FDA IRVINE

SEISMIC DESIGN

PROJECT IDENTIFICATION

REGION: CO
DIVISION: GSA OFFICE OF DESIGN & CONSTRUCTION / SPECIAL PROGRAMS DIVISION
BUILDING NAME: SOUTHWEST PACIFIC LABORATORY
ADDRESS: 19701 FAIRCHILD RD IRVINE, CA 92612
CONTRACTING OFFICER: JOHN WOODS
PROJECT MANAGER: DEMIAN GO P.E.

PROJECT SUMMARY: CONCRETE CRACK REPAIR TO RESTORE APPEARANCE AND WEATHER TIGHTNESS OF CONCRETE WALLS, CONCRETE SLAB ON GRADE, AND CONCRETE COLUMNS. LIMITED FLOOR FINISH REPAIRS ARE ANTICIPATED. INTERIOR CRACK REPAIRS ARE AESTHETIC ONLY, AND LIMITED TO VISIBLE AND ACCESSIBLE CRACKS. CONCRETE CRACKS OBSERVED ARE NON-STRUCTURAL, AND STRUCTURAL CRACK REPAIR IS NOT ANTICIPATED (REFER TO ALLOWANCES). GENERAL SCOPE IS INDICATED ON THE DRAWINGS. ALL EXTERIOR BUILDING CONCRETE CRACKS VISIBLE FROM 3' AWAY AND LONGER THAN 24" ARE TO BE REPAIRED.

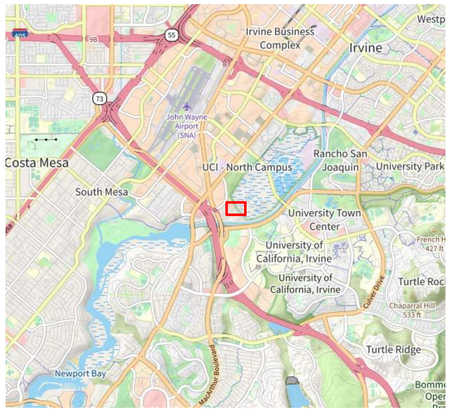
IFC SET

AUGUST 01, 2025

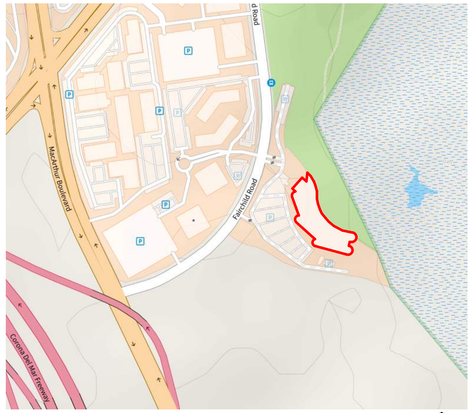
The Miller Hull Partnership, LLP
POINT LOMA MARINA 4980 NORTH HARBOR DRIVE, SUITE 100 SAN DIEGO, CA 92106

SHEET INDEX

NO.	SHEET NAME
A001	LEGENDS, NOTES & ABBREVIATIONS
A101	BASEMENT - FLOOR PLAN
A111	LEVEL 1 - FLOOR PLAN
A121	LEVEL 2 - FLOOR PLAN
A200	EXTERIOR ELEVATIONS
A600	CRACK IMAGES
A601	CRACK IMAGES
A602	CRACK IMAGES
A603	CRACK IMAGES
A604	CRACK IMAGES
A605	DETAILS



VICINITY MAP



LOCATION MAP

ABBREVIATIONS

NOTE: ABBREVIATIONS NOTED IN THE DRAWINGS THAT ARE FOLLOWED BY A MODIFIER SUCH AS "-1", "-A" ARE FURTHER DEFINED IN THE SPECIFICATIONS SECTION ASSOCIATED WITH THE MATERIAL OR SYSTEM ASSEMBY AS NOTED. REFERENCE FINISH LEGEND A070

RCP	REFLECTED CEILING PLAN
ABV	ABOVE
ACIP	ARCHITECTURAL CAST-IN-PLACE CONCRETE
ADJ	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
AL	ALUMINUM
ALT	ALTERNATE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL (TECT)
AV	AUDIO VISUAL
AVG	AVERAGE
BLDG	BUILDING
BO	BOTTOM OF
C	COLUMN
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONT	CONTINUOUS
CTR	CENTER
CW	CURTAIN WALL, COLD WATER
D	DEPTH
DBL	DOUBLE
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
DWR	DRAWER
(E)	EXISTING
EA	EACH
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EQ	EQUAL
EW	EXTERIOR WALL
EXT	EXTERIOR
F	FLOOR
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FAPB	FIRE ALARM PULL BOX
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FEC	FIRE EXTINGUISHER CABINET
FEXT	FIRE EXTINGUISHER
FF	FINISHED FLOOR
FHC	FIRE HOSE CABINET
FIN	FINISH
FO	FACE OF
FOF	FACE OF FINISH
FOIC	FURNISHED BY OWNER INSTALLED BY CONTRACTOR
FOIO	FURNISHED BY OWNER INSTALLED BY OWNER
FRT	FIRE RETARDENT TREATED (INTERIOR)
FS	FIRE SPRINKLER
FT	FOOT, FEET
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFRC	GLASS FIBER REINFORCED CONCRETE
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
HDW	HARDWARE
HM	HOLLOW METAL
HO	HOLD OPEN
HORIZ	HORIZONTAL
HR	HOUR
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
HVAC	HEATING/VENTILATION/AIR CONDITIONING
HW	HOT WATER
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IN	INCH(ES)
INCL	INCLUDE(D), INCLUDING, INCLUSIVE
INSUL	INSULATION
INT	INTERIOR
IW	INTERIOR WALL
JAN	JANITOR
K	100 POUNDS (KIP)
KSI	KIPS PER SQUARE INCH
KW	KILOWATTS
L	ANGLE STEEL MEMBER
LAB	LABORATORY
LAV	LAVATORY
LB	POUND(S)
LF	LINEAR FEET
LH	LEFT HAND
LIN	LINEAL
MAX	MAXIMUM
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEZZ	MEZZANINE
MIN	MINIMUM, MINUTE(S)
MISC	MISCELLANEOUS
N	NORTH
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
OTS	OPEN TO STRUCTURE
PCF	POUNDS PER CUBIC FOOT
PERF	PERFORATE(D)
PL	PLATE
PNT	PAINT
PREFAB	PREABRICATED
PREFIN	PREFINISHED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT, POST TENSIONED, PRESSURE TREATED
QTY	QUANTITY
REBAR	REINFORCING BAR
REF	REFERENCE
REQD	REQUIRED
REV	REVISED, REVISION
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT-OF-WAY
RR	RESTROOM
S	SOUTH
SAM	SELF ADHERED MEMBRANE
SCHED	SCHEDULE
SECT	SECTION
SF	SQUARE FOOT
SIM	SIMILAR
SOG	SLAB-ON-GRADE
SPEC	SPECIFICATION
SS	STAINLESS STEEL
ST	STAIR, STREET
STC	SOUND TRANSMISSION CLASS
STOR	STORAGE
STRUCT	STRUCTURE (AL)
TEL	TELEPHONE
TEMP	TEMPORARY, TEMPERATURE
TO	TOP OF
TOC	TOP OF CONCRETE
TOP	TOP OF PARAPET
TOPO	TOPOGRAPHIC MAP
TOS	TOP OF STEEL, TOP OF SLAB
TPO	THERMOPLASTIC POLYOLEFIN
TYP	TYPICAL
UL	UNDERWRITER'S LABORATORY
UNO	UNLESS NOTED OTHERWISE
UV	ULTRAVIOLET
V	VOLT
VERT	VERTICAL
VG	VERTICAL GRAIN
VIF	VERIFY IN FIELD
VOL	VOLUME
VTR	VENT THROUGH ROOF
W	WEST, WIDE
WC	WATER CLOSET
WRB	WEATHER RESISTIVE BARRIER

SYMBOLS LEGEND

GRAPHIC DRAWING SCALE (0' 4' 8' 16')

1 / A201 — **View Title** — 1/8" = 1'-0" — DRAWING NUMBER & TITLE

1 / A101 | A201 — **View Title** — 1/8" = 1'-0" — DRAWING NUMBER, REFERENCE SHEET & TITLE

TRUE NORTH — NORTH ARROW

1 / A101 SIM. — DETAIL NUMBER OVER SHEET NUMBER

1 / A211 — 1 / A211 — BUILDING SECTION

1 / A301 — WALL SECTION

2 / A201 — EXTERIOR ELEVATION

4 / 2 / A201 — INTERIOR ELEVATION

OFFICE 101 — ROOM IDENTIFICATION

ABOVE, BELOW OR HIDDEN

1 — A — GRID LINE

/ AA — CONCRETE CRACK PHOTO ID
CONCRETE ELEMENT

CONCRETE ELEMENTS
IW: INTERIOR WALL
EW: EXTERIOR WALL
C: COLUMN
F: FLOOR

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GSA

FDA U.S. FOOD & DRUG ADMINISTRATION

STAMP

LICENSED ARCHITECT ROBERT P. MISER 37438 REN. 1/31/27 STATE OF CALIFORNIA

KEY PLAN

FDA IRVINE
SEISMIC DESIGN

SUBMITTAL

IFC SET

AUGUST 01,2025

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SHEET

LEGENDS, NOTES & ABBREVIATIONS
A001

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1 A101 **BASEMENT FLOOR PLAN**

1" = 20'-0"

0' 4' 8' 16'

GENERAL NOTES

1. CRACK IMAGES ARE FOR GENERAL REFERENCE. SCOPE INCLUDES ALL AREAS INDICATED IN ADDITION TO LOCATION PHOTOGRAPHED. SEE SHEETS A600-A604 FOR KEYED PHOTOGRAPHS

REPAIR TYPE LEGEND

- ## AA — CONCRETE CRACK PHOTO ID
- **IW:** CRACK REPAIR, INTERIOR WALL. SEE SPECIFICATION FOR REPAIR PROCEDURES.
- **EW:** CRACK REPAIR, EXTERIOR WALL. SEE SPECIFICATION FOR REPAIR PROCEDURES.
- **C:** CRACK REPAIR, INTERIOR COLUMN. SEE SPECIFICATION FOR REPAIR PROCEDURES.
- **F:** CRACK REPAIR, CONCRETE FLOOR. SEE SPECIFICATION FOR REPAIR PROCEDURES.
- **F:** CRACK REPAIR, RESILIENT FLOOR. SEE SPECIFICATION FOR REPAIR PROCEDURES.
- **F:** EXISTING CONTROL JOINTS IN VCT, NO WORK ANTICIPATED UNLESS VERTICAL DISPLACMENT IS GREATER THAN 1/8"
- INDICATES GENERAL LOCATIONS OF CRACKS OBSERVED ON SITE. NOT INTENDED TO BE COMPREHENSIVE OF THE ENTIRE SCOPE. CONTRACTOR MUST FIELD VERIFY ALL CONDITIONS.
- *EXISTING BUILDING SIESMIC JOINT - FOR REFERNCE ONLY

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KEY PLAN

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BASEMENT - FLOOR PLAN

A101

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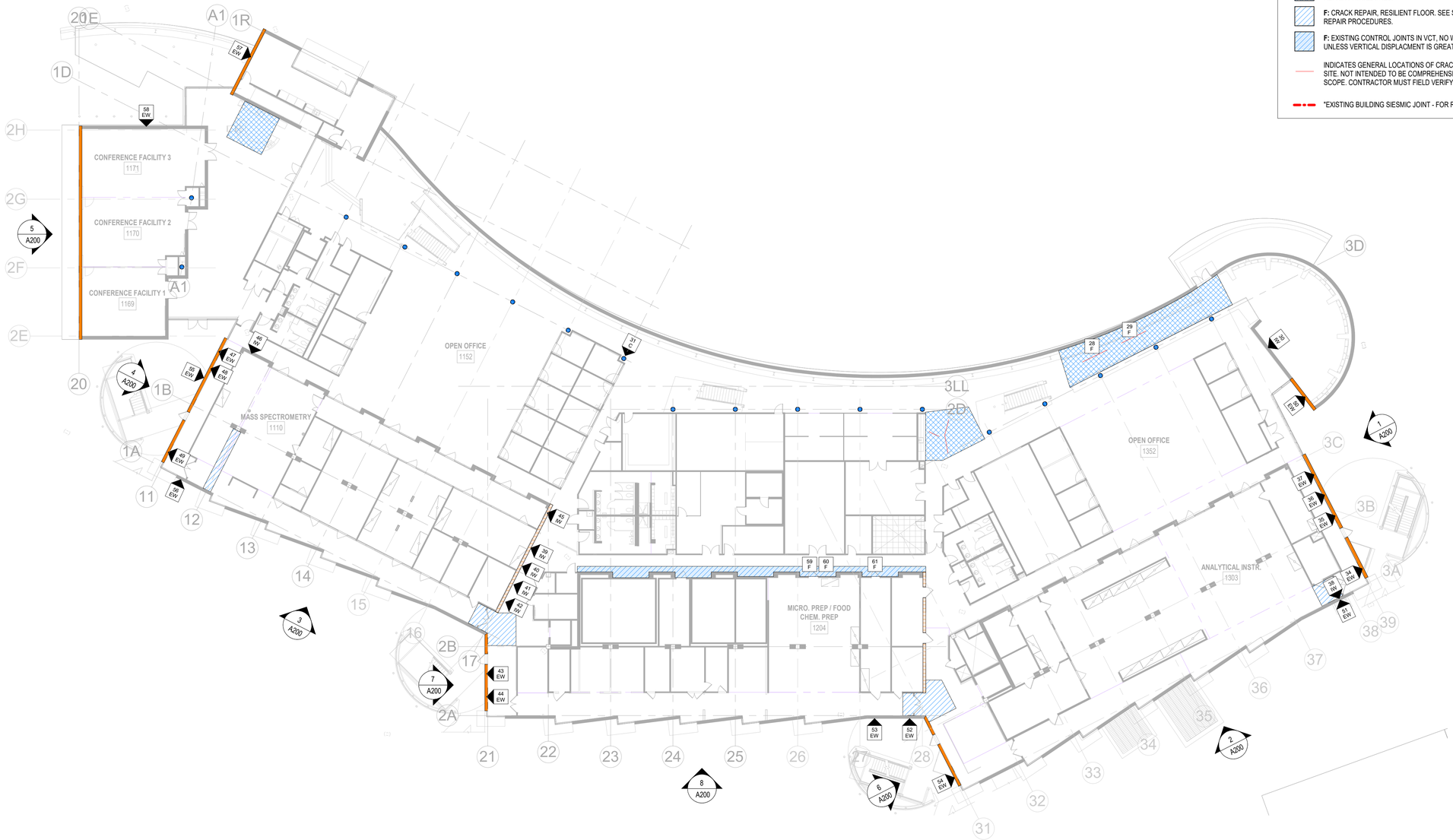
- *EXISTING BUILDING SIESMIC JOINT - FOR REFERNCE ONLY



1 A111 LEVEL 1 FLOOR PLAN

1" = 20'-0"

0' 4' 8' 16'

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LEVEL 1 - FLOOR PLAN

A111

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GENERAL NOTES

1. CRACK IMAGES ARE FOR GENERAL REFERENCE. SCOPE INCLUDES ALL AREAS INDICATED IN ADDITION TO LOCATION PHOTOGRAPHED. SEE SHEETS A600-A604 FOR KEYED PHOTOGRAPHS

REPAIR TYPE LEGEND

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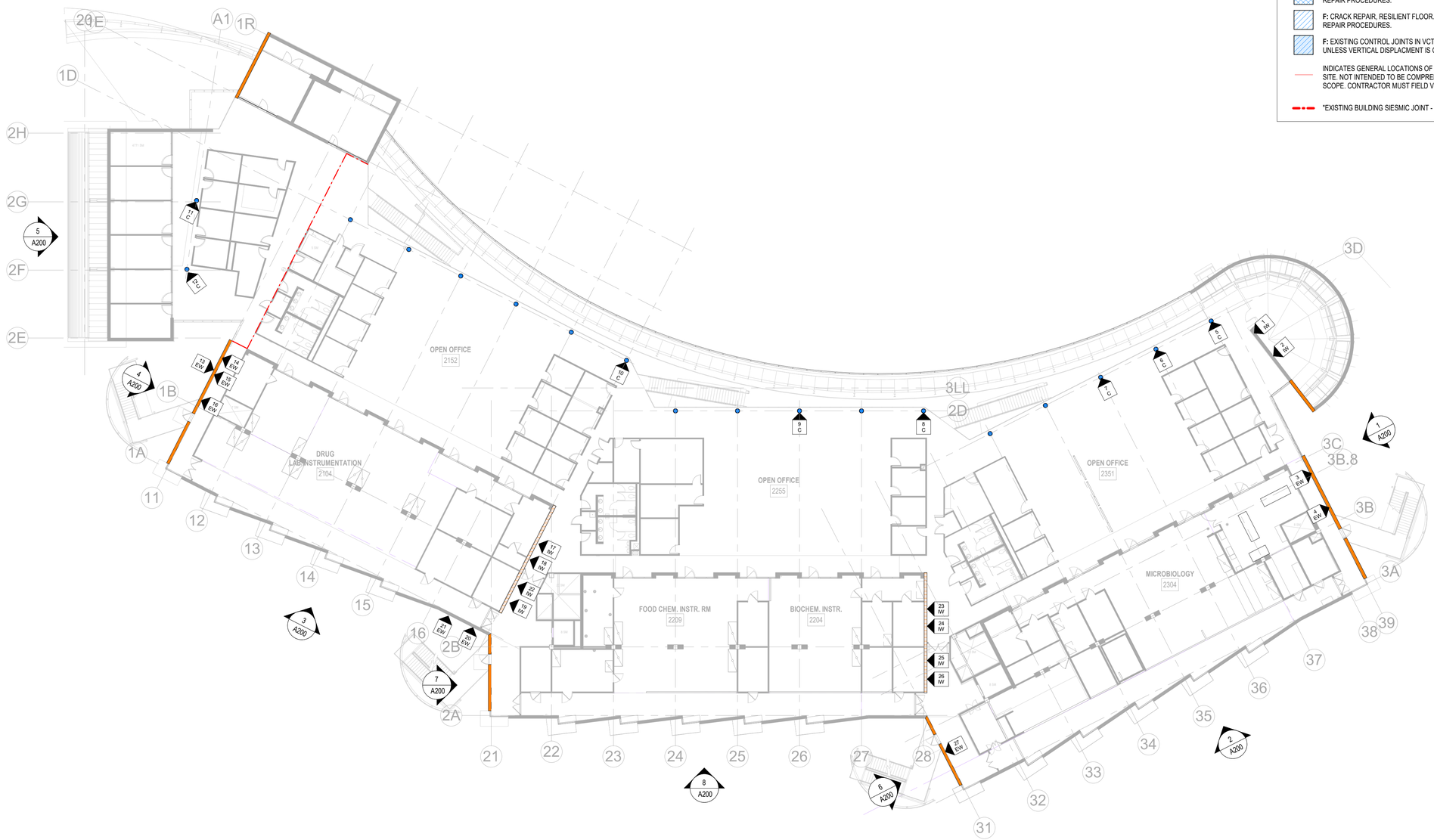
- *EXISTING BUILDING SIESMIC JOINT - FOR REFERNCE ONLY



1 A121 **LEVEL 2 FLOOR PLAN**
1" = 20'-0"

0' 4' 8' 16'

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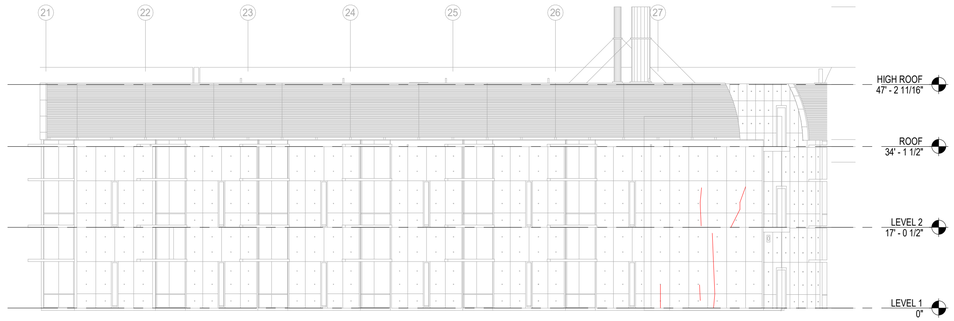
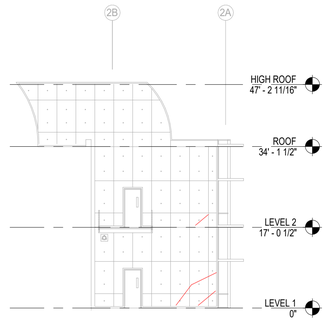
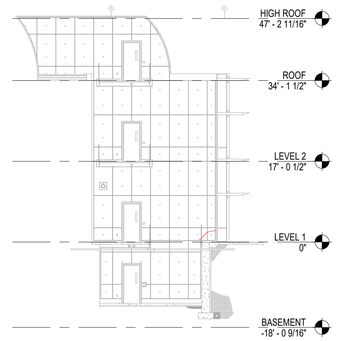
LEVEL 2 - FLOOR PLAN
A121



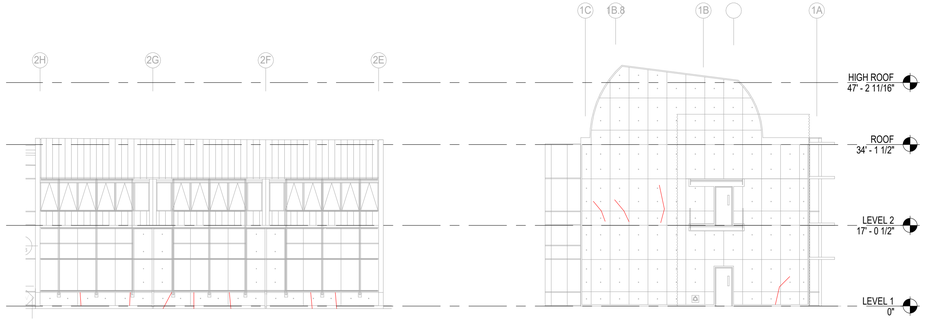
8 A200 **SOUTH ELEVATION - WING 02**
1/16" = 1'-0"



7 A200 **WEST ELEVATION - WING 02**
1/16" = 1'-0"

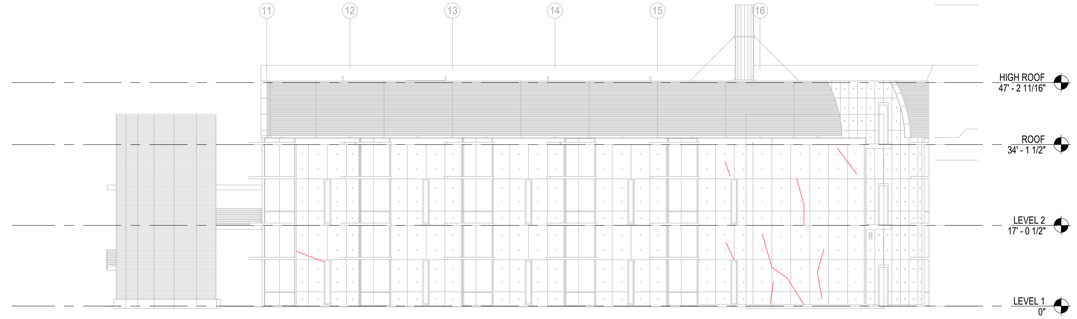


6 A200 **WEST ELEVATION - WING 03**
1/16" = 1'-0"



5 A200 **WEST ELEVATION - ADMIN**
1/16" = 1'-0"

4 A200 **WEST ELEVATION - WING 01**
1/16" = 1'-0"



3 A200 **SOUTH ELEVATION - WING 01**
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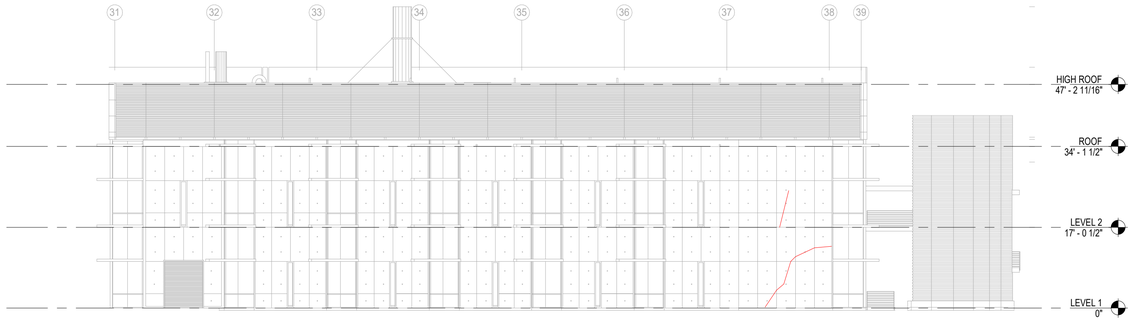
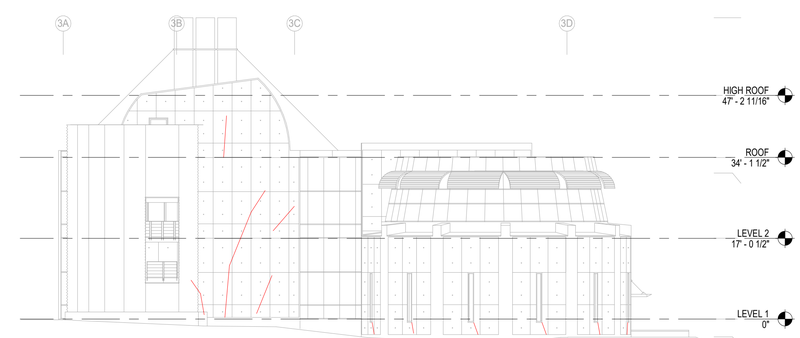


2 A200 **SOUTH ELEVATION - WING 03**
1/16" = 1'-0"



1 A200 **EAST ELEVATION**
1/16" = 1'-0"

0' 8' 16' 32'

GENERAL NOTES

1. SEE PLANS FOR MORE INFORMATION ON CRACK IMAGE LOCATIONS AND PHOTO TAGGING

REPAIR TYPE LEGEND

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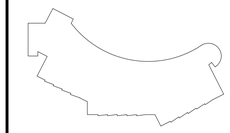
KEY PLAN



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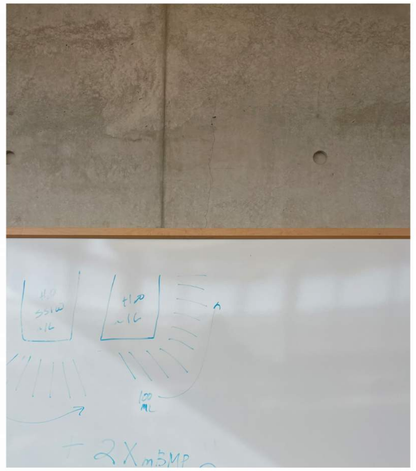
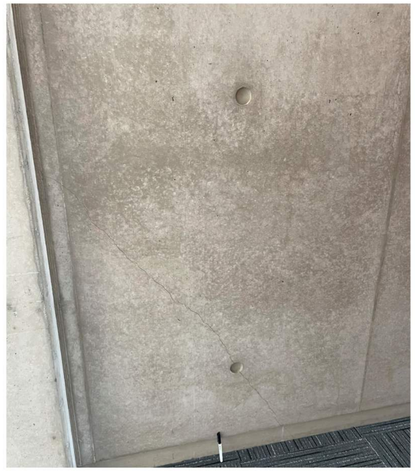
EXTERIOR ELEVATIONS
A200

01 IW

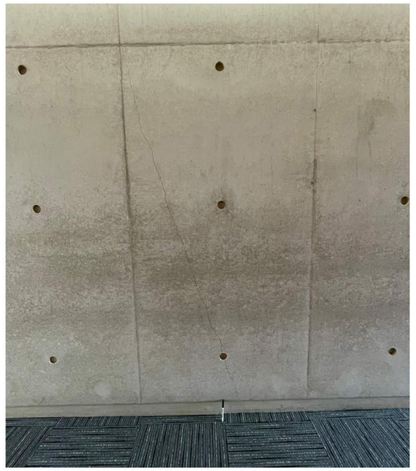
02 IW



02 IW



03 IW



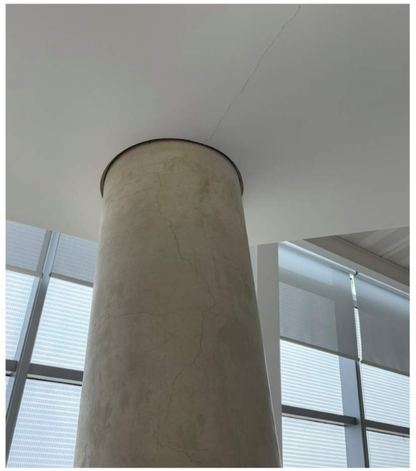
04 IW

04 IW

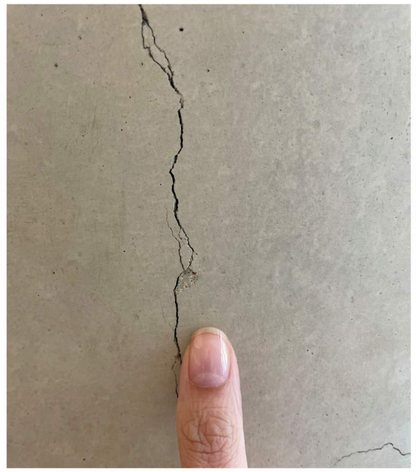
05 C

06 C

07 C



08 C



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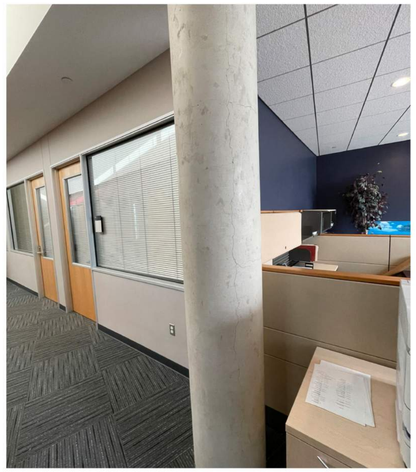
10 C

11 C



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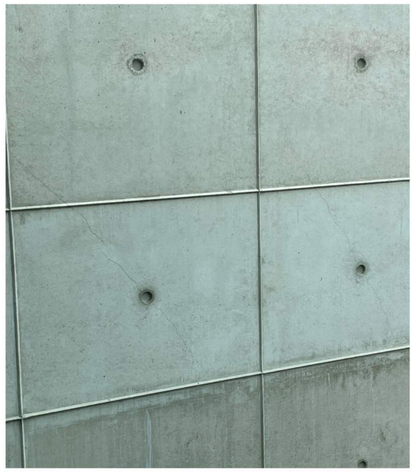

13 EW

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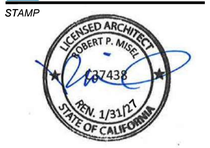
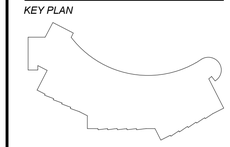


KEY PLAN



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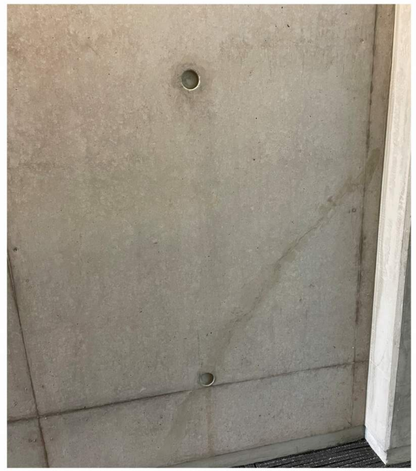
CRACK IMAGES

A600



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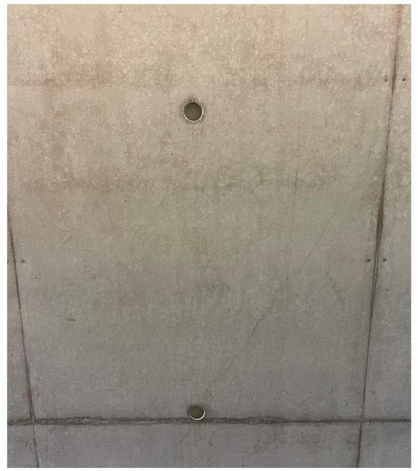

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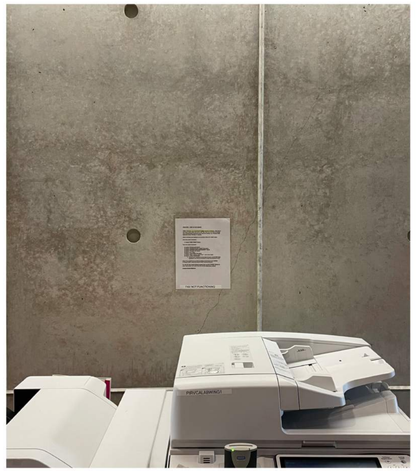

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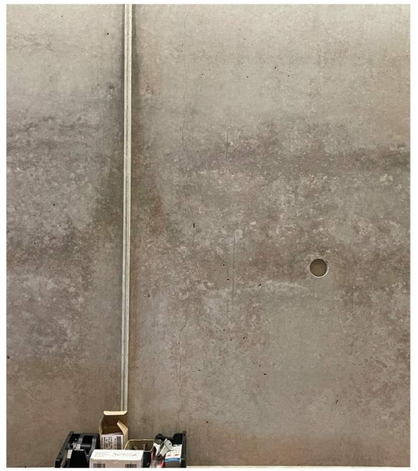

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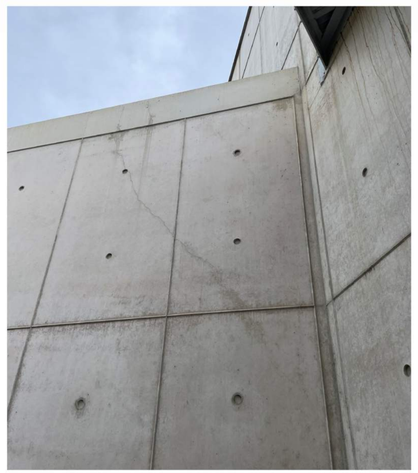

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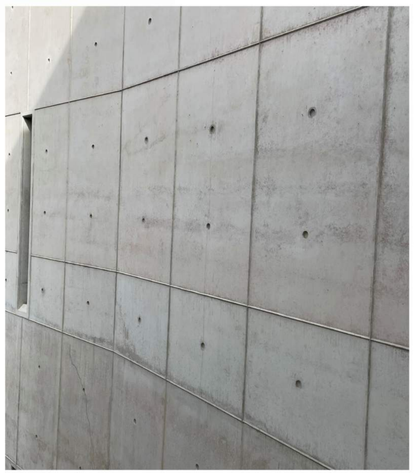

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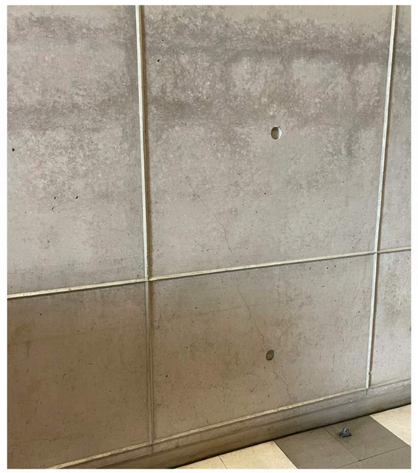

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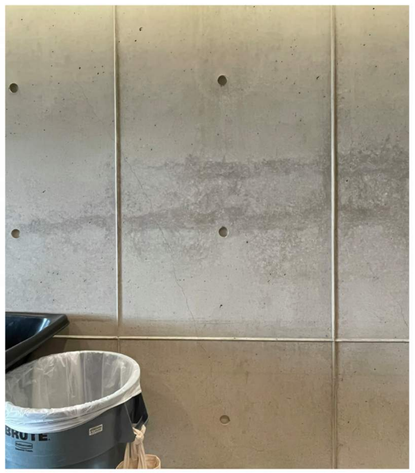

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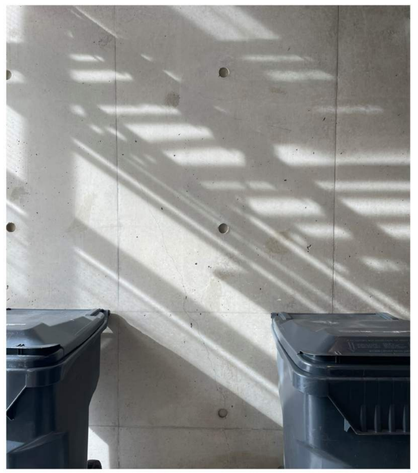

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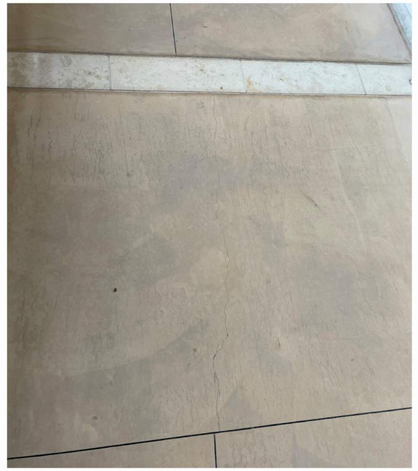

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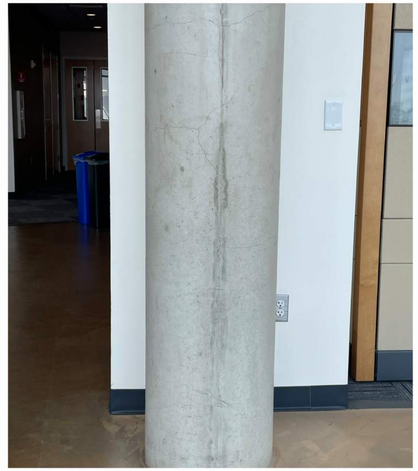

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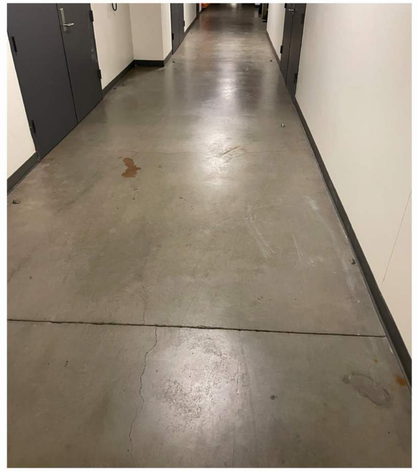

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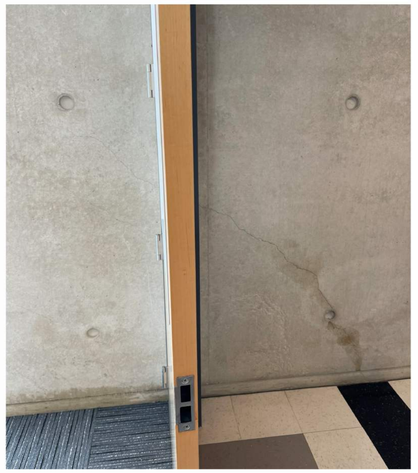

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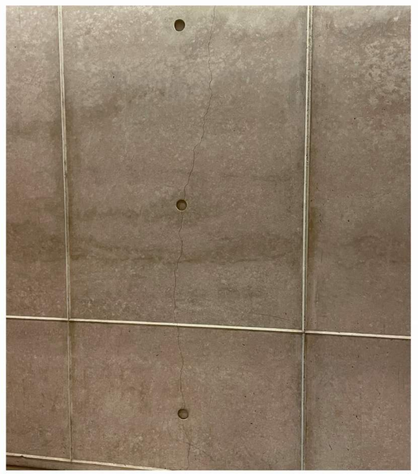

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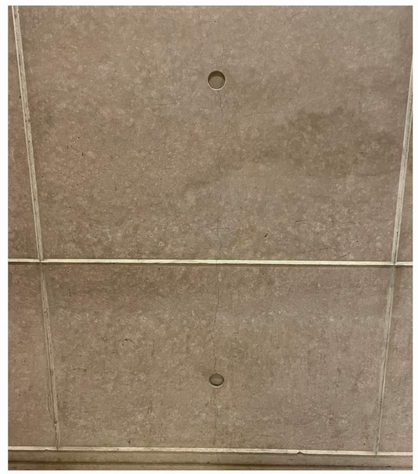

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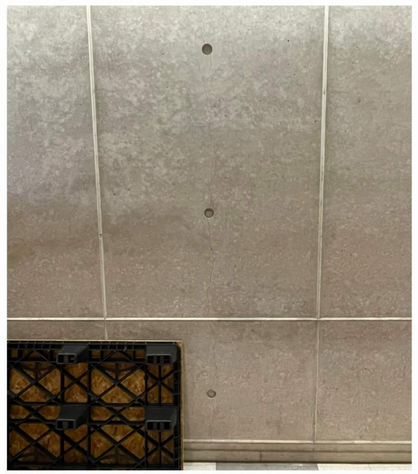

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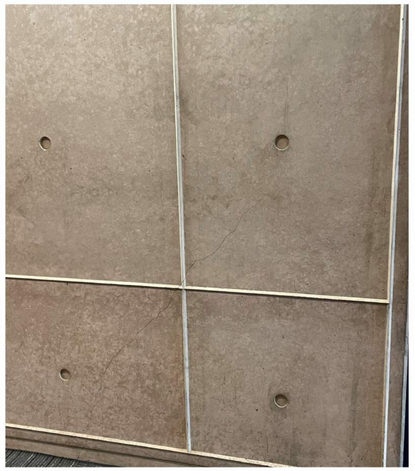

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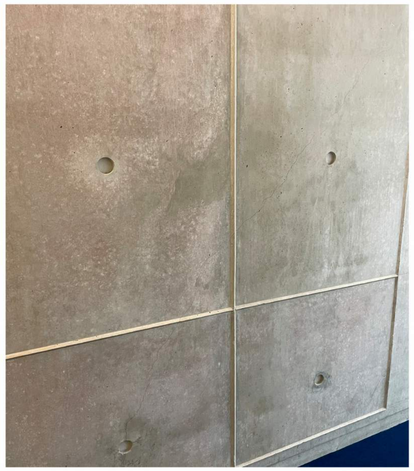

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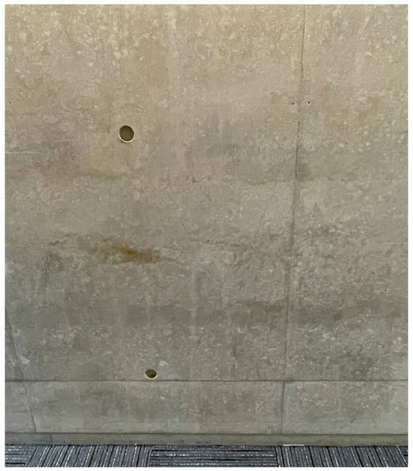

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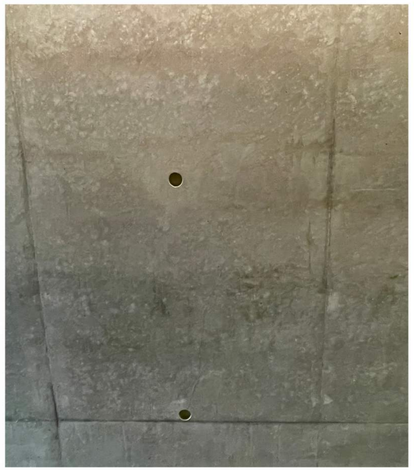

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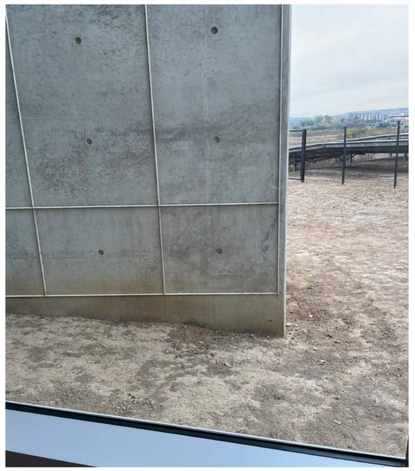

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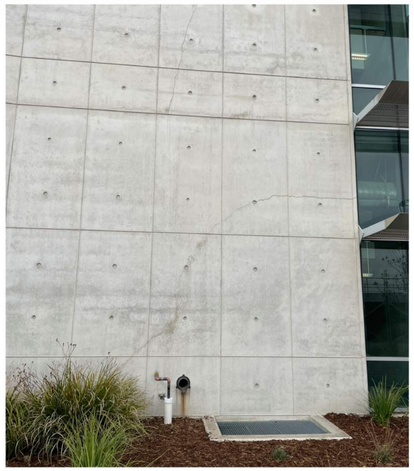

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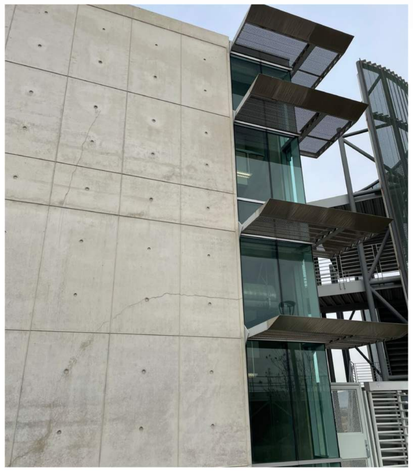

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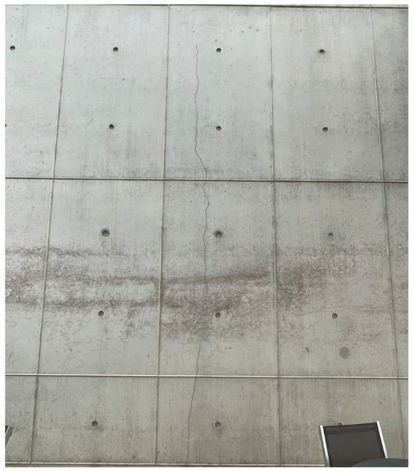

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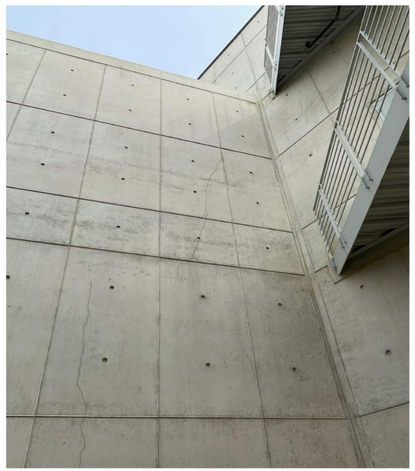

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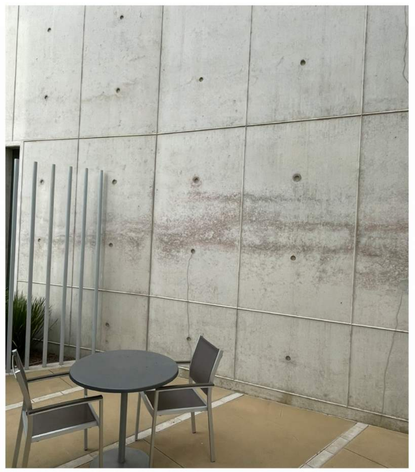

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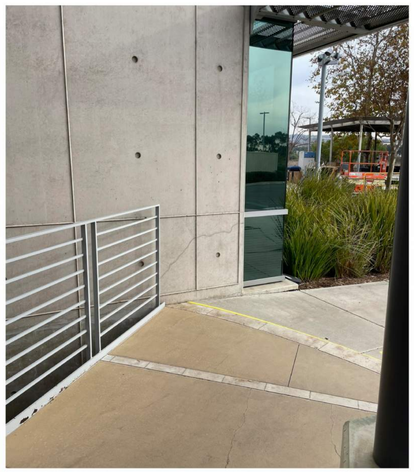

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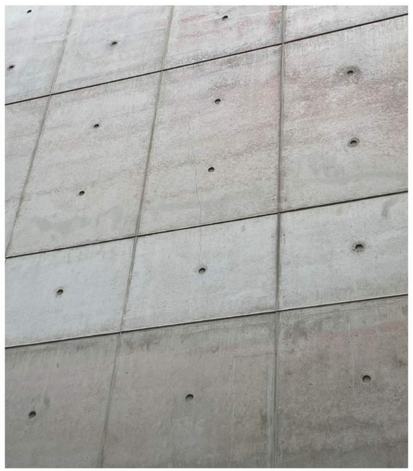

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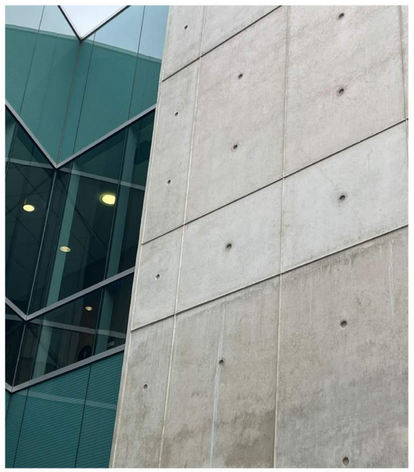

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ROBERT P. MISER
C37438
REN. 1/31/27
STATE OF CALIFORNIA

KEY PLAN

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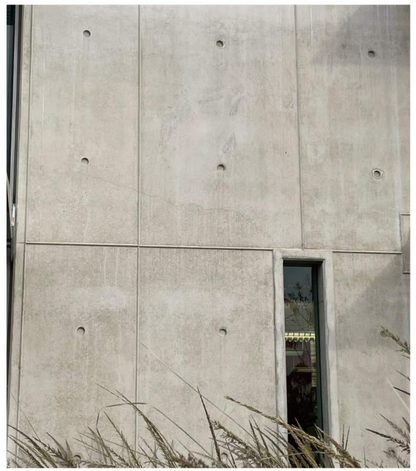

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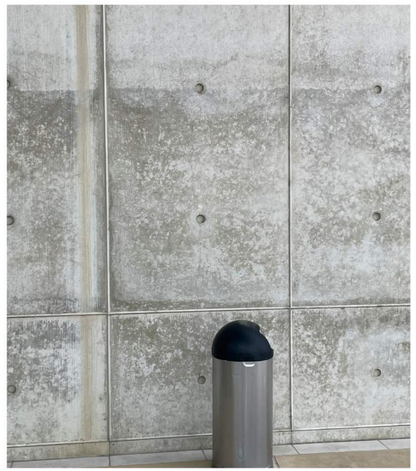

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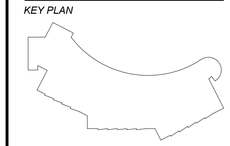

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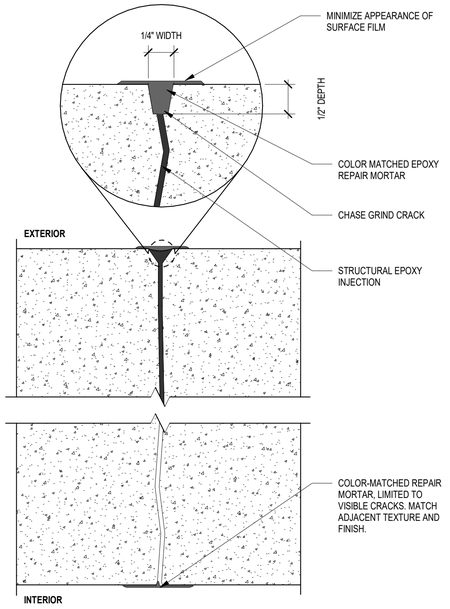
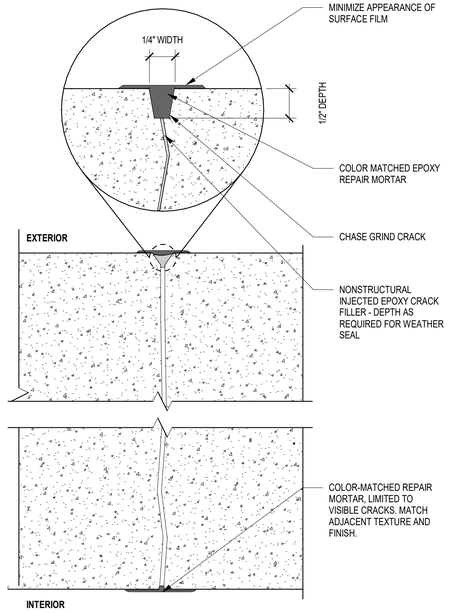


2 A605 **EXTERIOR STRUCTURAL CRACK REPAIR**

6" = 1'-0"



1 A605 **EXTERIOR NON STRUCTURAL CRACK REPAIR**

6" = 1'-0"

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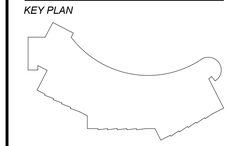

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DETAILS
A605

U.S. Food and Drug Administration
IRV Building Seismic Retrofit Design

19701 Fairchild Road, Irvine, CA 92612
GSA Contract # 47PA0324F0017

Project Manual

IFC Set, August 01, 2025

U. S. General Services Administration

U.S. Food and Drug Administration

Point Loma Marina • 4980 N. Harbor Drive, Suite 100 • San Diego, CA 92106

SECTION 00 01 07 - SEALS PAGE

THE PROFESSIONAL SEALS AND SIGNATURES AFFIXED HEREON INDICATE THE PROFESSIONALS' REVIEW AND PARTICIPATION IN THE PREPARATION OF THE CONTRACT SPECIFICATIONS AND U. S. GENERAL SERVICES ADMINISTRATION (GSA) AND U. S. FOOD AND DRUG ADMINISTRATION (FDA) GENERAL REQUIREMENTS.

1.1 ARCHITECTURAL (MILLER HULL)

A. Sections: 011000, 011400, 012500, 012600, 013000, 013100, 013200, 013300, 014000, 014200, 015000, 015950, 016000, 017000, 017310, 017320, 01 017350,017410, 017419, 017700, 017810, 018200, 030100, .

END OF SECTION 00 0107 - SEALS PAGE

SECTION 00 01 10 - TABLE OF CONTENTS

PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

00 01 07 - Seals Page

00 01 10 - Table of Contents

SPECIFICATIONS

DIVISION 01 -- GENERAL REQUIREMENTS

01 10 00 - Summary

01 14 00 - Work Restrictions

01 25 00 - Substitution Procedures

01 26 00 - Contract Clarification and Modification Procedures

01 30 00 - Project Management Information System (PMIS)

01 31 00 - Project Management and Coordination

01 32 00 - Construction Progress Documentation

01 33 00 - Submittal Procedures

01 40 00 - Quality Assurance & Control Requirements

01 42 00 - General References

01 50 00 - Temporary Facilities and Controls

01 59 50 - Safety and Health

01 60 00 - Product Requirements

01 70 00 - Execution Requirements

01 73 10 - Cutting and Patching

01 73 20 - Selective Demolition

01 74 10 - Construction Indoor Air Quality (IAQ) Management

01 74 19 - Construction Nonhazardous Waste Management and Disposal

01 77 00 - Closeout Procedures

01 78 10 - Project Record Documents

01 82 00 - Demonstration and Training

DIVISION 02 -- EXISTING CONDITIONS (NOT USED)

DIVISION 03 -- CONCRETE

03 01 00 - Maintenance of Concrete

DIVISION 04 THROUGH 33 (NOT USED)

APPENDICES

Appendix A - Phase 2 Report-Detailed Seismic Assessment and Nonstructural Tier 1

END OF SECTION

SECTION 01 10 00 - SUMMARY

PART 1 GENERAL

1.1 PROJECT INFORMATION

A. Project Name and Location:

1. FDA Irvine Facility Upgrades Project, located at SW Pacific Regional Laboratory, located in the FDA owned and operated building at 19701 Fairchild in Irvine, CA. Building is 145,967 GSF and comprised of three (3) wings with two (2) floors per wing and a partial basement.

B. Project Summary Description:

1. General scope is indicated on the Drawings.

2. Project consists of the following exterior and interior repairs:

a. Exterior: Repair of all exterior concrete cracks part of the building envelope visible from 3 feet away and longer than 24 inches.
b. Interior:
1) Repair of all visible and accessible interior cracks in concrete walls and columns
2) Repair of all visible and accessible cracks in concrete slab.
3) Replacement of damaged resilient flooring at cracked slab locations.

3. Concrete cracks observed are non-structural, and structural crack repair is not anticipated. Refer to Section 01 21 00 - Allowances if structural crack repairs are required.

C. Architect/Engineer of Record (A/E)

1. The Miller Hull Partnership

D. Project Delivery Method:

1. Design Bid Build

E. Commissioning Provider (CxP)

1. TBD

F. Construction Manager as Constructor (CMc)

1. TBD

G. GSA Contracting Officer

1. John Woods

H. GSA Project Manager

1. Demian Go

1.2 WORK BY OTHER CONTRACTORS

A. The Contractor shall cooperate with government operations at the site which cannot be shut down for construction, including providing labor, materials and other costs necessary to satisfactorily coordinate the Contract work with tenant operations.

1.3 MISCELLANEOUS PROVISIONS

A. Work in existing facilities shall correspond in all respects with the existing conditions to which it connects, or to similar existing conditions, in materials, workmanship and finish.

B. Alterations to Existing Conditions: Existing conditions shall be cut, drilled, removed, temporarily removed, or removed and replaced, as necessary for performance of Work under the Contract and in conformance with Health and Safety requirements outlined in section 015950 - Safety and Health. Work out of alignment where exposed by removal of existing work shall be called to the attention of GSA. Necessary corrective work shall be as directed.

C. Existing structures will remain in place.

D. Existing utility services with related meters and equipment will remain in place.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01 14 00 - WORK RESTRICTIONS

PART 1 GENERAL

1.1 CONTRACTOR USE OF PREMISES

A. The Contractor shall submit a Site Logistics plan, Accident Prevention Plan, and Quality Control Plan to the CO for review and approval before issuance of the NTP. At a Minimum the Site Logistics Plan shall contain a written and illustrated document that addresses the following sections.

1. Document Existing Conditions surrounding the project premises

B. The Contractor will review and document the existing conditions surrounding the project premises. Provide documentation to FDA prior to the commencement of any construction activity.

C. The Contractor shall limit use of the premises to the work in areas indicated, and to allow for Government occupancy and public use.

1. Confine operations at the site to areas indicated in plans. Do not disturb facility and propertyions of the site beyond the areas in which Work is indicated.

2. Keep driveways and entrances serving the premises clear and available at all times to the Government, Government employees and to visitors. Do not use these areas for parking or storage of materials.

3. Schedule deliveries to minimize space and time requirements for storage of material and equipment on site. Note that there is no location available within the building for storage of materials.

4. Maintain facility operations in a safe and functional condition throughout the construction period. Repair damage caused by construction operations to the satisfaction of the government. Take precautions to protect the facility, its occupants and the public during the construction period. A representative of the Contractor shall be available to arrive on site within one (1) hour of notice should an emergency occur.

5. Keep active roadways and work areas free from accumulation of waste material, rubbish, construction debris and construction materials.

6. Use of the existing site access will be shared with Government activities on a first-come-first-served, wait-your-turn basis. The loading dock is available for the delivery of materials, tools, and supplies between 6 AM and 4 PM.

7. Existing materials and equipment that are removed as part of the construction operations, and that are not reused or designated to be salvaged as Government property, shall become the property of the Contractor and shall be removed from the site. Storage or sale of excess salvageable materials and equipment is not permitted on site.

8. Pollution producing equipment shall not be located near air intakes where airborne smoke or fumes could be drawn into buildings. When not required for powering unloading operations, turn off engines when parked.

9. The contractor shall submit a silica work exposure plan that must be sufficient to minimize the release of visible dust and minimize the accumulation of visible airborne dust before commencing construction activities.

10. Smoking is not permitted in or around buildings, see Facilities Management Regulation (FMR) Case 2008-102—3. Also see Code of Federal Regulations (CFR) 41 CFR Part 102-74.

11. Tobacco use is not permitted anywhere within the property (area within the black fencing). This includes, but is not limited to, cigarettes, cigars, vape, smokeless tobacco, etc.

12. Limited parking will be available on site during working hours for building occupants. The Contractor and Contractor's employees shall make their own arrangements for vehicle parking off site as necessary.

13. Cell Phones: Contractor is to provide company cell phones during this contract. Cell phones are only permitted in construction areas and contractor's office space.

14. No apparatus with an open flame is allowed to be used within the facility or property without the prior receipt of a burn permit. Contact the Field Office to obtain burn permits. Burn permits are required for each separate occurrence.

15. Permits: Refer to FAR 52.236-7

16. The work shall be sequenced to minimize disruption to facility operations, visitors, and maintenance activities. To the greatest extent feasible, demolition work should not take place until supplies are on hand to perform new work.

17. Coordinate with the FDA Building Manager and the COR for site access.

18. Coordinate with the FDA Building Manager and the COR on correct response procedures for any building system alarms occurring during or resulting from the construction process.

19. All facility systems outside the immediate construction area shall be kept fully operational during normal working hours.

20. Coordinate with the FDA building manager as to the use of cameras within the laboratory faclilities.

1.2 GOVERNMENT OCCUPANCY

A. The FDA will occupy the site during the entire period of construction. Cooperate with the FDA's representatives during construction operations to minimize conflicts, mitigate noise, and facilitate Government usage. Perform the Work in a manner that does not interfere with FDA operations.

B. FDA reserves the right to occupy, place, and install equipment in completed areas of the construction prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. The FDA's installation of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. Upon occupancy, FDA will assume responsibility for maintenance and custodial service for the occupied portions of the work site.

1.3 WORKING HOURS

A. Government Occupied Hours: Government personnel are scheduled to occupy the building during the following hours on weekdays, Monday through Friday, except for established Government Holidays; typically 6 AM to 4 PM.

B. Government Unoccupied Hours: Government personnel are not scheduled to occupy the building during times not indicated as Government Occupied Hours.

C. Contractor's General Working Hours: The Contractor working hours shall be generally established to occur during Government Occupied Hours. Any work which may require outages of systems that impact laboratory operations is preferred to occur after hours or during weekends.

D. Contractor's Required Working Hours: The following work shall be performed during Government Unoccupied Hours:

1. Noisy, vibration, and/or odor-producing work that may disrupt FDA operations must be approved a minimum of 7 days in advance.

E. Work accomplished during Government Unoccupied Hours shall be performed at no additional cost to the Government. Contractor shall submit a proposed schedule and gain the Contracting Officer's approval at least 3 days before proceeding with any work during Government Unoccupied Hours.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The Government is providing the references included in this subsection for information purposes only and is not intended to provide a comprehensive, all-inclusive list of any and all potentially relevant portions of the Contract Documents. Drawings and general provisions of the Contract and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Sections:

1. GSA 01 60 00 PRODUCT REQUIREMENTS for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Proposed changes to the Contract Documents by the Contractor for products, materials, equipment, and methods of construction.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms

2. Substitutions for Convenience: Changes proposed by Contractor or GSA that are not required in order to meet other Project requirements but may offer advantage to Contractor or GSA

1.4 SUBMITTALS FOR CAUSE OR CONVENIENCE:

A. Substitution Requests: Per Submittal Procedures GSA 01 33 00 SUBMITTAL PROCEDURES submit electronic copies through PMIS of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form:

2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Government and separate contractors that will be necessary to accommodate proposed substitution.
b. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, energy and resource performance goals, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

c. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
d. Samples, where applicable or requested.
e. Certificates and qualification data, where applicable or requested.
f. List of similar installations for completed projects with project name, location and contact information of owner and architect/engineer of record.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research reports evidencing compliance with building code in effect for the project, when applicable for the proposed substitution.
i. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery. Provide a schedule fragnet with a time impact analysis to allow the Government to consider the proposed substitution.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Proposed substitution complies with requirements in the Contract Documents except as indicated in the substitution request, is compatible with related materials, and is appropriate for applications indicated.
l. The Contracting Officer may require the Contractor to provide a contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. The Contracting Officer or Contracting Officer's Representative (CO) or (COR) Action: If necessary, the Contracting Officer or COR will request additional information or documentation for evaluation. The Contractor shall be entitled to receive notice of action on submittals within a reasonable time, given the volume or complexity of the submittals and the criticality of the affected activities to Substantial Completion as may be indicated in the Project Schedule. The Contractor shall not be entitled to receive notice of action on submittals containing variations from Contract requirements in less than twenty working days. (Coordinate with 013300 Submittals).

B. Failure by the government to respond does not constitute acceptance of the proposed substitution.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agencies to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: The Contracting Officer (CO) will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, the CO will return requests without action, except to record noncompliance with these requirements:

    a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    b. Substitution request is fully documented and properly submitted.
    c. If requested substitution involves schedule impact Contractor has identified time impact and a mitigation plan.
    d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    e. Requested substitution is compatible with other portions of the Work.
    f. Requested substitution has been coordinated with other portions of the Work.
    g. Requested substitution provides specified warranty.
    h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience the contracting Officer (CO) will consider requests for substitution if received within 30 days of contract award, submittals received after that time may be considered or rejected at discretion of the CO or the COR.

1. Conditions: The CO will consider Contractor's request for substitution when the following conditions are satisfied.

    a. Requested substitution offers the Government a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional obligations the Government incurs..
    b. Requested substitution does not require extensive revisions to the Contract Documents.
    c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    d. Substitution request is fully documented and properly submitted.
    e. Requested substitution has received necessary approvals of authorities having jurisdiction.
    f. Requested substitution is compatible with other portions of the Work.
    g. Requested substitution has been coordinated with other portions of the Work.
    h. Requested substitution provides specified warranty.
    i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 PROJECT INFORMATION

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The CONTRACT MODIFICATION or Change Order is fundamental to construction contracting as the primary means to modify the contract for construction and is defined as "A written instrument prepared by the CMa (A/E) and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following: 1) the change in the Work; 2) the amount of the adjustment, if any, in the Contract Sum; and 3) the extent of the adjustment, if any, in the Contract Time." The operative language is that a change order is an "agreement" amongst the parties and, therefore, the terms are settled and become a part of the contract.

B. This Section specifies administrative and procedural requirements for handling and processing contract modifications.

C. There are two primary types of modifications: bilateral, signed by the GC and the CO; and unilateral, signed only by the CO.

D. Related Sections include the following:

1. GSA FY23 01 27 00 UNIT PRICES for administrative requirements for using unit prices.

2. GSA FY23 01 25 00 SUBSTITUTION PROCEDURES for administrative procedures for handling requests for substitutions made after Contract award.

3. GSA FY23 01 31 00 PROJECT MANAGEMENT & COORDINATION

4. GSA FY23 01 21 00 ALLOWANCES

E. Contract Modification Process

1. Initiated by one or more of the following actions:

a. Proposal Request: A proposal request is issued by the CO/CS to the contractor requesting a proposal for a change, or a modification to the scope of the contract and is issued on behalf of the owner, to determine the cost of a change it is contemplating or that may be required to properly perform the Work. Editor: Refer to SECTION 1.6 PROPOSAL REQUESTS A. Contracting Officer-Initiated Proposal Requests

b. Architect's Supplemental Instructions ("ASI"): The ASI is a directive issued by the CMa (A/E) to the contractor providing additional information within the scope of the contract documents or to make minor changes to the work that, in the CMa's opinion, will not result in an adjustment to the contract sum or time.

c. Construction Change Directive ("CCD"): A CCD directs the contractor to immediately commence additional work or to implement a change to the work. This tool may be used where GSA and contractor have not agreed on proposed changes in the contract sum or time, or to direct changes in the work which, if not expeditiously implemented, might delay

the project. It is important to understand, however, that while a CCD directs work and binds the contractor to perform such work, the modifications to the scope, cost and time still must be incorporated into the contract by change order.

d. Request for Information ("RFI"):
e. Request for a Change Order: A Change Order Request is a proposal issued by the contractor either as a self-initiated claim, or in response to a proposal request, RFI or ASI if, in the Contractor's opinion, the RFI or ASI modifies the scope of the Contract. Editor: Refer to SECTION 1.6 PROPOSAL REQUESTS B. Contractor-Initiated Proposals

2. Contractor Submits a Change Order Proposal

a. The contractor will submit to the CMa its proposal documenting the cost and time impact of the proposed change.
b. Additionally, the CMa must consider the proposed impact on cost and time. Are the costs presented reasonable? (Typically, the CMa is required by its agreement with GSA to perform a detailed estimate, but rather assure the owner that the costs presented are reasonable, quantities are correct, and costs presented are allowed by contract.) The CMa shall analyze the schedule logic, and assess whether the proposed schedule impact is reasonable. In reviewing the impact on time, the CMa will need to consider a number of factors, including:
c. Does the proposed change impact the schedule's critical path?
d. Could the contractor mitigate delays by adjusting other activities?
e. Are there concurrent delays that are already the responsibility of the contractor.
f. If the CO does not fully agree with the contractor's proposal, the CO must respond in writing to the contractor, detailing its reasons, and then endeavor to reach mutually agreeable terms with the contractor.

3. Change Order Finalization

a. Once all parties agree, the CMa prepares the change order. The description of the change should be clear, succinct, and complete. It should be adequate for a third-party to generally understand the change and its impacts. There are three parts to the description that coincide with the definition of the change order – the scope, the impact on cost, and the impact on time. For the scope, the change order should reference the specific Contract Documents that are to be changed as well as the documents prepared and issued by the CMa (A/E) that describe and detail the change. For the cost and time, the change order should state the contractor's proposed change to the contract sum and contract time, referencing its proposal.
b. After describing the change and the impacts on the contract sum and time, the change order should list any attachments, including each of the supporting documents, with the date of each. Upon completing the changer order form, the CMa (A/E) will compile all attachments and issue with the change order.

4. Change Order Issuance

a. Once the change order is finalized, it is signed first by the contractor and then by the CO.

1.3 CONTRACT MODIFICATION PROCESSING SYSTEM

A. The system must encompass potential, ongoing, and completed contract modifications and encompass the following:

1. Defining the roles and responsibilities of the parties involved

2. Identifying, evaluating, and justifying the need for modifications

3. Defining the scope of modifications
4. Tracking modifications through a numbering system
5. Prescribing all steps necessary to process modifications
6. Listing all required documents and forms
7. Identifying cost impacts of modifications on the project budget
8. Establishing time impacts of modifications on the project]

1.4 CHANGES IN THE WORK

A. The Contracting Officer or designated representatives are the only entities authorized to direct work or change the contract.

1.5 MINOR CHANGES IN THE WORK

A. The Contracting Officer or his/her designated representative as directed by GSA will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.6 PROPOSAL REQUESTS

A. Contracting Officer-Initiated Proposal Requests

1. Sample Change Request Submitted by GSA DOCX - 19 KB
2. Sample Change Request Submitted by Customer DOCX - 19 KB
3. The Contracting Officer or designated representative will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. Proposal Requests issued by Contracting Officer or designated representative are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
4. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
5. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
6. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
7. Include costs of labor and supervision directly attributable to the change.
8. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals

1. If latent or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Construction Manager Agency (CMa).

2. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

3. Submit a complete cost proposal and TIA as outlined above for Contracting Officer- initiated changes. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

4. Proposal Request Form: Sample Change Request Submitted by Contractor DOCX - 19 KB

5. Materials and Equipment: Materials incorporated in Work at Contractor's actual invoice cost, including freight but excluding sales tax. Indicate rates and units required.

6. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

7. Comply with requirements in SECTION 01 25 00 SUBSTITUTION PROCEDURES if the proposed change requires substitution of one product or system for product or system specified.

8. Overhead and Profit: The GC and Subcontractors will be allowed up to 20 percent of the net change in cost for work performed by their own forces to account for both overhead and profit. The allowance for the overhead includes, but is not limited to, costs for: estimating; field supervision above the foreman level, general foreman, superintendents, assistant superintendents, engineers, accountants, timekeepers, schedulers, office managers, and others on staff; office supplies; drinking water; temporary heat, temporary cooling, light and power; field toilets; small tools; dumpsters; record documents; home office costs; and other materials and/or equipment unless specifically allowed by the change order scope of work.

    a. GC Overhead and Profit on First Tier Subcontractors and Suppliers: The GC will be allowed up to 10 percent of the net cost of change order work provided by first tier Subcontractors.
    b. First Tier Subcontractor Overhead and Profit on Second Tier Subcontractors and Suppliers: First tier subcontractors will be allowed up to 10 percent of the net cost of change order work provided by second tier Subcontractors and suppliers.
    c. Second Tier Subcontractor Overhead and Profit on Third Tier Subcontractors and Suppliers: No allowance for overhead and profit on subcontracted work will be made for subcontractors and suppliers below the second tier.
    d. Example: In the case of work provided by a third (or lower) tier subcontractor, the subcontractor providing the work will be allowed up to 20 percent of the net change in cost for work performed by its own forces to account for both overhead and profit. The GC and the first tier subcontractor would each be allowed up to 10 percent of the net cost of the change order work. The total markup for overhead and allowance paid by the Government would not exceed 40%.

1.7 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: Refer to SECTION 01 21 00 - ALLOWANCES for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

B. Unit-Price Adjustment: Refer to SECTION 01 27 00 UNIT PRICES for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.8 CONTRACT MODIFICATION PROCEDURES

A. On Contracting Officer's approval of a Proposal Request, the CMa will issue a Contract modification (Change Order) for signatures of Contracting Officer and the Contractor on CO Template XLSX - 84 KB SF30.

1. If the change order is on a T&M basis or is directed by GSA at a not to exceed amount. The contractor must submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract upon completion of the work.

B. A Copy of fully executed contract modification will be maintained by CMa and record copies will be distributed by the CMa to the A/E, Contracting Officer (original), and GC .

1.9 SUPPLEMENTAL AGREEMENT (BILATERAL)

A. In a Supplemental Agreement, the SF30 must be signed by both contractual parties; an authorized representative of the GC and the CO. Sufficient lead time is needed to execute a supplemental agreement for negotiations and funding of the change order.

1.10 CHANGE ORDER WITH PRICE-TO-BE-DETERMINED-LATER PDL (UNILATERAL)

A. A PDL is used when the SOW has been established and a proposal obtained from the GC , but the necessity to proceed with the change does not permit time to negotiate the proposal and/or reach agreement on cost and time. Issuance of this type of change order requires preparation of an SF30 that describes the SOW, indicates the change is being made on a PDL basis, and states the not-to-exceed amount. The change document requires only the signature of the CO.

1.11 CONSTRUCTION CHANGE DIRECTIVE

A. Once a contract is awarded, its requirements can only be adjusted by issuing a contract modification, signed by the CO. It is important that the contract modification process be understood by all project management personnel. Although FAR clauses associated with modifications may be periodically updated, the current construction contract on each project governs the modification process for that project.

1. Construction Change Directive contains a complete description of change in the Work. It also designates the method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

C. After completion of change, the contractor shall submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.12 CHANGE ORDER-- UNILATERAL DIRECTION

A. The construction contract clause, GSAM 552.243-71, Equitable Adjustments, allows the CO to determine the price of a change order if agreement is not reached with the GC.

B. In a unilateral change order, the government sets the cost and time adjustments for an SOW.

C. Once issued, a unilateral change is subject to the provisions of the construction contract clause FAR 52.233-1, Disputes, and the GC can pursue final settlement. In this process, the GC is required by contract to perform the changed work pending resolution.

D. Payment of a unilateral change order amount is made as the related work is performed.

1.13 ADMINISTRATIVE CHANGE (UNILATERAL)

A. This type of change is used to amend the contract provisions when the modification does not alter the specified contract work, the contract time, or the performance cost.

1.14 PENDING CHANGE LOG PCL

A. When a pending change issue arises, the Project Team shall assign a tracking number, referred to as CE (Cost Event or Change Event) numbers. Pending change issues include:

1. A Request for Proposal (RFP) issuance

2. A claim is received from the Contractor

3. An action occurs that may require modification of the contract

a. The pending change numbers should be used to identify all further correspondence and documents pertaining to the issue. Proposal requests and the status of the corresponding issues can be tracked in the Project Management Information System by the Project Team, or a Proposal Record SF1520 can be used.

1.15 TRACK CONTRACT MODIFICATIONS

A. The CO must ensure the contract modification is established in accordance with the General Services Administration Acquisition Manual (GSAM) 504.7001-4.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 30 00 - GSA PROJECT MANAGEMENT INFORMATION SYSTEM (PMIS)

PART 1 GENERAL

1.1 PURPOSE

A. For the purposes of this document and the Division One Specifications, the term 'GSA Project Management Information System' (PMIS).

1. The Contractor shall use the GSA Project Management Information System identified by GSA for use on the project.

1.2 DEFINITION

A. The GSA's PMIS is a web-based project management tool which provides GSA's Public Buildings Service with an automated workflow, collaboration, document management and project management solution to help manage GSA design and construction projects.

1.3 PROJECT COLLABORATION AND DOCUMENTATION

A. General

1. The Contractor shall effectively manage the PMIS including maintaining adequate staffing levels and ensuring that personnel attend the mandatory GSA-provided training sessions.

2. The Contractor shall use PMIS to upload, store, capture, preserve, record, maintain, update, and route all project-related documentation to comply with GSA's Document Security Requirements. Classified material is not permitted to be stored in this system.

3. The Contractor shall use the workflow processes contained within the PMIS to submit and receive approval for all project deliverables.

4. The Contractor shall continuously monitor and review the PMIS to ensure the Contractor data is current through completion of the Close-out Phase of Construction.

5. The Contractor is required to store documents from their subcontractors and vendors in the GSA Project Management System. If a subcontractor or vendor does not obtain a license for the GSA Project Management System, the contractor will be responsible for uploading and processing documents in the system on their behalf.

B. Contents of PMIS

1. The Contractor shall use PMIS as the electronic filing cabinet for all project-related correspondence and submittals. The Contract Documents specify certain documentation that the Contractor shall provide during performance of the Contract. For the avoidance of doubt, and unless specifically stated otherwise in the Contract Documents, in addition to any documentation that the Contractor submits to GSA as set forth in the Contract Documents.

1.4 SCHEDULING REQUIREMENTS

A. The Project Schedule shall be produced using widely used, commercially available computer software that is capable of generating and monitoring a CPM schedule. Contractor provided schedules shall be uploaded/imported to PMIS on a recurring basis.

1.5 EQUIPMENT AND TRAINING

A. Equipment

1. GSA will not furnish any equipment related to accessing PMIS. PMIS is web-accessible, and can therefore be accessed via any computer with an Internet connection. For up-to-date PMIS desktop requirements:

a. https://launch.kahaufn.com/

B. GSA Project Management System Training

1. GSA will provide no cost training to familiarize team members with PMIS via YouTube. The GSA Project Manager will ensure that appropriate personnel should attend training and what roles will be set up within the system based on their project responsibilities.

C. PMIS Support

1. GSA will provide PMIS administration and end user support, for the duration of the project.

1.6 PERSONNEL REQUIREMENTS

A. An HSPD-12 security clearance is required to access PMIS. Project Team members without an HSPD-12 clearance will need to work with the GSA COR to initiate the clearance process, and request a temporary waiver for the PMIS access until clearance can be confirmed. A waiver means that once the individual's HSPD-12 clearance is confirmed, a GSA Project Management System username and password will be provided. For up-to-date GSA HSPD-12 information: www.gsa.gov/hspd12. Obtaining clearances vary in length and may take time to receive them.

1.7 DATA OWNERSHIP

A. GSA shall retain ownership of all data entered into the system and shall administer all information contained therein. Distribution of any system data shall be made upon request.

1.8 DOCUMENT SECURITY

A. PMIS security access levels ensure that sensitive documents can only be accessed by the appropriate personnel. It is the contractor's responsibility to ensure their employees, subcontractors and vendors have the appropriate level of security to ensure document security.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 SUMMARY

A. This section includes certain administrative provisions for managing and coordinating construction operations, including but not limited to the following:

1. General project coordination.
2. Coordination drawings.
3. Conservation.
4. Administrative and supervisory personnel.
5. Conferences and meetings.
6. Cleaning and protection.

1.2 GENERAL PROJECT COORDINATION

A. Coordination of Trades: Coordinate construction operations included in the various sections of the Specifications to provide an efficient and orderly installation of each part of the Work. Coordinate construction operations included under different sections of the Specifications that depend on each other for proper installation, connection or operation. Keep pipes, ducts, conduit, and the like as close as possible to ceiling slab, walls, and columns to take up a minimum amount of space. Locate pipes, ducts, and equipment so that they do not interfere with the intended use of eye bolts and other lifting devices. Assure all controls can be reached and operated.

1. Schedule construction operations in the sequence required to obtain the best results where the installation of one part of the Work depends on installation of other components before or after that part.
2. Coordinate installation of different components to provide maximum accessibility for required maintenance, service, testing and repair.
3. Minimize roof penetrations.

B. Notification: Prepare and distribute memoranda to each party involved, outlining special procedures required for coordination. Include notices, reports and meeting minutes as part of the memoranda.

C. Administrative Procedures: Coordinate scheduling and timing of administrative procedures with other construction activities to avoid conflicts and promote orderly progress of the Work. Administrative procedures include but are not limited to the following:

1. Preparation of schedules.
2. Installation and removal of temporary facilities.
3. Delivery and processing of submittals.
4. Progress meetings.

5. Project closeout activities.

6. Startup and adjustment of systems.

1.3 COORDINATION DRAWINGS

A. Prepare coordination drawings and/or BIM model and data where coordination is needed for installation of products and materials fabricated by separate entities, and prepare coordination drawings where limited space availability necessitates maximum use of the space for efficient installation of different components.

1. Show the relationship of components from the separate shop drawings. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems

2. Indicate required installation sequences.

3. Indicate minimum access space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.

4. Show locations and sizes of all access doors on vertical and horizontal surfaces throughout the facility.

5. Provide vertical and horizontal dimensions necessary to locate each component and avoid conflicts within the space.

6. Comply with shop drawing requirements for sheet size and submittal methods specified in Section 01 33 00 Submittal Procedures.

B. Develop BIM elements delineating equipment and system installations in mechanical and electrical rooms and spaces where two or more entities will provide the work and separate shop drawings are insufficient to show coordination. Refer to GSA FY23 01 78 25 BUILDING INFORMATION MODELING with CDX and REGIONAL STANDARD.

C. Work installed prior to full coordination and resolution of detected clashes shall be at the Contractor's risk. Subsequent relocations required to avoid interferences shall be made without additional expense to the Government. In the event that interference develops, the Government will decide which work shall be relocated, regardless of which was installed first.

D. Coordinate BIM model with GSA FY25 01 36 00 COBIE (Construction Operations Building information exchange) requirements.

1. Digital Data Software Program: Utilize the latest version of AutoDesk BIM software authorized by the GSA GEAR team and accepted by the CO.

2. File Preparation Format: Same digital data software program, version, and operating system as the original Drawings.

3. File Submittal Format: Same digital data software program, version, and operating system as the original Drawings and Portable Document Format (PDF).

a. Digital Data Software Program: Utilize the latest version of AutoDesk BIM software authorized by the GSA GEAR team and accepted by the CO.
b. File Preparation Format: Same digital data software program, version, and operating system as the original Drawings.

c. File Submittal Format: Same digital data software program, version, and operating system as the original Drawings and Portable Document Format (PDF).

1.4 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. The Contractor shall provide administrative and supervisory personnel for proper performance of the Work.

B. Project Coordinator: Provide a full-time project coordinator, experienced in the administration and supervision of building construction, including all systems required in the project. The project coordinator shall be authorized to act as the coordinator of construction activities, including but not limited to the following:

1. Scheduling and sequencing of Work.

2. Sharing access to work spaces.

3. Installations.

4. Protection of work.

a. Cutting and patching

5. Selections for compatibility.

6. Preparation of coordination of drawings.

7. Inspection and tests.

8. Temporary services and facilities.

C. Safety and Health Officer: Provide a safety and health officer whose duties shall consist of developing and implementing safety and health programs specified in GSA FY23 01 59 50 SAFETY and HEALTH

D. Provide a waste management coordinator whose duties shall consist of developing and implementing a program for maximizing recycling of waste.

E. Other Staff Required

1. (As needed) Mechanical Electrical Plumbing (MEP) Coordinator)

2. (As needed) Commissioning Coordinator,

1.5 CONFERENCES AND MEETINGS

A. Schedule and conduct meetings and conferences at the project site, unless otherwise indicated. Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify the Contracting Officer and Construction Manager of scheduled meeting dates and times. The Contractor shall prepare the meeting agenda and distribute to all invited attendees at least 48 hours prior to the meeting. Record significant discussions and agreements achieved and submit draft minutes to the CM and GSA COR for review and approval within three business days after the meeting. Distribute the meeting minutes to the project team via PMIS. Preconstruction Conference: The government shall schedule a preconstruction conference at a time and place convenient to the Contractor. The preconstruction conference shall review responsibilities and personnel.

1. Attendees: Participants at the conference shall be familiar with the project, shall be authorized to conclude matters relating to the Work, and shall minimally include representatives of the following parties:

    a. GSA and FDA representatives
    b. A/E Design Team
    c. CMa (Construction Manager as advisor)
    d. CxP (Commissioning Provider)
    e. Primary design consultants
    f. Contractor
    g. Primary subcontractors
    h. Major suppliers
    i. Other concerned parties

2. Agenda: Subjects for discussion shall include items of significance that could affect progress, including but not limited to the following:

    a. Project Communications (PMIS)
    b. Tentative construction schedule
    c. Critical work sequencing
    d. Designation of responsible personnel
    e. Procedures for processing field decisions and Change Orders
    f. Procedures for processing Applications for Payment
    g. Distribution of Contract Documents
    h. Submittal of Shop Drawings, Product Data, and Samples
    i. Preparation of Record Documents
    j. Use of the premises
    k. Parking availability
    l. Office, work, and storage areas

3. Equipment deliveries and priorities

    a. First aid and reporting injuries/incidents
    b. PROJECT SAFETY AND HEALTH PLAN
    c. Security
    d. Housekeeping and progress cleaning

1.6 WORKING HOURS

A. Energy and resource efficiency / sustainability

B. Waste management

C. Commissioning

D. Progress Meetings: The Government or designee shall conduct progress meetings at the Project Site at regular intervals. Dates of meetings shall be coordinated with preparation of the payment request.

1. Attendees: In addition to the Contractor's and Government's representatives, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.

    a. Contractor's Construction Schedule: Review progress since the last progress meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time. Provide (3) week schedule look ahead. [Coordinate further with team and legal on GSA FY23 01 31 10 CRITICAL PATH METHOD CPM SCHEDULING for PROSPECTUS PRJECTS or GSA FY23 01 31 20 CRITICAL PATH METHOD CPM SCHEDULING for BELOW PROSPECTUS PROJECTS.
    b. Review the present and future needs of each entity present, including but not limited to the following:
        1) Interface requirements
        2) Time
        3) Sequences of operations.
        4) Status of submittals.
        5) Deliveries.
        6) Off-site fabrication.
        7) Access.
        8) Site utilization.
        9) Temporary facilities and controls.
        10) Hours of work.
        11) Hazards and risks.
        12) Housekeeping and progress cleaning.
        13) Quality and work standards.
        14) Change Orders.
        15) Documentation of information for payment requests.
        16) Updating Record Documents.

3. Schedule Updating: The Contractor shall revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. The revised schedule shall be issued concurrently with the report of each meeting.

1.7 UTILITY SERVICE INTERRUPTIONS

A. Editor: Coordinate with other division one sections for minimum advance notices.

B. Utility Service Interruption Plan: Within 7 calendar days from Notice to Proceed (NTP) Contractor shall submit a utility service interruption plan for the project. Plan shall include dates and times of each scheduled interruption, with estimated period of outage, list of existing equipment that will be affected by the interruption, proposed sequence of equipment shut-down and start-up, and responsible personnel.

    1. Keep interruptions and periods of interruption to a minimum.

    2. Schedule interruptions during times when the facility is unoccupied.

    3. Plan must be approved in writing by the Contracting Officer's Representative. If not approved, consult with the Building Manager, and revise and resubmit the plan until approved.

C. Coordination of Interruptions: Sufficiently in advance of each scheduled utility interruption, But not less than 3 daysthe Contractor shall issue a notice to all affected parties, confirming each provision of the interruption, or canceling and rescheduling. Coordinate with the Building Manager and GSA's representative, and confirm that the responsible personnel are prepared to execute the shut-down and start-up of affected existing equipment, prior to each interruption.

1. Systems which serve the laboratories require a minimum of 3 weeks notice in writing.

1.8 SUBMITTALS

A. Subcontract List: Within 7 calendar days from Notice to Proceed (NTP) prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entities performing subcontract or supplying products.

2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.

4. Coordination Drawings: Comply with the shop drawing requirements specified in Division 1 Section "Submittal Procedures".

B. Staff Names: Within 5 calendar days after commencement of construction, submit a list of principal staff assignments, including the superintendent and other primary personnel at the Project site. Identify individuals by name, duties and responsibilities, home address, and business and home telephone numbers.

1. Post copies of this list in GSA's Project Management System, in the project meeting room, temporary field office and at each temporary telephone location.

C. Utility Service Interruptions: No later than 14 calendar days prior to the first planned interruption, submit the utility service interruption plan, followed by confirmed scheduled shut-down notices at least 3 calendar days prior to each interruption.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 GENERAL COORDINATION PROVISIONS

A. Inspection of Conditions: Prior to installations, require the installer of each major component to inspect both the substrate and conditions under which work is to be performed.

1. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

2. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

B. Construction in Progress: Keep construction in progress, and adjoining materials in place, clean during handling and installation. Apply protective coverings where required for protection from damage or deterioration.

C. Completed Construction: Clean completed construction, and provide maintenance, as frequently as necessary to prevent damage or soiling or other deterioration through the remainder of the construction period. Adjust and lubricate operable components as necessary to assure operability without damage.

D. Limiting Exposures: Supervise construction operations to prevent exposure of any part of construction, completed or in progress, to harmful, dangerous, damaging or otherwise deleterious conditions during the construction period. Such conditions include but are not limited to the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Pollution and air contamination.
7. Water or ice.
8. Chemicals and solvents.
9. Light.
10. Radiation.
11. Puncture.
12. Abrasion.
13. Heavy traffic.
14. Soiling, staining, and corrosion.
15. Bacteria.
16. Rodent and insect infestation.
17. Combustion.
18. Electrical current.
19. High-speed operation.
20. Improper lubrication.
21. Unusual wear or other misuse.
22. Contact between incompatible materials.
23. Destructive testing.
24. Misalignment.

25. Excessive weathering.
26. Unprotected storage.
27. Improper shipping or handling.
28. Theft or vandalism.

END OF SECTION

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.1 SUMMARY

A. This section includes certain schedules and reports required for documenting the progress of construction during performance of the Work.

B. Coordinate the timing for preparation and processing of schedules and reports with the performance of other construction activities, and maintain a consistent and logical correlation between updated schedules and reports.

C. All construction progress documentation should be created and transmitted electronically into the PMIS system.

1.2 SCHEDULE OF INSPECTIONS AND TESTS

A. Prepare and submit a schedule of inspections, tests and similar services required by the Contract Documents within 10 calendar days after issuance of the Notice to Proceed.

B. Contractor shall coordinate the schedule of inspections and tests with the Construction Schedule and other related documents. Prepare the schedule in tabular form, including but not limited to the following information:

1. Specification section number.

2. Description.

3. Identification of applicable standards.

4. Identification of methods to be used.

5. Number of inspections, tests or similar services.

6. Time schedule or time span.

7. Responsible entity.

8. Requirements for taking samples.

9. Unique characteristics.

C. Distribution: Submit in PMIS electronic copies of the schedule of inspection and tests to the Contracting Officer, entities designated by the Contracting Officer, and each party involved in performance of portions of the Work where inspections, tests and similar services are required.

1.3 SCHEDULE OF SUBMITTALS

A. Prepare and submit a schedule of submittal required by the Contract Documents within 14 calendar days after issuance of the Notice to Proceed.

B. Contractor shall create in PMIS the schedule of submittals and other related documents. Prepare the schedule in tabular form, including but not limited to the following information:

1. Editor: Include project specific requirements here.

1.4 REPORTS

A. Daily Construction Reports: Prepare electronic daily construction reports recording the following information concerning but not limited to events at the site. All daily reports are to be uploaded to PMIS Include:

1. List of subcontractors at the site.
2. List of separate contractors at the site.
3. Count of personnel at the site.
4. High and low temperatures, general weather conditions.
5. Accidents.
6. Meetings and significant decisions.
7. Unusual events (see D. Unusual Event Reports below).
8. Stoppages, delays, shortages, and losses.
9. Meter readings and similar recordings.
10. Emergency procedures.
11. Orders and requests of governing authorities.
12. Change Orders received or implemented.
13. Services connected or disconnected.
14. Equipment or system tests and startups.
15. Partial completions or occupancies.
16. Summary of all work performed.

B. Material Location Reports: At not more than weekly intervals, prepare a comprehensive list of materials delivered to and stored at the site. The list shall be cumulative, showing materials previously reported plus items recently delivered. Include a statement of progress on and delivery dates for materials or items or equipment fabricated or stored away from the site. Within X Calendar days submit copies of the list to the Contracting Officer (CO) or Contracting Officer's Representative (COR).

C. Field Correction Reports: When the need to take corrective action requires a departure from the Contract Documents, prepare a detailed report. Include a statement describing the problem and recommended changes. Indicate reasons the Contract Documents cannot be followed. Within X Calendar days submit a copy to the Contracting Officer or Contracting Officer's representative for approval.

D. Unusual Event Reports: When an event of an unusual and significant nature occurs at the site, prepare a detailed report. List the chain of events, persons participating, response by the Contractor's personnel, evaluation of the results or effects, and similar pertinent information. Within X Calendar days submit a copy to the Contracting Officer or Contracting Officer's representative immediately.

Advise the Contracting Officer or Contracting Officer's representative in advance when such events are known or predictable.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes certain administrative and procedural requirements for shop drawings, coordination drawings, schedules, samples and certain other quality assurance submittals.

B. This section does not include requirements and timelines for the following submittals that are included in their respective sections:

1. Inspection and test reports specified in 01 40 00 QUALITY ASSURANCE & QUALITY CONTROL REQUIREMENTS.

2. Warranties specified in 01 60 00 PRODUCT REQUIREMENTS.

3. Closeout submittals specified in 01 77 00 CLOSEOUT PROCEDURES.

4. Record documents specified in 01 78 10 PROJECT RECORD DOCUMENTS.

5. Operation, maintenance and instruction manuals specified in 01 78 22 OPERATION and MAINTENANCE DOCUMENTATION.

6. Reports, schedules and other submittals specified in 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION.

7. Construction Safety and Health Plan as described in 01 59 50 SAFETY and HEALTH.

8. Contractor's Hazard Communication Plan (HCP) as described in 01 59 50 SAFETY and HEALTH.

9. Waste Management Plan as described in 01 31 00 PROJECT MANAGEMENT & COORDINATION and 01 74 19 CONSTRUCTION NONHAZARDOUS WASTE MANAGEMENT & DISPOSAL.

10. Contractor's Quality-Control Plan as described in 01 40 00 QUALITY ASSURANCE & QUALITY CONTROL REQUIREMENTS.

11. Cutting and Patching Plan as described in 01 73 10 CUTTING & PATCHING.

12. Construction Indoor Air Quality Management Plan as described in 01 74 10 CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT.

C. Shop drawings, coordination drawings and schedules are further categorized and defined as follows:

1. Shop drawings include drawings and schedules prepared for specific parts of the project, except for coordination drawings.

2. Coordination drawings are specified in 01 31 00 PROJECT MANAGEMENT & COORDINATION.

3. Product data includes manufacturer's standard catalogs, pamphlets and other printed materials that show and describe materials and items, and includes but is not limited to the following:

a. Product specifications.
b. Installation instructions.

c. Color charts.
d. Catalog cuts.
e. Rough-in diagrams and templates.
f. Wiring diagrams.
g. Performance curves.
h. Operational range diagrams.
i. Mill reports.

D. Samples of actual materials and items shall be provided at such scale to allow delivery for review, as well as for field samples or mock-ups of full-size physical examples erected on-site or elsewhere, to establish a true-scale standard by which the corresponding work will be judged or a standard for compliance testing.

1. Other quality assurance submittals include materials specifically prepared for the project, except drawings and schedules, and include but are not limited to the following:

2. Design data and calculations.

3. Certifications of compliance or conformance.

4. Manufacturer's instructions and field reports.

E. Approvals do not supersede requirements of the contract documents.

1.2 GENERAL SUBMITTAL REQUIREMENTS

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities and with the Submittal Schedule specified in 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION. Unless otherwise specified, submittals shall be transmitted via GSA's electronic Project Management (GSA's Project Management System) system as PDF electronic files to GSA according to the contractor's approved construction schedule and submittal schedule. Transmit each submittal sufficiently in advance of the scheduled performance of related construction activities to avoid delaying the Work, allowing for the review times specified for submittals.

1. Coordinate each submittal with other submittals and related activities that require sequential scheduling, to allow for testing, purchase, fabrication and product delivery in a timely manner.

2. Schedule transmittal of different categories of submittals for the same element of Work and for different elements of related parts of the Work at the same time. Notwithstanding the foregoing sentence, the Contractor shall provide a complete submittal package for each Division of the specification so as to enable the Government to review the related sections together. Coordinate submittals to enable approvals and acceptances so as not to inhibit orderly progress of the Work.

3. Post electronic submittals as PDF electronic files directly to the GSA's Project Management System specifically established for the Project. GSA will return an annotated file. Annotate and retain one copy of file as an electronic project record document file.

4. Allow sufficient time for submittal review, corrections following the initial review, and re-submittal review before activities scheduled after the submittal approval.

5. Failure on the part of the Contractor to indicate approval or acceptance on submittals prior to submission to Contracting Officer will result in their being returned to the Contractor without being acted upon.

6. Any resubmission required after Government review shall be made within 10 calendar days after return of the submittal, unless specifically authorized otherwise by GSA.

7. Submittals which are determined to be incomplete or otherwise substandard will be returned to the Contractor with no further review. Delays due to incomplete or rejected submittals will not be excused.

8. Construction will not be allowed to proceed if submittals are not received in a timely manner, and will not result in an extension to the Contractor's Construction Schedule.

9. Failure by the Contractor to provide the required submittals in a timely manner may result in withheld payments until submittals are up-to-date.

10. Maintain one complete set of submittals at project site.

11. Maintain an organized submittal register at project site. This will be an agenda item for progress meetings.

12. The contractor to schedule and allow a minimum of ten working days for the Architect/Engineer submittal review. The comment period initiates upon the receipt of the submission by the office performing the primary review. The period commences upon issue of the submittal by the office performing the primary review. In the event the architect/engineer receives an extraordinary lengthy or complex submittal whose review may not be able to be accomplished within the stipulated submittal review period, architect/engineer to notify the Construction Manager Agency (CMa) in writing with a request for extended review period within 3 working days of receipt of the submittal. Such submittals may include structural steel, curtain wall, or complex systems requiring coordination with other systems.

B. Submittal Identification and Information: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble each submittal item into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each submittal item.

2. Name file with submittal number or other unique identifier, including revision identifier.

    a. File name shall use Contract number and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by GSA.

4. Coordinate with 01 30 00 PROJECT MANAGEMENT INFORMATION SYSTEM and regional GSA's Project Management System team. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software acceptable to GSA.

    a. Project name.
    b. GSA project number.
    c. Date.
    d. Name and address of Architect.
    e. Name of Contractor.
    f. GSA contract number.

g. Name of firm or entity that prepared the submission.
h. Names of subcontractor, manufacturer, and supplier.
i. Category and type of submittal.
j. Submittal purpose and description.
k. Specification Section number and title.
l. Specification paragraph number or drawing designation and generic name for each of multiple items.
m. Drawing number and detail references, as appropriate.
n. Location(s) where product is to be installed, as appropriate.
o. Related physical samples submitted directly.
p. Indication of full or partial submission.
q. Transmittal number, numbered consecutively.
r. Submittal and transmittal distribution record.
s. Other necessary identification.

5. Include the following information as keywords in the electronic file metadata:

a. Project name.
b. GSA project number.
c. Contract number.
d. Number and title of appropriate Specification Section.
e. Specification paragraph number and generic name of each item.
f. Manufacturer name.
g. Product name and model number.

1.3 SHOP DRAWINGS AND COORDINATION DRAWINGS

A. Submit originally prepared information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard printed materials as the basis for Shop Drawings and Coordination Drawings.

1. Include at minimum the following information on Shop Drawings and Coordination Drawings:

2. Dimensions.

3. Identification of products and materials.

4. Compliance with specified standards.

5. Notation of coordination requirements.

6. Notation of dimensions established by field measurements.

7. Highlighted or circled deviations from the Contract Documents.

B. Sheet size: Except for templates, patterns and similar full-size drawings, submit Shop Drawings and Coordination Drawings on sheets of at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).

C. Submittals: Unless otherwise indicated, submit one electronic file (.pdf) of each drawing submission through GSA's Project Management System. The file will be marked with action taken and returned.

D. Distribution: When submittal is approved or accepted, Contractor shall prepare final electronic files, for the following purposes.

1.4 PRODUCT DATA

A. Collect Product Data into a single submittal for each system or element of construction. Mark each copy to show specific product choices and options applicable to the project. Product Data shall include the following information, where applicable:

1. Manufacturer's printed recommendations.

2. Compliance with recognized trade association standards.

3. Compliance with recognized testing standards.

4. Applicability of testing agency labels and seals.

5. Notation of dimensions verified for fit by field measurements.

6. Notation of coordination requirements.

B. Preliminary Submittal: Prior to submission of complete Product Data, submit a preliminary single copy of that part of Product Data when selection of options is required, such as for color charts. Preliminary submittal will be returned, with selection noted, for the Contractor's use in subsequent submittals.

C. Submittals: Unless otherwise indicated, submit one electronic copy of each Product Data submittal. One original copy will be retained and a copy will be marked with action taken and returned to the contractor.

1. Distribution: When submittal is approved or accepted, Contractor shall distribute copies for the following purposes:

2. One copy shall be marked and retained as a "Record Document."

3. Additional copies shall be provided to the manufacturers, subcontractors, suppliers, installers, governing authorities and others as required for performance of the applicable construction activities.

4. Copies required for operation and maintenance manuals

1.5 SAMPLES

A. Submit full-size, fully fabricated samples, cured and finished in the manner specified. Samples shall be physically identical to the material or product proposed for use.

B. Mount, display, or package samples to facilitate review of kind, color, pattern, texture and other qualities indicated, as a final check of these characteristics with other elements and for comparison of these characteristics with those of the actual component delivered and installed.

C. Where variation in color, pattern, texture or other characteristic is inherent in the material or product, submit at least 3 multiple units that show approximate limits of the variations.

D. Refer to other specification sections for requirements for samples that illustrate workmanship, fabrication techniques, and details of assembly, connections, operations and similar construction characteristics.

E. Refer to other specification sections for samples to be returned to the Contractor for incorporation in the Work. Such samples must be in undamaged condition at time of use.

F. Preliminary Submittal: Where color, pattern, texture or similar characteristics are specified to be selected from a manufacturer's range of standard choices, submit a preliminary single set sample of available choices prior to submission of the complete sample. Preliminary submittal will be returned, with selection noted, for the Contractor's use in subsequent submittals.

G. Submittals: Unless otherwise indicated and except for field samples or mock-ups of full-size physical examples erected on-site or elsewhere, submit not less than Edit three (3) or _X_ sets of each sample submittal. One copy will be marked with action taken and returned. Comply with requirements in the individual specification section for field samples and mockups.

H. Distribution: Except for field samples or mockups, when submittal is approved, Contractor shall distribute approved copies for the following purposes:

1. One copy shall be marked and retained as a "Record Document" at the Project Site, and shall be available for comparison throughout the course of construction activity.

2. Additional copies shall be provided to manufacturers, subcontractors, suppliers, installers, governing authorities and others as required for performance of the applicable construction activities.

1.6 OTHER QUALITY CONTROL SUBMITTALS

A. Submit other quality control submittals in compliance with requirements in the individual specification sections, including Division 1.

B. Certifications: Submit notarized certifications indicating compliance with specified requirements. Certifications shall be signed by an individual authorized to sign on behalf of the Contractor.

1.7 REVIEW ACTION ON SUBMITTALS

A. For electronic submittals:

1. Submit electronic submittals via GSA’s Project Management System as PDF electronic files.

2. GSA will return an annotated file. Annotate and retain one copy of file as an electronic Project record document file.

B. Compliance with specified characteristics is the Contractor's responsibility, and is not part of the Contracting Officer's review and indication of action taken.
The contract documents shall prevail in case of review action conflict.

C. Submittals without approval or acceptance shall not be used.

D. Action Stamp:

1. Team to decide if paper submittals are required and how many. For paper or non-electronic submittal: Each submittal will be stamped with a uniform action stamp. The stamp shall be marked to indicate one of the following actions taken:

a. For electronic submittal: Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated. For notarized signature if required, provide paper copies for signature.
b. Final Unrestricted Release: Where marked "Approved" or "Accepted", the work covered by the submittal may proceed, provided it complies with the requirements of the Contract Documents.

c. Final But Restricted Release: Where marked "Approved " or "Accepted" "As Noted", the work covered by the submittal may proceed, provided it complies with the notations or corrections on the submittal and with the requirements of the Contract Documents.
d. Return for Re-submittal: Where marked "Not Approved" or "Not Accepted", ``Revise and Resubmit", do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery or any other activity. Revise or prepare a new submittal according to the notations on the submittal or on the return transmittal. Resubmit without delay, repeating as necessary to obtain a final release action mark.
e. No Action: Where a submittal is for the record or for information or for another purpose not requiring review action, the submittal may not be returned or may be returned and marked "Action Not Required."

E. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submission because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by a recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams showing factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.

6. Submit Product Data in the following format:

a. PDF electronic file.

1.8 SUBSTITUTION REQUEST PROCEDURES

A. Substitution Requests: Refer to GSA FY23 01 25 00 SUBSTITUTION PROCEDURES.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01 40 00 - QUALITY ASSURANCE & CONTROL REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. This section includes administrative and procedural requirements for quality assurance and quality control services.

1. See section 01 73 10 CUTTING & PATCHING for repair of work in place.

B. Quality Assurance & Control: The Contractor is solely responsible for developing, implementing, and providing for all quality control and related processes in the Contractor's Quality Control Plan to ensure that all parts of the project meet or exceed all of the requirements as set forth in the Contract Documents.

1. The testing and inspections indicated in the Specifications (Testing) is a spot checking program identified by the A/E per the design or building code requirements, performed by an Independent Testing Agency (Agency), and is not intended as a portion of the Contractor's Quality Control Plan.

2. The presence of the GSA and/or representative shall in no way relieve the Contractor of his obligation to perform the work in accordance with the Contract Documents.

3. The Testing indicated in the Specifications cannot be used to refute conditions of suspected poor quality observed in the field.

4. In order to provide for a measure of the Contractor's quality control, the Government, either with its own employees or contractors, may continuously monitor the Contractor's quality control and related processes. This monitoring is not a part of the Contractor's Quality Control Plan.

5. To the extent that the Contractor fails or otherwise refuses or neglects to develop, implement, or provide for all quality control and related processes, GSA may, in addition to any other available remedies under the Contract, elect to perform quality assurance beyond that indicated in the Specifications and charge the Contractor for any and all costs related thereto.

C. Quality assurance and quality control include tests, inspections and related actions, including reports, performed by the Contractor, manufacturers, independent agencies or governing authorities.

1. These testing and inspection services are required for products, customized fabrication and installation procedures as well as for items to be professionally designed by the Contractor (delegated design).

2. Product testing shall be done by a Nationally Recognized Testing Laboratory (NRTL) and National Voluntary Laboratory Accreditation Program (NVLAP), or other GSA approved testing facility.

D. The independent quality assurance testing and inspection (Testing) requirements for individual construction materials and activities are included in the Specification sections that specify those construction materials and activities.

E. Mock-ups: Full-size physical assemblies that are constructed on-site unless otherwise directed by GSA. Mock-ups are constructed to verify selections made under Sample submittals; to demonstrate visual effects as well as qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation

tolerances. Mock-ups may be done on the interior or exterior. Mock-ups are not Samples. Approved mock-ups establish the standard by which the Work will be judged.

F. Definitions

1. Source Quality Control Testing is done at the product source.

2. Field Quality Control Testing is done on site.

1.2 TESTING AND INSPECTION REPORTS

A. The Contractor's testing agency(ies) and the Agency, where they perform the services, shall submit a certified written report in PMIS of each test, inspection or other quality control service using the workflow process of the PMIS. Maintain a log both of accepted and rejected reports including corrective actions taken and date of retesting and compliance.

1. Paper Copies: In addition to uploading report copies to PMIS the "Agency" shall also send certified copies of test and inspection reports as specified to the following parties:

a. 2 copies to the Government.
b. 2 copies to the CMA or Contractor
c. 2 copies to the A/E

2. Testing and inspection reports shall include but not be limited to the following:

a. Date of issue.
b. Project title and number.
c. Name, address, and telephone number of testing agency.
d. Dates and locations of samples and tests or inspections.
e. Names of individuals making the test or inspection.
f. Designation of the work and test method.
g. Identifications of product and specification section.
h. Complete test or inspection data.
i. Test results and an interpretation of test results.
j. Ambient conditions at the time of sample taking and testing.
k. Certify whether tested or inspected Work complies with Contract Document requirements.
l. Name and signature of laboratory inspector.
m. Recommendations on retesting.

3. All quality operations shall within 24 hours notify, by personal contact and written notice, GSA's representative and the Contractor of irregularities or deficiencies observed in the Work during performance of their services.

4. All quality operations shall maintain a log of all their tests and inspections and a separate log of those that do not conform to the requirements of the Contract Documents. Both logs shall be published and reviewed weekly with the Contractor and the Government and/or at the weekly meeting.

1.3 RESPONSIBILITIES

A. Contractor Responsibilities: Unless specifically indicated otherwise, the Contractor shall provide the quality control services including those required by local jurisdictions.

1. Obtain copies of applicable codes, standards, procedures, regulations, etc. relative to materials, procedures, testing and inspection on the Project and make those available at the Project site for reference.

B. Contractor shall submit each testing agency's firm name, and credentials to perform the specified services, to the Government for GSA's approval at least 15 calendar days before scheduled inspections or tests.

C. Retesting: The Contractor is responsible for retesting, including repeated inspections and other services, where results of the initial quality control services indicate noncompliance. The Contractor shall be responsible for the Agency or an equally qualified agency for these services. If the Agency does not provide the retesting or inspection, the Contractor shall be responsible for having the Agency observe the testing and inspection work.

1. Tests for Suspected Deficient Work: If in the opinion of the Government, any of the work of the Contractor that does not appear to conform to requirements, the Contractor shall make the tests that the Government deems advisable to determine its conformance to the Contract Documents.

2. The government shall pay the costs if the tests prove the suspected work to be satisfactory.

D. Associated Services: The Contractor shall cooperate with others, including the Agency, performing tests, inspections and other quality services, and shall provide reasonable auxiliary services as requested. Contractor shall notify the testing and inspection entities sufficiently in advance of operations to permit their timely assignment of personnel. Auxiliary services include but are not limited to the following:

1. Provide access to the work and all documents (Contract documents, shop drawings, product data, Contractor and Sub-Contractor testing and inspections, etc.).

2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.

3. Provide adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.

4. Provide facilities for storage and curing of test samples and equipment.

5. Deliver samples to testing laboratories.

6. Provide security and protection of samples and test equipment at the Project site.

E. Duties of the Independent Testing Agency (Agency): The Agency engaged to perform tests, inspections and other quality services shall cooperate with GSA's representative and the Contractor in performance of the Agency's duties.

1. The Agency shall provide qualified personnel to perform required inspections and tests.

2. The Agency shall provide certifications and a list of personnel assigned to each portion of the work.

3. The Agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

4. The agency shall not perform any duties of the Contractor.

5. The Testing Agency's proposal shall contain the outlined Testing based on a unit price basis for tests and inspections and on an hourly basis for personnel.

6. The Agency shall certify the test results and observations.

7. The Agency shall interpret whether or not their results and observations meet specified Project requirements.

8. The Agency shall submit reports per Section: Testing and Inspection Reports, above.

9. The Agency shall maintain logs per Section: Testing and Inspection Reports, above.

10. The Agency shall review the applicable certificates of the Contractor's personnel to verify the validity and current status of the certificate.

11. For construction personnel without necessary certificates, the Agency shall oversee the certification process of construction personnel to ensure their qualifications to perform the specified duties. The Contractor shall be responsible to the Agency for these services.

12. The Agency shall obtain and review the project plans and specifications with the Government as soon as possible prior to the start of construction.

13. The Agency shall attend pre construction conferences to coordinate materials inspection and testing requirements with the planned construction schedule. The Agency shall participate in such conferences where the Testing is indicated throughout the course of the project.

F. Independent Testing Agency Payment: The Contractor shall obtain and include the Agency's cost in the Contract Sum.

1. The Contractor shall submit payments for the Agency, track the Agency's budget and keep GSA informed on projected Agency costs and remaining budget.

2. Only GSA can modify the Agency's scope.

G. Coordination: The Contractor shall coordinate the sequence of activities to accommodate required services with a minimum of delay.

1. Activities shall be coordinated to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

2. The Contractor shall be responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.4 QUALIFICATIONS OF THE INDEPENDENT TESTING AGENCY (AGENCY) AND CONTRACTOR TESTING AGENCIES

A. A qualified independent testing agency shall be an accredited entity engaged to perform tests and inspections, both at the Project site or elsewhere and to report on and to interpret results of those tests or inspections. Testing agencies shall be acceptable to GSA and the Agency shall be authorized by authorities having jurisdiction to operate in the jurisdiction where the project is located.

B. Unless other accreditation is specifically specified in the applicable individual section, each testing agency shall be prequalified as complying with the American Council of Independent Laboratories "Recommended Requirements for Independent Laboratory Qualifications", or shall be recognized by the Occupational Safety and Health Administration (OSHA) in accordance with 29 CFR Part 1910.7 to

test and approve equipment or materials for their safe intended use. Each testing agency shall specialize in the types of tests and inspections to be performed.

C. Testing agencies shall be authorized by authorities having jurisdiction to operate in the jurisdiction where the project is located. Testing agency qualifications: NRTL (Nationally Recognized Testing Laboratory) per 29 CFR 1910.7, and NVLAP (National Voluntary Laboratory Accreditation Program) per NIST., and documented per ASTM 329 and is acceptable to GSA.

1.5 CONTRACTOR QUALITY CONTROL PLAN

A. Contractor's Quality-Control Plan: Submit within 5 days from NTP for quality-control activities and responsibilities. Submit in electronic format and upload to PMIS. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-control responsibilities. Coordinate with the construction schedule. The procedures, controls, inspections, and tests shall be indicated by specification section and shall include the specific actions that the Contractor’s QC team will take to verify compliance of the work with the specifications and drawings.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those indicated in the Specifications.

1. Editor: Capital Projects must have an independent QC Manager; small projects may be able to have a dual role. Provide a project quality-control manager, who may also serve as Project Superintendent.

2. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of the submittal process. Indicate qualifications of personnel responsible for submittal review.

3. Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship. Indicate types of corrective actions to be required to bring work into compliance with standards established by the Contract requirements and approved mock-ups.

C. Provide reports per Section 1.2 Testing and Inspection Reports, above.

D. Other Reports

1. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

a. Name, address, and telephone number of the technical representative making the report.
b. Statement on condition of substrates and their acceptability for installation of product.
c. Statement that products at Project site comply with requirements.
d. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
e. Results of operational and other tests and a statement of whether observed performance complies with requirements.
f. Statement if conditions, products, and installation will affect warranty.
g. Other required items indicated in individual Specification Sections.

2. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

a. Name, address, and telephone number of factory-authorized service representative making report.
b. Statement that equipment complies with requirements.
c. Results of operational and other tests and a statement of whether observed performance complies with requirements.
d. Statement if conditions, products, and installation will affect warranty.
e. Other required items indicated in individual Specification Sections.

3. Permits, Licenses, and Certificates: For the Government's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 REPAIR AND PROTECTION

A. Upon completion of testing, inspection, sample taking and other quality control services, repair damaged construction and restore substrates and finishes to like new conditions. Comply with the requirements of the Contract Document, including Division 1 Section "Cutting and Patching."

B. Protect construction exposed by or for quality control service activities, and protect repaired construction. Cleaning, repair and protection of testing areas is the Contractor's responsibility, regardless of the assignment of responsibility for testing, inspection or other quality control or assurance services.

END OF SECTION

SECTION 01 42 00 - GENERAL REFERENCES

PART 1 GENERAL

1.1 DEFINITIONS

A. Agreement: The Agreement forms part of the Contract between the parties.

B. "Building Manager" is the Government employee responsible for the administration, operation and maintenance of the building.

C. Contract: see Agreement.

D. "Cutting" refers to removal of material by cutting, sawing, drilling, breaking, chipping, grinding, excavating and similar operations.

E. "Furnish" means to supply and deliver to the Project site, ready for unloading, unpacking, assembling, installation and similar operations.

F. “General Terms and Conditions" are defined by the Agreement.

G. “Government" refers to the General Service Administration, Public Buildings Service (GSA PBS).

H. "Indicated" refers to graphic representations, notes or schedules on the Drawings, or to requirements elsewhere in the Specifications or other Contract Documents. Terms such as "shown", "noted", "scheduled" and "specified" have the same meaning as "indicated" and are used to further help locate the reference, but no limitation on location is intended.

I. "Install" describes operations at the Project site, including unloading, temporary storage, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations.

J. "Installer", unless otherwise noted or under separate contract with the Government, is the Contractor or another entity engaged by the Contractor, either directly or indirectly through subcontracting, to perform a particular construction operation at the Project site, including installation, erection, application and similar operations. Installers shall be skilled in the operations they perform. Where indicated, installers shall also be Specialists as defined in the Construction Contract Clauses.

K. "Label": This must be provided by a National Recognized Testing Laboratory (NRTL), or other entity approved by GSA. The burden of documentation for validation shall be provided by the Contractor.

L. "Notice to Proceed" is the Contracting Officer's notification by letter to the Contractor to proceed with the Contract. Issuance of the Notice to Proceed may activate the time period for the completion of certain work, including Substantial Completion and Contract Completion.

M. “Owner" is the Government.

N. "Patching" refers to restoration of a surface to its original completed condition by filling, repairing, refinishing, closing and similar operations.

O. "Project site" refers to the space available to the Contractor for performance of the Work, either exclusively or in conjunction with others performing other work.

P. "Provide" means to furnish and install, complete in place and ready for full use.

Q. "Punch List" is the entire listing of all incomplete and/or defective work including items that must be completed pursuant to Contract Completion.

R. “Regulations" are found in the FAR, GSAM, and CFR including orders issued by the government.

S. “Substantial Completion" is defined in the Agreement, with additional conditions in Specification Section 017700 Closeout.

T. “Superintendent” refers to the Contractor’s on site representative who is responsible for continuous field supervision, coordination, planning, scheduling, and completion of the work and, unless another person is designated by the contract specification as the safety officer, jobsite safety.

U. "Testing Agency" or "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report the results of those inspections and tests.

V. Where "directed", "authorized", "selected", "approved", or a similar term is used in conjunction with the Contractor's submittals, applications, requests and other activities, and the specifications state that an individual other than the Contracting Officer, such as the Contracting Officer's Representative (COR), shall provide this action, it is understood that only the Contracting Officer has this authority unless the Contracting Officer provides written authorization to a different individual. The Contracting Officer shall provide the written authorization to the Contractor, upon request.

1. When the individual is authorized by the Contracting Officer, the Contractor may still appeal the action to the Contracting Officer.

2. The Contracting Officer's decision will be final, subject to the Disputes clause.

1.2 DRAWING SYMBOLS

A. Except as otherwise indicated, symbols used on the Drawings are those symbols recognized in the construction industry.

1. These include graphic symbols defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., as well as graphic symbols recommended by ASHRAE, ASME, ASPE, CSI, IEEE and similar technical organizations for the mechanical and electrical Drawings.

2. The Contractor shall refer uncertainty or ambiguity as to the meaning of symbols to the Contracting Officer for clarification before proceeding.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: The Contract Documents require the Contractor to meet, satisfy, or otherwise follow various industry standards. Unless otherwise stated in the Contract Documents, the industry standards are incorporated into the Contract Documents as an Exhibit and Other Attachment (see Agreement, Order of Precedence) by reference and are made a part of the Exhibits and Other Attachments as if fully set forth as an Exhibit and Other Attachment.

B. Conflicting Requirements. Refer to the Agreement for the Order of Precedence clause and the latest version of GSA’s P100 Facilities Standards.

C. Publication Date. The publication date for any industry standard is the most recent version as of the date that the Government issues the Solicitation. When an applicable industry standard has been revised after contract award that may result in an increase in cost or time , the Contractor shall submit a change order proposal for the Government’s consideration.

D. Specialized Work. In certain instances, a Specification section may require that the Contractor engage a specialized company or individual to perform certain work. In such instances, the Contractor shall subcontract for such work. The Contractor may not perform any such work with its own, in-house employees.

E. Abbreviations and Acronyms used in the Specifications and other Contract Documents mean the recognized name of a trade association, standards-producing organization, and authority having jurisdiction or other entity applicable to the context of the particular provision. Except as otherwise indicated, refer to the current editions of the following publications for abbreviations:

1. "Encyclopedia of Associations: National Organizations of the U.S.", published by Gale Research.

2. "National Trade and Professional Associations of the United States", published by Columbia Books.

3. "Means Illustrated Construction Dictionary - New Unabridged Edition" published by R.S. Means Company, Inc.

4. "Abbreviations and Acronyms," paragraphs A. through E. identified herein.

F. Abbreviation and Acronyms Listing. The following names are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the Contract Documents.

1. AA- Aluminum Association

2. AABC - Associated Air Balance Council

3. AAMA - American Architectural Manufacturers Association

4. AAN - American Association of Nurserymen (See ANLA)

5. AASHTO - American Association of State Highway and Transportation

6. AATCC - American Association of Textile Chemists and Colorists

7. ABMA - American Bearing Manufacturers Association

8. ABMA - American Boiler Manufacturers Association

9. ACI - American Concrete Institute

10. ACIL - American Council of Independent Laboratories

11. AISET - The Association of Independent Scientific, Engineering, and Testing Firms

12. ACPA - American Concrete Pipe Association

13. ADC - Air Diffusion Council

14. AEIC - Association of Edison Illuminating Companies

15. AFBMA - Anti-Friction Bearing Manufacturers Association (See ABMA)

16. AFPA - American Forest and Paper Association

17. AGA - American Gas Association

18. AGC - Association of General Contractors
19. AHA - American Hardboard Association
20. AHAM - Association of Home Appliance Manufacturers
21. AI - Asphalt Institute
22. AIA - The American Institute of Architects
23. AIA - American Insurance Association
24. AIHA - American Industrial Hygiene Association
25. AISC - American Institute of Steel Construction
26. AISI - American Iron and Steel Institute
27. AITC - American Institute of Timber Construction
28. ALA - American Laminators Association (See LMA)
29. ALI - American Lighting Institute
30. ALCA - Associated Landscape Contractors of America
31. ALI - Associated Laboratories, Inc.
32. ALSC - American Lumber Standards Committee
33. AMCA - Air Movement and Control Association International, Inc.
34. ANLA - American Nursery and Landscape Association
35. ANSI - American National Standards Institute
36. AOAC - Association of Official Analytical Chemists International
37. AOSA - Association of Official Seed Analysts
38. APA - American Plywood Association (see EWA)
39. APA - Architectural Precast Association
40. API - American Petroleum Institute
41. ARI - Air-Conditioning and Refrigeration Institute
42. ARMA - Asphalt Roofing Manufacturers Association
43. ASA - Acoustical Society of America
44. ASC - Adhesive and Sealant Council
45. ASCA - Architectural Spray Coaters Association
46. ASCE - American Society of Civil Engineers

47. ASHES - American Society for Healthcare Environmental Services - Division of the American Hospital Association
48. ASHRAE - American Society of Heating, Refrigerating and Air Conditioning Engineers.
49. ASI - Architect's Supplemental Information
50. ASLA - American Society of Landscape Architects
51. ASME - American Society of Mechanical Engineers
52. ASPA - American Sod Producers Association (See TPI)
53. ASPE - American Society of Plumbing Engineers
54. ASQ - American Society for Quality
55. ASSE - American Society of Sanitary Engineering
56. ASTM - American Society for Testing and Materials
57. ATIS - Alliance for Telecommunications Industry Solutions
58. ATS - Automatic Transfer Switch
59. AWCI - Association of the§ Wall and Ceiling Industries International
60. AWCMA - American Window Covering Manufacturers Association (See WCMA)
61. AWI - Architectural Woodwork Institute
62. AWPA - American Wood-Preservers' Association
63. AWS - American Welding Society
64. AWWA - American Water Works Association
65. BAS - Building Automation System
66. BHMA - Builders Hardware Manufacturers Association
67. BIA - Brick Industry Association
68. BIFMA - The Business and Institutional Furniture Manufacturer's Association International
69. BIM - Building Information Model
70. BOD - Basis of Design
71. CABO - Council of American Building Officials
72. CAGI - Compressed Air and Gas Institute
73. CAUS - Color Association of the United States
74. CBHF - State of California, Department of Consumer Affairs, Bureau of Home Furnishings and Thermal Insulation Technical Information

75. CBMA - Certified Ballast Manufacturers Association
76. CC - Construction Contractor
77. CE - Construction or Consulting Engineer
78. CEx - Contract Executive
79. CCC - Carpet Cushion Council
80. CDA - Copper Development Association Inc.
81. CE - Corps of Engineers (U.S. Department of the Army)
82. CFFA - Chemical Fabrics & Film Association, Inc.
83. CFR - Code of Federal Regulations (Publications available from the Government Printing Office)
84. CGA - Compressed Gas Association
85. CGSB - Canadian General Standards Board
86. CISCA - Ceilings and Interior Systems Construction Association
87. CISPI - Cast Iron Soil Pipe Institute
88. CLFMI - Chain Link Fence Manufacturers Institute
89. CLP - Certified Landscape Professional
90. CLT-E - Certified Landscape Technician-Exterior
91. CLT-I - Certified Landscape Technician - Interior
92. CLPA – California Lathing and Plastering Association
93. CMPM - CM Project Manager
94. CM - Construction Manager
95. CMa - Construction Manager Agency
96. CO - Contracting Officer
97. COLP - Certified Ornamental Landscape Professional
98. CORPS - Army Corps of Engineers
99. COTR - Contracting Officer's Technical Representative
100. COBIE - Construction to Operations Building Information Exchange
101. CPA - Composite Panel Association
102. CPPA - Corrugated Polyethylene Pipe Association
103. CPSC - Consumer Product Safety Commission

104. CRI - Carpet and Rug Institute
105. CRSI - Concrete Reinforcing Steel Institute
106. CS - Commercial Standard (U.S. Department of Commerce)
107. CSI - Construction Specifications Institute
108. CSSB - Cedar Shake and Shingle Bureau
109. CTI - Ceramic Tile Institute of America
110. CTI - Cooling Tower Institute
111. CTP - Certified Turfgrass Professional
112. DHI - Door and Hardware Institute
113. DIPRA - Ductile Iron Pipe Research Association
114. DLPA – Decorative Laminate Products Association
115. DOC - Department of Commerce (Publications available from the Government Printing Office)
116. DOJ - Department of Justice
117. DOT - Department of Transportation
118. DP - Design Professional
119. ECSA - Exchange Carriers Standards Association (See ATIS)
120. EIA - Electronic Industries Association
121. EIMA - EIFS Industry Members Association
122. EJMA - Expansion Joint Manufacturers Association
123. EPA - Environmental Protection Agency
124. EPAct 2005 – Energy Policy Act of 2005
125. EISA Energy Independence and Security Act of 2007
126. EWA - Engineered Wood Association
127. FAA - Federal Aviation Administration
128. FCC - Federal Communications Commission
129. FCI - Fluid Controls Institute
130. FCICA - Floor Covering Installation Contractors Association
131. FDA - US Food and Drug Administration
132. FGMA - Flat Glass Marketing Association (See GANA)

133. FHA - Federal Housing Administration (U.S. Department of Housing and Urban Development)
134. FM - Factory Mutual System
135. FMR - Federal Management Regulation
136. FPE - Fire Protection Engineer
137. FPS - Federal Protective Service
138. FPT - Functional Performance Test
139. FS - Federal Specification (Publications available from GSA)
140. FSC – Forest Stewardship Council
141. FTI – Facing Tile Institute
142. GA - Gypsum Association
143. GANA - Glass Association of North America
144. GRI - Geosynthetic Research Institute
145. GSA - General Services Administration
146. HEI - Heat Exchange Institute
147. HFES - Human Factors and Ergonomics Society
148. HI - Hydraulic Institute
149. HI - Hydronics Institute - Division of Gas Appliance Manufacturers Association
150. HMA - Hardwood Manufacturers Association
151. HPVA - Hardwood Plywood and Veneer Association
152. IALD - International Association of Lighting Designers
153. IAS - International Approval Services - Division of Canadian Standards Association
154. ICEA - Insulated Cable Engineers Association
155. IEC - International Electrotechnical Commission (Publications available from ANSI)
156. IES - Illuminating Engineering Society
157. IEEE - Institute of Electrical and Electronics Engineers
158. IESNA - Illuminating Engineering Society of North America
159. IGCC - Insulating Glass Certification Council
160. IIDA - International Interior Design Association
161. ILI - Indiana Limestone Institute of America

162. IMSA - International Municipal Signal Association
163. INCE - Institute of Noise Control Engineering
164. ISA - International Society for Measurement and Control
165. ISC - Interagency Security Committee
166. ISEA - Industrial Safety Equipment Association
167. ISS - Iron and Steel Society
168. KCMA - Kitchen Cabinet Manufacturers Association
169. LEED - Leadership in Energy and Environmental Design
170. LGSI - Light Gage Structural Institute
171. LIA - Lead Industries Association, Inc.
172. LMA - Laminating Materials Association
173. LPI - Lightning Protection Institute
174. MBMA - Metal Building Manufacturers Association
175. MCAA - Mechanical Contractors Association of America
176. MFMA - Maple Flooring Manufacturers Association
177. MFMA - Metal Framing Manufacturers Association
178. MHIA - Material Handling Industry Association
179. MIA - Marble Institute of America
180. MIA - Masonry Institute of America
181. MIL - Military Standardization Documents (U.S. Department of Defense)
182. MILCON - Military Construction
183. ML/SFA - Metal Lath/Steel Framing Association
184. MSS - Manufacturers Standardization Society of the Valve and Fittings Industry
185. NAA - National Arborist Association
186. NAAMM - National Association of Architectural Metal Manufacturers
187. NAAMM - North American Association of Mirror Manufacturers (See GANA)
188. NACE - National Association of Corrosion Engineers International
189. NAGDM - National Association of Garage Door Manufacturers (See DASMA)
190. NAIMA - North American Insulation Manufacturers Association

191. NAMI - National Accreditation & Management Institute, Inc.
192. NAPA - National Asphalt Pavement Association
193. NBHA - National Builders Hardware Association (See DHI)
194. NBIMS - National Building Information Model Standards
195. NBGQA - National Building Granite Quarries Association, Inc.
196. NBS – National Bureau of Standards
197. NIBS - National Institute of Building Sciences
198. NIST - National Institute of Standards and Technology
199. NCAC - National Council of Acoustical Consultants
200. NCCA - National Coil Coaters Association
201. NCMA - National Concrete Masonry Association
202. NCPI - National Clay Pipe Institute
203. NCRPM - National Council on Radiation Protection and Measurements
204. NCSPA - National Corrugated Steel Pipe Association
205. NEBB - Natural Environmental Balancing Bureau
206. NEC - National Electrical Code
207. NECA - National Electrical Contractors Association
208. NEI - National Elevator Industry
209. NEMA - National Electrical Manufacturers Association
210. NETA - InterNational Electrical Testing Association
211. NFPA - National Fire Protection Association
212. NFPA - National Forest Products Association (See AFPA)
213. NFRC - National Fenestration Rating Council Incorporated
214. NGA - National Glass Association
215. NHLA - National Hardwood Lumber Association
216. NIA - National Insulation Association
217. NIAC - National Insulation and Abatement Contractors Association (See NIA)
218. NIST - National Institute of Standards and Technology (U.S. Department of Commerce)
219. NKCA - National Kitchen Cabinet Association (See KCMA)

220. NPCA - National Paint and Coatings Association
221. NRCA - National Roofing Contractors Association
222. NRMCA - National Ready Mixed Concrete Association
223. NRTL - Nationally Recognized Testing Laboratory
224. NSA - National Stone Association
225. NSF - National Sanitation Foundation International
226. NTMA - National Terrazzo and Mosaic Association
227. NVLAP - National Voluntary Laboratory Accreditation Program (via NIST)
228. NUSIG - National Uniform Seismic Installation Guidelines
229. NWFA - National Wood Flooring Association
230. NWMA - National Woodwork Manufacturers Association (See NWWDA)
231. NWWDA - National Wood Window and Door Association
232. O & M - Operations & Maintenance
233. OSHA - Occupational Safety and Health Administration (U.S. Department of Labor)
234. P100 - GSA Facilities Standards for the Public Building Service (PBS)
235. PATMI - Powder Actuated Tool Manufacturers' Institute
236. PCA - Portland Cement Association
237. PCI - Precast/Prestressed Concrete Institute
238. PDCA - Painting and Decorating Contractors of America
239. PDI - Plumbing and Drainage Institute
240. PDS - Program Development Study
241. PEI - Porcelain Enamel Institute
242. PLANET - Professional Landcare Network
243. PMO – GSA PBS Program or Project Management Office?
244. POR - Program Of Requirements
245. PPFA - Plastic Pipe and Fittings Association
246. PPI - Plastics Pipe Institute (The Society of the Plastics Industry, Inc.)
247. PS Product Standards of the National Bureau of Standards (U.S. Department ofCommerce)
248. QAQC - Quality Assurance Quality Control

249. RCSC - Research Council on Structural Connections
250. RFCI - Resilient Floor Covering Institute
251. RFP - Request For Proposal
252. RIEI - Roofing Industry Education Institute
253. RMA - Rubber Manufacturers Association
254. SAE - Society of Automotive Engineers International
255. SAMA - Scientific Apparatus Makers' Association
256. SDI - Steel Deck Institute
257. SDI - Steel Door Institute
258. SEFA - Scientific Equipment and Furniture Association
259. SEGD - Society for Environmental Graphic Design
260. SFPE - Senior Fire Protection Engineer
261. SGCC - Safety Glazing Certification Council
262. SHLMA - Southern Hardwood Lumber Manufacturers Association (See HMA)
263. SIGMA - Sealed Insulating Glass Manufacturers Association
264. SJI - Steel Joist Institute
265. SMA - Screen Manufacturers Association
266. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association
267. SPI - The Society of the Plastics Industry, Inc.
268. SPIB - Southern Pine Inspection Bureau
269. SSINA - Specialty Steel Industry of North America
270. SSPC - Steel Structures Painting Council - The Society for Protective Coatings
271. SSPMA - Sump and Sewage Pump Manufacturers Association
272. STI - Steel Tank Institute
273. SWI - Steel Window Institute
274. SWPA - Submersible Wastewater Pump Association
275. SWRI - Sealant, Waterproofing and Restoration Institute
276. TAB - Testing, Adjusting, and Balancing Bureau
277. TCA - Tile Council of America

278. TIMA - Thermal Insulation Manufacturers Association (See NAIMA)
279. TPI - Truss Plate Institute
280. TPI - Turfgrass Producers International
281. TRB - Transportation Research Board - National Research Council
282. UFAC - Upholstered Furniture Action Council
283. UL - Underwriters Laboratories Inc.
284. USDA - U.S. Department of Agriculture
285. USGBC – U.S. Green Building Council
286. USITT - U.S. Institute of Theater Technology - The American Association of Design and Production Professionals in the Performing Arts
287. USMS - U.S. Marshals Service
288. USP - U.S. Pharmacopeia
289. USPS - U.S. Postal Service
290. VOC – Volatile Organic Compound
291. WA – Wall-coverings Association
292. WASTEC - Waste Equipment Technology Association
293. WCMA - Window Covering Manufacturers Association
294. WEF - Water Environment Federation
295. WMMPA - Wood Molding & Millwork Producers Association
296. WPCF - Water Pollution Control Federation (See WEF)
297. WRI - Wire Reinforcement Institute
298. WSC - Water Systems Council
299. WSFI - Wood and Synthetic Flooring Institute (See MFMA)
300. WWPA - Western Wood Products Association
301. W.W.P.A. - Woven Wire Products Association

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. This section includes requirements for temporary utilities, support facilities and protection.

1. Temporary utilities include but are not limited to the following:

a. Temporary water service and distribution.
b. Temporary electric power and lighting.
c. Temporary heat and ventilation.
d. Temporary telephone service.

2. Support facilities include but are not limited to the following:

a. Temporary enclosures, roofs and other building envelopes.
b. Temporary lifts and hoists.
c. Project identification and other temporary signs.
d. Waste disposal services.
e. Rodent and pest control.
f. Other construction aids and miscellaneous services and facilities.

3. Protection includes but is not limited to the following:

a. Temporary fire protection.
b. Enclosure partitions.

B. Provide temporary facilities and controls required for construction activities except, for facilities and controls indicated as existing or provided by the Government or others.

1.2 UTILITY USE CHARGES

A. Water Service: The Contractor may use water from the Government's existing water system, without metering and without payment of use charges.

B. Sewer Service: Contractor may use the Government's existing sewer system, without payment of use charges.

C. Electric Power Service: Contractor may use electric power from the Government's existing electric power system, without metering and without payment of use charges.

1.3 SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Reports: Submit reports of tests, inspections, meter readings and similar procedures for temporary utilities.

C. Implementation and Termination Schedule: Within 15 calendar days after the date established for the submission of the Contractor's Construction Schedule, submit a schedule indicating implementation and termination of each temporary utility.

D. Weather Protection:

1. Provide protection for work areas affected by moisture and thermal change. Including building floor areas, masonry scaffolds and fabrication areas. Covering, enclosing and heat to maintain a relatively dry work area with a minimum temperature of 40°F at the working surface. Weather protection is not required for excavation, pile driving, steel erection, and similar operations normally completed in the open.

2. Submit a weather protection plan to FDA for approval. Future changes must be approved by FDA.

3. Provide accurate Fahrenheit thermometers for every 2,000 sq feet of floor space located as directed.

1.4 QUALITY ASSURANCE

A. Standards and Regulations: In temporary facilities, comply with industry standards, applicable laws, and regulations of authorities having jurisdiction, including but not limited to the following:

1. Building code requirements.

2. Accessibility Code Requirements (ABAAS)

3. Health and Safety regulations.

4. Utility company regulations.

5. Police, fire department, local fire marshal and rescue squad rules.

6. Environmental protection regulations.

7. For temporary egress, ABAAS regulations.

8. NFPA 241 "Standards for Safeguarding Construction, Alterations and Demolition Operations".

9. ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition".

10. NECA Electrical Design Library "Temporary Electrical Facilities", NFPA 70, and NEMA, NECA and UL standards and regulations for temporary electric service.

B. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Install, operate, maintain and protect temporary facilities and controls.

1. Temporary facilities shall not reduce or diminish accessible paths of travel or accessible routes.

2. Keep temporary facilities clean and neat in appearance.

3. Operate temporary facilities in a safe and efficient manner.

4. Relocate temporary facilities if needed as Work progresses.

5. Do not overload temporary services and facilities or permit them to interfere with progress.

6. Provide fire prevention.

7. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to be on-site.

B. At the earliest possible time, when acceptable to FDA, change over from temporary services to use of permanent services and remove temporary facilities when no longer needed.

C. Temporary Use of Permanent Facilities and Services: Contractor shall assume responsibility for the operation, maintenance and protection of the facility and each permanent service during its use as a construction facility prior to the Government's acceptance.

D. Existing Equipment and Items: Cover or otherwise protect and provide security for existing equipment and other items that are to remain in place, to prevent soiling, damage and loss, the cost of which is the responsibility of the Contractor.

1. Temporarily move equipment and other items that interfere with the performance of required work.

2. Store equipment and other items that have been temporarily removed. Upon reinstallation, clean and, if damaged, repair or replace equipment and items to match their condition prior to removal.

PART 2 PRODUCTS

2.1 MATERIALS

A. Provide undamaged materials in serviceable conditions and suitable for use intended.

B. Tarpaulins: Waterproof, fire-resistant UL labeled with flame spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene fire-retardant tarpaulins.

C. Water: Shall be potable and approved by local health authorities.

D. Wood: Lumber complying with DOC PS 20 and applicable grading rules of an inspection agency certified by ALSC's Board of Review for specific use. Provide preservative treated lumber where partially or fully in contact with the earth, concrete or masonry. Provide fire retardant treated lumber for temporary purposes where fire rated products are normally required.

E. Sign, Directory and Other Graphic Panel Materials: Unless otherwise indicated, products shall be as follows:

2.2 PANELS: EXTERIOR TYPE GRADE B-B HIGH DENSITY CONCRETE-FORM-OVERLAY PLYWOOD.

1. Paint: Exterior primer and exterior grade alkyd gloss enamel top coat.

B. Safety Barrier and Covered Walkway Materials: Unless otherwise indicated, products shall be as follows.

1. Panels: Minimum 5/8 inch thick exterior plywood.

2. Paint: Exterior primer and exterior grade acrylic-latex emulsion top coat.

C. Dust control:

1. Dust Control Adhesive-Surface Walk-off Mats: Provide mats minimum 914 by 1624 mm (36 by 60 inches).

2. Polyethylene Sheet: Reinforced, fire-resistive sheet, 0.01 inches minimum thickness, with flame-spread rating of 15 or less per ASTM E84 and passing NFPA 701 Test 2.

D. Temporary Lighting systems shall be solid state (e.g., LEDs) (specify minimum foot candles and OSHA requirements).

2.3 EQUIPMENT

A. Provide equipment in serviceable condition and suitable for use intended.

1. Water Hoses: 3/4" (0.75 inch) heavy duty abrasive-resistant flexible rubber hoses, 100 feet long with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge

2. Electric Outlets: NEMA-polarized outlets to prevent insertion of 110 to 120 Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground fault circuit interrupters, reset button and pilot light for connection of power tools and equipment.

3. Electric Power Cords: Grounded extension cords.

a. Provide hard-service cords where exposed to abrasion or traffic.
b. Provide waterproof connectors to connect separate lengths of electric cords where single lengths will not reach areas of construction activity.
c. Do not exceed safe length-voltage ratio.

4. Light Fixtures: General service luminaires with required lumen output for adequate illumination.

a. Provide guard cages or tempered glass enclosures where exposed to breakage.
b. Provide exterior fixtures when exposed to moisture.

5. Heating Units: Temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel consumed.

PART 3 EXECUTION

3.1 INSTALLATION

A. Use qualified personnel for installation of temporary facilities.

B. Locate facilities where they will serve the project with minimum interference to performance of construction activities. Maintain, relocate and modify facilities as required for the duration of the performance of the Work.

3.2 TEMPORARY UTILITIES

A. Engage the appropriate local utility companies to install temporary services or connect to existing services. Where a utility company provides only part of a service, provide the remainder with matching and compatible materials and equipment in compliance with utility company recommendations. Coordinate interruptions and outages with FDA Building Manager and any affected stakeholders, provide adequate utility capacities, and obtain easements if necessary. At Substantial Completion, restore these facilities to conditions existing before initial use.

1. Electric Power Service: Provide weatherproof grounded electric power service and distribution system of sufficient size, capacity and power characteristics for construction needs. Include

meters, transformers, overload-protected disconnects, automatic ground-fault interrupters and main distribution gear Actual switchgear may not be provided for temporary electricity.

2. Lighting:

   a. Provide lighting that provides adequate illumination for construction operations and traffic conditions.
   b. Provide lighting for the Project identification signs.
   c. Editor: Add the next requirement if necessary for the project.:
      1) Install and operate temporary lighting that fulfills security and protection requirements of FDA without operating the entire system.

3. Heat (and Cooling) and Ventilation: Provide temporary heat and Cooling and ventilation required for the construction activities, including but not limited to curing or drying completed installations and protecting construction from adverse effects of low temperatures and high humidity. Use safe equipment (UL listed) that will not have a harmful effect on elements being installed and on completed installations. Coordinate ventilation requirements to produce the ambient condition required for the work and to minimize energy consumption, and to protect personnel from fumes and other harmful effects. Avoid storing any odor producing equipment or materials near fresh air intakes.

4. Heating Facilities: Provide vented self-contained heaters with individual space thermostatic control. Do not use gasoline-burning space heaters or other open flame devices.

5. Provide data/internet and/or WIFI service. The FDA facility will not allow connecting to their network.

6. Sanitary Facilities: Provide for toilets, wash facilities and drinking water fixtures in compliance with regulations and health codes for type, number, location, operation and maintenance of fixtures and facilities. Provide toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility, and provide covered waste containers for used materials.

   a. Toilets: Use of the Government's existing toilet facilities will be permitted. Clean and maintain facilities in a condition acceptable to the Contracting Officer and, at completion of construction, restore facilities to conditions prevalent at the time of initial use. Restroom use will be shared with FDA. If the constructor does not maintain and keep toilet facilities clean, the FDA has the right to deny usage in the future.

B. Telephone: Provide a cellular phone for the Contractor’s Superintendent’s use. Distribute cellular phone number to Contracting Officer’s Representative and Field Office personnel during the pre-construction meeting. Contractor’s and subcontractor’s personnel are not permitted to use existing telephone system in the building

3.3 TEMPORARY SUPPORT FACILITIES

A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.

B. Offices: At the Contractor's discretion, provide insulated, weather-tight temporary offices of sufficient size to accommodate office personnel at the Project site. Maintain offices clean and orderly. Furnish and equip offices for use.

   1. Furniture: Minimally provide desks, chairs, file cabinets, plan table, plan rack and bookcase.

2. Electronic Communication service with computers, printers, projector for computer presentations, and related equipment necessary for the project, and for occasional use by others. Capacities and programs shall be adequate to fully interact with all stakeholders, and to handle the programs used in pursuit of the Work.

C. Storage Sheds and Fabrication Shops: Provide sheds and shops that are sized, furnished and equipped to accommodate materials and equipment involved. Include complete temporary utility services for intended use. Sheds and shops may be open shelters or fully enclosed spaces, as appropriate for protection of equipment and materials.

D. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress or completed, from exposure, inclement weather, other construction operations and similar conditions.

1. Where heat is needed and the building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions or unacceptable effects to the materials.

2. Install tarpaulins securely with incombustible framing. Close openings of 25 sq. ft. (2.3 sq. m.) or less with plywood or similar materials.

3. Close openings through floor or roof decks and other horizontal surfaces with load-bearing wood-framed construction.

4. Where enclosure exceeds 100 sq. ft. (9.2 sq. m) in plan area, use UL labeled fire-retardant-treated wood and plywood for framing and sheathing.

E. Temporary Cranes, Lifts and Hoists: Provide protection of facilities, personnel and landscaping for hoisting materials.

F. Existing Elevator Use: Use of FDA's existing freight or passenger elevators will not be permitted unless approved by the FDA Building Manager. If allowed, elevators must be protected, cleaned and maintained in a condition acceptable to FDA. At Substantial Completion, restore elevators to conditions existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.

1. Do not load elevators beyond their rated weight capacity.

2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator cars and entrance doors and frames. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop, make required repairs and refinish the entire unit, or provide new units as required.

3. If required by local jurisdiction or union, provide temporary phones for elevators. Coordinate with Elevator maintenance contractor and FDA Building Manager.

G. Project Identification Signs and Other Temporary Signs: Coordinate location with building manager and tenant representatives Provide project identification and other signs of sizes, layout, content, graphics and colors indicated. Locate signs where best to inform the public and instruct persons seeking entrance to the project.

1. Other Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.

2. Do not permit installation of unauthorized signs.

H. Collection and Disposal of Waste/Salvaged Material: Collect waste from construction areas and elsewhere daily. Collect salvaged/recycled material from construction areas and elsewhere as necessary. Enforce requirements strictly and dispose of material lawfully.

1. Comply with NFPA 241 for removal of combustible waste material and debris.

2. Do not hold waste materials more than 7 days during periods when the ambient temperature remains continuously less than 80°F (27°C), or more than 3 days when the temperature exceeds or is expected to rise above 80° (27°C).

3. Handle and properly containerize hazardous, dangerous or unsanitary waste materials separately from other waste.

4. Comply with Construction non hazardous Waste Management and Disposal requirements in FDA FY23 01 74 19 CONSTRUCTION NONHAZARDOUS WASTE MANAGEMENT & DISPOSAL.

I. Rodent and Pest Control: Retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches and other pests. Employ this service to perform extermination and control procedures at regular intervals so the project will be free of pests and their residue at completion. Perform control operations lawfully, using environmentally safe materials. Segregate hazardous and unsanitary waste from other waste materials.

3.4 TEMPORARY PROTECTION FACILITIES

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, stormwater, sanitary, waterway, and subsoil contamination or pollution or other undesirable effects. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons near the site. When working in or near existing facilities, provide dust proof enclosures for protection where dirty work is performed. Dampen debris when removed to avoid dusting.

1. Comply with work restrictions specified in 01 10 00 SUMMARY.

B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection measures and devices of types needed to protect against reasonably predictable and controlled fire losses.

1. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations".

2. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher at or near each access route exit or entrance, including stairwells on each floor.

3. Store combustible materials in containers in fire-safe locations.

4. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities and access routes. Prohibit smoking in hazardous fire-exposure areas.

5. Provide supervision of welding operations, combustion-type temporary heating units and other sources of fire ignition.

C. Permanent Fire Protection: At the earliest possible date in each area of the Project, complete installation of the permanent fire protection facilities including connected services, and place into operation and use. Instruct key personnel in the use of the facilities.

D. Tree and Plant Protection: Install temporary fencing located as indicated on the drawings to protect vegetation from damage due to construction operations. The contract drawings shall provide a unique fence-path specific to the individual vegetation and “critical root zones” being protected. The methods for determining the “critical root zone” are identified in specification 01 56 39 TREE and PLANT PROTECTION.

E. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.

1. Storage: Provide a secure lockup for valuable stored materials and equipment.

2. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

3.5 MOISTURE CONTROL

A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction. Remove and replace any materials contaminated by mold in accordance with applicable environmental procedures by EPA, OSHA or any other regulating authorities.

B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.

2. Protect stored and installed material from flowing or standing water.

3. Keep porous and organic materials from coming into prolonged contact with concrete.

4. Remove standing water from decks.

5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed buildings.

2. Keep interior spaces reasonably clean and protected from water damage.

3. Periodically collect and remove waste containing cellulose or other organic matter.

4. Discard or replace water-damaged material.

5. Do not install material that is wet.

6. Discard, replace or clean stored or installed material that begins to grow mold.

7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside the building by maintaining effective dry-in conditions.

2. Use a permanent HVAC system to control humidity.

3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to the Construction Contractor.
1) Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis to avoid possibility of damage.

2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect underground lines from damage during excavation operations.

C. Termination and Removal: Unless FDA requests that a temporary facility be maintained longer, each temporary facility shall be removed not later than at Substantial Completion when the need for its service has ended and can be replaced by use of a permanent facility. Complete, restore , and replace permanent construction that may have been delayed and damaged because of interference with the temporary facility.

1. Materials and facilities that constitute temporary facilities are the property of the Contractor, except the Government reserves the right to take possession of project identification signs.

2. Prior to project completion, replace, clean, and restore permanent facilities used during the construction period including, but not limited to, the following:

a. Replace air filters and clean the inside of ductwork and housings.
b. Replace significantly worn parts and parts subject to unusual operating conditions.
c. Replace luminaires burned out or noticeably dimmed by hours of use.
d. Comply with FDA FY23 01 77 00 CLOSEOUT PROCEDURES.

END OF SECTION

SECTION 01 59 50 - SAFETY AND HEALTH

PART 1 GENERAL

1.1 SUMMARY

A. This project includes or may be expected to include the following tasks that involve unique safety and health risks. Note to Editor: delete from the following list, those not applicable to this project. If uncertain, leave all in

1. Work generating silica dust (e.g. concrete drilling, jack-hammering, etc.)
2. Work involving hazardous chemicals
3. Work involving compressed gasses
4. Hazardous waste cleanup
5. The use of powered equipment
6. The use of cranes
7. The use of scaffolds
8. Work at elevations of 6 feet or more above lower levels (i.e., fall protection))
9. Electrical work
10. Work in confined spaces
11. Work involving high noise levels
12. Work requiring lock-out/tag-out (i.e. controlling hazardous energy)

B. References: In addition to publications referenced in the Construction Contract Clauses, the following Code of Federal Regulations (CFR) and publications apply to the conduct of the work. State and local safety and health regulations that apply are not cited herein. Current editions at the date of the agreement apply. The more stringent requirements shall apply.

1. 29 CFR Part 1910 Occupational Safety and Health Administration (OSHA) Occupational Safety and Health Standards for General Industry.
2. 29 CFR Part 1926 OSHA "Safety and Health Regulations for Construction"
3. 40 CFR 260 - 279 EPA Resource Conservation and Recovery Act (RCRA)
4. 40 CFR, Part 761 EPA Polychlorinated Biphenyls (PCBs), Manufacturing, Processing, Distribution in Commerce and Use Prohibitions. GSA Project Team: Check if any work involves disturbance of any PCB containing materials like caulking, paint, ballast, transformers, etc.
5. National Fire Protection Association (NFPA) 70E Electrical Safety Requirements for Workplace Safety

6. National Fire Protection Association (NFPA) 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations

7. GSA Public Buildings Service (PBS) Asbestos Management policy (P1000.1A)

8. GSA PBS Fuel Storage Tank Management policy (1095.2)

9. GSA PBS Indoor Air Quality Management policy (1000.8)

10. GSA PBS Safety and Health Management policy (5940.3)

11. GSA Core Building Standards

12. ANSI/IICRC S500: Professional Water Damage Restoration

13. ANSI/IICRC S520: Professional Mold Remediation

14. EPA 402-K-01-001: Mold Remediation in Schools and Commercial Facilities

15. Applicable Federal, State, and local safety & health regulations.

C. Acquisition of Publications:

1. Codes of Federal Regulations (CFR) may be obtained online (https://www.govinfo.gov/app/collection/cfr).

2. NFPA publications may be purchased from the National Fire Protection Association (https://www.nfpa.org/).

3. ANSI publications may be purchased online from the ANSI Webstore (https://ansi.org/).

1.2 SUBMITTALS

A. The Contractor shall submit a Site-specific Construction Safety and Health Plan (CSHP) to GSA, at least 7 days prior to the pre-construction meeting. The CSHP shall be accepted by GSA prior to the issuance of the Notice to Proceed.

1. Site-specific CSHP as defined below:

2. The Site-specific CSHP is a written document that describes the process for identifying the physical and health hazards that could harm workers, procedures to reduce these hazards and prevent accidents, and steps to take when accidents occur. The written CSHP is the Contractor's blueprint for keeping their workers, our employees, tenants, and the public safe.

3. The CSHP shall be a site-specific document, not a generic shelf plan, that is adapted to the specific safety and contractual needs of the project. The larger and more complex the project, the larger and more complex the safety plan. Every task in a project should be reviewed to identify known hazards, and shall provide general guidance for those hazards that are unexpected or unpredictable and how those will be mitigated. These shall be in the form of a job hazard analysis and shall include job steps, potential occupational hazards, and the action/procedure to control, minimize or eliminate the potential hazards and risks, as well as any additional information that serves to increase the safety and health of workers performing the specific job. Plans shall address the following conditions or hazards and are not limited to:

4. The Contractor shall include the project name, the project description, the project location, and which safety features of the safety and health plan will apply to this project based on scope.

5. The Contractor shall designate a site safety and health officer (SSHO), who is responsible for and has the authority to ensure this plan is adhered to throughout the project, along with applicable safety & health regulations and this specification section. The SSHO shall have a minimum of a valid OSHA 30-hour Construction Safety card received within the last five years. The designated SSHO will be listed in the safety and health plan, along with a contact number.

6. The Contractor shall also establish and list in the safety and health plan any required competent person and/or designated person when required by OSHA regulations for fall protection, demolition, lock-out/tag-out, ladders, and scaffolds, as well as the following work:

    a. Silica work exposure plan competent person
    b. Crane competent person
    c. Energized electrical qualified workers
    d. Confined space entry supervisor
    e. Scaffolding qualified and/or competent person

7. The CSHP shall include those controls and accident prevention procedures to address each of the following as required based on the site-specific scope of the project:

    a. Overall electrical safety-related work practices
    b. Control of Hazardous Energy (Lockout / Tag-out procedures)
    c. Fall Protection (scaffolds, roofs, ladders, building façade)
    d. Personal Protective Equipment (hard hats, shoes, glasses, earplugs, respirators, etc.)
    e. Safeguarding of powered tools and equipment
    f. Equipment Guarding
    g. Dust and odor control
    h. PCB abatement controls
    i. Silica Work Exposure plans
    j. Hazard Communication Plans and working with chemicals
    k. Spill Response procedures
    l. Emergency and first-aid procedures
    m. Hazardous waste cleanup and disposal safeguards
    n. Excavation and trenching safeguards
    o. Confined space entry procedures
    p. Occupational Noise Exposure
    q. Hot Work permitting procedure (e.g., welding, brazing, etc.)
    r. Crane Hoisting Inspection Program/Critical Lift Plan
    s. NOTE: The above are safety and health issues commonly encountered during construction work, but are not a comprehensive list of all potential project risks.

8. The plan shall include the Contractor’s reporting procedures in the event of an accident and a call-down tree containing contact information for all project staff.

9. The Contractor shall provide to the Contracting Officer or their representative GSA, local, city, and/or state permits for the following as applicable: asbestos abatement, lead abatement, PCB abatement, hazardous waste cleanup, and disposal.

10. The Contractor shall provide the CO and the GSA property manager’s office with a list of chemical products and/or hazardous materials expected to be used on the project site. The list shall include the Safety Data Sheets (SDS) for each product and shall be a part of the Contractor's Hazard Communication Plan (HCP). The Contractor shall review and update the product list at a regular interval for the duration of the project.

a. The Contractor's Hazard Communication Plan (HCP) with the accompanying Chemical product list and/or hazardous materials shall be submitted to GSA with the CHSP.
b. The HCP shall describe the proper use, quantities, location, safety, SDS, storage, security, and access of all chemical products and/or hazardous chemicals. The HCP shall be accessible to all subcontractors and other 3rd parties on the project site.
c. The Hazard Communication Plan shall clearly and concisely describe the methods used to provide all on-site personnel access to their on-site SDSs, and how they will inform the other employer(s) of any precautionary measures that they need to consider.

1.3 SAFETY MEETING

A. Pre-Construction Meeting: The General Contractor and Subcontractors shall meet with the GSA project team and other GSA representatives as appropriate after the Contract Award and before the issuance of the Notice to Proceed. The meeting shall cover:

1. The Contractors' site-specific CSHP, SDS list, HCP and other related Health and Safety information.

2. Specific safety and health features for the project are intended to protect the safety of employees, Government representatives, and others while on-site throughout the project.

3. The Contractors shall resolve any questions or concerns raised in a manner satisfactory to the GSA representatives.

B. Ongoing Meeting: The general contractor and subcontractors shall conduct regular safety meetings with and other FDA representatives. Weekly meetings throughout the duration are typical for most projects. or monthly. The Contractor shall review and update the CSHP, SDS list, HCP and other related Health and Safety information and distribute to project stakeholders on an on-going basis. The Contractor shall submit revisions to GSA for review prior to distribution.

C. The Contractor shall prepare meeting minutes for each meeting and upload them into PMIS. The Contractor's project manager, safety officer, project superintendent, and any other supervisors shall be required to attend these meetings with the Government and its designated on-site representatives.

1.4 SAFETY AND HEALTH PROGRAM

A. Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with applicable codes, standards and regulations about the health and safety of personnel during execution of the Work, and shall hold the Government harmless for any action on the Contractor's part, or that of the Contractor's employees or Subcontractors, that results in illness, injury or death.

B. Site Safety and Health Officer: A trained and experienced individual shall be delegated in writing as the Site Safety and Health Officer (SSHO). The SSHO shall have a minimum of a valid OSHA 30-hour Construction Safety card received within the last five years. The SSHO shall be responsible for the development, implementation, oversight, and enforcement of the Contractor's Accident Prevention Plan (APP) on-site, which shall address all activities for which the Contractor is responsible. The Contractor may appoint as many individuals as he or she deems appropriate to accomplish the provisions of this section. The SSHO shall typically remain on-site full-time during activities conducted under this contract. The SSHO may be an individual with other responsibilities, already identified to be on-site and who has the authority and appropriate knowledge to oversee and act on the provisions of this section.

C. The Contractor shall provide for site visitors Personal Protective Equipment (PPE) per OSHA for use during their visits. Provide a minimum of 2 sets with replacements for items not suitable for reuse.

PART 2 PRODUCTS

2.1 PROTECTIVE EQUIPMENT

A. Special facilities, devices, equipment, and similar items used by the Contractor in the execution of the Work shall comply with the applicable regulations.

PART 3 EXECUTION

3.1 RESPONSIBILITY AND LAIBILITY

A. The Contractor shall assume full responsibility and liability for compliance with applicable codes, standards and regulations pertaining to the health and safety of personnel during the execution of the project, and shall hold the Government harmless for any action on the Contractor's part, or that of the Contractor's employees or Subcontractors, that results in illness, injury or death. The Contractor is also responsible for the safety of GSA staff, FOB employees, regulators, Federal agency officials, and any other visitors while present on the construction site.

3.2 HAZARDOUS MATERIALS AND CONDITIONS

A. The Contractor shall advise GSA of any hazardous material and/or hazardous conditions encountered during the execution of the work. GSA shall determine if the Contractor must perform additional tests and if the work for the particular material or condition shall cease, at the direction of the Contracting Officer. Work shall recommence at the direction of GSA. The SSHO shall take measures to protect all personnel on-site until GSA has rendered its decision.

3.3 EMERGENCY SUSPENSION OF WORK

A. If any employees of the Contractor or Subcontractor observe any unsafe act or hazard which could jeopardize their personal safety or the safety of others, that employee must take steps to resolve the issue, including notifying the supervisor/foreman of the hazard. The supervisor/foreman has the ability to ensure the hazardous condition is corrected, prevent exposure to the hazard, and/or stop the work until that hazardous condition is corrected. Unsafe acts and or hazards that cannot be immediately corrected in these manners will be brought to the attention of the GSA project manager and GSA project contracting officer.

B. When the Contractor is notified by GSA of non-compliance with the safety or health provisions of the contract, the Contractor shall immediately cease work in the subject area unless otherwise instructed by the Contracting Officer or their representative, and correct the unsafe or unhealthy condition.

1. If the Contractor fails to comply promptly, all or part of the work will be stopped by notice from the GSA contracting officer or their representative.

2. When GSA determines that satisfactory corrective action has been taken by the Contractor, work shall resume.

3. The Contractor shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe or unhealthy condition.

3.4 PROTECTION OF PERSONNEL

A. The Contractor shall take necessary precautions to prevent injury to the public, occupants, and project staff on the site or in close proximity to be affected by the project. The public and occupants include all persons not employed by the Contractor or a Subcontractor.

B. The work area shall be isolated from unauthorized entry through the use of signage, barrier tape, fences, barricades, or similar means. Control by authorized personnel shall be done where passage through is necessary for the work.

1. Corridors, aisles, stairways, doors, and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants or to present an unsafe or unhealthy condition to the public or occupants.

2. Store, position, and use equipment, tools, and materials, in a manner that does not present a hazard to the public or occupants.

3. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers and remove refuse on a frequent regular basis acceptable to GSA. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks.

3.5 EMERGENCIES AND FIRST AID

A. The Contractor shall provide for use on-site: emergency first aid equipment, an ABC-Rated Fire Extinguishers per NFPA 10 and NFPA 241, and absorbent material of sufficient quantity to collect any spill which might occur. The Contractor shall also maintain and post on-site a list of emergency phone numbers and points of contact for fire, hospital, police, and ambulance. All corrosive chemicals used that require a 15-minute eye flush as listed in the first aid section of the Safety Data Sheet require the contractor to bring a portable ANSI/ISEA Z358.1 rated eyewash on site. The laboratory eyewashes should not be used.

B. The Contractor shall submit an electronic copy of each accident report to the GSA project manager that the Contractor or Subcontractors submits to their insurance carriers, within seven calendar days after the date of the accident. Any accident or occupational illness that requires reporting to OSHA must be reported to GSA within 48 hours following the incident. The Contractor will complete the GSA Form 3620 (include a copy of this form as part of the submittal). In addition, if the Contractor causes any damage to GSA property this information must also be recorded on the 3620. The Contractor is responsible for reporting to OSHA all recordable injuries or illnesses of their employees within all required timeframes and methods, including those that result in hospitalization, amputation, death, or loss of an eye.

3.6 ENVIRONMENTAL PROTECTION

A. In addition to the unique provisions required for environmental remediation work (asbestos, lead-based paint, PCBs, hazardous waste), the Contractor shall dispose of any other contaminant waste per EPA, state, and local requirements.

B. The Contractor shall comply with applicable laws and ordinances regarding noise control, including but not limited to 29 CFR 1910.95 and 29 CFR 1926.52.

3.7 WATER INTRUSION AND MOLD REMEDIATION

A. Should any project-related incident result in water damage to building materials, it shall be the Contractor’s responsibility to bring such information to the attention of the Contracting Officer, both verbally and in writing, as quickly as possible for resolution.

B. The Contractor shall immediately respond using a professional company that is trained in water remediation that has the knowledge, equipment, and resources to employ industry-related standard

practices following ANSI/IICRC S500 Professional Water Damage Restoration & S520 Professional Mold Remediation along with EPA Mold Remediation in Schools and Commercial Facilities.

C. After each event, a separate visual inspection and non-invasive assessment of the space must take place and the results provided to the Contracting Officer along with a detailed action plan to address the issues within 24 hours of the incident.

D. Mold remediation that is required as a result of the Contractor not fully addressing the situation promptly will be the financial responsibility of the Contractor. Remediation shall be completed by a qualified mold remediation contractor using industry-standard practices following ANSI/IICRC S500 Professional Water Damage Restoration & S520 Professional Mold Remediation along with EPA Mold Remediation in Schools and Commercial Facilities. This work is required to be monitored and clearance provided by an independent third-party consultant at no cost to the government.

END OF SECTION

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project, including manufacturers' standard warranties on products and special warranties.

B. The following definitions are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms that are self-explanatory and have well-recognized meanings in the construction industry.

1. "Products" means items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and other terms of similar intent.

2. "Materials" means products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

3. "Equipment" means products with operational parts, whether motorized or manually operated, and products that require service connections, such as wiring or piping.

C. For requests for substitutions refer to: 01 25 00 SUBSTITUTION PROCEDURES

D. Warranties: Standard, and special warranties required by the individual sections of the Specifications shall provide guarantees in terms of time limits or rights of the Government in addition to those contained in the Construction Contract Clauses.

1. Standard product warranties shall be preprinted written warranties published by individual manufacturers for particular products, and shall be specifically endorsed to the Government by the manufacturer.

2. Special warranties shall be specifically written to incorporate particular requirements of the Contract Documents, and shall be endorsed to the Government by the entities responsible for the work, as stated in the individual section.

1.2 SUBMITTALS

A. Submittals: 01 33 00 SUBMITTAL PROCEDURES

B. Substitutions: 01 25 00 SUBSTITUTION PROCEDURES

C. Submit written warranties to the Government prior to the date for Project Completion, unless an earlier time of submission is specified elsewhere in the Contract Documents or requested by the Government. When a designated portion of the Work is completed and occupied or used by the Government, by a separate agreement with the Contractor during the construction period, submit properly executed warranties within 15 days after completion of that designated portion of the Work. Identify and clearly label on the product the effective start time and end time for each warranty.

1. When the Contract Documents require the Contractor to execute a special warranty, provide a written document that contains the appropriate terms and identification, executed by the required parties.

2. See technical Specification divisions for other warranty language.

1.3 QUALITY CONTROL

A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source. Equipment of the same function shall be manufactured by the same entity, unless otherwise indicated.

B. Compatibility of Options: When the Contractor is given the option of selecting between 2 or more products for use on the Project, the product selected shall be compatible with products previously selected.

C. Labels and nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on surfaces of products that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous. Labels indicating compliance with recognized organizations require confirmation by submitted documents.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate nameplate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information:

a. Name of product manufacturer.
b. Model and serial numbers.
c. Operating data such as capacity, speed and ratings.
d. Name and phone number of Installer.

3. Protection: Labels and nameplates shall be protected from defacement and other damage during the remainder of the Work.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule product delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to provide minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

3. Deliver products to the site in an undamaged condition, in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected. Coordinate inspection with Government, GSA COR or designated representative (i.e Bldg. Manager, CM, etc.).

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.

7. Store products subject to damage by the elements above ground, undercover in a weather-tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within the range required by the manufacturer's instructions.

PART 2 PRODUCTS

2.1 PRODUCT COMPLIANCE AND REQUIREMENTS

A. Provide products complete with accessories, trim, finish, safety guards, devices and other items needed for a complete installation and the intended use and effect. Where specified and available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures: The Contract Documents, including the Construction Contract Clauses, govern product selection. Requirements for product selection include the following:

1. Where the Specifications lists manufacturers' names or product designations, the Contractor may provide any product that complies with the requirements, subject to the following conditions:

   a. Available Manufacturers: Where a Specification paragraph or subparagraph titled "Available Manufacturers" lists a minimum of three manufacturers' names, provide a compliant product by one of the manufacturers named or by another manufacturer.
   b. Available Products: Where a Specification paragraph or subparagraph titled "Available Products" lists a minimum of three product designations, providing one of the products designated or another compliant product.
   c. Basis of Design: Where a Specification paragraph or subparagraph titled "Basis of Design" includes a product designation, provides the product designated, or requests a Substitution of a compliant product by a named or other manufacturer.

2. Descriptive Requirements: Where Specifications describe a product or assembly, listing the characteristics required, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

3. Performance Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated. Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.

4. Prescriptive Requirements: Where Specifications require products that are produced using specific ingredients and components, including specific requirements for mixing, fabricating, curing, finishing, testing and similar operations in the manufacturing process, provide products produced in accordance with the prescriptive requirements that otherwise comply with Contract requirements.

5. Codes, Standards and Regulations: Where Specifications require compliance with an imposed code, standard or regulation, select a product that complies with these requirements.

6. Visual Matching: Where Specifications require matching an established Sample, the Government's decision will be final on whether a proposed product matches satisfactorily. Where no product available within the specified category matches satisfactorily and complies with other specified requirements, comply with provisions concerning "substitutions" for selections of a matching product in another product category.

7. Visual Selection: Where specified product requirements include the phrase "as selected from manufacturer's standard colors, patterns, textures" or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Government will select the color, pattern and texture from the manufacturer's product line.

C. The Contractor's submittal and the Government's acceptance of Shop Drawings, Product Data, or Samples for construction activities not complying with Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval.

2.2 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work.

D. Rejection of Warranties: The Government reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

E. Where the Contract Documents require a special warranty, or similar commitment for the Work or part of the Work, the Government reserves the right to refuse to accept the Work until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01 70 00 - EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. This section includes certain general procedural requirements governing the Contractor's execution of the Work, including, but not limited to laying out the work, general installation of products, correction of defective work, and cleaning.

B. Substitutions Coordinate further with GSA FY23 01 25 00 SUBSTITUTION PROCEDURES: Changes in methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract shall comply with the procedures and conditions specified for Substitutions in the Construction Contract Clauses and GSA FY23 01 60 00 PRODUCT REQUIREMENTS.

1.2 SUBMITTALS

A. Field Correction Requests: Immediately upon discovery of the need to deviate from requirements of the Contract Documents, submit a field correction request to GSA for review. Include a detailed description of the problem encountered, together with recommended changes and detailing the reasons for deviating from the Contract Documents.

B. Manufacturer's Field Services Submissions: Where product manufacturers are required by the individual sections of the Specifications to provide qualified personnel to observe conditions of project conditions, installation or workmanship, start up or adjustment of equipment, tests or other activities, and to initiate instructions when necessary, the following shall be submitted to GSA:

1. Qualifications: For approval, submit qualifications of observer at least 30 calendar days in advance of scheduled activities.

2. Report: For information, submit a report of activities and findings within 15 calendar days after the successful execution of the specified work. Include logs and other documented data where applicable.

C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous and other waste disposal. Also submit electronic copies through PMIS of receipts for any items recycled or salvaged.

1.3 QUALITY CONTROL

A. Surveyor Qualifications: Engage a land surveyor or qualified professional engineer registered in the state where the Project is located, to perform required land-surveying services.

B. Workmanship Standards: Initiate and maintain procedures to ensure personnel performing the work are skilled and knowledgeable in the methods and craftsmanship needed to produce the required levels of workmanship. Remove and replace work that does not comply with workmanship specified and standards recognized in the construction industry for the applications indicated. Remove and replace work damaged or deteriorated by faulty workmanship or replacement of other work.

1. Manufacturer's Instructions: Where installations include manufactured products, comply with manufacturer's applicable installation instructions and recommendations to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in the Contract Documents.

2. Specialists: Where the individual sections of the specifications require specialists to perform the work, comply with the requirements specified in the Construction Contract Clauses. The assignment of a specialist shall not relieve the Contractor from complying with applicable regulations, union jurisdictional settlements or similar conventions, and the final responsibility for fulfillment of the entire requirements remains with the Contractor.

3. Minimum Quality and Quantity: The quality level or quantity shown or specified shall be the minimum required for the work. Except as otherwise indicated, the actual work shall comply exactly with that minimum or may be superior to that minimum within limits acceptable to GSA. Specified numeric values are either minimums or maximums as indicated or as appropriate for the context of the requirements.

4. Availability of Tradespersons and Manufacturer's Field Services Representatives: At each progress or coordination meeting, review availability of tradespersons, qualified manufacturers representatives required in the specifications, and projected needs to accomplish work as scheduled. Require each entity employing personnel to report on events which might affect progress of work. Where possible, consider alternatives and take actions to avoid disputes and delays

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 LAYING OUT THE WORK

A. Before proceeding to lay out the Work, verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify GSA promptly.

B. Establish and maintain a minimum of two (2) permanent benchmarks on the site, referenced to data established by survey control points.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Make the log available for reference by GSA.

D. Existing Utilities and Equipment: Before beginning site work, investigate and verify the existence and location of utilities and other construction.

E. Layout the Work using accepted surveying practices.

1. Establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to locate each element of the Project.

2. Establish dimensions within tolerances indicated.

3. Inform installers of lines and levels to which they must conform.

4. Check the location, level and plumb of every major element as the work progresses.

5. Notify GSA when deviations from required lines and levels exceed allowable tolerances.

6. Establish limits of use of the project site.

7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

3.2 EXAMINATION

A. Examine applicable substrates and conditions under which the Work will be performed before starting construction operations.

B. If unsafe or otherwise unsatisfactory conditions are encountered take corrective action before proceeding. Provide GSA with a written report documenting the conditions with the corrective actions taken.

3.3 INSTALLATION

A. Locate the Work and components of the Work accurately.

1. Make vertical work plumb and horizontal work level.

2. Where space is limited, install components to maximize space available for maintenance and to maximize ease of removal for replacement.

3. Conceal pipes, ducts, and wiring in finished areas unless construction documents have designated otherwise.

B. Install products at the time and under conditions that will produce satisfactory results.

1. Maintain temperature, humidity and other weather controls for best performance.

2. Isolate units of non-compatible work to prevent deterioration.

C. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

D. Conduct construction operations so that no part of the Work is subjected to damaging operations, or loading in excess of that structurally designed for the occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful or unacceptable levels of noise.

F. Odors and Fumes: Coordinate with Executive Orders # 13423 and 13514 for green purchasing requirements. To the greatest extent practicable, do not use products that produce harmful or noticeable odors or fumes. If necessary to use such products, coordinate ventilation requirements to produce the ambient condition required for the work and to minimize energy consumption, and to protect personnel from fumes and other harmful effects.

G. Anchors and Fasteners: Provide anchors and fasteners that will withstand stresses, vibration and physical distortion. Anchor each component securely in place, accurately located and aligned with other Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by GSA.

2. Allow for building movement, including thermal expansion and contraction.

H. Joints: Make like joints of uniform width within contiguous surfaces. Where joint locations in exposed work are not indicated, arrange joints for a uniform and balanced visual effect.

I. Adjust operating components for proper operation

3.4 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.5 CORRECTION OF INSTALLED DEFECTIVE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.

B. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and proper adjustment of operating equipment.

C. Restore permanent facilities used during construction to their specified condition.

D. Remove and replace damaged surfaces that are exposed to view if the surfaces cannot be repaired without visible evidence of repair.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired to operate properly.

F. Remove and replace chipped, scratched or broken surfaces.

3.6 CLEANING

A. Maintain the project work areas free of waste material and debris. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

B. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the work.

1. Remove liquid spills promptly.

2. Where dust would impair proper execution of the work, broom- or vacuum-clean the entire work area.

3. Separate containers of hazardous materials from other waste, and mark containers to identify. Legally dispose of all waste in a timely fashion.

C. Keep installed work clean. Clean installed surfaces in accordance with the recommendations of the manufacturer or fabricator of the product installed, using only the cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and will not damage exposed surfaces.

D. Remove debris from concealed spaces prior to enclosing.

E. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at the time of project completion.

3.7 PROTECTION

A. Protect installed work from soiling and damage.

B. Protective Coverings: Provide appropriate protective coverings for work that might be damaged by subsequent operations. Maintain protective coverings in place until project completion.

END OF SECTION

SECTION 01 73 10 - CUTTING AND PATCHING

PART 1 GENERAL

1.1 SUMMARY

A. This section includes procedural requirements for cutting and patching in existing work.

B. Definition: Cutting and patching includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and repair required to restore surfaces to their original condition. Drilling holes for fasteners and similar operations are not "cutting and patching".

C. Refer to other sections for other requirements and limitations applicable to cutting and patching individual parts of the Work.

D. Coordinate cutting and patching with demolition requirements as specified in 01 73 20 SELECTIVE DEMOLITION.

E. Coordinate with 01 74 19 CONSTRUCTION NONHAZARDOUS WASTE MANAGEMENT & DISPOSAL requirements.

1.2 SUBMITTALS

A. Cutting and Patching Plan: In accordance with 01 33 00 SUBMITTAL PROCEDURES, submit a proposal to FDA's representative, describing procedures at least 14 calendar days in advance of the time cutting and patching will initially be performed.

1. Include the following information, as applicable:

a. Description of the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.
b. Description of the anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in appearance and other significant visual elements.
c. List of products to be used and entities that will perform work.
d. Dates and hours of operation when cutting and patching will be performed.
e. List utilities that will be disturbed or otherwise be affected by work, including those that will be relocated and those that will be out-of-service temporarily. Indicate how long utility service will be disrupted.
f. Compatibility and cohesion characteristics of patching compounds with adjacent materials.
g. Details and engineering calculations showing integration of reinforcement with the original structure, where cutting and patching involve adding reinforcement to structural elements.
h. Temporary protection of existing structures, surfaces, finishes, equipment, etc. to remain in place during construction.

B. Samples: Provide physical samples of all patching materials including, but not limited to:

1. Resilient Flooring: 4 x 4 inch minimum sample size in each color and pattern to be replaced.

2. Repair materials specified in Section 03 01 00- Repair and Maintenance of Concrete.

3. All materials to match existing, unless otherwise approved by Architect.

C. Approval by FDA to proceed with cutting and patching does not waive the right to later require complete removal and replacement of unsatisfactory work.

1.3 QUALITY CONTROL

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.

1. The cutting and patching plan shall include but not be necessarily be limited to work required at the following structural elements:

a. Structural concrete.

B. Operational Limitations: Do not cut and patch operating elements, safety related systems, or related components in a manner that would result in reducing their capacity to perform as intended, or that would result in increased maintenance or decreased operational life or safety.

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in FDA's opinion, reduce the building's A/Esthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction that is cut and patched in a visually unsatisfactorily manner.

1. Retain the original installer or fabricator to cut and patch exposed work if the original installer or fabricator is identified in the Contract Documents or is known to the Contractor and is available for the work.

2. If it is not possible to engage the original installer or fabricator, engage a Specialist who is specifically experienced in the work.

3. The cutting and patching plan shall include but not be limited to work required at the following visual elements:

a. Architectural concrete finishes.
b. Resilient floor finishes.

1.4 EXISTING WARRANTIES

A. Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any existing warranties.

PART 2 PRODUCTS

2.1 MATERIALS

A. Use materials identical to existing materials to the maximum extent available.

B. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

C. Use materials whose installed performance will equal or surpass that of existing materials.

D. Additional National Institutes of Health (NIH) Requirements:

1. Laboratory Wall Finishes:

a. Paint: Low-luster acrylic or latex enamel paint shall be used as the primary interior partition finish. High-performance coatings or a panelized composite system are required in areas subject to high humidity, frequent decontamination, high impact and wear, and other conditions specified by program requirements.

2. Laboratory Ceilings

a. Acoustical Tile: Acoustical tile ceilings shall be hydrophobic, smooth surfaced, scrubbable units with a minimum noise reduction coefficient (NRC) of 0.80. Tegular edges are not permitted.
b. Moisture Resistance: Ceiling systems in glassware rooms, autoclave rooms, and other high humidity locations shall be moisture resistant.

PART 3 EXECUTION

3.1 INSPECTION

A. Before cutting, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.

B. Before proceeding with cutting and patching involving two or more trades, meet at the Project site with the entities providing or affected by the cutting and patching. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

C. Before cutting areas of high historic integrity (i.e. zones 1 & 2) as noted on the Historic Building Preservation Plan, these must be reviewed and approved by FDA Historic Preservation Staff.

3.2 PREPARATION

A. Provide temporary support for work to be cut.

B. Protect existing conditions during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations. If work is being executed in a historic building then a historic treatment plan is required as specified in FDA FY23 01 35 10 HISTORIC BUILDING TREATMENT PROCEDURES.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Bypass in-service existing pipe, conduit, or ductwork scheduled to be removed or relocated before cutting.

3.3 PERFORMANCE

A. Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest possible time and complete without delay. Any adverse noise or odor producing work must be performed in accordance with FDA FY23 01 14 00 WORK RESTRICTIONS.

B. Cutting: Cut existing construction using methods least likely to damage elements retained and adjoining construction. Where possible, review proposed procedures with the original installer and comply with the original installer's recommendations.

1. In general, use hand or small power tools designed for sawing or grinding, not for hammering and chopping.

2. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

3. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

4. Cut through concrete and masonry using silicon carbide or harder tipped tools. Follow OSHA standard for respirable crystalline silica that is generated by construction activities. Include any and all requirements in Section 01 59 50 Safety and Health.

5. Comply with requirements of applicable specification sections where cutting and patching requires excavating and backfilling.

6. After utility services are bypassed, cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Inspect and test patched areas to demonstrate integrity of the installation.

2. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Where removed walls or partitions extend one finished area into another finished area, patch and repair floor and wall surfaces to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

4. Where patching occurs in a smooth painted surface, extend the final paint coat over the entire unbroken surface that contains the patch.

5. Patch, repair or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

D. Perform cutting and patching work if listed in FDA FY23 01 14 00 WORK RESTRICTIONS to be performed during Government Unoccupied Hours.

3.4 CLEANING

A. Clean areas and spaces where cutting and patching are performed. Completely remove all evidence of the Work.

B. Thoroughly clean piping, conduit, and similar features before applying paint, restored pipe coverings, or other finishing materials.

END OF SECTION

SECTION 01 73 20 - SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. This section includes the following:

1. Demolition and removal of selected portions of an existing building.

2. Demolition and removal of selected site elements.

3. Repair procedures for selective demolition operations.

B. Definitions:

1. Remove: Detach items from existing construction and legally dispose of them.

2. Remove and Salvage or Recycling: Detach items from existing construction and deliver them to Government undamaged and ready for reuse or recycling.

3. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

4. Existing to Remain: Existing items of construction that are not to be removed.

1.2 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be salvaged, reinstalled or otherwise indicated to remain the Government's property, demolished materials shall become the Contractor's property and shall be removed from the site.

1.3 SUBMITTALS

A. Qualification Data: List of demolition firm's completed projects with project addresses, and names and addresses of architects and owners.

B. Proposed dust-control measures.

C. Proposed noise-control measures.

D. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition work, with starting and ending dates for each activity.

2. Interruption of utility services.

3. Coordination for shutoff, capping, and continuation of utility services.

4. Use of elevators and stairs.

5. Locations of temporary partitions and means of egress.

6. Procedures to ensure uninterrupted progress of Government's on-site operations.

7. Coordination of Government's continuing occupancy of portions of existing building and of GSA's partial occupancy of completed Work.

E. Inventory: Items to be removed and salvaged.

F. Photographs or Videotape: Before work begins, submit sufficiently detailed digital photographs or videotapes showing existing conditions of adjoining construction and site improvements, including finish surfaces, to record pre existing damage.

G. Landfill Records: Indicate receipt and acceptance of all wastes, hazardous and otherwise. In accordance with EPA regulations hazardous materials must be disposed of at a landfill facility licensed to accept hazardous wastes.

H. Sustainability Requirements

I. Completed Vendor Request for Shipping: For excess refrigerant to be prepared for pick-up by the DoD or its contractor."

1.4 QUALITY CONTROL

A. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with NFPA 241 and ANSI A10.6.

C. Pre-Demolition Conference: Conduct conference at Project site to comply with requirements in Division 1 section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:

1. Inspect and discuss conditions of construction to be selectively demolished.

2. Review structural load limitations of existing structures.

3. Review and finalize demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

4. Review requirements of work performed by other trades that rely on substrates exposed by demolition operations.

5. Review procedures when hazardous materials are encountered.

1.5 PROJECT CONDITIONS

A. Government will occupy portions of the building immediately adjacent, aroundand below to selective demolition area.

1. Conduct selective demolition so Government operations will not be disrupted.

2. Provide GSA with not less than 72 hours notice prior to activities that will affect Government operations.

B. Maintain access to existing walkways, corridors and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.

C. The Government will remove the following existing items:

1. Existing laboratory breakables.Easily movable equipment.

2. Easily movable equipment.

1.6 WARRANTIES

A. Existing Special Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials that do not void existing warranties.

PART 2 PRODUCTS

2.1 REPAIR MATERIALS

A. Where available and appropriate for use, provide repair materials that are identical to existing materials.

B. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

C. Use materials whose installed performance equals or surpasses that of existing materials.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that utilities to be removed have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the before and after condition of items to be removed and reinstalled, and items to be removed and salvaged. Protect any removed items during demolition.

D. When encountering unanticipated mechanical, electrical or structural elements that conflict with the intended function or design, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Government's contracting officer.

E. Survey the condition of the building to determine whether removing any element might result in a structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition. Report findings to the Government for determination.

F. Perform surveys as the selective demolition progresses to detect hazards resulting from the activities. Report findings to GSA for determination.

3.2 UTILITY SERVICES

A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.

B. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by authorities having jurisdiction.

1. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

2. Provide at least 72 hours notice to GSA/FDA if shutdown of service is required during changeover. For utilities that impact the surrounding laboratories 3 weeks notice is required.

C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving areas to be selectively demolished.

D.

1. When applicable, coordinate with the FDA to arrange to shut off indicated utilities when requested by the Contractor.

2. Where utility services are required to be removed, relocated or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.

3.3 PREPARATION

A. Hazardous Materials: Drain, purge or otherwise remove, collect and dispose of chemicals, gasses, explosives, acids, flammables or other hazardous materials before proceeding with selective demolition operations. See section 15950 Safety & Health. Advise the Government immediately if suspected hazardous materials are encountered in the course of the Work.

B. Pest Control: If rodents and vermin are encountered, employ a certified, licensed exterminator to treat buildings and to control before and during selective demolition operations. Perform control operations lawfully, using environmentally safe materials.

C. Temporary Facilities: Conduct demolition operations in a manner to prevent injury to people and damage to adjacent buildings and facilities to remain. Provide for safe passage of people around selective demolition areas.

1. Erect temporary protection, such as walks, fences, railings, canopies and covered passageways, where required by authorities having jurisdiction.

2. Provide temporary facilities for tree and plant protection in accordance with 01 50 00 TEMPORARY FACILITIES and CONTROLS.

3. Provide temporary weather protection, during the interval between demolition and removal of existing construction, on exterior surfaces and new construction to prevent water leakage or damage to structure or interior areas.

4. Protect walls, ceilings, floors and other existing finish work that are to remain and are exposed during selective demolition operations.

5. Cover and protect furniture, furnishings and equipment that have not been removed. This includes isolator equipment

D. Temporary Enclosures: Erect and maintain dust proof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.

E. Temporary Shoring: Provide and maintain shoring, bracing or other structural support to preserve stability and prevent movement, settlement or collapse of buildings to be selectively demolished. Strengthen or add new supports when required during the progress of selective demolition.

3.4 POLLUTION CONTROLS

A. Dust Control: Use temporary enclosures and other suitable methods complying with governing environmental protection regulations to limit the spread of dust and dirt.

1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding or pollution.

2. Wet mop floors to eliminate trackable dirt, and wipe down walls and doors of demolition enclosure.

B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

1. Remove debris from upper levels of the building by chute, hoist, or other device that will convey debris to grade level.

C. Cleaning: Clean adjacent structures and site improvements of dust, dirt and debris caused by selective demolition operations. Return adjacent areas to conditions existing before the start of selective demolition.

3.5 SELECTIVE DEMOLITION

A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete selective demolition within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically. Conduct work in an order that avoids transporting removed items and debris through areas with completed selective demolition work, and that allows for removal of items before supports for those items are removed in another area.

2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage adjoining construction to remain. Use hand or small power tools designed for sawing or grinding, not for hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

4. Before using cutting torches the contractor must request a burning permit from the Government at least 24 hours before performing the work. Clear work area of flammable materials. At concealed spaces, such as duct and pipe interiors, verify the condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations, and maintain adequate ventilation when using cutting torches.

5. Remove decayed, vermin-infested and other hazardous or unsuitable materials, and promptly dispose of these materials off-site.

6. Lower removed structural framing members to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.

7. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors or framing.

8. Return elements of construction and surfaces to remain to condition existing before the start of selective demolition operations.

B. Existing Facilities: Comply with building manager's regulations for using and protecting elevators, stairs, walkways, loading docks, building entries and other building facilities during selective demolition operations.

C. Salvaged Items and Items to be Reinstalled:

1. Reinstallation: Where items are indicated to be removed and reinstalled, install the materials and equipment in locations indicated. Comply with installation requirements for new materials and equipment.

2. Delivery to Government: Where items are indicated to be removed and salvaged, transport the materials and equipment to the area on-site designated by the Government or indicated on the Drawings. Properly protect all salvaged items.

D. Protection of Salvaged Items: For items which must be reinstalled at the same removal site, mark each item indelibly in concealed fashion and codify a document such that the items can be placed back into the place where they were removed. Pack or crate salvaged materials and equipment after removal. Identify contents of containers. Protect items from damage during transport and storage.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by GSA, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

F. Concrete and Masonry: Demolish concrete and masonry in small sections. At junctions with construction to remain, cut concrete and masonry using power-driven masonry saw or hand tools; do not use power-driven impact tools unless no damage will occur to materials to remain.

G. Resilient Floor Coverings: Remove floor coverings and adhesive, and prepare substrate for new floor covering, according to recommendations of the Resilient Floor Covering Institute (RFCI).

H. Roofing: Remove no more existing roofing than can be covered in one day by new roofing. Refer to applicable Division 7 Section for new roofing requirements.

I. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

J. Recycling: Provide separate bins or roll-offs for each material to be recycled onsite.

3.6 PATCHING AND REPAIRS

A. The Government shall determine the acceptability of patch and repair work.

B. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.

C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

D. Finishes: Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.

E. Floor and Wall Surfaces: Patch and repair floor and wall surfaces in each space where demolished walls or partitions result in extending one finished area into another. Provide a flush and even surface of uniform color and appearance.

F. Ceilings: Patch, repair or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Dispose of any small refrigerant containing equipment (i.e. room air conditioners, water fountains, refrigerators, etc.) that was demolished with its charge intact in accordance with all Federal. State and local safe disposal requirements."

C. Do not burn demolished materials.

D. Disposal: Transport demolished materials off Government property and legally dispose of them.

E. Disposal of Recyclable Materials: Transport demolished materials to be recycled to a qualified recycling center for the specific material. Provide weight-ticket receipts for each load delivered.

END OF SECTION

SECTION 01 74 10 - CONSTRUCTION INDOOR AIR QUALITY (IAQ) MANAGEMENT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes requirements for the development of a Construction Indoor Air Quality Management Plan (alternately referred to as the Plan). The Plan shall be developed by the Contractor or other qualified party under contract to the Contractor as approved by the Owner and Architect. The Plan shall be implemented by the Contractor and the trade contractors throughout the duration of the project construction, and shall be documented per the Submittal Requirements of this Section.

1.3 RELATED SECTIONS

A. All sections of the Specifications related to interior construction, MEP systems, and items affecting indoor air quality.

B. 01 81 11 SUSTAINABLE DESIGN REQUIREMENTS

C. 01 91 13 GENERAL COMMISSIONING (Cx) REQUIREMENTS

1.4 REFERENCE STANDARDS

A. The Steel Metal and Air Conditioner National Contractors Association (SMACNA) IAQ guidelines for Occupied Buildings under Construction, 2nd Edition 2007, ANSI/SMACNA 008- 2008, www.smacna.org.

B. ANSI / ASHRAE 52.2-1999, “Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size”, www.ashrae.org

C. United States Environmental Protection Agency, “Compendium of Methods for the Determination of Air Pollutants in Indoor Air”

1.5 CONSTRUCTION IAQ MANAGEMENT PLAN - OVERVIEW

A. The General Contractor or other qualified party as noted in Section 1.2.A shall prepare and submit a Construction IAQ Management Plan to the Owner and Architect for approval.

B. Construction activities shall be planned to meet or exceed the standards included in Chapter 3 of the Sheet Metal and Air Conditioning National Contractors’ Association (SMACNA) “IAQ Guidelines for Occupied Buildings under Construction”, 2nd Edition 2007.

C. Absorptive materials shall be protected from moisture damage when stored on-site and after installation.

D. Filtration media shall be installed to protect ductwork and/or equipment used during the construction process.

E. A Sequence of Finish Installation Plan shall be developed, highlighting measures to reduce the absorption of VOCs by materials that act as ‘sinks’.

F. Immediately prior to occupancy, the building shall be subject to an outside air flush out, OR, shall be subject to pre-occupancy air quality testing.

1.6 SUBMITTALS

A. The Contractor and/or sub-contractor shall submit the following required plans, records and documents:

1. A copy of the draft and final versions of the Construction IAQ Management Plan, as defined in articles 1.5 and 3.1 of this Section. The draft Plan shall be submitted to the Owner and Architect for review at least seven (7) days prior to the pre-construction meeting and must receive GSA approval of the Plan prior to the Issuance of the Notice to Proceed (NTP).

2. The Construction IAQ Management Plan (CIAQP)

a. The CIAQP shall be organized and include the information as defined in Section 3.2
b. A construction log that will be regularly updated to include the start-up date and duration of all major Construction IAQ Management Plan control measures and identify the procedures and conditions of the building flush-out or air quality testing.
1) For flush-outs, provide the start dates and the flush-out duration, plus the air flow rates, air temperatures, and relative humidity ranges maintained. If the flush-out is done in stages, identify the building locations as part of the log.
2) For air quality testing, provide the dates of testing, the sampling locations, and the test results from the air quality testing agency. If retesting is required due to non-compliance with the referenced standard, provide a log of the flush-out procedures used prior to retesting, as well as the new retesting results.
3) If HVAC systems are used during construction, include a schedule of filter replacements or change-outs. Filter information shall include manufacturer, model number, MERV rating, and location of where it was installed.
c. Housekeeping Section
d. Sequencing Section
e. Photographs that document the implementation of the Construction IAQ Management Plan throughout the course of the project construction. Examples include photographs of ductwork sealing and protection, temporary ventilation measures, and conditions of on-site materials storage (to prevent moisture damage). Photographs shall include integral date stamping, and shall be submitted with brief descriptions, or be referenced to project meeting minutes or similar project documents. A minimum of 30 photographs shall be submitted per building, showing conditions on at least five different occasions.
f. Product Cut Sheets for filtration media used during construction and installed immediately prior to occupancy, with MERV values highlighted. Cut sheets shall be submitted with the Contractor or sub-contractor’s stamp, as confirmation that the submitted products are the products installed in the project.

1.7 DEFINITIONS

A. Type 1 Materials: Materials and finishes that act as sources of VOC or particulate contamination.

1. Type 1 materials can include "wet" products, such as paints, sealants, adhesives, caulks, sealers and fireproofing materials as well as “dry” products such floor coverings with plasticizers, and engineered wood with formaldehyde.

B. Type 2 Materials: Materials and finishes which are woven, fibrous, or porous in nature, and tend to absorb chemicals or particulates released by Type 1 materials. Examples include textiles, carpeting, acoustical ceiling tiles and gypsum board. Type 2 materials can become "sinks" for deleterious

substances which may be released later, or collectors of contaminants that may promote subsequent bacterial growth.

PART 2 PRODUCTS

2.1 FILTRATION MEDIA

A. If air handlers are used during construction, filtration media must be installed at the ends of return air ductwork, at return air grilles in an open plenum or chase, and at return air openings at mechanical rooms housing the air handling units. The filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 8, as determined by ASHRAE 52.2-1999.

B. Filters at air handling units used during construction shall be MERV 10 or better.

C. Building flush-outs, as defined in article 3.3 below, shall be conducted with new MERV 13 filtration media installed at the air handling units used for the flush-outs. Upon completion of the flush-outs, the Construction Manager shall inspect the condition of the MERV 13 filters and replace any that have collected significant dust and particulates through the flush-out process.

PART 3 EXECUTION

3.1 CONSTRUCTION IAQ MANAGEMENT PLAN – DETAILED REQUIREMENTS

A. Compliance with SMACNA Guidelines:

1. Chapter 3 of the referenced “IAQ Guidelines for Occupied Buildings under Construction” outlines IAQ measures in five categories as listed below. The Construction IAQ Management Plan shall be organized in accordance with the SMACNA format, and shall address measures to be implemented by the Contractor and/or Subcontractors in each of the five categories, including subsections. All Subsections shall be listed in the Plan; items that are not applicable for this project should be listed as such by the contractor.

    a. HVAC Protection
        1) Return Side
        2) Central Filtration
        3) Supply Side
        4) Duct Cleaning
    b. Source Control
        1) Product Substitution
        2) Modifying Equipment Operation
        3) Changing Work Practices
        4) Local Exhaust
        5) Air Cleaning
        6) Cover or Seal
    c. Pathway Interruption
        1) Depressurize Work Area
        2) Pressurize Occupied Space
        3) Erect Barriers to Contain Construction Areas
        4) Relocate Pollutant Sources
        5) Temporarily Seal the Building
    d. Housekeeping
        1) Routine Jobsite Cleaning
        2) Protection of Stored Materials

3) Protection of Materials During and After Installation
4) Scheduling
5) Airing-Out of New Materials
6) Sequencing of Finish Applications
7) Proper Curing of Concrete before Covering
8) Installation During Unoccupied Periods
9) Avoidance of Building Occupancy While Pollutants Are Present

B. Protection of Materials from Moisture Damage:

1. As part of the Housekeeping section of the Construction IAQ Management Plan, measures to prevent installed materials or material stored on-site from moisture damage shall be described. This section should also describe measures to be taken if moisture damage does occur to absorptive materials during the course of construction.

C. Installation and Replacement of Filtration Media:

1. Under the HVAC Protection section of the Construction IAQ Management Plan, a description of the filtration media in all ventilation equipment shall be provided. The description shall include replacement criteria for filtration media during construction and confirmation of filtration media replacement for all equipment immediately prior to occupancy. Filtration media shall meet the requirements of article 2.01 of this Section.

D. Sequence of Finish Installation for Materials:

1. Where feasible, absorptive materials (referred to herein as “Type 2” products) shall be installed after the installation of materials or finishes which have high short-term emissions of VOCs, formaldehyde, particulates, or other air-borne compounds (referred to herein as “Type 1” products).

a. Type 2 materials include, but are not limited to: carpets; acoustical ceiling panels; fabric wall coverings; insulations (exposed to the airstream); upholstered furnishings; and other woven, fibrous or porous materials.
b. Type 1 materials include, but are not limited to: adhesives, sealants and glazing compounds (specifically those with petrochemical vehicles or carriers); paints, wood preservatives and finishes; control and /or expansion joint fillers; hard finishes requiring adhesive installation; gypsum board (with associated finish processes and products); and composite or engineered wood products with formaldehyde binders.

2. The Contractor shall develop a separate sequencing plan that identifies possible opportunities to meet the above-stated goals for the project. The plan shall be submitted to the Architect and Owner in accordance with the Submittal Requirements of this specification.

3.2 IMPLEMENTATION AND COORDINATION

A. The Contractor shall be responsible for implementation of the Construction IAQ Management Plan, and for the coordination of the Plan with all affected trades. The Contractor shall designate one individual as their Construction IAQ Representative, who will be responsible for communicating the progress of the Plan with the Owner and Architect on a regular basis, and for assembling the required documentation. The Contractor shall include provisions in the Construction IAQ Management Plan for addressing conditions in the field that do not adhere to the Plan, including provisions to implement a stop work order, or to rectify non-compliant conditions.

B. Sub-contractors shall be responsible for the implementation of specific control measures, as specified in the Construction IAQ Management Plan. Sub-contractors shall coordinate their responsibilities through the Contractor's designated Construction IAQ Representative.

3.3 BUILDING FLUSH-OUTS AND PRE-OCCUPANCY INDOOR AIR QUALITY TESTING

A. All occupied spaces the building must undergo Air Quality Testing. Contractor shall submit a written request to the Contracting Officer for approval prior to conducting the Air Quality Testing. Any such requests shall not be submitted until all interior finishes have been installed. The Contractor shall provide:

END OF SECTION

SECTION 01 74 19 - CONSTRUCTION NONHAZARDOUS WASTE MANAGEMENT & DISPOSAL

PART 1 GENERAL

1.1 SUMMARY

A. Drawings and general provisions of the Contract, including Federal Acquisition Regulation (FAR) and General Services Administration Acquisition Regulation (GSAR) contract clauses, and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging non hazardous construction and/or demolition (“C&D”) waste.

2. Recycling non hazardous construction and/or demolition waste.

3. Disposing of non hazardous construction and/or demolition waste.

B. Related Requirements:

1. Division 01 Section "Selective Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements, and for disposition of hazardous waste.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

A. Each year, GSA diverts at least 50% of its total non-hazardous solid waste, including construction and demolition (C&D) debris. Executive Order 14057 section 207 establishes this goal for all Federal agencies. GSA achieves this goal by estimating current diversion rates, identifying strategies and practices to increase diversion rates, and changing current C&D waste management practices.

B. General: Achieve end-of-Project rates for salvage/recycling of 100 50 percent minimum by weight of total waste generated by the Work unless additional rates are indicated. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials.

1. Mandatory minimum salvage/recycling requirement is 50 percent.

1.5 ACTION SUBMITTALS

A. WASTE MANAGEMENT PLAN

1. General: Use GSA's C&D Waste Management Plan and Report template, or develop a waste management plan according to the requirements of this Section.

2. Waste Management Plan shall consist of waste identification, waste reduction work plan, and, if available, cost/revenue analysis. Revenue from recycling/ scrap proceeds shall be retained by the contractor, and factored into their bids with GSA, to reduce the government's contract cost. Indicate anticipated quantities by weight or volume, using the same units of measure throughout the waste management plan. Submit plan within 14 days of date established for the Notice to Proceed.

a. List recycling facilities, reuse facilities, municipal waste landfills and other disposal area(s) to be used. Include:
   1) Name, location, and phone number.
   2) Copy of permit or license for each facility.
b. Revise and resubmit Plan if required by GSA.
   1) Approval of Contractor's Waste Management Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

3. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing, and/or construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

4. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

a. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
b. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include a list of their names, addresses, and telephone numbers.
c. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include a list of their names, addresses, and telephone numbers.
d. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
e. Disposed Materials: Identify materials that cannot be recycled or reused. Provide explanation or justification. Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incineration facility.
f. Handling and Transportation Procedures: Include methods that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

1.6 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, electronically submit reports in PMIS for construction waste and for demolition waste. Include the following information:

1. Material category.

2. Generation point of waste. (Building address)

3. Total quantity of waste in tons.

4. Quantity of waste salvaged, both estimated and actual in tons.

5. Quantity of waste recycled, both estimated and actual in tons.

6. Total quantity of waste recovered (salvaged plus recycled) in tons.

7. List of Materials made from recycled materials/bio-based materials and their cost (not including installation costs) purchased for use on this project.

8. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. Waste Reduction Calculations: Before request for Substantial Completion, submit final Waste Diversion Report indicating total tons of waste generated, and how many of those tons were diverted from landfills or incinerators (e.g. salvaged, recycled, donated, or reused).

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether the organization is tax exempt.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether the organization is tax exempt.

E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing/salvaging facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

F. Landfill and Incineration Disposal Records: Indicate receipt and acceptance of waste by landfills and incineration facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.7 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement a waste management plan during the entire duration of the Contract.

1. Comply with GSA FY23 01 50 00 TEMPORARY FACILITIES and CONTROLS for operation, termination, and removal requirements.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

1. Distribute waste management plan to everyone concerned within 3 or _X_ days of submittal return.

2. Distribute Waste Management Plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING CONSTRUCTION AND DEMOLITION WASTE

A. General: Recycle paper (bond or newsprint) and beverage containers (glass, plastic or aluminum) used by on-site workers.

B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from the Project site. Include a list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3. Stockpile materials away from the construction area. Do not store within the drip line of remaining trees.

4. Store components off the ground and protect from the weather.

5. Remove recyclable waste from the work site, and transport it to a recycling receiver or processor.

3.3 RECYCLING DEMOLITION WASTE

A. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

B. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.

2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

C. Gypsum Board: Stack large clean pieces on wood pallets or in containers and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

D. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

E. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.

F. Conduit: Reduce conduit to straight lengths and store by type and size.

3.4 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.

2. Polystyrene Packaging: Separate and bag materials.

3. Pallets: As much as possible, require deliveries using pallets to remove pallets from the Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.

4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.

2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

a. Comply with requirements in Division 32 Section "Plants" for use of clean sawdust as organic mulch.

C. Gypsum Board: Stack large clean pieces on wood pallets or in containers and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using a small mobile chipper or hammer mill. Screen out paper after grinding.

a. Comply with requirements in Division 32 Section "Plants" for use of clean ground gypsum board as inorganic soil amendment.

3.5 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials. Coordinate further with GSA FY23 01 73 20 SELECTIVE DEMOLITION parts 3.9B or 3.9C.

C. Disposal: Transport waste materials and dispose of at designated spoil areas on the Government's property.

D. Disposal: Remove waste materials from the Government's property and legally dispose of them.

END OF SECTION

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. See section III of the Agreement for Definition of Substantial Completion.

B. All electronic record documents submitted shall be uploaded to PMIS.

C. This Section includes administrative and procedural requirements for Contract closeout including, but not limited to, the following:

1. Substantial Completion procedures.

2. Project record document submission.

3. Operation and maintenance manual submittal.

4. Final cleaning

5. Repair of the Work.

D. Phased Completion/Partial Turnover

E. Closeout requirements for specific construction activities are included in the individual sections in Divisions 2 through 49.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for Substantial Completion, complete the following.

1. Provide supporting documentation for completion as indicated elsewhere in the Contract Documents.

2. Submit a list to GSA, of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

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

4. Submit closeout submittals from other Division 1 sections, project record documents including electronic documents, operation and maintenance manuals, final project photographs, damage or settlement survey, and utility lines survey.

5. Warranties and guarantees shall not begin until substantial completion. Warranties and guarantees for any equipment that comes on line at a later date which is accepted by the Government shall commence on that date..

6. HVAC Balance and Testing must be completed within seasonal limitations.

7. Commissioning must be completed within seasonal limitations.

8. Warranty of any systems or items being used during the occupancy period shall have been completed and submitted at the time of government's written acceptance including the date for Notice of Substantial Completion. The Authority Having Jurisdiction is the Government.

9. The punch list of non-completed work and items shall be entire, valued, and submitted.

10. Completion of punch list items must be completed within Fill in amount.

11. The electronic format for Operations and Maintenance materials must contain word search features.

B. Inspection Procedures: On receipt of a request for inspection, GSA will either proceed with inspection or advise the Contractor of unfulfilled requirements. GSA will notify the Contractor of Substantial Completion following the inspection or advise the Contractor of construction that must be completed or corrected before Substantial Completion.

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

2. Results of the completed inspection will form the basis of the requirements for Final Acceptance.

3. Items that are not included on the punch-list will not relieve the Contractor from performing all work required and in accordance with the construction documents.

1.3 FINAL ACCEPTANCE FOR CONTRACT COMPLETION

A. Preliminary Procedures: Before requesting re-inspection for Final Acceptance, complete the following:

1. Submit an updated final statement, accounting for final additional changes to the Contract price.

2. Submit a certified copy of the previous Substantial Completion inspection list of items to be completed or corrected. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance, and shall be endorsed and dated by the Contractor.

3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents. State warranty commencement dates.

4. Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item.

5. Scan warranties and bonds and assemble complete warranty and bond submittal packages as individual electronic PDF files.

6. Submit record documents including BIM, model and data and similar final record information. See Section 017810 Project Record Documents for BIM requirements.

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

8. Complete final clean-up requirements including touch-up painting of marred surfaces.

9. At the end of the acceptance submit final payment request with releases and supporting documentation not previously submitted and accepted.

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

1. Upon completion of re-inspection, GSA will notify the Contractor of Final Acceptance or will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled and are required for Final Acceptance.

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

C. Contractor's Responsibility for Re-Inspection Following Substantial Completion: If the final completion or acceptance is delayed for more than thirty (30) calendar days following substantial completion through no fault of the Government, CM, or the A/E; the Contractor shall be responsible for the Government's additional costs associated with re-inspections. During this 30-day period, the CM and/or A/E will make only one (1) re-inspection to verify completion of the punch list. Any additional re-inspections, administrative services, or direct costs will be considered CM and/or A/E additional services. The Government's actual costs for CM and/or A/E additional re-inspections, administrative services, or direct costs will be charged to the Contractor through an appropriate contract modification in the form of a credit to the Government.

D. Contractor's Responsibility for Repeated Efforts to Commission: If acceptance is delayed for more than 30 calendar days following the initial efforts to commission through no fault of the Government, CM, or the A/E; the Contractor shall be responsible for the Government's additional costs associated with resolving continued commissioning efforts. During this 30-day period, the CM and/or A/E will make only one (1) additional effort to resolve and commission. Any additional effort to resolve and commission, administrative services, or direct costs will be considered CM and/or A/E additional services. The Government's actual costs for CM and/or A/E additional effort to resolve and commission, administrative services, or direct costs will be charged to the Contractor through an appropriate Change Order.

1.4 RECORD DOCUMENT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

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

D. Record As-Built Drawings: Maintain both electronic media copies and a clean, undamaged set of blue or black line white-prints of all Contract Documents. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark the drawing that is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Electronic record copies showing changes shall be done clearly such that the changes are understood so that they can be constructed. Upload to GSA's Project Management Information System.

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

2. Mark new information not shown on Contract Drawings or Shop Drawings.

3. Note related modification numbers where applicable.

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

E. Record Specifications: Maintain one complete copy of the Specifications with addenda. Include one copy of other written construction documents, such as modifications issued in printed form during construction.

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

2. Give particular attention to substitutions and selection of options, and information about concealed construction that cannot otherwise be readily determined later by direct observation. Provide digital photos or videos of construction areas before being concealed.

3. Note related record drawing information and Product Data.

F. Record Product Data: Maintain one copy of each Product Data submittal. Note related modifications and markups of Record Drawings and Specifications.

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

2. Before concealing areas document with digital photos or video on a CD or DVD. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily determined later by direct observation.

G. Miscellaneous Record Submittals: Refer to other Specification sections for requirements for miscellaneous record keeping and submittals in connection with actual performance of the Work. Place miscellaneous records in good order. Identify records properly and bind or otherwise organize to allow for use and reference. Retain the following article if Section 01782 is not included. This article is usually sufficient except for large projects where detailed records are required.

H. Update BIM, refer to GSA FY23 01 78 10 PROJECT RECORD DOCUMENTS for more information.

PART 2 PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces. Prior to application provide product data to the FDA for approval.

B. Use cleaning products that comply with Green Seal GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable Volatile Organic Compounds (VOC) levels.

PART 3 EXECUTION

3.1 CLOSEOUT PROCEDURES

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

1. Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package as individual electronic PDF files
2. Operation and Maintenance manuals
3. Material and Finishes Maintenance Manuals
4. Record documents
5. Photo CDs or DVDs of any hidden or concealed construction areas
6. Spare parts and materials
7. Attic stock
8. Tools
9. Lubricants
10. Fuels
11. Identification systems
12. Control sequences
13. Hazards.
14. Cleaning
15. Warranties and bonds
16. Maintenance agreements and similar continuing commitments
17. Keys, security hardware or security information

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Startup
2. Final commissioning coordination
3. Shutdown
4. Emergency operations
5. Noise and vibration adjustments
6. Safety procedures

7. Economy and efficiency adjustments

8. Effective energy utilization

3.2 FINAL CLEANING

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

B. Do not use caustic or acidic cleaning materials that will mar or etch finished work.

1. Complete the following cleaning operations before requesting inspection for Final Acceptance.

a. Remove labels that are not permanent labels.
b. Clean transparent materials, including mirrors and glass in doors and windows. Removing glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces on floors and soft surfaces in any other location.
1) Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills. Clean interiors of all ductwork to render the facility safe for human occupancy.
d. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean, and remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
e. Remove debris and surface dust from limited-access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.
1) Clean food service equipment, if present, to a condition of sanitation ready and acceptable for intended food service use.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests.

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

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

F. Remaining Materials of value that remain after completion of associated work, become Government property. Dispose of or salvage/recycle these materials as directed by GSA.

3.3 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition. All components of the construction including operational and material shall be in new condition and new working order at the completion of Repair of the Work.

END OF SECTION

SECTION 01 78 10 - PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 SUMMARY

A. This section includes administrative and procedural requirements that the Contractor must perform with regards to Project Record Documents. These include but are not limited to those defined in Part B. Electronic records that show identifiable changes shall be done. The following normally must be included, and the Contractor is required to show any other changes not listed below:

B. All electronic project record documents shall be uploaded to PMIS.

1. Marked-up copies of Contract Drawings.

2. Marked-up copies of Shop Drawings.

3. Newly prepared record drawings.

a. Marked-up copies of Specifications, addenda, and Change Orders.
b. Marked-up Product Data submittals.
c. Record Samples.
d. Field records for variable and concealed conditions.
e. Record information on Work that is recorded only schematically.
f. Building Design Standard
g. Operating manuals with a schematic diagram, sequence of operation, and system operating criteria for each system installed. Training materials and videos. Equipment maintenance manuals with complete information for all major components.
h. LEED certification documentation.
i. Computer Aided Design (CAD) drawings.
j. Building Information and Model(s): Complete BIM Submission as required. Store both electronic media and hard copy Record Documents in the field office apart from the Contract Documents used for construction in clean, dry conditions. They shall be readily accessible. Do not use Project Record Documents for construction purposes. All electronic Project Record Documents should be uploaded to PMIS.

1.2 RECORD BUILDING INFORMATION AND MODELS

A. All Building information and models shall be accessible to the GSA throughout project delivery, and final BIM submissions are the property of the GSA. For projects where BIM data is provided by the Government (e.g. Master model), Contractor shall use the provided BIM data to record the changes in the BIM data, specifications, and any other pertinent information. For projects where no BIM data is available, Contractor shall provide BIM deliverables in accordance with the GSA National BIM Standard. All Building information and models shall be accessible to the GSA throughout project delivery, and all BIM data submissions are the property of the GSA. See the GSA National BIM Standard for Record Modeling Requirements.

1.3 RECORD DRAWINGS

1. Markup Procedure: During construction, the Contractor shall maintain a set of black-line white prints of Contract Drawings and Shop Drawings for Project Record Document purposes. Contractor shall mark these Drawings to show all changes that have been done. If BIM is not

used, the Contractor shall maintain a copy of the Contract Document CAD files showing these changes to the physical conditions.

2. Mark record prints of Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions sufficient to construct the changes. Where Shop Drawings are marked, show cross-reference on Contract Drawings location. Identify each change to coordinate with accompanying, if any, Record Documents.

3. Mark hard copy record sets with red erasable colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.

4. Both the bound, organized, and labeled hard copies and the electronic media shall be submitted prior to Final Acceptance.

5. The Contractor is responsible for any printing costs associated with Project Record Drawings. The Contractor shall submit a preliminary set of record drawings (BIM or CAD) for review and acceptance. Before copying and distributing, submit corrected documents and the original marked-up prints to the Government for review and acceptance. If acceptable, the government will return the original marked-up prints to the Contractor for organizing into sets, printing, binding, and final submittal.

B. Copies Distribution: After completing the preparation of BIM or CAD Record Documents, the Contractor shall provide electronic media of each drawing, whether or not changes and additional information were recorded. These full sets will be the hard copy of record drawings for filing purposes; they are not intended for use in later maintenance on the facility. Organize the copies into manageable sets. Include appropriate identification, including titles, dates, and other information on the cover sheets.

1. Organize and bind original marked-up sets of prints that were maintained during the construction period in the same manner.

2. Organize records into sets matching the print sets. Place these sets in durable tube-type drawing containers with end caps. Mark the end cap of each container with suitable identification.

3. Submit the marked-up record set, transparencies, and the copy sets to the Contracting Officer for the Government's records.

C. Newly Prepared Construction Drawings into Record Drawings: When neither the original Contract Drawings nor Shop Drawings are not suitable for converting into record drawings, then prepare new drawings instead of following procedures specified in part A. These new drawings shall be fully developed as contract drawings. New drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.

1. Provide Drawings in a scale that allows for the scope of detailing and notations required to record the actual physical installation and its relationship to other construction.

2. When completed and accepted, integrate newly prepared Drawings with procedures specified for organizing, copying, binding and submitting record drawings.

D. RECORD SPECIFICATIONS

E. During the construction period, the Contractor shall maintain the Project Specifications, including addenda and other modifications issued, for Project Record Document purposes.

1. Mark the Specifications or provide new or edited Specifications to indicate the actual installation where the installation varies from that indicated in Specifications. Provide dates and other identifying information to discriminate them from the existing Specifications. These shall be fully coordinated with the other contract documents.

    a. In each Specification section where products, materials or units of equipment are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.
    b. Record the name of the manufacturer, supplier, installer, and other information necessary to provide a record of selections made and to document coordination with record Product Data submittals and maintenance manuals.
    c. Give particular attention to substitutions, selection of product options, and information on concealed installations that would be difficult to identify or measure and record later.

2. Upon completion of markup, submit above mentioned Record Specifications to the Government in electronic and hard copy mediums.

1.4 RECORD PRODUCT DATA

A. During the construction period, maintain one copy of each Product Data submittal.

1. Mark Product Data to indicate the actual product installation where the installation varies from that indicated in Product Data submitted. Include changes in the product delivered to the site and changes in manufacturer's instructions and recommendations for installation.

2. Give particular attention to information about concealed products and installations that cannot be readily identified and recorded later.

3. Note related Change Orders and markup of Record Drawings, where applicable.

4. Upon completion of markup, submit a complete set of record Product Data to the Government. Where record Product Data is required as part of maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as record Product Data.

5. Where BIM is used, individual Product Data in PDF format shall be linked through the COBie Documents tab as specified in the GSA National BIM, CDX & COBie Standard.

B. Building Information & ModelFiles: Provide the Government access to the BIM, CDX & COBie data that has been established and updated throughout the course of construction. The final BIM, CDX & COBie submissions must comply with the GSA National BIM, CDX & COBie Standard Editor: Retain the following article if the project includes samples that may be critical for future work.

1.5 MISCELLANEOUS RECORD SUBMITTALS

A. Refer to other Specification sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Prior to Final Acceptance, complete Miscellaneous Records and place them in good order, properly identified and bound or otherwise organized to allow for use and reference.

B. Miscellaneous Records include, but are not limited to, the following:

1. Authorized measurements utilizing unit prices or allowances.

2. Ambient and substrate condition tests.

3. Certifications received in lieu of labels on bulk products.
4. Batch mixing and bulk delivery records.
5. Testing and qualification of tradespersons.
6. Documented qualification of installation firms.
7. Load and performance testing.
8. Inspections and certifications by governing authorities.
9. Leakage and water-penetration tests.
10. Fire-resistance and flame-spread test results.
11. Final inspection and correction procedures.
12. Waste management records.

C. Submit to the Government.

1. Electronic copies to be provided in PMIS system. 2 copies of all O&M, final record drawings, submittals, etc. to be provided to the FDA.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01 82 00 - DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for instructing Government operation and maintenance (O&M) personnel, including the following:

1. Training to Government employees and its contracted O&M personnel must comply with the Federal Buildings Personnel Training Act (FBPTA) P.L.111-308.

2. Demonstration of operation, maintenance, and repair including preventive maintenance of systems, subsystems, and equipment.

3. Training in operation, maintenance, and repair including preventive maintenance of systems, subsystems, and equipment.

4. Demonstration and training video recordings.

B. Related Requirements:

1. Divisions 02 through 49 Sections for specific requirements for demonstration and training for products in those Sections.

1.2 SUBMITTALS

A. Instruction Program: (Prior to training submit draft training materials for GSA review.) Submit outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, instructors' names and credentials for each training module, and learning objective and outline for each training module.

1. At completion of training, submit complete training manuals for Government use.

2. Indicate proposed training modules demonstration and training video of on site training recordings for systems, equipment. In addition also include manufacturer-produced training videos in universal electronic format (.mp4 or similar) and provide to PMIS.

3. Video quality requirements to be specified by the contracting officer.

4. Acceptable content and technologies.

B. Qualification Data: Contractor shall submit for approval facilitator and instructor qualifications that meet requirements identified in paragraph 1.3 Quality Control section below.

1. Attendance Record: For each training module, submit list of participants and length of instruction time.

2. Evaluations: For each participant and for each training module, submit results and documentation of a performance-based test.

C. Demonstration and Training in universal electronic format (.mp4 or similar) and provide to PMIS.

1.3 QUALITY CONTROL

A. Facilitator Qualifications: A firm or individual experienced in training or educating O&M personnel in a training program similar in content and extent to that required for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, experienced in operational maintenance and repair procedures and training.

C. Pre-instruction Conference: The Contractor, facilitator and instructors shall conduct a conference at the Project site to review methods and procedures related to demonstration and training including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.

2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and other facilities.

3. Review required content of instruction.

4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.4 COORDINATION

A. Coordinate instruction schedule with Government operations. Adjust schedule as required to minimize disrupting Government operations.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction programs until operation and maintenance data has been reviewed and approved by the Government.

PART 2 PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each building and related systems and for equipment not part of a system, as required by individual Specification Sections, and as follows:

B. Reference Material: Conduct training using final operation and maintenance data submittals. Conduct training to include demonstration of operation and maintenance data within the COBie system.

C. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that the participant is expected to master. For each module, include instruction for the following:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

a. System, subsystem, and equipment descriptions.
b. Performance and design criteria if Contractor is delegated design responsibility.
c. Operating and repair standards.

d. Troubleshooting schematic
e. Regulatory requirements.
f. Equipment function.
g. Operating characteristics.
h. Limiting conditions.
i. Performance curves.

2. Documentation: Review the following items in detail:

a. Emergency manuals.
b. Operations manuals.
c. Maintenance manuals.
d. Repair manuals
e. Project Record Documents. Advise the government if they are not complete.
f. Identification systems.
g. Warranties and bonds.
h. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

a. Instructions on the meaning of warnings, trouble indications, and error messages.
b. Instructions on stopping.
c. Shutdown instructions for each type of emergency.
d. Operating instructions for conditions outside of normal operating limits.
e. Sequences for electric or electronic systems.
f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

a. Startup procedures.
b. Equipment or system break-in procedures.
c. Routine and normal operating instructions.
d. Regulation and control procedures.
e. Control sequences.
f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Included but not limited to are the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

    a. Inspection procedures.
    b. Types of cleaning agents to be used and methods of cleaning.
    c. List of cleaning agents and methods of cleaning detrimental to the product.
    d. Procedures for routine cleaning
    e. Procedures for preventive maintenance.
    f. Procedures for predictive maintenance.
    g. Procedures for routine maintenance.
    h. Instruction on use of special tools.

8. Repairs: Include the following:

    a. Diagnosis instructions.
    b. Repair instructions.
    c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
    d. Instructions for identifying parts and components.
    e. Review of spare parts needed for operation and maintenance.

PART 3 EXECUTION

3.1 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training. Assemble training modules into a combined training manual.

B. Set up instructional equipment at the instruction location.

3.2 INSTRUCTION

A. Engage the facilitator to prepare instruction programs and training modules, to coordinate instructors, and to coordinate between Contractor and the Government for number of participants, instruction times, and location.

B. Engage the instructors to instruct Government personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. The Government will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.

1. Schedule training with the Government with at least 14 days' advance notice.

2. Coordinate with any subject matter experts that the Government may provide.

D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of the module by use of an oral, written or demonstration performance-based test. Provide results to the Government.

E. Demonstration and Training video or other electronic media: Using a videographer, record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. Record on high quality electronic media.

2. At the beginning of each training module, record each chart containing the learning objective and lesson outline.

3. Cleanup: Collect and remove used and leftover educational materials. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION

SECTION 03 01 00 - MAINTENANCE OF CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Functional and aesthetic repair of exposed structural, shrinkage, and settlement cracks.

B. Scope of Work: As indicated on drawings.

1.2 RELATED REQUIREMENTS

A. Section 01 21 00 - Allowances: Allowances

1.3 REFERENCE STANDARDS

A. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

1.4 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.

C. Epoxy Injection Submittals.

1. Supervisor and workers qualificatiosn and experience.

2. Training certificates.

3. Proposed materials for surface sealing and injection of cracks.

4. Step by step procedures for surface preparation, entry and venting port spacing, injection procedure, curing protocols and surface cleanup, including, but not limited to:

a. Procedures for surface protection, and protection of public.
b. Methods of surface cleaning and preparation.
c. Statement of what materials will be used within each procedural step.
d. Specific statement for procedures that will ensure injected cracks are filled for their entire length, depth and width.
e. Description of entry and venting port insatllation, spacing, and removal.
f. Curing times and procedures as applicable.
g. Types of equipment to be used to meter, mix, and dispense injection resin.
h. Anticipated injection pressures.
i. Any quality assurance and quality control procedures to be implemented.
j. Site clean up.

D. Samples for Selection:

1. Provide physical samples of all proposed repair materials.

2. Proved color range samples for all repair materials that most closely approximate the exisitng concrete color and finish for selection and use in in-place mockup.

E. Samples for Confirmation:

1. Provide Physical samples of all approved repair materials.

2. Final color selections of materials shall be as established by the approved in-place mockup.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified, including concrete and surface color matching and with minimum of 3 years of documented experience.

1.6 MOCK-UPS

A. Test each type of maintenance procedure required on each type of existing construction, to determine the most appropriate procedures to use and as a record of expected results.

B. Crack Injection: Prepare one sample of each type of injection.

C. Horizontal Crack Repair: Total of 3 linear feet, demonstrating each type of repair, including replacement floor finishes.

D. Vertical Crack Repair: Total of of 3 linear feet, demonstrating each type of repair.

E. Where color or texture matching is required, first prepare a small size sample on cementitious board.

F. Re-work mock-up(s) until satisfactory to Owner and Architect.

G. Satisfactory mock-up(s) may remain as part of the work and will serve as the reference standard for the remainder of the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturers' instructions for storage, shelf life limitations, and handling of products.

PART 2 PRODUCTS

2.1 CEMENTITIOUS PATCHING AND REPAIR MATERIALS

A. Cementitious Repair Mortar, Trowel Grade: One- or two-component, factory-mixed, polymer-modified cementitious mortar.

1. Mixed with water or latex type bonding agent in proportions as recommended by manufacturer.

2. Color: Custom color matching exisitng concrete as selected by Architect from approved mock-up.

3. Manufacturers:

a. Sika: SikaQuick Smooth or SikaQuick VOH as recommended by manufacturer for application and as approved by mockup: usa.sika.com
b. Approved equal.

c. Substitutions: See Section 01 60 00 - Product Requirements.

2.2 EPOXY PATCHING AND REPAIR MATERIALS

A. Epoxy Injection Adhesive: 2-component, 100% solids, moisture-tolerant, epoxy.

1. Manufacturers:

a. Sika; Sikadur-52 Injection Normal: usa.sika.com.
b. Approved equal..
c. Substitutions: See Section 01 60 00 - Product Requirements.

2.3 JOINT SEALANTS

A. Manufacturers:

1. Dow: www.dow.com

2. Pecora: www.pecora.com

3. Sika: usa.sika.com

4. Tremco: www.tremcosealants.com

B. Type PT - Single-Component Self-Leveling Polyurethane

1. ASTM C920, Type S, Grade P, class 25; standard colors as selected.

2. Products:

a. Pecora; Urexpan NR-201
b. Sika; Sikaflex SL 1
c. Tremco; THC 900/901
d. Approved equal.

C. Color: All sealants to be custom color matching exisitng concrete as selected by Architect from approved mock-up.

2.4 ACCESSORIES

A. Crack Isolation Membrane: As recommended by flooring manufacturer at locations to receive resilient flooring.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Confirm surface seal adequacy to contain injection pressures and required cure times.

C. Confirm epoxy injection resin is suitable for injection into the minimum and maximum crack widths to be encountered.

D. Beginning of installation means acceptance of substrate.

3.2 PREPARATION

A. Prepare concrete surfaces to be repaired according to ICRI 310.2R.

3.3 EXTERIOR NON-STRUCTURAL CRACK REPAIR AT CONCRETE WALLS

A. Repair all building envelope concrete cracks 1/32” or greater.

B. Provide manufacturer's recommended crack filler below surface of wall to repair continuity of wall assembly air and water barrier.

C. Chase grind to 1/8” wide

D. Fill crack with color matched cementitious repair mortar to match adjacent integral color and natural concrete surfaces.

3.4 INTERIOR NON-STRUCTURAL CRACK REPAIR AT CONCRETE WALLS

A. Repair all exposed interior concrete cracks.

B. Fill crack with color matched cementitious repair mortar to match adjacent integral color and natural concrete surfaces.

3.5 INTERIOR NON-STRUCTURAL CRACK REPAIR AT CONCRETE FLOORS.

A. Repair interior cracks in concrete slab with Type PT - Single-Component Self-Leveling Polyurethane.

B. At locations with Resilient Flooring: Match existing flooring colors and pattern.

1. Provide floor prep as recommended by flooring manufacturer.

2. Install new material flush with existing floor finish according to flooring manufacturer's written instrucitons.

3.6 STRUCTURAL CRACK REPAIR USING EPOXY ADHESIVE INJECTION

A. Repair exposed cracks larger than1/16 inch..

B. Follow epoxy adhesive manufacturer's written installation instructions.

C. Provide temporary entry ports spaced to accomplish movement of fluids between ports; no deeper than the depth of the crack to be filled or port size diameter no greater than the thickness of the crack. Provide temporary seal at concrete surface to prevent leakage of adhesive.

D. Inject adhesive into ports under pressure using equipment appropriate for particular application.

E. Begin injection at lower entry port and continue until adhesive appears in adjacent entry port. Continue from port to port until entire crack is filled.

F. Remove temporary seal and excess adhesive.

G. Clean surfaces adjacent to repair and blend finish.

END OF SECTION

PHASE 2 REPORT

U.S. FDA Facility
Irvine, California

Detailed Seismic Assessment and Nonstructural Tier 1 Screening

August 01, 2025

MAGNUSSON KLEMENCIC ASSOCIATES

Phase 2 Report – Detailed Seismic Assessment and Nonstructural Tier 1 Screening

Introduction 1

Project Description 1

Building Codes and Reference Materials 2

Phase 1 Overview 3

Phase 2 Detailed Assessment 6

Tier 1 Nonstructural Screening 15

Conclusions 16

Appendices

Appendix A: Concrete Column Assessment

Appendix B: Seismic Separation Joint Assessment

Appendix C: Cantilever Wall Design at Shed Roof

Appendix D: ASCE 41-17 Nonstructural Checklist

Appendix E: Phase 1 - Seismic Evaluation and Structural Condition Assessment (2024)

INTRODUCTION

Phase 1 of the U.S. FDA Seismic Retrofit project included a site observation, conducted on September 18, 2024, and Tier 1 evaluation following the provisions of ASCE 41-17 based on the seismic performance objectives associated with Risk Category II occupancy. The final Phase 1 report titled "Seismic Evaluation and Structural Condition Assessment" was issued on November 26, 2024, which summarized the findings of the Tier 1 evaluation. Potential seismic deficiencies related to the existing concrete columns and seismic separation joints were identified in this initial evaluation, and a more detailed follow-up seismic evaluation was recommended for these components.

This Phase 2 report describes the detailed assessment and additional analyses conducted for the potentially deficient components identified in the Phase 1 report. As part of the Phase 2 scope, MKA has also performed a Tier 1 evaluation of the nonstructural components using the available drawings and specifications from the original building. The ASCE 41-17 Nonstructural Checklist is included in this Phase 2 report.

PROJECT DESCRIPTION

The U.S. FDA Irvine Lab is an existing facility which was originally designed in the late 1990's and constructed shortly afterward. The facility consists of two buildings, separated by an expansion joint, and is located near a sloping site at the corner of Fairchild Road and MacArthur Boulevard. Building A, shown in Figure 1, is a three-story existing building that is semi-circular in plan. The building measures approximately 370 feet by 120 feet and is comprised of three wings. Building A has a one-story basement below the southernmost wing. The floor-to-floor heights are approximately 17 to 18 feet for a total building height of approximately 47 feet.

Figure 1 – Site Map

Building B is located north of building A and is seismically separated from the larger main structure. Building B is a two-story structure and is similar in construction to the main building. The primary use of the two buildings is laboratory and office space.

The structural systems for the various building components are summarized below:

FOUNDATION

The foundation system consists of shallow spread and strip footings with varying thickness according to specific loading demands.

GRAVITY FRAMING

The gravity framing consists of reinforced concrete shear walls and a combination of steel-framed and concrete-framed floor framing systems. The steel framed floors consist of typical W10x17 (W250x25) infill beam framing with W30x116 (W760x173) girders. The floor slabs consist of a 2" composite metal deck with 3 ½" of normal-weight concrete topping for a total depth of 5 ½". The concrete framed floors consist of beams and slabs, with the typical concrete beam being 16" to 24" wide and 15" to 19" deep. The slab spanning between the beams is approximately 7" thick (175mm). The roof is steel-framed construction with a 3" metal deck. Wide flange columns support the steel floor framing, while rectangular concrete columns support the concrete floor.

LATERAL FORCE-RESISTING SYSTEM

Lateral forces due to wind and earthquakes are resisted by the steel and concrete floor diaphragms, with concrete shear walls providing a complete load path to the ground. The roof structure is braced by diagonal X-braces in the longitudinal direction and a combination of shear walls and single-story moment frames in the transverse direction.

BUILDING CODES AND REFERENCE MATERIALS

The project was designed and evaluated in accordance with the following building and material codes:

BUILDING CODE (ORIGINAL BUILDING DESIGN)

- Uniform Building Code, 1994 Edition (UBC-94), Risk Category IV

BUILDING CODE (PHASES 1 AND 2 EVALUATION)

- California Building Code: 2022 Edition (CBC 2022), Risk Category II
- American Society of Civil Engineers: *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, 2016 Edition (ASCE 7-16), Including Supplements No. 1, 2, and 3, Risk Category II

- American Society of Civil Engineers, *Seismic Evaluation and Retrofit of Existing Buildings*, 2017 Edition (ASCE 41-17), Risk Category II

MATERIAL CODES

- Reinforced Concrete: American Concrete Institute, *Building Code Requirements for Structural Concrete and Commentary,* 2019 Edition (ACI 318-19)
- Structural Steel: American Institute of Steel Construction, *Specification for Structural Steel Buildings,* 2016 Edition (ANSI/AISC 360-16)
- Structural Steel: American Institute of Steel Construction, *Seismic Provisions for Structural Steel Buildings*, 2016 Edition (ANSI/AISC 341-16)

OTHER REFERENCE DOCUMENTS

- Phase 1 Report: *Seismic Evaluation and Structural Condition Assessment* by MKA, dated November 26, 2024
- Geotechnical Report: *Geotechnical Investigation – Proposed Seismic Upgrade and Structural Repairs – FDA Facility* by Stoney-Miller Consultants, Inc., dated September 30, 2024
- Previous Investigation Report: *Structural Investigation of Concrete Shear Wall Cracks Phase II* by Parsons, dated November 30, 2022

PHASE 1 OVERVIEW

As described in the Phase 1 report, the seismic deficiencies noted in the previous Parsons 2022 report were re-evaluated. These previously identified deficiencies included the following:

- Cracking in the existing concrete walls
- Vertical discontinuity (knock-out panel) in the southernmost concrete wall
- Collectors between the steel and concrete framing systems
- Angle bracing at the mechanical screen and roof system (Shed Roof)
- Top of concrete wall support at the mechanical screen and roof system (Shed Roof)
- Interior concrete columns may not have the required strength to withstand lateral deformations

Based on the ASCE 41 Tier 1 evaluation conducted by MKA for Risk Category II seismic performance, the following potential deficiencies were identified and recommended for further evaluation:

- Concrete columns may lack adequate capacity to accommodate building displacements under a major seismic event.
- The separation joint may not be adequate in size to preclude building pounding, where two structures collide with each other in a major seismic event.
- Lack of shear wall vertical support at the Shed Roof between Wings 1 and 2, and Wings 2 and 3

The previous 2022 Parsons evaluation was conducted using Risk Category IV, while MKA's evaluation was performed under the lower Risk Category II. The lower risk category resulted in lower seismic demands and generally less stringent criteria. Fewer deficiencies were identified in MKA's Phase 1 report in part because of the Risk Category II evaluation criteria.

The following sections provide additional description of the Tier 1 assessment of the cracking in the existing shear walls and angle bracing at the shed roof. Refer to Appendix E for MKA's Phase 1 report for the detailed Tier 1 evaluation and the evaluation of the other previously identified deficiencies noted in the Parsons 2022 report.

SHEAR WALL CRACKING AND STRESSES

MKA's Tier 1 evaluation did not assume a strength reduction factor on the concrete walls strength due to cracking based on the crack widths observed during the site observation. While many of the cracks extended fully through the thickness of the concrete walls, the observed cracks were small and less than 1/16-inch in width. At the previously repaired crack conditions, the cracks on the outside face had been routed and enlarged to allow for sealants to be installed. The width of these cracks could not be determined from the outside surface; however, these repaired cracks generally extended through the full thickness of the concrete walls and could be observed from the inside. The previously repaired crack widths were also found to be small in width.

The concrete shear wall shear stresses were also evaluated in the Phase 1 report. Using the 5,000 psi concrete strength, as determined by Parsons in 2022, the shear stresses were found to be comfortably below $2\sqrt{f'c}$ in MKA's Tier 1 evaluation. The large quantity of well distributed shear walls results in low seismic demands on the shear wall system. The calculated low shear wall stresses and observed small crack widths did not trigger a structural deficiency per MKA's evaluation.

SHEAR WALL CRACK WIDTHS AND REPAIR

There is guidance from both ASCE and ACI regarding crack widths in concrete walls, and they note that cracks of 1/16-inch in width or less have little effect on strength of well reinforced walls. ASCE 41-17 identifies the 1/16" width criteria in Table 4-1, and elaborates this crack width threshold in the commentary A.2.3.7 (see Figure 2 and 3). The Parsons 2022 report also states on Page 3 that "Table 4.1 (Guide to Reasonable Crack Widths, Reinforced Concrete Under Service Loads) in ACI 224R (Control of Cracking in Concrete Structures) indicates that based on the exposure condition, up to 1/16 of an inch crack width is acceptable."

Table 4-1. Patterns of Defects and Deterioration

Component or Material	Pattern	Commentary/Tier 2 Reference Sections
Foundation	Evidence of settlement or heave	A.2.3.1, 5.2.3, 5.4.3.2
Foundation elements	Deterioration caused by corrosion, sulfate attack, or material breakdown	A.2.3.1, 5.2.3, 5.4.3.2
Wood	Decay, shrinkage, splitting, fire damage, or sagging in wood members. Deteriorated, broken, or loose metal connection hardware	A.2.3.3, 5.2.3
Wood structural panel shear wall fasteners	Overdriven fasteners, omitted blocking, excessive fastener spacing, or inadequate edge distance	A.2.3.4, 5.2.3
Steel ≥ 1/8 in. thick	Visible rusting, corrosion, cracking, or other deterioration	A.2.3.5, 5.2.3
Steel < 1/8 in. thick	Visible deformations, corrosion particularly near welds or fasteners, loose fasteners	A.2.3.5, 5.2.3
Concrete	Visible deterioration of concrete or reinforcing steel	A.2.3.6, 5.2.3
Concrete walls	Cracks that are 1/16 in. or wider, concentrated in one location or forming an X pattern	A.2.3.7, 5.2.3
Concrete columns encasing masonry	Diagonal cracks wider than 1/16 in.	A.2.3.8, 5.2.3

Figure 2 – Table 4-1 from ASCE 41-17

A.2.3.7 Concrete Wall Cracks. *All existing diagonal cracks in the wall elements are less than 1/16 in. (1.5 mm), are not concentrated in one location, and do not form an X pattern.*

Cracks in concrete elements have little effect on the strength of well-reinforced wall elements. A significant reduction in strength is usually the result of large displacements or crushing of concrete. Only where the cracks are large enough to prevent aggregate interlock or to allow for the potential for buckling of the reinforcing steel does the adequacy of the concrete capacity become a concern.

Figure 3 – Section A.2.3.7 from ASCE 41-17

MKA did not observe crack widths exceeding 1/16-inch during the site observation conducted on September 18th, 2024, thus no reduction in concrete strength was taken when performing the Tier 1 concrete wall stress checks. The existing walls comfortably passed the Tier 1 stress check using the full concrete strength, thus the Phase 1 report recommended the walls be repaired architecturally.

Should the contractor encounter crack widths exceeding 1/16-inch, the contractor shall notify the Architect and Structural Engineer of Record and submit an RFI for review and potential structural crack repairs.

ANGLE BRACING AT MECHANICAL SCREEN & ROOF SYSTEM (SHED ROOF)

MKA performed additional calculations for the existing angle bracing the Shed Roofs in the longitudinal direction. While the angles are very slender in compression, they can act as tension only braces to resist the relatively small lateral forces at the light Shed Roof system. Thus the angle bracing at the Shed Roofs does not trigger a structural deficiency per MKA's evaluation.

PHASE 2 DETAILED ASSESSMENT

Phase 2 of the U.S. FDA Seismic Retrofit project consists of conducting a detailed lateral analysis and evaluation of the potentially deficient components identified in the Phase 1 report. The analysis, evaluation, and findings are summarized below:

LATERAL ANALYSIS

To assess the existing concrete column capacity and the adequacy of the seismic separation joint between Buildings A and B, the anticipated building drifts needed to be determined. A detailed structural analysis model was created using the analysis software program ETABS. The structural walls, columns, beams, floors and roofs were all explicitly modeled in ETABS to represent the existing structural system and geometry as shown in Figures 4 and 5. Concrete cracking modifiers were applied to the various concrete elements following the recommendations of ACI 318-19, LATBSDC 2020 Table 3 for service level models, and PEER TBI 2017 Table 4-3. Dead, live, and self-weight loads were assigned to the structure to capture the design loads and structural mass as specified in the original structural drawings. Seismic loads, following the provisions of CBC 2022 and ASCE 7-16, were assigned to the model using the site-specific response spectrum provided in geotechnical report by Stoney-Miller Consultants, and a modal response spectrum analysis was performed to assess the seismic response. ASCE 7-16 seismic values were used because they were available and for the purposes of this analysis ASCE 7-16 is comparable to ASCE 41-17.

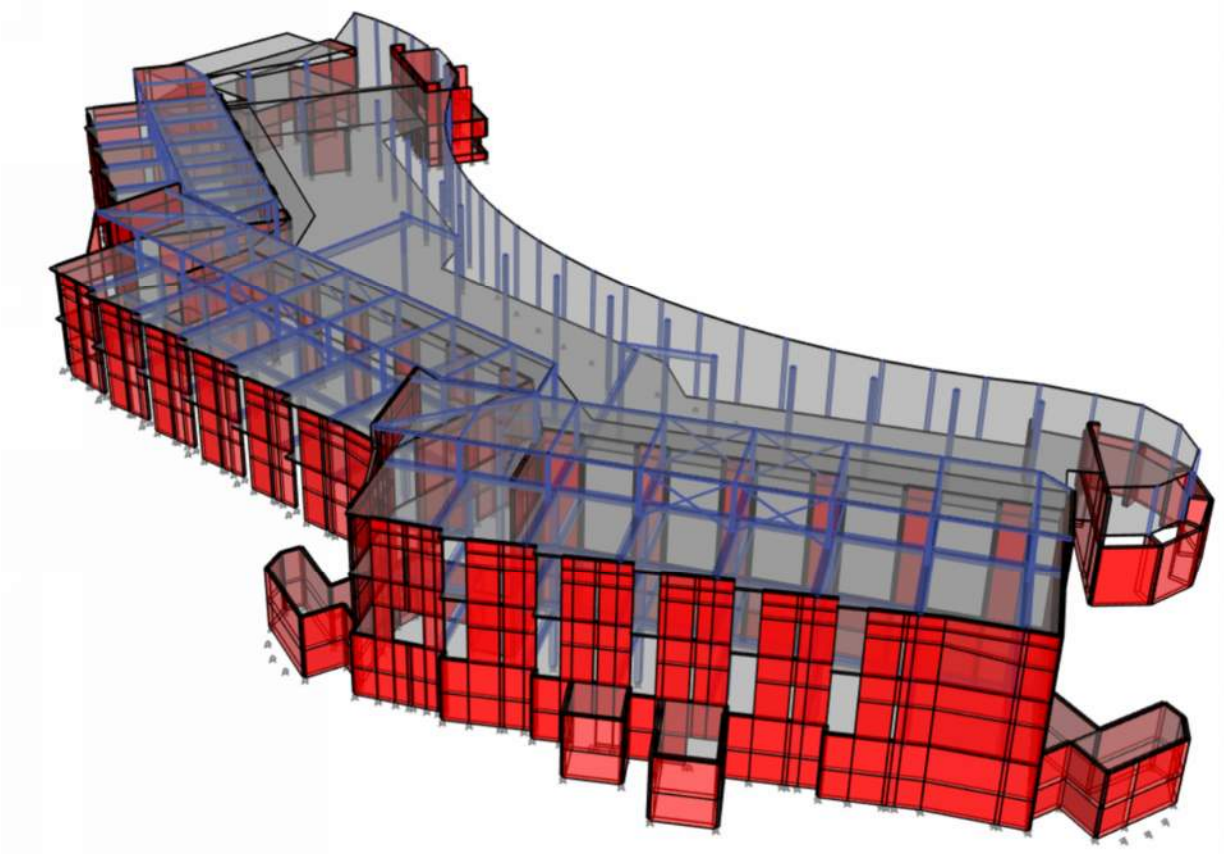


Figure 4 – Three-Dimensional Views from ETABS Analysis Model

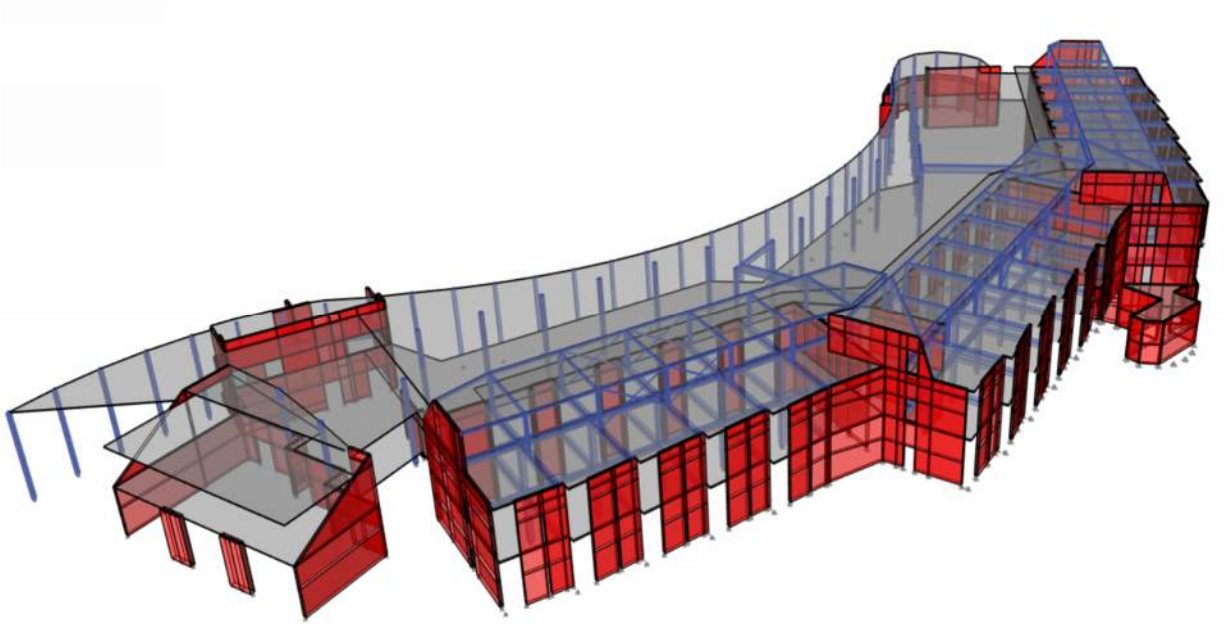


Figure 5 – Three-Dimensional Views from ETABS Analysis Model

Building A and B are seismically separated at Levels 2 and above by seismic movement joints. During a seismic event, the two buildings are able to move laterally independent of each other provided the seismic joint has sufficient width to avoid the structures from "pounding" or colliding across the joint. Figures 6 and 7 present the story drifts, or the relative lateral displacements between adjacent stories, for Buildings A and B. As shown in the two figures the story drifts are very low, particularly at the High Roof and down, due to the length and large number of distributed shear walls. The story drifts fall comfortably below the code level drift limit.

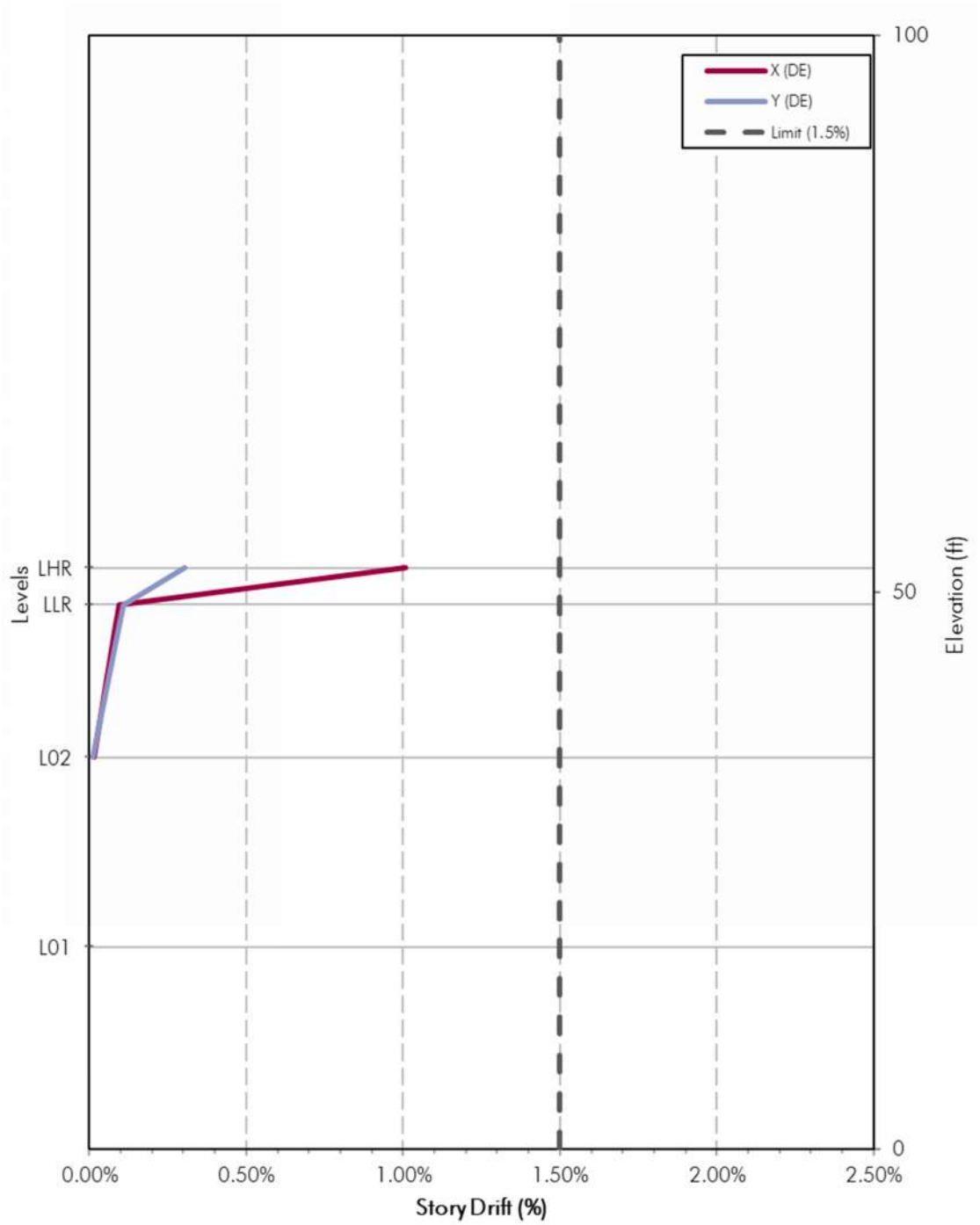


Figure 6 – Seismic Story Drift (Building A)

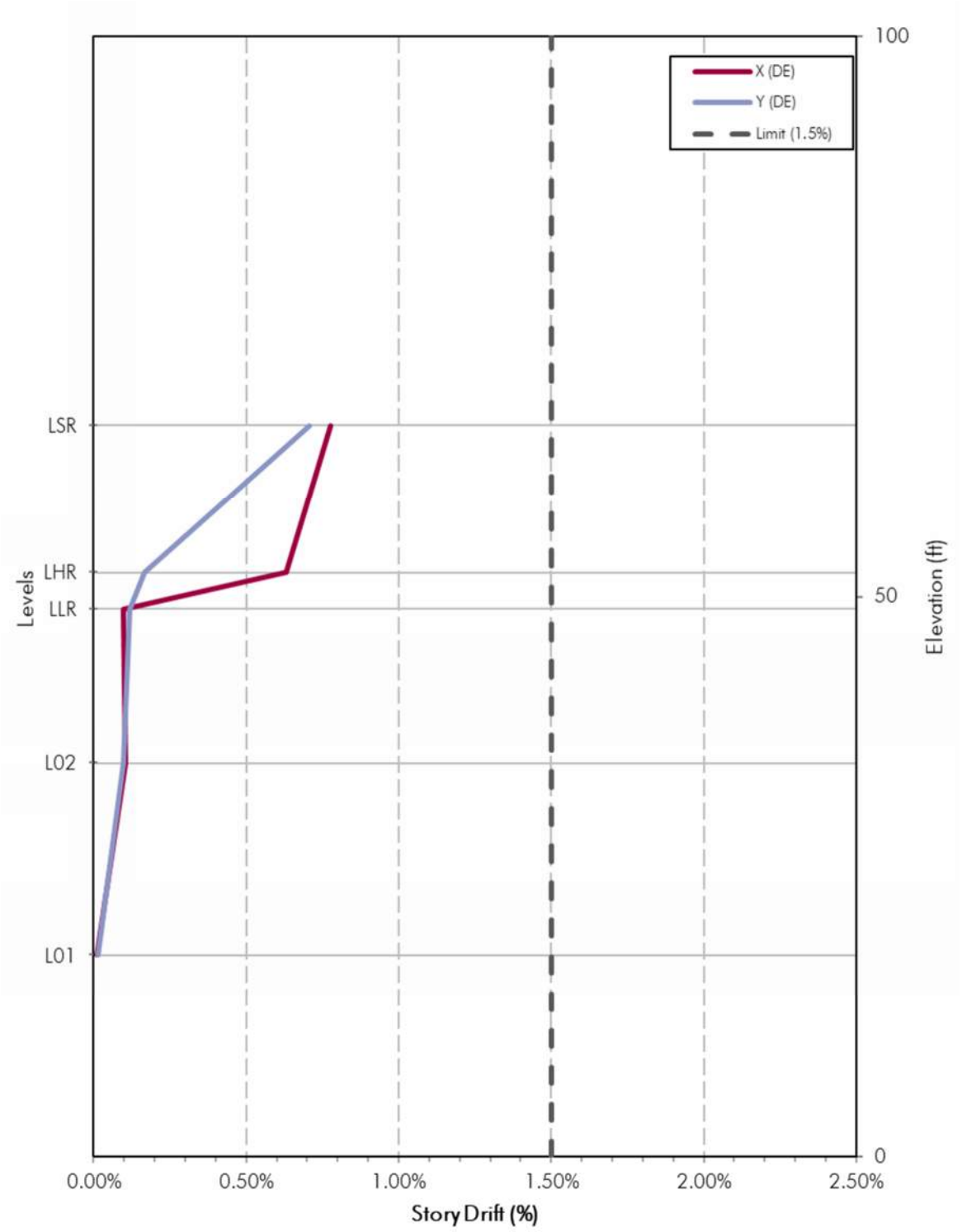


Figure 7 – Seismic Story Drift (Building B)

CONCRETE COLUMN ASSESSMENT

As identified in the Phase 1 report, the concrete columns were identified as potentially lacking adequate capacity to accommodate building displacements under a major seismic event. The original column design called for four or eight vertical reinforcing bars with reinforcing ties spaced at 8-inches near the floors and 16-inches in between (see Figures 8 and 9). Current code would require tighter spaced vertical bars and reinforcing ties to better confine the column concrete during large lateral movements.

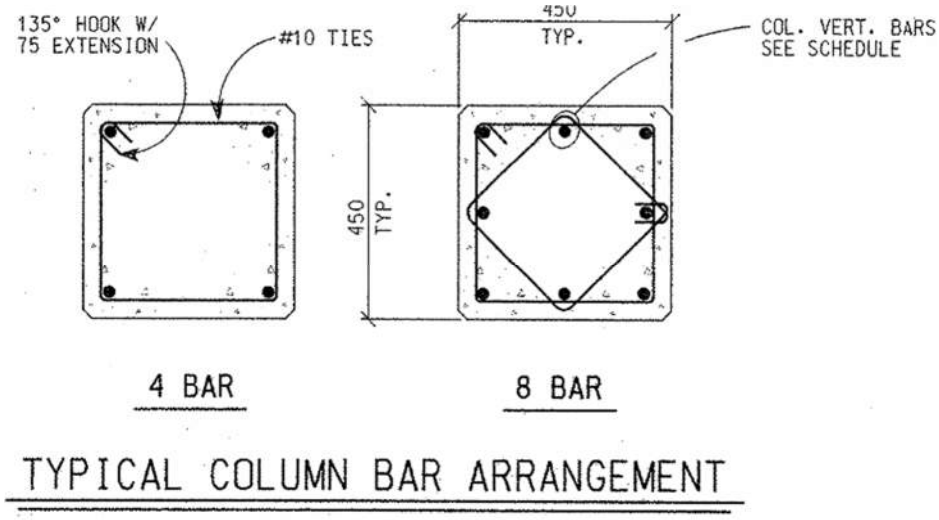


Figure 8 – Column Reinforcing Sections from Original Design Drawings

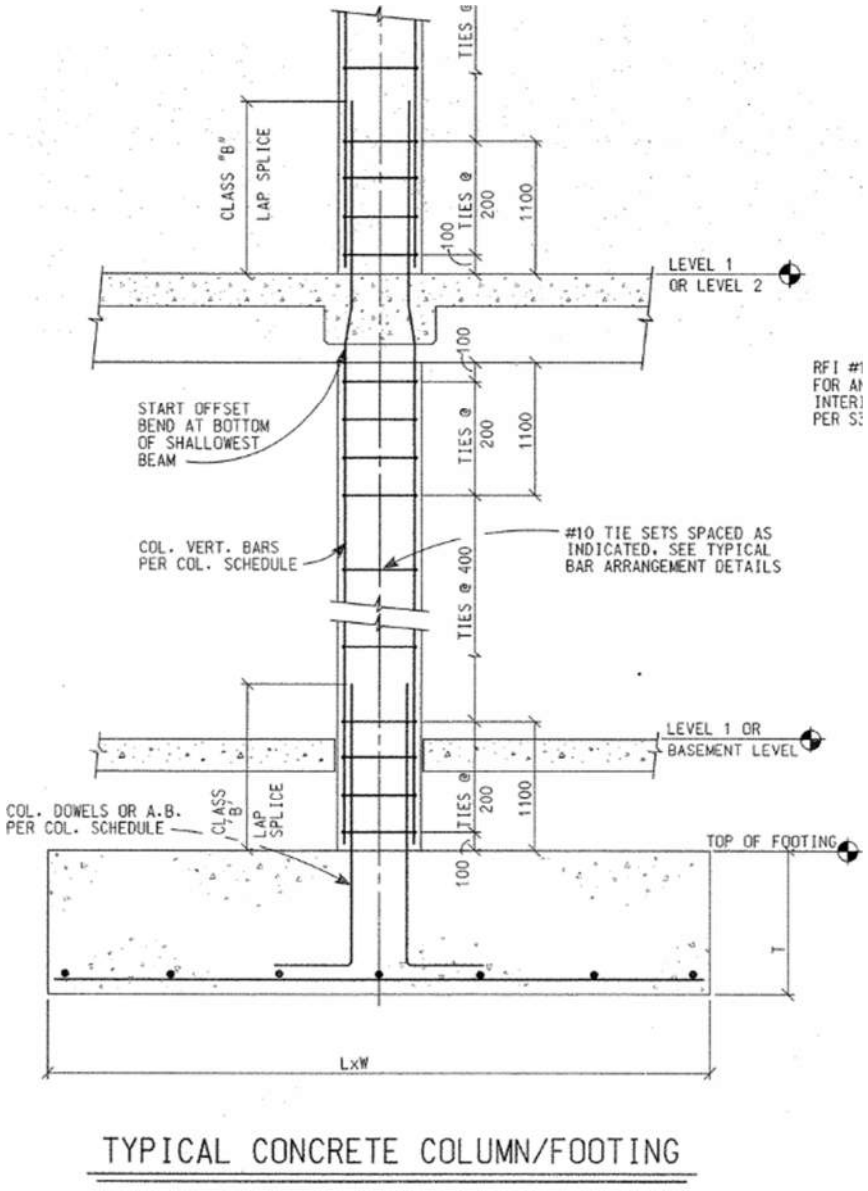


Figure 9 – Typical Concrete Column Detail from Original Design Drawings

To assess the existing concrete column capacities, first the existing column capacities were determined. Then the column stiffnesses were calculated and the story drifts from the lateral analysis were applied to the columns. The resulting column shear and moment demands were determined, and compared against the calculated column shear and moment capacities.

Per the detailed assessment, the existing columns have sufficient shear and moment capacity to resist the forces resulting from the code level design earthquake. No additional column strengthening or enhancements are recommended.

Refer to Appendix A for the detailed column capacity and demand calculations.

SEISMIC SEPARATION JOINT ASSESSMENT

Building A and B are seismically separated at Levels 2 and the Low Roof by seismic separation joints as shown in Figures 10 through 12. During a seismic event, the two buildings are able to move laterally independent of each other provided the seismic joint has sufficient width to avoid the structures from "pounding" or colliding across the joint. In the Phase 1 report, the joints were identified as potentially lacking sufficient width to preclude pounding.

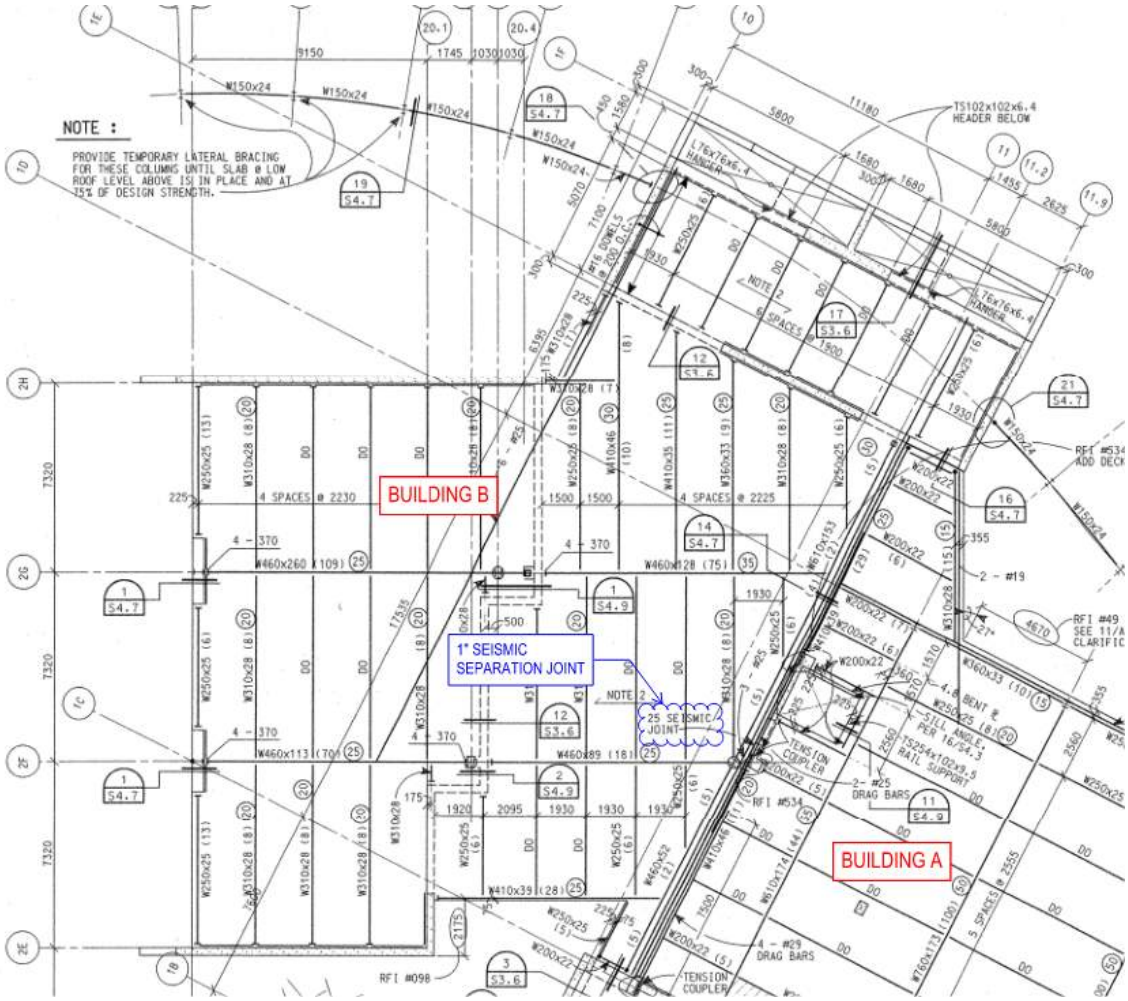


Figure 10 – Level 2 Seismic Separation Joint Location

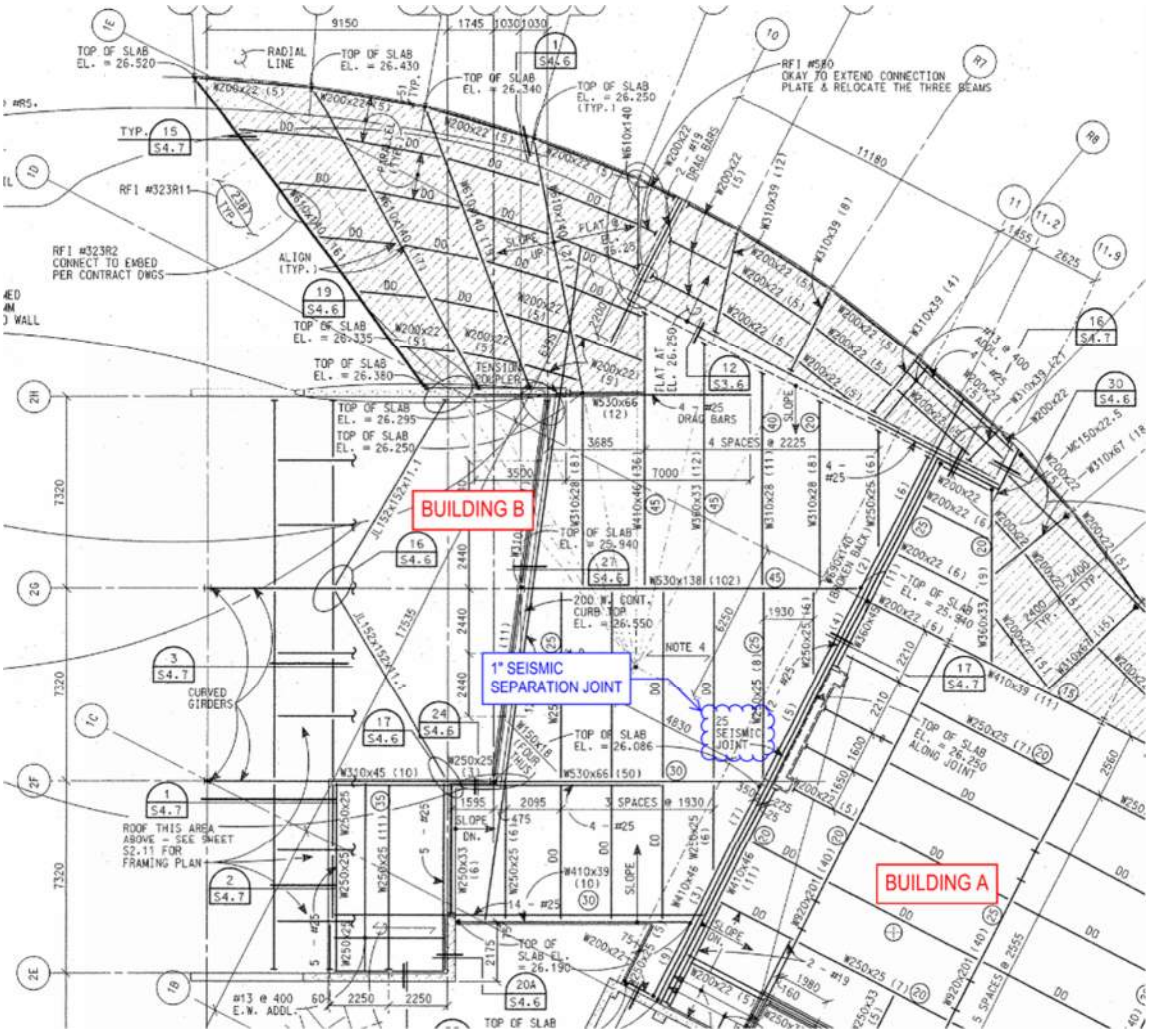


Figure 11 – Low Roof Seismic Separation Joint Location

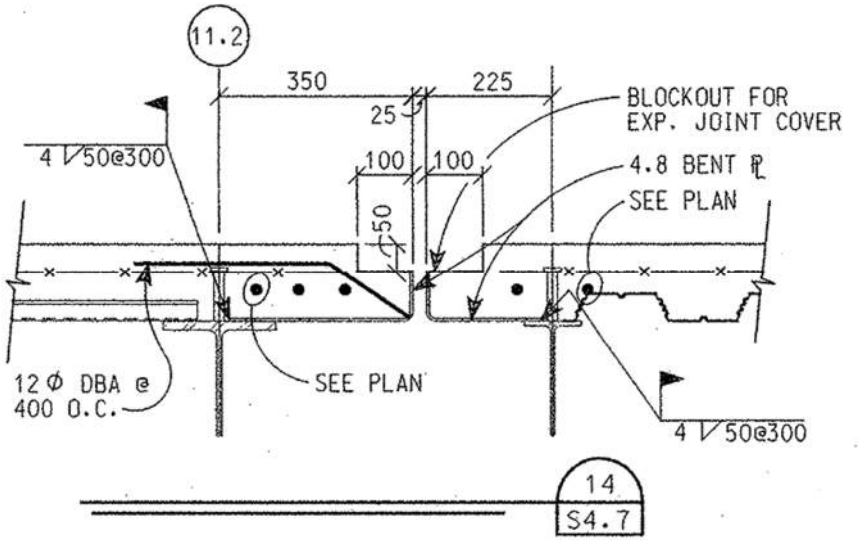


Figure 12 – Seismic Separation Joint Detail

Using the story drifts calculated in the lateral analysis, the movements of Buildings A and B are combined at Level 2 and the Low Roof. The relative moment of the two buildings was determined to be 0.86 inches at the Low Roof. Thus the existing 1-inch seismic separation joint has sufficient width to prevent the two buildings from colliding during the code level design earthquake. No additional retrofits or enhancements to the Level 2 and Low Roof seismic separation joints are recommended.

Refer to Appendix B for the detailed seismic displacement calculations.

SHED ROOF VERTICAL WALL SUPPORT ASSESSMENT

The concrete shear walls that extend up to the mechanical screen and roof system at the Shed Roof are not continuously supported vertically at all locations. The Shed Roof walls between Wings 1 and 2, and Wings 2 and 3 partially extend to the north beyond the existing shear walls below (see Figure 13). The northern portion of the Shed Roof walls appear to be architectural and close off the ends of the mechanical screen and roof system, while the west portion of the walls resist the lateral demands and anchor the walls.

Calculations were performed to assess the "backspan" portion of Shed Roof concrete wall which stacks vertically upon the shear wall below. Shear demands were extracted from the lateral analysis model and vertical dead, live and seismic loads were applied to the northern section of overhanging wall. It was determined that the "backspan" segment of the Shed Roof shear wall has sufficient shear and flexural capacity to resist the overhanging wall demands. No additional retrofits or enhancement to the Shed Roof walls are recommended.

Refer to Appendix C for the detail Shed Roof wall calculations.

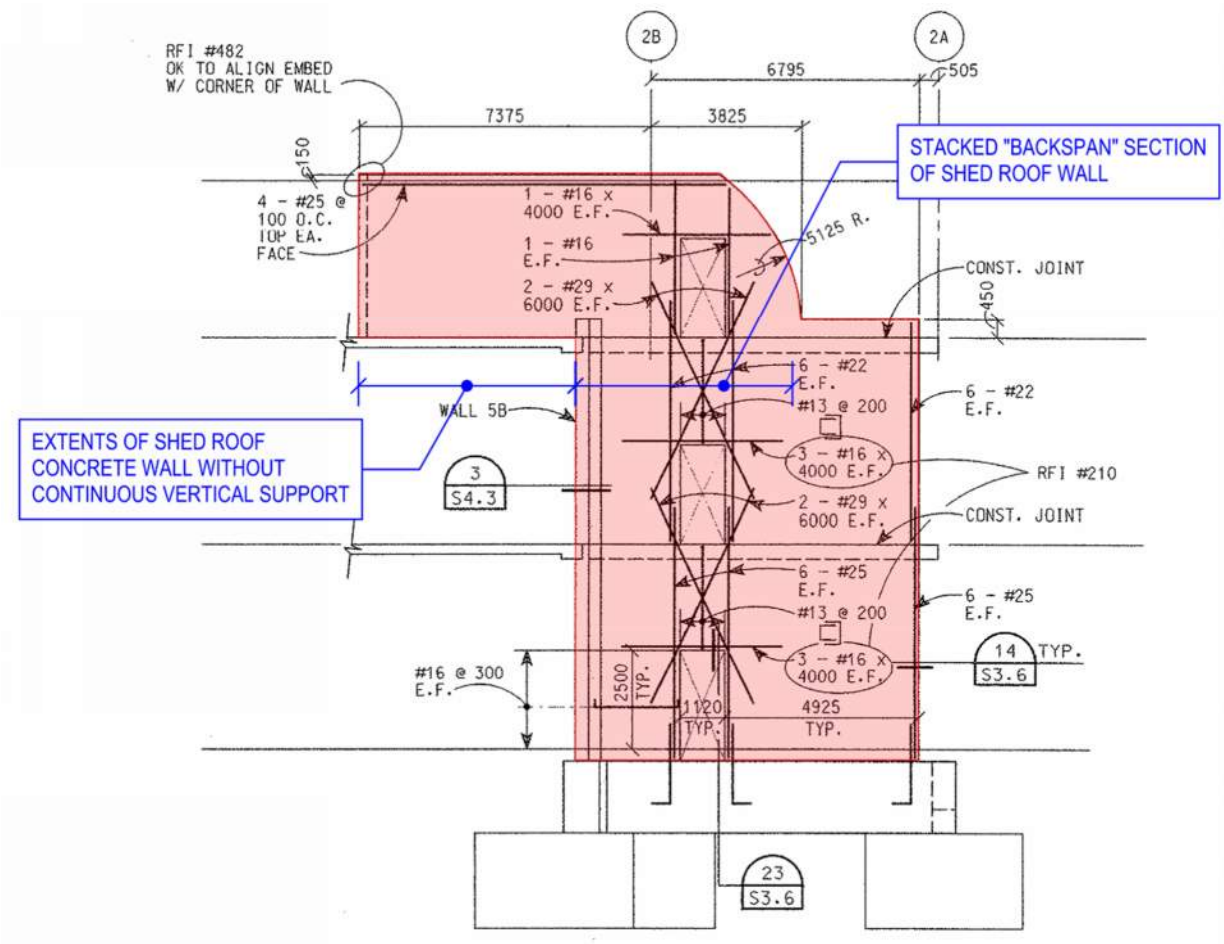


Figure 13 – Wall #5C (Located Between Wings 1 and 2)

PHASE 2 TIER 1 NONSTRUCTURAL SCREENING

MKA has performed an ASCE 41-17 Tier 1 nonstructural screening using the available existing drawings and specifications. While a site visit specifically observing the nonstructural components and systems was not conducted, the original project specifications do contain detailed information related to nonstructural design. Using the project specifications MKA was able to complete most of the Tier 1 Nonstructural Checklist. Some items are marked as "unknown" indicating that the design information was not in the available documentation, and these elements were not able to be observed on site.

In general, the specifications demonstrate that seismic criteria were considered for the original design of the nonstructural components. The standards referenced in the specifications have been replaced by newer standards, however, the original standards should still be adequate to avoid significant life safety risks for a lower Risk Category II building.

Refer to Appendix D for the ASCE 41-17 Tier 1 Nonstructural Checklist.

CONCLUSIONS

As previously described, MKA has performed a detailed structural evaluation of the three potential seismic deficiencies recommended for further evaluation in the Phase 1 and 2022 Parsons report. These potential deficiencies include the existing concrete column capacities under seismic lateral displacements, the size of the existing seismic separation joint between Buildings A and B, and the lack of shear wall vertical support at the Shed Roof between Wings 1 and 2, and Wings 2 and 3.

After conducting the detailed assessment described above, all three potential deficiencies were deemed structurally sufficient. No additional structural retrofits or enhancements are recommended.

In addition, MKA performed an ASCE 41 Tier 1 screening of the nonstructural systems in the building and found that, in general, these nonstructural components meet the seismic performance criteria for Risk Category II buildings.

As a clarification to the Phase 1 recommendations, the contractor shall validate the concrete crack widths while performing the architectural repairs to the shear wall cracks. The contractor shall notify the Architect and Structural Engineer of Record if cracks exceeding 1/16-inch width are encountered, and the contractor shall submit an RFI for review and potential structural crack repairs.

APPENDIX A – CONCRETE COLUMN ASSESSMENT

Based on the displacements at the "High Roof" level, labeled as LHR on the plots, the concrete columns experience shear and moment due to seismic drifts. In this section, the lateral drifts at the floors with concrete columns are calculated to determine the relative story drift at each floor, the column stiffness is calculated to determine the shear and moment demand on the column, and the concrete column shear and moment capacities are determined and compared to the demand.

Building B at High Roof:

$$\delta_{Bx} = 0.01\% * (18.1ft) + 0.10\% * (17.1ft) + 0.10\% * (13.8ft) + 0.63\% * (3.33ft) = 0.41in$$
$$\delta_{By} = 0.01\% * (18.1ft) + 0.10\% * (17.1ft) + 0.12\% * (13.8ft) + 0.17\% * (3.33ft) = 0.44in$$
$$\delta_{B\_HR} = \sqrt{0.41in^2 + 0.44in^2} = 0.60in$$

Building B at Level 2:

$$\delta_{Bx} = 0.01\% * (18.1ft) + 0.10\% * (17.1ft) = 0.23in$$
$$\delta_{By} = 0.01\% * (18.1ft) + 0.10\% * (17.1ft) = 0.23in$$
$$\delta_{B\_L2} = \sqrt{0.23in^2 + 0.23in^2} = 0.32in$$

Building B at Level 1:

$$\delta_{Bx} = 0.01\% * (18.1ft) = 0.02in$$
$$\delta_{By} = 0.01\% * (18.1ft) = 0.02in$$
$$\delta_{B\_L2} = \sqrt{0.02in^2 + 0.02in^2} = 0.03in$$

All concrete columns are 17.7in by 17.7in. The concrete column properties are as follows:

$$E_c = 57{,}000\sqrt{f'c} = \frac{57{,}000\sqrt{4{,}000psi}}{1000(\frac{lbs}{k})} = 3605ksi$$
$$I_c = \frac{d^4}{12} = \frac{17.7in^4}{12} = 8{,}179in^4$$

The column stiffness at each floor is as shown below:

$$K_{HR} = \frac{3E_cI_c}{l^3} = 10.3\ k/in$$
$$K_{L2} = \frac{3E_cI_c}{l^3} = 10.3\ k/in$$
$$K_{L1} = \frac{12E_cI_c}{l^3} = 34.4\ k/in$$

Multiplying the displacement by the column stiffness provides the shear demand. The moment demand is calculated by multiplying the shear demand by half of the story height.

$$V_{HR} = K_{HR}(\delta_{B_{HR}} - \delta_{B_{L2}}) = 2.9k$$
$$M_{HR} = \frac{V_{HR}(17.1ft)}{2} = 24.8\ k \cdot ft$$

$$V_{L2} = K_{L2}\left(\delta_{B_{L2}} - \delta_{B_{L1}}\right) = \ 3.0k$$

$$M_{L2} = \frac{V_{L2}(17.1ft)}{2} = 25.6\ k \cdot ft$$

$$V_{L1} = K_{L1}\left(\delta_{B_{L1}}\right) = \ 1.04k$$

$$M_{L1} = \frac{V_{L1}(18.1ft)}{2} = 9.4\ k \cdot ft$$

Based on the demands on the column, the governing shear demand and moment demand are governed by the columns spanning between level 1 and level 2. The shear and moment capacities, determined by ACI 318-19 section 22.5.5.1.

$$\phi V_c = \phi 8 \lambda_s \lambda (\rho_w)^{1/3} \sqrt{f'c} = 55.2k \rightarrow \boldsymbol{OK}$$

Where:

$$\lambda_s = \sqrt{\frac{2}{1 + \frac{d}{10}}} = 0.849$$

$$\lambda = 1$$

$$\rho_w = \frac{1.58in^2}{17.7in * 17.7in} = 0.00504$$

Therefore, the concrete shear capacity can take the shear demand on the column.

$$\phi M_n = \phi A_s F_y jd = 1359.1\ k \cdot in = 113.3\ k \cdot ft \rightarrow \boldsymbol{OK}$$

Where:

j = 0.9
Fy = 60ksi
As = 1.58in^2

Therefore, the column moment capacity can take the moment demand on the column.

APPENDIX B – SEISMIC SEPARATION JOINT ASSESSMENT

The one-inch separation joint exists up to the "Low Roof" level, labeled as LLR on the plots. Since the building displacement increases as you travel up the building, the Low roof will be analyzed to determine if the seismic separation joint is adequate.

Based on ASCE 7 section 12.12.3, the maximum displacement at the Low Roof level will be taken as the sum of the square root of the squares (SRSS) at each building. The two SRSS displacements will be summed together and compared with the 1" separation distance between the structures.

Building A at Low Roof:

$$\delta_{Ax} = 0.01\% * (17.1ft) + 0.10\% * (13.8ft) = 0.19in$$
$$\delta_{Ay} = 0.01\% * (17.1ft) + 0.11\% * (13.8ft) = 0.21in$$
$$\delta_A = \sqrt{0.19in^2 + 0.21in^2} = 0.28in$$

Building B at Low Roof:

$$\delta_{Bx} = 0.01\% * (18.1ft) + 0.10\% * (17.1ft) + 0.10\% * (13.8ft) = 0.39in$$
$$\delta_{By} = 0.01\% * (18.1ft) + 0.10\% * (17.1ft) + 0.12\% * (13.8ft) = 0.43in$$
$$\delta_B = \sqrt{0.39in^2 + 0.43in^2} = 0.58in$$

Total Seismic Displacement at Low Roof Joint:

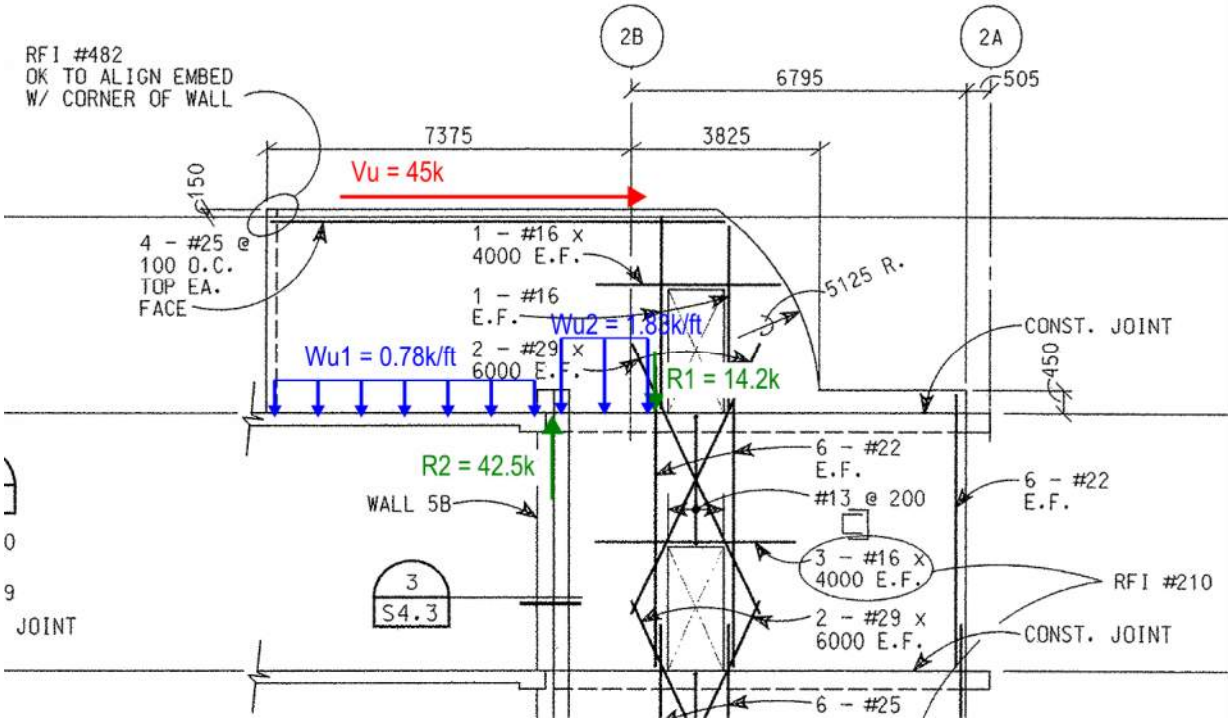
$$\delta_T = \delta_A + \delta_B = 0.86in < 1.00in \rightarrow \ \boldsymbol{OK}$$

Since the total seismic displacement at the top of the joint is less than the joint width, the seismic joint is satisfactory.

APPENDIX C – CANTILEVER WALL DESIGN AT SHED ROOF

Due to some overhanging walls that run between the high roof and the shed roof between Wing 1 and Wing 2 as well as between Wing 2 and Wing 3, calculations have been performed to evaluate that the concrete wall backspan can support the full demands from these walls. The following calculations provide shear checks and wall hold-down checks due to the gravity load for the overhanging wall.

Wall between Wing 1 and Wing 2:



Shear Design check:

The demand from the ETABS model shows the overhanging wall with 16kips of shear demand and the backspan (prior to the door opening) has a shear demand of 29kips. Assuming the full shear demand is applied solely on the extent of the backspan wall, we apply 45kip demand conservatively on the only the 86" wide segment backspan wall to the east of the existing opening (page left in wall elevation above).

For shear design of the building's shear walls, the demand is based on the shear forces calculated during the DE-level analysis. Note the shear forces calculated during DE-level analysis includes all possible combinations of imposed seismic loading ($\pm 1.0\ E_{hx} \pm 0.3\ E_{hy} \pm T_{hx}$ & $\pm 0.3\ E_{hx} \pm 1.0\ E_{hy} \pm T_{hy}$).

$$V^{i}_{des} \leq \phi V_n = \phi A_{cv}\left(2\lambda\sqrt{f'_c} + \rho_t f_y\right)$$

Where:

- V^{i}_{des} = shear demand and level i
- $\phi = 0.60$
- A_{cv} = gross area of concrete bounded by web thickness and length of section
- f'_c = specified concrete compressive strength
- f_y = specified yield strength
- ρ_t = reinforcement ratio

The shear wall horizontal reinforcement is checked per ACI 318, Section 18.10.4.1, using nominal material properties as defined by the existing structural drawings and the code-specified reduction factors.

The minimum shear reinforcement in the core is determined from ACI 318, Section 21.9.2.1:

$$A_{s,min} = 0.0025A_{cv}$$

Properties

- Length = 7′-2″
- Thickness = 12″
- Area = 1,034in^2
- f'_c = 4ksi
- F_y = 60ksi

Demand

- V_u = 45k

Design

$$V_u \Big/ \sqrt{f'_c} A_c = 45k \Big/ \sqrt{4{,}000psi}(1{,}034in^2) = 0.69$$

$$\emptyset V_{n,max} = (0.6)(10) = 6.0$$

$$\emptyset V_{n,max} = 6.0 > 0.69 = V_u \Big/ \sqrt{f'_c} A_c$$

$$\emptyset V_n = \emptyset(V_c + V_s)$$

$$\emptyset V_c = \emptyset 2\sqrt{f'_c} A_c$$
$$= (0.6)(2)\sqrt{4{,}000psi}(1{,}034in^2) = 78.5k > V_u$$

$$\rho_{min} = 0.0025$$
$$A_{s,req'd} = \rho t = (0.0025)(12")(12") = 0.36\, in^2/ft$$

$$A_{s,provided} = \#4\ @\ 12"\ EF\ =\ (0.20\,{}^{in^2}/_{ft})(2) = 0.40\,{}^{in^2}/_{ft}$$

$$\rho_{provided} = {}^{0.4\,in^2/_{ft}}/_{(12")(12")} = 0.00278$$

$$\emptyset V_n = \emptyset A_c \left(2\sqrt{f'_c} + \rho F_y\right)$$
$$= (0.6)(1{,}034in^2)\left(2\sqrt{4{,}000psi} + (0.00278)(60{,}000psi)\right) = 182k\ *Controls*$$

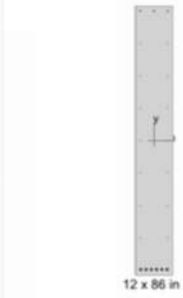
$$\emptyset V_{n,max} = \emptyset 10 A_{cv}\sqrt{f'_c}$$

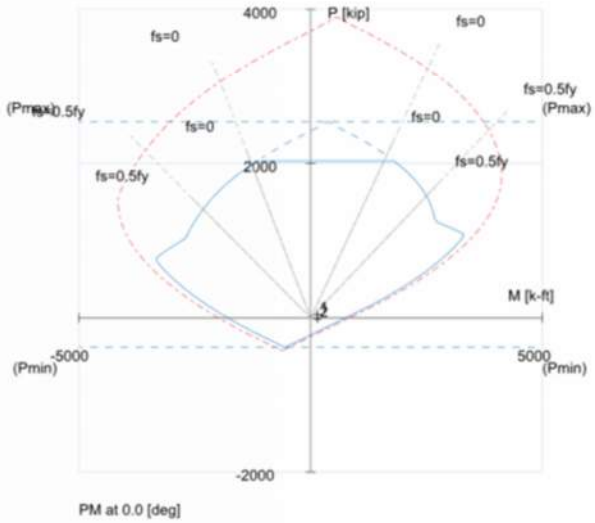
$$= (0.6)(10)\sqrt{4{,}000psi}(1{,}034in^2) = 392k$$

$$\underline{\emptyset V_n = 182k > 45\text{k} = V_u}$$

Wall Hold-down check:

The envelope of the vertical load demands within the wall pier from the ETABS model, accounting for the dead and live load tributary to the wall and the vertical seismic component, is taken as two separate piers and distributed over the length of the wall. This simplified distributed load provides 0.78k/ft along the overhanging wall (Wu1) and 1.83k/ft demand along the backspan wall (Wu2). Taking the simple beam model at the high roof, we get the maximum compression reaction at the end of the wall below to be 42.5kips and the maximum tension reaction at the door opening to be 14.2kips. The maximum moment along the length of the wall is 148.3k-ft. Running this backspan wall section through spColumn provides the following DCRs.





PM at 0.0 [deg]

General Information

Project	---
Column	---
Engineer	---
Code	ACI 318-19
Bar Set	ASTM A615
Units	English
Run Option	Investigation
Run Axis	X - axis
Slenderness	Not Considered
Column Type	Structural
Capacity Method	Critical capacity

Materials

f'_c	4 ksi
E_c	3605 ksi
f_y	60 ksi
E_s	29000 ksi

Section

Type	Rectangular
Width	12 in
Depth	86 in
A_g	1032 in²
I_x	636056 in⁴
I_y	12384 in⁴

Reinforcement

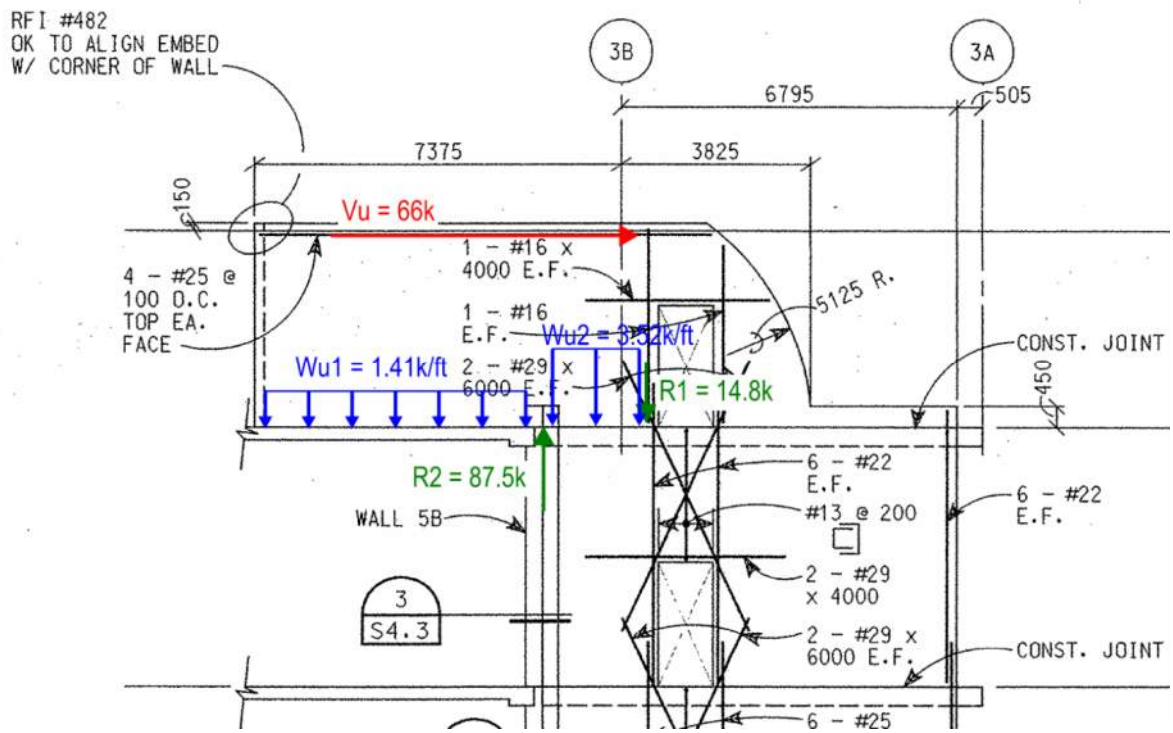
Pattern	Sides different
Bar layout	Rectangular
Cover to	Transverse bars
Clear cover	---
Bars	---
Confinement type	Tied
Total steel area, A_s	7.00 in²
Rho	0.68 %
Min. clear spacing	0.80 in

No.	P_u kip	M_{ux} k-ft	ϕP_n kip	ϕM_{nx} k-ft	Capacity Ratio
2	-14.4	148.3	-35.49	626.11	0.85
1	42.5	148.3	0.00	747.49	0.82

Max. Capacity Ratio: 0.85

Since the backspan wall DCR is less than 1.0 below the high roof level, this overhanging wall is sufficiently supported by the backspan.

Wall between wing 2 and wing 3:



Shear Design check:

The demand from the ETABS model shows the overhanging wall with 16kips of shear demand and the backspan (prior to the door opening) has a shear demand of 29kips. Assuming the full shear demand is applied solely on the extent of the backspan wall, we apply 45kip demand on the 86" wide backspan wall.

For shear design of the building's shear walls, the demand is based on the shear forces calculated during the DE-level analysis. Note the shear forces calculated during DE-level analysis includes all possible combinations of imposed seismic loading ($\pm 1.0\ E_{hx} \pm 0.3\ E_{hy} \pm T_{hx}$ & $\pm 0.3\ E_{hx} \pm 1.0\ E_{hy} \pm T_{hy}$).

$$V^i_{des} \leq \phi V_n = \phi A_{cv}\left(2\lambda\sqrt{f'_c} + \rho_t f_y\right)$$

Where:

- V^i_{des} = shear demand and level i
- ϕ = 0.60
- A_{cv} = gross area of concrete bounded by web thickness and length of section
- f'_c = specified concrete compressive strength
- f_y = specified yield strength
- ρ_t = reinforcement ratio

The shear wall horizontal reinforcement is checked per ACI 318, Section 18.10.4.1, using nominal material properties as defined by the existing structural drawings and the code-specified reduction factors.

The minimum shear reinforcement in the core is determined from ACI 318, Section 21.9.2.1:

$$A_{s,min} = 0.0025A_{cv}$$

Properties

- Length = 7′-2″
- Thickness = 12″
- Area = 1,034in^2
- f′$_c$ = 4ksi
- F$_y$ = 60ksi

Demand

- V$_u$ = 45k

Design

$$V_u / \sqrt{f'_c} A_c = 66k / \sqrt{4{,}000psi}(1{,}034in^2) = 1.01$$

$$\emptyset V_{n,max} = (0.6)(10) = 6.0$$

$$\emptyset V_{n,max} = 6.0 > 1.01 = V_u / \sqrt{f'_c} A_c$$

$$\emptyset V_n = \emptyset(V_c + V_s)$$

$$\emptyset V_c = \emptyset 2\sqrt{f'_c} A_c$$
$$= (0.6)(2)\sqrt{4{,}000psi}(1{,}034in^2) = 78.5k > V_u$$

$$\rho_{min} = 0.0025$$
$$A_{s,reqrd} = \rho t = (0.0025)(12")(12") = 0.36\ in^2/ft$$

$$A_{s,provrd} = \#4\ @\ 12"\ EF\ =\ (0.20\ in^2/ft)(2) = 0.40\ in^2/ft$$

$$\rho_{provrd} = 0.4\ in^2/ft \Big/ (12")(12") = 0.00278$$

$$\emptyset V_n = \emptyset A_c \left(2\sqrt{f'_c} + \rho F_y\right)$$
$$= (0.6)(1{,}034in^2)\left(2\sqrt{4{,}000psi} + (0.00278)(60{,}000psi)\right) = 182k\ *Controls*$$

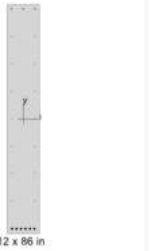
$$\emptyset V_{n,max} = \emptyset 10 A_{cv}\sqrt{f'_c}$$

$$= (0.6)(10)\sqrt{4{,}000psi}(1{,}034in^2) = 392k$$

$$\underline{\emptyset V_n = 182k > 66\text{k} = V_u}$$

Wall Hold-down check:

The envelope of the vertical load demands within the wall pier from the ETABS model, accounting for the dead and live load tributary to the wall and the vertical seismic component, is taken as two separate piers and distributed over the length of the wall. This simplified distributed load provides 1.41k/ft along the overhanging wall (Wu1) and 3.52k/ft demand along the backspan wall (Wu2). Taking the simple beam model at the high roof, we get the maximum compression reaction at the end of the wall below to be 87.5kips and the maximum tension reaction at the door opening to be 14.8kips. The maximum moment along the length of the wall is 268.1k-ft. Running this backspan wall section through spColumn provides the following DCRs.

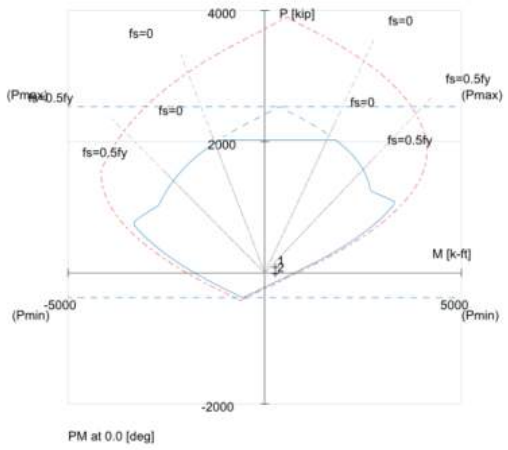


General Information	
Project	---
Column	---
Engineer	---
Code	ACI 318-19
Bar Set	ASTM A615
Units	English
Run Option	Investigation
Run Axis	X - axis
Slenderness	Not Considered
Column Type	Structural
Capacity Method	Critical capacity

Materials	
f'_c	4 ksi
E_c	3605 ksi
f_y	60 ksi
E_s	29000 ksi

Section	
Type	Rectangular
Width	12 in
Depth	86 in
A_g	1032 in²
I_x	636056 in⁴
I_y	12384 in⁴

Reinforcement	
Pattern	Sides different
Bar layout	Rectangular
Cover to	Transverse bars
Clear cover	---
Bars	---
Confinement type	Tied
Total steel area, A_s	7.00 in²
Rho	0.68 %
Min. clear spacing	0.80 in



PM at 0.0 [deg]

No.	P_u kip	M_{ux} k-ft	ϕP_n kip	ϕM_{nx} k-ft	Capacity Ratio
2	-14.8	268.1	-31.25	640.66	0.88
1	87.5	268.1	0.00	747.49	0.85

Max. Capacity Ratio: 0.88

Since the backspan wall DCR is less than 1.0 below the high roof level, this overhanging wall is supported by the backspan.

APPENDIX D – ASCE 41-17 TIER 1 NONSTRUCTURAL CHECKLIST

US FDA Facility, Irvine, California, April 17, 2025
ASCE 41-17 Tier 1 Nonstructural Checklists
Risk Category II, High ("H") Seismicity,
Checklist statements for HR (Hazards Reduced) and LS (Life Safety) per ASCE 41-17 Table 2-2

Table 17-38. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
Life Safety Systems			
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13.	13.7.4	A.7.13.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13.	13.7.4	A.7.13.2
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. EMERGENCY POWER: Equipment used to power or control Life Safety systems is anchored or braced.	13.7.7	A.7.12.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts are braced and have flexible connections at seismic joints.	13.7.6	A.7.14.1
C NC N/A U	**HR—not required; LS—MH; PR—MH**. SPRINKLER CEILING CLEARANCE: Penetrations through panelized ceilings for fire suppression devices provide clearances in accordance with NFPA-13.	13.7.4	A.7.13.3
		Refer to relevant sections from project Specification in following pages	
Hazardous Materials			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers.	13.7.1	A.7.12.2
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. HAZARDOUS MATERIAL STORAGE: Breakable containers that hold hazardous material, including gas cylinders, are restrained by latched doors, shelf lips, wires, or other methods.	13.8.3	A.7.15.1
		Specification addresses some elements but could not verify all	
C NC N/A U	**HR—MH; LS—MH; PR—MH**. HAZARDOUS MATERIAL DISTRIBUTION: Piping or ductwork conveying hazardous materials is braced or otherwise protected from damage that would allow hazardous material release.	13.7.3 13.7.5	A.7.13.4
C NC N/A U	**HR—MH; LS—MH; PR—MH**. SHUTOFF VALVES: Piping containing hazardous material, including natural gas, has shutoff valves or other devices to limit spills or leaks.	13.7.3 13.7.5	A.7.13.3
		Specification not clear on these and not observed	
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, have flexible couplings.	13.7.3 13.7.5	A.7.15.4
C NC N/A U	**HR—MH; LS—MH; PR—MH**. PIPING OR DUCTS CROSSING SEISMIC JOINTS: Piping or ductwork carrying hazardous material that either crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5 13.7.6	A.7.13.6
		Refer to relevant sections from project Specification in following pages, unless noted otherwise above	
Partitions			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. UNREINFORCED MASONRY: Unreinforced masonry or hollow-clay tile partitions are braced at a spacing of at most 10 ft (3.0 m) in Low or Moderate Seismicity, or at most 6 ft (1.8 m) in High Seismicity.	13.6.2	A.7.1
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. HEAVY PARTITIONS SUPPORTED BY CEILIN[illegible]s are not laterally support[illegible]	13.6.2	A.7.2.1
C NC N/A U	**HR—not r[illegible]**ous partitions are detailed[illegible]moment frame, concret[illegible]n other buildings, 0.005.	13.6.2	A.7.1.2
C NC N/A U	**HR—not required; LS—not required; PR—MH**. LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C NC N/A U	**HR—not required; LS—not required; PR—MH**. STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints.	13.6.2	A.7.1.3

Greyed out items are not applicable to the Risk Category II performance objective or to this building type. All statements would be N/A, typical throughout

continues

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Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—not required; PR—MH**. TOPS: The tops of ceiling-high framed or panelized partitions have lateral bracing to the structure at a spacing equal to or less than 6 ft (1.8 m).	13.6.2	A.7.1.4
Ceilings			
C NC N/A U	**HR—H; LS—MH; PR—LMH**. SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3
C NC N/A U	**HR—not required; LS—MH; PR—LMH**. SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3 Architectural drawings have bracing detail for ACT ceilings, assume similar would have been provided for gypboard ceilings, though not observed
C NC N/A U	**HR—not required; LS—not required; PR—MH**. INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) and ceilings of smaller areas that are not surrounded by restraining partitions are laterally restrained at a spacing no greater than 12 ft (3.6 m) with members attached to the structure above. Each restraint location has a minimum of four diagonal wires and compression struts, or diagonal members capable of resisting compression.	13.6.4	A.7.2.2
C NC N/A U	**HR—not required; LS—not required; PR—MH**. EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in. (13 mm); in High Seismicity, 3/4 in. (19 mm).	13.6.4	A.7.2.4
C NC N/A U	**HR—not required; LS—not required; PR—MH**. CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures.	13.6.4	A.7.2.5
C NC N/A U	**HR—not required; LS—not required; PR—H**. EDGE SUPPORT: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) are supported by closure angles or channels not less than 2 in. (51 mm) wide.	13.6.4	A.7.2.6
C NC N/A U	**HR—not required; LS—not required; PR—H**. SEISMIC JOINTS: Acoustical tile or lay-in panel ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2,500 ft^2 (232.3 m^2) and has a ratio of long-to-short dimension no more than 4-to-1.	13.6.4	A.7.2.7
Light Fixtures			
C NC N/A U	**HR—not required; LS—MH; PR—MH**. INDEPENDENT SUPPORT: Light fixtures that weigh more per square foot than the ceiling they penetrate are supported independent of the grid ceiling suspension system by a minimum of two wires at diagonally opposite corners of each fixture.	13.6.4 13.7.9	A.7.3.2
C NC N/A U	**HR—not required; LS—not required; PR—H**. PENDANT SUPPORTS: Light fixtures on pendant supports are attached at a spacing equal to or less than 6 ft. Unbraced suspended fixtures are free to allow a 360-degree range of motion at an angle not less than 45 degrees from horizontal without contacting adjacent components. Alternatively, if rigidly supported and/or braced, they are free to move with the structure to which they are attached without damaging adjoining components. Additionally, the connection to the structure is capable of accommodating the movement without failure.	13.7.9	A.7.3.3
C NC N/A U	**HR—not required; LS—not required; PR—H**. LENS COVERS: Lens covers on light fixtures are attached with safety devices.	13.7.9	A.7.3.4
Cladding and Glazing			
C NC N/A U	**HR—MH; LS—MH; PR—MH**. CLADDING ANCHORS: Cladding components weighing more than 10 lb/ft^2 (0.48 kN/m^2) are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in Moderate Seismicity, 6 ft (1.8 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 ft (1.2 m)	13.6.1	A.7.4.1 Refer to relevant section from Glazed Curtain Wall Specification on following pages

continues

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Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—MH; PR—MH**. CLADDING ISOLATION: For steel or concrete moment-frame buildings, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.3
C NC N/A U	**HR—MH; LS—MH; PR—MH**. MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.4
C NC N/A U	**HR—not required; LS—MH; PR—MH**. THREADED RODS: Threaded rods for panel connections detailed to accommodate drift by bending of the rod have a length-to-diameter ratio greater than 0.06 times the story height in inches for Life Safety in Moderate Seismicity and 0.12 times the story height in inches for Life Safety in High Seismicity and Position Retention in any seismicity.	13.6.1	A.7.4.9
C NC N/A U	**HR—MH; LS—MH; PR—MH**. PANEL CONNECTIONS: Cladding panels are anchored out of plane with a minimum number of connections for each wall panel, as follows: for Life Safety in Moderate Seismicity, 2 connections; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 connections.	13.6.1.4	A.7.4.5
C NC N/A U	**HR—MH; LS—MH; PR—MH**. BEARING CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel.	13.6.1.4	A.7.4.6
C NC N/A U	**HR—not required; LS—MH; PR—MH**. OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes more than 16 ft^2 (1.5 m^2) in area are laminated annealed or laminated heat-strengthened glass and are detailed to remain in the frame when cracked.	13.6.1.5 Could not determine this from project Specification and was not observed on site	A.7.4.8
Masonry Veneer			
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. TIES: Masonry veneer is connected to the backup with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 ft^2 (0.25 m^2), and the ties have spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 36 in. (914 mm); for Life Safety in High Seismicity and for Position Retention in any seismicity, 24 in. (610 mm).	13.6.1.2	A.7.5.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor.	13.6.1.2	A.7.5.2
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. WEAKENED PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing.	13.6.1.2	A.7.5.3
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup.	13.6.1.1 13.6.1.2	A.7.7.2
C NC N/A U	**HR—not required; LS—MH; PR—MH**. STUD TRACKS: For veneer with cold-formed steel stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. (610 mm) on center.	13.6.1.1 13.6.1.2	A.7.6.1

continues

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Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—MH; PR—MH**. ANCHORAGE: For veneer with concrete block or masonry backup, the backup is positively anchored to the structure at a horizontal spacing equal to or less than 4 ft along the floors and roof.	13.6.1.1 13.6.1.2	A.7.7.1
C NC N/A U	**HR—not required; LS—not required; PR—MH**. WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing.	13.6.1.2	A.7.5.6
C NC N/A U	**HR—not required; LS—not required; PR—MH**. OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings.	13.6.1.1 13.6.1.2	A.7.6.2
Parapets, Cornices, Ornamentation, and Appendages			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. URM PARAPETS OR CORNICES: Laterally unsupported unreinforced masonry parapets or cornices have height-to-thickness ratios no greater than the following: for Life Safety in Low or Moderate Seismicity, 2.5; for Life Safety in High Seismicity and for Position Retention in any seismicity, 1.5.	13.6.5	A.7.8.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. CANOPIES: Canopies at building exits are anchored to the structure at a spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 10 ft (3.0 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft (1.8 m).	13.6.6 Don't think there are any canopies over egress routes	A.7.8.2
C NC N/A U	**HR—H; LS—MH; PR—LMH**. CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement.	13.6.5	A.7.8.3
C NC N/A U	**HR—MH; LS—MH; PR—LMH**. APPENDAGES: Cornices, parapets, signs, and other ornamentation or appendages that extend above the highest point of anchorage to the structure or cantilever from components are reinforced and anchored to the structural system at a spacing equal to or less than 6 ft (1.8 m). This evaluation statement item does not apply to parapets or cornices covered by other evaluation statements.	13.6.6	A.7.8.4
Masonry Chimneys			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in Low or Moderate Seismicity, 3 times the least dimension of the chimney; for Life Safety in High Seismicity and for Position Retention in any seismicity, 2 times the least dimension of the chimney.	13.6.7	A.7.9.1
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH**. ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof.	13.6.7	A.7.9.2
Stairs			
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. STAIR ENCLOSURES: Hollow-clay tile or unreinforced masonry walls around stair enclosures are restrained out of plane and have height-to-thickness ratios not greater than the following: for Life Safety in Low or Moderate Seismicity, 15-to-1; for Life Safety in High Seismicity and for Position Retention in any seismicity, 12-to-1.	13.6.2 13.6.8	A.7.10.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH**. STAIR DETAILS: The connection between the stairs and the structure does not rely on post-installed anchors in concrete or masonry, and the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.4.3.1 for moment-frame structures or 0.5 in. for all other structures without including any lateral stiffness contribution from the stairs.	13.6.8 Stairs were design-build and shop drawings are not available. Specs and structural drawings not clear about anchorage and drift requirements. However, building is very stiff	A.7.10.2
Contents and Furnishings			
C NC N/A U	**HR—LMH; LS—MH; PR—MH**. INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks more than 12 ft high meet the requirements of ANSI/RMI MH 16.1 as modified by ASCE 7, Chapter 15.	13.8.1 Expect none of these but not confirmed	A.7.11.1

continues

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Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—H; PR—MH**. TALL NARROW CONTENTS: Contents more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the structure or to each other.	13.8.2	A.7.11.2
C NC N/A U	**HR—not required; LS—H; PR—H**. FALL-PRONE CONTENTS: Equipment, stored items, or other contents weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level are braced or otherwise restrained.	13.8.2	A.7.11.3
C NC N/A U	**HR—not required; LS—not required; PR—MH**. ACCESS FLOORS: Access floors more than 9 in. (229 mm) high are braced.	13.6.10	A.7.11.4
C NC N/A U	**HR—not required; LS—not required; PR—MH**. EQUIPMENT ON ACCESS FLOORS: Equipment and other contents supported by access floor systems are anchored or braced to the structure independent of the access floor.	13.7.7 13.6.10	A.7.11.5
C NC N/A U	**HR—not required; LS—not required; PR—H**. SUSPENDED CONTENTS: Items suspended without lateral bracing are free to swing from or move with the structure from which they are suspended without damaging themselves or adjoining components.	13.8.2	A.7.11.6
Mechanical and Electrical Equipment			
C NC N/A U	**HR—not required; LS—H; PR—H**. FALL-PRONE EQUIPMENT: Equipment weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level, and which is not in-line equipment, is braced.	13.7.1 13.7.7	A.7.12.4
C NC N/A U	**HR—not required; LS—H; PR—H**. IN-LINE EQUIPMENT: Equipment installed in line with a duct or piping system, with an operating weight more than 75 lb (34.0 kg), is supported and laterally braced independent of the duct or piping system.	13.7.1	A.7.12.5
C NC N/A U	**HR—not required; LS—H; PR—MH**. TALL NARROW EQUIPMENT: Equipment more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 is anchored to the floor slab or adjacent structural walls.	13.7.1 13.7.7	A.7.12.6
C NC N/A U	**HR—not required; LS—not required; PR—MH**. MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01.	13.6.9	A.7.12.7
C NC N/A U	**HR—not required; LS—not required; PR—H**. SUSPENDED EQUIPMENT: Equipment suspended without lateral bracing is free to swing from or move with the structure from which it is suspended without damaging itself or adjoining components.	13.7.1 13.7.7	A.7.12.8
C NC N/A U	**HR—not required; LS—not required; PR—H**. VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning.	13.7.1	A.7.12.9
C NC N/A U	**HR—not required; LS—not required; PR—H**. HEAVY EQUIPMENT: Floor-supported or platform-supported equipment weighing more than 400 lb (181.4 kg) is anchored to the structure.	13.7.1 13.7.7	A.7.12.10
C NC N/A U	**HR—not required; LS—not required; PR—H**. ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure.	13.7.7	A.7.12.11
C NC N/A U	**HR—not required; LS—not required; PR—H**. CONDUIT COUPLINGS: Conduit greater than 2.5 in. (64 mm) trade size that is attached to panels, cabinets, or other equipment and is subject to relative seismic displacement has flexible couplings or connections.	13.7.8	A.7.12.12
Piping			
C NC N/A U	**HR—not required; LS—not required; PR—H**. FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings.	13.7.3 13.7.5	A.7.13.2

Addressed, even if partially, in relevant section from project Specification in following pages

Laboratory spaces were not observed during site visit

Refer to relevant sections from project Specification in following pages

continues

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Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—not required; PR—H**. FLUID AND GAS PIPING: Fluid and gas piping is anchored and braced to the structure to limit spills or leaks.	13.7.3 13.7.5	A.7.13.4
C NC N/A U	**HR—not required; LS—not required; PR—H**. C-CLAMPS: One-sided C-clamps that support piping larger than 2.5 in. (64 mm) in diameter are restrained.	13.7.3 13.7.5	A.7.13.5
C NC N/A U	**HR—not required; LS—not required; PR—H**. PIPING CROSSING SEISMIC JOINTS: Piping that crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5	A.7.13.6
Ducts			
C NC N/A U	**HR—not required; LS—not required; PR—H**. DUCT BRACING: Rectangular ductwork larger than 6 ft^2 (0.56 m^2) in cross-sectional area and round ducts larger than 28 in. (711 mm) in diameter are braced. The maximum spacing of transverse bracing does not exceed 30 ft (9.2 m). The maximum spacing of longitudinal bracing does not exceed 60 ft (18.3 m).	13.7.6	A.7.14.2
C NC N/A U	**HR—not required; LS—not required; PR—H**. DUCT SUPPORT: Ducts are not supported by piping or electrical conduit.	13.7.6	A.7.14.3
C NC N/A U	**HR—not required; LS—not required; PR—H**. DUCTS CROSSING SEISMIC JOINTS: Ducts that cross seismic joints or isolation planes or are connected to independent structures have couplings or other details to accommodate the relative seismic displacements.	13.7.6	A.7.14.4
Elevators			
C NC N/A U	**HR—not required; LS—H; PR—H**. RETAINER GUARDS: Sheaves and drums have cable retainer guards.	13.7.11	A.7.16.1
C NC N/A U	**HR—not required; LS—H; PR—H**. RETAINER PLATE: A retainer plate is present at the top and bottom of both car and counterweight.	13.7.11	A.7.16.2
C NC N/A U	**HR—not required; LS—not required; PR—H**. ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored.	13.7.11	A.7.16.3
C NC N/A U	**HR—not required; LS—not required; PR—H**. SEISMIC SWITCH: Elevators capable of operating at speeds of 150 ft/min (0.30 m/min) or faster are equipped with seismic switches that meet the requirements of ASME A17.1 or have trigger levels set to 20% of the acceleration of gravity at the base of the structure and 50% of the acceleration of gravity in other locations.	13.7.11	A.7.16.4
C NC N/A U	**HR—not required; LS—not required; PR—H**. SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking.	13.7.11	A.7.16.5
C NC N/A U	**HR—not required; LS—not required; PR—H**. COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1.	13.7.11	A.7.16.6
C NC N/A U	**HR—not required; LS—not required; PR—H**. BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1.	13.7.11	A.7.16.7
C NC N/A U	**HR—not required; LS—not required; PR—H**. SPREADER BRACKET: Spreader brackets are not used to resist seismic forces.	13.7.11	A.7.16.8
C NC N/A U	**HR—not required; LS—not required; PR—H**. GO-SLOW ELEVATORS: The building has a go-slow elevator system.	13.7.11	A.7.16.9

Elevator equipment not observed and specification not clear, though the spec does reference applicable seismic standards

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.
[a] Performance Level: HR = Hazards Reduced, LS = Life Safety, and PR = Position Retention.
[b] Level of Seismicity: L = Low, M = Moderate, and H = High.

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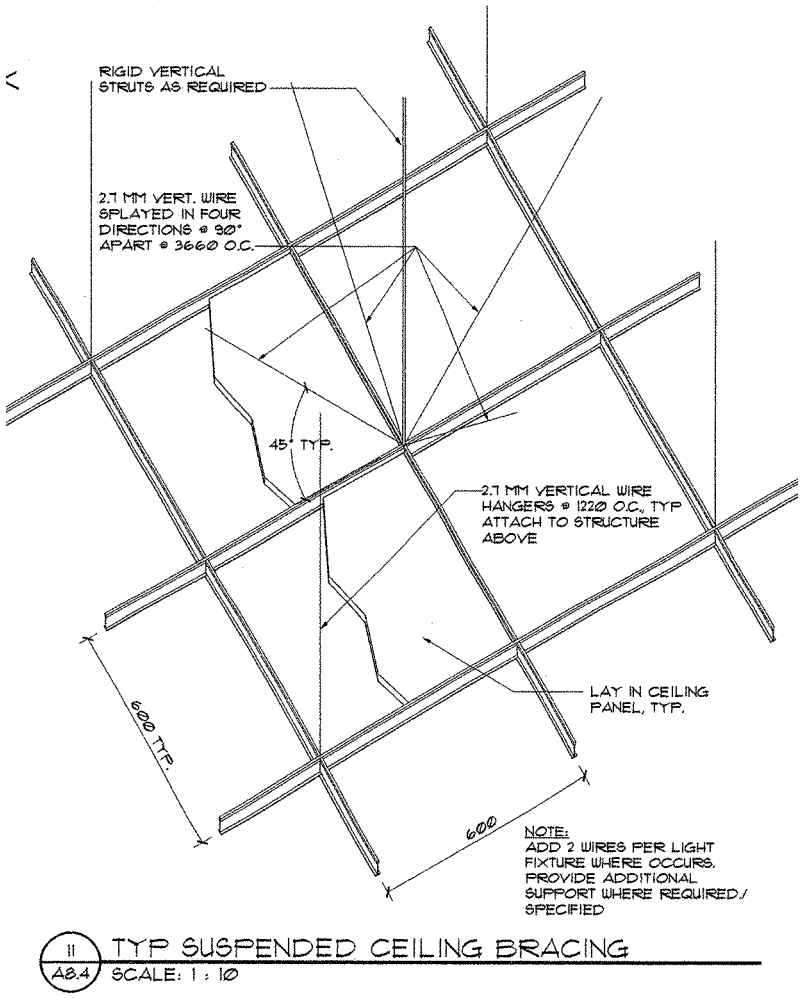
Supporting Documentation

From Original Architectural Drawings Sheet A8.4



11 / A8.4 TYP SUSPENDED CEILING BRACING

SCALE: 1 : 10

From Original Structural Drawings Sheet S0.1

J. STAIR DESIGN

1. CONTRACTOR SHALL PROVIDE COMPLETE DRAWINGS FOR ALL STAIRWAYS. STAIRS AND STAIR LANDINGS. STAIR MEMBERS AND SUPPORTS NOT SHOWN SHALL BE DESIGNED, DETAILED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER.

2. ALL REQUIRED EMBEDDED ANGLES AND PLATES SHALL BE PART OF THE STAIR DESIGN AND DETAILING.

3. STAIRWAYS SHALL BE DESIGNED FOR DEAD LOAD, 4.8 kPa LIVE LOAD AND SEISMIC LOADS.

4. STAIRS AND RELATED ITEMS SHALL COMPLY WITH THE BUILDING CODE, AND THE LIFE SAFETY CODE.

5. REFER TO THE ARCHITECTURAL DRAWINGS FOR STAIRWAY DIMENSIONS, DETAILS AND OTHER REQUIREMENTS.

6. STAIRS MAY BE SUPPORTED BY THE PRIMARY STRUCTURE PROVIDED STAIR FRAMING DOES NOT IMPOSE ECCENTRIC OR TORSIONAL LOADING UPON THE PRIMARY FRAMING.

7. SHOP DRAWINGS AND DESIGN CALCULATIONS SHALL BE SUBMITTED ACCORDING TO THE REQUIREMENTS INDICATED IN THE SPECIFICATIONS.

From Original Specification Section 08920 Glazed Aluminum Curtainwall

2. Provide structural calculations, sealed by a licensed professional engineer in the state of California prepared in compliance with referenced documents and these specifications. Where specifications and code differ, the more severe requirements shall govern. Test reports are not an acceptable substitute for calculations. Calculations shall include the following information:

   a. Analysis for all applicable loads on framing members.

   b. Analysis for all applicable loads on anchors, including anchors embedded in concrete.

   c. Section property computations for framing members.

   d. Seal and signature of professional engineer currently registered in the State of California on drawings and calculations.

A. Casework Installation:

1. Install, plumb, level, true and straight with no distortions. Shim as required, using concealed shims. Securely anchor to building structure. Where laboratory furniture abuts other finished work, scribe and apply filler strips for accurate fit with fasteners concealed where practicable.

2. Installation of each individual bench run shall start at the high point of the floor under that bench run with levelers screwed in as much as possible.

3. Where required, assemble units into one integral unit with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of 1.5 mm.

4. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by Manufacturer.

5. Tall cabinets, fume hood superstructures and OSHA cabinets shall be securely fastened to solid support material near top of cabinet.

2.17 GAS CYLINDER RESTRAINTS

A. Description: Provide metal framing system members, fastened to the wall or laboratory bench, for mounting of cylinder restraint devices.

B. Metal Framing System Components: Unistrut Corporation, Elcen, Grinnell Power-Strut, or equal. Unistrut Part Numbers are referenced. Paint with color selected by the Owner's Representative.

C. Chain Restraints: Size 3/16 inch (5 mm) chain, Type 304 stainless steel, length as required to restrain a standard 9 inch or 10 inch (230 mm or 250 mm) gas cylinder. Provide male swivel hanger attached to metal framing system member and an oval eye swivel hook, with spring latch, attached to each end of the chain.

A. Casework Installation:

1. Install, plumb, level, true and straight with no distortions. Shim as required, using concealed shims. Securely anchor to building structure. Where laboratory furniture abuts other finished work, scribe and apply filler strips for accurate fit with fasteners concealed where practicable.

2. Installation of each individual bench run shall start at the high point of the floor under that bench run with levelers screwed in as much as possible.

3. Where required, assemble units into one integral unit with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of 1.5 mm.

4. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by Manufacturer.

5. Tall cabinets, fume hood superstructures and OSHA cabinets shall be securely fastened to solid support material near top of cabinet.

From Original Specification Section 15010 Special Mechanical Requirements

F. Seismic design requirements.
   1. Seismic design criteria: Provide bracing and anchoring for equipment, piping, ductwork, laboratory exhaust air stacks, engine exhaust stackes, boiler exhaust stacks and breeching designed, constructed, and installed to resist stresses produced by lateral forces specified under the authority(ies) below:
      a. UBC (1994 year), for Seismic Zone 4.
   2. Seismic design and installation standards:
      a. "Guidelines for Seismic Restraints of Mechanical Systems" published by SMACNA.
      b. "National Uniform Seismic Installation Guidelines" published by NUSIG, Inc.
      c. B-Line Seismic Restraint Systems.
      d. Unistruct Seismic Bracing Systems.
      e. Installation of seismic bracing for fire protection system is subject to approval of Architect.
         1) See NFPA for seismic requirements for fire protection systems.
   3. Calculation requirements (static).
      a. Calculations shall be certified by a registered structural engineer, who is licensed in the State of California and is experienced in design of restraints for flexibly mounted equipment.

From Original Specification Section 15330 Wet Pipe Sprinkler System

PART 1 GENERAL

1.1 REFERENCES

NFPA 13	(1996) Installation of Sprinkler Systems
NFPA 24	(1995) Installation of Private Fire Service Mains and their Appurtenances

3.2.1 Protection of Piping Against Earthquake Damage

The system piping shall be protected against damage from earthquakes. Seismic protection of the piping system shall be provided in accordance with NFPA 13 and Appendix A, with the exception that the “Earthquake Zones” map of Appendix A shall not apply to this project. Seismic protection shall include flexible couplings, sway bracing, seismic separation assemblies where piping crosses building seismic separation joints, and other features as required in NFPA 13 for protection of piping against damage from earthquakes. Branch lines shall be equipped with sway braces at the end sprinkler head and at intervals not exceeding 9 m.

4. Type 3 seismic isolator:
   a. Similar to ASHRAE Type C snubber.
   b. Free-standing, laterally stable spring isolator with ductile-iron housing and resilient snubbing collars.
   c. Provide acoustical neoprene separator between spring(s) and base plate to prevent short circuiting through baseplate anchor bolts.
   d. Resilient seismic capability in every direction.
      1) Snubbing shall occur in every direction with adjustment to limit upward, downward, and horizontal travel to a maximum of 6.5 mm .
   e. Provide leveling bolts for rigid attachment to equipment.
   f. Spring diameters: Not less than 0.8 of compressed height of spring at rated load.
   g. Minimum additional travel of spring to solid: 50 percent of rated deflection.
   h. Provide ports in mounting for spring inspection.

From Original Specification Section 16012 Seismic Control

1.1 QUALITY ASSURANCE

A. Comply with SMACNA Guidelines for seismic restraints of mechanical systems and plumbing piping systems.

B. Comply with ASTM Standards for anchors and supports.

1.2 SUBMITTALS

A. Shop drawings:
   1. Mounting details.

B. Product data:
   1. Technical data on seismic control devices.

C. Project information:
   1. Static seismic calculations for equipment and piping.
      a. Calculations performed by a licensed civil or structural engineer employed by isolation manufacturer for a minimum of five years.
   2. Dynamic seismic calculations:
      a. Provide report in form of a computer printout.
      b. Performed by a licensed civil or structural engineer employed by isolation manufacturer for a minimum of five years.
      c. List 6 natural frequencies of system, with and without restraints.
      d. List most probable maximum displacements at restraint locations.
      e. List maximum acceleration at center of gravity of each piece of equipment.
      f. List most probable force at each restraint.
   3. Certification of seismic restraints.
      a. Substantiated by calculations or test reports verified by a licensed civil or structural engineer.
   4. Submit project information with shop drawings.

2.2 SEISMIC ANCHORING AND RESTRAINTS

A. Equipment anchors:
   1. Anchor equipment weighing more than 225 kg.
   2. Anchoring shall be in accordance with local seismic requirements.
   3. Any details provided are based on design information. Contractor shall be responsible for design and acquiring of approval for anchoring of equipment which varies from design.

B. Conduit supports:
   1. Conduits shall be supported and braced per SMACNA Guidelines.
   2. Conduit weights shall be as listed for same size pipes full of water as listed in SMACNA Guidelines.

C. Lighting fixture supports:
   1. Provide independent seismic support system for lighting fixtures.

D. Engine generator restraints and isolators:
   1. Provide vibration isolation and directional snubbing.

APPENDIX E – PHASE 1 SEISMIC EVALUATION AND STRUCTURAL ASSESSMENT (2024)

Seismic Evaluation and Structural Condition Assessment

US FDA Facility
Irvine, California

November 26, 2024

MAGNUSSON KLEMENCIC ASSOCIATES

Structural + Civil Engineers
1301 Fifth Avenue, Suite 3200
Seattle, Washington 98101
T: 206 292 1200 www.mka.com

EXECUTIVE SUMMARY

Magnusson Klemencic Associates (MKA) has performed a seismic evaluation and limited structural condition assessment of the United States Food and Drug Administration (FDA) facility located at 19701 Fairchild Road in Irvine, California. The seismic evaluation consists of an ASCE 41-17 Tier 1 evaluation of the laboratory. The limited structural condition assessment primarily focused on cracking identified previously on exposed concrete walls.

As has been previously identified, several of the exposed concrete walls at the exterior of the building display multiple concrete cracks in various locations and orientations. Some of the cracks have been previously repaired. This study has concluded that the cracks do not pose an immediate structural or seismic deficiency. However, repair of the current cracks, similar to the scope of the previous repair project, is recommended as a long-term maintenance measure. In addition, there was significant cracking observed in the nonstructural concrete encasement at several interior steel columns. While not a structural concern, repairs may be warranted for durability and cosmetic reasons.

The seismic evaluation was based on ASCE 41-17 using the criteria for a Risk Category II building and, in general, did not identify any significant seismic deficiencies relative to the seismic performance objective specified for this risk category. Potential seismic deficiencies include the interior concrete columns, which lack the reinforcing details based on current seismic requirements, and the separation joint between the two sections of the building, which may not be wide enough to preclude pounding between the two buildings in a large seismic event.

Follow up recommendations to this Phase 1 evaluation include additional, more detailed, structural analysis do further assess the risk of the concrete columns and separation joint.

INTRODUCTION

This report assesses the expected seismic performance of the U.S. FDA facility in Irvine, California. It includes an evaluation of the seismic-load-resisting ability of the lateral system, identifies potential deficiencies, addresses the previous seismic report, and contains preliminary recommendations for seismic upgrades. This report also includes two appendices: Appendix A contains photos from the site, and Appendix B contains seismic checklists.

SCOPE OF ASSESSMENT

The assessment is based on visual observation of the building, a review of the available construction drawings, the results of the structural investigation, and structural calculations performed, where applicable. The assessment is primarily concerned with the expected performance of structural elements. Nonstructural elements, such as pipe and mechanical unit bracing, have not been reviewed.

The seismic evaluation is based on the American Society of Civil Engineers Standard *Seismic Evaluation of and Retrofit of Existing Buildings* (ASCE 41-17) referenced by the 2022 *California Existing Building Code* (CEBC). The evaluation is based on a Collapse Prevention structural performance level (as defined by ASCE 41), consistent with common practice for buildings of this construction type and risk category, Risk Category II, as defined by ASCE 41. The criteria and methodology for the seismic evaluation and retrofit are discussed in greater detail in a subsequent section.

DOCUMENT REVIEW

The following documents have been made available for review and serve as the primary basis for the evaluation, along with the on-site observations. Basic items such as building geometry, concrete shear wall sizes, steel member sizes, and configuration are assumed to be shown relatively accurately in the available drawings.

Table 1. Drawings and Reports Available for Review

Drawing / Report Title	Date	Firm	Description
FDA at Irvine Construction Documents	June 21, 1999	HDR	Original Construction Documents
Structural Investigation of Concrete Shear Wall Cracks Phase II	November 30, 2022	Parsons	First Structural Report on FDA Irvine Lab
Geotechnical Investigation Proposed Seismic Upgrade and Structural Repairs, FDA Facility	September 30, 2024	Stoney Miller Consultants	Geotechnical Report

BUILDING DESCRIPTION

The FDA Irvine Lab consists of two buildings, separated by an expansion joint, and is located near a sloping site at the corner of Fairchild Road and MacArthur Boulevard. Building A, see Figure 1, is a three-story existing building, semi-circular in plan, measuring approximately 370 feet by 120 feet and comprised of three wings. Building A has a one-story basement below the southernmost wing. The floor-to-floor heights are approximately 17 to 18 feet for a total building height of approximately 47 feet.

Figure 1 – Site Map

Building B is located north of building A and is seismically separated from the larger main structure. Building B is a two-story structure and is similar in construction to the main building. These buildings were designed according to the 1994 Uniform Building Code (UBC) based on the criteria for a Risk Category IV building.

The structural system consists of reinforced concrete shear walls and a combination of steel-framed and concrete-framed floor framing systems. The steel framed floors consist of typical W10x17 (W250x25) infill beam framing with W30x116 (W760x173) girders. The floor slabs consist of a 2" composite metal deck with 3 ½" of normal-weight concrete topping for a total depth of 5 ½". The concrete framed floors consist of beams and slabs, with the typical concrete beam being 16" to 24" wide and 15" to 19" deep. The slab spanning between the beams is approximately 7" thick (175mm). The roof is steel-framed

construction with a 3" metal deck. Wide flange columns support the steel floor framing, while rectangular concrete columns support the concrete floor. The foundation system consists of shallow spread and strip footings.

Lateral forces due to wind and earthquakes are resisted by the steel and concrete floor diaphragms, with concrete shear walls providing a complete load path to the ground. The roof structure is braced by diagonal X-braces in the longitudinal direction and a combination of shear walls and single-story moment frames in the transverse direction.

STRUCTURAL CONDITION

Greg Rogers and Peter Somers conducted a walk-through on September 18th, 2024, to assess the structural condition of observable areas throughout the building. No concealed conditions were observed. The condition generally appeared fair to good, with no obvious signs of damage or deterioration, except for the concrete cracking described below. The concrete and steel framing, where exposed, appeared to be in good condition. The condition of the foundations could not be observed, but there were no obvious signs of significant foundation deterioration or settlement. Cracks were found in the concrete walls throughout the building, but the overall condition seems typical for a structure of this type and age. The concrete-encased steel columns displayed cracking but, again, appear to be in average condition for a building of this age. The foundations could not be observed, but there were no signs of settlement.

Typical Concrete Wall Crack Repaired Crack
(Exterior Courtyard Wall Between Wings 1 and 2)

As documented in the previous structural evaluation report, a significant amount of cracking was observed in the exposed concrete walls throughout the building. Some exterior cracks had been previously repaired (by routing out and adding caulked joint sealant), while others had not. The cracks occurred at multiple locations and various areas in the concrete walls and had various orientations,

vertical and diagonal. The unrepaired cracks vary in width between hairline and approximately 1/16." The cause of the cracking was not readily apparent, and the random pattern does not suggest an obvious deficiency. Possible causes include minor foundation settlement or temperature / shrinkage effects. The cracks are not considered a significant structural deficiency, but repair is recommended as a long-term maintenance measure.

Significant cracking was observed at the concrete encasement around interior steel columns, particularly at the ground floor. Since this concrete is not structural (the encased steel columns are the primary structure), the cracking does not pose a structural concern, but repairs may be considered for cosmetic reasons.

Typical Concrete Encased Steel Column
(Level 1 of Wing 3 Northeast Side)

See Appendix A for a full set of photos from the site visit.

SEISMIC EVALUATION

INTRODUCTION TO THE SEISMIC EVALUATION

Evaluations of and renovations to existing buildings in Irvine are governed by the 2022 California Existing Building Code (CEBC). This code includes provisions for repairs, alterations, additions, and changes of occupancy, as well as the seismic evaluation triggers associated with these classes of work.

The CEBC also contains seismic performance criteria related to the scope of structural work and provisions for voluntary seismic retrofits.

Relevant Code Requirements

There are no building code requirements to perform a seismic evaluation of this building, and no proposed renovation work would trigger such an evaluation. Furthermore, the observed concrete cracking and repair measures would not require additional seismic evaluation. Therefore, the seismic evaluation (and any recommendations for retrofit based on the conclusions of this evaluation) is being performed voluntarily.

Evaluation Guidelines

The basis of the seismic evaluation is the American Society of Civil Engineers (ASCE) Standard 41-17, *Seismic Evaluation and Retrofit of Existing Buildings* (ASCE 41), referenced by the 2022 CEBC. This document is a national standard representing the most current practice for seismic evaluations and retrofits. The ASCE 41 methodology consists of three phases, or tiers. The first phase is used to screen for potential deficiencies in the lateral-load-resisting system. Potential deficiencies are then examined in more detail during the second phase, and if necessary, a rigorous, full-building evaluation can be performed as a third phase.

The first phase, Tier 1, is a screening phase utilizing a series of checklists designed to identify potential flaws and weaknesses common to specific building types. Each checklist is a collection of evaluation statements describing building characteristics necessary to achieve the selected seismic performance level.

The second phase, Tier 2, further evaluates the deficiencies identified during the Tier 1 evaluation. This analysis is typically performed on just those elements identified as non-compliant with the Tier 1 acceptance criteria. Further evaluation of the entire building is required in some cases, depending on the building type, number of stories, selected performance level, and site seismicity.

The final phase, Tier 3, is not usually performed for typical seismic evaluations. It involves performing a very detailed seismic evaluation of the entire building, utilizing one of four analysis procedures in ASCE 41.

Seismic Performance Objectives

In traditional and current codes for new buildings, seismic performance is considered implicitly. Specified seismic force levels are used to provide adequate strength and stiffness based on implicit performance objectives, and prescriptive detailing requirements are used to provide a high degree of confidence that these performance objectives will be achieved. This method does not apply to existing buildings because the level of seismic detailing in older buildings is generally inconsistent with current code requirements for new buildings. For this reason, the seismic evaluation and retrofit standards are based on explicit performance objectives; such an approach is also known as "performance-based design." A specific seismic performance objective consists of a performance level and a seismic hazard (magnitude or frequency of earthquake).

Similar to the codes for new buildings, the seismic performance objective is influenced by the Risk Category assigned to the building in accordance with the 2018 International Building Code (IBC). The

FDA Irvine Lab is assigned to Risk Category II and the seismic evaluation is based on the following seismic performance objective(s) as defined by ASCE 41:

Seismic Hazard Level	Seismic Performance Level
BSE-1E (common, small earthquake)	Not Evaluated
BSE-2E (large, rare earthquake)	Collapse Prevention

The seismic performance levels are summarized as follows:

- **Collapse Prevention.** The structure has damaged components and continues to support gravity loads but retains no margin against collapse. Significant risk of injury may exist, and the building will not be safe for re-occupancy. Likely, the repair of the building will not be physically or economically practical.

Seismic Hazard Determination

For a specified earthquake frequency, the level of ground shaking is related to the building site's location and the types of soil at the site. The seismic response parameters for FDA Irvine Labare are based on the U.S. Geological Survey mapping using the site location of 33.655°N, 117.858°W. The site soils are classified as Site Class C based on the geotechnical report by Stoney-Miller Consultants, dated September 30, 2024.

Seismic Hazard Level	Short Period Response Parameter, Sxs	1-Second Period Response Parameter, Sx1
BSE-1E	Not Evaluated	Not Evaluated
BSE-2E	1.125	0.497

As defined by ASCE 41, the BSE-1E hazard level represents an earthquake expected to occur, on average, every 225 years, and the BSE-2E hazard level represents an earthquake expected to occur, on average, every 1000 years. In this probabilistic approach to seismic hazard assessment, the magnitude of an event is inversely proportional to its frequency—that is, the longer the specified return period between events, the larger the event. This methodology is similar to flood and hurricane hazard assessment. It is important to note that the level of ground shaking and building response for any specific event is highly dependent on many factors, including the types of site soil and the geophysical aspects of the seismic event.

SUMMARY OF FINDINGS

The FDA Irvine Lab was designed and constructed before the 1994 Uniform Building Code. The building benefits from a fairly regular plan layout and a relatively well-distributed shear wall system. However, there are several deficiencies concerning the seismic performance objectives for existing buildings as defined by ASCE 41. These deficiencies, as well as the deficiencies noted in the previous report, are summarized below.

Shear Stress Checks

Given the cracking of the concrete shear walls, a shear stress check was used to evaluate the adequacy of the concrete shear walls to resist seismic loads in accordance with ASCE 41. The results of the shear stress calculation are included in the following table:

Level	North-South Direction		East-West Direction	
	Shear Stress	Conforms	Shear Stress	Conforms
1	54 psi	Yes	94 psi	Yes

The shear stress must be less than 141 psi ($2\sqrt{f'c}$) based on the existing concrete compressive strength (f'c) of 5,000 psi determined by the previous seismic evaluation report. This indicates that the building likely has enough shear walls to meet modern code requirements.

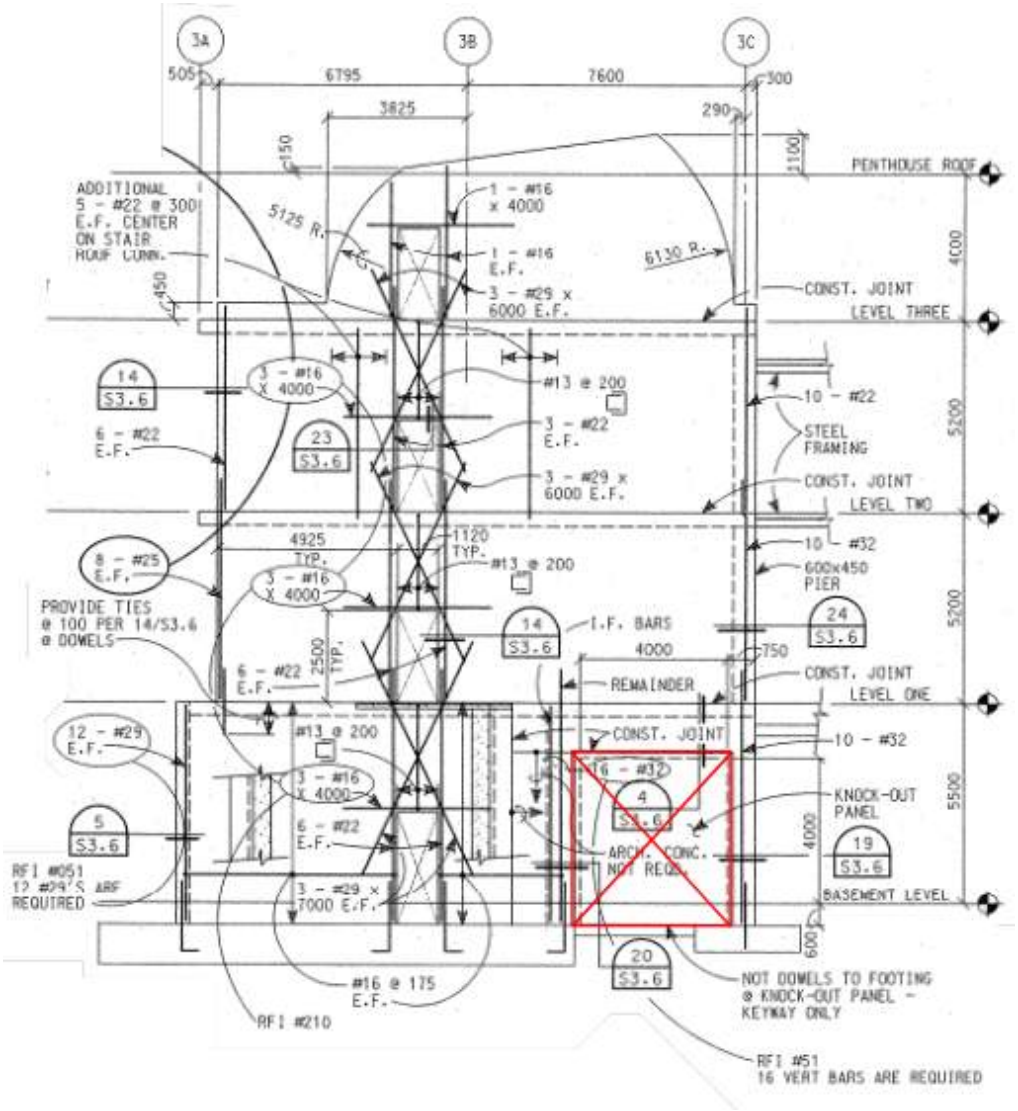
Deflection Compatibility – Noted in Previous Report

Current building codes require that portions of the building not designated as part of the lateral force-resisting system be capable of accommodating the corresponding building drifts that develop due to the lateral forces.

The Tier 1 analysis indicates that the existing columns are not detailed to provide ductile, flexural-controlled behavior but could experience more brittle, shear-controlled failures when subjected to large building displacements. A more detailed seismic analysis is required to further investigate this potential seismic deficiency.

Vertical Discontinuities – Noted in Previous Report

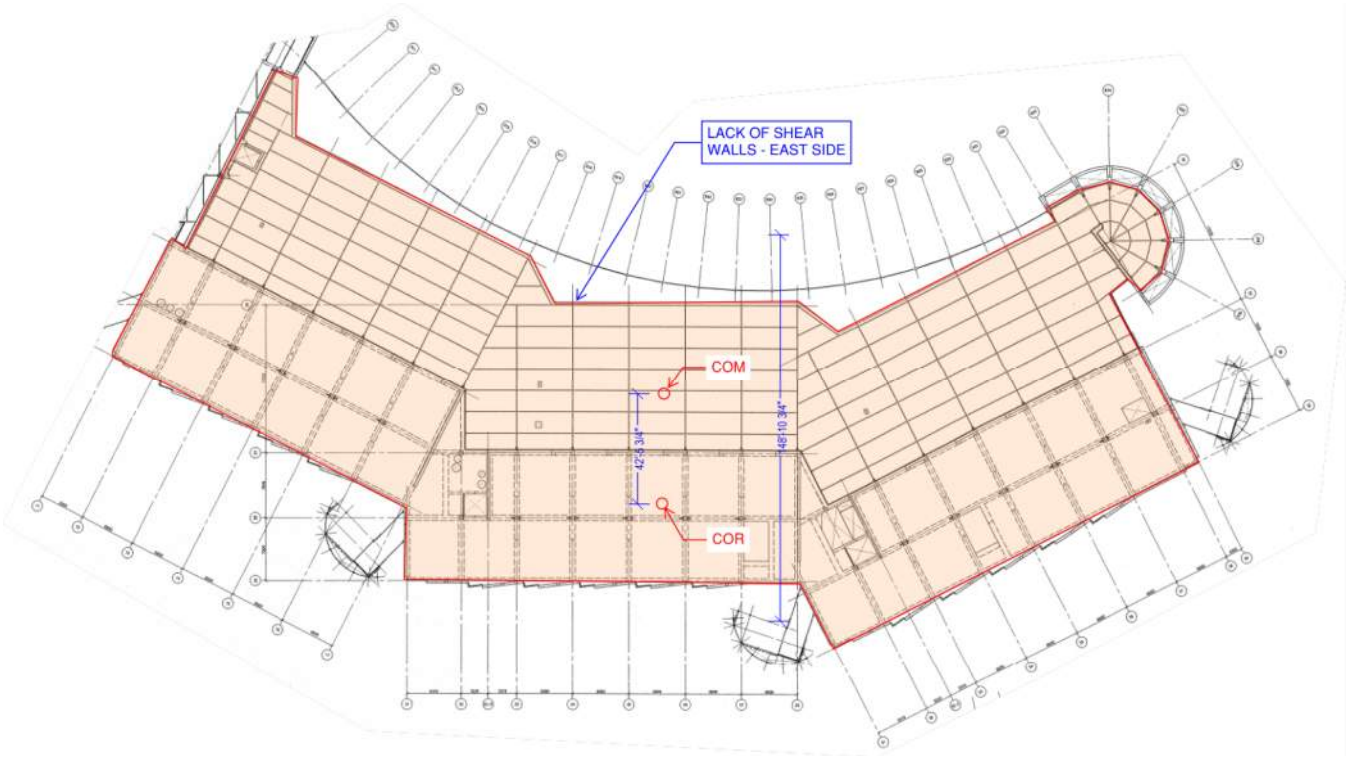
The southernmost wall is a vertical discontinuity because there is a substantial knockout panel at the basement with a solid concrete shear wall above.



These vertical discontinuities require seismic loading to be transferred out of these walls through the diaphragms and into the full-height walls at other areas of the building. The concrete columns must resist the amplified seismic overturning demands. This creates an irregularity in the seismic load path and the elements. The risk of structural damage is increased due to this irregularity. MKA reviewed this irregularity and has determined that it does not pose a risk to the overall collapse of the building.

Torsion – New Finding

The building benefits from a relatively well-distributed system of shear walls. However, due to the lack of shear walls on the east side of the building and the building's curved geometry, the building fails the Tier 1 criterion that the distance between the center of mass (COM) and center of rigidity (COR) be less than 20% of the building length. This condition results in torsional (rotational) seismic response and causes additional demand in the concrete shear walls.



MKA performed additional calculations to evaluate the implications of the torsional irregularity. Based on the findings from the calculations, MKA has determined that shear stresses would likely increase to around 134 psi from the previously calculated 94 psi from the shear stress check noted above, which is still below the allowable limit of 144 psi. Based on this, the torsional irregularity does not trigger any additional checks/retrofits.

Collectors – Noted in Previous Report

The previous report noted that existing collectors of the building did not appear to comply with current ACI and ASCE standards. MKA has reviewed the current code requirements and has determined that the collectors appear to conform with the current detailing standards. MKA does not recommend additional analysis or retrofits to address the comments related to collectors in the previous report.

Angle Bracing at Roof – Noted in Previous Report

The previous report noted that the existing diagonal bracing at the roof appeared not to meet current code requirements. MKA performed additional calculations to check the adequacy of the diagonal bracing and has determined that the angles are adequate to support ASCE 41 Collapse Prevention determined loads.

Top of Wall Support at Roof – Noted in Previous Report

The north and south walls of the roof structure have beams bracing them at 5'-0." These beams brace the wall for out-of-plane forces that may develop underground shaking. The intermediate walls of the roof do not have beams framing them at regular intervals but are braced by the roof deck through a ledger angle and expansion anchors. Both methods adequately brace the walls for seismic forces; no additional analysis is recommended to address this concern.

Building Separation – New Finding

The seismic expansion joint between the two buildings has been determined to be too small, as determined by the ASCE 41 Tier 1 quick check. The provided joint size is approximately 1" (25mm), while the quick check requires upwards of 6" (150mm).

Additional structural analysis is required to further assess this potential seismic deficiency. This analysis may find the provided joint size to be adequate, given that the building is supported laterally by stiff concrete shear walls.

CONCLUSIONS / RECOMMENDATIONS FOR ADDITIONAL EVALUATION

As noted above, MKA has determined that many of the seismic deficiencies noted in the previous report should not be flagged as seismic deficiencies based on the criteria of this current evaluation. There are two main reasons for the difference in the structural engineering recommendations:

- Based on input from the GSA and FDA, this seismic evaluation is based on Risk Category II, while the previous report classified the building as Risk Category IV, which requires a higher level of seismic performance, typically a magnitude of 1.5 times higher.
- Based on the site visit and review of concrete cracks throughout the building, MKA has not taken a 0.5 reduction factor when determining the strength of the concrete walls. The previous report halved all the concrete wall capacities due to their evaluation of the concrete cracks.

Per the ASCE 41 Tier 1 evaluation conducted by MKA, the following deficiencies should be evaluated in more detail:

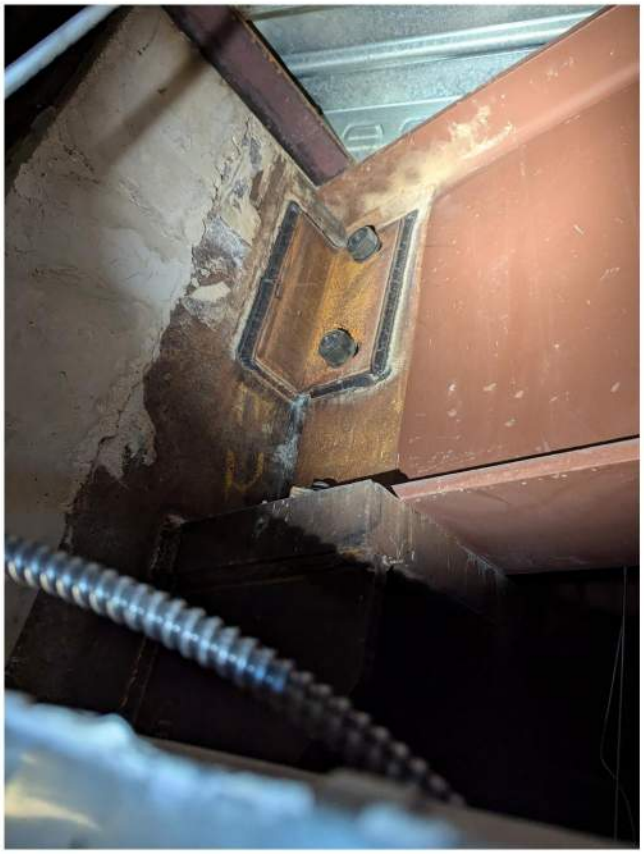
- Concrete columns may lack adequate capacity to accommodate building displacements under a major seismic event.
- The separation joint may not be adequate in size to preclude building pounding, where two structures collide with each other in a major seismic event.

Except for these two items, the building satisfies the criteria of the ASCE 41-17 Tier 1 seismic evaluation and, therefore, is expected to achieve the seismic performance objectives for a Risk Category II building. MKA would recommend additional structural analysis to address the concrete column and separation joint deficiencies.

APPENDIX A

PHOTOS

Typical Collector Connection
(Above Level 2 Corridor at Grid 2C/28)



Concrete Rotunda
(South of Grid 39 at Wing 3)

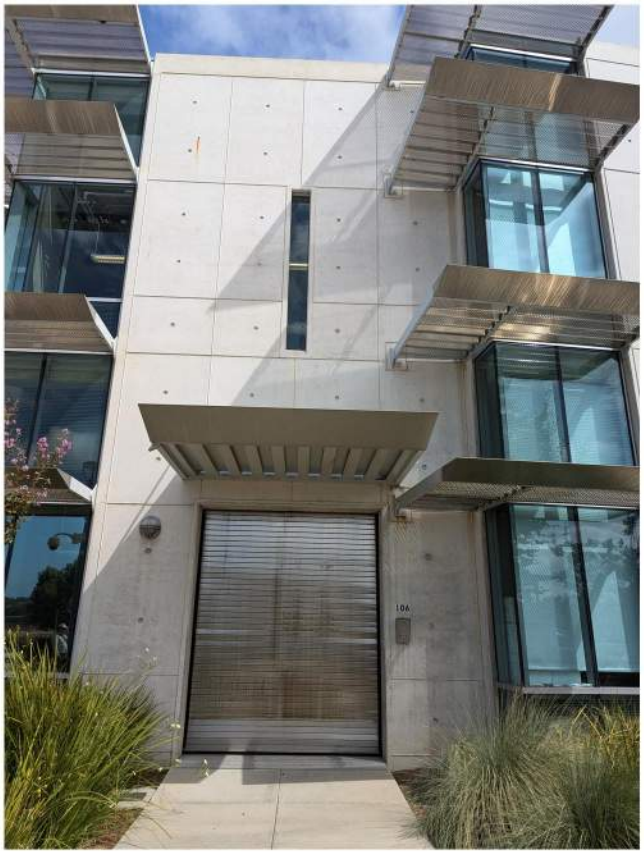
Concrete Wall Crack
(Exterior Courtyard Wall Between Wings 1 and 2)

Cored Concrete Wall Crack
(Exterior Courtyard Wall Between Wings 1 and 2)

Diaphragm Connection
(Above Level 2 Corridor of Wing 1)

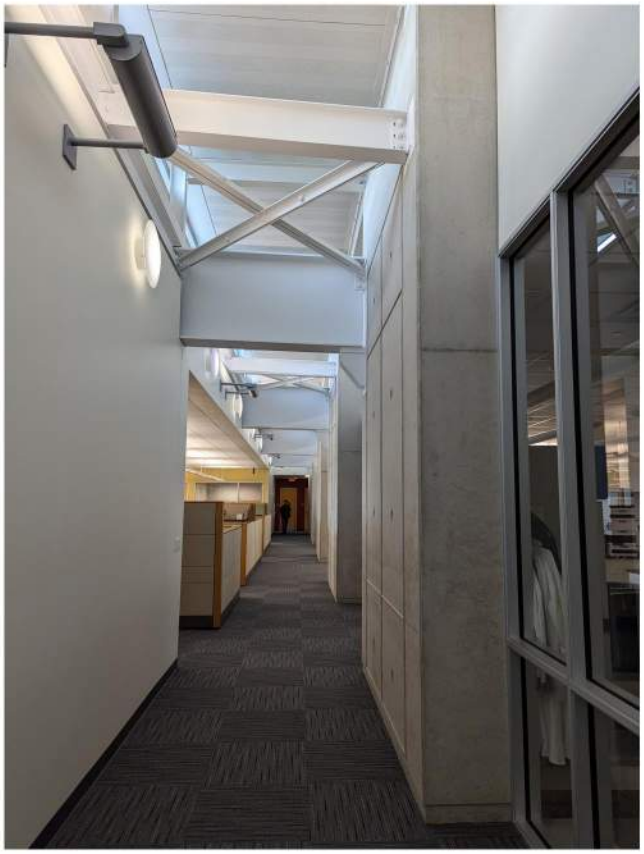
Expansion Joint
(Level 1 Main Corridor of Wing 2)

Exterior Concrete Wall
(Southwest Facade of Wing 3)



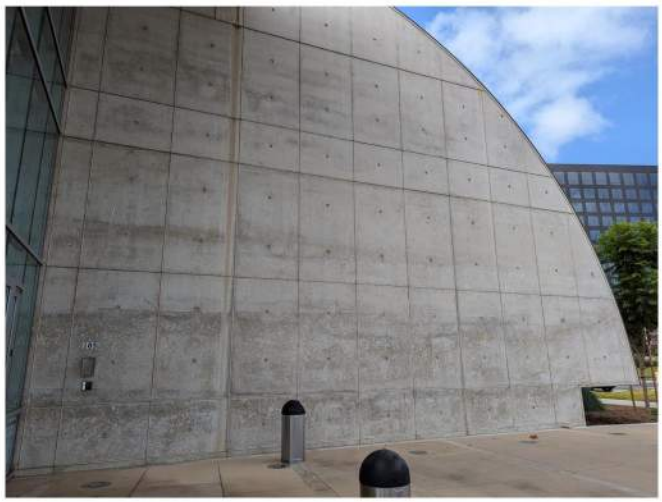
Exterior Overall
(Northeast Facade)

Horizontal Diaphragm Bracing
(Above Level 2 Corridor of Wing 1)

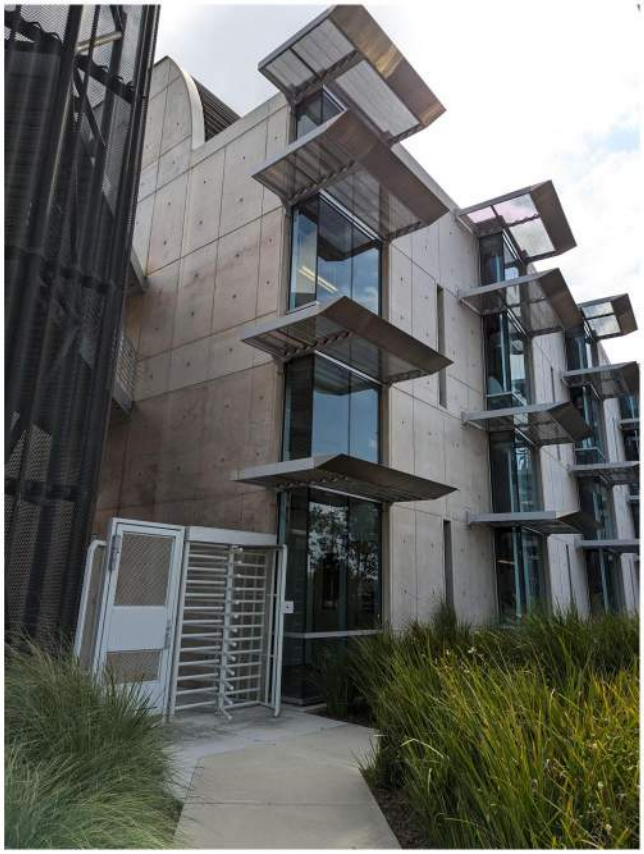


Mullion Connection
(Level 2 of Wing 3)

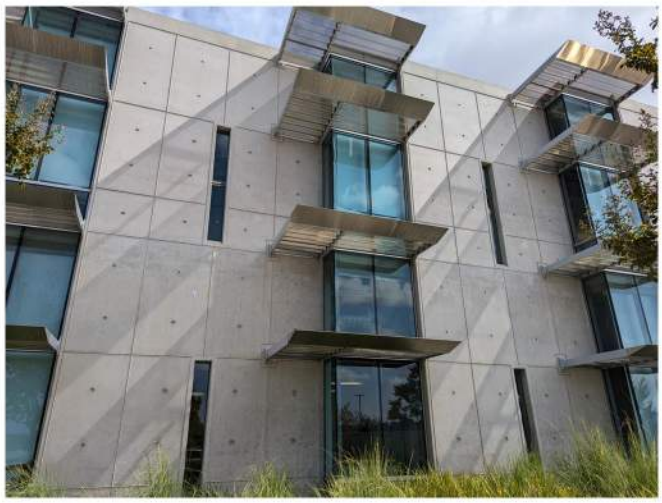
Overall Exterior 1
(Exterior Wall at North Main Entry)



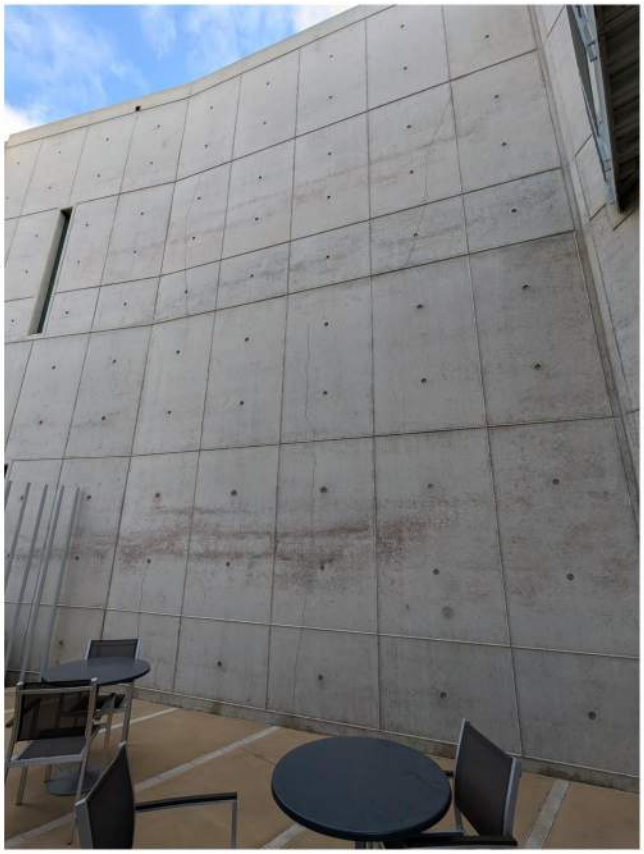
Overall Exterior 2
(West Facade of Wing 1)



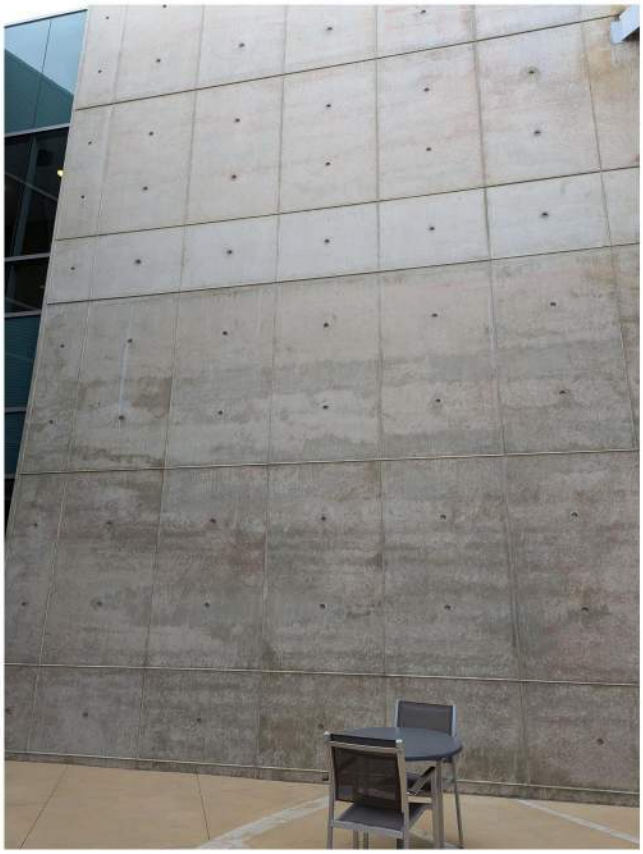
Overall Exterior 3
(West Facade of Wing 1)



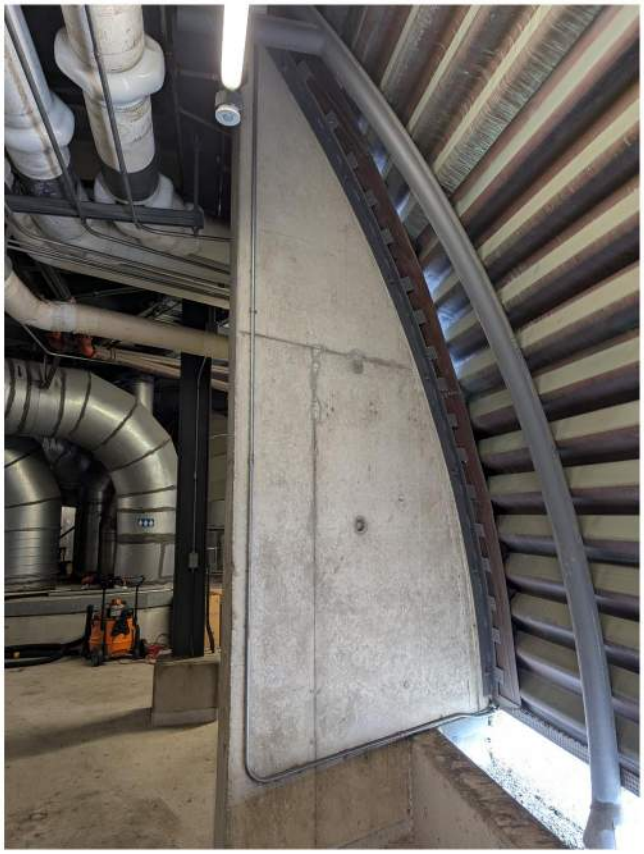
Overall Exterior 4
(Exterior Courtyard Wall Between Wings 2 and 3)



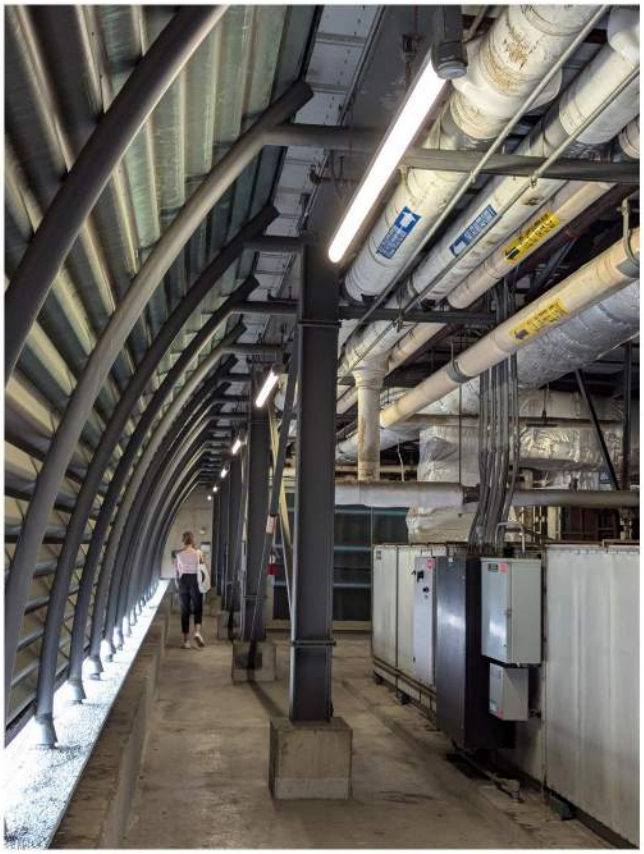
Overall Exterior 5
(Exterior Courtyard Wall Between Wings 1 and 2)



Shed Roof Concrete Wall
(Wing 2 along Grid 28)



Shed Roof Curved Exterior Wall
(Wing 3 Southwest Side)



Shed Roof Diagonal Bracing
(Wing 3 Southwest Side)

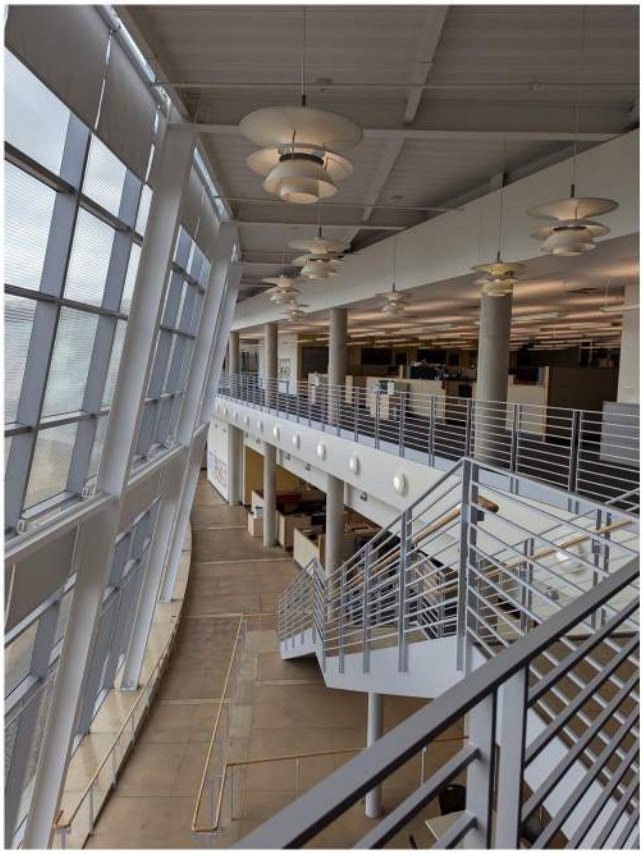
Shed Roof Diagonal Connection
(Wing 3 Southwest Side)

Roof Expansion Joint
(Between North & Main Buildings)

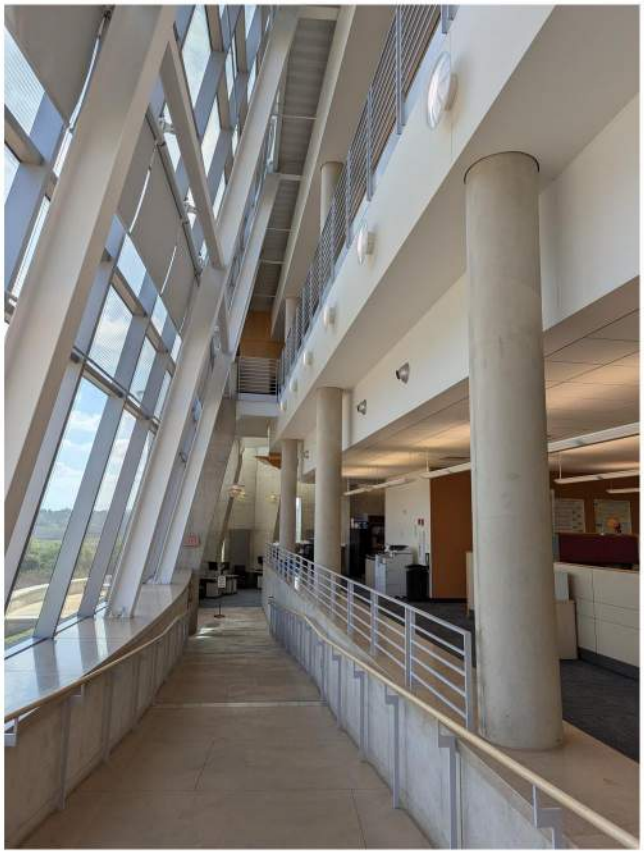
Shed Roof Moment Frame Connection
(Wing 3)

Roof and Shed Roof Overall
(Wing 2 Southwest Side)

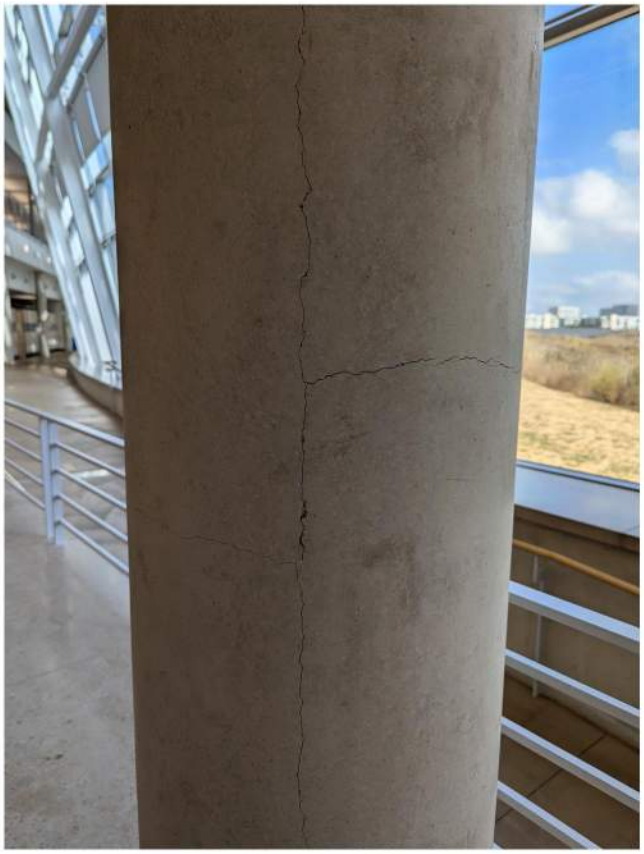
Sloping Column Upper
(Wing 1 East Side)



Sloping Column
(Wing 3 Northeast Side)

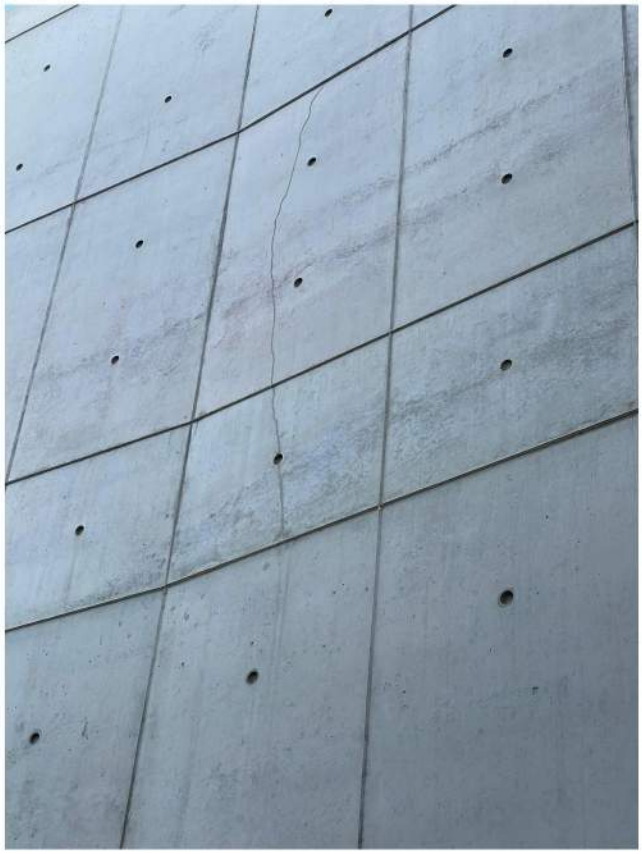


Steel Encased Concrete Column
(Level 1 of Wing 3 Northeast Side)



Typical Concrete Wall Crack Repair
(Exterior Courtyard Wall Between Wings 1 and 2)

Vertical Concrete Crack
(Exterior Courtyard Wall Between Wings 2 and 3)



APPENDIX B

CHECKLISTS

Table 17-2. Collapse Prevention Basic Con guration Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Low Seismicity			
Building SystemŠ General			
C NC N/A U	LOAD PATH: The structure contains a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation.	5.4.1.1	A.2.1.1
C NC N/A U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.25% of the height of the shorter building in low seismicity, 0.5% in moderate seismicity, and 1.5% in high seismicity.	5.4.1.2	A.2.1.2
C NC N/A U	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure.	5.4.1.3	A.2.1.3
Building SystemŠ Building Con guration			
C NC N/A U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above.	5.4.2.1	A.2.2.2
C NC N/A U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above.	5.4.2.2	A.2.2.3
C NC N/A U	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation.	5.4.2.3	A.2.2.4
C NC N/A U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines.	5.4.2.4	A.2.2.5
C NC N/A U	MASS: There is no change in effective mass of more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered.	5.4.2.5	A.2.2.6
C NC N/A U	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension.	5.4.2.6	A.2.2.7

See associated calcs, ~1" provide, ~6" from quick calc req'd

Table 17-24. Collapse Prevention Structural Checklist for Building Types C2 and C2a

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Low and Moderate Seismicity			
Seismic-Force-Resisting System			
C NC N/A U	COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system.	5.5.2.5.1	A.3.1.6.1
C NC N/A U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.2.1.1
C NC N/A U	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the greater of 100 lb/in.^{2} (0.69 MPa) or $2\sqrt{f'_c}$.	5.5.3.1.1	A.3.2.2.1
C NC N/A U	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area is not less than 0.0012 in the vertical direction and 0.0020 in the horizontal direction.	5.5.3.1.3	A.3.2.2.2
Connections			
C NC N/A U	WALL ANCHORAGE AT FLEXIBLE DIAPHRAGMS: Exterior concrete or masonry walls that are dependent on flexible diaphragms for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have strength to resist the connection force calculated in the Quick Check procedure of Section 4.4.3.7.	5.7.1.1	A.5.1.1
C NC N/A U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls.	5.7.2	A.5.2.1
C NC N/A U	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing directly above the foundation.	5.7.3.4	A.5.3.5
High Seismicity (Complete the Following Items in Addition to the Items for Low and Moderate Seismicity)			
Seismic-Force-Resisting System			
C NC N/A U	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components.	5.5.2.5.2	A.3.1.6.2
C NC N/A U	FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints.	5.5.2.5.3	A.3.1.6.3
C NC N/A U	COUPLING BEAMS: The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning.	5.5.3.2.1	A.3.2.2.3
Diaphragms (Stiff or Flexible)			
C NC N/A U	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints.	5.6.1.1	A.4.1.1
C NC N/A U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length.	5.6.1.3	A.4.1.4
Flexible Diaphragms			
C NC N/A U	CROSS TIES: There are continuous cross ties between diaphragm chords.	5.6.1.2	A.4.1.2
C NC N/A U	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered.	5.6.2	A.4.2.1
C NC N/A U	SPANS: All wood diaphragms with spans greater than 24 ft (7.3 m) consist of wood structural panels or diagonal sheathing.	5.6.2	A.4.2.2
C NC N/A U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft (12.2 m) and aspect ratios less than or equal to 4-to-1.	5.6.2	A.4.2.3
C NC N/A U	OTHER DIAPHRAGMS: Diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing.	5.6.5	A.4.7.1
Connections			
C NC N/A U	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps.	5.7.3.5	A.5.3.8

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

non participating column ties @ 15"oc. non compliant