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Southern California Rapid Transit District

METRO RAIL PROJECT

**SAFETY
CERTIFICATION
AUDIT PROCEDURE**

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SAFETY CERTIFICATION AUDIT PROCEDURE

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SAFETY CERTIFICATION AUDIT PROCEDURE

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SAFETY CERTIFICATION AUDIT PROCEDURE

1.0 PURPOSE

The Southern California Rapid Transit District (SCRTD) has developed and implemented a safety self-certification program, designed to verify the Metro Rail system is safe to operate in revenue service.¹

Responsibilities for documenting compliance with a formal set of safety requirements are assigned to various program participants. This procedure provides a uniform process for conducting audits to verify that responsible participants are implementing their portions of the safety certification program.

2.0 SCOPE

The safety certification program is designed to verify that:

- The design criteria and standards related to safety and system assurance are properly incorporated into the appropriate contract specifications and standard and directive drawings
- The safety and system assurance requirements included in contract specifications are properly designed and incorporated into the final end products
- All safety and system assurance related tests are conducted as part of the Metro Rail test program
- Safety and system assurance related plans, procedures, and training materials are developed, reviewed, and approved prior to the start of revenue service.

Safety certification audits are performed both as part of continuous monitoring of the safety certification program by Systems and Construction Safety staff, as well as part of the contract close-out process.² These audits augment General Consultant (GC) and Construction Management (CM) Consultant monitoring of specification development and Contractor progress. The safety certification audits monitor:

- The accuracy and completeness of Criteria Conformance Checklists prior to issuance of a Criteria Conformance Certificate.

1 Safety Certification Plan, Rev. 1.1, June 1988

2 Contract Close-Out Procedure, Rev. 0, August 1989

- The status of in-progress and completed items listed in the Safety Certification Specification Conformance Checklist, as part of the contract close-out process.
- The completeness, integrity, and uniformity of the CM Consultant's Resident Engineer's files, with respect to safety certification documentation.

3.0 RESPONSIBILITY

Responsibility for the safety certification audits rests with the Systems and Construction Safety (S&CS) Department of the Transit Systems Development Division. Within S&CS, the Director has overall responsibility for system and construction safety and assurance. System safety and assurance activities, including safety certification audits, are managed by the Supervising Engineer, Systems Safety and Assurance.

Audits of the Criteria Conformance Checklists are accomplished by the Safety Certification Review Team, as part of the process of issuing a Criteria Conformance Certificate. The procedure is defined in Section 3.3 of the Safety Certification Plan.

As part of the close-out of a construction or systems contract, the Supervising Engineer designates an engineer staff member to audit the status of the Safety Certification program. The Engineer is assisted by other members of the Safety Certification Review Team in auditing the status of contractual requirements. The Safety Certification Review Team includes:

- CM Consultant's Resident Engineer
- TSD Project Engineer
- Facilities or Equipment Maintenance Superintendent
- SDA Test Engineer.

The S&CS engineer is a member of the close-out team for each contract.

The Safety Certification Audit Team is composed of the Engineer along with the members of the Safety Certification Review Team that are assisting in the audit. Additionally, the Safety Certification Audit Team may include General Consultant's System Assurance manager on system contract audits, and representatives from the Fire Department(s) and Transit Police.

The Supervising Engineer, Safety and Systems Assurance, is responsible for managing the program and assigning the following activities:

- Organizing the safety certification audit effort
 - Determining which facility or system to audit

- Selecting audit team members, including consultants, Fire and Police representatives
- Setting the official audit date(s)
- Making arrangements with the RE for physical access to the site(s)
- Making arrangements for documentations of the CM files
- Establishing an agenda, and assigning auditors to selected items.
- Conducting the audit, including the
 - Documentation included in the CM files, and
 - Visual inspection of the facility and/or system.
- Preparing a safety certification audit report
 - Assembling the certification audit deficient items list from auditors
 - Identifying incomplete items
 - Reporting to the PE and senior SCRTD management on the status of safety certification.

4.0 ORGANIZING THE SAFETY CERTIFICATION AUDIT EFFORT

The safety certification audit is coordinated by the designated S&CS engineer. Based on the latest revision of the project schedule, the engineer maintains a list of facilities or systems contracts that are nearing completion. After contacting the appropriate Project Engineer, the S&CS engineer determines the optimal timeframe for a safety certification audit. Audits are usually conducted at approximately the same time and coordinated closely with pre-final inspection for contract close-out, usually 60-90 days before scheduled contract completion.

The Supervising Engineer, Safety and System Assurance, identifies those auditors required for the inspection based on the skills needed and staff availability. In addition to the cognizant PE, auditors may include representatives from the:

- Fire Department(s)
- Transit Police
- Equipment Maintenance
- Facilities Maintenance
- General Consultant
- TSD Systems Design and Analysis Office
- TSD Construction Management Office

An initial meeting is held to select the time(s) and date(s) of the audit and to identify the items to be audited. The items are selected from the Safety Certification Specification Conformance Checklist (Exhibit 1) and assigned to a specific auditor.

Based on the initial meeting, the S&CS engineer advises the PE who advises the RE of the date(s), time(s), and location of the audit. For audits to be conducted at sites other than in Los Angeles (primarily for system contracts) the S&CS engineer makes the necessary arrangements and assists in designating the individuals to make the trip.

5.0 CONDUCTING THE AUDIT

Two types of safety certification audits are conducted prior to the close-out of every contract:

- Documentation Audit

A documentation audit consists of reviewing the Resident Engineer's files, which include inspector's reports, welder certificates, test reports, etc., either in the field office or at the CM consultant's headquarters.

- Physical Inspection

A physical inspection involves the on-site evaluation of systems or facilities for compliance with specific contractual requirements.

While the exact nature of each audit will vary depending on the contract, the auditors are charged with determining the following:

- Are the Specification Conformance Checklists complete, accurate, and up to date?
- Does the documentation in the RE's files, which is referenced on the Checklists, provide proper evidence to support the contract requirement?
- Is documentation in the RE's files organized and easily retrievable?
- Have facilities and systems been constructed and/or installed as required by specification, and are all necessary safety related features operational?

6.0 PREPARATION OF A SAFETY CERTIFICATION AUDIT REPORT

Each auditor is responsible for reporting any deficiencies found during the audit. Using the checklists, the auditors note that an item is either in compliance, non-compliance, or cannot be determined. Auditors must use their professional judgement to

EXHIBIT 1
Safety Certification Specification Conformance Checklist

CONTRACT: CIVIC CENTER STATION - STAGE I AND TUNNELS - UNION STATION TO 5TH/HILL STA. CONTRACT NO: A141 CERTIFIABLE ELEMENT: UNION STA. - CIVIC CENTER LINE CIVIC CENTER STATION - CIVIC CENTER-5TH/HILL LINE SUBSYSTEM: DIVISION 16 - ELECTRICAL	 RTD Metro Rail Project SAFETY CERTIFICATION PROGRAM SPECIFICATION CONFORMANCE CHECKLIST	REVISION: CONFORMED DOCUMENT DATE: JULY 1987 SEPTEMBER 19, 1986 - FINAL PREPARED BY: MRTC SAFETY, ASSURANCE & SECURITY APPROVED BY: H. STOREY SCRTO SAFETY & SYSTEM PAGE: 46 OF: 59 ASSURANCE (S&SA)
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Item No.	Safety Requirement	Specification Reference		EVIDENCE				
		Section-Page	Paragraph	Verification Responsibility	Stage	Document Reference	Verified	
							Date	By
--	The Work specified in this Section consists of basic materials and methods of installation applicable to electrical work.	16050-1	1.1	N/A	N/A	N/A	--	--
211	Submit evidence of compliance to seismic safety requirements in accordance with the City of Los Angeles Building Code or Title 24 of the California Administrative Code applicable in Los Angeles County, whichever describes more stringent requirements.	16050-2	1.3.D	PDCD QA/QC System	Submittal & W.I.P.	8.07 & 8.10		
212	Submit verified field test reports promptly upon completion of test.	16050-2	1.3.E	PDCD QA/QC System SCRTO S&SA	W.I.P.	8.16		
213	Submit certificates of compliance for items incorporated.	16050-2	1.3.F	PDCD QA/QC System	Submittal	8.07		
214	Materials manufactured for use as conduit (except PVC conduit), raceways, ducts, boxes, cabinets, equipment enclosures and their surface finish material shall be capable of being subjected to temperatures up to 932°F (500°C) for one hour and shall not support combustion.	16050-3	2.1.F	PDCD S&S Mgr. SCRTO S&SA	Submittal	8.07		
215	Use fire-resistive filling material for openings similar to the material of the floor, wall or ceiling being penetrated, and finish to prevent passage of water, smoke, and fumes.	16050-17	3.2.D.1	PDCD S&S Mgr. SCRTO S&SA	W.I.P.	8.07 & 8.10		
--	The Work specified in this Section consists of furnishing, connecting, and testing motors as indicated.	16051-1	1.1	N/A	N/A	N/A	--	--

assess whether non-compliant items are a minor documentation issue that can be resolved with their assistance, or whether a significant safety issue may exist and needs senior management attention.

Deficient items are documented in a deficient items list memo to the S&CS engineer, with copies to the PE and RE (Exhibit 2).

The designated S&CS Engineer assembles the auditor's deficient items list and prepares an audit report. The audit report documents whether each item was found acceptable or unacceptable, how the safety requirements were verified, who participated in the audit and their responsibilities, and a recommendation as to whether the contract should be closed-out. The audit report is sent to the PE in charge of the close-out team. A sample audit report is shown in Exhibit 3.

**EXHIBIT 2
Deficient Items Punch List Memo**

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT 8933391
RAIL FACILITIES MAINTENANCE DEPARTMENT
INTERDEPARTMENTAL MEMORANDUM

DATE: September 18, 1989

TO: Barbara Hanson

FROM: Bud Moore *Bud Moore*

SUBJECT: Punch List - Main Shop Building - A112

RECEIVED
SCRTD - TSD
SYSTEMS & CONSTRUCTION SAFETY
SEP 25 1989
ITEM # 2577
FILE #

The following is a list of discrepancies noted on the walk through, Wednesday, September 13, 1989.

FIRST FLOOR:

- Rm # 102 - Compressor snall - unit installed without vibration isolation
- " 101 - Parts Cleaning Shop - top of masonry block not dressed, sealed
- " 105 - Air Brake Shop - Door not sealed anchor bolts need to be ground off
- " 106 - Air Conditioning Shop - Steel frame at base of window, north end, cut in, need of repair
Top of masonry block not sealed, 6" inch pipe on South West corner, not braced
- " 109 - Electrical Repair Shop - Insulation missing under deck
- " 127 - Telephone & Communication Rm. - No Fire Extinguisher devise in room
- " 130 - Lay down Area - Seismic wiring in T-Bar ceiling not installed
Seismic wiring not installed on overhead lighting in T-Bar ceiling
- " 121 - Women's Restroom - Grout on door frame
7" Gap between west wall and first stall
Soap dispensers, paper towel holders
Bracing under sink, rusting through

- " 122 - Shower Room - No grab bars
- " 117 - Men's Restroom - Bracing under sink, rusting through
- " 126 - Lunch Rm. - T-Bar ceiling not level
Floor not level
Concrete column not finished to ceiling level
- " 160 - Traction Power Substation - Fill in cavity between south and east wall
Access Stairways - No emergency lighting

General Notes:

Electrical: All Junction Boxes need to be identified
Provide Emergency lighting in stair wells

SECOND FLOOR:

- General Notes:
Restrooms - Lockers - Showers
- Rm. 207 - Sink supports Rusting
 - 214
 - 271 Check on soap and paper towel dispensers
 - 274
Tile work grout incomplete
Door frames and thresholds not sealed
 - " 239 - Pipe up through floor into wall
 - " 242 - Mechanical Equipment Rm. - Pipes on wall need support
 - " 241 - Corridor - Drain Pipe through floor not sealed
No finish cap - South Wall, to glass on west wall
 - " 245 - Operations Rm. - Carpet and wall panels oil stained
 - " 250 - Halon Rm. - Halon discharge light not noticed

RECEIVED
SCRTD-TSD

SEP 20 1989

CORRESPONDENCE
CONTROL

EXHIBIT 3
Sample Audit Report

Southern California Rapid Transit District
Safety Certification Audit Report

Contract # _____ Audit Date _____
Contract Name _____
Audit Participants _____ Responsibilities _____

Audit Item	Status (A/U)	How Verified

Contract Close-Out Recommendation

A = Acceptable U = Unacceptable