

SPECIAL INSPECTION, TESTING, STRUCTURAL OBSERVATION, AND SUBMITTALS

1. WHERE INDICATED WITH AN "X", THE FOLLOWING ITEMS SHALL BE INSPECTED IN ACCORDANCE WITH SFBC CHAPTER 17 BY A CERTIFIED SPECIAL INSPECTOR FROM AN APPROVED SPECIAL INSPECTION AGENCY. "C" INDICATES CONTINUOUS SPECIAL INSPECTION AND "P" INDICATES PERIODIC SPECIAL INSPECTION. THE SPECIAL INSPECTION AGENCY SHALL SEND COPIES OF ALL SPECIAL INSPECTION REPORTS DIRECTLY TO THE RESIDENT ENGINEER, ARCHITECT, ENGINEER, AND BUILDING OFFICIAL. ANY MATERIALS WHICH FAIL TO MEET THE PROJECT SPECIFICATIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

VERIFICATION AND INSPECTION	C	P	NOTES
CONCRETE CONSTRUCTION			
1. INSPECTION OF REINFORCING STEEL PLACEMENT		X	
2. INSPECTION OF REINFORCING STEEL WELDING			
2.1. VERIFICATION OF WELDABILITY			
2.2. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL REINFORCED CONCRETE SHEAR WALLS			
2.3. SHEAR REINFORCEMENT			
2.4. OTHER REINFORCING STEEL			
3. INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE	X		
4. VERIFY USE OF REQUIRED MIX DESIGN		X	
5. FABRICATE SPECIMENS FOR TESTS, PERFORM SLUMP, AND DETERMINE TEMPERATURE OF CONCRETE	X		
6. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT	X		
7. INSPECTION OF CONCRETE CURING		X	
8. INSPECTION OF PRESTRESSED CONCRETE			
8.1. APPLICATION OF PRESTRESSING FORCES			
8.2. GROUTING OF BONDED PRESTRESSING TENDONS			
9. ERECTION OF PRECAST CONCRETE MEMBERS			
10. VERIFICATION OF IN-SITU CONCRETE STRENGTH		X	
11. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	X		
12. INSPECT AND TEST ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS			
12.1 ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X		
12.2 MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.1		X	

VERIFICATION AND INSPECTION	C	P	NOTES
CAST-IN-DRILLED-HOLE (CIDH) CONCRETE PILE FOUNDATIONS			
1. OBSERVE DRILLING OPERATIONS AND MAINTAIN RECORDS FOR EACH CIDH CONCRETE PILE	X		BY GEOTECHNICAL ENGINEER
2. VERIFY LOCATIONS OF CIDH PILES AND PLUMBNESS	X		BY GEOTECHNICAL ENGINEER
2.1. CONFIRM CIDH PILE DIAMETERS			
2.2. BELL DIAMETERS (IF APPLICABLE)			
2.3. LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE)			
2.4. ADEQUATE END STRATA BEARING CAPACITY			

2. SPECIAL INSPECTIONS AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN BUILDINGS, STRUCTURES, AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH SFBC CHAPTER 17, AISC 360, AND AISC 341. WHERE INDICATED WITH AN "X", THE FOLLOWING ITEMS SHALL BE INSPECTED BY A CERTIFIED SPECIAL INSPECTOR FROM AN APPROVED SPECIAL INSPECTION AGENCY. "O" INDICATES OBSERVE THESE ITEMS ON A RANDOM BASIS AND "P" INDICATES PERFORM THESE TASKS FOR EACH JOINT OR MEMBER. THE SPECIAL INSPECTION AGENCY SHALL SEND COPIES OF ALL SPECIAL INSPECTION REPORTS DIRECTLY TO THE RESIDENT ENGINEER, ARCHITECT, ENGINEER, AND BUILDING OFFICIAL. ANY MATERIALS WHICH FAIL TO MEET THE PROJECT SPECIFICATIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER. SEE SPECIFICATION SECTION 05 12 00 FOR MORE REQUIREMENTS.

REQUIRED SPECIAL INSPECTION	P	O	NOTES
STEEL CONSTRUCTION			
1. INSPECTION TASKS PRIOR TO WELDING			
1.1. WELDING PROCEDURE SPECIFICATIONS AVAILABLE	X		
1.2. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	X		
1.3. MATERIAL IDENTIFICATION (TYPE/GRADE)		X	
1.4. WELDER IDENTIFICATION SYSTEM		X	
1.5. FIT-UP OF GROOVE WELDS, INCLUDING JOINT PREPARATION, DIMENSIONS, CLEANLINESS, TACKING, BACKING TYPE AND FIT		X	
1.6. CONFIGURATION AND FINISH OF ACCESS HOLES		X	
1.7. FIT-UP OF FILLET WELDS INCLUDING DIMENSIONS, CLEANLINESS, TACKING		X	
2. INSPECTION TASKS DURING WELDING			
2.1. USE OF QUALIFIED WELDERS		X	
2.2. CONTROL AND HANDLING OF WELDING CONSUMABLES		X	
2.3. NO WELDING OVER CRACKED TACK WELDS		X	
2.4. ENVIRONMENTAL CONDITIONS INCLUDING WIND SPEED WITHIN LIMITS, PRECIPITATION AND TEMPERATURE		X	
2.5. WPS FOLLOWED		X	
2.6. WELDING TECHNIQUES		X	
3. INSPECTION TASKS AFTER WELDING		X	
3.1. WELDS CLEANED			
3.2. SIZE, LENGTH AND LOCATION OF WELDS	X		
3.3. WELDS MEET VISUAL ACCEPTANCE CRITERIA	X		
3.4. ARC STRIKES	X		
3.5. K-AREA	X		
3.6. PLACEMENT OF REINFORCING OR CONTOURING FILLET WELDS (IF REQUIRED)	X		
3.7. BACKING REMOVED, WELD TABS REMOVED AND FINISHED, AND FILLET WELDS ADDED (IF REQUIRED)	X		
3.8. REPAIR ACTIVITIES	X		
3.9. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	X		
3.10 FULL PENETRATION AND GROOVE WELD TESTING	X		MT FOR THICKNESS LESS THAN 0.25 IN, UT FOR THICKNESS EQUAL OR MORE THAN 0.25 IN; FULL LENGTH OF WELD, AFTER WELDING OF EACH PLY AND AFTER GALVANIZING.
3.11 FILLET AND PARTIAL PENETRATION WELDS TESTING	X		MT FOR ALL WELDS; FULL LENGTH OF WELD, AFTER WELDING OF EACH PLY AND AFTER GALVANIZING.
4. INSPECTION TASKS PRIOR TO BOLTING		X	
4.1. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	X		
4.2. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	X		
4.3. PROPER FASTENERS SELECTED FOR JOINT DETAILS	X		
4.4. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	X		
4.5. CONNECTING ELEMENTS, INCLUDING APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	X		
4.6. PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED & DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	X		
4.7. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	X		
5. INSPECTION TASKS DURING BOLTING			
5.1. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	X		
5.2. JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRE-TENSIONING OPERATION	X		
5.3. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	X		
5.4. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	X		
6. INSPECTION TASKS AFTER BOLTING			
6.1. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS		X	

3. THE ENGINEER OF RECORD SHALL PROVIDE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEMS NOTED BELOW FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND INDICATED WITH AN "X" AT SIGNIFICANT CONSTRUCTION STAGES AND AT THE COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS AND SPECIAL INSPECTIONS REQUIRED BY THE SFBC.

STRUCTURAL OBSERVATIONS	REQ'D	NOTES
FOUNDATIONS		
1. ISOLATED & CONTINUOUS FOOTINGS, STEM WALLS		AT COMPLETION OF REINFORCING
2. MAT FOUNDATIONS	X	PLACEMENT PRIOR TO CONCRETE
3. CIDH PILES, DRIVEN PILES, PILE CAPS	X	PLACEMENT FOR ALL MAJOR
4. RETAINING WALLS, HILLSIDE CONSTRUCTION		COMPONENTS AND AT FIRST CONCRETE PLACEMENT FOR THE PROJECT.
SHEAR WALLS		
1. LIGHT-FRAMED SHEAR WALLS, INCLUDING HOLDOWN INSTALLATION AND SHEATHING NAILING		AT COMPLETION OF REINFORCING
2. CONCRETE SHEAR WALLS, INCLUDING REINFORCING STEEL PLACEMENT AND CONCRETE PLACEMENT		PLACEMENT PRIOR TO CONCRETE
3. MASONRY SHEAR WALLS, INCLUDING REINFORCING STEEL PLACEMENT AND GROUT PLACEMENT		PLACEMENT AND DURING CONCRETE PLACEMENT.
4. STEEL SHEAR WALLS		
MOMENT-RESISTING FRAMES		
1. CONCRETE MOMENT-RESISTING FRAMES, INCLUDING REINFORCING STEEL PLACEMENT & CONCRETE PLACEMENT		AT COMPLETION OF REINFORCING
2. STEEL MOMENT-RESISTING FRAMES		PLACEMENT PRIOR TO CONCRETE PLACEMENT AND DURING CONCRETE PLACEMENT.
BRACED FRAMES		
1. STEEL BRACED FRAMES		AT COMPLETION OF BRACED FRAME INSTALLATION.
HORIZONTAL ROOF AND FLOOR DIAPHRAGMS		
1. CONCRETE		AT COMPLETION OF REINFORCING
2. STEEL DECK, CONCRETE ON STEEL DECK		PLACEMENT PRIOR TO CONCRETE
3. WOOD		PLACEMENT AND DURING
4. CHORD AND/OR COLLECTORS		CONCRETE PLACEMENT.

4. WHERE INDICATED WITH AN "X" BELOW, THE CONTRACTOR SHALL SUBMIT CERTIFICATES OF CONFORMANCE, SHOP DRAWINGS, CALCULATIONS, AND DETAILS TO THE CITY REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. WHERE CALCULATIONS AND DETAILS ARE REQUIRED, THE SUBMITTAL SHALL BE SEALED AND SIGNED BY A REGISTERED DESIGN PROFESSIONAL IN THE STATE OF CALIFORNIA. FOR ADDITIONAL INFORMATION REGARDING SUBMITTALS, SEE SPECIFICATIONS.

ITEM	CERTIFICATES	SHOP DRAWINGS	CALCS & DETAILS	NOTES
CONCRETE, REINFORCING	X	X		
CONCRETE, MIX DESIGN		X		
CONCRETE, CEMENT	X			
CONCRETE, FINE AGGREGATES	X			
CONCRETE, COARSE AGGREGATES	X			
CONCRETE, ADMIXTURES	X			
SHOTCRETE, MIX DESIGN				
PRECAST CONCRETE MEMBERS				
MASONRY, REINFORCING				
MASONRY, MORTAR MIX DESIGN				
MASONRY, GROUT MIX DESIGN				
MASONRY, UNITS				
MASONRY, LIME				
STRUCTURAL STEEL	X	X		
OPEN WEB JOISTS				
METAL DECK WITH STUD LAYOUT				
OPEN WEB JOISTS				
COLD-FORMED STRUCTURAL STEEL				
METAL STAIRS				
TEMPORARY SHORING SYSTEM				

5. WHERE INDICATED WITH AN "X", THE FOLLOWING ITEMS SHALL BE SAMPLED AND/OR TESTED BY A CERTIFIED TECHNICIAN FROM AN ESTABLISHED MATERIALS TESTING LABORATORY IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, GENERAL NOTES, OR PREVAILING BUILDING CODE, WHICHEVER IS MORE STRINGENT. ALL MATERIAL SAMPLING AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM REQUIREMENTS. THE MATERIALS TESTING LABORATORY SHALL SEND COPIES OF ALL STRUCTURAL TESTING REPORTS DIRECTLY TO THE RESIDENT ENGINEER, ARCHITECT, ENGINEER, AND BUILDING OFFICIAL. ANY MATERIALS WHICH FAIL TO MEET THE PROJECT SPECIFICATION SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

MATERIALS TESTING	REQ'D	NOTES
MASONRY		
1. COMPRESSIVE STRENGTH TESTS FOR MINIMUM COMPRESSIVE STRENGTH, $f_m'$ AND $f_{mc}'$		
CONCRETE		
1. COMPRESSIVE STRENGTH TESTS FOR CONCRETE WITH SPECIFIED MINIMUM COMPRESSIVE STRENGTH, $f_c'$ , OF 3,000 PSI OR GREATER AT 28 DAYS	X	
2. SHOTCRETE PRE-CONSTRUCTION PANELS		
3. SHOTCRETE TEST PANELS AND CORE SAMPLES ANCHORING & OTHER FASTENERS WITHIN THE SEISMIC-FORCE-RESISTING SYSTEM		
REINFORCING AND PRESTRESSING STEEL		
1. WELDABILITY OF REINFORCEMENT, EXCEPT THAT WHICH CONFORMS WITH ASTM A706		
STRUCTURAL STEEL		
1. TESTING CONTAINED IN THE QUALITY ASSURANCE PLAN	X	INCLUDES NON-DESTRUCTIVE TESTING (NDT) OF WELDS
2. BASE METAL THICKER THAN $\frac{1}{2}$ "	X	ULTRASONIC TESTING (UT) FOR DISCONTINUITIES BEHIND AND ADJACENT TO WELDS SUBJECT TO THROUGH-THICKNESS WELD SHRINKAGE STRAINS
3. FULL PENETRATION AND GROOVE WELD TESTING	X	MT FOR THICKNESS LESS THAN 0.25 IN, UT FOR THICKNESS EQUAL OR MORE THAN 0.25 IN; FULL LENGTH OF WELD, AFTER WELDING OF EACH PLY AND AFTER GALVANIZING.
4. FILLET AND PARTIAL PENETRATION WELDS TESTING	X	MT FOR ALL WELDS; FULL LENGTH OF WELD, AFTER WELDING OF EACH PLY AND AFTER GALVANIZING.
POST-INSTALLED ANCHOR BOLTS IN CONCRETE AND MASONRY		
1. TENSILE TEST	X	MINIMUM OF 5% OF ALL ANCHOR BOLTS


TABLE OF REVISIONS

NO.	DATE	DESCRIPTION	BY	APP.
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REFERENCE INFORMATION  
& FILE NO. OF SURVEYS



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Date:	DESIGNED:	DATE:
10/28/2021	JN	10/20/2021
	DRAWN:	DATE:
12/09/2021	VY	10/20/2021
	CHECKED:	DATE:
12/10/2021	JS	10/20/2021



SCALE:

AS SHOWN

SHEET OF SHEETS

167 OF 210

MISSION ST AND GENEVA AVE  
IMPROVEMENT PROJECT

STRUCTURAL GENERAL NOTES

SOURCING ID NO.	0000005626
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