EQUIVALENT AND 300 MG/L INFLUENT CONCENTRATION. FULL SCALE TESTING SHALL HAVE INCLUDED SEDIMENT CAPTURE BASED ON ACTUAL TOTAL MASS COLLECTED BY THE STORMWATER TREATMENT UNIT.

-OR -

THE ARCADIA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS USING A MEDIA MIX WITH D50=75 MICRON AND 200 MG/L INFLUENT CONCENTRATION PER CURRENT NJDEP/NJCAT HDS PROTOCOL.



PLAN VIEW
NTS

NOTES:

- ENGINEER / CONTRACTOR TO CONFIRM PIPE MATERIALS AND APPLICABLE ADAPTERS.
- CONTRACTOR IS RESPONSIBLE FOR MATERIAL AND LABOR TO BRING CASTINGS TO FINISHED GRADE.
- CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT.
- UNIT SHALL CONFORM TO HS20-44 LOAD RATINGS.

CC Fire Station 6 - AR4 REV0
St Charles, MO
DATE: Jul 2, 2025 DRAWN: CMD
DRAWING #: CHECKED:

DATE	DWN	CHK
12/1/2025	AJM	AJM

ARCADIA
Stormwater Separator

4845 TRUEMAN BLVD
HILLIARD, OH 43026

THIS DRAWING WAS SEALED ELECTRONICALLY BASED ON INFORMATION PROVIDED TO DESIGNER BY OR UNDER THE DIRECTION OF THE PERSON(S) IDENTIFIED AS THE AUTHOR(S) OF RECORD. SUCH INFORMATION MAY HAVE BEEN MODIFIED BY OTHERS SUBSEQUENT TO THE ORIGINAL SEALING AND DATING. THE DESIGNER HAS NO CONTROL OVER SUCH MODIFICATIONS AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF ANY SUCH MODIFICATIONS. THE DESIGNER SHALL BE HELD HARMLESS FROM ANY AND ALL DAMAGES, CLAIMS, OR LIABILITIES CAUSED BY OR RESULTING FROM SUCH MODIFICATIONS. IT IS THE SOLE RESPONSIBILITY OF ANY USER OF THIS DRAWING TO VERIFY THE INFORMATION PRIOR TO RELYING UPON IT FOR ANY PURPOSE. THIS DRAWING IS NOT INTENDED FOR USE IN NEGOTIATIONS OR CONSTRUCTION REVISIONS, AND PRODUCT REQUIREMENTS.

1 SHEET OF 1

Professional Engineer No. E-28650
Missouri Certificate of Authority No. 2003004674

Archimages
architecture | interiors
MO Architectural Corporation Archimages, Inc.# 800550
143 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com | P: [314] 965.7445 | f: [314] 965.7477

CEDC
CIVIL ENGINEERING
DESIGN CONSULTANTS
10820 Sunset Office Drive
Suite 200
Sunset Hills, Missouri 63127
314-729-1400
Fax: 314-729-1404
www.cedcstl.net

Proposed:
CENTRAL COUNTY FIRE & RESCUE HOUSE #6
1151 Jungs Station Road St. Peters, Missouri 63303

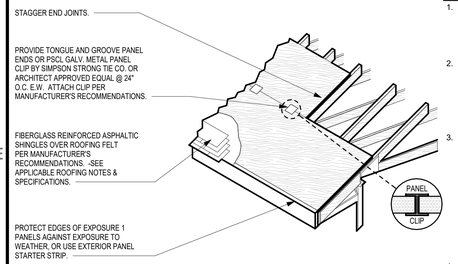
No.	Date	Revision
2.	7/15/2026	Addendum 02

BEST MANAGEMENT PRACTICES PLAN

Project No.
2589

Sheet No.
C15.1

Date
2026/06/08

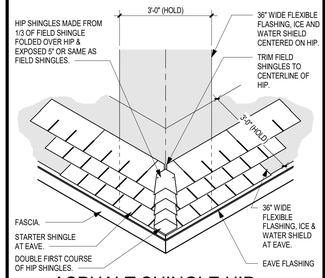


E1 SCHEMATIC ROOFING DETAIL
N.T.S

NOTES:

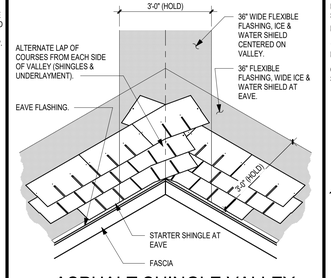
1. COVER SHEATHING AS SOON AS POSSIBLE WITH ROOFING MEMBRANE FOR EXTRA PROTECTION AGAINST EXCESSIVE MOISTURE PRIOR TO ROOFING APPLICATION.
2. FOR PITCHED ROOFS, PLACE SCREENED SURFACE OR SIDE WITH SKID-RESISTANT COATING UP IF OSB PANELS ARE USED IN LIEU OF PLYWOOD. KEEP ROOF SURFACE FREE OF DIRT, SAWDUST AND DEBRIS, AND WEAR SKID-RESISTANT SHOES WHEN INSTALLING ROOF SHEATHING.
3. FOR BUILDINGS WITH CONVENTIONALLY FRAMED ROOFS (TRUSSES OR RAFTERS), LIMIT THE LENGTH OF CONTINUOUS SECTIONS OF ROOF AREA TO 80 FEET MAXIMUM DURING CONSTRUCTION, TO ALLOW FOR ACCUMULATED EXPANSION IN WET WEATHER CONDITIONS. OMIT ROOF SHEATHING PANELS IN EACH COURSE OF SHEATHING BETWEEN SECTIONS, AND INSTALL "FILL-IN" PANELS LATER TO COMPLETE ROOF DECK INSTALLATION PRIOR TO APPLYING ROOFING.
4. WHEN USING ROOF CLIPS ALLOW AN 1/8" GAP BETWEEN CAP AT ALL EDGE AND END JOINTS UNLESS OTHERWISE INDICATED BY PANEL MANUFACTURER

07.31.13.01 SCHEMATIC ROOFING DETAIL 2W X 1H



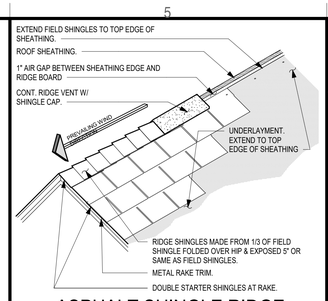
E3 ASPHALT SHINGLE HIP FLASHING DETAIL
N.T.S.

07.31.13.04 ASPHALT SHINGLE HIP FL DET 1W X 1H



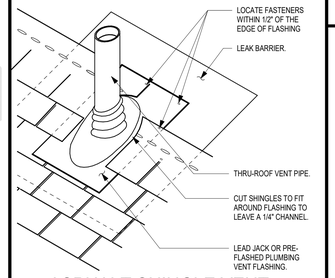
E4 ASPHALT SHINGLE VALLEY FLASHING DETAIL
N.T.S.

07.31.13.02 ASPHALT SHINGLE RIDGE DET 1W X 1H



E5 ASPHALT SHINGLE RIDGE FLASHING DETAIL
N.T.S.

07.31.13.02 ASPHALT SHINGLE RIDGE DET 1W X 1H

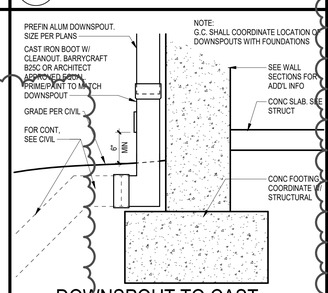


ASPHALT SHINGLE VENT PENETRATION FLASHING DET.
N.T.S.

07.31.13.03 ASPHALT SHINGLE VENT DET 2W X 1H

ROOF PLAN GENERAL NOTES

1. CONTRACTORS SHALL BE RESPONSIBLE TO COORDINATE ALL PENETRATIONS WITH ALL MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND TRADES.
2. CONTRACTOR SHALL COORDINATE LOCATION OF DOWNSPOUTS WITH CIVIL PLANS.
3. IN THE EVENT OF CONFLICT ARCHITECTURAL DWGS SHALL TAKE PRECEDENCE OVER CIVIL DWGS FOR LOCATION AND NUMBER OF DOWNSPOUTS
4. REF. STRUCTURAL DWGS FOR MINIMUM ROOF SHEATHING REQUIREMENTS.
5. SEE ALL APPLICABLE UL ASSEMBLIES AS DESCRIBED ELSEWHERE IN THESE DRAWINGS, FOR REQUIREMENTS DESCRIBED THEREIN. UL REQUIREMENTS OR DETAILING SHALL TAKE PRECEDENCE SHALL ANY DISCREPANCIES ARISE.
6. GENERAL CONTRACTOR SHALL ENSURE DESIGN VENTILATION REQUIREMENTS, DESCRIBED HEREIN, TO BE MET IF SUBSTITUTIONS OF MATERIAL TYPES AND QUANTITIES ARE SUBMITTED AND APPROVED BY THE ARCHITECT. GC ASSUMES RESPONSIBILITY FOR TYPE, LOCATION, ARRANGEMENT AND QUANTITIES FOR MEETING THESE REQUIREMENTS.
7. SEE REFLECTED CEILING PLAN FOR EXTENT OF SOFFIT AREAS. GC TO PROVIDE LAYOUT OF SOFFIT AREA FOR INTAKE AIR, SIZED AND EQUALLY DISTRIBUTED PER CALCULATIONS DESCRIBED ELSEWHERE IN THESE DOCUMENTS.



DOWNSPOUT TO CAST IRON BOOT DET.
N.T.S.

ROOF DRAINAGE CALCULATIONS:

SQUARE FOOTAGE OF TOTAL ROOF = 14,418 SQ.FT.

R = RAINFALL INTENSITY = 4.0" PER HOUR
A = ROOF AREA = 14,418 SF
GPM = R x A x 0.0104
4.0 x 14,418 x 0.0104 = 600 GPM

D = DOWNSPOUT = 12
GPM/D = GPM PER DOWNSPOUT
600/12 = 50 GPM

DOWNSPOUT SIZE = 4" x 3"

ATTIC VENTILATION CALCULATIONS:

NOTE: VENTILATING AT EAVE ONLY. VENTILATION AREA SHALL EXCEED 1:150. ACTUAL VENTILATION TO BE VERIFIED WITH SUBMITTED SOFFIT MATERIAL.

HOUSE ATTIC - TOTAL 6029 SQ.FT.
REQ VENTILATION - 1 SQ.FT. /150 SQ.FT. - 6,029/150 = 44.2 SQ FT

ACTUAL SOFFIT AREA @ EAVE = 600 SQ FT
BASIS OF DESIGN VENTILATION = 12%
ACTUAL VENTILATION = 72 > 44.2 SQ FT

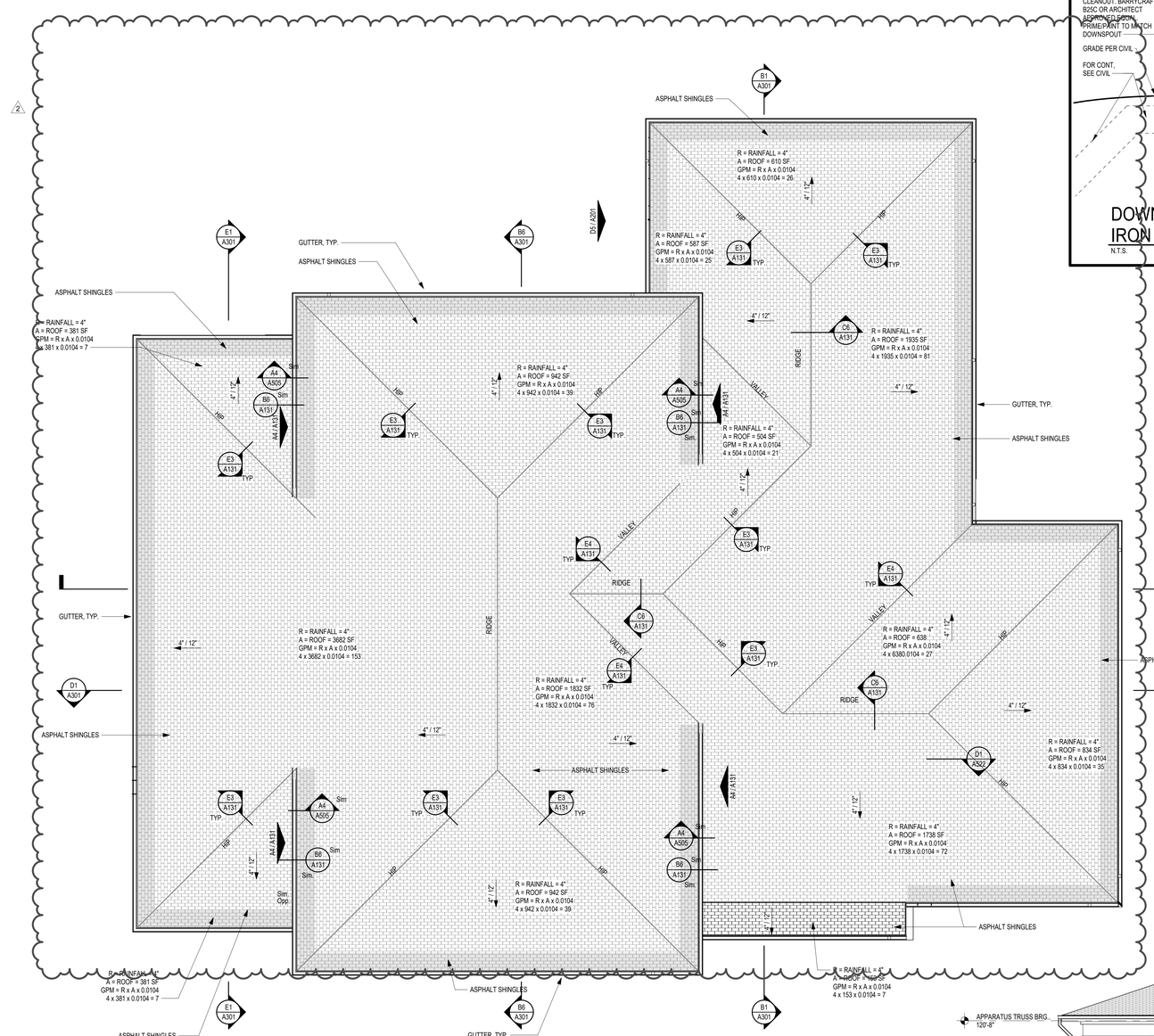
APPARATUS BAY - TOTAL 5775 SQ.FT.
REQ VENTILATION - 1 SQ.FT. /150 SQ.FT. - 5,775/150 = 38.5 SQ FT

ACTUAL SOFFIT AREA @ EAVE = 600 SQ FT
BASIS OF DESIGN VENTILATION = 12%
ACTUAL VENTILATION = 72 > 38.5 SQ FT

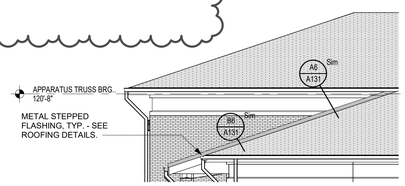
SHELTER ATTIC - TOTAL 1975 SQ.FT.

REQ VENTILATION - 1 SQ.FT. /150 SQ.FT. - 1975/150 = 13.2 SQ FT
REQ VENTILATION @ EVE 2 SQ. FT

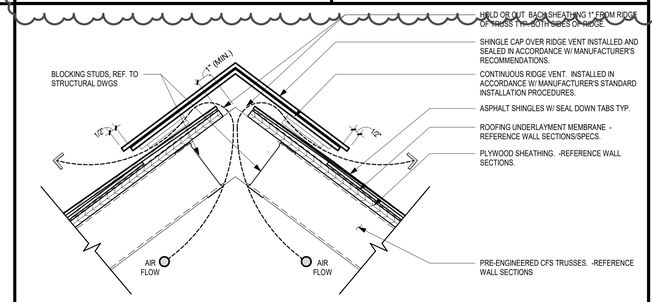
ACTUAL SOFFIT AREA @ EAVE = 338 SQ FT
BASIS OF DESIGN VENTILATION = 12%
ACTUAL VENTILATION = 40.56 > 13.2 SQ FT



A1 ROOF PLAN
1/8" = 1'-0"

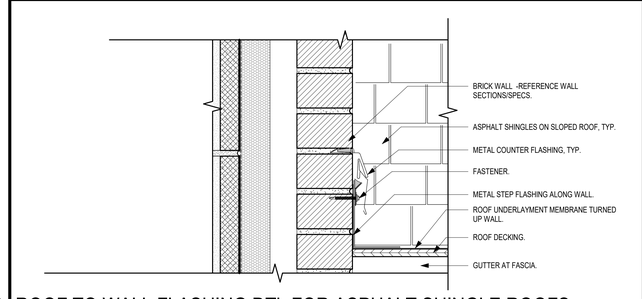


A4 ROOF TO WALL FLASHING
1/8" = 1'-0"



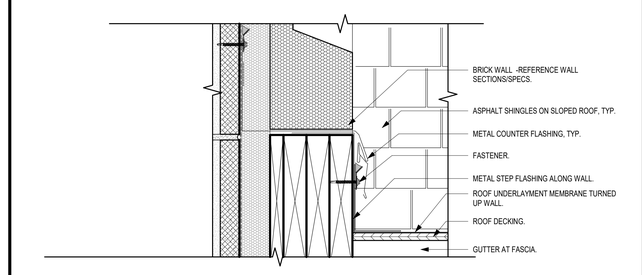
C6 RIDGE VENT DETAIL FOR ASPHALT SHINGLE ROOFS
3" = 1'-0"

07.31.13.03 ASPHALT SHINGLE RIDGE VENT DET 2W X 1H



B6 ROOF TO WALL FLASHING DTL FOR ASPHALT SHINGLE ROOFS
3" = 1'-0"

07.31 ASPHALT SHINGLE ROOF FLASHING DET 2W X 1H



A6 ROOF TO EIFS WALL FLASHING DTL FOR ASPHALT SHINGLE ROOFS
3" = 1'-0"

07.31 ASPHALT SHINGLE ROOF FLASHING DET 2W X 1H

Roy A. Mangan
MO Architect License No: A-6661
Expires: 12/31/26

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000550
143 West Clinton Place St. Louis, Missouri 63122
p: (314) 965.7445 f: (314) 965.7477
www.archimages-stl.com

Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD
ST. CHARLES, MO 63303

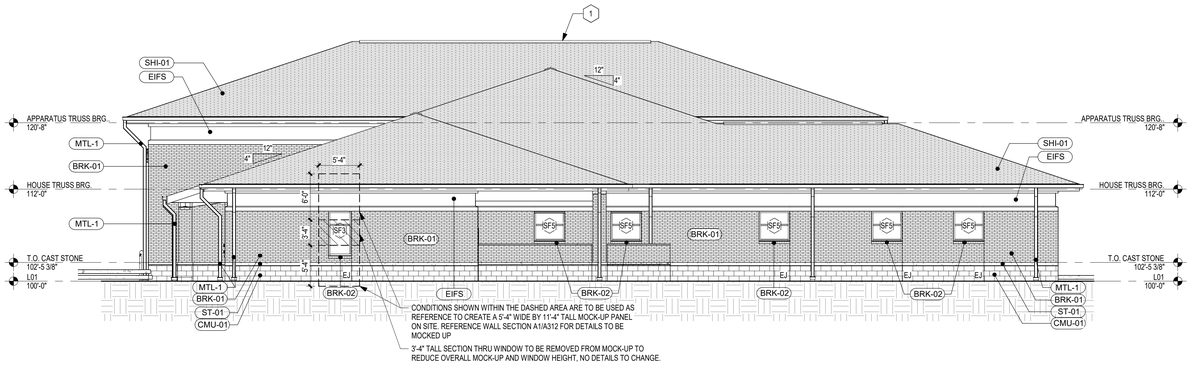
No.	Date	Revision
2	7/15/2026	Addendum 02

ROOF PLAN

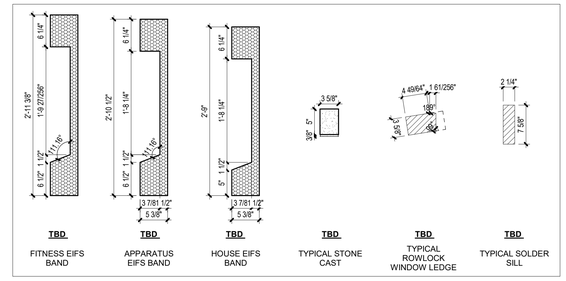
Project No. 24057
Sheet No. A131
Date 2026/07/15

SCALE: 3" = 1'-0" 1" 6" 3" 0
SCALE: 1 1/2" = 1'-0" 2" 1" 6" 3" 0
SCALE: 1" = 1'-0" 2" 1" 6" 3" 0
SCALE: 3/4" = 1'-0" 2" 1" 6" 3" 0
SCALE: 1/2" = 1'-0" 4" 2" 1" 6" 3" 0
SCALE: 3/8" = 1'-0" 4" 2" 8" 4" 0
SCALE: 1/4" = 1'-0" 4" 2" 8" 4" 0
SCALE: 1/8" = 1'-0" 16" 8" 4" 0
SCALE: 3/32" = 1'-0" 24" 16" 8" 0
SCALE: 1/16" = 1'-0" 32" 16" 8" 0

7/14/2026 4:33:32 PM
\\HNGE\users\csalas\docs\24057_Central County Fire Station_House#6_R25_csalas#FMDW.rvt



B1 EAST EXTERIOR BUILDING ELEVATION
1/8" = 1'-0"



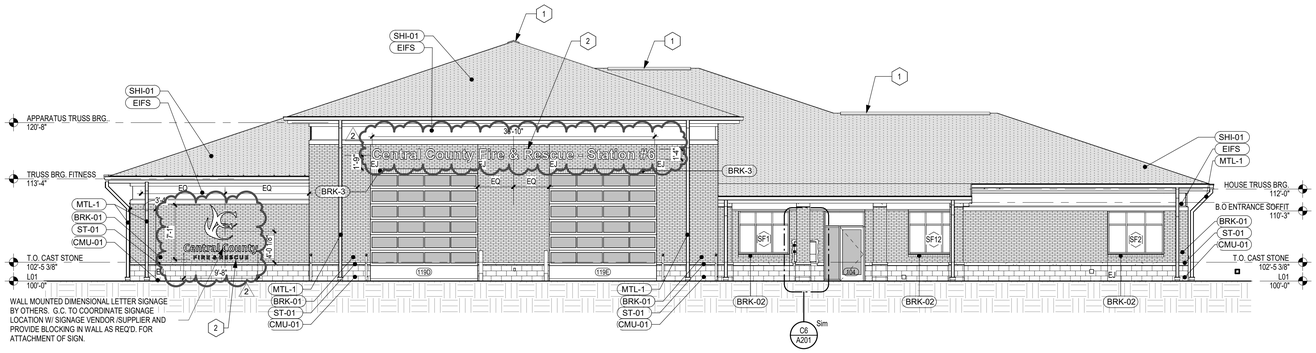
E5 TYPICAL SWEEP PROFILES
1" = 1'-0"

EXT. ELEVATION GEN. NOTES

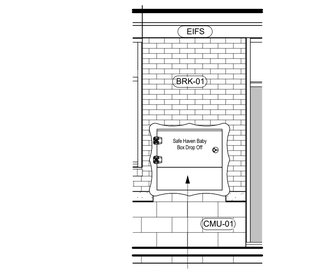
1. PROJECT NOTES ON SHEET A001 APPLY TO ALL SHEETS.
2. HEIGHTS OF WALLS REFERENCED ARE FROM FINISH FLOOR 100'-0".
3. SEE ROOF PLAN FOR ITEMS LOCATED ON THE ROOF - NOT SHOWN IN ELEVATIONS.
4. SEE MEPFP DRAWINGS FOR ALL MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION ITEMS.
5. WHERE GUTTERS ARE INDICATED, GUTTERS SHALL BE PRE-FINISHED METAL. PLUMBING CONTRACTOR TO VERIFY IF SIZE IS ADEQUATE.
6. WHERE DOWNSPOUTS INDICATED, GUTTERS SHALL BE PRE-FINISHED METAL WITH BRACKETS TOP AND BOTTOM OR 8'-0" O.C. MAX. PLUMBING CONTRACTOR TO VERIFY IF SIZE IS ADEQUATE. SEE EXTERIOR ELEVATIONS FOR LOCATIONS.
7. METAL COPING / FASCIAS SHALL BE PRE-FINISHED METAL. INTERSECTION SHAPES SHALL BE MITERED, WELDED AND FINISHED TO HAVE A MONOLITHIC APPEARANCE UNLESS OTHERWISE INDICATED.
8. PROVIDE SEALANT BETWEEN ALL DISSIMILAR MATERIALS, e.g. BRICK TO FLASHING, CMU TO FLASHING, WINDOWS / DOORS TO BRICK / CMU .

KEYED NOTES EXTERIOR ELEV.

MARK	DESCRIPTION
1	CONTINUOUS COR-A-VENT RIDGE VENT V600 WITHCAP SHINGLES, OR ARCHITECT APPROVED EQUAL.
2	WALL MOUNTED DIMENSIONAL LETTER SIGNAGE BY OTHERS. G.C. TO COORDINATE SIGNAGE LOCATION W/ SIGNAGE VENDOR /SUPPLIER AND PROVIDE BLOCKING IN WALL AS REQ'D. FOR ATTACHMENT OF SIGN.



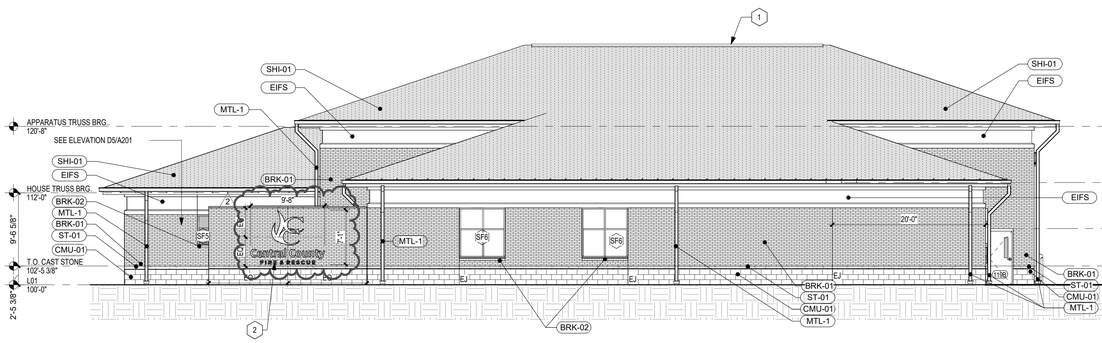
C1 SOUTH EXTERIOR BUILDING ELEVATION
1/8" = 1'-0"



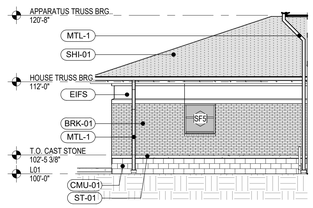
C6 BABY BOX SAFE HAVEN
3/8" = 1'-0"

EXT. BLDG. MTLS. LEGEND

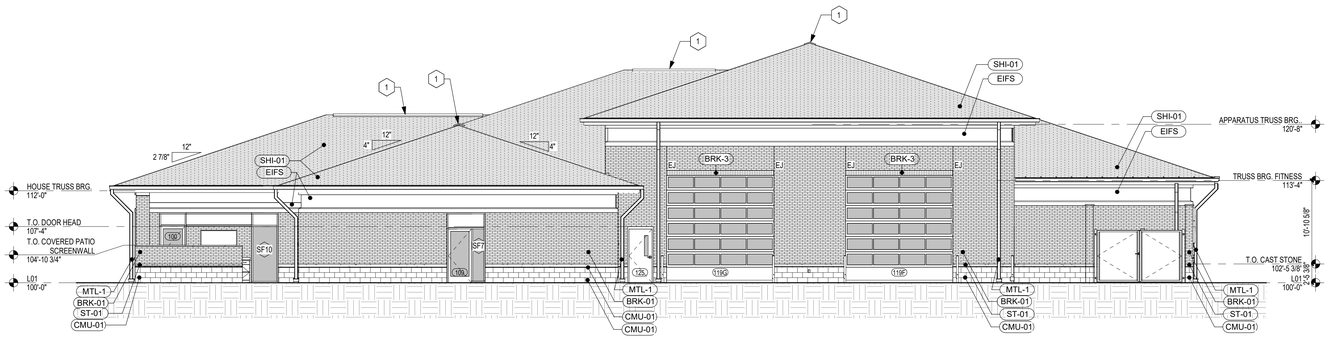
MARK	DESCRIPTION
BRK-1	CLAY FACE BRICK VENEER BASIS OF DESIGN: BRICK CRAFT COLOR: BOSTONIAN SIZE: MODULAR (3 5/8" X 2 1/4" X 7 5/8") BOND: RUNNING BOND MORTAR: SGS 10X LIGHT BUFF DISTRIBUTED BY: BEST BLOCK CONTACT: CHUCK DAVIS 314.291.3200 CONTRACTOR TO PROVIDE MOCK-UP FOR ARCHITECT APPROVAL
BRK-2	CLAY FACE BRICK VENEER BASIS OF DESIGN: BRICK CRAFT COLOR: BOSTONIAN SIZE: MODULAR (3 5/8" X 2 1/4" X 7 5/8") BOND: ROWLOCK SILL MORTAR: SGS 10X LIGHT BUFF DISTRIBUTED BY: BEST BLOCK CONTACT: CHUCK DAVIS 314.291.3200 CONTRACTOR TO PROVIDE MOCK-UP FOR ARCHITECT APPROVAL
BRK-3	CLAY FACE BRICK VENEER BASIS OF DESIGN: BRICK CRAFT COLOR: BOSTONIAN SIZE: MODULAR (3 5/8" X 2 1/4" X 7 5/8") BOND: SOLDIER COURSE LINTEL MORTAR: SGS 10X LIGHT BUFF DISTRIBUTED BY: BEST BLOCK CONTACT: CHUCK DAVIS 314.291.3200 CONTRACTOR TO PROVIDE MOCK-UP FOR ARCHITECT APPROVAL
CMU-01	SPLIT FACE CMU BLOCK BASIS OF DESIGN: MIDWEST BLOCK & BRICK COLOR: SOFT GOLD DISTRIBUTED BY: MIDWEST BLOCK AND BRICK CONTACT: CHUCK DAVIS 314.291.3200 CONTRACTOR TO PROVIDE MOCK-UP FOR ARCHITECT APPROVAL
MTL-1	GUTTERS & DOWNSPOUTS BASIS OF DESIGN: PAC-CLAD COLOR: MUSKET GRAY 614369 TEXTURE: SMOOTH PREFINISHED PROFILE: PAC-TITE WR - OFFSET SIZE: 6" W x 5" H
SHI-1	ASPHALT SHINGLES BASIS OF DESIGN: CERTAINTEED SERIES: LANDMARK PRO COLOR: WEATHERED WOOD
SOF-1	EXTERIOR VENTED SOFFIT BASIS OF DESIGN: PAC-CLAD FLUSH, WIDE VENTED SOFFIT, ALUMINUM .040 COLOR: MUSKET GRAY 614369 TEXTURE: SMOOTH PREFINISHED SIZE: 2'-0"L x 1'-0"W TYP. U.N.O.
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM BASIS OF DESIGN: DRYVIT COLOR: 3103 SANDSTONE TEXTURE: SANDPEBBLE FINE SEE DRAWINGS FOR PROFILE DESIGN. CONTRACTOR TO PROVIDE MOCK-UP FOR ARCHITECT APPROVAL
STN-1	LIME STONE BANDING BASIS OF DESIGN: SEMCO STONE STYLE: CUSTOM, INDIANA LIME STONE, HONED COLOR: CASTLE, BUFF MORTAR: SGS 10X LIGHT BUFF SIZE/ PATTERN: REFER TO LIME STONE PROFILES ON DRAWINGS.
STF-1	STOREFRONT & GLAZING BASIS OF DESIGN: MATCH CENTRAL COUNTY FIRE STATION 5 PROTOTYPE PRODUCT: YES 45 TU, 2" X 4 1/2" THERMALLY BROKEN ALUMINUM STOREFRONT SYSTEM FINISH: ANOD. DARK BRONZE GLAZING: 1" INSULATED GLASS VITRO SOLARBAN 60 (2) + CLEAR REFERENCE GLAZING SCHEDULE AND ARCHITECTURAL SPECS.



D1 WEST EXTERIOR BUILDING ELEVATION
1/8" = 1'-0"



D5 WEST EXTERIOR BUILDING ELEVATION 2
1/8" = 1'-0"



A1 NORTH EXTERIOR BUILDING ELEVATION
1/8" = 1'-0"

Roy A. Mangan
MO Architect License No: A-6661
Expires: 12/31/26

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000550
143 West Clinton Place St. Louis, Missouri 63122
p: (314) 965.7445 f: (314) 965.7477
www.archimages-stl.com

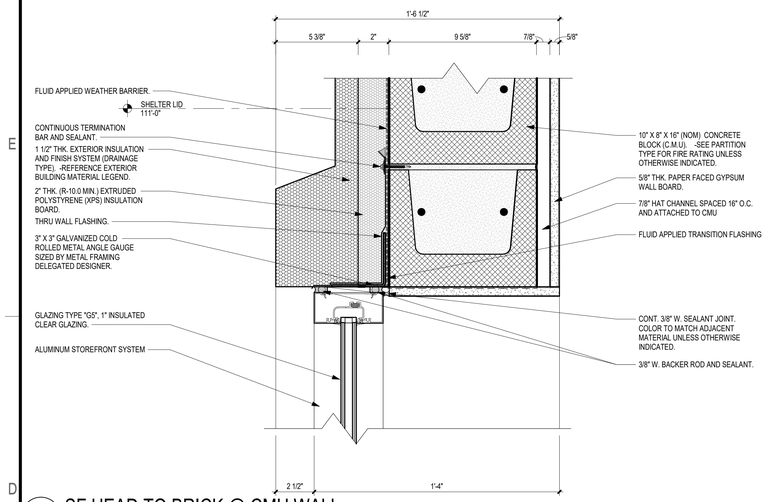
Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD ST. CHARLES, MO 63303

No.	Date	Revision
1	7/7/2026	Addendum 01
2	7/15/2026	Addendum 02

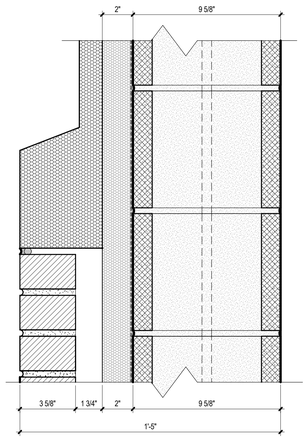
EXTERIOR ELEVATIONS

Project No. 24057
Sheet No. A201
Date 2026/07/15

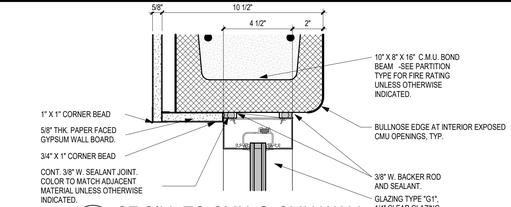
7/13/2026 11:40:32 AM
\\RHNGE\users\csalas\docs\24057_Central County Fire Station_House#6_R25_csalas8FMDW.rvt



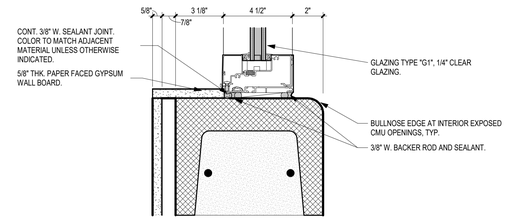
D1 SF HEAD TO BRICK @ CMU WALL
3" = 1'-0"



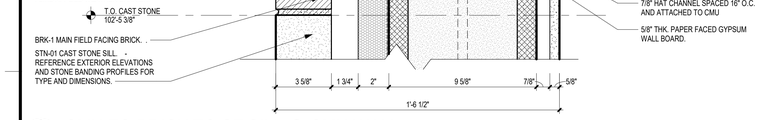
D4 BRICK TO EIFS @ CMU WALL
3" = 1'-0"



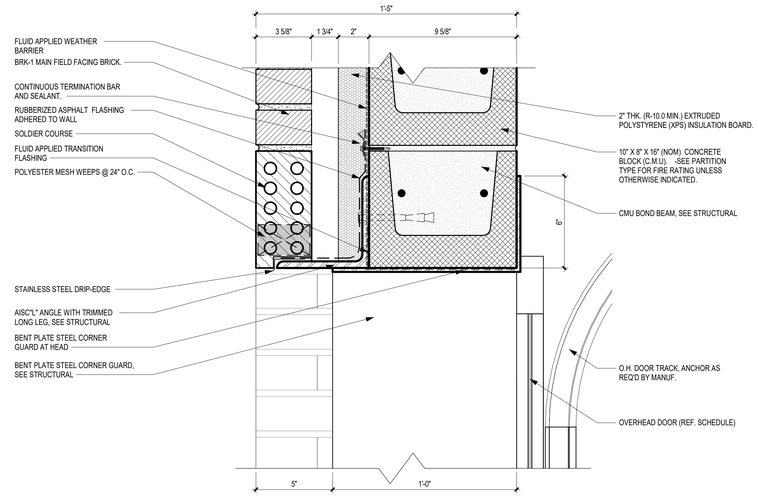
E7 SF SILL TO CMU @ CMU WALL
3" = 1'-0"



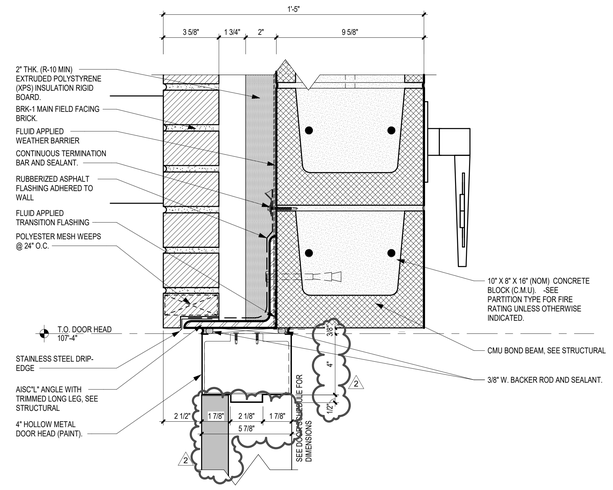
D7 CMU TO SF SILL @ CMU WALL
3" = 1'-0"



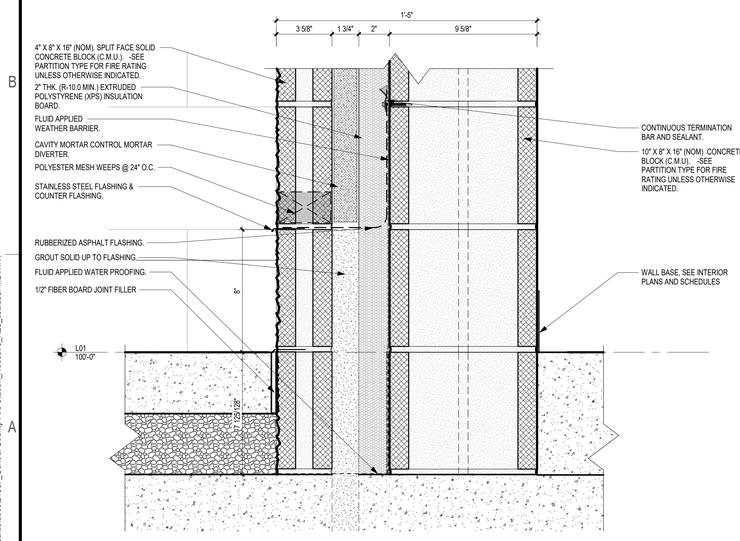
C1 CMU TO BRICK TO SF SILL @ CMU WALL
3" = 1'-0"



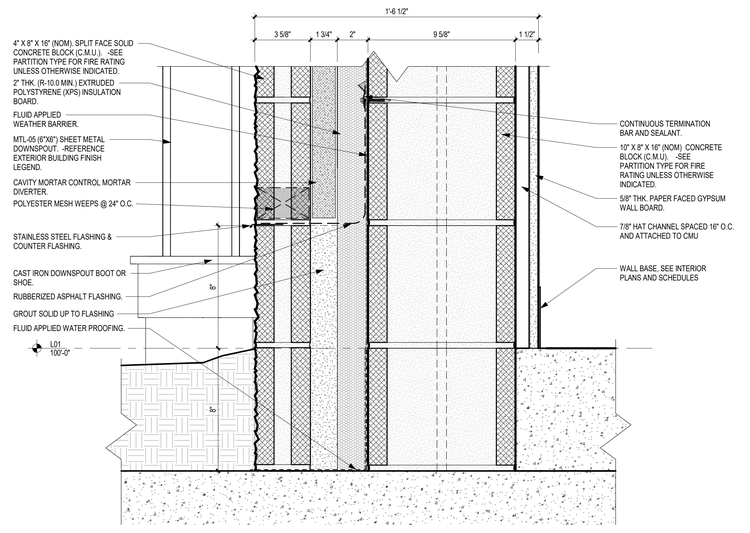
C4 O.H. DOOR HEAD @ CMU WALL
3" = 1'-0"



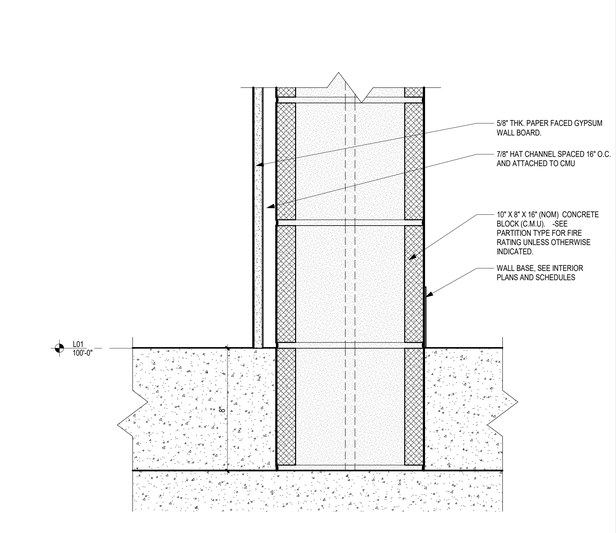
C6 HOLLOW METAL HEAD DETAIL
3" = 1'-0"



A1 CMU TO BRICK @ CMU WALL
3" = 1'-0"



A3 CAST IRON BOOT @ FLOOR
3" = 1'-0"



A6 WALL SECTION APPERATACE BAY @ BASE
3" = 1'-0"

SCALE: 3" = 1'-0" 6" 3" 0
SCALE: 1 1/2" = 1'-0" 2" 1" 6" 3" 0
SCALE: 1" = 1'-0" 2" 1" 6" 0
SCALE: 3/4" = 1'-0" 3" 2" 1" 0
SCALE: 1/2" = 1'-0" 4" 2" 1" 0
SCALE: 3/8" = 1'-0" 4" 2" 0
SCALE: 1/4" = 1'-0" 4" 2" 0
SCALE: 1/8" = 1'-0" 8" 4" 0
SCALE: 3/32" = 1'-0" 16" 8" 0
SCALE: 1/16" = 1'-0" 16" 8" 0

7/8/2026 11:40:35 AM
\\HINGE\users\sallas\docs\24057_Central County Fire Station_House#6_R25_sallas8FMDW.rvt

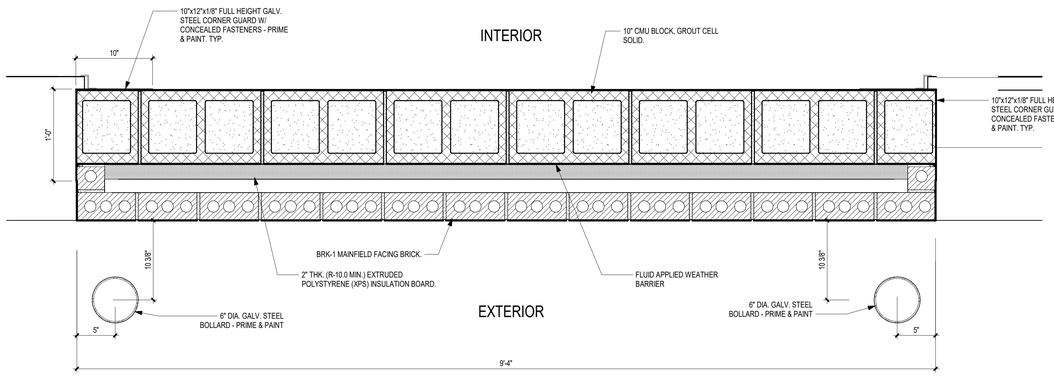
Archimages architecture | interiors
Archimages, Inc. # 000550
MO Architectural Corporation
143 West Clinton Place St. Louis, Missouri 63122
p: (314) 965.7445 f: (314) 965.7477
www.archimages-stl.com
Roy A. Mangan
MO Architect License No: A-6661
Expires: 12/31/26

Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD
ST. CHARLES, MO 63303

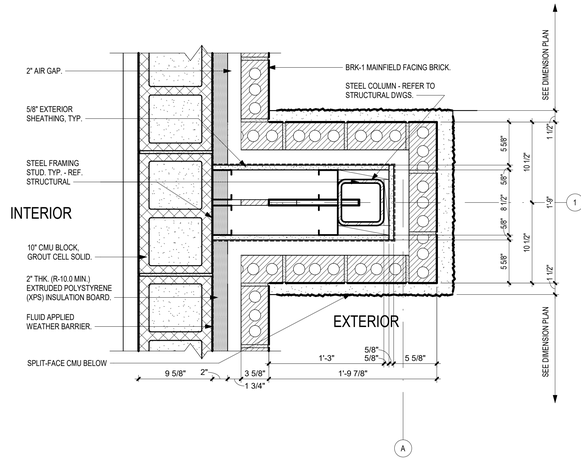
No.	Date	Revision
2	7/15/2026	Addendum 02

DETAILS

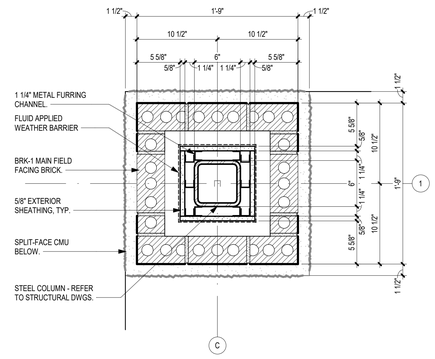
Project No. 24057
Sheet No. A504
Date 2026/06/08



E1 APPARATUS BAY O.H. DOOR JAMB SECTION
1 1/2" = 1'-0"



E5 PLAN DETAIL AT COLUMN
1 1/2" = 1'-0"



E7 PLAN DETAIL AT COLUMN
1 1/2" = 1'-0"

C1 JAMB SECTION AT ALUMINUM DOOR FRAME - BRICK
3" = 1'-0"

C3 JAMB SECTION AT HM DOOR FRAME
3" = 1'-0"

C5 APPARATUS BAY TO HOUSE PLAN SECTION
3" = 1'-0"

C6 PLAN DETAIL AT GENERATOR ENCLOSURE
1 1/2" = 1'-0"

A1 SECTION AT ALUMINUM STOREFRONT JAMB
3" = 1'-0"

A3 ATTIC DOOR THRESHOLD
3" = 1'-0"

A5 JAMB SECTION AT HM DOOR FRAME
3" = 1'-0"

A6 PLAN DETAIL AT GENERATOR ENCLOSURE
1 1/2" = 1'-0"

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000550
143 West Clinton Place St. Louis, Missouri 63122
p: (314) 965.7445 f: (314) 965.7477
www.archimages-stl.com
Roy A. Manoan
MO Architect License No: A-6661
Expires: 12/31/26

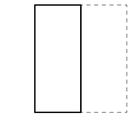
Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD ST. CHARLES, MO 63303

No.	Date	Revision
2	7/15/2026	Addendum 02

DETAILS

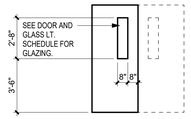
Project No. 24057
Sheet No. A507
Date 2026/06/08

7/9/2026 11:43:43 AM
\\HNGE\users\csalas\docs\24057_Central County Fire Station_House#6_R25_csalasRFMDW.rvt



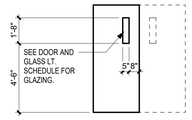
F

FLUSH S.C. WD. OR H.M. DOOR.
-SEE DOOR SCHEDULE.



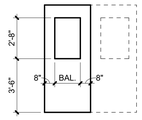
N-1

FLUSH S.C. WD. OR H.M. DOOR W/ GL. LT. -
SEE DOOR SCHEDULE.



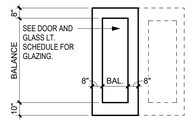
N-2

FLUSH S.C. WD. OR H.M. DOOR W/ GL. LT. -
SEE DOOR SCHEDULE.



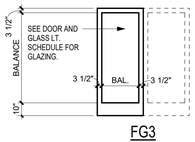
G

FLUSH S.C. WD. OR H.M. DOOR W/ TEMP. GL.
LT. -SEE DOOR SCHEDULE.



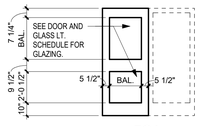
FG1

STILE & RAIL WD. DOOR W/ TEMP. GL.
LT. -SEE DOOR SCHEDULE



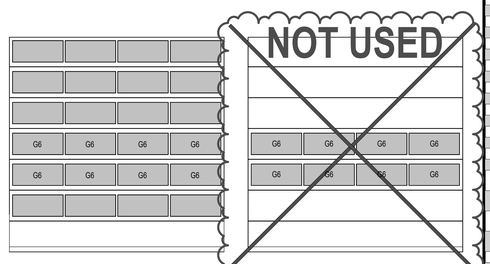
FG3

ALUM. MED. STILE DOOR W/ TEMP. GL.
LT. -SEE DOOR SCHEDULE.



FG4

ALUM. WIDE. STILE DOOR W/ TEMP. GL.
LT. -SEE DOOR SCHEDULE.

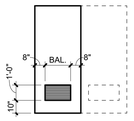


OVERHEAD DOOR A

1/4" = 1'-0"

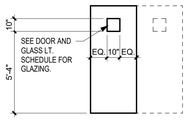
OVERHEAD DOOR B

1/4" = 1'-0"



FL

FLUSH S.C. WD. OR H.M. W/ LOUVER.
-SEE DOOR SCHEDULE.



V

FLUSH S.C. WD. OR H.M. DOOR W/ GL. LT. -
SEE DOOR SCHEDULE.

NOTE:

1. SOME DOOR TYPES MAY NOT BE USED ON THIS PARTICULAR PROJECT.
2. DOORS TO BE 1 3/4" THK. UNLESS OTHERWISE NOTED ON DOOR. SCHEDULE.
3. REFER TO DOOR SCHEDULE FOR GLASS TYPE AND THICKNESS.

D1 DOOR TYPES ELEVATIONS

1/4" = 1'-0"

08.10.00.01 DOOR TYPES ELEVATION

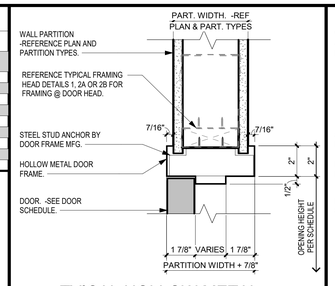
DOOR SCHEDULE

MARK	PAIR	WIDTH	HEIGHT	THICK	FRAME PROPERTIES						DOOR PROPERTIES				Door:Fire Rating	HARDWARE GROUP	COMMENTS
					FRAME TYPE	FRAME MATERIAL	FRAME FINISH	SIDELIGHT GLAZING	HEAD	JAMB	TYPE	DOOR MATERIAL	DOOR FINISH	DOOR GLAZING			
100		3'-1 1/4"	7'-4"	1 3/4"	Fxx	ALUM	CLR. ANOD.	-	E4/A602	C1/A507	-FG3-	ALUM	CLR. ANOD.	G2			
101		3'-0"	7'-2"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-			
102		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
103		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-			
104		3'-0"	7'-0"	1 3/4"	Fxx	ALUM	CLR. ANOD.	G6	E4/A602	C1/A507	-FG3-	ALUM	CLR. ANOD.	G6			
105A		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-G-	SC WD	Paint	G2			
105B		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	A3/A601	B4/A601	-G-	HM	Paint	G2			
106		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-			
107		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-			
108		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-			
109		3'-0"	7'-0"	1 3/4"	Fxx	ALUM	CLR. ANOD.	G6	E4/A602	C1/A507	-FG3-	ALUM	CLR. ANOD.	G6			
110		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
111		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
112		2'-10 3/4"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
113		2'-10 3/4"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
114		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
115		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	A3/A601	B4/A601	-G-	HM	Paint	G3			
115A		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
116		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
117		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-	20		
118		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	G2 (2)	20		
119B		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	C6/A504	A5/A507	-N-1-	HM	Paint	G2 (2)			
119C		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	C6/A504	A5/A507	-N-1-	HM	Paint	G2			
119D		14'-0"	14'-0"	1 3/4"	-NONE-	WELDED STEEL	CLR. ANOD.	-	-	-		ALUM	05_METAL+PAINT RED	G6			PREFINISHED ALUM. & GLASS O.H. DOOR TYPE A (2)
119E		14'-0"	14'-0"	1 3/4"	-NONE-	WELDED STEEL	CLR. ANOD.	-	-	-		ALUM	05_METAL+PAINT RED	G6			PREFINISHED ALUM. & GLASS O.H. DOOR TYPE A
119F		14'-0"	14'-0"	1 3/4"	-NONE-	WELDED STEEL	CLR. ANOD.	-	-	-		ALUM	05_METAL+PAINT RED	G6			PREFINISHED ALUM. & GLASS O.H. DOOR TYPE A
119G		14'-0"	14'-0"	1 3/4"	-NONE-	WELDED STEEL	CLR. ANOD.	-	-	-		ALUM	05_METAL+PAINT RED	G6			PREFINISHED ALUM. & GLASS O.H. DOOR TYPE A
120		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	A3/A601	B4/A601	-F-	HM	Paint	-			
121		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	A3/A601	B4/A601	-F-	HM	Paint	-			
122		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	A3/A601	B4/A601	-F-	HM	Paint	-			
123		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-			
124		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-			
125		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	C6/A504	A5/A507	-N-1-	HM	Paint	G2 (2)			
127		2'-6"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-F-	SC WD	Paint	-			
129A		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-G-	SC WD	Paint	G2			
129B		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	A3/A601	B4/A601	-N-1-	HM	Paint	G4	45		
130A		3'-0"	7'-0"	1 3/4"	F01	HM	Paint	-	C2/A601	B2/A601	-G-	SC WD	Paint	G2			
130B		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	A3/A601	B4/A601	-N-1-	HM	Paint	G4			
131		3'-0"	7'-0"	1 3/4"	F01-M	HM	Paint	-	A3/A601	B4/A601	-F-	HM	Paint	-			

(1)

GLAZING LITE SCHEDULE

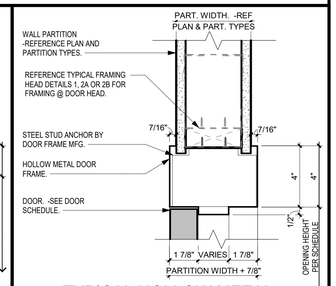
GLAZING TYPE	DESCRIPTION
-NOTE:	NOT ALL GLASS USED IN PROJECT. REFER TO DOOR SCHEDULE & WINDOW FRAME TYPES
G1	1/4" CLEAR GLAZING
G2	1/4" TEMPERED CLEAR GLAZING
G3	1/2" TEMPERED CLEAR GLAZING
G4	3/16" PREMIUM GRADE FIRE RATED GLASS CERAMIC SAFETY GLAZING
G5	1" INSULATED GLAZING
G6	1" TEMPERED INSULATED GLAZING
G7	1" INSULATED SPANDREL GLAZING
G8	1" INSULATED TEMPERED SPANDREL GLAZING
G9	3/4" PREMIUM GRADE 45 MIN. FIRE RATED SAFETY GLAZING



TYICAL HOLLOW METAL FRAME DOOR HEAD DETAIL

C2 — 3" = 1'-0"

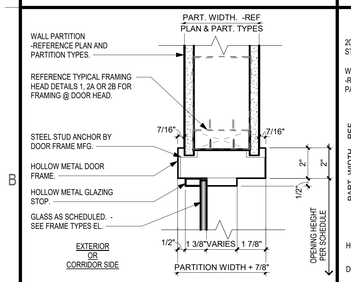
08.11.13.01_LG HM DOOR HEAD DETAIL



TYPICAL HOLLOW METAL FRAME DOOR HEAD DETAIL

C3 — 3" = 1'-0"

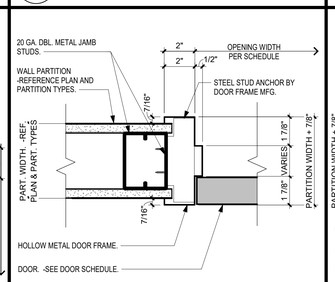
08.11.13.02_LG HM DOOR HEAD DETAIL



TYPICAL HOLLOW METAL FRAME GLAZED HEAD

B1 — 3" = 1'-0"

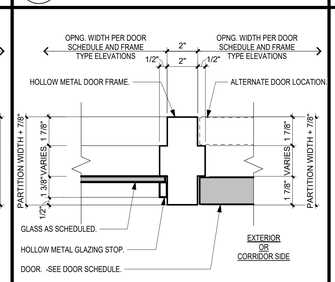
08.11.13.01_LG HM GLAZED HEAD DETAIL



TYPICAL HOLLOW METAL FRAME DOOR JAMB DETAIL

B2 — 3" = 1'-0"

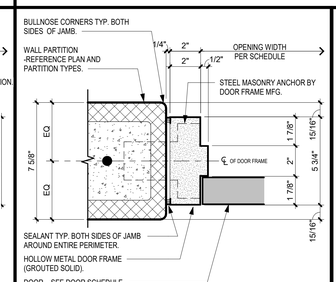
08.11.13.01_LG HM DOOR JAMB DETAIL



TYP. HOLLOW METAL FRAME DOOR JAMB DET. W/ SIDE LT.

B3 — 3" = 1'-0"

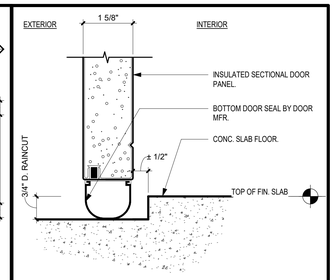
08.11.13.01_LG HM DOOR JAMB DET W SIDELITE



TYPICAL HOLLOW METAL FRAME DOOR JAMB DTL

B4 — 3" = 1'-0"

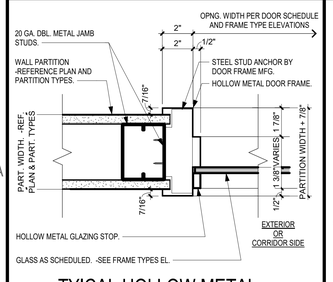
08.11.13.03_LG HM DOOR JAMB DETAIL_CMU



OH DOOR BOTTOM DET.

B5 — 6" = 1'-0"

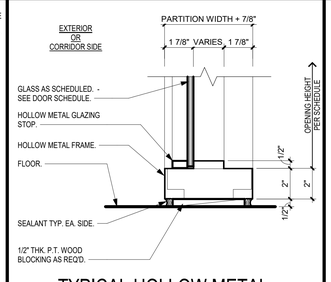
08.36.13..03 OH DOOR BOTTOM DET



TYICAL HOLLOW METAL FRAME GLAZED JAMB DETAIL

A1 — 3" = 1'-0"

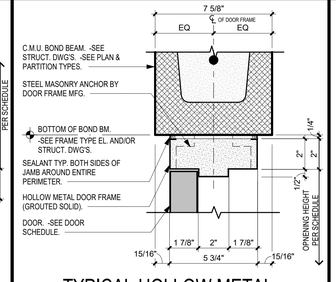
08.11.13.01_LG HM GLAZED JAMB DETAIL



TYPICAL HOLLOW METAL FRAME GLAZED SILL DETAIL

A2 — 3" = 1'-0"

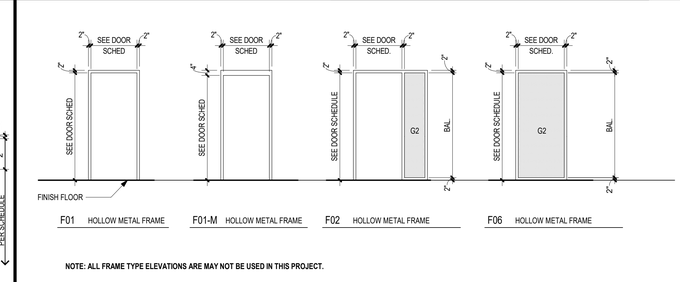
08.11.13.01_LG HM SILL GLAZED DETAIL



TYPICAL HOLLOW METAL FRAME DOOR HEAD DTL

A3 — 3" = 1'-0"

08.11.13.03_LG HM DOOR HEAD DETAIL_CMU



NOTE: ALL FRAME TYPE ELEVATIONS ARE MAY NOT BE USED IN THIS PROJECT.

HOLLOW METAL FRAME TYPES ELEVATIONS

A4 — 1/4" = 1'-0"

Roy A. Mangan
MO Architect License No: A-6661
Expires: 12/31/26

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000550
143 West Clinton Place St. Louis, Missouri 63122
p: [314] 965.7445 f: [314] 965.7477
www.archimages-stl.com

Proposed:

CENTRAL COUNTY FIRE & RESCUE - HOUSE #6

1151 JUNGS STATION RD
ST. CHARLES, MO 63303

No.	Date	Revision
1	7/11/2026	Addendum 01
2	7/17/2026	Addendum 02

DOOR SCHEDULE & DETAILS

Project No. 24057

Sheet No. A601

Date 2026/07/15

7/13/2026 11:42:45 AM
\\HINGE\users\csalas\docs\24057_Central County Fire Station_House#6_R25_csalasBFMDW.rvt

SCALE: 3" = 1'-0" / SCALE: 1 1/2" = 1'-0" / SCALE: 1" = 1'-0" / SCALE: 3/4" = 1'-0" / SCALE: 1/2" = 1'-0" / SCALE: 3/8" = 1'-0" / SCALE: 1/4" = 1'-0" / SCALE: 1/8" = 1'-0" / SCALE: 3/32" = 1'-0" / SCALE: 1/16" = 1'-0"

FURNITURE SCHEDULE

MARK	DESCRIPTION	SUPPLY/INSTALL BY
F1	BUNK ROOM DESK	O/O
F2	TASK CHAIR	O/O
F3	NIGHT STAND TABLE	O/O
F4	RECLINER CHAIR	O/O
F5	STACKING SIDE CHAIR NO ARMS	O/O
F6	60" RECTANGULAR KITCHEN TABLE	O/O
F7	MURPHY BED	O/O
F8	OFFICE CHAIR	O/O
F9	SIDE TABLE	O/O

EQUIPMENT SCHEDULE

EQPT TYPE MARK	QTY	EQUIPMENT	FURNISHED/INSTALLED
EQ01	1	WASHER / DRYER SIDE BY SIDE	O/C
EQ02	1	BABY BOX	C/C
EQ03	1	DOUBLE OVEN	O/C
EQ04	1	GAS COOKTOP RANGE	O/C
EQ05	1	RANGE HOOD	C/C
EQ06	1	24" BUILT-IN DISHWASHER	C/C
EQ07	3	REFRIGERATOR	O/C
EQ08	1	EXTRACTOR	O/C
EQ09	1	STACKABLE WASHER/DRYER	O/O
EQ010	1	SCBA BOTTLE FILL COMPRESSOR	O/O
EQ011	1	SCBA TANK STORAGE	O/O
EQ012	1	ROLLING TOOLBOX	O/O
EQ013	1	WORK BENCH	O/O
EQ014	1	STAIR STEPPER BY OWNER	O/O
EQ015	2	TREADMILL BY OWNER	O/O
EQ016	1	WEIGHT BENCH PRESS	O/O
EQ017	1	DUMBELL WEIGHT RACK	O/O
EQ018	1	ICE BIN (500 LBS)	O/C
EQ019	1	ICE MAKER - (556 LBS) CRESCENT CUBER	O/C
EQ020	24	FIRE GEAR STORAGE RACK	C/C
EQ021	1	MICROWAVE	O/O
EQ022	2	55" FLAT PANEL (TV) ALERT	O/O
EQ023	1	TRASH CAN BY OWNER	O/O
EQ024	1	COFFEE MAKE BY OWNER	O/O
EQ025	18	METAL LOCKERS (SINGLE TIER)	C/C

2



A1 EQUIPMENT & FURNITURE PLAN
1/8" = 1'-0"

SCALE: 3" = 1'-0"
SCALE: 1 1/2" = 1'-0"
SCALE: 1" = 1'-0"
SCALE: 3/4" = 1'-0"
SCALE: 1/2" = 1'-0"
SCALE: 3/8" = 1'-0"
SCALE: 1/4" = 1'-0"
SCALE: 1/8" = 1'-0"
SCALE: 3/32" = 1'-0"
SCALE: 1/16" = 1'-0"

7/14/2026 4:47:07 PM
\\HINGE\users\csallas\docs\24057_Central County Fire Station_House#6_R23_csallasSFMDW.rvt

Roy A. Mangan
MO Architect License No: A-6661
Expires: 12/31/26

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000650
143 West Clinton Place St. Louis, Missouri 63122
www.archimages-stl.com p: (314) 965.7445 f: (314) 965.7477

Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD ST. CHARLES, MO 63303

No.	Date	Revision
2	7/15/2026	Addendum 02

EQUIPMENT & FURNITURE PLAN

Project No. 24057
Sheet No. A701
Date 2026/07/15

STRUCTURAL GENERAL NOTES

DIVISION 1 - GENERAL REQUIREMENTS

1.1 CONSTRUCTION MEANS AND METHODS

A. Contractor and Subs shall not scale drawings for purposes of construction. Notify Architect of any dimensional discrepancies found between disciplines.

B. Contractor agrees that Contractor shall assume sole and complete responsibility for job site conditions during the course of the Work, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that Contractor shall defend, indemnify, and hold Owner and Structural Engineer harmless from any and all liability, real or alleged, in connection with the performance of the Work on this Project, excepting for liability arising from the sole negligence of Owner or Structural Engineer.

C. The Contract Documents represent the finished structure. They do not include the method of construction. Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to: protection of subgrade from freezing conditions, bracing, shoring for loads due to construction equipment, temporary structures, and partially completed work. Observation visits to the site by Structural Engineer shall not include inspection of the above items.

D. KPFF Consulting Engineers shall not have control over or charge of and shall not be responsible in any way for construction means, methods, techniques, sequences, or procedures, or for safety or safety precautions and programs in connection with any construction activities, since these are solely Contractor's responsibility under the Contract.

E. KPFF Consulting Engineers shall not be responsible for Contractor's schedule or failures to carry out any construction activities in accordance with the Contract Documents. KPFF Consulting Engineers shall not have control over or charge of actions of Contractor, Subcontractor, or any of their Agents, or employees, or any other persons performing portions of any construction activities.

F. The structure is stable only in its completed form. Temporary supports which may be required for stability of the structure during all intermediate stages of construction shall be determined, furnished and installed by the Contractor.

1.2 SUBMITTALS

A. Submittals prepared by Subcontractors shall be reviewed by Contractor prior to submitting to Architect.

B. Reproduction of Structural Drawings shall be in accordance with AISC Code of Standard Practice.

C. CAD files prepared using KPFF standards may be made available to the General Contractor upon receipt of an executed CAD File Transfer Agreement between KPFF and the General Contractor. In the event CAD files are made available, one copy in AutoCAD 2018 format will be provided to the General Contractor for their use specifically for this Project and distribution to its Subcontractors working on the Project.

D. Contractor shall verify the structurally supported equipment weights, opening sizes, and locations indicated on the Structural Drawings with documents from other disciplines and the Architect of any discrepancies.

E. Contractor shall submit Shop Drawings showing size, method of anchorage, weight, openings, and locations of equipment not indicated on the Structural Drawings prior to ordering for review by Structural Engineer to determine adequacy of the structure.

F. All submittals reviewed by Structural Engineer are reviewed for general conformance with design concept only and does not relieve the fabricator/vendor of responsibility for conformance with design drawings and Specifications, all of which have priority over submittals.

G. Submittals shall be reviewed within 10 working days after being received by Structural Engineer.

1.3 QUALITY REQUIREMENTS

A. Reference to standard specifications or codes of any technical society, organization, or association or to codes of local or state authorities, shall mean the standards in effect as of date of the Contract Documents unless otherwise noted.

B. Contract Documents shall govern in the event of a conflict with standard spoifications or codes of any technical society, organization, or association.

C. No provision of any referenced standard specification or code, whether or not specifically incorporated by reference in the Contract Documents, shall be effective to change the duties and responsibilities of Owner, Architect, Structural Engineer, Contractor, or any of their Consultants, Agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Structural Engineer or any of Structural Engineer's Consultants, Agents, or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibilities contrary to the provisions of the Contract Documents.

D. All omissions and conflicts within the Contract Documents shall be brought to the attention of Architect prior to proceeding with the Work.

E. Contractor shall verify dimensions and conditions at the job site. Any discrepancies between the conditions found and those indicated in the Contract Documents shall be brought to the attention of Architect prior to proceeding with the Work.

F. See Documents by other disciplines for floor, wall, and roof openings, trenches, pits, pipe sleeves, equipment pads, metal pan stairs, miscellaneous iron, etc.

G. No pipes, conduits, sleeves, ducts, chases, etc. shall be placed within structural walls, beams, slabs or columns nor shall any structural members be cut for pipes, ducts, etc., unless specifically noted. Notify Structural Engineer when Documents by other disciplines show openings, pockets, conduits, pipes, sleeves, etc. not indicated in the Structural Drawings, but are located in structural members. Contractor shall obtain prior approval from Structural Engineer for installation of such pipes, ducts, chases, etc.

H. Details labeled "Typical" on the Structural Drawings apply to all situations occurring on Project that are the same or similar to those locations specifically indicated. Where a detail is not indicated, the detail shall be the same as for other similar conditions.

I. The design responsibility of the elements listed below is being delegated to a Specialty Structural Engineer hired by the Contractor. The designated elements shall be designed in accordance with the Building Code and specific requirements in the contract documents by an engineer licensed in the state where the Project is located. Submittals shall be sealed by the responsible licensed Engineer. The following elements and their connections shall be designed by a Specialty Structural Engineer:

1. Excavation support
2. Temporary bracing and shoring
3. Structural steel connections
4. Aggregate Pier Foundation System
5. Non-structural cold-formed metal framing
6. Seismic Anchorage and Sway Bracing of Mechanical, Electrical and Plumbing Systems Components
7. Stairs or Ladders and their connections to Structure
8. Pre-engineered floor and roof trusses

1.4 STRUCTURAL SPECIAL INSPECTIONS

A. Special inspections shall be in accordance with the governing Building Code and the Statement of Special Inspections on Sheet S102.

1.5 DESIGN CRITERIA:

A. The structure is designed in accordance with the ICC International Building Code, 2021 Edition.
   1. Building Risk Category IV.

B. No provisions have been made for future horizontal or vertical expansion.

C. Gravity Loads:
   1. Uniform Roof Live Loads:
      a. Live Load: 20 psf
      b. Snow Load:
         1) Ground Snow Load: 20 psf
         2) Flat Roof Snow Load: 16.8 psf
         3) Snow Exposure Factor: 1.0
         4) Snow Importance Factor: 1.2
         5) Snow Thermal Factor: 1.0
   2. Uniform Floor Live Loads

Attic Equipment Platform	60 psf
Stairs	100 psf

   3. Concentrated Floor Live Loads
      a. Loads are distributed over an area of 2-1/2 sq. ft., unless noted otherwise.

Stairs	300 lb. (over 4 sq. in.)

   4. Concentrated Lateral Live Loads
      a. Handrail assemblies:
         1) Top Rail: 200 lb. or 50 lb/ft applied non-concurrently in any direction.
         2) Intermediate rails, balusters, filler panels, etc.: 50 psf applied non-concurrently with the top rail load.
      b. Vehicle barrier systems: 6,000 lb. applied in any direction at 18 inches to 27 inches above the driving surface.

D. Lateral Loads:
   1. Wind Design Data
      a. Ultimate Wind Speed: 119 MPH
      b. Nominal Wind Speed: 92 MPH
      c. Exposure: B
      d. Enclosure Classification: Enclosed Building
      e. Internal Pressure Coefficient: +/-0.18
      f. Components and Cladding Design Wind Pressure

	10 sf	100 sf	500 sf
1) Zone 1	+19/-32	+16/-26	+16/-26
2) Zone 2e	+19/-43	+16/-31	+16/-28
3) Zone 2r	+19/-56	+16/-37	+16/-32
4) Zone 3	+19/-43	+16/-31	+16/-28
5) Zone 4	+26/-28	+22/-24	+19/-21
6) Zone 5	+26/-34	+22/-27	+19/-21

   2. Earthquake Design Data
      a. Seismic Importance Factor: 1.5
      b. Mapped Spectral Response Acceleration: Ss=0.15; S1=0.144
      c. Site Classification: D
      d. Spectral Response Coefficient: Sds=0.304; Sd1=0.143
      e. Seismic Design Category: D
      f. Basic Structural System: Bearing Wall System
      g. Basic Seismic Force Resisting System:
         House/Admin - Light-framed walls sheathed with wood structural panels
         Apparatus Bay - Special reinforced masonry shear walls
      h. Design Base Shear :
         House/Admin - V=55k
         App Bay - V=32k
      i. Seismic Response coefficient:
         House/Admin - Cs=0.082 (E-W), 0.1066 (N-S)
         App Bay - Cs=0.1066
      j. Response Modification Factor:
         House/Admin - R=6.5 (E-W), R=5.0 (N-S)
         App Bay - R=5.5
      l. Overstrength Factor:
         House/Admin - omega=3.0 (E-W), Omega=2.5 (N-S)
         App Bay - omega=2.5
      m. Analysis Procedure: Equivalent Lateral Force
   3. MEP Seismic Anchorage:
      a. Contractor shall design and install MEP supports in accordance with the latest local Ordinances and Building Code.
      b. Power actuated fasteners installed in concrete shall not be used to resist seismic loads.

DIVISION 2 - FOUNDATIONS

2.1 GENERAL

A. Foundation design is based upon recommendations in the geotechnical report prepared by Insterra PSI dated May 6, 2026. Structural Engineer is not responsible for subsurface conditions encountered in the field that are different from those assumed in design.
   1. Prepare building site in accordance with Geotechnical and Civil recommendations and specifications. Site is underlain with unsuitable materials that shall be undercut in accordance with Geotechnical report.

B. Owner's Geotechnical Representative shall certify the bearing medium.

C. Excavations shall be kept free of loose material and standing water.

D. Bottom of exterior foundations shall be a minimum of 30 inches below the lowest finished elevation for frost protection.

2.2 GROUND IMPROVEMENT

A. All footings, unless noted otherwise, shall bear on an aggregate pier enhanced soil matrix with an allowable bearing pressure of 3500 psf.

B. All interior slabs on grade, unless noted otherwise, shall bear on an aggregate pier enhanced soil matrix with an allowable bearing pressure of 500 psf.
   1. Minimum subgrade modulus to be 125 pci.

C. Aggregate piers are to be provided under performance specification provisions. See geotechnical reports and the specifications for requirements. (Number and size of aggregate piers indicated on plans, if any, are for preliminary cost estimating purposes only.)

D. Coordinate plumbing, utility trenches, and general excavation with foundations and aggregate piers.
   1. Case A - Installed after aggregate piers: No portion of trench/excavation shall encroach on the area within a line extending at 45 degrees from the bottom of an adjacent aggregate pier supported footing. If installed closer, affected aggregate piers must be redrilled and reconstructed unless otherwise approved by owner's geotechnical representative.
   2. Case B - Installed before aggregate piers: Plumbing lines/sleeves may be installed through aggregate pier zones prior to pier installation. Maintain six inches minimum clearance. Schedule 80 pipe or sleeve is recommended to avoid damage from pier installation.

E. Settlement monitoring program shall be directed by the owner's geotechnical representative.
   1. Settlement is to be monitored at minimum of three (3) points to be identified by the architect and/or owner's geotechnical representative.
   2. Consistent reference points are to be established by anchoring (drilling and grouting) steel plates or pins in foundation elements at required locations. To facilitate instrument readings and construction activities, reference points may be transferred to ground level construction with architect's approval.
   3. A reliable datum/benchmark beyond the influence of project foundation settlement (minimum 50 feet distant) is to be established and approved by the architect.
   4. Initial readings are to be taken after foundation elements are cast but before receiving load. Readings are to be taken hereafter until three months after substantial completion of the structure, unless otherwise advised by the architect. Readings at all locations are to be taken on the same day. Initial readings and those taken monthly thereafter are to be taken by the owner's testing agency and reviewed and initialed by the contractor and aggregate pier subcontractor.
   5. Readings are to be reported to the architect and owner's geotechnical representative within 3 days of reading. A cumulative data reporting format is to be used for each reference point.
   6. Any anomalous readings are to be reviewed, retaken, and, if unresolved, reported to the architect immediately.
   7. The information obtained may be used, at the owner's discretion, in enforcing the settlement warranty required by the contract documents.

DIVISION 3 - CONCRETE

3.1 REINFORCING

A. GENERAL
   1. Reinforcing steel shall be ASTM A615, Grade 60, deformed bars, unless noted otherwise. Welding of ASTM A615, Grade 60 reinforcing is not allowed.
   2. Reinforcing steel to be welded shall be ASTM A706, deformed bars.
   3. Welded wire reinforcing shall be ASTM A185, contact lap spliced 12 inches minimum.
   4. All reinforcing bars shall be detailed, fabricated, supported, and placed in accordance with ACI 315-99 "Details and Detailing of Concrete Reinforcement" and CRSI's "Manual of Standard Practice," 2009.
   5. Reinforcing, including dowels, shall be securely tied and cast with the lower member. Placing reinforcing after concrete has been placed is not permitted.
   6. Field bending of reinforcing partially embedded in concrete is not allowed unless specifically noted in the Structural Documents or approved by Structural Engineer.
   7. Provide dowels from foundation the same grade, size, and number as vertical wall or column reinforcing, unless noted otherwise.
   8. Provide corner bars to match horizontal reinforcing at corners and intersections.
   9. Adhesive for reinforcing dowels into existing concrete shall be Hilti HIT HY 200 or approved equal. Minimum embedment length shall be 12 bar diameters, unless noted otherwise.
   10. Mechanical couplers shall be uni-axial type capable of developing 125% of the specified yield strength of the bar in tension. Splices made using mechanical couplers shall be staggered by twice the length of the coupler.
   11. All reinforcing shall be contact lap spliced or doweled as follows:

#3 bars -- 28"	#7 bars -- 81"
#4 bars -- 37"	#8 bars -- 93"
#5 bars -- 47"	#9 bars -- 105"
#6 bars -- 56"	#10 bars -- 118"
	#11 bars -- 131"

B. SLABS
   1. Provide slab bolsters, high chairs, and #5 support bars as necessary to maintain proper placement of reinforcing.
   2. Provide 2-#5 top x 5'-0" diagonals at corners of openings and re-entrant corners, unless noted otherwise.

3.2 CAST-IN-PLACE CONCRETE

A. Reinforced concrete shall be normal weight and have a minimum 28-day compressive strength of 4,000 psi or 4,500 as indicated in specification mixture classes.

B. All concrete to have the following unit weights (+/- 3 pcf):
   1. Normal weight concrete: plastic = 145 pcf

C. All concrete exposed to freezing and thawing and deicer chemicals shall have 6% (+1%/-1.5%) air entrainment. Do not air entrain concrete to be trowel finished.

D. Provide concrete cover for reinforcing as follows:
   1. Concrete cast against and permanently exposed to earth.....3"
   2. Concrete exposed to earth or weather.....2"
   3. Concrete not exposed to weather or in contact with ground:
      a. Slabs and walls.....3/4"
      b. Beams and columns.....1-1/2"

E. For concrete cast on metal deck, concrete thickness indicated is nominal. Contractor shall allow for the deflection of the floor assembly due to the wet weight of the concrete when calculating concrete quantity.

F. Provide construction or control joints in slab-on-grade as indicated in the Structural Drawings. If joint pattern is not indicated, provide joints at 10 feet (+/-) in both directions and located to conform to bay spacing, column lines, construction centerlines, half bays, third bays, etc.). Increase to 17 feet at 7" slab.

G. Interface of construction joints shall be roughened to a full amplitude of 1/4". Surface of construction joints shall be clean and free of laitance. Immediately before new concrete is placed, construction joints shall be wetted and standing water removed.

H. See Architectural Drawings for waterstops.

I. Provide compressible filler and sealant in slab-on-grade and wall and column interfaces that are not doweled together.

J. All column pockets shall be filled with concrete after column is erected.

K. Non-structural embedments (conduit, pipes, sleeves, etc.)within walls, beams, or slabs shall be submitted to the Structural Engineer and Architect for review and approval prior to construction. All embedments shall be fabricated and installed in accordance with ACI standards, including but not limited to the following:
   1. Aluminum materials shall not be embedded in structural concrete.
   2. Overall outside dimension of embedments shall not exceed 1/3 the concrete member thickness up to 2 inch maximum.
      a. For concrete slabs on metal deck the member thickness shall be the continuous slab thickness above the deck.
   3. Embedments shall be spaced a minimum of 6 inches on center.
   4. Embedments shall not alter or displace reinforcing.
   5. Embedments within columns shall not displace more than 4 percent of the area of the column cross section.

L. Provide 4" high concrete housekeeping pads under equipment. Pads shall extend beyond equipment 6" minimum on all sides. Apply bonding agent to existing concrete slab prior to placing housekeeping pad. See Documents from other disciplines for equipment locations.

M. At floor drains, locally slope floor towards drain. See Documents from other disciplines for drain locations.

N. Unless noted otherwise, structural slabs exposed to weather shall be sloped approximately 1/4 inch per foot away from occupied space toward floor drains, scuppers, gutters, etc. For exterior non-structural finishes (eg. sidewalks, pavement) reference Civil site plan and specifications.

O. See Architectural Documents for molds, grooves, ornaments, clips, etc. required to be encased in concrete and for location of floor finishes and slab depressions.

DIVISION 4 - CONCRETE MASONRY

4.1 REINFORCING

A. Reinforcing steel shall be ASTM A615, Grade 60, deformed bars, unless noted otherwise. Welding of ASTM A615, Grade 60 reinforcing is not allowed.

B. Reinforcing steel to be welded shall be ASTM A706, deformed bars.

C. Joint reinforcing shall be ladder type conforming to ASTM A951, with prefabricated corner and tee units at corners and intersections.

D. Dowels to supporting structure shall be same grade, size, and number as vertical reinforcing.

E. Provide corner bars to match horizontal reinforcing at corners and intersections.

F. Vertical reinforcing shall be centered in wall, unless noted otherwise.

G. All vertical reinforcing centered in CMU shall be contact lap spliced or doweled as follows:

#4 bars -- 13"	
#5 bars -- 20"	
#6 bars -- 38"	
#7 bars -- 52"	
#8 bars -- 72"	

H. All other reinforcing (bond beams, reinf each face, etc) shall be contact lap spliced or doweled as follows:

#4 bars -- 22"	
#5 bars -- 33"	
#6 bars -- 54"	
#7 bars -- 74"	
#8 bars -- 72"	

I. Joint reinforcing shall be lapped 6".

J. Reinforce concrete masonry vertically as indicated in the Structural Drawings.

K. Space joint reinforcement at 16" o.c. vertically typical and at 8" o.c. vertically at parapets and at cantilevered walls, unless noted otherwise.

L. Reinforce bond beams with 2-#5 rebars continuous, unless noted otherwise.

M. Provide #5 rebar at all sides of openings, to extend a minimum of 30" beyond the opening.

4.2 CONCRETE MASONRY

A. Concrete masonry units shall be ASTM C90, normal weight.

B. Provide concrete unit masonry that develops the following minimum net-area compressive strength (f'm) at 28-days: 2000 psi.

C. Mortar shall be of the following types:
   Walls below grade: Type M
   Bearing walls: Type M or S

D. Grout shall conform to ASTM C476. Grout shall be proportioned with a slump of 8" to 11" using 3/8" nominal maximum size course aggregate.

E. Grout vertical reinforced cells and bond beams solid.

F. Insulation shall not be permitted in reinforced cells.

G. Grout concrete masonry below grade solid. Grout cavities of multi-wythe walls below grade.

H. All vertical cells to be grouted shall have vertical alignment to maintain a continuous unobstructed cell area not less than 2" x 3".

I. Grout solid under beams and lintels for full height of wall.

J. Conduits, pipes, and sleeves shall be no closer than 3 diameters center to center.

K. Maximum area of vertical conduits, pipes, or sleeves placed in cavities or pilasters shall not displace more than 2 percent of the net cross section.

DIVISION 5 - METALS

5.1 STRUCTURAL STEEL

A. GENERAL
   1. Structural steel fabrication and erection shall comply with the applicable provisions of the following:
      a. AISC 360-10 Specification for Structural Steel Buildings
      b. AISC 303-10 Code of Standard Practice for Steel Buildings and Bridges
      c. Specification for Structural Joints using ASTM A325 or A490 Bolts
   2. Materials shall conform to the following, unless noted otherwise.

a. W's and WT's	ASTM A992
b. Plates & other shapes	ASTM A572, Grade 50
c. HSS:	ASTM A500, Grade C
d. Pipe	ASTM A53, Grade B
e. Bolts	ASTM F3125, Grade A325 Heavy Hex Head, or Grade F1852 Twist-Off, 3/4" Dia (Min.)
f. Anchor Rods	ASTM F1554, Grade 36 with A36 washers and heavy hex nuts
g. Threaded Rod	ASTM A36
h. Headed Studs	ANS D1.1, Type B
i. Electrodes	Matching strength, 70 ksi min.

   3. General notes for steel connections shall apply to all steel connections unless noted otherwise.
   4. The contractor shall be responsible for the design, detailing, and fabrication of all steel framing connections unless specifically detailed on the Structural Drawings. The contractor shall retain a structural engineer for the design of the connections who is licensed to perform the work in the jurisdiction where the project is located. Submit signed and sealed calculations to the Architect for review and approval prior to starting fabrication.
   5. Steel connection details shown on the Structural Drawings indicate general concept and minimum criteria for design and detailing and are not intended to show complete connection configurations or other specific information that are the responsibility of the connection design engineer. Alternative connection configurations may be submitted to the Architect for review and approval. Connections specifically detailed on the Structural Drawings are to be fabricated as shown.
   6. Connections shall be capable of resisting vertical and horizontal loads listed on the Structural Drawings. Connection design shall provide an adequate load path to transfer the loads from each member, through the connection, into the supporting member, and shall consider the effects of the forces on each member. Members shown on the Structural Drawings have not been sized for local effects at connections.
   7. Loads provided in the Structural Drawings for the design of connections are factored and shall be considered to act simultaneously.
   8. Minimum factored beam shear reaction is 10 kips.
   9. Detail steel beam connections as simple span beams, unless noted otherwise.
   10. Minimum bolt diameter shall be 3/4".
   11. Unless noted otherwise in the drawings, minimum number of bolts required in a beam web connection shall be as follows:

Beam Size	Min. No. of Bolts
W8 | W10 | W12	2
W14 | W16 | W18	3
W21 | W24	4
W27 | W30	5
W33 | W36	6
W40 | W44	7

   12. Minimum thickness of connection angles shall be 5/16". Minimum thickness of connection shear plates shall be 3/8".
   13. Bolted connections designated as fully tensioned shall be installed with direct-tension indicator washers or tension-control bolts.
   14. All steel beams bearing on concrete or masonry shall have 8" minimum bearing, unless noted otherwise.
   15. Where items are to be anchored to concrete or masonry, except at column baseplates, use standard sized holes in steel member, unless noted otherwise.
   16. Use prequalified welded joints in accordance with AISC and AWS D1.1:2000. Non-prequalified joints shall be qualified prior to fabrication.

B. STEEL LINTELS
   1. Loose lintels supporting brick masonry shall be the following UNO, one angle (LLV) per 4" nominal width of masonry:

L3-1/2x3-1/2x5/16	for spans less than 4'-11
LSx3-1/2x5/16	for spans between 5'-0" and 7'-11"
L6x3-1/2x5/16	for spans between 8'-0" and 9'-11"
L7x4x3/8	for spans between 10'-0" and 12'-11"

   2. Double angle lintels back to back shall be bolted at 32" o.c. maximum spacing, with 5/8" diameter A307 bolts, minimum of two bolts per span.
   3. At beam lintels with continuous plates, the plate width shall be 1" less than the nominal width of the supported wall. Plate thickness shall be 5/16", unless noted otherwise.
   4. Lintels bearing on masonry or concrete shall have 8" minimum bearing, unless noted otherwise.
      a. Each lintel, unless noted otherwise, shall be field welded to an embedded plate with two 3" long x 3/16" fillet welds. Minimum width of embedded steel plate shall be 4" larger than the beam flange width.
      b. Where less than 1'-0" of masonry exists at the end of the beam adjacent to a column, wall, or other vertical member, extend the beam and provide a connection to the column or wall.
   5. Exterior lintels whether loose or attached to the structure shall be galvanized.
   6. Contractor shall coordinate with the Structural Drawings and Documents of other disciplines for openings.

C. POST-INSTALLED ANCHORS TO CONCRETE AND MASONRY
   1. Post installed anchors shall be expansion, adhesive, or screw anchors as indicated in details, unless noted otherwise. Only use expansion anchors where indicated, only use adhesive anchors where indicated and only use screw anchors where indicated.
   2. Expansion anchors (Do not use multiple manufacturers on the project, see notes below for substitutions):
      a. For Concrete: Hilti Kwik Bolt TZ2 (ICC-ES ESR-4266).
      b. For Grout Filled Concrete Masonry: Hilti Kwik Bolt TZ2 (ICC-ES-ESR-4561).
   3. Adhesive anchors (Do not use multiple manufacturers on the project, see notes below for substitutions):
      a. For Concrete: Hilti HIT-RE 500 V3 adhesive anchor system (ICC-ES ESR-3814) with HAS-E-55 threaded rods.
      b. Solid Grouted Concrete Masonry: Hilti HIT-HY 270 (ICC-ES ESR-4143) anchor adhesive with HAS-E-55 threaded rods with screen tubes when anchoring into hollow masonry.
      c. Hollow Masonry: Hilti HIT-HY 270 (ICC-ES ESR-4143) anchor adhesive with HAS-E-55 threaded rods with screen tubes when anchoring into hollow masonry.
      d. Multi-Wythe Masonry: Hilti HIT-HY 270 (ICC-ES ESR-4144) anchor adhesive with HAS-E-55 threaded rod with screen tubes when anchoring into multi-wythe masonry.
   4. Screw Anchors (Do not use multiple manufacturers on the project, see notes below for substitutions):
      a. For Concrete: Hilti Kwik Bolt TZ (ICC-ES ESR-3027)
   5. When installing post installed anchors:
      a. The Manufacturer's Printed Installation Instructions (MPII) shall be followed.
      b. Do not cut existing reinforcing.
      c. When installing into existing concrete:
         1) The minimum concrete design compressive strength shall match the above noted compressive strengths in the unit substitution section.
         2) For post installed adhesive anchors, the concrete temperature at the time of installation shall be at least 50-degrees Fahrenheit.
      d. Adhesive used in an adhesive anchor system shall be stored at the service temperature range recommended by the manufacturer.
      e. Anchors to be installed in adhesive shall be clean, oil free and free of rust, paint or other coatings.
      f. Adhesive anchors shall be securely placed to prevent displacement or disturbance while the adhesive cures. If an anchor is displaced or disturbed before a full adhesive cure it shall be removed and replaced at the contractor's expense.
      g. Unless noted otherwise, anchors shall be installed perpendicular to the supporting surface.
      h. Install anchors to accommodate the standard hole size in the supported structural member. The hole diameter through the supported steel member shall be 1/16" larger than the anchor nominal diameter. Use plate washers with a standard size hole welded to steel members where oversized holes must be used through the steel member.
      i. Holes shall be drilled and installed per the MPII as outlined in the ESR. Where applicable, installation shall also follow proper installation procedure as outlined in the MPII as outlined in the ESR. Holes shall be drilled with a rotary impact hammer drill or rock drill, DO NOT core drill holes.
   6. All personnel installing anchors shall be trained and certified by the anchoring system manufacturer. Contractor shall submit certification from the manufacturer at the time of submittal. Certification by manufacturer is valid for one year. All personnel installing adhesive anchors in a horizontal or overhead condition shall be trained and certified by the ACI/CRSI Adhesive Anchor Installer Certification program for such applications. Note some anchors installed in positions other than horizontal or overhead have sustained loads, these anchors will be noted with a (CERT) call out after the anchor note. These anchors shall also be installed by a trained and certified installer. Contractor shall submit certification from ACI/CRSI on all personnel. If failure occur at any time during testing or construction, then personnel shall be retrained and recertified.
   7. Post installed anchors shall only be used where specified on the drawings. Contractor shall obtain approval from engineer prior to using post installed anchors for missing or misplaced cast in place anchors.
   8. Special inspection shall be provided for all post installed anchors as required by the building code and/or ICC-ES report. Written special inspection reports shall be submitted to the registered design professional in responsible charge by the special inspector. The reports shall record and report the following as a minimum:
      a. Prior to and during installation of anchors, inspection and report shall include:
         1) Installer shall have reviewed the MPII and ESR report and have been certified as noted above.
         2) All overhead, horizontal and noted (CERT) adhesive anchors shall be continuously inspected during the installation by an inspector specially trained and approved for this purpose.
         3) General concrete or CMU block conditions (i.e. cracked or uncracked, wet or dry, fire rated, etc.)
         4) Hole condition and preparation prior to installation of anchor. Including if manufacturer's written procedures for preparation of hole were followed.
         5) Installation of anchor followed manufactures written procedures. Including if manufacturer's written procedures for anchor installation were followed.
         6) Embedment depth and concrete or block thickness.
         7) Anchor size and type.
      b. After installing anchors, inspection and reports shall include the following. Reports shall be submitted to the licensed design professional to ensure testing is fulfilled.
         1) Perform independent on-site proof load testing as follows:
            a) Note all test locations.
            b) Note anchor size and/or type.
            c) Minimum of ten (10) percent of each type and size of anchor system installed shall be direct tension tested (Adhesive and screw anchors shall not be tested using a torque wrench) by an independent testing agency. Tension testing shall be performed in accordance with ASTM E488.
            d) If any anchor fails testing, test all anchors of the same type installed by the same trade and not previously tested until (20) consecutive anchors pass, then resume the initial test frequency. At the contractor's expense, failed anchors shall be removed and adjacent area patched and a new anchor shall be installed to replace the failed anchor. New anchor locations shall be submitted to the engineer for review.
            e) Indicate in report, applied load, loading procedure, load increments and rate of loading. Test anchor to twice the allowable tension load as provided in the ESR. Tension test loads need not exceed 80 percent of the nominal yield strength of the anchor element (0.8 x Ase x fya). Loading shall only occur after the minimum cure time specified in the MPII.
            f) Mode of failure if applicable. Anchors shall have no visible indications of displacement or damage during or after the proof load application. Cracking of the supporting material in the vicinity of the anchor after the loading shall be considered a failure.
            g) Photographs or digital photos of test equipment and typical failures.

9. Substitution requests for products other than those listed above shall be submitted to the engineer with calculations that are prepared and sealed by a registered structural engineer (per the requirements of section 1.3.H) showing that the substituted product will achieve an equivalent capacity using the appropriate design procedure required by the building code. Product ICC-ES code reports shall be included with the submittal package. The proposed substitution(s) shall meet the most recently published ACI 355.2 or ACI 355.4.

5.2 METAL DECK

A. GENERAL
   1. Deck shall be continuous over 3 spans, unless noted otherwise.
   2. At supports parallel to the deck span, raise steel supports or provide shims at fastening points if the deck valley does not engage the support.
   3. Metal deck accessories, including but not limited to: girder fillers, Z-closures, and cover plates; that are integral with the floor diaphragm or roof diaphragm shall be of the same material, finish and minimum thickness as the metal deck. Accessories shall be anchored to supporting members by arc spot welds or self drilling screws at 12 inch maximum spacing.

B. COMPOSITE FLOOR DECK
   1. Composite floor deck shall be designed, fabricated, and installed in accordance with "SDI Specifications and Commentary for Composite Steel Floor Deck" in SDI Publication No. 29, 1995.
   2. Composite floor deck shall be galvanized.
   3. Shore composite floor deck where required by manufacturer.
   4. 2" composite deck with design thickness 0.0358" (20 gauge) shall have the following minimum properties: Ip=0.418 in4/ft, In=0.415 in4/ft, Sp=0.355 in3/ft, Sn=0.360 in3/ft, Fy=50 ksi.
   5. Composite floor deck shall be fastened to supports, both perpendicular and parallel to the deck, with Hilti X-HSN/ENP fasteners and fastened at sidelaps with No. 10 screws as follows:
      a. Typical installation, unless noted otherwise:
         1) Fastener Pattern: 36/4
         2) Sidelap Fasteners: 3/span, maximum 36"

5.3 COLD-FORMED METAL FRAMING

A. GENERAL
   1. Cold-formed metal framing shall be designed, fabricated, and erected in accordance with AISI's "Specification for the Design of Cold-Formed Steel Structural Members," 1996.
   2. Materials shall conform to the following, unless noted otherwise.
      a. Structural Steel Sheet: ASTM A653 SS
         1) 0.0451 inch thick or less Grade 33
         2) 0.0566 inch thick or greater Grade 50, Class 1
      b. Self-Drilling Screws SAE J78
      c. Electrodes E60XX
   3. Complete, uniform, and level bearing support shall be provided for the top and bottom tracks of stud walls, or full size shims shall be installed to provide such bearing.
   4. Studs shall be installed with their bearing ends positioned flush against the inside track web.
   5. Full-height double studs shall be provided at the ends of partitions, at wall openings, beneath bar joists, beneath trusses, and at other locations indicated in the Structural Drawings.
      1. Weld the flanges of double studs together full height using 2" of weld at 12" o.c. each side.
   6. Anchor stud tracks with low-velocity powder actuated fasteners with a minimum shank diameter of 0.157", and a minimum penetration of 1-1/4".
      1. Locate anchors at 3" from the ends of partitions, and at 6" o.c. (maximum), 4" o.c. (minimum) throughout.
   7. Provide bracing attached to both faces of wall studs throughout the length of the studs or provide bridging at 4'-0" o.c.
   8. Provide wall and ceiling bracing and edging according to manufacturer's recommendations.
   9. Provide stiffeners in webs of joists at bearing points and at locations of concentrated loads.
   10. Splices in studs and joists shall not be permitted. Do not cut studs or joists.
   11. Wall studs shall have the following minimum effective properties. In the designation below, 362 is the member depth in 1/100 inches, S is the member style, 162 is the flange width in 1/100 inches, and 54 is the material thickness in mils.

Designation	Design Thick.	Effective Properties Ix, in4	Sx, in3	A, in2	Fy, ksi
362S162-54	0.0566	0.873	0.444	0.422	50
600S162-54	0.0566	2.860	0.916	0.566	50
600S162-68	0.0713	3.525	1.164	0.693	50

   12. Joists shall have the following minimum effective properties:

Designation	Design Thick.	Effective Properties Ix, in4	Sx, in3	A, in2	Fy, ksi
600S162-54	0.0566	2.860	0.916	0.566	50

   13. At locations requiring welding of or to metal studs, minimum stud thickness shall be 54 mil.
   14. Provide matching thickness track (54 mil minimum) at top and bottom of stud walls and at headers for stud walls.

5.4 COLD-FORMED STRUCTURAL SHEAR WALLS

A. See Division 6 for sheathing general notes.
B. Studs shall be C-shape members with a minimum thickness of 54-mil, minimum flange width of 1 5/8 inches, minimum web depth as noted in shear wall schedule and minimum edge stiffener of 1/2 inch.
C. Track shall be a minimum thickness of 54-mil with a minimum flange width of 1 1/4" inches and matching wall stud depth per shear wall schedule.
D. Framing screws shall be a minimum of No. 10 self-tapping screws with a minimum head diameter of 0.333 inch in accordance with ASTM C1513.
E. All sheathing edges shall be attached to framing members or blocking.

5.5 PRE-ENGINEERED COLD-FORMED METAL TRUSSES

A. GENERAL
   1. Pre-engineered cold-formed metal trusses shall be designed, fabricated, and erected in accordance with AISI's "Standard for Cold-Formed Steel Framing - Truss Design," latest edition.
   2. Truss design shall conform to all code requirements, stress increases, deflection limitations, and loading criteria, unless more stringent requirements are indicated.
   3. All temporary and permanent bracing shall be designed, provided, coordinated, and installed by the metal truss supplier.
   4. All connections to the supporting structure shall be designed and provided by the metal truss supplier and shall be indicated on the truss shop drawings.
   5. Trusses shall be galvanized meeting ASTM A653, G60, or equivalent. Touch up all welds with zinc-rich paint.
   6. Truss supplier shall coordinate truss configuration with other disciplines to allow passage of ductwork, etc.
   7. Truss supplier shall coordinate truss design to support mechanical equipment, roof access, and other roof mounted equipment. See drawings of other disciplines for locations.
   8. Ceilings are not rigidly attached to bottom chord of trusses. Provide bottom chord bracing as required.

B. DESIGN CRITERIA
   1. See plans and truss elevations for additional load requirements and design criteria.
   2. Lateral forces indicated result from wind and seismic loading. Lateral forces indicated are at service level and shall not be reduced.
   3. Top Chord Roof Live Load: 20 PSF (on horizontal projection)
   4. Top Chord Dead Load (Typ.): 10 PSF (on horizontal projection)
   5. Bottom Chord Live Load (Typ.): 5 PSF
   6. Bottom Chord Dead Load (Typ.): 8 PSF
   7. Truss Spacing: 24" OC Max.
   8. Minimum uniform net uplift: 15 PSF
   9. Connections between trusses and supporting structure shall be designed for Component & Cladding loads when tributary area is less than 700 SF.
   10. L/360 maximum live load deflection
   11. L/240 maximum total load deflection
   12. Top chord shall be 43-mils min. at gravity trusses and 54-mils min. at drag trusses.

C. SUBMITTALS
   1. Shop drawings shall be prepared under the supervision of and signed and sealed by a licensed professional engineer in the state of the project. Indicate span, member sizes, connections, configuration, spacing, temporary and permanent bracing, stiffeners, and any other component affecting the capacity of the system.
   2. Engineering calculations shall be prepared under the supervision of and signed and sealed by a licensed Professional Engineer in the State the project is located. Calculations shall include all loads, design criteria, material properties, and minimum member and connection requirements indicated on the construction documents.

DIVISION 6 - WOOD

6.1 ROUGH CARPENTRY

A. MATERIAL
   1. Plywood
      a. All plywood shall meet the strength requirements in APA "Plywood Design Specification", 1

SPECIAL INSPECTION TABLES

STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS

GENERAL
The Owner shall engage and employ a qualified special inspection agency or agencies to conduct special inspections of structural work as required by chapter 17 of the 2021 International Building Code and as delineated below. Agencies that are considered qualified and acceptable to act as special inspectors will be those acceptable to the building official of the jurisdiction that grants the building permit and the owner.

SPECIAL INSPECTION REPORT REQUIREMENTS
Special Inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the Building Official, Owner, Architect, Structural Engineer, and Contractor. Reports shall indicate that the structural work inspected was done in conformance to approved Contract Documents. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official, Owner, Architect, and Structural Engineer prior to the completion of that phase of work. A final report of inspections documenting required special inspections of structural work and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon by the Owner and the Building Official prior to the start of work.

REQUIRED SPECIAL INSPECTIONS
The following types of structural work require special inspections. Refer to individual Specification Sections for specific testing and inspecting requirements. Continuous inspection is the full-time observation of work by a qualified special inspector who is present in the area where the work is being performed. Periodic special inspection is the part-time or intermittent observation of work by a qualified special inspector who is present in the area where the work has been or is being performed and at the completion of the work.

CONCRETE CONSTRUCTION

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	CONTINUOUS	PERIODIC	
1. Inspection of steel reinforcement, including size, quantity and placement.		X	
2. Reinforcing bar welding:			
a. Verify weldability of reinforcing bars other than ASTM A706.		X	
b. Inspect single-pass fillet welds, maximum 5/16"; and		X	
c. Inspect all other welds.	X		
3. Inspection of anchor rods, headed bolts, headed studs, shear stud shear reinforcing and other embedded items prior to and during placement of concrete.	X		
4. Inspection of anchors installed in hardened concrete.			See "Post Installed Anchors" table
5. Verification of use of required design mixture.		X	
6. Testing of slump, air content, and temperature of concrete at the time fresh concrete is sampled to fabricate specimens for strength tests.	X		Frequency of test per specifications.
7. Inspection of concrete placement, including conveying and depositing.	X		
8. Inspection of curing procedures and maintenance of curing temperatures.		X	
9. Inspection of prestressed concrete:			
a. Application of prestressing forces.	X		
b. Grouting of bonded prestressing tendons in the seismic force resisting system.	X		
10. Erection of precast concrete members.		X	
11. Verification of concrete strength before removal of shores and forms from beams and slabs.		X	
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.		X	
13. Verification that approved shop drawings are being used on site.		X	

SOILS

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	CONTINUOUS	PERIODIC	
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.		X	
2. Verify excavations are extended to proper depth and have reached proper material.		X	
3. Perform classification and testing of compacted fill materials.		X	
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X		
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.		X	

MASONRY CONSTRUCTION LEVEL B QUALITY ASSURANCE

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	CONTINUOUS	PERIODIC	
1. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.		X	
2. Verification of compressive strength of masonry prior to construction and for every 5,000 square feet during construction.		X	
3. Verification of proportions of materials in premixed or preblended mortar and grout as delivered to the site.		X	
4. As masonry construction begins, verify that the following are in compliance:			
a. Proportions of site-prepared mortar and grout.		X	
b. Placement of masonry units and construction of mortar joints.		X	
c. Location of reinforcement and control joints.		X	
5. Prior to grouting, verify that the following are in compliance:			
a. Grout space.	X		
b. Grade, type and size of reinforcement and anchor bolts.		X	
c. Placement of reinforcement.		X	
d. Proportions of site-prepared grout.		X	
e. Construction of mortar joints.		X	
6. Verify during construction:			
a. Size and location of structural elements.		X	
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	X		
c. Welding of reinforcement (if permitted).	X		
d. Preparation, construction and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)		X	
e. Placement of grout.	X		
7. Preparation of any required grout specimens and/or prisms shall be observed.	X		

POST INSTALLED ANCHORS TO CONCRETE AND MASONRY

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	CONTINUOUS	PERIODIC	
1. Use of proper anchor system and manufacturer.		X	
2. Review of installer's qualifications including certification by anchor manufacturer.		X	* See Note 1
3. Anchor installation process as noted in general notes.			* See Note 2
4. Verification of supporting material's condition.		X	
5. Proof testing as outlined in general notes.		X	
6. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	X		
7. Mechanical anchors and adhesive anchors not defined in Note 6.		X	

* Remark Notes:
1. Inspector shall be familiar with anchor manufacturer's written installation procedure and ESR report.
2. Refer to manufacturer's ESR for type of inspection periodic vs. continuous.

WELDED STEEL CONSTRUCTION

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	PERFORM FOR EACH STEEL ELEMENT	OBSERVE ON A RANDOM BASIS	
1. Inspection tasks prior to welding:			
a. Welding procedure specifications (WPS) available.	X		
b. Manufacturer certifications for welding consumables available.	X		
c. Material identification (type/grade).		X	
d. Welder identification system.		X	
e. Fit-up of groove welds (including joint geometry): • Joint preparation • Dimensions (alignment, root opening, root face, bevel) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location) • Backing type and fit (if applicable)		X	
f. Configuration and finish of access holes.		X	
g. Fit-up of fillet welds: • Dimensions (alignment, gaps at root) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location)		X	
h. Check welding equipment.		X	
2. Inspection tasks during welding:			
a. Use of qualified welders.		X	
b. Control and handling of welding consumables: • Packaging • Exposure control		X	
c. No welding over cracked tack welds.		X	
d. Environmental conditions: • Wind speed within limits • Precipitation and temperature		X	
e. WPS followed: • Settings on welding equipment • Travel speed • Selected welding materials • Shielding gas type/flow rate • Preheat applied • Interpass temperature maintained (min/max) • Proper position (F, V, H, OH)		X	
f. Welding techniques: • Interpass and final cleaning • Each pass within profile limitations • Each pass meets quality requirements		X	
3. Inspection tasks after welding:			
a. Welds cleaned.		X	
b. Size, length and location of welds.	X		
c. Welds meet visual acceptance criteria: • Crack prohibition • Weld/base-metal fusion • Crater cross section • Weld profiles • Weld size • Undercut • Porosity	X		
d. Arc strikes.	X		
e. Visually inspect the web k-area for cracks within 3" of doubler plates, continuity plates and stiffeners welded in the k-area.	X		
f. Placement of reinforcing or contouring fillet welds (if required).	X		
g. Backing removed and weld tabs removed (if required).	X		
h. Repair activities.	X		
i. Document acceptance or rejection of welded joint or member.	X		

BOLTED STEEL CONSTRUCTION

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	PERFORM FOR EACH STEEL ELEMENT	OBSERVE ON A RANDOM BASIS	
1. Inspection tasks prior to bolting:			
a. Manufacturer's certifications available for fastener material.	X		
b. Fasteners marked in accordance with ASTM requirements.		X	
c. Proper fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane).		X	
d. Proper bolting procedure selected for joint detail.		X	
e. Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements.		X	
f. Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used.		X	
g. Proper storage provided for bolts, nuts, washers and other fastener components.		X	
2. Inspection tasks during bolting:			
a. Fastener assemblies, of suitable condition, placed in all holes and washers (if required) are positioned as required.		X	
b. Joint brought to the snug-tight condition prior to the pretensioning operation.		X	
c. Fastener component not turned by the wrench prevented from rotating.		X	
d. Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges.		X	
3. Inspection tasks after bolting:			
a. Document acceptance or rejection of bolted connections.	X		

STEEL DECKING CONSTRUCTION

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	PERFORM FOR EACH STEEL ELEMENT	OBSERVE ON A RANDOM BASIS	
1. Inspection or execution tasks prior to deck placement:			
a. Verify compliance of materials (deck and all deck accessories) with construction documents, including profiles, material properties, and base metal thickness.		X	
b. Document acceptance or rejection of deck & deck accessories.		X	
c. Confirm approved shop drawings are being used in field.	X		
2. Inspection or execution tasks after deck placement:			
a. Verify compliance of deck and all deck accessories installation with construction documents.		X	
b. Verify deck materials are represented by the mill certifications that comply with the construction documents.		X	
c. Document acceptance or rejection of installation of deck and deck accessories.		X	
3. Inspection or execution tasks prior to welding:			
a. Welding procedure specifications (WPS) available.		X	
b. Manufacturer certifications for welding consumables available.		X	
c. Material identification (type/grade).		X	
d. Check welding equipment.		X	
4. Inspection or execution tasks during welding:			
a. Use of qualified welders.		X	
b. Control and handling of welding consumables.		X	
c. Environmental conditions (wind speed, moisture, temperature)		X	
d. WPS followed.		X	
5. Inspection or execution tasks after welding:			
a. Verify size and location of welds, including support, sidelap, and perimeter welds.		X	
b. Welds meet visual acceptance criteria.		X	
c. Verify repair activities.		X	
d. Document acceptance or rejection of welds.		X	
6. Inspection or execution tasks prior to mechanical fastening:			
a. Manufacturer installation instructions available for mechanical fasteners.		X	
b. Proper tools available for fastener installation.		X	
c. Proper storage for mechanical fasteners.		X	
7. Inspection or execution tasks during mechanical fastening:			
a. Fasteners are positioned as required.		X	
b. Fasteners are installed in accordance with manufacturer's instructions.		X	
8. Inspection or execution tasks after mechanical fastening:			
a. Check spacing, type, and installation of support fasteners.		X	
b. Check spacing, type, and installation of sidelap fasteners.		X	
c. Check spacing, type, and installation of perimeter fasteners.		X	
d. Verify repair activities.		X	
e. Document acceptance or rejection of mechanical fasteners.		X	

STRUCTURAL LIGHT GAGE STUD CONSTRUCTION

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	CONTINUOUS	PERIODIC	
1. Material verification of studs and weld electrodes.		X	
2. Inspection of light gage welds to structure.		X	
3. Inspection of screw attachment, bolting, anchoring and other fastening of components.		X	
4. Inspection of screw attachment, bolting, anchoring and other fastening of components within wind and seismic force resisting systems, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.		X	
5. Confirm material size and gage.	X		
6. Confirm approved shop drawings are being used in field.	X		

AGGREGATE GROUND IMPROVEMENT

SPECIAL INSPECTION ITEM	TYPE OF INSPECTION		REMARKS
	CONTINUOUS	PERIODIC	
1. Verification of suitable aggregate material.		X	
2. Verification of installation techniques.		X	
3. Observation of load tests.	X		
4. Verification of top and bottom elevations of aggregate piers.		X	
5. Inspection of uplift hardware.	X		

SEE S010 FOR ADDITIONAL SPECIAL INSPECTIONS AT STORM SHELTER

LIST OF ABBREVIATIONS

ABOVE FINISH FLOOR	AFF
ADDITIONAL	ADDNL
ALTERNATE	ALT
ANCHOR, ANCHORAGE	ANCH
ANCHOR ROD	AR
ANTHONY POWER BEAM	APB
APPROXIMATE	APPROX
ARCHITECT	ARCH
ARCHITECTURALLY EXPOSED STRUCTURAL STEEL	AESS
BACK TO BACK	BB
BALANCE	BAL
BASEMENT	BSMT
BEAM	BM
BEARING	BRG
BENT	BT
BETWEEN	BTWN
BLOCKING	BLKG
BOTTOM	BOT
BOTTOM OF	B/
BOTTOM OF CONCRETE	BC
BOTTOM OF METAL DECK	BMD
BOTTOM OF PIER	BP
BOTTOM OF WALL	BW
BRICKLEDGE	BL
BRIDGING	BRDG
BUILDING	BLDG
CAMBER	c OR C
CANTILEVER	CANT
CAST IN PLACE	CIP
CENTER	CTR
CENTER TO CENTER	CC
CENTERLINE	CL
CLEAR	CLR
COLD-FORMED	CF
COLD-FORMED METAL FRAMING	CFMF
COLD-FORMED STEEL	CFS
COLUMN, COLUMNS	COL
COLUMN STRIP	CS
CONCRETE	CONC
CONCRETE MASONRY UNIT	CMU
CONNECT	CONN
CONNECTION	CONX
CONSTRUCTION	CONST
CONSTRUCTION JOINT OR CONTROL JOINT	CJ
CONTINUE, CONTINUOUS	CONT
CONTRACTOR	CONTR
COORDINATE	COORD
CURTAIN WALL	CW
DEAD LOAD	DL
DEGREE	DEG
DETAIL	DTL
DIAGONAL	DIAG
DIAMETER	DIA
DIAMETER OF REBAR	DB
DOWEL	DWL
DOWN	DN
DRAWING	DWG
EACH	EA
EACH END	EE
EACH FACE	EF
EACH SIDE	ES
EACH WAY	EW
ECCENTRICALLY BRACED FRAME	EBF
EDGE NAILING	EN
EDGE OF SLAB	EOS
ELECTRICAL	ELEC
ELEVATION	EL
ELEVATOR	ELEV
EMBEDMENT	EMBED, EMB
ENGINEER	ENG
ENGINEER OF RECORD	EOR
EQUAL	EQ
EXISTING	EXIST OR (E)
EXPANSION	EXP
EXPANSION JOINT	EJ
EXTERIOR	EXT
FABRICATOR	FAB
FACE OF BRICK	FOB
FAR FACE	FF
FAR SIDE	FS
FIELD VERIFY	FV
FINISH, FINISHED	FIN
FINISH FLOOR ELEVATION	FFE
FIRE TREATED	F.T.
FLANGE	FLG
FLOOR	FLR
FLOOR DRAIN	FD
FOOTING	FTG
FOUNDATION	FDN
FUTURE	FUT OR (F)
GALVANIZED	GALV
GAUGE	ga, GA
GENERAL	GEN
GIRDER TRUSS	GT
GLUE-LAMINATED BEAM	GLB
GRADE	GR
GRADE BEAM	GB
HANGER	HGR
HEADED	HD
HEADER	HDR
HEIGHT	HT
HIGH POINT	HP
HOLLOW CLAY TILE	HCT
HOOK	HK
HORIZONTAL	HOR
INFORMATION	INFO
INSIDE DIAMETER	ID
INSIDE FACE	I.F.
INTERIOR	INT
INTERMEDIATE MOMENT FRAME	IMF
JOINT	JT
JOIST	JST
JOIST SUBSTITUTE	JS
KIP, KIPS	k OR K
KNEE BRACE	KB
LAMINATED STRAND LUMBER	LSL
LAMINATED VENEER LUMBER	LVL
LIGHT	LT
LIVE LOAD	LL
LOCATION	LOC
LONG	LG
LONG LEG HORIZONTAL	LLH
LONG LEG OUT	LLO
LONG LEG VERTICAL	LLV
LONG SIDE VERTICAL	LSV
LONG SIDE HORIZONTAL OR LONG SLOTTED HOLE(S)	LSH
LOW POINT	LP
MANUFACTURER	MFR
MASONRY	MAS
MAXIMUM	MAX
MECHANICAL	MECH
MEZZANINE	MEZZ
MIDDLE	MID
MIDDLE STRIP	MS
MINIMUM	MIN
MISCELLANEOUS	MISC
NEAR FACE	NF
NEAR SIDE	NS
NEW	(N)
NOT IN CONTRACT	NIC
NOT TO SCALE	NTS
ON CENTER	oc
OPENING	OPNG
OPEN WEB TRUSS	OWT
OPPOSITE	OPP
OPPOSITE HAND	OPPHD
ORDINARY CONCENTRICALLY BRACED FRAME	OCBF
ORDINARY MOMENT FRAME	OMF
OUT TO OUT	OO
OUT OF PLANE	OOP
OUTSIDE DIAMETER	OD
OUTSIDE FACE	O.F.
OVERSIZED HOLE(S)	OVH
PARALLEL STRANDED LUMBER	PSL
PIER CAP, PILE CAP	PC
PILASTER	PIL
PLACES	PLCS
PLATE	PL
PLUMBING	PLMB
PLYWOOD	PLYWD
POINT	PT
POST-TENSIONED	P-T
POUND PER SQUARE FOOT	PSF
POUND PER SQUARE INCH	PSI
POWDER ACTUATED FASTENER	PAF
PRECAST	P/C
PRE-ENGINEERED METAL BUILDING	PEMB
PRE-ENGINEERED WOOD TRUSS	PWT
PREFABRICATED	PREFAB
PRESSURE TREATED LUMBER	PTL
QUANTITY	QTY
RADIUS	RAD
REFER, REFERENCE	REF
REINFORCING OR REINFORCEMENT	REINF
REQUIRED	REQD
ROOF TOP UNIT	RTU
SCHEDULE	SCHED
SECTION	SECT
SEISMIC LOAD RESISTING SYSTEM	SLRS
SHEAR WALL	SW
SHEATHING	SHTHG
SHEET	SHT
SHEET METAL	SHTMTL
SHORT LEG OUT	SLO
SHORT SIDE HORIZONTAL OR SHORT SLOTTED HOLE(S)	SSH
SIMILAR	SIM
SLAB ON GROUND	SOG
SLIP CRITICAL	SC
SPACE	SPA
SPECIAL	SP
SPECIAL CONCENTRICALLY BRACED FRAME	SCBF
SPECIAL MOMENT FRAME	SMF
SPECIFICATIONS	SPEC
SQUARE	SQ
STAINLESS STEEL	SS
STANDARD	STD
STEEL	STL
STIFFENER	STIFF
STRUCTURAL	STRUC
STRUCTURAL ENGINEER OF RECORD	SEOR
SYMMETRICAL	SYM
THICK, THICKNESS	THK OR T
THREAD, THREADED	THD
TIE BEAM	TB
TO BE REMOVED	TBR
TOP & BOTTOM	T&B
TOP OF	T/
TOP OF CONCRETE	TC
TOP OF FOOTING	TF
TOP OF MASONRY	TM
TOP OF PIER, PILASTER	TP
TOP OF PIER CAP, PILE CAP	TPC
TOP OF STEEL	TS
TOP OF WALL	TW
TREAD	T OR TR
TYPICAL	TYP
UNLESS NOTED OTHERWISE	UNO
VERTICAL BRACE	VB
VERTICAL, VERTICALLY	VT OR VERT
VERIFY IN FIELD	VIF
WELDED WIRE REINFORCING	WWR
WINDOW	WDW
WITH	w/
WOOD	WD
WORKING POINT	WP
WATERSTOP, WATERSEAL	WS
X-BRACING	X-BR

Jason N. Richards
MO Engineer License No E-2000162164
Expires: 12/31/2026

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000550
143 West Clinton Place St. Louis, Missouri 63122
p: [314] 965.7445 f: [314] 965.7477
www.archimages-stl.com

kpff Consulting Engineers
1630 Des Peres Road Suite 100 St. Louis, MO 63131 314.835.0524 www.kpff.com
MO Certificate of Authority No. 2001010829

© 2026 kpff Consulting Engineers

The Professional Engineer whose personal seal and signature Appears on this page assumes responsibility only for what appears on this page and disclaims (pursuant to Section 327.411 RSMo) any responsibility for all other pages, plans, specifications, documents, electronic files, or instruments not sealed by this Professional Engineer relating to, or intended to be used for, any part or parts of the engineering project to which this page refers.

Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
ST CHARLES, MO 63303
1151 JUNGS STATION RD

No.	Date	Revision
2	07/15/2026	Addendum 2

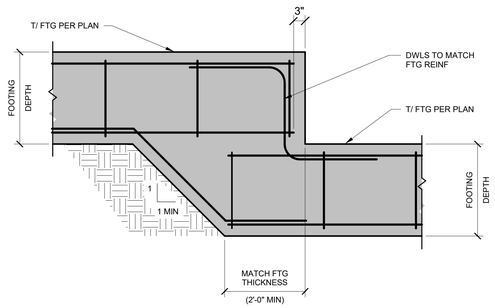
SPECIAL INSPECTIONS

KPFF Project No.
2400253

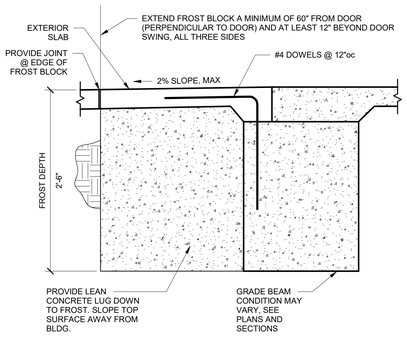
Sheet No.
S002

Date
2026/06/08

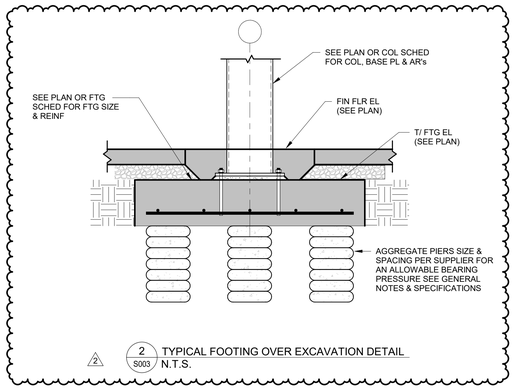
7/14/2026 4:07:18 PM
Autodesk Docs://Fire House #6 Central County/2400253 Central County Fire House.rvt



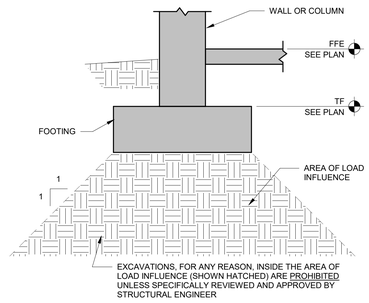
4 S003 TYPICAL TRENCH FOOTING STEP DETAIL
3/4" = 1'-0"



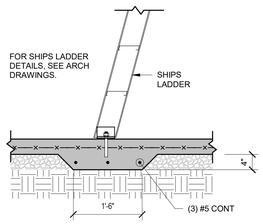
3 S003 TYPICAL FROST BLOCK DETAIL AT EXTERIOR DOOR
NTS



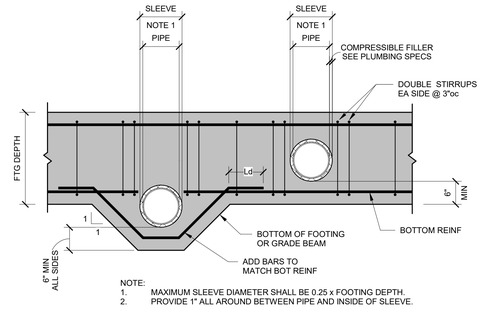
2 S003 TYPICAL FOOTING OVER EXCAVATION DETAIL
N.T.S.



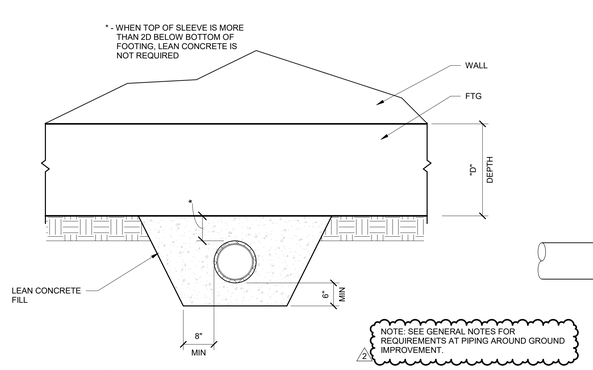
1 S003 TYPICAL PROHIBITED EXCAVATIONS AT FOUNDATION
NTS



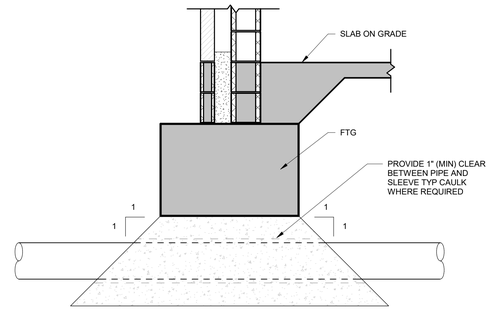
7 S003 TYPICAL SHIPS LADDER AT SLAB ON GRADE DETAIL
NTS

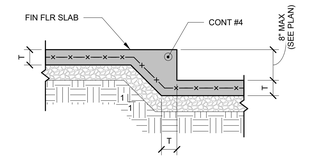


6 S003 TYPICAL PIPE SLEEVE THRU FOUNDATION DETAIL
NTS

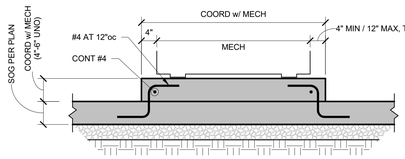


5 S003 TYPICAL FOOTING DETAIL WHERE PLUMBING PASSES BELOW FOOTING
3/4" = 1'-0"

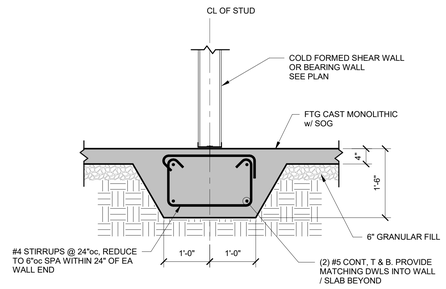




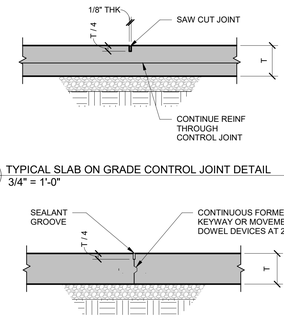
12 S003 TYPICAL DEPRESSION OR STEP IN SLAB ON GROUND DETAIL
NTS



11 S003 TYPICAL HOUSEKEEPING PAD
3/4" = 1'-0"

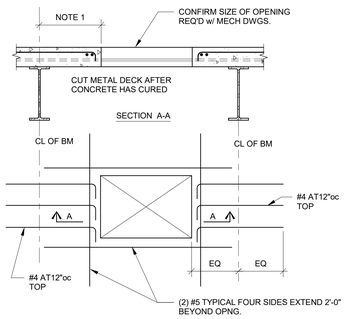


10 S003 TYPICAL THICKENED SLAB AT LIGHT GAUGE LOAD-BEARING INTERIOR PARTITION OR SHEAR WALL
3/4" = 1'-0"

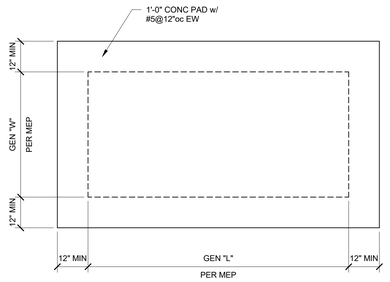


8 S003 TYPICAL SLAB ON GRADE CONTROL JOINT DETAIL
3/4" = 1'-0"

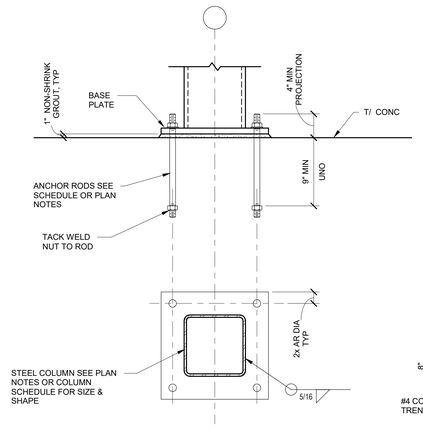
9 S003 TYPICAL SLAB ON GRADE CONSTRUCTION JOINT DETAIL
3/4" = 1'-0"



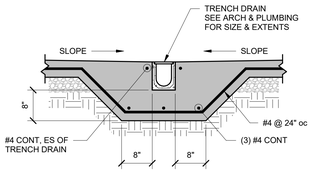
16 S003 TYPICAL OPENING IN COMPOSITE SLAB DETAIL
NTS



15 S003 GENERATOR FOUNDATION
1/2" = 1'-0"



14 S003 TYPICAL COLUMN BASE PLATE DETAIL
NTS



13 S003 TYPICAL TRENCH DRAIN DETAIL
NTS

Jason N. Richards
MO Engineer License No E-2000162164
Expires: 12/31/2026

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000550
143 West Clinton Place St. Louis, Missouri 63122
p: [314] 965.7445 f: [314] 965.7477
www.archimages-stl.com

The Professional Engineer whose personal seal and signature Appears on this page assumes responsibility only for what appears on this page and disclaims (pursuant to Section 327.411 RSMo) any responsibility for all other pages, plans, specifications, documents, or electronic data files or instruments not sealed by this Professional Engineer relating to, or intended to be used for, any part or parts of the engineering project to which this page refers.

kpff Consulting Engineers
1630 Des Peres Road
Suite 100
St. Louis, MO 63131
p: 314.835.0524
www.kpff.com

MO Certificate of Authority No. 2001010829
© 2026 kpff Consulting Engineers

Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD
ST CHARLES, MO 63303

No.	Date	Revision
2	07/15/2026	Addendum 2

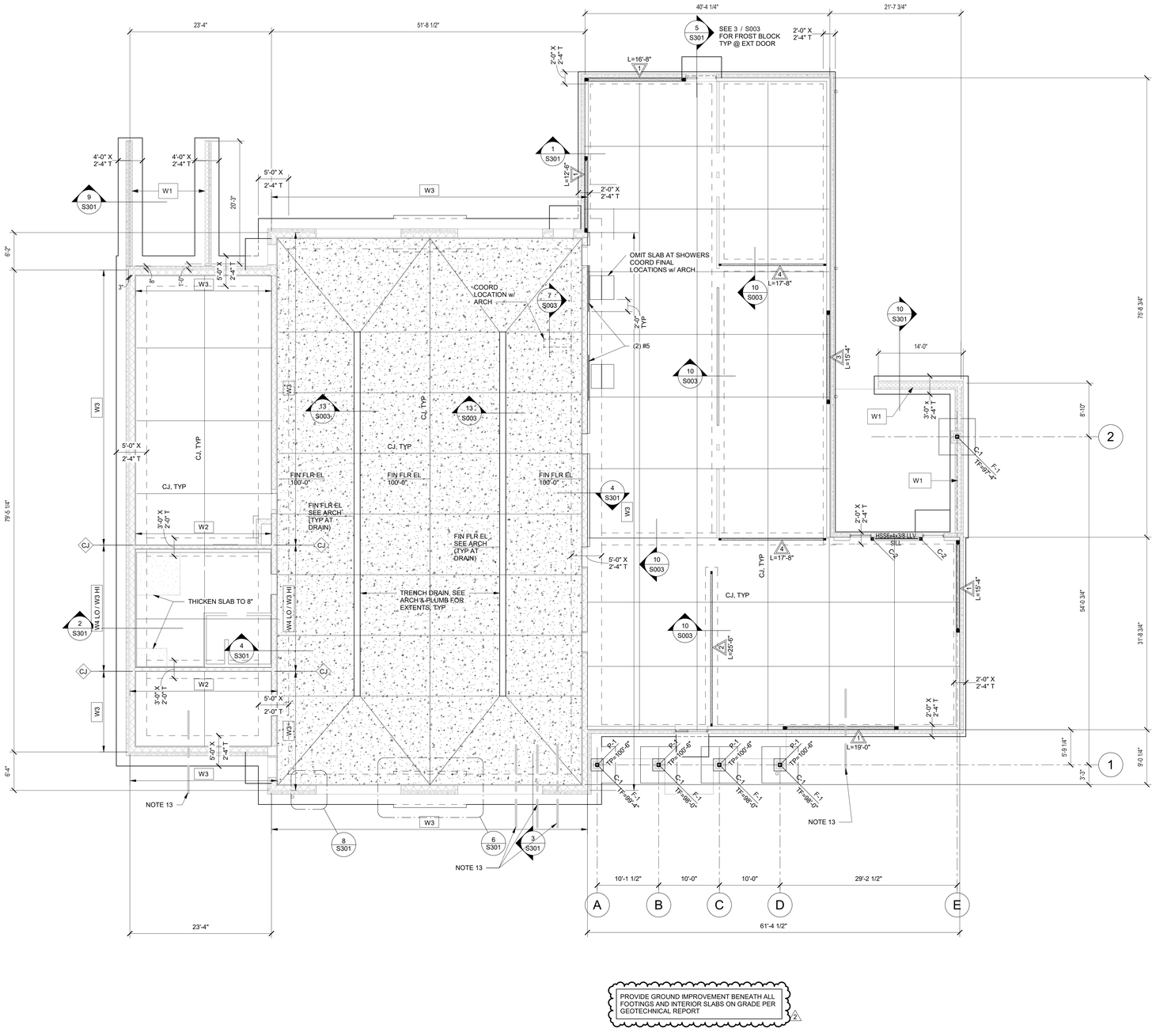
TYPICAL DETAILS

KPFF Project No.
2400253

Sheet No.
S003

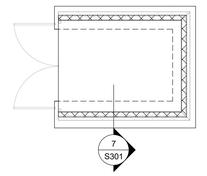
Date
2026/06/08

7/14/2026 4:07:19 PM
Autodesk Docs://Fire House #6 Central County/2400253 Central County Fire House.rvt



PROVIDE GROUND IMPROVEMENT BENEATH ALL FOOTINGS AND INTERIOR SLABS ON GRADE PER GEOTECHNICAL REPORT.

2



3 S121 TRASH ENCLOSURE PLAN
1/8" = 1'-0"

1 S121 FOUNDATION PLAN
1/8" = 1'-0"

NOTES:
1. FINISHED FLOOR ELEVATION = 100'-0". (USGS 568.50') UNO.
2. FLOOR CONSTRUCTION TO BE A 4" CONC SLAB ON GRADE REINFORCED w/ 6x6-W2.1xW2.1 WWR ON 15 MIL VAPOR RETARDER, OVER 4" COMPACTED GRANULAR FILL (UNO). LAP JOINTS 6" MINIMUM.
3. ▭ INDICATES FLOOR CONSTRUCTION TO BE A 7" CONC SLAB ON GRADE REINFORCED w/ 6x6-W2.9xW2.9 WWR ON 15 MIL VAPOR RETARDER, OVER 4" COMPACTED GRANULAR FILL.
4. TOP OF FOOTING EL = 99'-4" (UNO), EXTERIOR,
   TOP OF FOOTING EL = 99'-4" (UNO) INTERIOR.
5. FOOTINGS ARE CENTERED ON COLUMNS/PIERS, UNO.
6. ▶ INDICATES SHEAR WALL END CHORDS PER SCHEDULE & ELEVATION ON SHEET S106.
7. Wx INDICATES CMU WALL TYPE PER SCHEDULE.
8. CJ INDICATES CONTROL JOINT IN LOAD BEARING CMU WALL. SEE ARCH FOR DETAILING OF JOINT. SEE ARCH FOR CONTROL JOINTS IN MASONRY VENEERS. CONTROL JOINTS IN VENEER DO NOT NEED TO ALIGN WITH CONTROL JOINTS IN LOAD BEARING CMU. JOINT REINFORCEMENT TO BE DISCONTINUOUS THROUGH CONTROL JOINT.
9. GROUT VOID BELOW GRADE.
10. COORDINATE CIVIL LINE WITH WALL FOOTING. REFER TO TYPICAL DETAILS PERTAINING TO PIPE UNDER FOOTING.
11. GENERAL NOTES AND TYPICAL DETAILS ARE ON SHEETS S001 THRU S009.
12. STEP FTG PER CIVIL AS REQUIRED TO MAINTAIN MIN FROST DEPTH OF 30" BELOW GRADE.
13. COORDINATE PLUMBING LINE WITH WALL FOOTING. REFER TO TYPICAL DETAILS FOR PIPE CROSSING UNDER OR SLEEVED THROUGH FOOTING.
14. REFER TO ELECTRICAL DRAWINGS FOR GROUNDING REQUIREMENTS.

SHEAR WALL KEY



CJ INDICATES CONTROL JOINT IN LOAD BEARING CMU WALL. SEE ARCH FOR DETAILING OF JOINT AND CONTROL JOINTS IN MASONRY VENEERS. CONTROL JOINT EXTENDS FULL HEIGHT OF WALL, UNO.

FOOTING SCHEDULE

MARK	SIZE	REINF EW, BOT - UNO	REMARKS
F-1	6'-0" x 6'-0" x 24"	(8) #6, T & B	

STEEL COLUMN SCHEDULE

MARK	SIZE	BASE PLATE	ANCHOR BOLTS	REMARKS
C-1	HSS6X6X1/2	3/4"x12"x12"	(4) 3/4" DIA (GR 55)	
C-2	HSS4X4X3/8	3/4"x10"x10"	(4) 3/4" DIA (GR 55)	

CONCRETE PILASTER SCHEDULE

NOTES:
1. SPACE TOP (3) TIES @ 4"oc, BALANCE PER SCHEDULE.
2. PROVIDE DOWELS INTO FOUNDATION. MATCH VERTICAL REINFORCEMENT.

MARK	SIZE	VERT REINF	TIES - UNO	REMARKS
P-1	24 x 24	(12) #6	#4@8"oc	

CMU WALL SCHEDULE

MARK	SIZE	VERT REINF, UNO	HORZ REINF	COMMENTS
W1	8"	#5 @ 32"oc	(2) #5 CONT @ 48"oc & W1.7 (9 GAGE) LADDER-TYPE JT REINF @ 16"oc	- VERT REBAR CENTERED
W2	8"	#5 @ 8"oc	(2) #5 CONT @ 32"oc & W1.7 (9 GAGE) LADDER-TYPE JT REINF @ 16"oc	- STORM SHELTER PERIM - GROUT WALL SOLID - NO CONTROL JOINTS - VERT REBAR CENTERED
W3	10"	#5 @ 24"oc	(2) #5 CONT @ 40"oc & W1.7 (9 GAGE) LADDER-TYPE JT REINF @ 16"oc	- VERT REBAR CENTERED
W4	10"	#5 @ 8"oc	(2) #5 CONT @ 32"oc & W1.7 (9 GAGE) LADDER-TYPE JT REINF @ 16"oc	- STORM SHELTER PERIM - GROUT WALL SOLID - NO CONTROL JOINTS - VERT REBAR CENTERED



NOTES:
1. SEE DETAIL 1 / S004 FOR TYPICAL CMU WALL REINFORCING ELEVATION.
2. ALL PERIMETER STORM SHELTER WALLS SHALL BE FULLY GROUTED AND REINFORCED (TYPE W2 OR W4 PER PLAN). SEE SHEET S110 FOR EXTENTS.

SCALE: 3" = 1'-0" / SCALE: 1 1/2" = 1'-0" / SCALE: 1" = 1'-0" / SCALE: 3/4" = 1'-0" / SCALE: 1/2" = 1'-0" / SCALE: 3/8" = 1'-0" / SCALE: 1/4" = 1'-0" / SCALE: 1/8" = 1'-0" / SCALE: 3/32" = 1'-0" / SCALE: 1/16" = 1'-0"

7/14/2026 4:07:20 PM
Autodesk Docs://Fire House #6 Central County/2400253 Central County Fire House.rvt

Jason N. Richards
MO Engineer License No E-2000162164
Expires: 12/31/2026

Archimages architecture | interiors
MO Architectural Corporation Archimages, Inc. # 000550
143 West Clinton Place St. Louis, Missouri 63122
p: (314) 965.7445 f: (314) 965.7477
www.archimages-stl.com

kpff 1630 Des Peres Road Suite 100 St. Louis, MO 63131 p: 314.835.0524 www.kpff.com
MO Certificate of Authority No. 2001010829
© 2026 kpff Consulting Engineers

The Professional Engineer whose personal seal and signature Appears on this page assumes responsibility only for what appears on this page and disclaims (pursuant to Section 327.411 RSMo) any responsibility for all other pages, plans, specifications, documents, or instruments of any sort or instruments not sealed by this Professional Engineer relating to, or intended to be used for, any part or parts of the engineering project to which this page refers.

Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD ST CHARLES, MO 63303

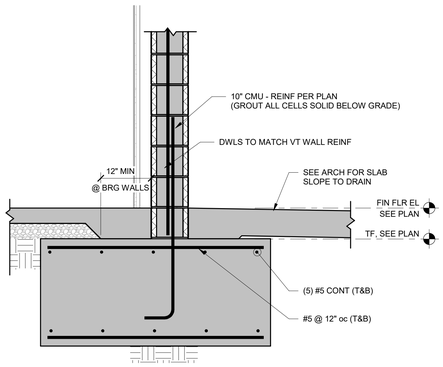
No.	Date	Revision
2	07/15/2026	Addendum 2

FOUNDATION PLAN

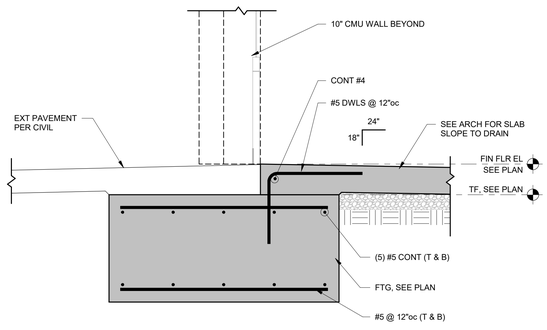
KPFF Project No. 2400253

Sheet No. S121

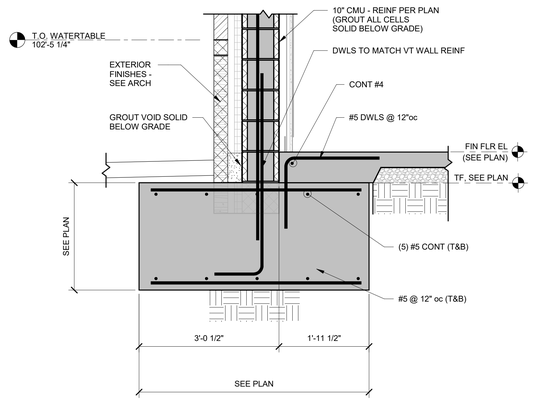
Date 2026/06/08



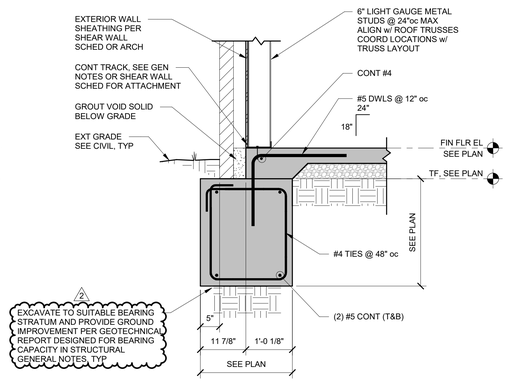
4 S301 SECTION 3/4" = 1'-0"



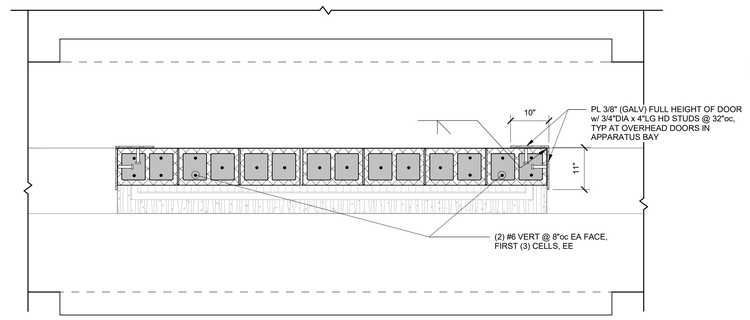
3 S301 SECTION 3/4" = 1'-0"



2 S301 SECTION 3/4" = 1'-0"

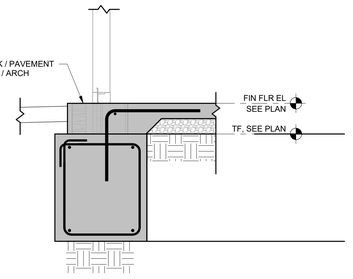


1 S301 SECTION 3/4" = 1'-0"

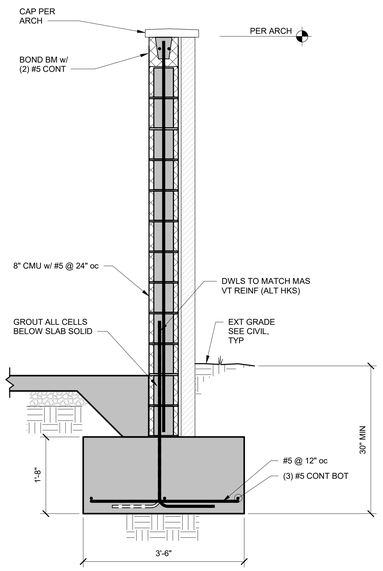


PLAN VIEW

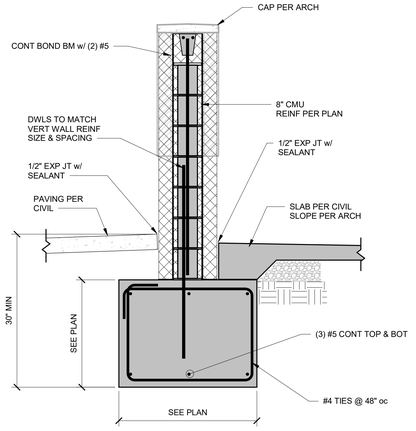
6 S301 DETAIL 3/4" = 1'-0"



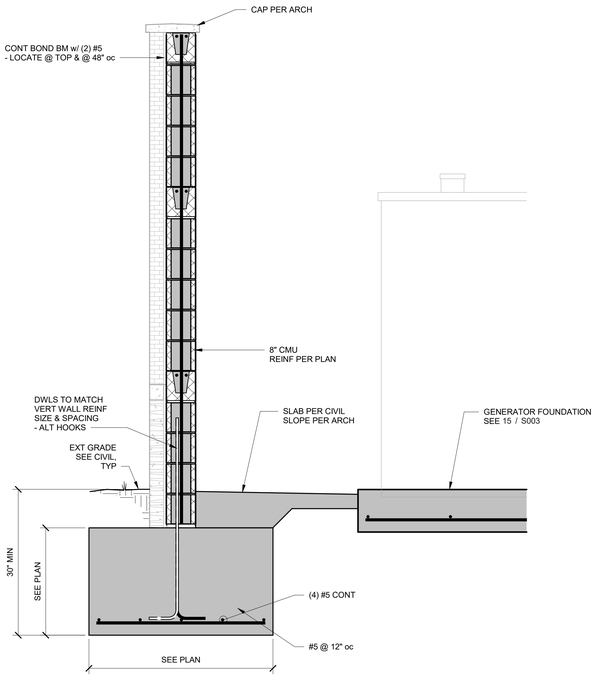
5 S301 SECTION 3/4" = 1'-0"



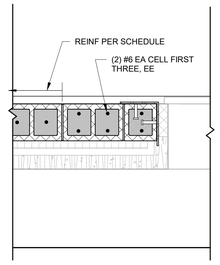
7 S301 SECTION 3/4" = 1'-0"



10 S301 SECTION 3/4" = 1'-0"



9 S301 SECTION 3/4" = 1'-0"



8 S301 DETAIL 3/4" = 1'-0"

SCALE: 3" = 1'-0" 1' 0 6' 3'
SCALE: 1 1/2" = 1'-0" 2' 1' 0 6' 3'
SCALE: 1" = 1'-0" 2' 1' 0 6'
SCALE: 3/4" = 1'-0" 3' 2' 1' 0
SCALE: 1/2" = 1'-0" 4' 2' 1' 0 6'
SCALE: 3/8" = 1'-0" 4' 2' 0
SCALE: 1/4" = 1'-0" 8' 4' 2' 0
SCALE: 1/8" = 1'-0" 16' 8' 4' 0
SCALE: 3/32" = 1'-0" 24' 16' 8' 0
SCALE: 1/16" = 1'-0" 32' 16' 8' 0

7/14/2026 4:07:20 PM
Autodesk Docs://Fire House #6 Central County/2400253 Central County Fire House.rvt

Jason N. Richards
MO Engineer License No E-2000162164
Expires: 12/31/2026

Archimages architecture | interiors
Archimages, Inc. # 000550
MO Architectural Corporation
143 West Clinton Place St. Louis, Missouri 63122
p: [314] 965.7445 | f: [314] 965.7477
www.archimages-stl.com

kpff
1630 Des Peres Road
Suite 100
St. Louis, MO 63131
p: 314.835.0524
www.kpff.com
MO Certificate of Authority No. 2001010829

The Professional Engineer whose personal seal and signature Appears on this page assumes responsibility only for what appears on this page and disclaims (pursuant to Section 327.411 RSMo) any responsibility for all other pages, plans, specifications, documents, or electronic media sheets or instruments not sealed by this Professional Engineer relating to, or intended to be used for, any part or parts of the engineering project to which this page refers.

© 2026 kpff Consulting Engineers

Proposed:
CENTRAL COUNTY FIRE & RESCUE - HOUSE #6
1151 JUNGS STATION RD
ST CHARLES, MO 63303

No.	Date	Revision
2	07/15/2026	Addendum 2

FOUNDATION SECTIONS AND DETAILS

KPFF Project No.
2400253

Sheet No.
S301

Date
2026/06/08