



Request for Proposal (RFP) – Resource Center Repairs Phase 2
Basis for Proposal/Pricing
August 5, 2026

1. STATEMENT OF PURPOSE & BACKGROUND:

Haven for Hope of Bexar County (“Haven for Hope”) operates a 22-acre Transformational Campus located just west of downtown San Antonio, Texas. For over 15 years, Haven for Hope has provided a coordinated system of care for individuals and families experiencing homelessness. Our mission is to provide a place of hope and new beginnings by delivering an efficient, coordinated system of care, with a vision of ending homelessness through empowerment and transformation.

Haven for Hope is seeking proposals from qualified contractors to perform structural and finish repairs at the Resource Center building.

2. PROJECT SPECIFICATIONS / SCOPE OF WORK:

The contractor shall furnish all labor, materials, equipment, supervision, transportation, and incidentals necessary to complete the work in accordance with the construction documents and specifications.

Scope includes, but is not limited to:

1. SELECTIVE REMOVAL AND REINSTALLATION OF EXISTING CONCRETE CURB WALLS.
2. PARTIAL DEPTH REPAIR OF CONCRETE WALL.
3. PARTIAL DEPTH REPAIR OF CONCRETE BEAM-COLUMN CONNECTION AREAS (VERTICAL).
4. SHALLOW DEPTH REPAIR OF CONCRETE SLAB/BEAM SOFFIT (OVERHEAD).
5. INSTALLATION OF STEEL CORBEL AT SELECTED BEAM-COLUMN CONNECTIONS.
6. FINISHING AND PAINTING OF ALL REPAIRED AREAS TO MATCH EXISTING TEXTURE, SHEEN AND COLOR.

See estimated quantity table below

REPAIR ITEM	UNIT	UNIT ESTIMATED
1	SF	10
2	SF	5
3	SF	150
4	SF	20
5	EA.	20

Note: Quantities shown are estimates based on the Engineer of Record’s construction documents and are provided solely for bidding and evaluation purposes. Actual quantities may vary based on field conditions and shall be verified by the contractor. Notwithstanding the inclusion of a lump sum proposal, pricing for this project shall be governed by the unit prices provided. Final payment will be based on actual quantities completed and verified in the field. The lump sum amount shall be considered an estimate derived from projected quantities and will be subject to adjustment based on field-verified quantities.

All work must be completed and invoiced by or before September 25, 2026.

Warranty, Payment Terms, & Penalties

- A 10% retainage will be withheld for 60 days following final payment
- Contractor shall provide a minimum two (2) year warranty on workmanship and materials which shall commence upon final acceptance
- Payments will be issued based on milestone phases, to be defined in the contract
- A penalty of 1% of the total contract amount per calendar day will apply for delays beyond the agreed project completion date unless approved in writing by Haven for Hope.

3. COMPLIANCE, INSURANCE, & GENERAL REQUIREMENTS:

- This project is funded in whole or in part by County funds; therefore, additional compliance requirements (including, but not limited to, applicable labor standards, reporting obligations, and audit provisions) may apply and will be incorporated into the final contract. Bidders are advised to account for any administrative, documentation, and compliance-related costs in their proposals. All materials, installations, and work performed under this RFP must comply with all applicable federal, state, and local procurement laws, regulations, and standards, and shall remain in full compliance throughout the duration of the project.
- All materials, installations, and work must adhere to state and federal procurement regulations. All work conducted under this RFP must strictly adhere to and comply with all applicable legal and regulatory guidelines throughout the duration of the project.
- All contractor staff assigned to this project must meet the requirements to gain access to Haven's property. Additional access information will be provided upon request.
- Proposals must include all costs and a timeline associated with obtaining any required permits. Contractor will coordinate permitting as required for the work.
- Interested parties must obtain and maintain any insurance required by law, but must at least include: (i) broad form commercial general liability insurance in amounts for bodily injury and property damage of \$1,000,000 per occurrence and \$2,000,000 general aggregate (or equivalent in umbrella or excess liability coverage); (ii) causes of loss-special form property insurance, issued on a replacement-cost basis and insuring the full value of the contractor's property and property for which contractor is legally liable, including vehicles; (iii) workers' compensation and employer's liability in amounts of at least \$1,000,000; and (iv) business automobile liability, for owned, leased, non-owned and hired vehicles, with combined single limit for bodily injury and property damage of \$1,000,000 per occurrence (or its equivalent in umbrella or excess liability coverage).
 - All policies shall be primary, name Haven for Hope as an additional insured, and be issued by insurance company(ies) qualified to do business in the State of Texas and have a Best Rating of at least A-VII.
- The awarded contractor must furnish a performance and payment bond equivalent to **100% of the contract value** before starting the project.
- **Worksite Safety & Security:** The contractor is responsible for securing the worksite, ensuring OSHA compliance, and maintaining a safe work environment and protecting employees, clients, and visitors during the project.

- **Work Schedule Restrictions:** Work may only be conducted Monday through Saturday, 6:00 AM to 6:30 PM, unless approved in advance by Haven for Hope.
- **Order of Precedence:** In the event of any conflict, inconsistency, or ambiguity between this RFP and the final executed agreement, the terms and conditions of the final contract shall govern. Bidders are advised that the final agreement will incorporate all applicable county funding requirements, and such provisions shall take precedence for purposes of compliance, pricing, and performance.

4. QUALIFICATIONS:

Proposers must demonstrate a proven track record of successfully completing projects similar in scope, material, size, and complexity to this RFP. At a minimum, contractor should meet the following criteria:

- At least 5 years of relevant experience in concrete repair.
- Completed at least 3 comparable projects within the past 5 years.
- Provide client references for these projects, including contact information.
- Demonstrate the ability to meet timelines, budgets, and quality expectations.
- Proposals that do not clearly demonstrate these minimum qualifications may be considered non-responsive and may not be evaluated further.

5. PROPOSAL SUBMISSION GUIDELINES:

Interested parties should submit their proposals by **5:00 PM CST on Wednesday, August 19, 2026**, via email to RFP@havenforhope.org and Peter.Ramirez@havenforhope.org.

Proposals should include:

- Detailed project plan and timeline;
- Cost breakdown including materials and labor;
- Completed unit pricing for Repair Items 1 through 5, together with an estimated total contract price calculated using the estimated quantities provided in this RFP and any issued addenda;
- List of required permits, including associated costs and timelines;
- Description of relevant experience and qualifications;
- Certificate of Insurance (COI); and
- Acknowledgment of any addenda issued in connection with this RFP.

An optional site visit will be conducted on **Thursday, August 13, 2026, at 10:00 AM CST** at 1 Haven for Hope Way, San Antonio, TX 78207. We will meet outside the Volunteer Center. The site visit is highly recommended to answer all questions and to provide clarification.

All **Requests for Information (RFIs)** must be submitted via email to the contacts listed above, no later than **Friday, August 14, 2026, at 10:00 AM CST**. Responses may be shared with all bidding contractors.

Any other inquiries and/or requests for clarification should be sent in writing to Peter Ramirez and the RFP evaluation group at the contact information listed in this RFP.

6. CONTACT INFORMATION:

Peter Ramirez

Director of Logistics and Facilities Management

Email: Peter.Ramirez@havenforhope.org with CC to RFP@havenforhope.org

Office: 210-220-2112

7. ATTACHMENTS:

- Attachment A – 100% Construction Documents
- Attachment B – Technical Specifications for Bidding

8. EVALUATION CRITERIA:

Proposals will be evaluated based on:

- Adherence to project documents;
- Proposed timeline (project completion date of September 25, 2026);
- Cost-effectiveness; and
- Relevant Experience

Haven for Hope reserves the right to reject any or all proposals received in response to this RFP, to waive any informalities or irregularities in the proposals received, and to negotiate with any qualified interested party.

Thank you for your interest in this project at Haven for Hope. We look forward to reviewing your proposal.

ATTACHMENT A

100% Construction Documents

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HAVEN FOR HOPE RESOURCE CENTER REPAIRS - PHASE 2

PROJECT LOCATION:

HAVEN FOR HOPE RESOURCE CENTER
1231 West Martin Street
San Antonio, Texas 78207

OWNER:

HAVEN FOR HOPE
1 Haven For Hope Way
San Antonio, Texas 78207

CONTACT INFORMATION:

Mr. Peter Ramirez
Director of Logistics and Facilites
Ph. 210.220.2112

CONSULTING ENGINEER:

WISS, JANNEY, ELSTNER ASSOCIATES, INC.
711 Navarro Street, Suite 750
San Antonio, TX 78205
210.826.4200 tel

DRAWING SHEET INDEX	
SHEET NO.	SHEET TITLE
G0.0	COVER & SHEET INDEX
G0.1	GENERAL NOTES
S0.0	STRUCTURAL NOTES
S1.0	BASEMENT PLAN
S1.1	BASEMENT REFLECTED CEILING PLAN
S1.2	FIRST FLOOR REFLECTED CEILING PLAN
S2.0	REPAIR DETAILS

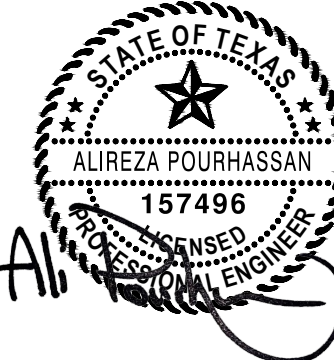


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711 Navarro Street, Suite 750
San Antonio, Texas 78205
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THE ELECTRONIC SEAL APPEARING ABOVE HAS BEEN AUTHORIZED
BY: **ALIREZA POURHASSAN, P.E. (TEXAS P.E. No. 157496)**
ON JULY 31, 2026. THE RECORD COPY OF THIS DOCUMENT
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OF ANY DISCREPANCIES WITH THIS ELECTRONIC VERSION.

CONSULTANT

PROJECT

**HAVEN FOR HOPE RESOURCE
CENTER REPAIRS
PHASE 2**
1231 West Martin Street
San Antonio, Texas 78207

CLIENT

HAVEN FOR HOPE
1 Haven for Hope Way
San Antonio, Texas 78207

	07.31.2026	For Bidding

MARK	DATE	DESCRIPTION
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PROJECT NO.	2025.7313.3
DATE	07.31.2026
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SHEET TITLE

COVER & SHEET INDEX

SHEET NO.

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	1	2	3	4	5	6	7	8
	STRUCTURAL NOTES							
	CODES							
	THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES:							
	1. THE INTERNATIONAL BUILDING CODE, 2024 EDITION.							
	2. STRUCTURAL CONCRETE: BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, AND AMERICAN CONCRETE INSTITUTE, ACI 318-19.							
	3. STRUCTURAL STEEL: CODE OF STANDARD PRACTICE, AND SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, AMERICAN INSTITUTE OF STEEL CONSTRUCTION (LATEST EDITION).							
	4. CONCRETE REBUILD: CODE REQUIREMENTS FOR ASSESSMENT, REPAIR, AND REHABILITATION OF EXISTING CONCRETE STRUCTURES, AMERICAN CONCRETE INSTITUTE, ACI 562-25.							
	5. MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES, AMERICAN SOCIETY OF CIVIL ENGINEERS, ASCE 7-16							
	6. ALL CODES AND SPECIFICATIONS LISTED ABOVE SHALL INCLUDE ALL AMENDMENTS AND ADDENDIA IN FORCE AT THE DATES OF THE CONTRACT DOCUMENTS. WHERE CONFLICT EXISTS BETWEEN THE VARIOUS PUBLICATIONS AS SPECIFIED HEREIN, THE STRICTEST REQUIREMENTS OF THE VARIOUS PUBLICATIONS SHALL GOVERN UNLESS NOTED OTHERWISE. WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE CONTRACT DOCUMENTS, DRAWINGS, NOTES, SPECIFICATIONS, THE STRICTEST REQUIREMENTS SHALL GOVERN.							
	DESIGN LOADS							
	1. LIVE LOADS. PRINCIPAL DESIGN LIVE LOADS ARE SHOWN BELOW. ALL LIVE LOADS WHETHER LISTED BELOW OR NOT ARE BASED ON THE REQUIREMENTS OF THE BUILDING CODE CITED IN THESE STRUCTURAL NOTES ABOVE UNLESS THE LOADS ARE GREATER.							
	ROOF LIVE LOADS 20 PSF							
	FIRST FLOOR LIVE LOADS							
	OFFICES 50 PSF							
	CORRIDORS 100 PSF							
	STORAGE 125 PSF							
	MECHANICAL ROOM 150 PSF							
	2. DEAD LOADS INCLUDE THE SELF-WEIGHT OF THE STRUCTURAL AND ARCHITECTURAL ELEMENTS. ANY CHANGES FROM THE CONSTRUCTION MATERIALS FROM THOSE SHOWN ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS SHALL BE REPORTED BY THE GENERAL CONTRACTOR TO THE STRUCTURAL ENGINEER FOR VERIFICATION OF THE LOAD CARRYING CAPACITY OF THE STRUCTURE.							
	DEMOLITION							
	1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURE AND SURROUNDING BUILDINGS DURING CONSTRUCTION. THE CONTRACTOR WILL REPLACE ANY DAMAGED MEMBER OF THE STRUCTURE OR ADJACENT STRUCTURE AS DIRECTED BY THE ENGINEER AT NO EXTRA COST TO THE OWNER.							
	2. CONCRETE MEMBERS TO BE REMOVED SHALL BE SAW CUT TO A MINIMUM DEPTH OF 1 INCH PRIOR TO REMOVAL OF THAT MEMBER. ALL REMAINING REINFORCEMENT DOWELS SHALL BE PROTECTED FROM DAMAGE DURING THE REMOVAL OF THE CONCRETE MEMBERS.							
	3. DETERIORATED CONCRETE TO BE REMOVED SHALL BE SAW CUT TO A MINIMUM DEPTH OF 1/2 INCH TO A MAXIMUM DEPTH OF 3/4 INCH PRIOR TO REMOVAL OF THE DETERIORATED CONCRETE. ALL REMAINING REINFORCEMENT SHALL BE PROTECTED FROM DAMAGE DURING THE REMOVAL OF THE DETERIORATED CONCRETE.							
	4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HANDLING, STORAGE, HAULING AND REMOVAL OF THE MATERIALS TO BE REMOVED.							
	5. REFER TO PROJECT SPECIFICATION SECTION 02 41 19 FOR ADDITIONAL DEMOLITION REQUIREMENTS AND PROCEDURES.							
	TEMPORARY BRACING, FALSEWORK, AND FORMWORK							
	1. THE DESIGN, CONSTRUCTION, AND SAFETY OF ALL TEMPORARY SUPPORTS SUCH AS GUYS, FALSEWORK, FORMWORK, SHORES AND BRACING REQUIRED FOR THE EXECUTION OF THE CONTRACT ARE NOT INCLUDED IN THE DRAWINGS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. REFERENCE SPECIFICATION SECTION 02 01 11.							
	2. TEMPORARY SUPPORTS SHALL NOT RESULT IN THE OVERSTRESS OR DAMAGE OF THE ELEMENTS TO BE BRACED OR OF ANY ELEMENTS USED AS BRACE SUPPORTS.							
	3. SHORES SHALL BE OF THE MATERIAL, SIZES AND CONFIGURATION SPECIFIED BY THE SHORING ENGINEER. SHORES SHALL REMAIN IN PLACE UNTIL ALL ASSOCIATED WORK REQUIRED IN THE DRAWINGS IS COMPLETE.							
	INTERIOR PAINT							
	1. PAINT SHALL BE ACRYLIC LATEX WITH HIGH VAPOR PERMEABILITY AND COMPATIBLE WITH CONCRETE AND GYPSUM SUBSTRATES.							
	2. ALL INTERIOR CONCRETE AND GYPSUM BOARD SURFACES SCHEDULED TO RECEIVE PAINT SHALL BE CLEAN, DRY, SOUND, AND FREE OF DUST, OIL, GREASE, EFFLORESCENCE, LOOSE MATERIAL, AND OTHER CONTAMINANTS PRIOR TO COATING APPLICATION.							
	3. PREPARE SURFACES IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS PRIOR TO PRIMING AND PAINTING.							
	4. REPAIR SURFACES SHALL HAVE A SMOOTH AND UNIFORM FINISH PRIOR TO PAINTING.							
	5. PRIME ALL NEW OR REPAIRED GYPSUM BOARD SURFACES WITH APPROPRIATE DRYWALL PRIMER PRIOR TO FINISH COATS.							
	6. PRIME CONCRETE SURFACES WITH APPROPRIATE MASONRY/CONCRETE PRIMER AS RECOMMENDED BY COATING MANUFACTURER.							
	7. APPLY PAINT SYSTEM COMPATIBLE WITH SUBSTRATE AND PRIMER IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.							
	8. PROVIDE MINIMUM TWO FINISH COATS, OR AS REQUIRED TO ACHIEVE UNIFORM COLOR, SHEEN, AND FULL COVERAGE.							
	9. DO NOT APPLY COATINGS TO DAMP SURFACES OR WHEN AMBIENT CONDITIONS ARE OUTSIDE MANUFACTURER'S RECOMMENDED LIMITS.							
	10. PROTECT ADJACENT FINISHED SURFACES, FIXTURES, EQUIPMENT, AND FLOORING DURING PAINTING OPERATIONS. REPAIR ANY DAMAGE CAUSED BY THE WORK.							
	11. FINAL FINISH SHALL BE FREE OF RUNS, SAGS, LAP MARKS, BRUSH MARKS, FLASHING, OR OTHER VISIBLE DEFECTS.							
	12. COLOR AND SHEEN SHALL BE AS SELECTED BY OWNER.							
	13. SUBMIT PRODUCT DATA AND COLOR SAMPLES FOR ALL PRIMERS, PAINTS, AND COATINGS FOR A/E AND OWNER REVIEW PRIOR TO APPLICATION.							
	14. PAINT SHALL BE INCLUDED IN THE CONCRETE REPAIR MOCKUPS AS DESCRIBED IN THE PROJECT SPECIFICATIONS.							
	CONCRETE REMOVAL AND SURFACE PREPARATION							
	REFERENCE PROJECT SPECIFICATIONS SECTION 03 01 31							
	CONCRETE REPAIR							
	REFERENCE PROJECT SPECIFICATIONS SECTION 03 01 34							
	POST-INSTALLED ANCHORS							
	REFERENCE PROJECT SPECIFICATIONS SECTION 03 01 34.							
	STRUCTURAL STEEL							
	REFERENCE PROJECT SPECIFICATIONS SECTION 05 02 00.							
	FIRE PROTECTION							
	1. PROVIDE A LISTED FIRE-RESISTANT JOINT SYSTEM AT THE INTERFACE BETWEEN THE STEEL CORNER AND THE GYPSUM DWELLING UNIT SEPARATION ASSEMBLY IN ACCORDANCE WITH IBC 2024 SECTION 715.3. INSTALL THE SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. SUBMIT THE MANUFACTURER'S PRODUCT DATA AND THE PROPOSED LISTED JOINT SYSTEM TO A/E FOR REVIEW PRIOR TO INSTALLATION.							
	2. PROVIDE LISTED FIRE-RESISTANT WALL-TO-WALL AND HEAD-OF-WALL JOINT SYSTEMS AT ALL JOINTS IN THE FIRE-RESISTANCE-RATED GYPSUM DWELLING UNIT SEPARATION ASSEMBLY. INSTALL THE JOINT SYSTEMS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. SUBMIT THE MANUFACTURER'S PRODUCT DATA AND THE PROPOSED LISTED JOINT SYSTEMS TO THE A/E FOR REVIEW PRIOR TO INSTALLATION.							
	SUBMITTALS							
	REFER TO PROJECT SPECIFICATIONS FOR SUBMITTAL PROCEDURES AND SUBMITTALS REQUIRED BY INDIVIDUAL SPECIFICATION SECTIONS.							
	MOCKUPS							
	PROVIDE ON-SITE MOCKUPS FOR EACH TYPE OF REPAIR INCLUDED IN THE PROJECT DOCUMENTS. REFER TO PROJECT SPECIFICATIONS FOR REQUIREMENTS.							
	TESTING AND INSPECTION REQUIREMENTS							
	1. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S TESTING AGENCY, SPECIAL INSPECTOR, AND STRUCTURAL ENGINEER TO PERFORM ALL REQUIRED INSPECTIONS.							
	2. VISUAL INSPECTION OF ALL STRUCTURAL WELDS BY A CERTIFIED WELDING INSPECTOR (CWI) IS REQUIRED. WELDS FOUND TO BE UNSATISFACTORY BY THE TESTING AGENCY AND/OR STRUCTURAL ENGINEER SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.							
	3. SPECIAL INSPECTION OF STRUCTURAL STEEL SHALL BE PERFORMED IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 360.							
	4. CONTINUOUS SPECIAL INSPECTION OF ALL ADHESIVE ANCHORS SHALL BE PERFORMED BY A CERTIFIED THIRD-PARTY SPECIAL INSPECTOR IN ACCORDANCE WITH ACI 318 SECTION 26.13.3. ANCHORS FOUND TO BE INSTALLED UNSATISFACTORY BY THE SPECIAL INSPECTOR AND/OR STRUCTURAL ENGINEER SHALL BE REPAIRED AND REPLACED AT THE CONTRACTOR'S EXPENSE.							
	5. IN THE EVENT THAT ELEMENTS, MEMBERS, OR CONNECTIONS DO NOT ACHIEVE THE SPECIFIED MINIMUM REQUIREMENTS, THE STRUCTURAL ENGINEER MAY REQUIRE ADDITIONAL ANALYSIS, TESTING OR REMOVAL AND REPLACEMENT OF MEMBERS, ANY AND ALL SUCH ADDITIONAL ANALYSIS OR TESTING SHALL BE AT THE CONTRACTOR'S EXPENSE. REPLACEMENT OF ANY MEMBERS DEEMED QUESTIONABLE OR INADEQUATE BY THE STRUCTURAL ENGINEER SHALL BE AT THE CONTRACTOR'S EXPENSE.							

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Texas Registered Engineering Firm F-0093

STATE OF TEXAS

ALIREZA POURHASSAN

157496

REGISTERED ENGINEER

THE ELECTRONIC SEAL APPEARING ABOVE HAS BEEN AUTHORIZED BY: **ALIREZA POURHASSAN, P.E. (TEXAS P.E. No. 157496)** ON JULY 31, 2026. THE RECORD COPY OF THIS DOCUMENT BEARING AN ORIGINAL SIGNATURE SHALL GOVERN IN THE EVENT OF ANY DISCREPANCIES WITH THIS ELECTRONIC VERSION.

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PHASE 2
1231 West Martin Street
San Antonio, Texas 78207

CLIENT

HAVEN FOR HOPE
1 Haven for Hope Way
San Antonio, Texas 78207

	07.31.2026	For Bidding		
MARK	DATE	DESCRIPTION		
0"1"2"3" THIS SHEET PLOTS FULL SIZE AT 24x36 (INCHES)				
PROJECT NO.	2025.7313.3			
DATE	07.31.2026			
DRAWN	TJH			
REVIEWED	AP			
SHEET TITLE				
STRUCTURAL NOTES SHEET NO. S0.0				

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

BACKGROUND DRAWINGS ILLUSTRATING THE EXISTING CONDITIONS ON THIS SHEET WERE OBTAINED FROM RESOURCE CENTER PHASE 2 DRAWINGS PREPARED BY MARTINEZ ARCHITECTS, DATED SEPTEMBER 16, 2016, WITH ANNOTATIONS AND GRAPHICS ADDED OR ALTERED BY WJE ONLY WHERE NECESSARY TO DEPICT THE AS-BUILT CONDITION OR CONVEY THE WORK OF THIS REPAIR PROJECT.

KEYNOTED REPAIRS

- 1** - PERIMETER WALL CONCRETE REPAIR PER DET. 1/S2.0.
- 2** - SLAB SOFFIT CONCRETE REPAIR PER DET. 2/S2.0.
- 3** - CONCRETE BEAM-COLUMN CONNECTION TYPE 1 REPAIR PER DET. 4/S2.0.
- 4** - CONCRETE BEAM-COLUMN CONNECTION TYPE 2 REPAIR PER DET. 5/S2.0.

NOTE: REPAIRS IDENTIFIED BY KEYNOTES 3 AND 4 APPLY ONLY TO THE COLUMN FACE INDICATED BY THE ARROW. IF SIMILAR CONDITIONS ARE OBSERVED AT OTHER BEAM-COLUMN CONNECTIONS DURING CONSTRUCTION, NOTIFY ENGINEER FOR EVALUATION.

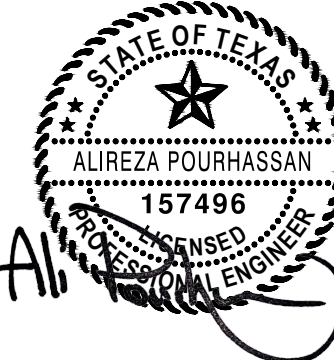


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711 Navarro Street, Suite 750
San Antonio, Texas 78205
210.826.4200 tel

Texas Registered Engineering Firm F-0093



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BY: **ALIREZA POURHASSAN, P.E. (TEXAS P.E. No. 157496)**
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CONSULTANT

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PHASE 2**
1231 West Martin Street
San Antonio, Texas 78207

CLIENT

HAVEN FOR HOPE
1 Haven for Hope Way
San Antonio, Texas 78207

MARK	DATE	DESCRIPTION
	06.25.2026	Revision
	07.31.2026	For Bidding



PROJECT NO. 2025.7313.3

DATE 07.31.2026

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REVIEWED AP

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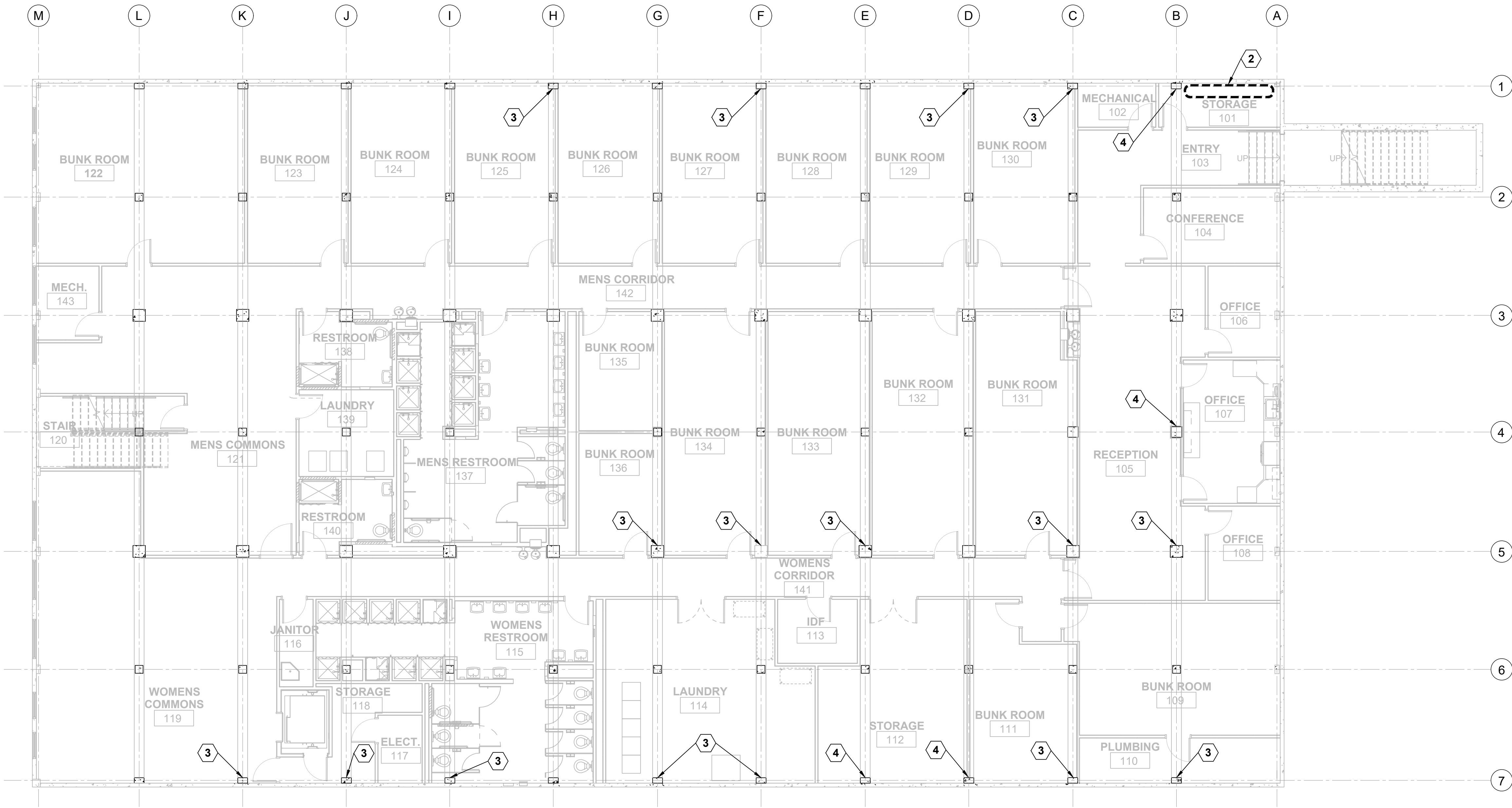
BASEMENT PLAN

SHEET NO.

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1 BASEMENT REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

BACKGROUND DRAWINGS ILLUSTRATING THE EXISTING CONDITIONS ON THIS SHEET WERE OBTAINED FROM RESOURCE CENTER PHASE 2 DRAWINGS PREPARED BY MARTINEZ ARCHITECTS, DATED SEPTEMBER 16, 2016, WITH ANNOTATIONS AND GRAPHICS ADDED OR ALTERED BY WJE ONLY WHERE NECESSARY TO DEPICT THE AS-BUILT CONDITION OR CONVEY THE WORK OF THIS REPAIR PROJECT.

KEYNOTED REPAIRS

- 1 - PERIMETER WALL CONCRETE REPAIR PER DET. 1/S2.0.
- 2 - SLAB SOFFIT CONCRETE REPAIR PER DET. 2/S2.0.
- 3 - CONCRETE BEAM-COLUMN CONNECTION TYPE 1 REPAIR PER DET. 4/S2.0.
- 4 - CONCRETE BEAM-COLUMN CONNECTION TYPE 2 REPAIR PER DET. 5/S2.0.

NOTE: REPAIRS IDENTIFIED BY KEYNOTES 3 AND 4 APPLY ONLY TO THE COLUMN FACE INDICATED BY THE ARROW. IF SIMILAR CONDITIONS ARE OBSERVED AT OTHER BEAM-COLUMN CONNECTIONS DURING CONSTRUCTION, NOTIFY ENGINEER FOR EVALUATION.

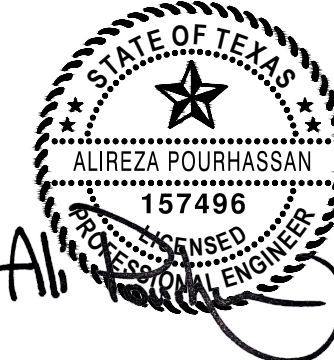


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Wiss, Janney, Elstner Associates, Inc.

711 Navarro Street, Suite 750
San Antonio, Texas 78205
210.826.4200 tel

Texas Registered Engineering Firm F-0093



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BY: ALIREZA POURHASSAN, P.E. (TEXAS P.E. No. 157496)
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CONSULTANT

PROJECT

HAVEN FOR HOPE RESOURCE
CENTER REPAIRS
PHASE 2
1231 West Martin Street
San Antonio, Texas 78207

CLIENT

HAVEN FOR HOPE
1 Haven for Hope Way
San Antonio, Texas 78207

MARK	DATE	DESCRIPTION
	07.31.2026	For Bidding

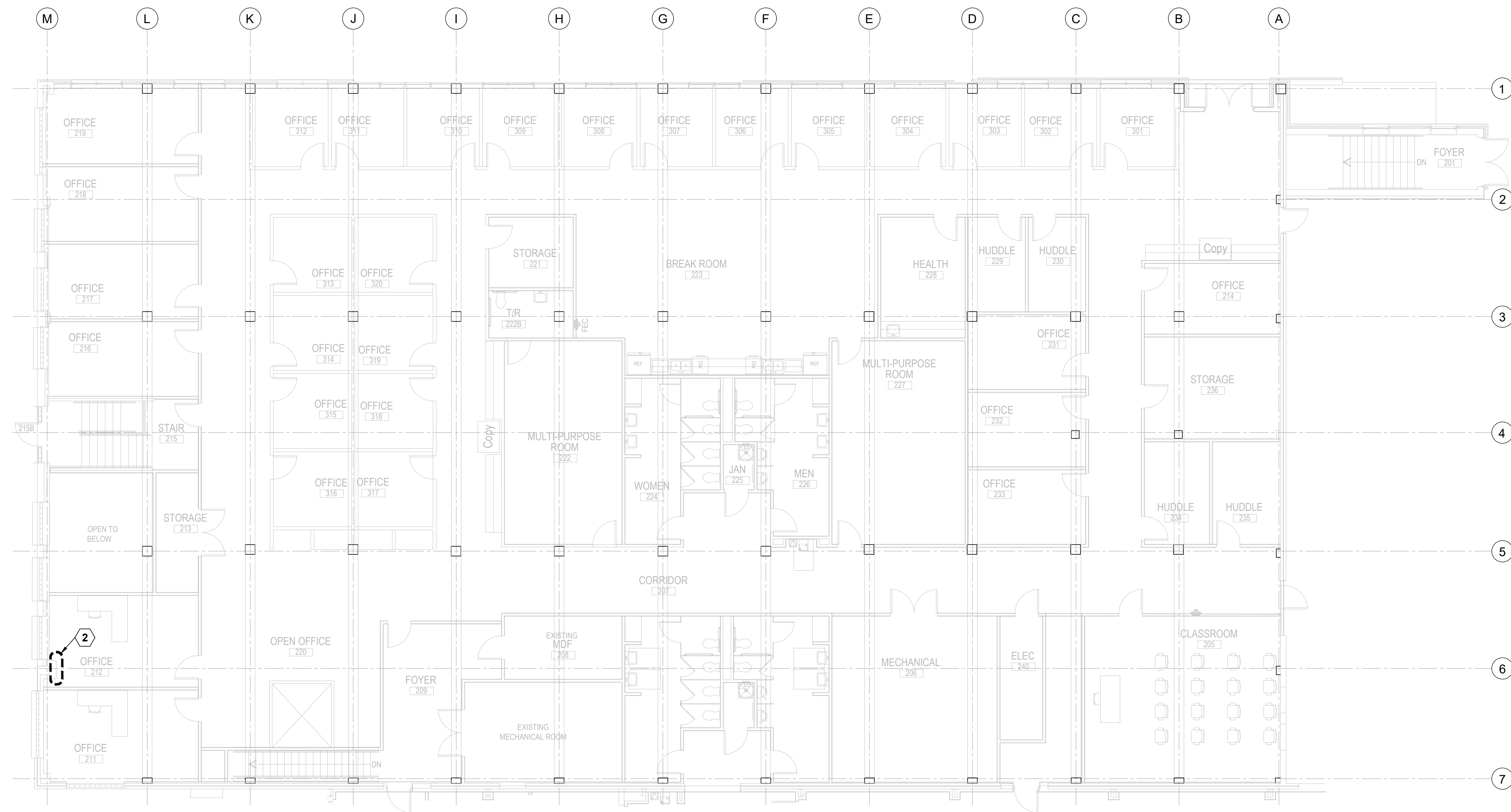
0" 12" 1" 2"
THIS SHEET PLOTS FULL SIZE AT 24x36 (INCHES)

PROJECT NO.	2025.7313.3
DATE	07.31.2026
DRAWN	TJH
REVIEWED	AP
SHEET TITLE	

BASEMENT REFLECTED CEILING PLAN

SHEET NO.

S1.1



1 FIRST FLOOR REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

BACKGROUND DRAWINGS ILLUSTRATING THE EXISTING CONDITIONS ON THIS SHEET WERE OBTAINED FROM RESOURCE CENTER PHASE 2 DRAWINGS PREPARED BY MARTINEZ ARCHITECTS, DATED SEPTEMBER 16, 2016, WITH ANNOTATIONS AND GRAPHICS ADDED OR ALTERED BY WJE ONLY WHERE NECESSARY TO DEPICT THE AS-BUILT CONDITION OR CONVEY THE WORK OF THIS REPAIR PROJECT.

KEYNOTED REPAIRS

- 1** - PERIMETER WALL CONCRETE REPAIR PER DET. 1/S2.0.
- 2** - SLAB SOFFIT CONCRETE REPAIR PER DET. 2/S2.0.
- 3** - CONCRETE BEAM-COLUMN CONNECTION TYPE 1 REPAIR PER DET. 4/S2.0.
- 4** - CONCRETE BEAM-COLUMN CONNECTION TYPE 2 REPAIR PER DET. 5/S2.0.

NOTE: REPAIRS IDENTIFIED BY KEYNOTES 3 AND 4 APPLY ONLY TO THE COLUMN FACE INDICATED BY THE ARROW. IF SIMILAR CONDITIONS ARE OBSERVED AT OTHER BEAM-COLUMN CONNECTIONS DURING CONSTRUCTION, NOTIFY ENGINEER FOR EVALUATION.



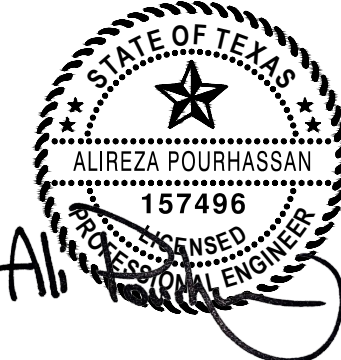
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Doylestown | Honolulu | Houston | Indianapolis | London | Los Angeles
Milwaukee | Minneapolis | New Haven | New York | Northbrook (HQ)
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711 Navarro Street, Suite 750

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HAVEN FOR HOPE RESOURCE

SENTER FOR HOPE RESCUE

CENTER REPAIRS

PHASE 2

FTIRASL 2
1021 W. L. M. J. G.

1231 West Martin Street

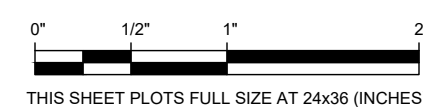
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HAVEN FOR HOPE

11:56 AM

1 Haven for Hope Way

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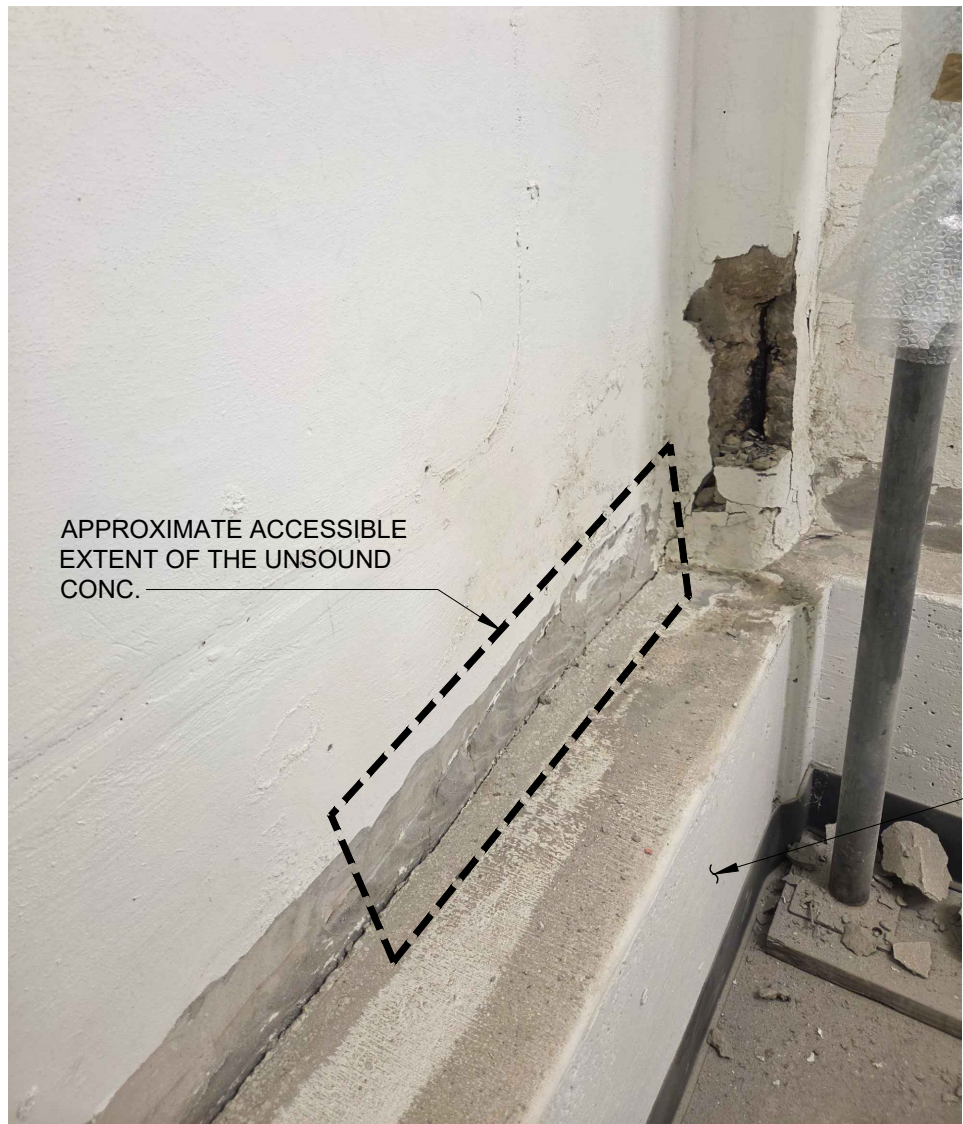
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FIRST FLOOR REFLECTED CEILING PLAN

SHEET NO.

S1.2

Plotted: 7/31/2026 4:12 PM by Terence Hussein
File Name: P:\2025\2025.7xxx\2025.7313.3 - HH - RESOURCE CENTER PHASE 2 REPAIR DEVELOPMENT & CA API\WUEWorkProduct\Drawings\2025-7313.3 - S2.0.dwg
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1A: VIEW OF THE REPAIR AREA

EXISTING CONC. TO REMAIN

REMOVE UNSOUND AND, AS NECESSARY, SOUND CONC., REF. 3/S2.0. SEE NOTE

CONC. REMOVAL DEPTH SHALL EXTEND 1" MIN. BEYOND EXISTING REINF.

1" MIN. CLEAR

VARIES: F.V.

PREPARE AND CLEAN CONC. SUBSTRATE SURFACES PRIOR TO REPAIR AS SPECIFIED, TYP.

CLEAN EXPOSED STEEL TO SSPC-SP6

REMOVE AND REINSTALL (E) CONC. CURB, IN KIND, AS REQUIRED TO ACCESS, IDENTIFY, AND REPAIR UNSOUND CONC.

SAWCUT CONC. 1/2" DEEP AT REPAIR PERIMETER, CHIP BACK & REMOVE CONC.; DO NOT DAMAGE EXISTING REINFORCEMENT, TYP.

1B: PARTIAL-DEPTH DEMOLITION

EXISTING CONC. TO REMAIN

1" MIN. CLEAR

VARIES: F.V.

NOTE:

- CONTRACTOR TO SOUND CONCRETE AND MARK UNSOUND (DELAMINATED) AREAS TO BE CONFIRMED BY ENGINEER PRIOR TO IMPLEMENTING REPAIRS AT REPAIR AREAS SHOWN.
- NOTIFY ENGINEER IF ANY REINFORCING BAR EXHIBITS A CROSS-SECTIONAL AREA LOSS EXCEEDING 10%.

1C: PARTIAL-DEPTH REPAIR

2 TYPICAL OVERHEAD SHALLOW DEPTH CONCRETE REPAIR SECTION

SCALE: 3" = 1'-0"

3/4"-3"

FINISHED SURFACE

REMOVE UNSOUND AND, AS NECESSARY, SOUND CONC., REF. 3/S2.0. IF DEPTH OF REMOVAL EXCEEDS 3-INCH, PERFORM PARTIAL DEPTH REPAIR PER DET. 1/S2.0

EXISTING REINF. TO REMAIN: CLEAN STEEL TO SSPC-SP6

PREPARE AND CLEAN CONC. SUBSTRATE SURFACES PRIOR TO REPAIR AS SPECIFIED, TYP.

SAWCUT CONC. 1/2" DEEP AT PERIMETER, CHIP BACK & REMOVE CONC.; DO NOT DAMAGE REINFORCEMENT

EXISTING CONC. TO REMAIN

AS REQUIRED 12" MIN., EA. WAY, TYP.

2A - SHALLOW DEPTH DEMOLITION

3/4"-3"

2" MIN.

3" MIN.

SPACING @ 8" O.C. MAX.

3" MIN.

TROWEL-APPLIED REPAIR MATERIAL, AS SPECIFIED; MATCH EXISTING ADJ. SURFACE PROFILES, TYP. PAINT SURFACE TO MATCH ADJ. SURFACE, TYP.

16 GA. S.S. WIRE REINF. WRAPPED AROUND CONC. SCREWS, TYP.

1/4" DIA. S.S. CONC. SCREWS OR 3/8" DIA. S.S. HELICAL ANCHORS, 8" O.C. MAX. EA. WAY W/ 2" MIN. EMBED INTO EXISTING CONC., TYP.

EXISTING CONC. TO REMAIN

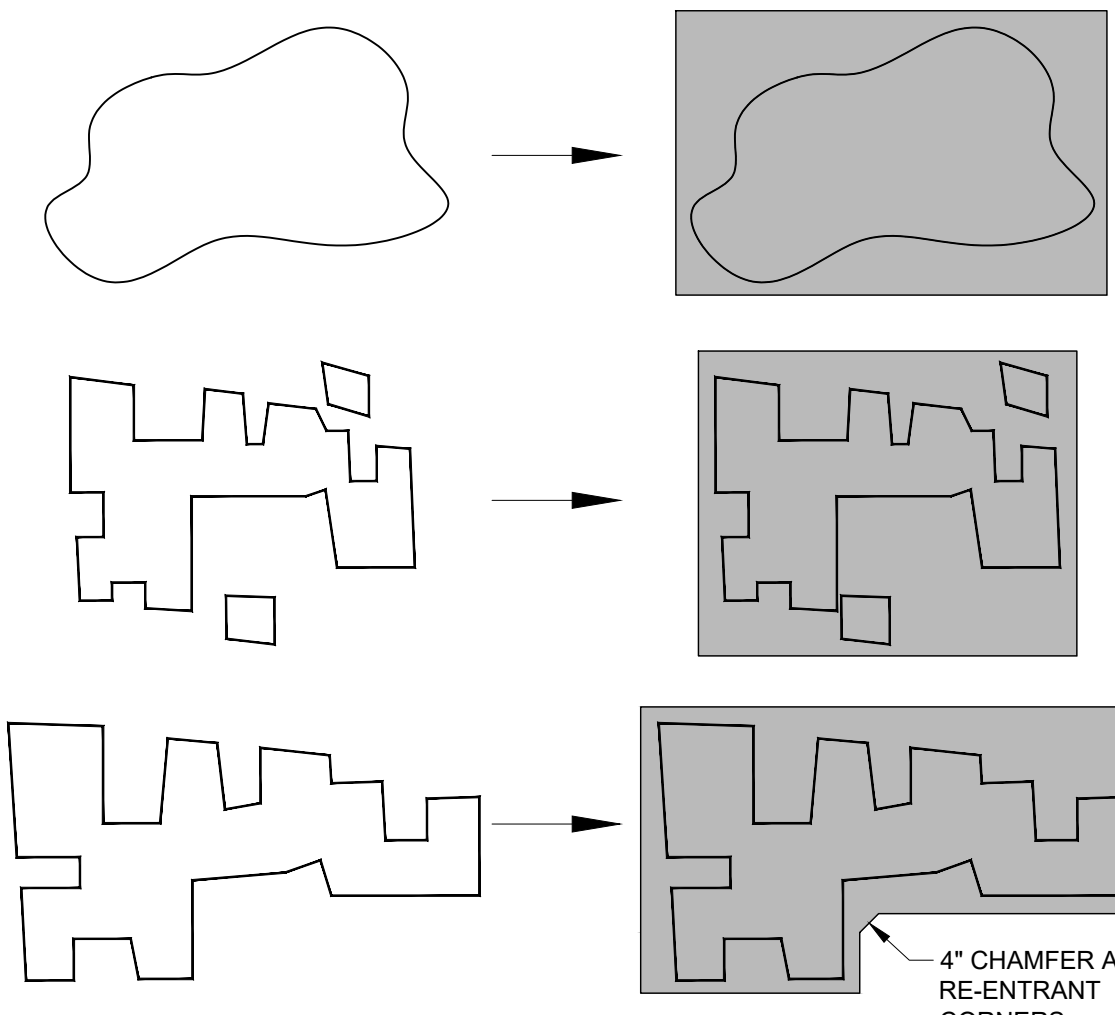
NOTE:

- CONTRACTOR TO SOUND CONCRETE AND MARK UNSOUND (DELAMINATED) AREAS TO BE CONFIRMED BY ENGINEER PRIOR TO IMPLEMENTING REPAIRS AT REPAIR AREAS SHOWN.
- NOTIFY ENGINEER IF ANY REINFORCING BAR EXHIBITS A CROSS-SECTIONAL AREA LOSS EXCEEDING 10%.

2B - SHALLOW DEPTH REPAIR

1 PARTIAL-DEPTH CONCRETE REPAIR SECTION AT BASEMENT WALL

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



GENERAL SHAPE OF DETERIORATION

REMOVAL GEOMETRY

3 TYPICAL CONCRETE REPAIR GEOMETRY

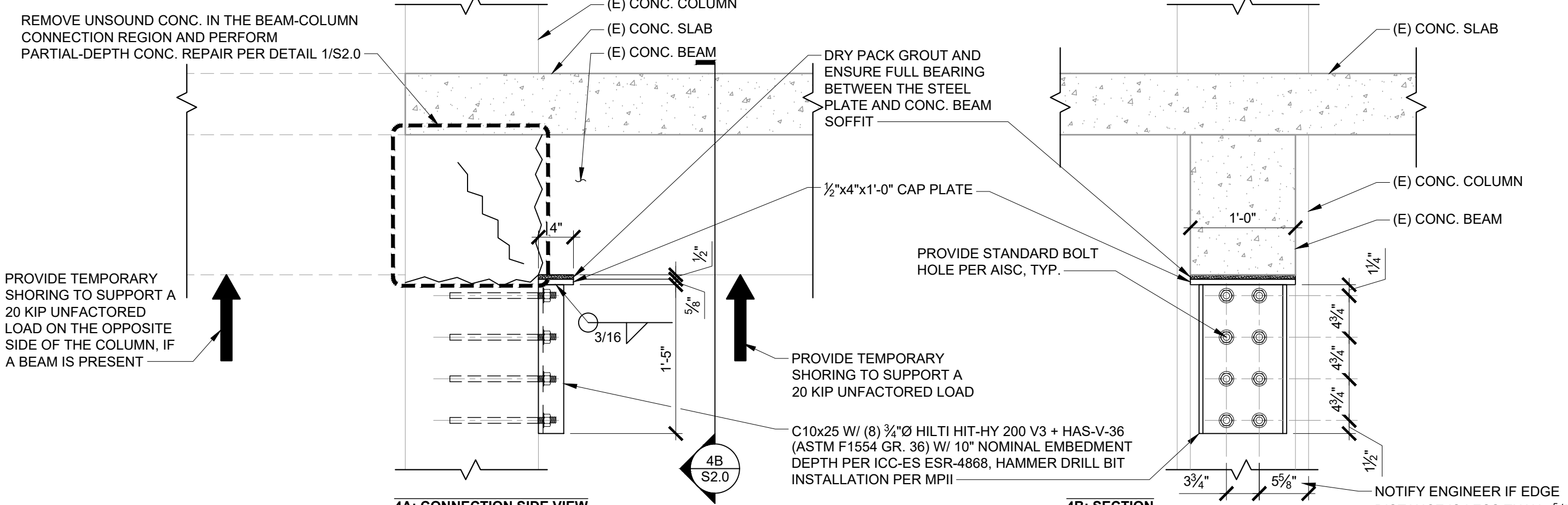
SCALE: N.T.S.

4 CONCRETE BEAM-COLUMN CONNECTION TYPE 1 REPAIR

SCALE: 1" = 1'-0"

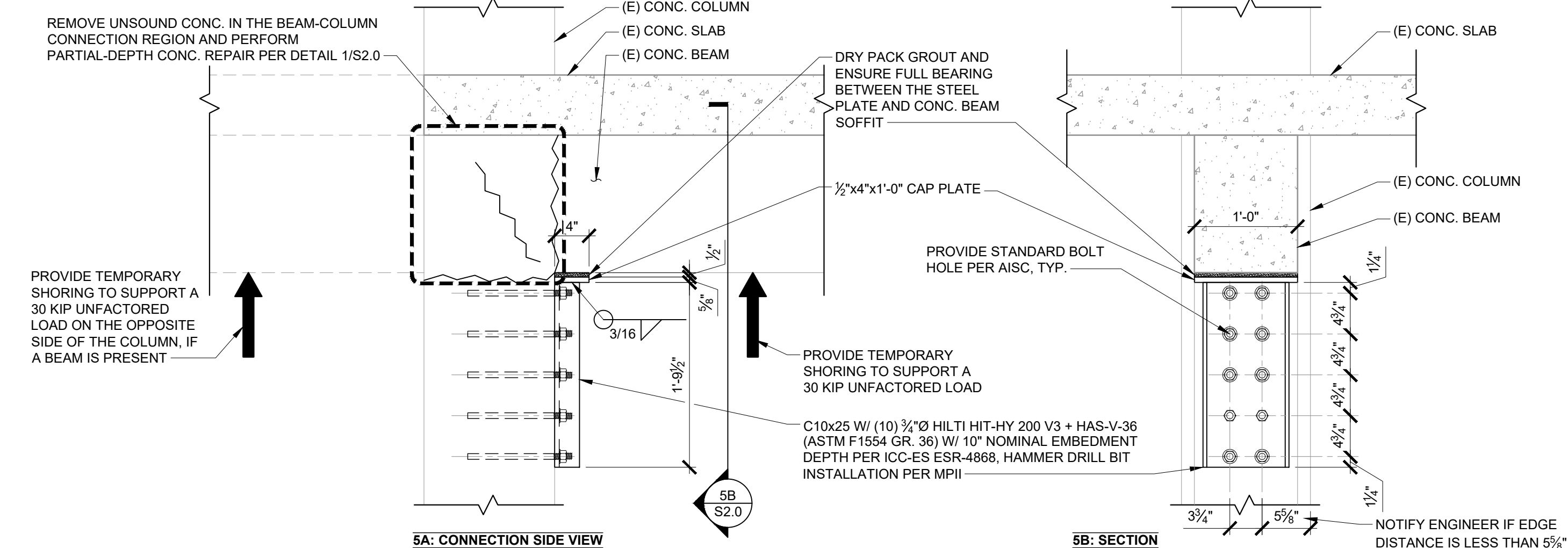
NOTE:

- IDENTIFY REINFORCEMENT IN COLUMN PRIOR TO INSTALLING ANCHORS; DO NOT DAMAGE TIES OR VERTICAL REINFORCEMENT DURING REPAIRS AND CORBEL ANCHOR INSTALLATION.
- SEE FIRE PROTECTION NOTES ON SHEET S0.0 FOR REQUIREMENTS WHERE A FIRE-RESISTANCE-RATED GYPSUM DWELLING UNIT SEPARATION ASSEMBLY INTERSECTS A COLUMN SUBJECT TO REPAIR.



4A: CONNECTION SIDE VIEW

4B: SECTION



5A: CONNECTION SIDE VIEW

5B: SECTION

NOTE:

- IDENTIFY REINFORCEMENT IN COLUMN PRIOR TO INSTALLING ANCHORS; DO NOT DAMAGE TIES OR VERTICAL REINFORCEMENT DURING REPAIRS AND CORBEL ANCHOR INSTALLATION.
- SEE FIRE PROTECTION NOTES ON SHEET S0.0 FOR REQUIREMENTS WHERE A FIRE-RESISTANCE-RATED GYPSUM DWELLING UNIT SEPARATION ASSEMBLY INTERSECTS A COLUMN SUBJECT TO REPAIR.

5 CONCRETE BEAM-COLUMN CONNECTION TYPE 2 REPAIR

SCALE: 1" = 1'-0"

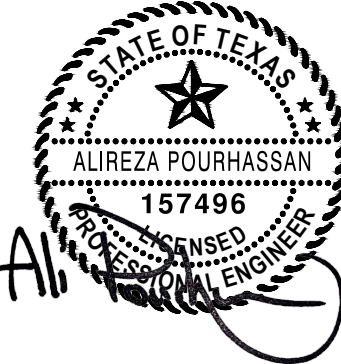
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CONSULTANT

PROJECT

HAVEN FOR HOPE RESOURCE
CENTER REPAIRS
PHASE 2
1231 West Martin Street
San Antonio, Texas 78207

CLIENT

HAVEN FOR HOPE
1 Haven for Hope Way
San Antonio, Texas 78207

MARK	DATE	DESCRIPTION
	07.31.2026	For Bidding

0" 10" 1" 2"
THIS SHEET PLOTS FULL SIZE AT 24x36 (INCHES)

PROJECT NO. 2025.7313.3

DATE 07.31.2026

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SHEET TITLE

REPAIR DETAILS

SHEET NO.

S2.0

ATTACHMENT B

Technical Specifications for Bidding

TECHNICAL SPECIFICATIONS FOR BIDDING

HAVEN FOR HOPE RESOURCE CENTER REPAIRS PHASE 2

1231 West Martin Street
San Antonio, Texas 78207



WJE Project No. 2025.7313.3

July 31, 2026

PROJECT:

Haven for Hope Resource Center Repairs–Phase 2
1231 West Martin Street
San Antonio, Texas 78207

OWNER**Haven for Hope**

Peter Ramirez
Director of Logistics and Facilities
1 Heaven for Hope Way
San Antonio, Texas 78207
(210) 220-2112

ENGINEER:

Wiss, Janney, Elstner Associates, Inc. (WJE)
Texas Registered Engineering Firm F-0093
711 Navarro Street, Suite 750
San Antonio, Texas 78205
(210) 826-4200

SECTION 00 01 10

TABLE OF CONTENTS

Division No.	Section Title
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DIVISION 01 - GENERAL REQUIREMENTS

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01 33 00	Submittal Procedures

DIVISION 2 – EXISTING CONDITIONS

02 01 11	Shoring
02 41 19	Selective Demolition

DIVISION 3 - CONCRETE

03 01 31	Concrete Removal and Surface Preparation
03 01 34	Concrete Repair

DIVISION 5 - METALS

05 02 00	Structural Steel
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END OF SECTION 00 01 10

Document 00 01 07 - SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

A. Structural Engineer

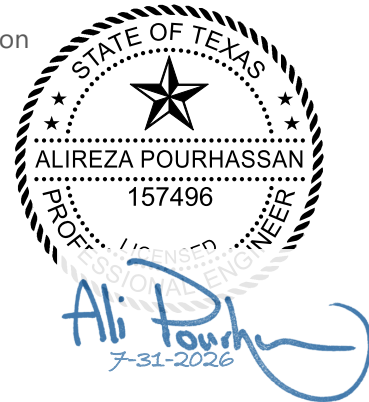
1. Alireza Pourhassan, PE

Texas License #157496

Responsible for Repair documents and specifications:

- a. 01 33 00 Submittal Procedures
- b. 02 01 11 Shoring
- c. 02 41 19 Selective Demolition
- d. 03 01 31 Concrete Removal and Surface Preparation
- e. 03 01 34 Concrete Repair
- f. 05 02 00 Structural Steel

END OF DOCUMENT 00 01 07



SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for submitting shop drawings, product data, samples, and other submittals.

1.2 SUBMITTALS

- A. General:
 - 1. Format:
 - a. PDF Submittals: Prepare submittals as a PDF package, incorporating complete information into one PDF file for each product or material. Name each PDF file with submittal number
 - 2. Submittal Identification: Include the following information in each submittal.
 - a. Project name.
 - b. Date.
 - c. Names of Architect/Engineer, Contractor, subcontractor, manufacturer, supplier, and firm or entity that prepared submittal, as appropriate.
 - d. Identification information, such as the number and title of the appropriate Specification section, Drawing number and detail references, location(s) where product is to be installed, or other necessary information.
 - e. Label each submittal with the six-digit Specification section number followed by a decimal point and then sequential number (e.g., 042000.01). On resubmittals, include alphabetic suffix after another decimal point (e.g., 042000.01.A).
 - f. Provide space approximately 6 by 8 inches on or beside the label or title block for the Contractor's approval stamp and the action stamp of the Architect/Engineer.
 - 3. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. Clearly mark each copy of the submittal to show which products and options are applicable. Delete information which is not applicable. Supplement standard information with project-specific information.
 - 2. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts, product specifications, schematic drawings, installation instructions, and written recommendations.
 - b. Compliance with referenced standards.
 - c. Testing by recognized testing agency.
 - 3. Submit the number of copies required by the Contractor plus two that will be retained by the Architect/Engineer, or digital file. Mark up and retain one returned copy as a Project Record Document.

- C. Samples: Submit physical samples to illustrate functional and aesthetic characteristics of the product, for review of materials and quality of work, for compatibility with other elements, and for comparison with the actual installed elements.
 - 1. Samples shall be of sufficient size to show the general visual effect.
 - 2. Include sets of at least three samples that show the full range of color, pattern, texture, graining, and finish.
 - 3. Transmit samples that contain multiple, related components, such as accessories, together in one submittal package.
 - 4. Identification: Attach a label on an unexposed side of each sample that includes the following:
 - a. Generic description of sample.
 - b. Product name, name of manufacturer, and sample source.
 - c. Number and title of appropriate Specification section.
 - 5. Samples for Initial Selection: Submit two full sets of units or sections of units from the supplier's product line, showing the full range of colors, textures, and patterns available. Architect/Engineer will retain one set and return one set with the options selected.
 - 6. Samples for Verification: Submit full-size units or samples of the size indicated, prepared from the same material to be used for the Work, cured and finished in the manner specified, and physically identical with material or product proposed for use, and that show the full range of color and texture variations expected.
 - a. Submit the number of samples required by the Contractor plus one that will be retained by the Architect/Engineer. Mark up and retain one returned sample as a Project Record Document.
 - 7. Maintain approved samples at the Site, available for quality-control comparisons during construction. Samples may be used to determine final acceptance of construction associated with the sample.

1.3 SUBMITTAL PROCEDURE

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
- B. Coordinate the preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, submittals requiring concurrent review, and related activities that require sequential activity.
 - 2. Allow sufficient time for submittal and resubmittal review. Failure to provide sufficient time for submittal and resubmittal reviews will not be a basis for extension of the Contract Time.
- C. Review Time:
 - 1. Allow seven days for the review of each submittal and resubmittal.
 - 2. Allow additional time if coordination with subsequent submittals is required. The Architect/Engineer will advise the Contractor when the submittal being processed must be delayed for coordination.
 - 3. Time for review shall commence when the Architect/Engineer receives the submittal.
- D. Contractor Review:
 - 1. Review each submittal, coordinate with other Work, and check for compliance with the Contract Documents. Verify field dimensions and conditions. Identify variations from the

- Contract Documents and product or system limitations that may be detrimental to the successful performance of completed Work. Note corrections.
2. Before submitting to the Architect/Engineer, stamp or electronically mark-up, with a uniform approval stamp, including the reviewer's name; the date of Contractor's approval; and a statement certifying that the submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 3. Submittal Log: Maintain submittal log that lists submitted items per specification section. Record dates submitted, dates returned, and disposition of each item based on Architect/Engineer's review. Submit final log showing approved materials at Substantial Completion.
- E. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using AIA Document G810.
1. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
 2. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based project software website. Enter required data in web-based software site to fully identify submittal.
- F. Architect/Engineer Action:
1. Architect/Engineer will not review submittals that are received from sources other than the Contractor or that do not bear the Contractor's approval stamp and will return them without action to the Contractor.
 2. Architect/Engineer will review each submittal for conformance with the design concept of the Project and compliance with the Contract Documents. Architect/Engineer will make marks to indicate corrections or modifications required, and stamp or electronically mark-up with an action stamp. The action stamp will include the reviewer's name, date of review, and required Contractor action. Contractor actions may include making corrections or modifications to the submittal or resubmitting the submittal, or both.
- G. Resubmittals: Make resubmittals in the same form and number of copies as the initial submittal.
1. Note the date and content of previous submittal.
 2. Note the date and content of the revision in the label or title block and clearly indicate the extent of the revision and changes made.
 3. Resubmit until the Architect/Engineer indicates that no resubmittal is required.
- H. Distribution: Furnish final copies (paper or digital) to the Site file, record documents file, manufacturers, subcontractors, suppliers, fabricators, installers, public authorities having jurisdiction, and others as necessary for performance of construction activities. Show the distribution on the transmittal forms.
- I. For construction, use only the final submittals with the Architect/Engineer's action stamp.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION [NOT USED]

END OF SECTION 01 33 00

SECTION 02 01 11

SHORING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Supply, installation, and removal of temporary shoring to support structural elements during demolition and construction operations.
- B. Related Sections:
 - 1. Section 02 41 19 - Selective Demolition
 - 2. Section 03 01 34 - Concrete Repair
 - 3. Section 05 02 00 – Structural Steel

1.2 COORDINATION

- A. Coordinate with Owner's Designated Representative and with other trades to ensure that shoring does not interfere with Owner use of Site or work of other trades.
- B. Comply with pertinent requirements of Authorities Having Jurisdiction (AHJ)
- C. The Contractor shall be responsible for means and methods of shoring and temporary support and for the sequences and procedure being used.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's literature and technical data indicating type of shoring proposed for use and safe load-carrying capacity of shoring for heights and lengths of shoring components to be used.
- B. Shop Drawings: Shop drawings showing locations, distribution, and quantity of shoring. Include connection and bearing details. Shop drawings shall be prepared by or under supervision of qualified, licensed professional engineer and shall be sealed by the engineer.
- C. Design Calculations: Calculations prepared by or under supervision of qualified, licensed professional engineer, and sealed by engineer, indicating that shoring meets design criteria.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Locate materials in a secure location approved by Owner's Designated Representative.

- B. Limit stored materials on structures so as to preclude damage to materials and structures.

1.5 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to start of Work. Promptly notify Structural Engineer of conditions found to be different than those indicated in the Contract Documents. Structural Engineer will review situation and inform Contractor and Installer how to proceed.
- B. If any deviation is necessary because of field conditions, the Shoring Engineer shall be consulted for approval of the actual field setup, and the shoring layout shall be revised to indicate any approved changes.
- C. Comply with Owner's limitations and restrictions for Site use and accessibility.

PART 2 PRODUCTS

2.1 MANUFACTURED ASSEMBLIES

- A. Design Criteria:
 - 1. Design for loads listed in drawings over tributary area of member being repaired, using a strength design approach (load factors and resistance factors) or allowable strength approach (minimum factor of safety of 2.0).
 - 2. Calculations must consider and include removal of loads from member and transfer of loads into structure below, without overloading structural members.
 - 3. Consider shoring stiffness relative to stiffness of members being shored.
- B. Shoring: Steel posts, steel frames, or other steel assemblies with sufficient capacity to support calculated shoring loads at spacing and positioning shown on shop drawings.
 - 1. Adjustable through positive means, such as screw jacks, to achieve tight fit to structure above and below and to compensate for elastic shortening of shores during loading and service.
 - 2. Use undamaged components, including bracing, supplied by shoring manufacturer.

2.2 ACCESSORIES

- A. Spreaders:
 - 1. At bottom of shores: 4x4 timber cribbing, 2x wood bearing pads, or other material; with sufficient bearing area and length to distribute shoring reactions into supporting structural element below.
 - 2. At top of shores: Timber or steel spreader beams or wood bearing pads; to fully support member being shored without damage to member surface.

- B. Shims: Wood or steel; at bearing points above shores to ensure tight contact with shored member.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements and other conditions affecting installation or performance of shoring Work.
 - 1. Ensure that work done by other trades is complete and ready for shoring Work.
 - 2. Notify Structural Engineer in writing of conditions which may adversely affect installation or performance of shoring Work and recommend corrections.
 - 3. Do not proceed with shoring Work until adverse conditions have been corrected and reviewed by Structural Engineer.
 - 4. Commencing shoring Work constitutes acceptance of Work surfaces and conditions.

3.2 INSTALLATION

- A. Install shoring at locations identified on the drawings or designated by Structural Engineer, before repair work begins.
 - 1. Notify Structural Engineer of any additional locations identified, where extent of deterioration or suspect existing construction indicates that shoring may be necessary.
- B. Install shoring in accordance with manufacturer's recommendations and approved shop drawings. Installed assembly shall be of such quality that assembly will support imposed loads without excessive settlement or deflection.
 - 1. Position to avoid interference with Owner operations.
 - 2. Install snug, plumb, and square. Install cross-bracing recommended by shoring manufacturer and shoring designer to prevent buckling failure of individual members and overall shoring stability failure. Extend shoring above and below level of repair work as required by shoring design.
 - 3. Install spreader beams or bearing pads and shims as necessary, and adjust shores to ensure tight, uniform fit against structural element to be supported. Minimize differential loading of vertical shoring members.
 - 4. Install timber cribbing wood or wood bearing pads as necessary to distribute loads into supporting elements. If more than one layer of cribbing is required, install each successive layer perpendicular to preceding layer.
 - 5. If shoring is to be placed on coated or finished surface, protect surface from damage with plywood, plastic sheets, or other means.
- C. Coordinate placement of shoring system elements with existing Work and approved demolition procedures as specified in Section 02 41 19.

- D. No pedestrian traffic shall be permitted, nor construction material stored, on the associated slabs during shoring operations.
- E. Protect shores from damage from construction activities, Owner use of facility, and other causes.
- F. Bracing members shall not be used as a support for a work platform.
- G. Check shores daily and adjust as necessary to maintain snug condition, plumbness, and full effectiveness.
- H. Modify and adjust shoring as required to meet conditions of work and to ensure Project safety.

3.3 FIELD QUALITY CONTROL

- A. Shoring Design Engineer shall inspect and approve shoring materials and installation prior to start of any demolition work.
- B. A copy of the shoring and bracing layout provided by the Shoring Design Engineer shall be available and used on the job site at all times.
- C. Any erected shoring equipment that is damaged or weakened shall be immediately removed and replaced by adequate shoring.
- D. Maintain a written log affixed to the shoring indicating date of each inspection, inspector, condition of shoring, and other relevant comments.

3.4 REMOVAL OF SHORES

- A. Remove shoring no earlier than 24 hours after concrete is placed and after repair concrete has achieved minimum compressive strength of 75 percent of the specified 28-day compressive strength.
- B. Sequence the release and removal of shoring equipment such that the equipment which is still in place is not overloaded.
- C. Promptly remove shoring materials from Site when no longer needed for work.

END OF SECTION

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Demolition and removal of existing construction, including salvage and reuse of materials.
- B. Related Sections:
 - 1. Section 02 01 11 – Shoring: Shoring during selective demolition.

1.2 REFERENCES

- A. Definitions:
 - 1. Existing to remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
 - 2. Remove: Detach items from existing construction and legally dispose of off-site, unless indicated to be removed and salvaged or removed and reinstalled.
 - 3. Remove and reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
 - 4. Remove and salvage: Detach items from existing construction and deliver to Owner ready for reuse.

1.3 COORDINATION

- A. Coordinate with Owner's Representative and with other trades to ensure that adjacent areas are not adversely affected.

1.4 SUBMITTALS

- A. Documentation of existing conditions.
- B. Inventory of materials to be removed and salvaged or reinstalled.

1.5 CHANGES IN WORK

- A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with Contract Documents. Such conditions may interfere with Work and may consist of damage or deterioration of substrate or surrounding materials.
 - 1. Notify Architect/Engineer of conditions that may interfere with proper execution of Work prior to proceeding with Work.

PART 2 PRODUCTS [NOT USED]**PART 3 EXECUTION****3.1 EXAMINATION**

- A. Examine substrates and conditions with installer or applicator, where applicable, for compliance with requirements, installation tolerances, and other conditions affecting selective demolition Work.
 - 1. Ensure that work done by other trades is complete and ready for selective demolition Work.
 - 2. Verify that areas and conditions under which selective demolition Work is to be performed permit proper and timely completion of Work.
 - 3. Notify Architect/Engineer in writing of conditions which may adversely affect selective demolition Work and recommend corrections.
 - 4. Do not proceed with selective demolition Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
 - 5. Commencing selective demolition Work constitutes acceptance of Work surfaces and conditions.
- B. Survey existing conditions and correlate with requirements to determine extent of selective demolition Work required.
 - 1. Record observations.
 - 2. Document with photographs and/or video, existing conditions of adjoining construction, including finish surfaces, which might be misconstrued as damage caused by demolition activities.
 - 3. Inventory and record condition of items to be removed and salvaged or reinstalled.

3.2 PROTECTION

- A. Take precautions to protect persons (including building users, passers-by, and workers) and adjacent property (including adjacent building elements, landscaping, and motor vehicles) from Work.
- B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- C. Limit access to Work areas.
- D. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.
- E. Assume responsibility for injury to persons or damage to property resulting from Work and remedy at no cost to Owner.

3.3 SELECTIVE DEMOLITION

- A. Utility Services and Mechanical and Electrical Systems:
 - 1. Disconnect and seal or cap off indicated utility services and mechanical and electrical systems in Work areas.

2. Where existing utility services or mechanical or electrical systems are required to be removed, relocated, or abandoned, bypass such services/systems before beginning Work to prevent interruption to occupied areas.
- B. Demolish and remove existing construction and installations only as necessary and required for proper installation of work indicated in Contract Documents.
1. Conduct removals carefully to avoid damaging existing construction and installations that will remain.
 - a. Neatly cut openings and holes plumb, square, and true to dimensions required.
 - b. Cut or drill from exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - c. Use cutting methods least likely to damage construction to remain.
 - d. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces.
 - e. Temporarily cover openings to remain.
 2. Protect construction that will remain against damage and soiling.
 3. Provide and maintain shoring, bracing, and structural supports, as required to preserve stability and prevent movement, settlement, or collapse of construction or finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 4. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 5. Remedy damage to existing construction and installations caused by Contractor operations.
- C. Survey existing conditions as Work progresses to identify hazards resulting from construction.
- D. When unanticipated structural, electrical, or mechanical elements that conflict with intended function or design are encountered, investigate and measure nature and extent of conflict. Promptly submit written report to Architect/Engineer.
- E. Provide access to Work areas and perform localized demolition as necessary for inspection of concealed underlying conditions by Architect/Engineer and Owner's Representative.
- F. Items to be Salvaged or Reinstalled:
1. Carefully remove, clean, and mark with identifying code.
 2. Store in secure area and protect from damage.
 3. Replace items that are damaged by the Work with new items to match undamaged originals.
 4. Reinstall in original locations after selective demolition operations and underlying Work are complete.
 5. Items to be Salvaged:
 - a. Pack or crate and label contents of containers.
 - b. Store in secure area until delivery to Owner.
 - c. Transport to Owner's on-site storage area.
 - d. Protect from damage during transport and storage.

3.4 DISPOSAL OF DEMOLITION MATERIALS

- A. Unless noted otherwise, promptly remove demolition debris from Site and dispose of legally. Do not burn.

3.5 CLEANING

- A. Clean adjacent surfaces and structures of dust, dirt, and debris. Return to condition existing before Work began.

END OF SECTION

SECTION 03 01 31

CONCRETE REMOVAL AND SURFACE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Concrete removal and surface preparation prior to concrete repair, including:
 - 1. Removal of unsound and sound concrete
 - 2. Preparation of concrete and steel surfaces
- B. Related Sections:
 - 1. Section 03 01 34 - Concrete Repair

1.2 REFERENCES

- A. Reference Standards: Latest edition.
 - 1. American Concrete Institute (ACI)
 - a. 315: Details and Detailing of Concrete Reinforcement
 - b. 318: Building Code Requirements for Structural Concrete
 - c. 562: Assessment, Repair, and Rehabilitation of Existing Concrete Structures
 - d. 563: Specifications for Repair of Concrete in Buildings
- B. Reference Guides: Latest edition as of Specification date.
 - 1. American Concrete Institute (ACI)
 - a. 546R: Concrete Repair Guide
 - 2. International Concrete Repair Institute (ICRI):
 - a. 310.1R: Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion
 - b. 310.2R: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays and Concrete Repair

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with Owner's Representative and with other trades to ensure that adjacent areas are not adversely affected by concrete removal or surface preparation Work.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's literature and technical data for corrosion-inhibiting coating material, indicating applicability of product for proposed use.
- B. Confinement, Collection, and Disposal Plan (for information only): Written plan for confining, collecting, and disposing of broken concrete, abrasive blast grit, dust, debris, existing reinforcing, and other waste material resulting from removal operations and surface preparation.

1.5 QUALITY ASSURANCE

- A. Mockups: Demonstrate adequacy of concrete removal and surface preparation procedures as part of mockups in 03 01 34.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.
- B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which have been exposed to moisture to their detriment.
- C. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Remove from Site, and replace at no cost to Owner, any materials that are damaged or otherwise negatively affected by not being stored or handled in accordance with manufacturer's written instructions.
- D. Store materials in original, undamaged containers and packaging in clean, dry, location on raised platforms and protected from weather, within temperature range required by manufacturer. Protect stored materials from direct sunlight and sources of ignition. Manufacturer's standard packaging and covering alone is not considered adequate weather protection.
- E. Locate materials in a secure location approved by Owner's Representative
- F. Conspicuously mark damaged containers, containers with contaminated materials, damaged materials, and materials that cannot be used within stated shelf life and remove from Site as soon as possible. Replace discarded materials in a timely manner at no cost to Owner.
- G. Limit stored materials on structures so as to preclude damage to materials and structures.
- H. Maintain copies of all applicable Safety Data Sheets (SDS) with materials in storage area, such that they are available for ready reference on Site.

1.7 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to start of concrete removal Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer how to proceed.
- B. Comply with Owner's limitations and restrictions for Site use and accessibility.
- C. Dust, Fume, and Noise Controls:
 - 1. Confine dust and debris to Work area and prevent from entering portions of facility that remain in use.
 - 2. Direct equipment exhaust away from occupied spaces. Vent equipment operating within structure to outside or condition exhaust gases with catalytic converter.

3. Operate equipment at noise levels conforming to requirements of city, state, and federal laws and codes, and Owner limitations.
- D. Maintain adequate ventilation during preparation and application of materials.

1.8 CHANGES IN WORK

- A. During rehabilitation work, existing conditions may be encountered, which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials or improper location of embedded elements such as reinforcing steel, which could jeopardize the integrity or performance of the Work.
 1. Notify Architect/Engineer prior to proceeding with the Work of conditions that may interfere with, preclude proper execution of, or jeopardize the performance of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Corrosion-Inhibiting Coating Materials: Use material specifically intended for reinforcing steel embedded in concrete. Provide material with pigmented color that is clearly different than the color of the reinforcement.
 - a. Sika Armatec 110 EpoCem by Sika Corporation
 - b. MasterEmaco P 124 supplied by Sika Corporation
 - c. Or approved equal

2.2 EQUIPMENT

- A. Pneumatic chipping hammers of nominal 15-lb class or less for removal of concrete from beneath and adjacent to reinforcing steel, and for detail excavation work.
- B. Pneumatic chipping hammers of nominal 30-lb class or less for removal of concrete at repair openings, and where conventional reinforcement has been exposed and will not be damaged by jackhammering.
- C. Tools for mechanical abrasion surface preparation and cleaning of concrete and embedded reinforcing bars.
- D. High pressure, oil-free compressed air equipment capable of removing dust, dirt, and water from concrete repair areas, and exposed concrete surfaces.
- E. Sawing equipment shall be capable of sawcutting the existing concrete to the specified depth.
- F. Percussive or rotary drilling equipment for making holes in concrete substrate for dowel installation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements and other conditions affecting concrete removal Work.
 - 1. Ensure that work done by other trades is complete and ready for concrete removal Work.
 - 2. Verify that areas and conditions under which concrete removal Work is to be performed permit proper and timely completion of Work.
 - 3. Notify Architect/Engineer in writing of conditions which may adversely affect concrete removal Work and recommend corrections.
 - 4. Do not proceed with concrete removal Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
 - 5. Commencing concrete removal Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

- A. Take precautions to ensure safety of people (including building users, passers-by, and workers) and protection of property (including adjacent building elements, landscaping, and motor vehicles).
- B. Erect temporary protective canopies and walls, as necessary, at walkways and at points of pedestrian and vehicular access that must remain in service during Work.
- C. Take precautions to protect against air-borne materials and run-off.
- D. Protect paving, sidewalk, and adjacent building areas from mechanical damage due to scaffolding and other equipment.
- E. Prevent dust, debris, coating overspray/spatter, and other construction materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- F. Limit access to Work areas.
- G. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.
- H. Protect from damage, all elements of completed work and original construction to remain.

3.3 CONCRETE REMOVAL AND SURFACE PREPARATION

- A. Sound concrete surfaces and mark with paint, or other clearly visible media, areas of unsound concrete. Architect/Engineer will review markings before concrete removal Work begins.
- B. Prior to concrete removal Work:
 - 1. Remove or temporarily shore plumbing and electrical lines and associated fixtures that interfere with Work. Reattach at completion of Work.
 - 2. Implement plan for confining and disposing of concrete and other debris from removal Work.

- C. Concrete Removal Areas:
 - 1. Make concrete removal areas rectangular in shape in plan unless noted otherwise by Architect/Engineer.
 - 2. Avoid re-entrant corners.
 - 3. Extend at least 1 inch beyond edge of unsound concrete.
- D. Create square edges of removal areas.
 - 1. Sawcut 3/4 inches at top surface removal areas.
 - 2. Sawcut square edges of overhead and vertical removal areas at least 1/2 inches deep.
 - 3. Do not damage reinforcing steel, embedded electrical conduits, or other embedments. Reduce sawcut depths if concrete clear cover is less than specified sawcut depth to prevent damage.
- E. Remove unsound concrete and, as necessary, sound concrete to create:
 - 1. Remove concrete around and under exposed reinforcing bars to provide a clearance of 1-inch minimum, measured radially, between the reinforcing bars and the existing concrete substrate.
 - 2. Avoid abrupt changes in depth of removal; provide consistent depth of repair across repair area.
 - 3. For partial depth repairs, exercise care to avoid cracking underlying sound concrete or punching through member.
 - 4. Leave roughened surface to match CSP 7 or higher as defined by ICRI 310.2R. Meet repair material manufacturer requirement if greater than value specified here.
 - 5. Limit chipping hammer size and impact angle to minimize damage to sound concrete. Impact angle shall be no more than 60 degrees to surface.
- F. Inspect and sound concrete surfaces in and around removal areas for Architect/Engineer review and approval. Sawcut or chip square new removal area perimeter as necessary.
- G. Clean and prepare surfaces of removal area, including vertical edges and sawcut edges, to remove surface contaminants, and loose pieces of concrete. Preparation shall be performed with mechanical abrasion to remove all concrete that is bruised or micro-fractured. Final clean removal area surfaces with dry, oil-free compressed-air jet.
 - 1. Allow Architect/Engineer at least 48 hours to observe prepared and cleaned surfaces prior to concrete placement.
 - 2. Acceptable concrete surface preparation methods include:
 - a. Abrasive blasting. If wet abrasive blasting is used, the concrete surface shall be immediately pressure washed to remove all cement paste, abrasive grit, contaminants, and surface laitance, and the surfaces dried with high-pressure air blasting.
 - b. Needle scaling.
 - c. Pressure water blasting. Pressures between 1,000 and 5,000 psi, or as necessary to meet the requirements above.
 - 3. Inspect prepared concrete surfaces and remedy defects.

3.4 REINFORCEMENT PREPARATION AND COATING

- A. Leave existing reinforcing in place unless otherwise directed by Architect/Engineer.

- B. Notify Architect/Engineer of reinforcing bars that are incorrectly located or have less than 1 inch of concrete cover; are damaged or fractured; or have lost more than ten percent of their original cross-sectional area at any point. Architect/Engineer will determine remedial action, await direction prior to proceeding with repair at these locations.
- C. Prepare exposed steel surfaces, including existing exposed reinforcement and steel embedments. Exercise care to prepare undersides of reinforcing bars. Utilize mechanical abrasion to provide surface equivalent to an abrasive blast.
- D. Clean steel surfaces with dry, oil-free compressed-air jet. Exercise care to clean undersides of reinforcing bars.
- E. Inspect prepared steel surfaces and clean remaining contaminants. Allow Architect/Engineer at least 48 hours to observe prepared surfaces prior to coating steel.

3.5 CLEANING

- A. After completing Concrete Removal and Surface Preparation Work:
 - 1. Clean all materials resulting from Work that are not intended to be part of the finished Work using appropriate cleaning agents and procedures. Exercise care to avoid damaging surfaces.
 - 2. Repair at no cost to Owner all items damaged during the Work.
 - 3. Remove and legally dispose of debris and surplus materials from Site.

END OF SECTION 03 01 31

SECTION 03 01 34

CONCRETE REPAIR

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Supply and placement of packaged cementitious materials for repair applications, including formwork, reinforcement, concrete repair materials, batching procedures, placement procedures, finishes, curing, and protection and post-installed anchors installation.
- B. Related Sections:
 - 1. Section 03 01 31 – Concrete Removal and Surface Preparation
 - 2. Section 05 02 00 – Structural Steel

1.2 REFERENCES

- A. Standards latest edition of date of Specification or as referenced in applicable building code.
- B. Reference Guides:
 - 1. American Concrete Institute (ACI):
 - a. 305R: Guide to Hot Weather Concreting
 - b. 315R: Guide to Presenting Reinforcing Steel Design Details
 - c. 347R: Guide to Formwork for Concrete
 - d. 546R: Guide to Concrete Repair
 - e. 546.4R: Guide for Job Site Quality Control and Quality Assurance of Cementitious Packaged Materials
 - 2. International Concrete Repair Institute (ICRI):
 - a. 310.3R Guide for Using In-Situ Tensile Pull-off Tests to Evaluate Bond of Concrete Surface Materials
 - b. 320.1R: Guideline for Selecting Application Methods for the Repair of Concrete Surfaces
 - c. 320.2R: Guide for Selecting and Specifying Materials for Repair of Concrete Surfaces
- C. Reference Standards:
 - 1. American Concrete Institute (ACI):
 - a. 117: Specification for Tolerances for Concrete Construction and Materials and Commentary
 - b. 301: Specifications for Structural Concrete
 - c. 318: Building Code Requirements for Structural Concrete
 - d. 562: Code Requirements for Assessment, Repair and Rehabilitation of Existing Concrete Structures
 - e. 563: Specifications for Repair of Concrete in Buildings
 - 2. ASTM International:
 - a. A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
 - b. C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field.

- c. C33: Standard Specification for Concrete Aggregates
- d. C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- e. C94: Standard Specification for Ready-Mixed Concrete
- f. C143: Standard Test Method for Slump of Hydraulic-Cement Concrete
- g. C150: Standard Specification for Portland Cement
- h. C171: Standard Specification for Sheet Materials for Curing Concrete
- i. C172: Standard Practice for Sampling Freshly Mixed Concrete
- j. C231: Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
- k. C494: Standard Specification for Chemical Admixtures for Concrete
- l. C595: Standard Specification for Blended Hydraulic Cements
- m. C1064: Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
- n. C1107: Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
- 3. Concrete Reinforcing Steel Institute (CRSI):
 - a. Manual of Standard Practice

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
 - 1. With Owner's Representative.
 - 2. With other trades:
 - a. To ensure that work done by other trades is complete and ready for concrete repair Work.
 - b. To avoid or minimize work on, or in immediate vicinity of, concrete repair Work in progress.
 - c. To ensure that subsequent work will not adversely affect completed concrete repairs.
- B. Pre-construction Meeting:
 - 1. Conduct meeting prior to start of Work
 - 2. Review requirements for concrete repair work, including:
 - a. Construction schedule
 - b. Availability of materials, personnel, equipment, and facilities needed to make progress and avoid delays
 - c. Site use, access, staging, and set-up location limitations
 - d. Concrete removal, surface preparation, and substrate condition
 - e. Repair types and proposed material/approaches for repair and curing
 - f. Required submittals
 - g. Testing and inspection requirements
 - 3. Contractor's Site superintendent, Owner's Representative, and Architect/Engineer shall attend.

1.4 SUBMITTALS

- A. Contractor Qualifications (for information only): Evidence that Contractor's existing company has minimum 5 years of continuous experience in similar concrete repair work; list of at least 5 representative, successfully completed projects of similar scope and size, including:
 - 1. Project name
 - 2. Owner's name
 - 3. Owner's Representative name, address, and telephone number
 - 4. Description of work
 - 5. Types of concrete repair
 - 6. Project supervisor
 - 7. Total cost of concrete repair work and total cost of project
 - 8. Completion date
- B. Mock-up Plan (for information only): Prior to field execution of mock-ups, provide detailed description of materials, methods, techniques, equipment, sequence of operations, and quality control procedures to be used during the mock-up, including but not limited to the following for each concrete repair type:
 - 1. Schedule
 - 2. Protection of surrounding materials on project site
 - 3. Concrete removal and surface preparation
 - 4. Concrete mixing
 - 5. Concrete placement
 - 6. Concrete curing
- C. Product Data for Packaged Materials:
 - 1. Manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and mixing and application or placement instructions.
 - 2. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations for information only.
 - 3. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.
- D. Field Quality Control:
 - 1. Batch logs for packaged materials.

1.5 QUALITY ASSURANCE

- A. Contractor Qualifications: Experienced firm that has successfully completed concrete repair work similar in material, design, and extent to that indicated for the Project. Must have successful construction with specified materials in local area in use for minimum of five years.
 - 1. Employ foreman with minimum 5 years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during the Work. Do not change foreman during the course of the Project except for reasons beyond the control of Contractor; inform Architect/Engineer in advance of any changes.
 - 2. Qualifications for Installer of Adhesive Anchored Items: Experienced individual with current ACI-CRSI certification as Adhesive Anchor Installer.
 - a. Applicable only for anchors in horizontal or upwardly inclined orientations.

- B. Ready-Mix Supplier Qualifications: ASTM C94; Certification of Production Facilities and Delivery Vehicles by National Ready Mixed Concrete Association.
- C. Mock-ups: Construct mock-ups to demonstrate construction procedures, quality of Work, and aesthetic effects for each concrete repair type/orientation.
 - 1. Provide Owner and Architect/Engineer with a schedule for mock-up activities at least one week prior to start of mock-up work. Clearly define sequence of work including required hold point observations. Group all mock-ups such that visits for different repair types are prepared and ready for review during the same visits. Additional visits to review hold points may be charged to the Contractor or withheld from payment. Allow Architect/Engineer 48 hours to observe work at each hold point.
 - 2. Construct at least 2 square feet of repairs for each type of repair specified unless otherwise approved by Architect/Engineer, including each orientation of repair, and method of repair material placement. Use personnel, equipment, materials, and procedures proposed for use on Project. Construct mock-ups for the following repair types:
 - a. Overhead shallow-depth repair
 - b. Vertical partial-depth repair
 - 3. Construct mock-ups on existing members, at locations designated by Architect/Engineer, under same environmental conditions expected during Work. Provide access to mock-up locations. Use personnel, equipment, materials, and procedures proposed for use on Project.
 - 4. Provide access to mock-up locations during Work, and after, to allow for completion of observations and testing.
 - 5. Hold Points: Architect/Engineer may observe the following conditions prior to the Contractors' work proceeding on mock-up.
 - a. Hold Point 1:
 - 1) Concrete and steel surface preparation
 - 2) Prepared and cleaned concrete removal areas including prepared concrete and steel surfaces (prior to coating)
 - b. Hold Point 2:
 - 1) Completed reinforcing steel coating installation
 - 2) Installation of concrete repair material
 - a) Batching (for pre-bagged repair materials)
 - b) Testing
 - c) Finishing
 - 3) Installation of curing and protection measures
 - 6. Photograph concealed portions of mock-up before placing concrete, and retain photographs at Site, regardless of observation by Architect/Engineer and inspection by Testing Agency or Special Inspector.
 - 7. Coordinate performance of, or perform, quality measures and testing as required by this section; including, but not limited to:
 - a. Reinforcing steel special inspections
 - b. Fresh or plastic concrete repair material testing
 - c. Compressive strength testing
 - 8. If Architect/Engineer or Owner's Representative determines mock-up does not comply with requirements, modify mock-up or construct new mock-up until mock-up is approved. Remove and replace mock-ups that are not approved.

9. Approved mock-ups shall be maintained in undisturbed condition throughout Project as basis for acceptance of completed work and may become part of completed Work if undisturbed at time of Substantial Completion.
- D. Hold points for Architect/Engineer Observation and/or review of field photographs during work:
 1. Confirmation of repair areas.
 2. Concrete and reinforcing steel reinforcing surface preparation.
 3. Concrete Placement
 - a. Batching
 - b. Finishing
 - c. Curing and protection

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials according to manufacturer's recommendations and in such manner as to prevent damage to materials or structure.
- B. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.
- C. Handle and place materials in strict accordance with safety requirements required by material manufacturers; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain SDS with materials in storage area and available for ready reference on Site.
- D. Deliver, store, and handle reinforcing steel to prevent bending and damage.
 1. Avoid damaging reinforcement coating.
 2. Repair damaged reinforcement coating according to ASTM D3963.
- E. For packaged materials:
 1. Deliver materials to Site in original bags and containers with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.
 2. Store materials in original, undamaged bags or containers in a clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Manufacturer's standard packaging and covering is not considered adequate weather protection.
 3. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, or handling. Reject and remove from Site new materials which have been exposed to moisture or exhibit evidence of moisture contamination.
 4. Conspicuously mark damaged, contaminated or opened bags or containers and remove from Site as soon as possible.
 5. Remove materials that cannot be applied within stated shelf life from Site and replace with new materials.

1.7 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to the start of concrete repair Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor of changes.

- B. Comply with Owner's limitations and restrictions for Site use and accessibility.

1.8 CHANGES IN WORK

- A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
 - 1. Notify Architect/Engineer of conditions that may interfere with proper execution of the Work or jeopardize performance of the Work, prior to proceeding with the Work.

1.9 WARRANTY

- A. A joint and several warranty shall be signed by the Subcontractor, the General Contractor, and manufacturer.
- B. Time Period: The warranty shall cover labor for 2 years and materials for 2 years. Period shall begin on date of completion and acceptance of the Work by the Owner.
- C. Terms: All materials, labor, tools, and equipment necessary for repair, restoration, or replacement of all new work damaged or deficient as a result of defects, imperfections, or faults in materials and workmanship, or as a result of Contractor correcting of same. All materials, labor, tools and equipment necessary to obtain access to defective work, including but not limited to the removal and replacement of overlying work or embedded elements damaged or clogged by the epoxy, shall be included in the terms.
- D. Correction of defects, imperfections, and faults shall not relieve the Contractor from his responsibility for additional corrective work during the remaining portion of the warranty time period.

PART 2 PRODUCTS

2.1 FORM MATERIALS

- A. Forms: Plywood, lumber, metal, plastic, or another approved material.
 - 1. Provide plywood and lumber dressed on at least two edges and one side for tight fit.
 - 2. Do not use rust-stained, steel, form-facing material.
 - 3. Use panels that will provide continuous, true, and smooth concrete surfaces meeting the finish requirements specified herein. Do not use form-facing materials with raised grain, torn surfaces, worn edges, dents, or other defects that will impair texture of concrete surface.
 - 4. Furnish panels in largest practicable sizes to minimize number of joints.
- B. Accessories:
 - 1. Chamfer Strips: Wood, metal, PVC, or rubber strips, match adjacent concrete work or as specified on the construction documents.
 - 2. Form Ties: Factory-fabricated; removable or snap-off metal or glass-fiber-reinforced plastic form ties; designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

- a. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of the exposed concrete surface.
- b. Furnish ties that, when removed, will leave holes not larger than 1 inch in diameter in the concrete surface.
- c. Furnish ties with integral water-barrier plates for walls indicated to receive dampproofing or waterproofing.
3. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect the concrete surface and will not impair subsequent treatments of the concrete surface.
 - a. Formulate form-release agent with rust inhibitor for steel, form-facing materials.

2.2 POST-INSTALLED ANCHORS

- A. Carbon Steel Anchor Bolts or Rods for Post-Installed Anchors
 1. Anchor bolts: ASTM F1554 Grade 105
 2. Heavy-hex carbon-steel nuts: ASTM A563, Grade A
 3. Hardened carbon-steel washers: ASTM F436, Type 1
 4. Finish for exposed locations: Hot-dip zinc coating, ASTM F2329
- B. Adhesive Anchor System for Post-installed Anchors:
 1. HIT-HY 200 Hybrid Mortar Adhesive by Hilti, Inc.
 2. Or approved equal.

2.3 STEEL REINFORCEMENT

- A. Stainless steel Concrete fasteners,
 1. Stainless steel shall be Type 304 or 316 unless otherwise indicated.
 2. Fasteners shall be of sufficient length and embedment to develop the required capacity and shall be installed in accordance with manufacturer's written instructions.
 3. Provide one of the following:
 - a. 1/4-inch diameter stainless steel concrete screws
 - b. 3/8-inch diameter stainless steel helical anchors
- B. Stainless steel Wire Reinforcement
 1. Stainless steel shall be Type 304 or 316 unless otherwise indicated.
 2. 16-gauge stainless steel wire reinforcement, fabricated from welded wire or formed wire mesh as applicable to the repair application.
- C. Accessories:
 1. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars in place. Manufacture bar supports according to CRSI Manual of Standard Practice from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than specified for the repair.
 - a. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless steel bar supports.

2.4 PACKAGED REPAIR MATERIALS

- A. For Formed Vertical and Overhead Repairs: Final repair shall contain coarse aggregate either pre-blended by manufacturer or added during batching. Use one of the following, or approved equal:
 - 1. Sikacrete-211 SCC Plus manufactured by Sika Corporation.
 - 2. SikaTop -111 plus manufactured by Sika Corporation
 - 3. FormFlo P-38 manufactured by JE Tomez & Associates.
- B. For Trowel-Applied Repairs on Vertical and Overhead Surfaces (For use only at locations specifically identified by Architect/Engineer): Use one of the following, or approved equal:
 - 1. SikaTop 123 Plus manufactured by Sika Corporation.
- C. For Top Surface (Horizontal) Repairs: Final repair shall contain coarse aggregate either pre-blended by manufacturer or added during batching in accordance with manufacturer's requirements. Use one of the following, or approved equal:
 - 1. Sikacrete®-211 SCC Plus manufactured by Sika Corporation.
 - 2. SikaTop 111 Plus manufactured by Sika Corporation.
- D. Do not use proprietary repair materials that contain added gypsum.
- E. Provide all like materials with the same manufacturer lot number.
- F. Aggregates added to packaged repair materials shall:
 - 1. Be from a single source with documented record of at least ten years of satisfactory service when used with similar cementitious materials in similar applications and service conditions.
 - 2. Meet the size and durability requirements of the repair material manufacturer to which they are being added.

2.5 CURING MATERIALS

- A. Water: Potable.
- B. Moisture-Retaining Cover: ASTM C171, white burlap-polyethylene sheet
- C. Membrane-Forming Curing Compound (for use at non-formed vertical and overhead repairs only):
 - 1. Comply with ASTM C309, Type 1.
 - 2. VOCs less than 100 g/L and legal limits compatible with new coating.
 - 3. Wax-based and silicate materials shall not be used.
 - 4. Compatible with repair material manufacturer requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements and other conditions affecting installation or performance of concrete repairs.

1. Ensure that work done by other trades is complete and ready for concrete repair Work.
2. Verify that areas and conditions under which concrete repair Work is to be performed permit proper and timely completion of the Work.
3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of concrete repairs and recommend corrections.
4. Do not proceed with concrete repair Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
5. Commencing concrete repair Work constitutes acceptance of Work surfaces and conditions.

3.2 SURFACE PREPARATION

- A. Surface preparation shall be in accordance with Section 03 01 31, Concrete Removal and Surface Preparation.

3.3 PROTECTION

- A. Take precautions to ensure the safety of people, including building users, passers-by, and workers, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.
- B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.
- D. Limit access to Work areas.
- E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.
- F. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.4 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated.
 1. Form openings, chases, offsets, keyways, reglets, blocking, screeds, and bulkheads required in Work.
 2. Chamfer corners to match existing or as specified on the Construction Documents.
 3. Construct forms tight enough to prevent loss of concrete paste.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide

top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, and recesses, for easy removal.

- D. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
- E. Provide temporary openings for cleanouts, venting and inspection ports (witness holes) where the interior area of the formwork is inaccessible. Close openings with panels or dowels tightly fitted to forms and securely braced to prevent loss of concrete paste. Locate temporary openings in forms at inconspicuous locations.
- F. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris immediately before placing concrete.
- G. Retighten forms and bracing before placing concrete to prevent mortar leaks and maintain proper alignment.
- H. Removing and reusing forms
 - 1. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support the weight of concrete, may be removed after cumulatively curing at not less than 50 degrees Fahrenheit for 24 hours after placing concrete, provided concrete is hard enough not to be damaged by form-removal operations and provided curing and protection operations are maintained.
 - 2. Leave formwork for beam soffits, joists, slabs, and other structural elements that support the weight of concrete in place until concrete has achieved at least 75 percent of its 28-day design compressive strength and a minimum of 7 days.
 - 3. Clean and repair surfaces of forms to be reused in the Work. Do not use split, frayed, delaminated, or otherwise damaged form-facing material, or patched forms, for exposed surfaces.

3.5 POST-INSTALLED ANCHORS

- A. Installation of adhesive anchors shall be in strict accordance with adhesive manufacturer's written recommendations. Depth of embedment shall be as shown on the Drawings.
 - 1. Dry drill hole according to adhesive manufacturer's written literature using approved equipment and methods.
 - 2. Drill hole diameter as specified by the adhesive manufacturer.
 - 3. Inject adhesive in the hole from the back of the hole to the front and insert the dowel square to the face of the concrete substrate and slowly twist as inserting to achieve 100 percent filling of the annular space between the dowel and the drilled hole.
 - 4. Allow full curing of adhesive prior to placing concrete.
 - 5. Remove excess adhesive from concrete substrate and exposed steel surfaces.

3.6 STEEL REINFORCEMENT

- A. General: Comply with CRSI Manual of Standard Practice for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.7 EMBEDDED ITEMS

- A. Place and secure items to be embedded in concrete.
- B. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.8 BATCHING AND MIXING

- A. Packaged Materials Mixing: Measure, batch, and mix concrete materials according to the repair material manufacturers requirements, and this section.
 - 1. Develop batching and mixing operations so that quality control is assured.
 - 2. Designate one or two individuals to batch and mix materials. Fully instruct these individuals on batching and mixing procedures.
 - 3. Ensure that all materials have been stored and pre-conditioned to proper temperatures as required by the packaged repair material manufacturer.
 - 4. Maintain accurate mix proportions. Batch materials by weight on the basis of whole bags or containers of packaged repair material. Maintain a calibrated scale at the Site during concrete placement operations and weigh packaged materials. Notify manufacturer and Engineer of materials which are not within 2 percent of their published weight and await direction.
 - 5. Mix concrete repair materials in appropriate drum, mortar, or drill-type batch machine mixer as recommended by the manufacturer.
 - a. Follow mixing procedures, pause points, and procedures recommended the manufacture of the packaged material.
 - b. Ensure that all mixer elements are cleaned of all materials from previous batch, and mixer components have been pre-wetted, or charged, prior to batching.
 - c. Provide a sufficient number of mixers, including reserve mixers, so that placement operations will proceed uninterrupted, and each repair is completely cast before repair concrete achieves initial set.
 - d. Ensure uniform consistency
 - 6. Compile a Batch Log for each batch of material. A sample batch log containing the minimum information required is attached to this Section.
 - 7. Do not mix more grout than can be placed in approximately 30 minutes. Do not retemper grout by adding water and remixing after it stiffens.

3.9 PLACEMENT

- A. Before placing repair, verify the following:
 - 1. Installation of formwork, reinforcement, and embedded items is complete
 - 2. Concrete surfaces and forms are clean of frost, ice, mud, debris, and water
 - 3. Forms are thoroughly wetted or oiled with no standing water
 - 4. Reinforcement is securely tied in place and thoroughly cleaned of ice and other coatings that may reduce or destroy bond with concrete
 - 5. Required inspections have been performed
 - 6. Equipment for transporting concrete is clean
 - 7. Vibrators are operational, if required.
- B. Cast concrete repair against saturated surface dry concrete substrate. Ensure the surface is free of standing water and that surface pore water is not present.

- C. Convey material from the mixer to the place of deposit in a manner such that no segregation or loss of materials occurs.
- D. Place concrete as near as possible to its final position to avoid segregation due to re-handling or flowing.
 - 1. Do not allow repair material to fall a vertical distance greater than 4-feet from the point of discharge to the point of deposit.
 - 2. Do not allow repair material to disturb or displace reinforcing bars, floor drains, or other embedment's.
- E. Place concrete at a rate so that it is plastic and flows readily into corners of forms and into spaces around reinforcing bars.
- F. Place concrete continuously until the repair volume or section is completed, with no cold joints.
 - 1. Dispose of concrete that has partially set prior to placement or that has been contaminated by foreign material.
- G. Consolidate concrete with mechanical vibrating equipment or as recommended by packaged material manufacturer, so that the concrete is thoroughly worked around reinforcement and other embedded items and into corners. Do not use internal vibrating equipment for self-consolidating concrete mixtures.
 - 1. Use internal vibrators with minimum speed of 7,000 vibrations per minute and that are sufficiently narrow to fit into spaces between reinforcing bars, formwork, and existing concrete. Have extra vibrators at the Site in case a vibrator does not work.
 - 2. Do not use vibrators to transport concrete.
 - 3. Insert and withdraw vibrators vertically at uniformly spaced locations no farther apart than the visible effectiveness of the vibrator.
 - 4. At each insertion, limit the duration of the vibration to the time necessary to consolidate the concrete without causing mix constituents to segregate.
- H. Hot-Weather Placement: Protect concrete Work from physical damage or reduced strength due to rapid evaporation or overheating of concrete. Refer to ACI 305R for hot-weather conditions that may adversely affect concrete placement, finishing, and curing. Do not allow the temperature of the concrete at the time of placement to exceed 90 degrees Fahrenheit. When hot-weather conditions exist, use one or more of the following procedures:
 - 1. Place concrete at night or early in morning.
 - 2. Cool ingredients before mixing to maintain the concrete temperature below 90 degrees Fahrenheit at the time of placement. Chilled mixing water or chopped ice may be used to control the temperature; include the water equivalent of the ice in the mixing water quantity. Use liquid nitrogen to cool the concrete at Contractor's option.
 - 3. Cover steel reinforcement with water-soaked burlap so the steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
 - 4. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep the subgrade moisture uniform without standing water, soft spots, or dry areas.
 - 5. Provide windbreaks or sunshades, or both.

3.10 FINISHING NON-FORMED SURFACES

- A. Do not wet concrete surfaces or add cement.

- B. Do not use finishing aids of any kind, or any other product or material added to the surface and worked into the concrete during finishing.
- C. Float and broom finish.
 - 1. Float finish: Consolidate the surface with a power-driven float or by hand floating if the area is small or inaccessible to a power-driven float. Restraighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until the surface is left with uniform, smooth, granular texture.
 - 2. Medium-Broom Finish: Apply medium-broom finish, perpendicular to traffic flow, on top surfaces subjected to vehicular or pedestrian traffic. Match existing finish.
- D. The finished surface flatness shall be such that the measured gaps between the repair (and adjacent) surface and an unlevelled, freestanding, 10-foot-long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed 1/4 inch.
- E. Edge of repair shall be flush with adjacent concrete surface.
- F. At the tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.
- G. Hot-Weather Conditions: Fog the surface with water if hot, dry, or windy conditions cause moisture loss approaching 0.2 pounds per square foot per hour before or during finishing operations (value may be estimated using ACI 305R-20 Figure 4.1.4).

3.11 FINISHING FORMED SURFACES

- A. Provide surface finish 3.0 (SF-3.0) unless otherwise specified.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.
- C. Edge of repair shall be flush with adjacent concrete surface within 1/8 inch tolerance.
- D. Do not apply rubbed finish.
- E. Surface Finish Type Definitions:
 - 1. Surface Finish-1.0 (SF-1.0): Repair voids larger than 1½ inch wide or 1/2 inch deep. Limit abrupt (over 1 inch or less) or gradual (5 foot straight edge) concrete surface irregularities to 1 inch (ACI 117 Class D).
 - 2. Surface Finish-2.0 (SF-2.0): Repair voids larger than ¾-inch wide or 1/2 inch deep. Repair or patch all form tie holes and similar construction related blemishes. Limit abrupt (over 1 inch or less) or gradual (5 foot straight edge) concrete repair surface irregularities to 1/4 inch (ACI 117 Class B).
 - 3. Surface Finish-3.0 (SF-3.0): Repair voids larger than 3/4 inch wide or 1/2 inch deep. Repair or patch all form tie holes and similar construction related blemishes. Limit abrupt (over 1 inch or less) or gradual (5-foot straight edge) concrete repair surface irregularities to 1/8 inch (ACI 117 Class A).

- F. After concrete has gained sufficient strength to be unaffected by grinding, grind off fins, other projections, and high areas to meet finish requirements

3.12 CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
 - 1. Maintain concrete above 55 degrees Fahrenheit and in a moist condition for at least 7 days after placing concrete.
- B. Unformed Top Surfaces: Use moisture-retaining cover.
 - 1. Begin curing within 30 minutes after finishing concrete.
 - 2. Place cover in widest practicable width, with sides and ends lapped at least 12 inches.
 - 3. Seal sides and ends of cover by holding down with soil, concrete pieces, or some other weight, or by using waterproof tape or adhesive.
 - 4. Immediately repair holes or tears in cover during curing period, using cover material and waterproof tape.
 - 5. Re-wet concrete surface at least twice daily or as necessary to maintain moist condition.
- C. Unformed Vertical and Overhead Surfaces: Apply a curing compound uniformly in a continuous operation by power spray or roller according to manufacturer's written instructions and recommended coverage rate. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.13 QUALITY CONTROL

- A. Submit batch logs for packaged materials.
- B. Contractor shall work with the qualified independent testing and inspecting agency (retained by the owner) to sample materials and perform tests prior to, during, and after concrete placement.
- C. Provide:
 - 1. Access to Work
 - 2. Materials for sampling
 - 3. Site facilities for sampling, testing, and storage of materials
 - 4. Incidental labor
 - 5. Disposal of concrete or materials related to testing
 - 6. Cleaning or washout materials and facilities
- D. Testing Services: Sampling and testing of composite samples of fresh concrete repair material shall be performed according to the following requirements:
 - 1. Test samples and Frequency:
 - a. Twelve (12) samples (grout cubes or concrete cylinders, as applicable) shall be fabricated during the first two (2) days of application of each repair material.
 - 2. Sample types
 - a. Trowel-applied repair mortar:
 - 1) Sample: 2-inch grout cubes prepared and tested in accordance with ASTM C109.
 - 2) Brass or steel molds shall be used, and testing agency shall have experience testing grout cubes.
 - b. Formed-and-poured concrete:

- 1) Sample: 3-inch diameter by 6-inch-long cylinders in accordance with ASTM C31.
3. Slump or Slump flow for formed-and-poured concrete:
 - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change. If high-range, water-reducing admixture is used, perform one test prior to adding admixture.
 - b. Slump in accordance with ASTM C143
 - c. Slump flow in accordance with ASTM C1611.
4. Concrete Temperature: Per ASTM C1064
 - a. For packaged repair materials, perform with each batch and record in batch log.
5. Compression-Strength Test:
 - a. For each test sample set, compression testing shall be performed on a minimum of three samples at 3 days, 7 days, and 28 days. Compression strength shall be reported as an average of three samples at a given age.
 - b. Remaining three (3) samples from each test sample set shall be retained for additional testing as necessary.
 - c. Testing Standard:
 - 1) Trowel-applied repair material: in accordance with ASTM C109
 - 2) Formed-and-poured concrete: in accordance with ASTM C39
6. Test results shall be reported in writing to Owner's Representative, Architect/Engineer, concrete supplier, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain:
 - a. Name of concrete testing and inspecting agency.
 - b. Project identification name.
 - c. Date of concrete placement.
 - d. Specific location of concrete batch in Work.
 - e. Concrete mix number, design compressive strength at 28 days, design slump range, and design air content range.
 - f. Specimen number, specimen type and size, dates of compression tests, compressive breaking strengths and types of break for seven- and 28-day tests, and measured slump, air content, and air and concrete temperatures.
 - g. Statement that indicates whether test results are in conformance with Specifications.
7. Concrete strength is satisfactory if the average of the 28-day standard-cured compressive-strength tests equals or exceeds the specified 28-day compressive strength and no test value is more than 500 pounds per square inch less than the specified 28-day strength. Strength tests confirming 28-day strength are acceptable at earlier ages.
8. When the compressive strength of field cured specimens is less than 85 percent of the companion standard cured cylinders, evaluate operations and provide corrective procedures for protecting and curing the in-place concrete.
9. Non-Conforming Concrete:
 - a. If tests indicate that concrete is not in conformance with the Specification, remove and replace non-conforming concrete or perform additional testing, acceptable to Architect/Engineer, to verify conformance with the Specification, at no cost to Owner.
 - b. Procure core samples in accordance with ASTM C42. Diameter and length as determined by Architect/Engineer.
 - c. If tests indicate that the slump, air entrainment, or other requirements have not been met, examine core samples petrographically, according to ASTM C856, to evaluate hardened concrete characteristics. Design intent for desired hardened concrete

properties shall be based on the Specification, and applicable portions of ACI 201.2R, as determined by Architect/Engineer.

- d. If compressive-strength tests do not meet the acceptance requirements, procure three core samples from each portion of the structure represented by the unsatisfactory test(s), and test in compression. The strength of concrete in the area represented by core tests is satisfactory if the average of three compressive strength tests equals or exceeds 85 percent of the specified 28-day compressive strength and no compressive-strength test value is less than 75 percent of the specified 28-day compressive strength. If strength acceptance criteria are not met, remove and replace non-conforming concrete areas at no cost to Owner.
 - e. Perform additional inspection and testing, at no cost to the Owner, to determine the compliance of replaced or additional work with the specified requirements.
- E. Post-Installed Anchors:
- 1. Continuous special inspection of all adhesive anchors shall be performed by a certified third-party special inspector in accordance with ACI 318 Section 26.13.3.

3.14 CONCRETE REPAIR DEFECTS

- A. Repair defective areas designated by Architect/Engineer. Remove and replace concrete that cannot be repaired to Architect/Engineer's satisfaction.
- B. Perform sound testing by chain drag or hammer tapping of repaired areas after sufficient cure time and strength gain. Remove and replace delaminations, damaged, or unsound concrete using repair procedures defined in the construction documents and as directed by Architect/Engineer at no cost to the Owner.
- C. Surface defects on exposed surfaces include:
 - 1. Voids, spalls, air bubbles, honeycomb, rock pockets, and form-tie voids, more than 1/2 inch in any dimension in solid concrete but not less than 1 inch deep. Any item which covers more than two percent of the surface.
 - 2. Cracks at least 0.015-inch wide and any that penetrate to the depth of the reinforcing or completely through the repair section.
 - 3. Surface finish not meeting the requirements above.
- D. Remove and replace or repair latent defects that affect concrete's durability and structural performance as determined by Architect/Engineer.

3.15 CLEANING

- A. At the end of each workday, clean the Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.
- B. After completing the concrete repair Work:
 - 1. Clean soiling from adjacent surfaces. Exercise care to avoid scratching or damage to surfaces.
 - 2. Repair surfaces stained, marred, or otherwise damaged during concrete repair Work.
 - 3. Clean up debris and surplus materials and remove from Site.

END OF SECTION 03 01 34

SAMPLE BATCH LOG (MINIMUM INFORMATION SHOWN)

Project

Project Name:

Project Number:

Date:

Mixer/Batching Team Name(s):

Repair Application (Form-and-pump overhead, top surface, top surface rapid-set, etc.):

Mixer Type:

Prepackaged Repair Material Information

Name:

Lot #:

Minimum WT or Volume of Water:

Maximum WT or Volume of Water

Admix volume required:

Aggregate

Name/Description:

Manufacturer or Supplier:

Size (in):

[illegible]

SECTION 05 02 00**STRUCTURAL STEEL****PART 1 GENERAL****1.1 SUMMARY**

- A. Section Includes: All labor, materials, tools, equipment, supervision, and management necessary to fabricate and erect structural steel framing and components.

1.2 REFERENCES

- A. Definitions:
1. Installer: Used interchangeably for installer or erector.
 2. SSPC: Procedures in SSPC Painting Manual.
 3. WPS: Welding Procedure Specification.
- B. Reference Standards: Edition listed in IBC 2024
1. American Institute of Steel Construction (AISC):
 - a. 303: Code of Standard Practice for Steel Buildings and Bridges.
 - b. 360: Specification for Structural Steel Buildings.
 2. American Society of Civil Engineers (ASCE)
 - a. ASCE/SEI-7: Minimum Design Loads for Buildings and Other Structures
 3. American Society for Testing and Materials (ASTM), latest editions:
 - a. ASTM A36, Specification for Carbon Structural Steel
 - b. ASTM A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
 - c. ASTM A108, Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished
 - d. ASTM A123, Zinc (Hot Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strips
 - e. ASTM A193, Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
 - f. ASTM A194, Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
 - g. ASTM A500, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
 - h. ASTM A514, Standard Specification for High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding
 - i. ASTM A563, Standard Specification for Carbon and Alloy Steel Nuts
 - j. ASTM A572, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
 - k. ASTM A992, Standard Specification for Structural Steel Shapes
 - l. ASTM E94, Standard Guide for Radiographic Examination Using Industrial Radiographic Film
 - m. ASTM E164, Standard Practice for Contact Ultrasonic Testing of Weldments
 - n. ASTM E165, Standard Practice for Liquid Penetrant Examination for General Industry
 - o. ASTM E709, Standard Guide for Magnetic Particle Testing

- p. ASTM F436, Standard Specification for Hardened Steel Washers Inch and Metric Dimensions
 - q. ASTM F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
 - r. ASTM F594, Standard Specification for Stainless Steel Nuts
 - s. ASTM F1554, Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength
 - t. ASTM F2329, Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners
 - u. ASTM F3125, Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions
- C. American Institute of Steel Construction (AISC), latest editions
- 1. AISC Code of Standard Practice for Steel Buildings and Bridges
 - 2. AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings, including the Commentary and Supplements thereto as issued
 - 3. Specifications for Structural Joints Using ASTM A325 or A490 Bolts
- D. Research Council on Structural Connections (RCSC)
- 1. Specification for Structural Joints Using High-Strength Bolts
- E. American Welding Society (AWS), latest editions:
- 1. AWS A5.1, Specification for Carbon Steel Electrodes
 - 2. AWS D1.1, Structural Welding Code – Steel
- F. The Society for Protective Coatings (SSPC), Surface Preparation Standards

1.3 SUBMITTALS

- A. Product Data: for each type of product indicated.
- B. Shop Drawings: Show fabrication of structural steel components.
- 1. Clearly indicate profiles, sizes, spacing and locations of structural members, connections, attachments, anchorages, framed openings, size and type of fasteners, cambers, and clearances.
 - 2. Indicate welded connections using standard AWS welding symbols. Clearly indicate net weld lengths, sizes and welding sequences.
 - 3. Clearly identify all high strength bolts not required to be tensioned (installed snug tight as defined by AISC).
 - 4. No individual piece drawing will be accepted without simultaneous submission of its location on an erection plan.
 - 5. All pieces shall be clearly identified with a unique mark.
 - 6. Electronic transmission of structural drawings will not be allowed to be used to generate steel erection drawings without prior written permission of Structural Engineer.
 - 7. Structural Engineer's review of Shop Drawings will be for general considerations only. Compliance with requirements for materials fabrication and erection of structural steel is Contractor's responsibility.

- C. For delegated design of steel stairs, provide shop drawings following requirements listed above. Submit structural calculations and shop drawings stamped by a professional engineer registered in the state of Texas. Include demands and connection design to existing structure.
- D. Mill Test Reports: Furnish Mill test reports for all structural steel.
- E. Certifications: For all high-strength bolts, nuts and hardened washers, submit certification of domestic (U.S.) manufacture and compliance with all provisions of these specifications. No foreign manufactured material shall be considered for use.
- F. Steel Detailer Qualifications: Submit steel detailer qualifications.
- G. Welder Qualifications: Submit welder qualifications indicating the welder has passed AWS qualification tests and is currently qualified to perform welding processes as indicated on Drawings.
- H. Welding Inspector Certifications: Submit welding inspector certificates indicating AWS certification in accordance with provisions of AWS QCI, Standard for Qualification and Certification of Welding Inspectors.
- I. Welding Procedure Specifications (WPS): Submit WPS consistent with AWS D1.1 for all full- and partial-penetration welds.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.
- B. Fabricator Qualifications: A qualified fabricator who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category Sbd.
- C. Steel Detailer Qualifications: Steel detailers must be experienced in detailing structural steel for projects of similar size and complexity.
- D. Welding: Qualify procedures and personnel according to AWS D1.1.
- E. Comply with applicable provisions of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- F. Source Quality Control
 - 1. Materials and fabrication procedures are subject to inspection and tests in the mill, shop, and field, conducted by a qualified Inspection Agency. Such inspections and tests will not relieve the Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.
 - 2. Contractor shall promptly remove and replace materials or fabricated components that do not comply.
- G. Design of Members and Connections
 - 1. All details and dimensions shown on the Drawings are typical. Similar details shall apply to similar conditions, unless otherwise indicated. Verify dimensions at the site where indicated

on the Drawings and at other locations, whenever possible, without causing delay in the Work.

2. Promptly notify the Structural Engineer whenever design of members and connections for any portion of the structure are not clearly indicated.

PART 2 PRODUCTS

2.1 STRUCTURAL STEEL MATERIALS

- A. W-Shape and Tee Shapes: ASTM A992, Grade 50.
- B. Angle Shapes: ASTM A572 Grade 50.
- C. Plate and Bar: ASTM A572, Grade 50.
- D. Hollow Structural Section (Rectangular): ASTM A500, Grade C, Grade 50.
- E. Channel Shapes: ASTM A992, Grade 50.
- F. Welding Electrodes: E70XX, or as required to comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

- A. High-Strength Bolts, Nuts, and Washers:
 1. Heavy-hex steel structural bolts: ASTM F3125, Grade A325 Type 1
 2. Heavy-hex carbon-steel nuts: ASTM A563, Grade C
 3. Hardened carbon-steel washers: ASTM F436, Type 1
 4. Finish: Hot-dip zinc coating, ASTM F2329
- B. Threaded Rods:
 1. Threaded rods: ASTM F1554 Grade 36 or ASTM A36
 2. Heavy-hex carbon-steel nuts: ASTM A563, Grade A
 3. Hardened carbon-steel washers: ASTM F436, Type 1
 4. Finish: Hot-dip zinc coating, ASTM F2329

2.3 PRIMER

- A. Primer: SSPC-Paint 25, Type II, iron oxide, zinc oxide, raw linseed oil, and alkyd.
- B. Primer: Fabricator's standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer.

2.4 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. No field welding will be allowed unless shown on the Drawings or approved by Structural Engineer. Fabricate structural steel components in accordance with AISC specifications, and as indicated on the approved shop drawings.
- B. Bolt Holes: Cut, drill, or punch bolt holes perpendicular to metal surfaces. Burning of holes is prohibited.

- C. Properly mark and match-mark materials for field assembly.
- D. Finished surfaces of members shall be free of markings, burrs, and other defects and protrusions. Grind welded splices smooth on all surfaces. Corners and edges of plates scheduled to receive paint and coatings shall be ground to a 1/16-in. radius.
- E. Cutting and Fitting: Perform all necessary cutting, fitting, and drilling for the accommodation of other trades, and do whatever is necessary to secure correct information for same before and after steel is delivered. No cutting or drilling will be permitted on the job without the approval of Structural Engineer.
- F. Splices: Splicing of members to obtain the required lengths will not be permitted without prior acceptance by Structural Engineer.
- G. Finishes:
 - 1. Reference 07 81 00 for elements that need to be fireproofed.
 - 2. Unless noted otherwise in the architectural drawings, hot-dip galvanize canopy elements that are exposed.
 - 3. Unless otherwise noted, all steel components and assemblies shall be shop prime coated.

2.5 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
- B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work. Properly mark and match-mark materials for field assembly.

2.6 SPRAYED FIRE-RESISTANT MATERIALS

- A. Reference 07 81 00.

2.7 SHOP PRIMING

- A. Shop prime steel surfaces except the following:
 - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches into concrete or mortar.
 - 2. Surfaces to be field welded.
 - 3. Surfaces to be high-strength bolted with slip-critical connections.
 - 4. Surfaces to receive sprayed fire-resistive materials.
 - 5. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
 - 1. SSPC-SP 2, "Hand Tool Cleaning."
 - 2. SSPC-SP 3, "Power Tool Cleaning."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a dry film thickness of not less

than 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

PART 3 EXECUTION

3.1 EXISTING CONDITIONS

- A. Examine areas and conditions under which steel items are to be installed or removed and notify Structural Engineer of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in an approved manner.
- B. Field verify actual dimensions and locations of anchorage to existing structure prior to fabrication where indicated on Drawings. Use nondestructive techniques to locate all reinforcement prior to drilling holes for anchorage. Locate anchors, as required, to miss existing reinforcement, within parameters shown on Drawings. Notify Structural Engineer of all locations at which dimensions deviate significantly from dimensions shown or implied on Drawings.

3.2 ERECTION

- A. Examination: Verify elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedment, with steel erector present, for compliance with requirements. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Set structural steel accurately in locations and to elevations indicated and according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings."
- C. Base Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting base plates. Clean bottom surface of base plates.
 - 1. Set base plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Weld plate washers to top of base plate.
 - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base plate before grouting.
 - 4. Place grout between bearing surfaces and base plates in accordance with Specification Section 03 62 13.00 Add - Non-metallic Non-shrink Grouting. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- D. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- E. All galvanized surfaces that have become damaged during shipping, handling, erection, or installation, or that have been burned by welding or damaged in any other way, shall be repaired with a cold-applied galvanizing compound:
 - 1. Surface preparation: SSPC-SP6, Commercial Blast Cleaning

2. Apply galvanizing paint in accordance in strict compliance with the manufacturer's specifications:
 - a. Z.R.C. Cold Galvanizing Compound, Z.R.C. Chemical Products: Two coats, 3 mils minimum total dry film thickness
 - b. TNEMEC Company: Zinc-rich Primer "Series 90-97 Tneme-Zinc," dry film thickness 2.5 to 3.5 mils; with topcoating: "Series 161 Fascure Epoxy" or "Series 27WB Typoxy," dry film thickness 5.0 to 6.0 mils minimum.
 - c. Or approved equal.

3.3 FIELD CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts" for type of bolt and type of joint specified.
- B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.
 1. Comply with AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings" for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
 2. Field welds on galvanized members shall be coated as specified in Section 3.2.E.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: The Owner will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections as specified in 01 45 00 Quality Control and defined herein.
- B. Bolted connections will be inspected according to RCSC's "Specification for Structural Joints Using ASTM A325 or A490 Bolts."
- C. Welded Connections:
 1. Welding inspector shall be AWS certified (CWI), qualified and certified in accordance with provisions of AWS QCI, Standard for Qualification and Certification of Welding Inspectors.
 2. All welds shall be visually inspected according to AWS D1.1 for conformance to size, location, and type specified on Drawings.
 3. All complete penetration welds shall be inspected by ultrasonic testing in accordance with ASTM E164, or radiographic testing.
 4. In addition to visual inspection, field welds shall be tested according to AWS D1.1 and the following inspection procedures, at testing agency's option:
 - a. Liquid Penetrant Inspection: ASTM E165.
 - b. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E164.
 - d. Radiographic Inspection: ASTM E94.
 5. Welds found to be unacceptable shall be re-welded and re-inspected until required quality has been attained.
- D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

END OF SECTION