

SCRTD
METRO RAIL PROJECT
SAFETY CERTIFICATION PROGRAM
CRITERIA CONFORMANCE CERTIFICATION

CONTRACT A187

WILSHIRE ALVARADO
STAGE II

TABLE OF CONTENTS

<u>SECTION</u>	<u>NO. OF PAGES</u>
INTRODUCTION	
CRITERIA CONFORMANCE VERIFICATION CERTIFICATE	1
<u>I. DESIGN REVIEW CHECKLISTS</u>	
FIRE/LIFE SAFETY -- STATIONS	26
SYSTEM SAFETY -- STATION AND SITE	9
SYSTEM SAFETY -- COMMUNICATIONS	3
SYSTEM SAFETY -- POWER	6
SECURITY -- STATION AND SITE	3
SECURITY -- LOCK AND KEYING SYSTEM	1
SYSTEM ASSURANCE -- RELIABILITY	4
SYSTEM ASSURANCE -- MAINTAINABILITY	4
SYSTEM ASSURANCE -- QUALITY ASSURANCE	7
SYSTEM ASSURANCE -- CONFIGURATION MANAGEMENT	6
<u>II. DESIGN REVIEW COMMENTS</u>	
SCRTD-SCS, H. Storey/B. Iskanian - Adv. Submittal - 5-30-89	2
Fire/Life Safety Committee - B. Aaron/D. Scheihl - Final Review - June, 1989	3
Rolf Jensen & Associates, D. Fiedler - Final 06-6-89	14
SCRTD-SAS, D. Bloomfield - Final - 06-9-89	1
MRTC-SAS, R. Harvey - Final - 06-13-89	12
MRTC-SAS, W. Smith - 100% - 06-14-89	2
MRTC-SAS, R. Harvey - Final - 06-15-89	5
SCRTD-SCS, K. Kouder - Final - 06-19-89	2
SCRTD-SCS, L. Boyden Final - 06-22-89	1
<u>III. RELATED CORRESPONDENCE</u>	
DCC #84-07804	1
DCC #84-11620	1
DCC #84-04545	12
DCC #87-04568	1
F/LSC 87-12-050	2
DCC #88-01182	2
DCC #88-00424	2
DCC #89-00282	1
DCC #84-03401	2
DCC #89-00386	1
DCC #89-04013	2
DCC #89-05117	1
F/LSC-89-6-031	2
ROUTING SLIP DATED 06-21-89	1
DCC #89-06239	1
F/LSC 87-12-050	2

DCC #89-07619	1
DCC #87-04568	1
Memo Dated 03-22-88	2
Speed Letter, Dated 10-04-89	5
Memo Dated 02-22-90	1
Memo Dated 02-22-90	1
Speed Letter, Dated 06-15-90	1

IV. Addenda

A187-1	2
A187-2	1
A187-3	1
A187-4	1

INTRODUCTION

This Criteria Conformance Verification package is submitted for review and compliance assessment in accordance with Rev. 1.1 of the SCRTD Metro Rail Project Safety Certification Plan dated June 1988. The purpose of this package is to document the incorporation of safety-related design criteria into the contract drawings and specifications. This activity is part of a multi-phased program to provide a traceable history of the Metro Rail Project Safety Program.

During design progression, MRTC, Assurance & Security personnel, in conjunction with Rolf Jensen & Associates and the Metro Rail Project Fire/Life Safety Committee, have reviewed design documents at the 60%, 90% and 100% levels. The 100% design review for this document was held in June 1989.

At each review level, design review checklists were utilized and appropriate design review comments generated. Subsequent reviews were initiated by determining the resolution status of the previous comments. Unresolved comments were repeated at each review level until resolution was achieved and verified.

Design review checklists for the Fire/Life Safety, System Safety, Security and System Assurance design criteria were updated in December 1986 to reflect the significant revisions made through the Change request process. A vertical bar in the Req. I. D. column of the checklist was used to indicate only those changes which impacted design. For clarity, editorial revisions and clarifications of intent were not indicated on the checklist; however, all revisions were indicated in the text of the design criteria and permanent Change Requests.

The scope of this contract encompasses Stage II construction of Wilshire/Alvarado Station with a traction power substation and double crossover east of station, including all architectural, mechanical, and electrical work except for those items embedded in Stage I construction.

The comments included in this package represent the result of the June 1989 final design review. The checklists included are the undated checklists applied to the 100% Review document. Checklist references to specific drawing numbers or specification sections are based on the conformed contract documents. Only those portions of the checklists containing design criteria requirements directly applicable to this contract, including those for Fire/Life Safety, Security, System Safety, Reliability, Maintainability, Quality/Assurance and Configuration Management are included as well as resolution verification by MRTC Safety, Assurance, and Security personnel. Supporting correspondence has been included where deemed appropriate. Addenda issued, if any have, been reviewed to determine impact on the Safety Certification Program.

This verification package, once audited and confirmed by the SCRTD, will become the primary documentation to allow the SCRTD to issue a Criteria Conformance Certificate. Once issued, the Certificate will be applied to this document.

06/22/90

x 2

CC-187

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METRO RAIL PROJECT

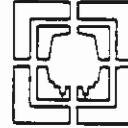


RTD

CRITERIA CONFORMANCE VERIFICATION

Metro Rail Transit Consultants
DMJM/PBQD/KE/HWA

548 South Spring Street Seventh Floor Los Angeles California 90013 213 612-7000



Safety Certification Program

DESIGN REVIEW CONTACT NO. A 187 - WILSHIRE ALVARDO STAGE II

REVIEWING DISCIPLINE MRTC SAFETY, ASSURANCE & SECURITY

EXCEPTIONS NOTED: Mechanical drawing M-008. No access provided to a domestic cold water valve, which is located in a rated ceiling space above corridor 21.2.

This verifies that the specifications and drawings of the above DESIGN REVIEW PACKAGE comply with the applicable SCRTD DESIGN CRITERIA for safety, fire/life safety, security and system assurance.

Signature

J. M. Brown

Date

7/2/90

Manager-MRTC Safety Assurance & Security

Signature

G. M. Pate

Date

7/2/90

Manager-MRTC Facilities Division



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2	<u>STATION FACILITIES</u>			
2.2.1.3	The design of stations and their appurtenances shall conform to California Administrative Code (CAC) Title 24, CAC Title 19, CAC Title 8, California Public Utilities Commission (CPUC) General Orders except as specifically set forth in this chapter, and Uniform Building Code (UBC), 1979, as applied by Title 24, CAC.	X		See Architectural Drawings & Specs. Also see Contract A175 Stage I Dwgs.
2.2.2.1	Building construction for underground stations shall be not less than UBC Type I construction.			↓
2.2.2.2	Where stations have floor levels at or above ground level, that portion which is above ground shall be not less than UBC Type II-FR construction.			N/A
2.2.2.3	Stations having more than two levels below grade or more than 80 feet to the lowest level from grade will require protected level separation or other protection features to provide safe egress regardless of exit time calculations.			N/A



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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.2.4.1	Station public occupancy shall be separated from station ancillary occupancy by minimum 2-hour fire rated construction. Contract Drawings. Exception: A maximum of 2 station agents, supervisors, or information booths may be located within station public occupancy areas when constructed of approved noncombustible materials and limited in floor area to 100 square feet each. Automatic fire protection systems installed in the area in which the booth is located shall extend into the booth.	X		See Architectural Drawings. also Contract A175 Stage I Drawings.
2.2.2.4.2	Station public occupancy shall be separated from power substations and transformer vault areas in station ancillary occupancies by 3-hour fire-rated construction.	X		See Arch. Dwgs. Also See A175 Stage I Drawings.
2.2.2.4.3	Station public and ancillary occupancies shall be separated from nontransit occupancies by 3-hour fire-rated construction.			No Non-transit occupancies adjoining this Contract.
2.2.2.5.1	Electrical equipment areas which contain transformers and traction power equipment shall be separated from all other occupancies by 3-hour fire-rated construction.	X		See Arch, Dwgs. A005 & A006.
2.2.2.5.2	Vaults of not less than 3-hour fire-rated construction shall be constructed for oil-insulated electric transformers and shall meet the NEC requirements for vault construction, including door and sill requirements.	X		No Oil-insulated transformers.



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FIRE/LIFE SAFETY - STATIONS

DISCIPLINE: _____

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 2.2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.2.5.3	Electrical equipment rooms, electric rooms, battery rooms, train control and communication rooms, and trash rooms shall be separated from other occupancies by 2-hour fire-rated construction.	X		See Arch. Dwgs.
2.2.2.6.1	Openings in 3-hour fire-rated separations shall be protected by labeled 3-hour fire-rated (Class A) assemblies.	X		See Arch. & Mech. Drawings. 
2.2.2.6.2	Openings in 2-hour fire rated separations shall be protected by labeled 1½-hour fire-rated (Class B) assemblies.	X		
2.2.2.6.3	Openings in 1-hour fire rated separations shall be protected by 1-hour fire-rated (Class B) assemblies.	X		
2.2.2.6.4	Fire-rated assemblies protecting openings in fire-rated separations shall be automatic or self-closing. Automatic closing assemblies protecting openings into station public occupancies shall be activated by approved detection devices, responding to products of combustion other than heat. Alternatively, automatic closing assemblies may be released by heat-actuated devices alone where a separate smoke barrier is provided. Installation shall be in accordance with UBC Section 4306.	X		
2.2.2.7	Section 2.3.2.3 requirements for protection of underground guideways shall be applied to underground stations.	X		See Mech. HVAC Plans & Sections.



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CRITERIA AND STANDARDS - VOL. 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.3.2.3.1	Vent or fan shafts utilized for ventilation of subway tunnels shall not terminate at grade on any vehicle roadway or parking lot.	X		See Arch. Dwgs. Also see Contract A175 Dwgs. C034, C035, & C036.
2.3.2.3.2	Vent and fan shafts may terminate in the median strips of divided highways or on sidewalks designed to accept such shafts, or in open space areas, provided that their location at the level of the median strips, or sidewalk, or open space, is protected by a concrete curb. This curb shall be of sufficient elevation to exclude drainage into the shaft, but in no case shall the height be less than 6 inches.	X		See Contract A175 Civil Drawings: C034, C036, C038, S055, S091, S099, S101, S103, & S105.
2.3.2.3.3	Installation of underground hazardous substance storage tanks and related piping shall not be permitted directly over any transit system subsurface structure or within 25' measured horizontally from the outside wall of such a subsurface structure (See 2.3.2.3.5).			No New Installation Planned.
2.3.2.3.4	Installation of underground hazardous substance storage tanks and related piping, located in the area between 25 feet and 100 feet (measured horizontally from the outside wall) of any transit system subsurface structure, and within that same area such tanks and related piping which are within 2' below the lowest point of excavation limit, shall meet the following requirements: A. Tanks shall be of double wall construction.			↓ N/A



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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

Table with 4 columns: REQ. I.D., REQUIREMENT, YES, NO, COMMENT. Contains rows for requirements 2.3.2.3.5 and 2.3.2.3.6 with detailed descriptions and references to DCC #86-04545.



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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	B. Appropriate continuous drains across driveways, ramps, and/or curbs of at least 6 inches in height shall separate facilities from adjacent subway property.	X		SEE DCC # 86-04545 ↓
	C. No connection (such as venting or drainage) of any storage tanks and related piping of hazardous substances to a fixed subsurface transit structure shall be permitted.	X		
	D. Points of dispensing for hazardous substances shall not be located less than 50 feet from the nearest subway system opening.	X		
2.3.2.3.7	Other fill or dispensing points for hazardous substances shall be subject to restrictions as prescribed in 2.3.2.3.6.	X		
2.2.2.8.1	All structural assemblies and building appurtenances shall conform to Type I structures per UBC Chapters 5, 17, and 18.	X		See Arch. Dwgs. Also See A175 Structural and Arch. Dwgs.
2.2.2.8.2	Combustible adhesives and sealants used shall not compromise requirements of section 2.2.2.9.	X		See Specs, Sec. 07920
2.2.2.8.3	Elevators and escalators shall be constructed of noncombustible materials and conform to CAC Titles 24 and 8. Note: (CAC Title 24 and 8 requirements are redundant.)			See A710 Sect. 14200 & 14310



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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.2.9.1	Interior finishes shall be Class I (per UBC Chapter 42) for all exit access routes and exits. Platforms and mezzanines in transit stations shall be considered exit access routes for the purpose of determining interior finish requirements.	X		See Arch. Dwg. A014 ↓
2.2.2.9.2	Interior finishes in all other areas shall be UBC Chapter 42, Class I or II.	X		
2.2.3.1.1	Provisions shall be made for emergency ventilation for protection of patrons and employees from fire and products of combustion.	X		See Contract A740. Also see Environmental Control System Final Report 8-23-85. See Contract A175 Dwgs. C034, S096, S094. ↓
2.2.3.1.3	Ventilation shaft terminals at grade shall be located as follows: A. Openings for blast relief shafts, and underplatform and smoke exhaust shafts at grade shall be separated by a minimum horizontal distance of 40 feet from the closest station entrance, surface emergency stair doorways, unprotected outside air intake or other openings, or from each other.	X		



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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

Table with 5 columns: REQ. I.D., REQUIREMENT, YES, NO, COMMENT. Contains four rows of requirements related to blast relief shafts and ventilation systems.



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REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.3.3.1	Ventilation fans used for emergency service, their motors and all related components exposed to the ventilation airflow shall be designed to operate in an ambient atmosphere of 300F for a period of at least 1 hour.			See Contract A740, Section 15865
2.2.3.3.2	Local fan motor starters and related operating control devices shall be isolated from the ventilation airflow by a separation having a fire-resistance rating of at least 2 hours.	X		See Elec. Dwgs. E043 thru E058
2.2.3.3.3	Fans used for emergency ventilation shall be single or dual-speed, reversible, or capable of changing direction of airflow by use of dampers.			See Contract A740, Section 15865
2.2.3.3.4	Fans required for emergency operation shall be capable of satisfying emergency air-velocity criteria in either supply or exhaust modes.			↓
2.2.3.3.5	Thermal overload protective devices shall not be provided on motor controls of fans used for emergency ventilation. Circuits shall be designed to maintain current to the emergency fan motors without operation of protective devices (unless excess current is sensed simultaneously with a non-airflow signal).	X		See Elec. Dwgs. & A740-15865
2.2.3.3.6	Two independent electrical supplies shall be provided for each of the emergency fans. Automatic transfer shall be provided in the event the normal supply source fails.	X		See Elec. Dwgs. E004, thru E006



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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT	
2.2.3.4.1	Operation and fail-safe verification of proper operation of emergency fans shall be effected by Central Control with supply-off-exhaust indication provided for each fan as well as from a local control isolated as in 2.2.3.3.2.	X		See Contract A640 Sec. 12.2 & 12.3. Also see Mech. HVAC Control Diagrams	
2.2.3.4.2	Controls shall be provided at the EMP for operating the ventilation system in all modes. This location and the local control shall override control from CC.	X		↓	
2.2.3.4.3	Emergency ventilation shall be designed to operate in full coordination with the trainway ventilation system.	X			Also see ECS Report 8-23-85
2.2.3.4.4	Emergency ventilation systems shall be controlled in all operating modes; locally, from the EMP, and from CC.	X			See Contract A640, Sec. 10.4. Also see Mech. HVAC Control Diagrams.
2.2.3.5.1	Ancillary area ventilation systems shall be arranged so that air is not exhausted into station public occupancy areas. Controls for shutdown of ancillary area ventilation systems shall be provided at the EMP.	X		See Contract A640 Sect. 10.2 & 10.4. Also see Mech HVAC Control Diagrams.	
2.2.3.5.2	Battery storage or similar ancillary rooms in which hydrogen gas or other hazardous gases may be released shall require mechanical ventilation and be ventilated in accordance with NFPA 91 and as follows:	X		See Mech. Dwgs. M056 & M057	
	A. Exhaust ducts from battery rooms shall not connect with duct systems used for other purposes.	X		See Mech. Dwgs. M035 & M036	



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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	B. Exhaust system operation shall be proven by means of an air-flow switch, from which a no-air-flow signal produces an alarm at a continuously attended location and will cause battery charging serving the affected area to be deenergized.	X		Contract A640, Sect. 9.2.8 & 9.2.9
2.2.4.1	Electrical equipment and wiring materials and installations within stations shall comply with NEC and, other than for traction power, shall satisfy the following requirements:	X		See Elec. Dwgs. and Contract Spec., Sec. 16050
2.2.4.1.1	Materials manufactured for use as conduits, raceways, ducts, boxes, cabinets, equipment closures and their surface finish materials shall be capable of withstanding 932F for 1 hour and shall not support combustion. Other materials when embedded in concrete are acceptable.	X		See Elec. Dwgs. & Contract spec. Sec. 16050
2.2.4.1.2.	All conductors shall be insulated. Copper ground wires may be bare. All thicknesses of insulation and jackets shall conform to NEC.	X		See Contract Spec., Section 16120 & 16455
2.2.4.1.3	Insulation shall conform to Article 310 of NEC and be moisture- and heat-resistant, and carry temperature ratings corresponding to application not lower than 194F.	X		↓



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REQ. ID.	REQUIREMENT	YES	NO	COMMENT
2.2.4.1.4	Wire and cable used in operating vital train signal circuits and power circuits to emergency fans, lights, etc., shall pass the flame-propagating criteria of IEEE 383 and have a minimum short circuit time of 5 minutes in the flame test of IEEE 383. Type test certificate is required with every shipment of cables.	X		See Contract Spec. Sect. 16120-2.2.D
2.2.4.1.5	o All conductors shall be enclosed in conduits, enclosed raceways, boxes and cabinets, except in traction power substations, electrical equipment rooms, train control rooms, or communications rooms.	X		See Contract Spec. Sec. 16050-2.10.4. Also see Elec. Plans and Raceway Cable Schedules ↓
	o Conductors in conduits or raceways may be embedded in concrete or run in concrete electrical duct banks.	X		
	o Conductors shall not be installed exposed or surface-mounted in air plenums which may carry air at the elevated temperature accompanying the fire-emergency conditions.	X		
2.2.4.1.6	Overcurrent elements which (a) are designed to protect conductors serving emergency equipment motors, emergency lighting, and communications equipment, and (b) which are located in spaces other than main distribution system equipment rooms, shall operate on magnetic principles and not depend upon thermal properties for operation.	X		See Contract Spec. Sect. 16050 & 16471



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REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.4.1.7	Wiring for fans essential for emergency ventilation service shall meet the requirements of 2.2.4.1.4.	X		See Contract Spec. Sect. 16120-2.2.D
2.2.4.1.8	Conductors for emergency lighting, communications, etc. shall be protected from physical damage by transit vehicles or other normal transit system operations, and from fires in the transit system by suitable embedment or encasement, or by routing such conductors through areas of low fire potential (light hazard).	X		See Elec. Dwgs. E030 thru E040, E088 thru E090 and Contract A175 Elect. Dwgs. E076 thru E086
2.2.4.1.9	Switches, electrical outlets, and lighting fixtures in areas where batteries are installed/charged shall be explosion proof per NEC.	X		See Elect. Lighting Plans and Spec. Div. 16
2.2.5.2	<u>Occupancy and Occupant Load</u>			
2.2.5.2.1	The occupant load for a station shall be determined based on an emergency condition requiring evacuation of that station load to a point of safety.	X		SEE EXIT CALC'S (12-5-85)



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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.5.2.2	A. Access to the platform and/or the station must be operationally constrained to a platform net area occupancy equivalent to 4 square feet per person. For anticipated platform entraining loads that would result in area occupancies of less than 4 square feet per person, the calculated platform load will be limited to the net platform area divided by 4 square feet per person. The minimum total exit width in feet shall be equal to this platform load divided by 50 patrons per foot of exit width.	X		SEE EXIT CALC'S (12-5-85)
	B. Notwithstanding other provisions in 2.2.5.2, exiting shall be provided, as a minimum, to accommodate the equivalent of 7 square feet per person.	X		See Exit Calc's 12-5-85 ↓
	C. Special design consideration shall be given to stations directly servicing areas where events occur that result in abnormal patron loads.	X		
2.2.5.2.3	If there are side platform stations, each platform shall be considered separately. At center platform stations, arrival of trains from both directions, plus their entraining loads, shall be considered.	X		
2.2.5.2.4	At mezzanines or multi-level stations, simultaneous platform loads shall be considered for all exit paths passing through that area.	X		



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

GROUP: _____


DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.5.3.1	Exit capacities shall be calculated on the basis of 22-inch wide exit lanes. Width shall be measured in the clear at the narrowest point except that individual handrails may project 3½ inches into the required width. Fractional lanes shall not be counted in measuring exit capacities except that 12 inches added to one or more lanes shall be counted as 1/2 a lane.	X		See Exit Calc's 12-5-85 
2.2.5.3.2	There shall be sufficient exit lanes to evacuate the station occupant load as defined in 2.2.5.2.1 from the station platforms in 4 minutes or less (see Figure 2-1 "Emergency Exit Capacity Calculation" of criteria).	X		
2.2.5.3.3	The station shall also be designed to permit evacuation from the most remote point on the platform to a point of safety in 6 minutes or less.	X		
2.2.5.3.5	The capacity in persons per minute (ppm), travel speeds in feet per minute (fpm), and requirements for exit lanes shall be as follows:	X		
	A. Platforms, corridors, and ramps of 4 percent slope or less: Exit corridors and ramps shall be a minimum clear width of 5 feet 8 inches. In computing the number of exit lanes available, 1 foot 6 inches shall be deducted at each platform edge and 1 foot at each sidewall.	X		



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
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GROUP: _____

DATE: _____

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CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

Table with 5 columns: REQ. I.D., REQUIREMENT, YES, NO, COMMENT. Contains detailed safety requirements for exit lanes, stairs, and doors, with corresponding 'X' marks in the YES column and detailed comments in the COMMENT column.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: R. HARVEY

DATE:

REVIEWER: FIRE/LIFE SAFETY - STATIONS

DISCIPLINE: METRO RAIL PROJECT SYSTEM DESIGN

REVIEW REFERENCE: CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 2.2 REVIEW LEVEL: 100%

Table with 5 columns: REQ. I.D., REQUIREMENT, YES, NO, COMMENT. Contains detailed review criteria for fare gates and turnstiles, with 'N/A' comments and a downward arrow.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.5.3.6	From each platform there shall be a minimum of 2 exits not less than 100 feet apart. Platform exits shall be stairs, escalators stopped or moving in the direction of egress to mezzanine level, emergency stairs, doorways, corridors, or walkways to a point of safety. Routes from platform ends into the underground trainway are not considered as exits for calculating exiting requirements.	X		See Arch. Dwgs. and Contract A175 Structural Dwgs
2.2.5.3.7	There shall be a minimum of 2 exits from each mezzanine not less than 40 feet apart.	X		See Arch. Dwgs. & A175 Structural Plans & Sections ↓
2.2.5.3.8	No point on the station platform(s) or mezzanine(s) shall be more than 300 feet from an exit.	X		
2.2.5.3.9	All exit measurements shall be to a point of access to the exit.	X		
2.2.5.3.10	Exits other than fare collection gates shall provide for at least 50 percent of the exit capacity in any fare barrier.	X		
2.2.5.3.12	Means of ingress shall be provided from each trainway to the platform, as follows: A. Two 2 feet 10 inch wide stairways, or other arrangement having equivalent capacity, shall be provided at each end of platform, arranged to provide full capacity exiting from either trackway.	X X		



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

GROUP: _____

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	B. Gates at the top of each stairway shall swing in direction of access to platform and provide clear opening width of not less than 3 feet.	X		See Arch. Dwgs. A012 & A013 See Comment 2.2.5.3.5.C
	C. Gates, stairs, and landings shall conform to NFPA 101 and applicable building codes.	X		See Arch. Plans & Sections.
2.2.5.3.13	Vertical circulation elements shall be comprised of stairs or stair/escalator combinations. Escalators shall not account for more than half the units of exit at any one level in the public area.	X		See Arch Dwgs. Also see Exit Calc's 12-5-85
2.2.5.4	Means of egress shall be arranged in accordance with applicable codes and regulations, except that for the purpose of the criteria, exits from station ancillary occupancy areas into station public occupancy areas shall be considered as discharging into a protected passageway leading directly to a point of safety.	X		See Arch. Dwgs.
2.2.5.5.1	Station structures shall be provided with an emergency lighting system in accordance with UBC except as noted in 2.2.	X		See Elec. Lighting Plans
2.2.5.5.2	Emergency lighting system is installed and maintained per NFPA Article 700, "Emergency Systems" to provide an illumination level of 1 footcandle.	X		See Elec. Lighting Plans



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. ID.	REQUIREMENT	YES	NO	COMMENT
2.2.5.5.3	Exits shall be marked with readily visible signs complying with the requirements of UBC. Where emergency lighting is required, exit signs shall be illuminated from the emergency lighting source.	X		See Signing and Edge Lights drawings
2.2.5.5.4	Exit lights and essential signs shall be included in the emergency lighting system and be powered by an uninterruptable power supply. Emergency fixtures, exit lights, and signs shall be separately wired from the emergency distribution panels.	X		See Signing and Edge Light dwgs. Also see Lighting Plans
2.2.5.5.5	Emergency lighting for stairs and escalators shall be designed to emphasize illumination on the top and bottom steps or landings. A minimum of one footcandle of emergency lighting shall be provided throughout the entire run of each stair and escalator (per UBC, Section 3312(a)).	X		See Lighting Plans Lighting Levels must be field verified
2.2.6.1.1	Fire alarm control system shall be installed in each station facility, conforming to NFPA 72A and 72D and CAC Title 19:	X		See Contract A640 Sec. 10 & 13
	A. Fire alarm devices shall be protected by a proprietary system Style D and Style 2 per NFPA 72D, Tables 3-9.1 & 3-10.1.			See Contract A640 Sections 10 & 13
	B. The station facility fire alarm system shall be electrically supervised and operated on low voltage with battery standby power.	X		See Contract A640 Section 10



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

GROUP: _____

DATE: 06/06/90

REVIEWER: R. HARVEY

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REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.6.1.2	<p>C. The public address system shall be utilized for sounding required building audible fire alarm signals from the fire alarm control panel by means of a tone generator preceding verbal announcements to direct patron evacuation. Audibility level shall be a minimum of 10 dB over any background noise.</p>			See Contract A640 Section 6
	<p>D. All detector and extinguishing system fire alarm, smoke detection, valve switches, and water flow indicator signals throughout the system shall, when activated, be transmitted simultaneously within the local station and to a central supervising station per NFPA 72D.</p>			
	<p>E. The fire alarm control system shall provide means to trip special extinguishing systems and to control ventilation systems in accordance with applicable codes.</p> <p>The EMP shall include an annunciator panel which indicates by audible and visual alarm the activation and location of any fire signal generated at the station facility. It shall also indicate fire system supervisory signals and a fire alarm control panel trouble signal.</p>			See Contract A640 Section 10 See Contract A640 Section 10



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

DATE: 06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 2.2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	A minimum of one EMP shall be located in the public area on the mezzanine adjacent to the fare array in the patron assist area in the pathway of the entrance to which the fire department will respond.	X		See Elec. Dwg. E084
2.2.6.1.3	Automatic fire detection devices shall be installed throughout all station ancillary areas where automatic sprinkler protection is not required, including return air and after the filters in air conditioning and ventilation systems serving more than one area.	X		See System Wide Service Dwgs.
2.2.6.1.4	Manual fire alarm capability shall be provided by an emergency phone system.	X		See System Wide Services Dwgs. Also see contract A640, Section 10
	A. Emergency phones shall be located adjacent to each fire hose cabinet throughout the station.	X		See System Wide Services Dwgs. Also see Contract A640, Section 6.
	B. The emergency phones shall be a dedicated system that alarms at CC. The emergency phone system shall annunciate at CC and indicate station of origin.			See A640 Contract
2.2.6.1.5	A supervised public address system shall be provided to facilitate patron evacuation in the event of an emergency.			See A640 Contract
	A. The public address system shall be operable from the EMP and from CC			See Contract A640 Section 6



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

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REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	B. The public address system shall conform to NFPA 72A and 72D. Supervision of the public address system shall be through the station fire alarm control panel.			See Contract A640 Sections 6
2.2.6.1.6	Seismic alarm devices and controls shall be provided to detect a seismic event such that it will permit safe stopping of trains entering any zone of the system where a seismic event has occurred. Detection of a seismic event shall be annunciated in CC.			See A640 Section 11 & 12
2.2.6.1.7	Gas detection devices shall be provided to detect the presence of methane or other gases entering into the system. Presence of such gases shall be annunciated in CC.	X		See System Wide Services Dwgs. & A640 Section 11 & 12
2.2.6.2.1	Automatic sprinkler protection in accordance with NFPA 13, UBC Chapter 38, and LA Plumbing Code shall be provided in all station ancillary areas, except as provided in 2.2.6.2.2. Any other exception shall be approved by the F/LS Committee.	X		See Mech. Plumbing & Fire Protection Dwgs. Also see Spec. Sect. 15330.
2.2.6.2.2	Train control and communication rooms shall be protected with an automatic Halon 1301 extinguishing system meeting NFPA 12A and LAFD Requirement 33, activated manually and through the fire alarm control panel by a cross-zoned detection system.	X		See Contract A640 Sect. 10.7. Also see M044 & M059.
2.2.6.3	<u>Standpipe and Hose Systems</u>			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	B. The public address system shall conform to NFPA 72A and 72D. Supervision of the public address system shall be through the station fire alarm control panel.			See Contract A640 Sections 6
2.2.6.1.6	Seismic alarm devices and controls shall be provided to detect a seismic event such that it will permit safe stopping of trains entering any zone of the system where a seismic event has occurred. Detection of a seismic event shall be annunciated in CC.			See A640 Section 11 & 12
2.2.6.1.7	Gas detection devices shall be provided to detect the presence of methane or other gases entering into the system. Presence of such gases shall be annunciated in CC.	X		See System Wide Services Dwgs. & A640 Section 11 & 12
2.2.6.2.1	Automatic sprinkler protection in accordance with NFPA 13, UBC Chapter 38, and LA Plumbing Code shall be provided in all station ancillary areas, except as provided in 2.2.6.2.2. Any other exception shall be approved by the F/LS Committee.	X		See Mech. Plumbing & Fire Protection Dwgs. Also see Spec. Sect. 15330.
2.2.6.2.2	Train control and communication rooms shall be protected with an automatic Halon 1301 extinguishing system meeting NFPA 12A and LAFD Requirement 33, activated manually and through the fire alarm control panel by a cross-zoned detection system.	X		See Contract A640 Sect. 10.7. Also see M044 & M059.
2.2.6.3	<u>Standpipe and Hose Systems</u>			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.6.3.1	Class III standpipe system coverage shall be provided throughout the station per NFPA 14 and UBC Chapter 38. Fire hose outlets shall be located so that any point may be reached including in and around transit vehicles which may be stopped at the station, with 100 feet of hose and 30 feet of water stream.	X		See Contract Spec. Sec. 15376. Also see Plumbing and Fire Protection Dwg.
2.2.6.3.2	Manual and remote actuation of under-vehicle water spray extinguishing systems shall be provided at stations, supplied from platform standpipe systems. Separately controlled systems, shall be provided on each track for lengths along the platform corresponding to each vehicle pair, considering variations in stopping position. Provisions for removing third rail power shall be provided so that power is automatically removed from that section of track, prior to actuating the under-vehicle extinguishing system.	X		See M001, M005 thru M077.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

GROUP: _____

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.6.4	<u>Fire Extinguishers</u>			
2.2.6.4.1	Portable fire extinguishers complying with NFPA 10, CAC Title 19, and LA Fire Code shall be placed at each fire hose location and at other locations as required by hazard type and space utilization. Multipurpose dry chemical extinguishers having a capacity of 10 pounds and rated 4A-30B:C shall be used, supplemented by 10 pound, 10B:C CO ₂ extinguishers in rooms used for electrical equipment; except that 10 pound 2A-20B:C Halon 1211 extinguishers shall be provided in train control and communication rooms.			See Contract A785
2.2.6.4.2	Maximum travel distance to nearest extinguisher shall not exceed 150 feet in public areas.	X		See Plumbing and Fire Protection Dwgs.
2.2.6.5	<u>Emergency Access to Stations</u>			
2.2.6.5.1	Access to station entrances and emergency egress locations shall be from public streets, or an access road of 20 foot minimum paved width, with widened 28-foot turnouts wherever emergency vehicles may stop.			See Contract A175 Dwgs. C034, S011 & S012
2.2.6.5.2	An access road to a station shall be continuous from a public street to a public street, or a 66-foot outside radius turn around shall be provided.			See Contract A175 Dwgs. C004 & C034



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

GROUP: _____

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: FIRE/LIFE SAFETY - STATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 2.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
2.2.6.5.3	Fire Department inlet connections for automatic sprinkler and standpipe systems shall be located within 25 feet of vehicular access. Hydrant spacing and locations shall be determined by the FLSC.	X		See Contract A175 Dwgs. C034, U027, U028, and Plumbing and Fire Protection Dwgs. M010, & M016



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II

GROUP: MRTC SAFETY & ASSURANCE

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM SAFETY - STATION AND SITE


A187

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: _____

CRITERIA AND STANDARDS - VOL I, SECTION 3.3
STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3	STATION AND SITE			
3.3.1	<u>Station and Site Layout</u>			
3.3.1.A	Site access points shall be located to preclude traffic congestion.	X		See Dwgs. A002. Also see Contract A175 Dwgs. A049 thru A053 and S011 & S012.  No Public Parking provided under this Contract. see A002 for reference. Also see Contract A185. See Contract A185
	Traffic patterns for vehicles and pedestrians shall be clearly marked.	X		
3.3.1.B	Vehicle patterns that cross or result in counterflow shall be minimized.	X		
3.3.1.C	Patron dropoff zones and taxi stands shall be located to minimize patron exposure to traffic. Patrons shall be able to move directly to the station entrance without crossing traffic lanes.	X		
3.3.1.D	If public parking is provided, spaces shall be set aside for the handicapped at the closest point to the station entrance to minimize their exposure to traffic.			
3.3.1.E	Bus loading and unloading zones shall be located so that patrons do not have to cross traffic lanes.			
3.3.1.F	Clearly defined and wellmarked crosswalks and sidewalks shall be provided with slipresistant surfaces.	X		



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II

GROUP: MRTC SAFETY & ASSURANCE

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM SAFETY - STATION AND SITE

A187

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: _____

CRITERIA AND STANDARDS - VOL I, SECTION 3.3
STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3.2	<u>Station Architectural Features</u>			
3.3.2.A	Signing			
3.3.2.A.1	Clear, legible, and wellilluminated signing and graphics shall be provided in stations.	X		See Signing and Edge Light Dwgs. NOTE: Signs procurred under Contracts A680 & A760. ↓
	The signing and graphics shall be located in a manner which enhances the safety and convenience of patrons.	X		
3.3.2.A.2	Righthand traffic shall be maintained where possible through signing.	X		
3.3.2.B	Architectural Psychology Any design features or vistas which may distract patrons at the head or foot of stairs and escalators shall be avoided.	X		
3.3.2.C	Platform			
3.3.2.C.1	A platform safety strip shall be provided as follows:	X		See Dwgs. A012 & A013. Also see AS006 and Spec. Sect. 04465. ↓
3.3.2.C.1.a	The width of the safety strip shall be 18 inches, which includes the tactile strip and edge material.	X		
3.3.2.C.1.b	The platform edge material shall be slipresistant and different in color and texture to distinguish it from the main platform area.	X		



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II

GROUP: MRTC SAFETY & ASSURANCE

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM SAFETY - STATION AND SITE

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL I, SECTION 3.3
STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3.2.C.1. c	A narrow tactile strip two inches or less in width shall contrast with the platform edge and the main platform area. It shall be designed to improve the probability of the safety strip being sensed by the blind.	X		See Dwg. AS006, Sec. 4
3.3.2.C.2	The underplatform design shall incorporate an area where one can crouch and not be struck by the collector shoe or other parts of the train.	X		See Dwg. AS006. Also see Contract A175 Dwgs. SS033, S024, S025, S057, thru S059.
	The contact rail shall be located on the opposite side of the tracks from the underplatform refuge.	X		
3.3.2.C.3	The platform design shall be coordinated with the track layout and the vehicle static and dynamic outline to provide an acceptable interface between the platform and vehicle. This interface is to minimize horizontal and vertical gaps at the vehicle door threshold. The dimensions shall be a nominal three inches for horizontal gap between platform and vehicle static outline; and a nominal 0.75 inches for the vertical gap downward from the vehicle doorsill to the platform finished floor.	X		See Structural Standard Dwgs. Also see Contract A650 Dwgs. V018 & V019.
	Alignment of the vehicle platform interface shall reduce the potential for catching and trapping the wheels of a wheelchair.	X		



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II

GROUP: MRTC SAFETY & ASSURANCE

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM SAFETY - STATION AND SITE

A187

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: _____

CRITERIA AND STANDARDS - VOL I, SECTION 3.3
STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3.2.C.4	Sufficient clear space shall be provided around overhead and side projections and corners to reduce the potential for bumping and walking into these protuberances.	X		See Architectural Plans
3.3.2.D	Station Walking Surfaces All walking surfaces within the station shall have slipresistant surfaces.	X		See AS004, AS005, AS019, AS020, and Spec. Sect. 03346 & 03347
3.3.2.E	Walkway Screening When passarelles or pedestrian walkways are provided over the trackway, the walkways shall be screened.			None Provided
3.3.2.F	Top of Parapet The top of the parapet shall be sloped away from the vertical circulation elements and visual openings to prevent objects from being placed upon them.	X		See Arch. Std Dwgs. AS005, & AS006, AS019, AS020, & Arch. Dwgs. A036 thru A040, A042 thru A044 & A062.
3.3.2.G	Railings/Guardrails			↓
3.3.2.G.1	Railings and guardrails shall comply with the requirements of NFPA101 and the applicable local codes.	X		
3.3.2.G.2	Glazed railings shall not be installed.	X		



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: WILSHIRE/ALVARADO STAGE II

GROUP: MRTC SAFETY & ASSURANCE

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM SAFETY - STATION AND SITE

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL I, SECTION 3.3
STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3.3	<u>Elevators/Escalators</u>			
3.3.3.A	Elevators			
3.3.3.A.1	Elevators shall meet the safety requirements in the elevator/escalator codes, ANSI A17.1, the handicapped requirements in ANSI A117.1, and Title 24 of the California Administrative Code.			See Contract A710 Spec. Sec. 1.2, 1.6, & 3.3.
3.3.3.A.2	Two-way communication from within the elevator cab shall be provided between the patron and Rail Control Center (RCC).			See Contract A710 Spec. Sect. 14200-2.9 and Contract A640, Secs. 5 & 12.
3.3.3.A.3	Elevators shall be sized to accommodate a horizontally positioned stretcher of the type carried in emergency vehicles.			See Contract A710 Dwgs.
3.3.3.A.4	Remote elevator indicators and controls shall be provided at RCC for emergency operation.			See Contract A710, Spec. Sect. 14200 & Contract A640, Sect. 12.
3.3.3.B	Escalators			
3.3.3.B.1	Escalators shall meet the safety requirements in the elevator/escalator code, ANSI A17.1.			See Contract A710, Spec. Sect. 14310-1.2
3.3.3.B.2	Signing and graphics shall be provided to enable patrons to determine the direction of escalator motion prior to their arrival at, and well clear of, the landing plate.			See Contracts A680, A710, and A760
3.3.3.B.3	Status indicators shall be provided.			See Contract A710, Spec. sect. 14310-2.2



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REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
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3.3.3.A	Elevators			
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3.3.3.A.2	Two-way communication from within the elevator cab shall be provided between the patron and Rail Control Center (RCC).			See Contract A710 Spec. Sect. 14200-2.9 and Contract A640, Secs. 5 & 12.
3.3.3.A.3	Elevators shall be sized to accommodate a horizontally positioned stretcher of the type carried in emergency vehicles.			See Contract A710 Dwgs.
3.3.3.A.4	Remote elevator indicators and controls shall be provided at RCC for emergency operation.			See Contract A710, Spec. Sect. 14200 & Contract A640, Sect. 12.
3.3.3.B	Escalators			
3.3.3.B.1	Escalators shall meet the safety requirements in the elevator/escalator code, ANSI A17.1.			See Contract A710, Spec. Sect. 14310-1.2
3.3.3.B.2	Signing and graphics shall be provided to enable patrons to determine the direction of escalator motion prior to their arrival at, and well clear of, the landing plate.			See Contracts A680, A710, and A760
3.3.3.B.3	Status indicators shall be provided.			See Contract A710, Spec. sect. 14310-2.2



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STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3.3.B.4	Adequate queuing space shall be provided at both the top and bottom of escalators.	X		See Arch. Plans
3.3.3.B.6	An emergency stop capability shall be provided at the top and bottom of escalators and shall meet the requirements of Cal/OSHA.			See Contract A710, Spec. Sect. 14310 ↓
3.3.3.B.7	The clearance between the combplate and the steps and the balustrade and the steps shall be such that no shoes, clothing, or other similar articles may be trapped between these elements.			
3.3.3.B.8	Sufficient clearance shall be provided between the structure and escalator moving handrails to prevent hands or clothing from being trapped.			
3.3.3.B.9	Safety devices shall include brakes that assure that the escalator will not move when power is removed and patrons are using the stopped escalator as a stairway.			
3.3.4	<u>Stairs</u>			
3.3.4.A	There shall be a minimum of one stair connecting all levels in the public area that meets Fire/Life Safety requirements.	X		See Arch. Plans and Sections.



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STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3.4.B	The treadriser relationship shall meet the requirements of NFPA101.	X		See Arch. Std. Dwgs. AS004, AS005, AS019; Arch. Dwgs. A036, A039, A040, A042, thru A044, A062; Also see contract A175 Structural Dwgs.
3.3.4.C	The stairs shall be of a slip-resistant material with an eased nosing that is distinct and meets the requirements of ANSI A117.1, and Title 24 of the California Administrative Code.	X		See Arch. Plans and Sections.
3.3.4.D	When gutters/runnels are provided, they shall be protected by the handrails.			None Provided.
3.3.4.E	Handrails shall be continuous and meet the requirements of ANSI A117.1, and Title 24 of the California Administrative Code.	X		See Arch. Plans & Sec. Also see Arch. S&D Dwgs AS004, AS005, AS006, AS019, & AS020.
3.3.5	<u>Fare Collection</u>			
3.3.5.A	Remote operation from the RCC shall be provided to permit control of inbound patrons passing through the fare collection array.			Barrier free system is implemented by CR7-001A. No fare gate arrays are to be installed at this time. Should fare arrays be installed at a later time these requirements will have to be reviewed.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3.5.B	In the event of a power loss, the fare collection array shall permit free exiting.			
3.3.5.C	Remote controls shall be provided to permit free exiting.			
3.3.5.D	Provisions shall be incorporated to permit access by the handicapped using wheelchairs.	X		See Previous Page ↓
3.3.5.E	Sufficient exit gates shall be provided to allow rapid and complete discharge of station occupant loads.	X		
3.3.6	<u>Vehicle Approach System</u> A visual and audible method shall be provided to alert patrons of the impending arrival of a train.	X		See DCC #84-7804 and Contract A650 Spec. ↓
3.3.7	<u>Other Design Features for Station and Site</u>			
3.3.7.A	Patron flow patterns shall maintain a righthand circulation where possible and shall be as simple as practicable.	X		See Operations Plans and Contract A760 Contract Dwgs.
3.3.7.B	Maps shall be provided and located in the Emergency Management Panel (EMP) which show locations of shutoff controls for water, gas, electricity and fuel lines.			See Contract A640 spec. Sect 10.4 and A760 Contract.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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REVIEWER: R. HARVEY

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A187

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CRITERIA AND STANDARDS - VOL I, SECTION 3.3
STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
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3.3.5.C	Remote controls shall be provided to permit free exiting.			
3.3.5.D	Provisions shall be incorporated to permit access by the handicapped using wheelchairs.	X		See Previous Page
3.3.5.E	Sufficient exit gates shall be provided to allow rapid and complete discharge of station occupant loads.	X		↓
3.3.6	<u>Vehicle Approach System</u> A visual and audible method shall be provided to alert patrons of the impending arrival of a train.	X		See DCC #84-7804 and Contract A650 Spec.
3.3.7	<u>Other Design Features for Station and Site</u>			
3.3.7.A	Patron flow patterns shall maintain a righthand circulation where possible and shall be as simple as practicable.	X		See Operations Plans and Contract A760 Contract Dwgs.
3.3.7.B	Maps shall be provided and located in the Emergency Management Panel (EMP) which show locations of shutoff controls for water, gas, electricity and fuel lines.	X		See Contract A640 spec. Sect 10.4 and A760 Contract.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL I, SECTION 3.3
STATION AND SITE, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.3.7.C	Guards and restraining rails, and similar items, shall be installed in specific areas where trains pose a clear danger to patrons, personnel or equipment.	X		See Arch. Std. Dwg. AS020 and Arch. Dwgs. A012 & A013.
3.3.7.D	Adequate lighting of stairs and escalators shall be provided.	X		See Contract A710 Spec. Section 14310-2.3 and Electrical Dwgs. E030 & E042.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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06/06/90

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DISCIPLINE: SYSTEM SAFETY - COMMUNICATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 3.4 COMMUNICATIONS, 07/86 REVISION 2 REVIEW LEVEL: 100%

Table with 5 columns: REQ. ID., REQUIREMENT, YES, NO, COMMENT. Contains rows for requirements 3.4, 3.4.1, 3.4.2.A, 3.4.2.B, and 3.4.2.C. Includes a vertical arrow in the COMMENT column pointing downwards.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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DISCIPLINE: SYSTEM SAFETY - COMMUNICATIONS

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 3.4
COMMUNICATIONS, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.4.3.A	<u>Telephone Service</u> Emergency telephone (ETEL) service shall be provided at each passenger station.	X		See System Wide Serv. Dwgs. Also see Contract A640. ↓
	Emergency phones shall be located at the Emergency Management Panel (EMP) and Command Post Locations, at the Emergency Trip Station (ETS), in the elevator, and at fire hose cabinets.	X		
	The ETEL for ETS locations shall be used for communication with RCC or Yard Tower.	X		
3.4.3.B	Patron assistance shall be provided by a hands-free intercom service between patron at the station and RCC.	X		See Elect. Dwgs E076 thru E080. Also see Contract A640 Sect. 5.8. ↓
	Intercom service shall be located adjacent to fare-vending equipment and at other locations as determined by SCRTD.	X		
	Intercom operating controls, positions, and locations shall be readily accessible and operable by elderly and handicapped persons.	X		
3.4.3.C	Public pay phones may be provided in both free and paid areas of each station.	X		See Dwgs A008 & E051. ↓
	Public phones shall be located so that they will not interfere with pedestrian flow.	X		



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REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 3.4
COMMUNICATIONS, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.4.4	<u>Radio Communications</u>			See Contract A640 Section 4. 
3.4.4.A	As a minimum, radio communication capabilities shall be provided for:			
3.4.4.A.1	Emergency train operations			
3.4.4.A.2	Police emergency			
3.4.4.A.3	Fire emergency.			
3.4.4.B	Emergency radio communications shall be on separate channels.			
	Emergency radio communications shall be provided to accommodate local Fire and Transit Police jurisdictions.			
3.4.4.C	An antenna system or other suitable arrangement shall be provided to permit use of handy-talkies of local fire departments and other emergency service providers.			
3.4.4.D	Multiple channel capability shall be provided for emergency transmission in case of transmitter failure.			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 3.7
POWER, 07/86 REVISION 2

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.7	POWER			
3.7.1	<u>Emergency Trip Station (ETS)</u>			
3.7.1.A	An ETS shall be located at each end and on each side of the platform, with appropriate signing.	X		See Elect. Dwgs. E076, E077, & E080. Also see Contract A680 for signage.
	The locations shall not be accessible to patrons under normal conditions.	X		↓
3.7.1.B	An ETS shall be located at each tunnel cross passage, tunnel portals, and special trackwork.	X		See Elect. Dwg. E076
3.7.1.C	ETS shall be located in the Yard, Yard Tower(s), and Yard buildings that require traction power.			N/A
3.7.1.D	ETS shall be easily opened.			See Contract A640 Spec. Sect. 10.9
3.7.1.E	ETS activation shall alarm at the RCC.			See Contract A640 Spec. Sect. 10.9 & 9.2.5.
	The section of contact rail deenergized shall be identified.			↓
3.7.1.F	Yard ETS activation shall alarm at the Yard Tower.			N/A



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CRITERIA AND STANDARDS - VOL 1, SECTION 3.7 REVIEW LEVEL: 100%
POWER, 07/86 REVISION 2

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.7.2	<u>Station Emergency Power Requirements</u> During power failures, emergency power shall be available at designated locations of each station and for all functions considered critical.	X		See one line diagram E004 & E006. Also see Contract A795 Exhibit 1 and Contract A640 Section 13.
3.7.2.A	Dual primary feeders shall be provided.	X		See one line diagram E004 & E006.
3.7.2.B.1	Emergency power shall be provided for the following functions: <ul style="list-style-type: none"> o Public Address o Fire Suppression Systems o Fire Detection Systems o Security Detection and Alarms o Emergency Lighting o Emergency Telephones o Automatic Train Control Equipment 			See Contract A795 Exhibit 1 and Contract A640, Section 13.
3.7.2.B.2	Emergency lighting shall be provided in the following locations: <ul style="list-style-type: none"> o Platform, other levels and entrances o Emergency exit routes o Ancillary rooms and spaces 	X		See Elect. Dwgs. E030 thru E042.



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CRITERIA AND STANDARDS - VOL. 1, SECTION 3.7 REVIEW LEVEL: 100%
POWER, 07/86 REVISION 2

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.7.2.B.3	Emergency power shall be provided in the following locations: o RCC o Train Control & Communication Rooms o Yard Tower			N/A
3.7.3	<u>Tunnel Emergency Power Requirements</u> The loss of a single substation or a tunnel feeder shall not interrupt the functioning of safety-critical systems, such as the ventilation system, ETS, telephones and lighting.			N/A to this Contract
3.7.3.A	Tunnel fans, lighting, ETS and telephones shall be fed from two separate power sources.			
3.7.4	<u>Contact Rail</u>			
3.7.4.A	The contact rail shall be located opposite the safety walk and the station platform.			See Contract A612
3.7.4.B	Patrons and employees shall be alerted to the hazards of the contact rail through signing.			See Contract A680



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CRITERIA AND STANDARDS - VOL 1, SECTION 3.7 REVIEW LEVEL: 100%
POWER, 07/86 REVISION 2

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.7.4.C	Coverboards shall be installed to reduce the possibility of patrons and employees inadvertently contacting the contact rail.			See Contract A615
3.7.5	<u>Traction Power</u>			
3.7.5.A	Electrical grounding and lightning protection shall be provided for all traction power subsystems and gap breaker stations.			See Contracts A630 & A631
3.7.5.B	The RCC shall have the capability of operating and controlling essential ac/dc switchgear functions. There shall be alarms and visual indication of status changes and abnormal conditions associated with traction power substations and gap breaker stations.			See Contracts A630 & A631
3.7.5.C	Remote control of the Yard traction power substation shall be provided at the Yard Tower.			↓
3.7.5.E	The cable connecting the contact rail to the pothead and specified energized hardware shall be covered with suitable insulating material. This material shall be installed so as not to present an electrical or tripping hazard to people on the trackway.			
3.7.5.F	Key locks shall be provided on all manual ac/dc breaker control cabinets.			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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06/06/90

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CRITERIA AND STANDARDS - VOL. 1, SECTION 3.7
POWER, 07/86 REVISION 2

REVIEW LEVEL: 100%

Table with 5 columns: REQ. I.D., REQUIREMENT, YES, NO, COMMENT. Rows include items 3.7.5.G through 3.7.5.M with detailed requirements and comments.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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CRITERIA AND STANDARDS - VOL. 1, SECTION 3.7 REVIEW LEVEL: 100%
POWER, 07/86 REVISION 2

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
3.7.5.N	Traction power zones shall be separated by nonbridgeable gaps.			See Contract A631
3.7.5.0	Traction power substations shall have ac receptacles isolated to prevent accidental grounding of the dc power when using test equipment.			See Contract A630 Spec. Sec. 3.11.A and Contract A631 Spec. Sect. 5.8.A.
3.7.6	<u>Other Design Features</u>			
3.7.6.A	all critical support facilities shall have subsystem status indicators on the RCC mimic board. An alarm shall sound when an equipment failure occurs.	X		See Contract A640 Sect. 12 & 13
3.7.6.B	The RCC shall have the capability to isolate contact rail sections under normal and abnormal conditions.			N/A
3.7.6.C	Equipment provided shall protect against battery overcharging.			N/A
3.7.6.D	"Stingers" used in locations such as the maintenance shop shall be of the fail-safe (deadman's switch) type.			N/A
3.7.6.E	Battery rooms shall contain a fixed eye and body wash unit meeting Cal/OSHA requirements.	X		See Arch. Dwgs. A005, A006, A007, & A008, Mech. Dwgs. M008, M009, M010, & M012



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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DISCIPLINE: SECURITY - STATION AND SITE

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

DESIGN CRITERIA AND STANDARDS, VOL. 1, SECTION 4 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
4.3.1.A	Station and site landscape plantings and design features shall be coordinated with traffic movements and lines of sight so as not to interfere or obstruct with electronic or visual surveillance or result in potential hiding places for vandals/intruders.	X		See Elect. Dwg. E042 and Contract A186 for site lighting & landscaping.
4.3.1.B	Station sites and parking lots shall be illuminated during hours of darkness and reduced visibility, in accordance with IES standards and APTA security guidelines.			See Arch. Dwg. A002 for information. Also see Contract A186
4.3.1.C.1	Parking lots shall be fenced and open-spaced to provide a high degree of visibility by an attendant when present.			↓
4.3.1.D	Traffic patterns and site layouts shall be structured to permit rapid and easy access to all portions of the site and station by security personnel, whether on foot or by vehicle.	X		See Contract A175 Structural Dwgs. S011 & S012. also see Arch. Dwg. A002
4.3.2.A.1	All levels of the station, including the platform and mezzanine, shall be as open as possible.	X		See Arch. Plans
4.3.2.A.2	Columns and other obstructions to visual and electronic surveillance shall be minimized.	X		↓
4.3.2.B.1	Illumination of station elements shall be guided by applicable IES standards and APTA design guidelines.	X		See Electrical Dwgs. E030 thru E042



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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DESIGN CRITERIA AND STANDARDS, VOL. 1, SECTION 4 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
4.3.2.B.2	Emergency power and lighting requirements shall be developed as part of the overall security and safety requirements (See Table I-4-1 of Criteria).	X		See Contract A795 and Elect. Lighting & Power Plans
4.3.2.C	Construction and finish materials shall be graffiti- and vandal-resistant, easily cleaned, and meet the appropriate Fire/Life Safety requirements for flammability, smoke emission, and toxicity.	X		See Arch. Finish Dwgs. & Schedules
4.3.2.D	CCTV cameras shall be used to cover selected sectors of the station and platform, and shall be monitored at Central Control.	X		See Contract A640 Sec. 7. also see Arch. Dwgs. A016 thru A018, A020 thru A022, A025, A026
4.3.2.E	Station entrances shall be well lighted and designed to have high visibility by patrons and the public.	X		See Arch. Dwg. A002 & A049 thru A053. also see Elect. Dwgs. E042
4.3.2.F	No concessions other than newspaper vending machines and a public telephone will be considered for installation in transit stations.	X		See Arch. Plans.
4.3.3.A	A single occupancy unisex restroom shall be provided. Restrooms shall be easily visible within the station mezzanine.	X		See Contract A175 Structural Dwg. S082. also see Dwgs. A017 & M012
4.3.3.B	Conduit for electronic access control of restrooms shall be provided.	X		See Electrical Dwg. E086



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFICABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: SECURITY - STATION AND SITE

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

DESIGN CRITERIA AND STANDARDS, VOL. 1, SECTION 4 REVIEW LEVEL: 100%

Table with 5 columns: REQ. ID., REQUIREMENT, YES, NO, COMMENT. Contains 4 rows of requirements related to station security and access, with 'X' marks in the YES column and a downward arrow in the COMMENT column.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFICABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

DATE: 06/06/90

GROUP: _____
R. HARVEY

DATE: _____

REVIEWER: _____

DISCIPLINE: SECURITY - LOCK AND KEYING SYSTEM

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A187

DESIGN CRITERIA AND STANDARDS, VOL. 1, SECTION 4.9

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
4.9.1	A multiple level master key system shall be provided to permit ease of use and convenience in changing key combinations when necessary. Critical access areas, which are defined as extremely hazardous, essential to the system safe operation, or which require restricted access due to the nature of the equipment or value of the product within these areas, shall be equipped with an electronic card access control system which can be monitored and controlled from a central point.	X		See Spec. Sect. 08710 2.14
4.9.2	The multiple level master key system to be developed for the SCRTD shall not be modified to accommodate the system unique keys such as the gamewell and elevator access keys.XSee A141 & A147 Contract Dwgs.			↓ See Contract A650
4.9.3	Entrance to the vehicle's operator cab by key shall be provided.XSee A650 Contract			





SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____


DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - RELIABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.2.1.B	Manufacturers of the following system equipment shall be required, by contract, to establish and maintain a Reliability Program and Plan: Program and Plan: 1. Vehicle 2. Train Control 3. Fare Collection. Their plans shall be prepared using the SCRTD System Assurance Program Plan as a guide for style, content, and format.			Reliability Program requirements are not applicable to this Facility Construction Contract 
5.2.2.C	Contractors for the following systems shall be required to prepare and submit a FMECA to identify all critical single point failure modes. The FMECA shall be conducted to the lowest replaceable module. 1. Vehicle 2. Train Control 3. Fare Collection.			
5.2.2.D	Contractor for the Vehicle, Train Control, and Fare Collection systems shall be required to prepare and submit a Reliability Analysis which shall include, as a minimum: 1. System definitions and related assumptions			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - RELIABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.2.2.E	<p>2. Functional flow and reliability block diagrams</p> <p>3. Description of data base and any adjustment factors</p> <p>4. System and subsystem failure assumptions and predicted MTBF, MTBSF, MCBF, as appropriate</p> <p>5. Comparison of reliability predictions with allocations in the Reliability Requirements Report (Criteria R4)</p> <p>6. Impact of operating or design changes on predicted values</p> <p>7. Definitions of all interfaces, such that every part is identified as being part of a particular subsystem.</p> <p>The contractors for Vehicle, Train Control, Fare Collection, and Vehicle Propulsion systems shall be required to develop Reliability Demonstration Test Plans. The Reliability Test Plan shall include:</p> <p>1. Criteria to be used by the SCRTD for evaluating the equipment under test</p> <p>2. The failure reporting procedures to be used by the Contractor</p> <p>3. The mathematical verification that the test shall demonstrate the required MTBF, MTBSF, MCBF, and failure rates as specified by contract.</p>			N/A



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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GROUP: _____

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - RELIABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 5.2 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.2.3.A	Contractors shall be legally bound to ensure that contractual reliability requirements are achieved.			N/A ↓
5.2.4	The contractor shall demonstrate the achievement or prove the failure of reliability requirements incorporated into contractor specifications and track system reliability during testing and revenue service.			
5.2.4.A	Contractors shall be required to use the format designed by the SCRTRD for reporting failures.			
5.2.5.A	The system elements, as described below, shall be suitable for a lifetime of use in the Southern California environment, with normal maintenance and overhaul, if required, for the number of years as outlined below: 1. Vehicle Body: 30 years 2. Train Control System: 25 years 3. Fare Collection System: 25 years 4. Tunnels: 100 years 5. Trackwork: 30 years.			
5.2.5.B	The system elements shall be capable of being operated, stored, and maintained at specific performance levels without impairment resulting from the impact of the following environmental parameters throughout the indicated range of values:			





SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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06/06/90

GROUP: _____


DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - MAINTAINABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 5.3 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.3.1.B	<p>Manufacturers of the following system equipment shall be required, by contract, to establish and maintain a Maintainability Program and Plan.</p> <ol style="list-style-type: none"> 1. Vehicle 2. Train Control 3. Communications 4. Fare Collection 5. Traction Power. <p>Their plans shall be prepared using the SCRTD System Assurance Plan as a guide for style, content, and format.</p>			N/A 
5.3.2.A	<p>A detailed Maintenance Concept shall be developed and submitted to the SCRTD by the contractors indicated in 5.3.1.B. The Maintenance Concept shall include a description of how the contractor intends to achieve the maintenance requirements identified in their contract. The Maintenance Concept shall cover the following, as a minimum:</p> <ol style="list-style-type: none"> 1. Maintenance Levels <ol style="list-style-type: none"> a. System repairs done on SCRTD property b. Module and component repairs done on SCRTD property c. Module and component repairs done at the contractor's facilities. 2. Maintenance Tasks <ol style="list-style-type: none"> a. Scheduled Maintenance 			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - MAINTAINABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 5.3 REVIEW LEVEL: 100%

Table with 5 columns: REQ. ID., REQUIREMENT, YES, NO, COMMENT. Row 1: 5.3.2.B, A Maintenance Analysis shall be developed and submitted to the SCRTD by the Vehicle, Train Control, and Fare Collection contractors. The Maintenance Analysis shall be submitted iteratively (every 90-180 days) as the design develops. YES, NO, COMMENT: N/A



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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DATE: _____

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REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 5.3 REVIEW LEVEL: 100%

REQ. ID.	REQUIREMENT	YES	NO	COMMENT
	<p>The analysis shall describe all the maintenance tasks SCRTD personnel may be required to perform on the system. The analysis shall include for each maintenance task, as a minimum:</p> <ol style="list-style-type: none"> 1. Frequency of task 2. Time to perform 3. Test equipment, tools, and facilities required 4. Crew size and skill level 5. Manuals and instructions needed. 			<p>N/A</p>
5.3.4.A	<p>All suppliers and contractors shall be required to submit maintenance manuals which contain all the information needed to service, maintain, repair, inspect, adjust, troubleshoot, replace, and overhaul each component or subsystem. Requirements for the maintenance manuals shall include, but not be limited to:</p> <ol style="list-style-type: none"> 1. Running Maintenance and Servicing Manuals 2. Heavy Repair Maintenance Manuals 3. Parts Catalogs 4. Test Equipment Maintenance Manuals. 	X		<p>See Spec. Sect. 15165-1.3.E, 15331-1.3.D, 15405-1.3.E, 15440-1.3.C, 15454-1.3.C, 15852-1.3.C, 15888-1.3.E, 16051-1.3.D, 16464-1.3.B, 16482-1.3.C, 16483-1.3.C.</p> <p>AS SPECIFIED</p> <p>NOT APPLICABLE</p> <p>AS SPECIFIED</p> <p>NOT APPLICABLE</p>
5.3.4.B	<p>The manuals shall be designed for continuous, long term service in a maintenance shop environment.</p>	X		<p>SPEC SECTION 01730</p>



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFICABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

GROUP: _____

DATE: 06/06/90

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REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 5.3 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	All manuals shall be in either pocket size (3-1/2" x 8" x less than 1" thick) or standard size (8-1/2" wide x 11" high).	X		SPEC. SECTION 01730
	All manuals shall be prepared in accordance with normal commercial standards, using MIL-M-38784 and MIL-M-15071 as guides for format and technical content, respectively.	X		AS MODIFIED BY 01730 PART 2.2.3
5.3.5.A	Contractors shall be required to provide a comprehensive training program for SCRTD maintenance personnel.			N/A
	Contractors shall provide the SCRTD with course materials, instructors, training aids, equipment, and all literature required.			↓
5.3.6.A	The contractor shall train all SCRTD maintenance personnel to a level of competence such that work performed by these personnel will not void any of the warranties or guarantees in effect.			
	The contractors shall incorporate qualitative features into all equipment whenever feasible. MIL-STD-1472C shall be used as a guide, along with the design features in the "Maintainability Checklist" provided in paragraph 15.3.6 of UMTA Report No. IT-06-0027-A "Guideline Specification for Urban Rail Cars", March 1973.			





SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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GROUP: _____

DATE: 06/06/90

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DISCIPLINE: SYSTEM ASSURANCE - QUALITY ASSURANCE

REVIEW REFERENCE: SCRTD METRO RAIL PROJECT SYSTEM CONTRACT No.: A187

DESIGN CRITERIA & STANDARDS - VOL. 1, SECTION 5.4 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.4.1.B	<p>QUALITY ASSURANCE PROGRAM PLAN - CONTRACTORS</p> <p>Manufacturers of the following system elements shall be required by Contract to establish and maintain a QA Program and Plan:</p> <ol style="list-style-type: none"> 1. Facilities 2. Vehicle 3. Train Control 4. Fare Collection 5. Communications 6. Escalators 7. Elevators 8. Auxiliary Vehicles <p>These plans shall be prepared using the SCRTD System Assurance Program Plan and the SCRTD QA Manual as a guide for style, content, and format.</p>	X		Unless otherwise noted QA requirements for Facilities Contracts are the responsibility of PDCD Construction Management Consultant. See RTD Letter date 10-22-84 DCC #84-11620, Ref. PDCD QA/QC Procedures Manual & Resident Engineer's Manual for details.
5.4.2	<p>WARRANTIES</p> <p>A. Warranty provisions shall be included in all contracts, both civil and system.</p> <p>The following additional time warranties shall be included in the vehicle contract:</p> <ol style="list-style-type: none"> 1. Carbody - 5 years 2. Truck-Structural Elements - 5 years 3. Traction Motors, except brushes - 5 years 	X		See General Conditions Article 19.
				N/A ↓



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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GROUP: _____

DATE: 06/06/90

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DISCIPLINE: SYSTEM ASSURANCE - QUALITY ASSURANCE

REVIEW REFERENCE: SCR TD METRO RAIL PROJECT SYSTEM CONTRACT No.: A187

DESIGN CRITERIA & STANDARDS - VOL 1, SECTION 5.4 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.4.3	<p>4. Gear reducers for propulsion subsystem - 5 years.</p> <p>QUALITY PROGRAM CONTENT</p> <p>A. <u>Receiving Inspection</u></p> <p>Contractors shall provide for the inspection of all incoming material. Statistical sampling is acceptable.</p> <p>All material certifications and test reports used as the basis for acceptance by the contractors shall be maintained as quality records.</p> <p>B. <u>Statistical Sampling Plans</u></p> <p>Statistical sampling used in inspection shall be fully documented and based on generally recognized statistical practices, such as MIL-STD-105 or MIL-STD-414.</p> <p>C. <u>Changes to Drawings and Specifications</u></p> <p>Contractors shall ensure that all inspection and acceptance test are based on the latest revision or changes to drawings and specifications.</p> <p>An acceptable configuration management and control system shall be established and maintained.</p>		X	<p>N/A</p> <p>PDCD Responsibility</p> <p>See Spec. Section 01300 and submittal Para. of various Spec. Sections. Maintenance of records is PDCD responsibility.</p> <p>N/A</p> <p>PDCD Responsibility</p> <p>PDCD & MRTC Responsibility</p>



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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MRTC SAFETY & ASSURANCE

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GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - QUALITY ASSURANCE

REVIEW REFERENCE: SCRTD METRO RAIL PROJECT SYSTEM CONTRACT No.: A187

DESIGN CRITERIA & STANDARDS - VOL. 1, SECTION 5.4 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	<p>The responsibility for control of changes shall extend to suppliers.</p> <p>D. <u>Identification of Inspection Status</u></p> <p>Contractors shall maintain a system for identifying the progressive inspection status of components or materials as to their acceptance, rejection or non-inspection.</p> <p>E. <u>Shipping Inspection</u></p> <p>Contractors shall provide for the proper inspection of products to ensure completion of manufacturing and conformance to contract requirements prior to shipment.</p> <p>F. <u>Quality Assurance Organization</u></p> <p>The organization of each contractor's QA Program shall be well defined.</p> <p>QA personnel shall have sufficient, well-defined responsibilities and organizational freedom which encourage the identification and evaluation of quality problems.</p>		X	<p>PDCD Responsibility</p> <p>See Spec. Sections 05130-1.3, B thru F 05500-1.3, B thru F 05512-1.3.D, 05513-1.3.C, 07500-1.3.C, 07624-1.3.C, 09910-1.3.C.1, 07920-1.C.1, 08100-1.3.E thru H, 08305-1.3.C, 08315-1.3.E, 08331-1.3.G, 08343-1.3.F, 08800-1.3.G, 09512, 1.3.F.</p> <p>PDCD Responsibility. See PDCD QA/QC Procedures Manual.</p>



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

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REVIEW REFERENCE: SCRTD METRO RAIL PROJECT SYSTEM

CONTRACT No.: A187

DESIGN CRITERIA & STANDARDS - VOL. 1, SECTION 5.4

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	Contractors shall have a QA Program that can verify compliance with contract requirements.			PDCD Responsibility



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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06/06/90

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CONTRACT No.: A187

DESIGN CRITERIA & STANDARDS - VOL. 1, SECTION 5.4

REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	<p>G. <u>Qualification of Personnel</u></p> <p>Contractor personnel performing inspections, test or special processes shall be qualified for such work based on prior experience and training.</p> <p>Records of personnel qualifications shall be maintained and available for review.</p> <p>H. <u>In-Process Inspection</u></p> <p>The contractor shall ensure that all machining, wiring, batching, shaping, and all basic production operations, together with all processing and fabricating, shall be accomplished under controlled conditions.</p>	X		<p>See Spec. Sect. 05120-1.2.G, 1.3.F, 1.5.B; 05500-1.3.0, 05512-1.3.E, 05513-1.3.D, 07500-1.2.A, 15010-1.2.B, 1.3.G&H; 15331-1.3.E, 15376-1.3.E; 15432-1.3.E.</p> <p>Maintenance of Records is PDCD Responsibility.</p> <p>PDCD Responsibility</p>



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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GROUP: _____

DATE: 06/06/90

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - QUALITY ASSURANCE

REVIEW REFERENCE: SCR TD METRO RAIL PROJECT SYSTEM CONTRACT No.: A187

DESIGN CRITERIA & STANDARDS - VOL. 1, SECTION 5.4 REVIEW LEVEL: 100%

Table with 4 columns: REQ. ID., REQUIREMENT, YES, NO, COMMENT. Row 1 contains requirements for handling, storage, and delivery of products, with a comment referring to Product Delivery, Handling and Storage, Para. of various Spec. Sect.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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MRTC SAFETY & ASSURANCE

DATE: 06/06/90

GROUP: _____

DATE: _____

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DISCIPLINE: SYSTEM ASSURANCE - QUALITY ASSURANCE

REVIEW REFERENCE: SCRTD METRO RAIL PROJECT SYSTEM CONTRACT No.: A187

DESIGN CRITERIA & STANDARDS - VOL. 1, SECTION 5.4 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	<p>J. <u>Corrective Action</u></p> <p>Contractors shall establish, maintain, and document procedures to ensure that conditions adverse to quality are promptly identified and corrected.</p> <p>K. <u>Nonconforming Material</u></p> <p>Contractors shall establish and maintain an effective system for controlling nonconforming material including procedures for identification, segregation, and disposition.</p> <p>A Material Review Board consisting of appropriate SCRTD, contractor, QA and design personal shall be established.</p>			<p>PDCD Responsibility</p> <p>PDCD Responsibility</p> <p>N/A</p>





SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFICABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 5.6 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.6.1.B.1	The following system equipment contractors shall be required to prepare and maintain a Configuration Management Program that complies with the basic requirements of MIL-STD-483-USAF: <ul style="list-style-type: none"> o Train Control o Communications o Fare Collection o Traction Power 			Configuration for Management Program Requirements are not applicable to this Civil Facilities Construction Contract.
5.6.1.B.2	The configuration management program shall include the elements of: <ul style="list-style-type: none"> o Configuration identification, including drawing identification and release o Change control o Configuration accountability. 			N/A
5.6.1.B.3	Equipment manufacturers shall not be required to modify, expand or replace their existing manufacturing, and change control and reporting systems if they can show, to the satisfaction of the SCRTD, that their existing systems will accomplish the configuration management objectives as defined in contractual documents. Drawing numbering shall be in accordance with the system being established by the GC for the Metro Rail Project.			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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DATE: 06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.6.1.B.4	Construction contractors, and systems equipment contractors other than those listed in paragraph B.1. above shall demonstrate to the SCRTD that at the time he receives Notice to Proceed he has in place adequate procedures for: oDrawing Release and Control oChange Control oDrawing Number and (if required) Part Numbering Identification oChange Status Reporting.			N/A
5.6.1.B.5	Drawing numbering shall be in accordance with the system being established by the GC for the Metro Rail Project.			N/A
5.6.3.A	The contractor's technical documentation shall be capable of defining the approved configuration of system equipment under development, test, production, or operational use. The technical documentation shall identify the configuration to the lowest level necessary to meet production and maintenance requirements. The contractor's release records and documentation shall be capable of determining: 1. The composition of any part number at any level in terms of subordinate part numbers			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFICABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: R. HARVEY

DATE:

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6 REVIEW LEVEL: 100%

Table with 5 columns: REQ. I.D., REQUIREMENT, YES, NO, COMMENT. Contains two rows of requirements (5.6.3.B and 5.6.3.C) and a large downward arrow in the COMMENT column.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFICABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

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REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	8. Publications			N/A ↓
	9. Training			
	10. Spare Parts.			
	Engineering changes shall be classified as Class I or Class II, as defined in MIL-STD-480A.			
	Class I changes shall be processed on a change request form provided by the General Consultant and shall be submitted to the SCRTD for approval prior to implementation.			
5.6.3.D	Contractors shall maintain records such that the configuration of any item being delivered shall be definable in terms of its component part numbers.			
	A serialization and configuration record shall be maintained for all items delivered by a contractor to the SCRTD.			
5.6.4	The following design reviews and audits shall be conducted jointly by the SCRTD and the contractors.			
5.6.4.A	A Preliminary Design Review shall be conducted prior to detail design to evaluate the progress and technical adequacy of the selected design approach.			
5.6.4.B	Every contractor shall prepare the requested material for submission to In-Progress, Pre-Final, and Final Design Reviews at design milestones determined by SCRTD.			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFICABLE ELEMENT: WILSHIRE/ALVARADO STAGE II
MRTC SAFETY & ASSURANCE

06/06/90

GROUP: _____

DATE: _____

REVIEWER: R. HARVEY

DISCIPLINE: SYSTEM ASSURANCE - CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN CONTRACT No.: A187

CRITERIA AND STANDARDS - VOL 1, SECTION 5.6 REVIEW LEVEL: 100%

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.6.4.C	For major systems equipment as defined in 5.6.1-B, the SCRTD shall conduct a physical configuration audit on the first production unit by formal examination against the production drawings and specifications in order to establish the production baseline.			N/A ↓
5.6.4.D	Functional configuration audits shall be conducted on system equipment subjected to qualification testing ater successful completion of qualification testing. An audit shall also be conducted at the completion of the passenger vehicle performance demonstration testing to verify formally that the vehicle has achieved the performance required by the contract specifications.			
5.6.4.E	As configuration baselines are established, the baseline documentation shall be identified and recorded. All approved changes to a baseline shall be recorded and maintained and periodically reported to the SCRTD.			
5.6.5	Drawings shall be of appropriate quality and size.			
5.6.5.A	Drawings shall be of a quality where every line, number, and symbol is clearly legible.			
5.6.5.B	Standard drawing size shall be 22" by 34" unless approved by the SCRTD.			



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

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CRITERIA AND STANDARDS - VOL 1, SECTION 5.6 REVIEW LEVEL: 100%

REQ. ID.	REQUIREMENT	YES	NO	COMMENT
5.6.5.C	Any microfilm provided shall be 35mm silver halide film and shall be processed to archival standards.			N/A

REVIEW/COMMENT SHEET

Cross Reference
See section 11
Correspondence:
Dec # 87-0532
Dec # 87-07619



REVIEWER H.E. Harty FILE NO. A187 DATE May 30 1987
B. Ishkhanian
 DEPARTMENT/SECTION SCS SUBMITTAL NO. 2 and/or DATE _____ SHEET 1 OF 2
 DESIGN REVIEW/
 SUBMITTAL TITLE Review ~~of~~ A187 (Adv. Submitted)

REF NO.	PAGE NO.	DRAWING NO./ DOCUMENT SECT.	COMMENT	RESPONSE/ACTION
1	62	GC 56. E	Delete 56. E CAL/POSTH accen is NOT indicated in safety manual	OK RHA 10-10-87
2	57	GC 76. B	Add sentence: "Contractor shall furnish all sub. that is a copy of the Certification of Work Agreement through which they will also be bound when accepting any Metro Rail Project work."	OK WHS 6/4/90
3	2	01545-2 2.2. A	DELETE ^{sentence} "permissible" as defined -- -- Dept. of Labor	2.2 Not used RHA 10-10-87
4	1	01300-1 2.1. A	ADD SENTENCES to this to section as REVISED IN CONTACT A167 which requires contractor to submit submittal list for each technical section and submittal data SEE Attached A167 page	OK RHA 10-10-87

A167
SECTION 01300
SUBMITTALS

PART 1 - GENERAL

- 1.1 DESCRIPTION - The Work specified in this Section summarizes the requirements for the submittal of documents to the District or its designee, which are defined in these Specifications. It also describes the procedures for "Supplemental" submittals.
- 1.2 MEASUREMENT - The Work of this Section will be measured as a unit, acceptably performed.
- 1.3 PAYMENT will be made under:
Item No. 01000.01 - General Requirements - per lump sum.

PART 2 - PRODUCTS


2.1 INITIAL SUBMITTALS

Good

- A. Identify the submittals which will be required and determine the date on which each submittal will be required in conformance with the schedules specified in Section 01310, Network Analysis System. Contractor shall furnish a master list for each contract specification section of all the individual submittals required by the specifications and drawings. The list shall include the submittal date. This date shall allow for a minimum 30 day approval cycle by the District. Work items shall not start until required submittals have been approved.
- B. Title Block - Show the following information:
 - 1. Date and revision dates.
 - 2. Contract title and number.
 - 3. The names of Contractor, subcontractors, suppliers, manufacturers, and, when applicable, the seal and signature of an Engineer, registered in the State of California, for the involved discipline.
 - 4. Identification of product by either description, model number, style number, serial number, or lot number.
 - 5. Subject identification by Contract Drawing or Specification reference.



METRO RAIL PROJECT REVIEW / COMMENT SHEET

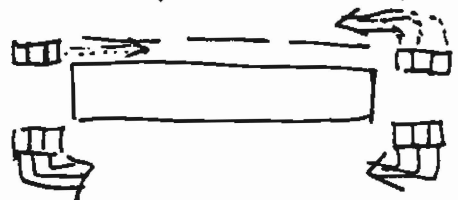
Cross Reference
see section III
Correspondance:
Dec 89-05329
Dec 89-07619 

Reviewer ARON/SCHIEHL File No. V400A187X013 Date JUNE 1989

Dept. / Section FIRE/LIFE SAFETY COMMITTEE Submittal No. FLSC 89-6-031 and/or Date STA 89-9 Sheet 1 of 3

Design Review / Submittal Title A-187 WILSHIRE/ALVARADO STATION - STA II FINAL REVIEW

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
1	32	A-002	PROXIMITY OF UPE TO FAI...	The distance between the UPE & the FAI exceeds 40' in accordance with SOC'S 2.2.1.3 sec A-099 <i>AKA 10-10-89</i>
2	34	A-004	EXIT DOOR FROM ROOMS 4, 5 6 & 7 BLOCKED BY DOOR FROM RESTROOM. RESWING RESTROOM DOOR INWARD...	<i>calc RNT 10-10-89</i>
3	40	A-010	WHY ARE E.T.S. LOCATIONS PLACED AT OUTER WALL AT COLUMN LINE 1 - BOTH TUNNELS...	see response to RJA comment NO. 8 dated 6-6-89 <i>AKA 10-10-89</i>
4	45	A-015	NOTE A: REFERS TO ROLLING GRILLE HAVING "KEY-OPERATED" LOCK. SHOULDN'T LOCK BE ELECTRICALLY OPERATED FROM CARD KEYED ACCESS PANEL?	Details A has been voided <i>calc RNT 10-10-89</i>
5	91	A-099	PROVIDE MANUFACTURER'S SPECIFICATIONS RE: 2" THICK ACOUSTICAL CELLULAR GLASS PANELS...	To be submitted per spec. sect. 09512-1.3.B <i>calc RNT 10-10-89</i>
6	144	M-010A	SECTION A - WHY TWO FIRE DEPT. CONNECTIONS	M-010A has been deleted see M.001 <i>calc RNT 10-10-89</i>
7	164	M-001	NOTE #1 - PUSHBUTTON STATION FOR TRACKWAY DELUGE SYSTEMS... NEED PUSHBUTTON CONTROLS AT ENDS OF PLATFORM IN EACH TRAINWAY E.T.S. EG: (TOTAL 4 SETS)	<i>calc RNT 10-10-89</i> See note NO. 1





METRO RAIL PROJECT REVIEW / COMMENT SHEET

Reviewer AARON/SCHIETTL File No. _____ Date JUNE 1989

Dept. / Section _____ Submittal No. FISC 89-6-031 and/or Date _____ Sheet 2 of 3

Design Review / Submittal Title A-107-STE.II-FINAL DESIGN

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
8	164	M-001	WEST WSP IS NOT SHOWN CONNECTED TO SUPPLY TO DELUGE SYSTEM...	ok RTA 10-10-89
9	165	M-025	NOTES: #2 REFER TO THIS NOTE. IT IS IMPORTANT THAT SPECIALTY CONTRACTOR UNDERSTANDS AND SUBMITS HIS PLANS & CALCS TO FISC FOR APPROVAL.	ok RTA 10-10-89 see contract Spec. 15331-1.3
10	168	M-004	SECTION A: SHOWS WALKWAY WITH NOTATION OF "MAX. 2'6"..." THAT SHOULD SAY: "MIN 2'6"..."	2'6" is the max. distance of the 4" WSP. Note walkway extends beyond this distance ok RTA 10-10-89
11	174	M-010	8" WSP TEE CONNECTION SHOWN IN CORRIDOR. MAKE CONNECTION IN VALVE ROOM #29 & PROVIDE APPROVED SHUTOFF FOR CONTINUATION OF WSP.	ok RTA 4-10-90
12	184	M-035	EXPLAIN EF 12E OUTLET FOR FAN... IT APPEARS TO GO INTO CORRIDOR WHICH VIOLATES F/LS CRITERIA	Exhaust Fan 12E has been eliminated ok RTA 10-10-89
13	189	M-040	REMOVE EXHAUST FAN FROM EMERGENCY EXIT. EXITS MAY NOT BE USED AS A SUPPLY OR RETURN AIR PLENUM...	ok RTA 10-10-89

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
REVIEW / COMMENT SHEET



Reviewer AARON SCHIETHL File No. _____ Date JUNE 1989

Dept. / Section _____ Submittal No. FSC 89-6-031 and/or Date _____ Sheet 3 of 3

Design Review / Submittal Title A-187 - STG II - FINAL DESIGN.

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
14	226	NS-001 A	NEED MFG. SPECIFICATIONS FOR NYLON TY-WRAP, P/O HANGER..	To be provided per contract specifications OK WAS 6-28-90
15	328	E-083	SHOW FTSL Δ IN VALVE ROOM.	OK R/W 4-10-90
16		GENERAL	SHOW FTSL Δ @ FIRE DEPT. CONNECTIONS	OK R/W 4-10-90
17		SPECS. 15331-3	2.2 PREACTION SPRINKLER SYSTEM. NFPA 13. 2-2.1.2.10 - FOR DRY-PIPE SYSTEMS, INCREASE THE AREA OF SPRINKLER OPERATION BY 30% WITHOUT REVISING DENSITY	Reference to 1500 sq. ft. has been deleted OK R/W 10-10-89





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DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
3	088	A005	A second means of egress from the east emergency exit house is required because travel distance is excessive. UBC 3302 (d).	Do not agree - Maximum travel distance of 150' does not appear to be exceeded (per Maximum program)	OK 10-10-89
4		A005	Door to emergency exit No. 9 and opening between Stair No. 10 and corridor 21.2 must provide 44" clear width to maintain exit width per UBC 3302 (b).	4'-0" door provided	OK 10-10-89
5		A005	A door is needed in the opening between Stair No. 10 and the entry to Elec. Rm. 14.1 to create a vestibule to meet the intent of UBC requirements. (Similar to vestibule 21.3).	Agree; will comply	OK 10-10-89
6		A04B	Skylight does not meet 79 UBC requirements. It appears to meet 85 UBC. FLSC needs to document requirement that	Need clarification on specific requirement that	Tempered laminated glass used per UBC OK 10-10-89

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REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
7	029	A009	The doors to West Aux. Power Room 34 need to be moved to within 20 feet of the doors to the West Fan Room 35 to delineate the dead-end corridor. UBC 3304 (c).	Will investigate ①	ok RJA 10-10-89
8	040	A010	BTS's should be relocated nearer to Stair No. 10 entry doors.	Will investigate ① BTS are within line of sight of Stair No. 10 door & are readily accessible	ok RJA 10-10-89
9	041	A011	A guardrail is required opposite doors to UPE Fan Room 51.	Existing See A-175	Done ok RJA 10-10-89
10	043	A013	Guardrails are needed opposite doors opening into trainway from Room 64 and 65.	Agree; will check A-175	ok RJA 10-10-89
11	061	A030	Section D - Show sup. bd. ceiling between Stair B and Emergency Exit B per A020	Will comply ①	ok RJA 10-10-89

①



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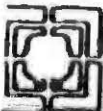
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SHEET 4 OF 14

DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 NILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
12		ZP-004	Replace old signage with center signage plate. (2)	N.I.C.; For information only	ok RJA 10-10-89
13		ZP-513	Enril. sign is needed on door to emergency exit. (1)	Will comply	ok RJA 10-10-89
14		ZP-515 ZP-517 ZP-519	Eliminate some designations on sign at emergency exit door. (2)	Sign is for Alarm activation warning only.	ok RJA 10-10-89
15		ZP-602	Section G - delete "3/4" thick FRP." Replace with "lorry line" (1)	Will comply; will issue revised dwg.	ok RJA 10-10-89
16		ZP-603	Sections/Details A, B, D, E - See Ref. No. 15. (1)	Will comply will issue revised dwg.	ok RJA 10-10-89

7



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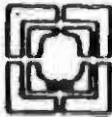
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SHEET 5 OF 14

DESIGN REVIEW COMMENTS

REVIEWER DR FIELDER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
17		S-015	Openings 50 through 55 are not on wall opening schedule on S024.		ok RJA 10-10-89
18		S-015	Coordinate locations of openings 52 through 55 with M-037.		ok RJA 10-10-89 SEE EMD NOTES NO. 6 ON DWG. S023 DWG. 6-5-90
19		S-024	Coordinate with Mech. & Elec. drawings.		ok RJA 10-10-89 SEE EMD NOTES ON DWG. S-015. DWG. 6-5-90
20		S-030	Openings 60 through 75 are not on wall opening schedule on S024.		ok RJA 10-10-89
21		S030	Opening from Stair Hall 10 into corridor must be at least 44" clear width.		ok RJA 10-10-89
22		M-008A	Coordinate with M-008	DWSB M-008A M-009 M-010 M-012 have been deleted RJA 10-10-89	① & ② Will coordinate - Will provide male sleeves in partial note for concrete walls and process CMU sleeve change to A175 if on Drawg. req'd. Will remove reference to sleeves in
		M-009A	" " M-009		
		M-010A	" " M-010		
		M-012A	" " M-012		

87



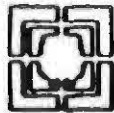
DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

Comment withdrawn per 10-10-89 D. Fiedler RJA

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
23		M001	City water supply and WSP line out of east valve pit should be 10" greater than 8". Continue 10" up to point where 6" SP (under water) branches off.	② Why? According to earlier answer by RJA to our inquiry, 8" is adequate.	Malcolm Ingram to investigate (NO ACTION REQ'D)
24		M001	Delete 6" SP, valve, check valve and bypass in east valve pit.	② Per FLSC this is the way to go	OK 10-10-89
25		M001	Delete 4" SP, etc. in west valve pit. (See Ref. No. 24)	↓	OK 10-10-89
26		M025	Review to agree with plans and M001	② Be specific	OK 10-10-89
27		M025	ASTS should be at end of system per NFPA 13.	① ASTS not indicated here	OK 10-10-89
28		M015	Details 1 & 2 - Fittings and type of joints should comply with specs. 15010 Class 5 required flanged or welded joints for pipe over 2".	③ Fittings, joints etc. not indicated. (If indicated in future spec. overrides above.)	No Action REQ'D

OK 10-10-89



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REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL & SUBMITTAL FOR AIBT WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
29		M016	Combine with M001	③ Be specific	OK RJA 10-10-89
30		M041	Revise to remove ducts from stair enclosure.	② Rated enclosure around duct is provided.	DONE OK RJA 10-10-89
31		M042	Revise to remove ducts from Stair 10, consider 21-2 or provide rated ceiling.	①	OK RJA 10-10-89
32		M044	Revise to remove ducts, etc. from stair enclosure.	② Rated enclosure/clg. will be provided.	DONE OK RJA 10-10-89
33		M046	① T E101 & T E102 will be hard to service in these locations since there is no access.	①	OK RJA 10-10-89
34		M046A M060 M061 M062	Removable steel partitions must provide 1 1/2 hr. fire resistance ratings. Provide method to do this and UL design - no.	② Disagree. Since we cannot provide fire dampers at fan penetrations, Bypass dampers, etc.	Comment withheld per D.Fiedler

OK RJA 10-10-89



DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

Discussed with
Fire Service Rep.
July 5, 1989
Current design
acceptable

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
35		M047 M046 (ref)	Detail 3 - does not comply with FRS Criteria 2.2.3.5.1	(2) A/C Unit rejects heat into space, its not an exhaust	Makolm to investigate alt RA 10-10-89
36		M047	Fire dampers are required in 20X16 duct at wall penetration.	(2) MD-3 is an auto. Fire Damper.	NO ACTION REQ'D alt RA 10-10-89
37		M049	Fire dampers are required in 24X24 ducts at wall penetrations. (Cal. 10) MD 11 & MD 20		alt RA 10-10-89
38		M049	Fire dampers are required at MD 11 and MD 12		alt RA 10-10-89
39		M050	Section A&C - see Ref. No. 38.	Same answer	alt RA 10-10-89
40		M050	Section C - see Ref. No. 37.		alt RA 10-10-89
41		M051	Fire dampers are required at MD 13, MD 18, MD 19, MD 16		alt RA 10-10-89
42		M051	Permit to remove ducts from stairs	(1)	alt RA 10-10-89

(15)



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SHEET 9 OF 14

DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
43		M051 M052 Sec D	a 2hr. enclosure and a fire damper are required in UPE duct. Re-route second door to transition section.	③	Comments withdrawn per M. Ingram
44		M052	Section A - Rated enclosure required at UPE duct floor penetrations. See Ref. No. 43.	② See answer to 1986 comment	↓
45		M054	Coordinate revisions with above comments.	②	↓
46		M056 M057 M058 M059	<p>Review to show:</p> <p>① Manual operation only for smoke Exhaust</p> <p>② Pathway Room supply & exhaust fans must shut off prior to before discharge</p> <p>③ Gas mitratable fans should have sh interlock for fire shut down</p> <p>④ Fans serving multiple areas must have smoke detectors for shut down per P&S</p>	① ① ① ①	<p>OK RJA 10-10-89</p> <p>OK RJA 10-10-89</p> <p>OK RJA 10-10-89</p> <p>OK RJA 10-10-89</p>

15



DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
47		E030	Exit lights are required at entrances to stairs 10 from trainway. Direction arrow should point into stair. Exit sign shown in stair enclosure.	WILL DO ①	ok RJA 10-10-89
48		E030	Emergency lighting is required in all "auxiliary" spaces, corridors & stairs.	WILL DO ①	ok RJA 10-10-89
49		E031 through E040	See Ref. No. 48.	WILL DO ①	ok RJA 10-10-89
50		E031 E032	In north trainway, coordinate location of Bus Stop with ETS location. Coordinate with E018.	WILL DO ①	ok RJA 10-10-89
51		E034	Provide exit signs at trainway stairs to platform. See E032.	NOT REQUIRED ② Response Unacceptable Provide exit signs	Signs indicated ok RJA 10-10-89
52		E035	More directional exit sign to opposite	NOT REQUIRED ② Add directional exit signs to opposite	Signs indicated ok RJA 10-10-89



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DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
53	2	E035	Have exit sign in emergency exit to a location above the exit doorway from corridor.	WILL DO ①	ok RJA 10-10-89
54		E036 E037	Coordinate exit signs with doors.	WILL DO ①	ok RJA 10-10-89
55		E040	Exit sign is required over door to emergency exit.	WILL DO ①	ok RJA
56	288	E044	UPE for is on gateway for pull FLS Criteria. Conduits should be routed accordingly.	UPE WAS RECLASSIFIED AS EMERG. NO EMBEDDED (AID. IN AITS. THE CONDUIT IS EXPOSED IN FAN RM NOT IN PUBLIC AREA.	ok RJA 10-10-89
57	289 290	E045 E046	Do the fire proofing of openings detail will needed to of well detail.	YES, IT IS NEEDED See Response, to Ref. No. 1 & 2 on Specs. Delete Details.	ok RJA 10-10-89
58		E047	Provide details for "plate ceiling"	SEE CONTRACT A-175 STRUCTURAL	ok RJA 10-10-89 WILL SPELL OUT PLATFORM



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SHEET 12 OF 14

DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
59		E048	Locate MCC 6E in the room 14-1.	LOCATION REVISED (2)	ok RJA 10-10-89
60		E050 E057 E058	Tray A100 must be enclosed	YES, IT WILL BE ENCLOSED (1)	ok RJA 10-10-89
61		E056	Tray A101 must be enclosed.	↓	ok RJA 10-10-89
62		E052	Show power for air compressor in valve room.	WILL SHOW (1)	See dws E056 ok RJA 10-10-89
63		E076	FTEL jacks are required at FHV locations	NOT REQUIRED (2) Response NOT Acceptable MUST be shown to provide info to interfacing AG40 contractor	ok RJA 4-10-90
64		E076	Conduit PA 218 should be embedded in trainway.	IT CANNOT BE EMBEDDED IN A187. (2)	ok RJA 10-10-89
65		E077	See Ref. Nos. 63 and 64.	See REF No. 63 (2)	ok RJA 4-10-90

OK



DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR A187 WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
66		E081	PA Conduit run through BRS should be embedded.	THERE IS NO PA CONDUIT IN BRS ② WAS DONE	ok RJA 10-89
67		E081	Additional fire/smoke detectors are needed in IES Room and IES battery room to comply with NFPA 72.	WILL ADD ①	ok RJA 10-10-89
68		E082	Fire/smoke detector is required in Aux. Power room to activate protection system. Also in associated battery room.	①	ok RJA 10-10-89
69		E081 E082 E083 E085	Smoke detectors are required in ducts for fans serving more than one area. Show locations. Coordinate with Mechanical.	①	ok RJA 10-10-89
70		E082	Show WSP valve supervisory switches and waterflow switches. Coordinate with Mechanical.	① See DWG. E-083	ok RJA 10-10-89

66



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DESIGN REVIEW COMMENTS

REVIEWER DR FIEDLER FILE NO. _____ ORGANIZATION RJA
FINAL % SUBMITTAL FOR AIBT WILSHIRE/ALVARADO STAGE II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
71		E003 E005	In valve room, provide sufficient conduits and JB's for VSS's, water flow switches, deluge and protection, submersed valves, PSL's, PSH's, etc. Coordinate with Mechanical.	WILL DO ①	ok 10-10-89
72		E003 through E012	Coordinate with Ref. Nos. 63 through 71	WILL DO ①	ok 10-10-89
73		E093	Handhole Cover Detail - Provide a cover which will meet 1 1/2 hr. fire resisting separation requirements of UBC.	WILL ADD NOTE THAT NOT Req. THE COVER SHOULD SHALL MEET 1 1/2 HR. ①	Hand hole is in UPE Plenum below platform Platform provides Req. separation see Detail ok 10-10-89
74		E094 E095	Please indicate how floor openings are to be filled after conduits are installed.	IN ARCHITECTURE ② Cite specific details days. Normally considered part of electrical	ok 10-10-89

88



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT
REVIEW / COMMENT SHEET

Cross Reference
See Section III
Correspondance

Dcc # 89-05329
Dcc # 89-07619



Reviewer DAN Bloomfield File No. _____ Date 9 JUN 1989
 Dept. / Section #8100/S&CS Submittal No. and/or Date 815-5/22/89 Sheet 2 of 2
 Design Review / Submittal Title A187, MOS-1 STAGE II Final Review - ADVANCE SUBMITAL

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
1		GENERAL	<p>DRAWINGS SHEET NUMBERS HAVE BEEN CHANGED IN SOME SHEETS. THE METHOD OF CHANGE IS OF POOR QUALITY, ESPECIALLY FOR A FINAL REVIEW. REVISE CHANGED SHEET NUMBERS TO ONLY SHOW ONE SHEET NO. IN THE SHEET NO. BLOCK.</p>	<p>ok RW 10-10-89</p>



Cross reference
See Section III
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DESIGN REVIEW COMMENTS

REVIEWER R. Harvey FILE NO. S352A187X082 ORGANIZATION MRTC Safety, Assurance & Security
XX % SUBMITTAL FOR A-187 Wilshire/Alvarado Design Drawings

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
1.	032	A-002	Please verify that adequate lighting has been provided.	② N/A, see E-042 Lighting/Site Plan is A185 work/info only	ok RM 10-10-89
2.	034	A-004	Please verify that intrusion devices are required for Trash Room, Custodial Room, and Elevator Equipment Room.	② None needed, j-box for future use.	ok RM 10-10-89
3.	035	A-005	Explain the need for two doors between Emergency Fan Room and Stair No. 10. Note this is not a public exit.	② Vestibule required per intent of UEC.	ok RM 10-10-89
4.	035	A-005	Explain need for Vestibule Rm. 21.3.	② Vestibule required per intent of UEC.	ok RM 10-10-89
5.	035	A-005	Double doors are required to prevent persons exiting from Corridor 21-1 from continuing up Corridor 21-2.	② Exit signs provided; clarify	
6.	035	A-005	Explain the need for double doors to Electrical Room 14-1.	② Per electrical	ok RM 10-10-89

1



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REVIEWER R. Harvey FILE NO. S352A187X082 ORGANIZATION MRTC Safety, Assurance & Security
XX % SUBMITTAL FOR A-187 Wilshire/Alvarado Design Drawings

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
7.	035	A-005	If Door No. 1, Room 21.2. remains (See	① Agree; will comply	Design Richard WHS-6-4-90
	046	A-102	Comment No. 4) 1-1/2 hr. rating is all that is required.		
8.	035	A-005	Rooms 15, 21.2 and 21.1 must have a 2 hr. ceiling if Ducts are to be run over Emergency Exits. (See UBC 3308)	① Agree; will comply	ok RM 10-10-89
9.	035	A-005	Door No. 10 to Traction Power Sub-Station is required to have a 3 hr. rating (SDCS 2.2.2.5.1).	① Agree; will comply	ok RM 10-10-89
10.	035	A-005	Doors No. 1 and 2 in incoming Electrical Service Room must have 3 in. rating. (See Note 10, A167 E414).	① Agree; will comply	ok RM 10-10-89
11.	036	A-006	Coordinate Door type (Door No. 2) at Col. 15.2.	① Will comply	ok RM 10-10-89
	037	A-007			

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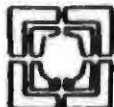
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DESIGN REVIEW COMMENTS

REVIEWER R. Harvey FILE NO. S352A187X082 ORGANIZATION MRTC Safety, Assurance & Security
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REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
12.	037	A-007	Door No. 2 at East sprinkler Room only	Will comply	ok 10-10-89
	046	A-102	requires a 1-1/2 hr. rating. (See SDC&S 2.2.2.4.1)		
13.	037	A-007	Please give justification for Door No. 9 not opening in the direction of travel.	occupancy is less with UBC 3303 (b)	ok 10-10-89
14.	037	A-007	Door No. 2 from Battery Room to TC&C Room	Done	ok 9
	046		requires only a 1-1/2 hr. rating (See SDC&S 2.2.2.5.3).		
15.	039	A-009	Door No. 2 into west sprinkler valve room	Will comply	ok 9
	046		only requires a 1-1/2 hr. fire rating (see SDC&S 2.2.2.4.1)		
16.	039	A-009	Door No. 1 into Emergency Stair No. 7 requires	Will comply	ok 9
	046		only 1-1/2 hr. fire rating (see SDC&S 2.2.2.4.1).		
A18	100	SIGN			

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XX % SUBMITTAL FOR A-187 Wilshire/Alvarado Design Drawings

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
18.	165	M-025	Relocate ASTS to the end of the most distant sprinkler pipe (See NFPA 13 3-9.1 including Appendix).	② ASTS Station will be removed (Specialty Contr. to provide by spec)	*NO ACTION REQ'D alt RA 10-10-89
19.	169	M-005	1-1/2 valve located in escalator pit requires valve tamper switch (See NFPA 72D 3-6.4.3).	② Valve is not accessible	Will remove valve per Malcolm Juff. alt RA 10-10-89
20.	170	M-006	See Comment No. 19	② Valve Removed	alt RA 10-10-89
21.	171	M-007	See Comment No. 19	② Valve Removed	alt RA 10-10-89
22.	171	M-007	6" and 8" control valves (Section A) require valve tamper switches.	①	alt RA 10-10-89
23.	142	M-008A	Penetrations into exits shall be limited to openings necessary to permit egress and those necessary to serve or protect the exit. Therefore sleeves for piping other than sprinkler piping serving the exit must be	① M-008A Deleted	alt RA 10-89 Hanging is above 2 hr. ceiling

12



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REVIEWER R. Harvey FILE NO. S352A187X082 ORGANIZATION MRTC Safety, Assurance & Security
XX % SUBMITTAL FOR A-187 Wilshire/Alvarado Design Drawings

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
			provided with a 2-hr. Enclosure (ceiling) (UBC 3308 (c)).		
24.	144	M-010A	If piping is to be located in the corridor between stair No. 8 and Emergency Exit No. 8 it will have to be protected with a 2-hr. ceiling. (UBC 3308 (c)).	② Has been provided. NO ACTION Refer to Arch. Drawgs. M.010A Deleted	PER'D djh/10-10-89
25.	172	M-008	If sprinkler piping for ancillary rooms off corridor 21.2 is to be run over the corridor will have to be protected by a 2-hr. ceiling. 1-1/4" DCW valve will therefore be inaccessible.	① Valve will be relocated Pre-action sprinkler lines should be identified as PSP, as has been done in other contracts. It avoids confusion/problems with interfacing A640 Contract	See E/W Plans & specifications, Study Copy, dated 6/15/90. Access door to be installed WHS 6/31/90
26.	173	M-009	Indicate that 2" sprinkler piping to auxiliary power room is part of the pre-action system. (see DCC 184-09212)	③ It is obvious from layout & details will do ④	DONE djh/10-10-89 Note: other Stations use PSP designation
27.	174	M-010	See Comment No. 23	①	WHS 10-10-89 ①



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SHEET 7 OF 12

DESIGN REVIEW COMMENTS

REVIEWER R. Harvey FILE NO. S352A187X082 ORGANIZATION MRTC Safety, Assurance & Security
XX % SUBMITTAL FOR A-187 Wilshire/Alvarado Design Drawings

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
28.	175	M-011	Delete fare arrays from drawing (or indicate that they can not be included in contract).	② Not necessary to delete - only background	NO ACTION REQ'D OK PMA 10-10-89
29.	176	M-012	Indicate that 2" piping to west auxiliary power room is pre-action system. (See DCC # 84-09212)	② See answer to comment 26. ① SEE M1 response to item NO. 26	DONE OK PMA 10-10-89
30.	176	M-012	Piping located in corridor between Stair No. 7 and Emergency Exit No. 7, must be separated by a 2-hr. enclosure (UBC 3308 (c)).	① See M-015	OK PMA 10-10-89
31.	176	M-013	Control valves associated with fire protection systems must have valve tamper switches (See NFPA 720 3.6.4.3).	AC case C/ ② None shown here is associated w/ fire prot. system	NO ACTION REQ'D OK PMA 10-10-89
32.	179	M-015	See Comment No. 31	① Will provide note	OK PMA 10-10-89 See Date 2
33.	181	M-017	See Comment No. 18	② See answer to comment 18.	NO ACTION REQ'D OK PMA 10-10-89

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XX % SUBMITTAL FOR A-187 Wilshire/Alvarado Design Drawings

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
34.	183	M-019	This drawing shows expansion joints and anchors located approximately 180 ft. apart between Col. 16 and 31. Other track level drawings show pipe supports and pipe rollers but no expansion points or pipe anchors. Assuming that the embedded pipe which serves the fire hose cabinets will serve as an adequate anchor, please explain why expansion points are not needed in these areas.	③ Crossover area → look at 11 Expansion Joints are indicated on added Detail col. 1-15	Check all Rev 10-10-89
35.	184	M-035 M-036	MS-001A provides symbols for gravity operated dampers this drawing uses slightly different symbols please be consistent.	④ Not essential. will not do due to limited time	NO ACTION REQ'D all Rev 10-10-89
36.	184	M-035	Remove transfer grilles from stair enclosures. (See UBC 3308(c)).	①	all Rev 10-10-89
37.	185	M-036	1600 CFM supply duct from SF 17W must have a 1-1/2 hr. fire damper at the point where it penetrates Emergency Exit No. 7.	② SF 17W has been deleted. Refer to plans for F.O.	NO ACTION REQ'D all Rev 10-10-89

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REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
38.	185	M-036	Please indicate fire rated enclosures where ducts are located above exits.	① Refer to plans Be Specific, cite Dwg. Nos. for appropriate Plans	NO ACTION REQ'D ok 10-10-89
39.	189	M-040	Remove exhauster from Emergency Exit No. 10. (See U.B.C. 3308(c)).	①	ok 10-10-89
40.	190	M-041	24 X 12 and 16 X 12 ducts located in Emergency stair must be protected by a 2-hr. rated enclosure (see U.B.C. 3308 (c)).	①	ok 10-10-89
41.	191	M-042	Ducts run above Corridor No. 21.2. must be located above a 2-hr. rated ceiling (U.B.C. 3308 (c)).	①	ok 10-10-89
42.	191A	M-042A	FD 3 and FD 48 are not required if duct is located above a 2-hr. ceiling.	② There is ch. at one side of wall, but not the other	Will remove per R.H. ok 10-10-89
43.	191	M-042	Ducts in area between Corridor 21.2 and Emergency Exit No. 9, must be located above a 2-hr. rated ceiling.	② It is Be Specific, cite Dwg. Nos. for appropriate Plans	NO ACTION REQ'D

11



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REVIEWER R. Harvey FILE NO. S352A187X082 ORGANIZATION MRTC Safety, Assurance & Security
XX % SUBMITTAL FOR A-187 Wilshire/Alvarado Design Drawings

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
44.	192	M-043	A 3-hr. fire damper is required in the 28X20 duct into the traction power sub station.	①	See M-047 FD 20 ok RM 10-10-89
45.	193	M-044	FD 56, FD 25, and FD 22, are not required if corresponding ducts are located above a 2-hr. ceiling.	①	ok RM 10-10-89
46.	197	M-047	Ancillary area ventilation systems may not exhaust into station public areas (SDC&S 2.2.3.5.1.). <i>Cannot locate Thru-wall A/C Unit on this dwg. Need to investigate</i>	② Thru the wall type A/C unit - not exh. only rejects heat.	ok RM 10-10-89 discussable per discussion with Fire representatives 9-5-89
47.	199	M-049	Provide specification reference for fire proof sleeve.	⑤ Not essential	NO ACTION REQ'D add 15142. <i>10-89</i>
48.	206	M-056	Smoke exhaust control is to be Manual only.	①	ok RM 10-10-89
49.	206	M-056	East U.P.S. Battery Rm., is Rm. No. 24.	①	ok RM 10-10-89
50.		General	Indicate the location of Ionization type duct dampers as required by NFPA 90A 4-3.	② No indication	NO ACTION REQ'D ok RM 10-10-89

17



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XX % SUBMITTAL FOR A-187 Wilshire/Alvarado Design Drawings

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
		Electrical	Symbols do not agree with E-001, E-002, E-003.	NEED CLARIFICATION OF COMMENT (PROVIDE SPECIFIC COMMENT)	OK 10/10/89
		Electrical	E-003 uses the symbol to indicate damper operators. Some distinction needs to be made to indicate those which are required by NFPA 90A 4.3 to be Duct type smoke detectors.	NOT NECESSARY. DAMPERS ARE PROVIDED BY MECH. AND THEY IDENTIFY & SPECIFY TYPES NEEDED.	OK 10/10/89
	327	E-082	Area smoke detectors are required in auxiliary power rooms in order to activate the pre-action sprinkler systems (See DCC #84-09212).	WILL PROVIDE	OK 10-10-89
51.	327	E-082	Traction power sub stations require area smoke detectors (See DCC #84-09212).	↓	OK 10-10-89
52.	330	E-085	Area smoke detectors are required in auxiliary power rooms in order to activate pre-action sprinkler systems. (See DCC #84-09212)	↓	OK 10-10-89

11



Cross Reference
See Section III
correspondance &
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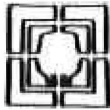
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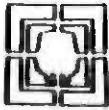
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DESIGN REVIEW COMMENTS

REVIEWER B. A. Smith FILE NO. _____ ORGANIZATION MRTC Safety, Assurance & Security
100 % SUBMITTAL FOR A-187 Wildshire/Alvarado Stage II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
1	333	ES-099B-Rev. 0 Sht. 334	Detail 40/ES-099 and 40/ES-099. ² <u>insects (2) 6/30</u> <u>inclin Bullen Head, stainless steel screws are</u> <u>required for attachment of bus & rail covers.</u> <u>Recommend temporary type of wire be used</u> <u>to clinch the connections.</u>	<u>DONOT AGREE</u> <u>OUR DIRECTIVE</u> <u>IS TO FOLLOW</u> <u>STANDARD</u>	<u>OK-WHS-9-26-89</u>
2	333	E-004-Rev. 1 Sht. 333	MCC-1E-C-5 is reflected as A 150AF/15AT panel ¹ <u>on E-004 Rev. 1 one line diagram.</u> <u>MCC 1E-C-5 is not reflected on MCC-1E layout</u> <u>drawing, E-008-Rev. 1, page 337</u>	<u>WILL CLARIFY</u>	<u>OK-WHS-9-26-89</u>
3	333	E-004-Rev. 1 Sht. 333	MCC 1E DS- HVC/Com. ... <u>from Supply Fan AHU-1,</u> ¹ <u>and 'E' added AHU-1E to designate 'out.'</u>	<u>WILL ADD</u>	<u>OK-WHS-9-26-89</u>
4	333	E-004-Rev. 1 Sht. 333	Essential Room, MCC-1E, unit F-4 is reflected ¹ <u>as primary auxiliary room exhaust fan EF-15E,</u> <u>rated at 1/2 HP.</u> <u>MCC-1E unit F-4, unit E-010, Rev. 1, Sht. 339,</u> <u>reflects exhaust fan EF-15E, rated at 1-HP.</u>	<u>WILL REVISE</u>	<u>OK-WHS-9-26-89</u>

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DESIGN REVIEW COMMENTS

REVIEWER Bill Smith FILE NO. _____ ORGANIZATION MRTC Safety Assurance Services
100 % SUBMITTAL FOR A-187 Wilshire/Alameda Stage II

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
5		E-004-Rev.1 Sht. 233	Essential Bus 2, MCC-2E, unit F-5 is reflected as feeding Chiller Room Exhaust Fan, EF-6E, rated at 1/2 HP. MCC-2E'S schedule, disp. E-010, Rev. 2, Sht. 239, reflects Exhaust fan EF-6E, rated at 1/2 HP.	① WILL REVISE	OK-WKS-9-26-89
6		E-059-Rev.1 Sht. 303	Review: provide bonding between cable tray sections (NEC G.T. 250, SECT. G, item 8-3)	② PROVIDED PER SPEC.	OK-WKS-9-26-89
7		Manual	Verify switches, electrical outlets, and lighting fixtures in areas where batteries are installed. Change all explosion proof per NEC require- ments, and FLS criteria 2.2.4.1.9	① WILL CLARIFY	OK-WKS-9-26-89
8.	230	E-001-Rev.1	Symbols and notes for explosion proof lighting, switches, accessory fittings and hardware have not been included in A187 plans.	①	OK-WKS-9-26-89
	231	E-002-Rev.1			
	232	E-003-Rev.1			

74



Cross Reference
See Section III
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DESIGN REVIEW COMMENTS

REVIEWER R. Harvey FILE NO S352S352X046 ORGANIZATION MRTC Safety, Assurance & Security
Final % SUBMITTAL FOR A167 Design Review - Specifications

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
1.	01300-1	2.1.A	Include master list requirement similar to A167 01300 2.1.A.	OK (Possible change to baseline)	Deny OK-WHS-6-29-90
2.	01310-2	3.1.A	Is 3-part NAS Submittal similar to A167 required?	OK.	OK-WHS-6-29-90
3.		General	No provision is made for storage and protection of materials similar to Section A167 01620.	OK ADD	Section added OK-WHS-6-29-90
4.	05500-3	1.3.D	Neither AWS D1.1 or AWS B2.1 use the term "welder certification." The document provided is titled "Performance Qualification Test Record", therefore it is suggested that the text read: "Welding Procedures and Performance Qualifications in Accordance with AWS D1.1 for Carbon Steel and AWS B2.1 for Stainless steel."	OK	Deny OK-WHS-6-29-90



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DESIGN REVIEW COMMENTS

REVIEWER R. Harvey FILE NO S152S352X046 ORGANIZATION MRTC Safety, Assurance & Security
% SUBMITTAL FOR Final A187 Design Review - Specifications

REF. NO	PAGE NO	DRAWING NO./ SPEC SECTION	COMMENTS	RESPONSE	ACTION
4		cont'd.	Also since AWS B2.1 addresses carbon steel and provides the same requirements, AWS D1.1 consideration might be given to referencing AWS B2.1 only	(Possible change to baseline) NO	NO CHANGES. BASELINE MAY COVER A CONDITION WHERE CARBON STEEL IS USED. AWS B2.1 WOULD BE REFERRED .
5.	07250-1	3.2	Suggest adding requirement to apply in accordance with manufacturer's recommendations.	(Possible change to baseline) OK	NO CHANGES. SEE DGRS 32A OK-WHS-6-29-90
6.	15010-2	1.2.A.1	Add ANSI B31.9 Building Services Piping.	(Possible change to baseline) OK	CHANGED PER ANSIB31.9 TO B31.1 IN PARA 1.2.A.4 1.2.B. OK WHS-6-29-90
7.	15010-3	1.2.A.3	Suggest limiting specifications to electrodes and welding materials which will actually be used.	(Possible change to baseline) NO	NO CHANGES. MAY BE NEEDED. OK WHS-6-29-90
8.	15010-4	1.2.A.3	Add AWS B2.1 Standard for Welding Procedure and Performance Qualifications.	(Possible change to baseline) OK	NO CHANGES. NEITHER AWS D1.1 NOR AWS B2.1 IS MENTIONED IN THE TEXT.

The applicable mechanical sections no longer reference B2.1 comment withdrawn 6-29-90

102



DESIGN REVIEW COMMENTS

REVIEWER R. Harvey FILE NO. S352S352X046 ORGANIZATION MRTC Safety, Assurance & Security
Final % SUBMITTAL FOR ALB7 Design Review - Specifications

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
9.	15010-5	1.2.B.1	Since various other sections of Division 15 require procedures and performance qualifications in accordance with other specifications either list all reference qualifications here or state that they shall be qualified in accordance with the appropriate specifications as indicated in Other sections of Division 15 which specify particular categories of mechanical work.	(Possible change to baseline) 3	SEE SPEC. REQ. FOR EACH SPEC. SECTION. WHS 6-5-90
10.	15010-5	1.3.4	See Comment No. 9.		See Spec. req. for each spec. section. WHS-6-29-90
11.	15010-2	2.1.U	Since Class T is not used, reference in Class U is not appropriate.	U remains Class-U-not used 1	OK OK-WHS-6-29-90
12.	15010-2	2.2	Suggest for consistency indicating a class of piping here and then providing a separate section for hydraulic piping.	(Possible change to baseline) 3 AS	NO CHANGES OK-WHS-6-29-90

6



METRO RAIL TRANSIT CONSULTANTS
DMJM/PBQD/KE/HWA

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JUN 15 1989

DATE 06/15/89
SHEET 4 OF 5

Facilities Design Management

DESIGN REVIEW COMMENTS

REVIEWER R. Harvey FILE NO S352S352Y046 ORGANIZATION MRTC Safety, Assurance & Security
% SUBMITTAL FOR A187 Design Review - Specifications
Final

REF. NO	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
13.	15010-22	3.3.F	Suggest "Use qualified welders and welding procedures per paragraph 1.2.B.1. See Comment No. 9.	(Possible change to baseline)	SEE SPEC. REQ. FOR EACH SPEC SECTION. OK - WHS-6-5-90
14.	15010-28	3.14	See Comment No. 11.	Not used	OK-WHS-6-29-90
15.	15331-1	1.2.B	Add AWS D10.9 Qualification of Welding Procedures and Welders for Piping and Tubing.	①	ADDED OK-WHS-6-29-90
16.	15331-1	1.3	NFPA 13 3-12.2.11 requires welding procedure and welders be qualified in accordance with AWS D10.9. Therefore qualifications should be submitted.	(Possible change to baseline) ①	ADDED SECTION 1.3.B OK-WHS-6-29-90
17.	15331-5	3.1.C	The correct section of ANSI B31.1 for Fabrication, Assembly and Erection is Chapter V.	(Possible change to baseline) ①	CORRECTED OK-WHS-6-29-90

18



DESIGN REVIEW COMMENTS

REVIEWER R. Harvey FILE NO. S352S352X046 ORGANIZATION MRTC Safety, Assurance & Security
% SUBMITTAL FOR A187 Design Review - Specifications
Final

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
18.	15376-1	1.2.B	Add ASME Boiler and Pressure Vessel Code, Section IX and AWS D10.9 (NFPA 14 7-5.2.1)	(Possible change to baseline)	B31.1 will get you to ASME Sec. IX ed. PCH 6-29-90
19.	15376-2	1.3	NFPA 14 requires welding procedures and welders be qualified in accordance with ASME Boiler and Pressure Vessel Code Section IX or AWS D10.9. Therefore qualifications should be submitted.	(Possible change to baseline)	OK-WHS-6-29-90
20.	15376-3	3.2.C	See Comment No. 17 (Note: NFPA 14 7-5.2 permits field welding only if approved by the authority having jurisdiction, therefore any appropriate specification may be referenced. Suggest ANSI B31.9 Building Services piping.)	(Possible change to baseline)	OK-WHS-6-29-90
A187 DESIGN REVIEW SPEC					





METRO RAIL PROJECT
REVIEW / COMMENT SHEET

Reviewer KEN KOUDER File No. _____ Date 6/19/1989

Dept. / Section S/ES Submittal No. and/or Date _____ Sheet 1 of 2

Design Review / Submittal Title A187, MOS-I STAGE II

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
1			<p>SECTION</p> <p>THE FOLLOWING PAGES ARE NOT IN THE A187 SPEC. COPY I RECEIVED, THEY MAY, OR MAY-NOT, BE REQ'D.</p> <p>01310 OK-WHS 01501 (01500-1) 01531 (01530-1) 01537 (N/A) 01577 OK-WHS 01620 OK WHS 02660 N/A WHS 02661 N/A WHS 02665 N/A WHS 02712 N/A WHS 02788 N/A WHS 02798 N/A WHS 02810 N/A WHS 03346 N/A WHS 03347 N/A WHS 06200 N/A WHS 07121 N/A WHS 07440 N/A WHS 07810 PGS NUMBERED 07820 AT BOTTOM OF PG. 08330 N/A WHS 08381 N/A WHS 09120 N/A WHS 09860 N/A WHS 10162 N/A WHS 10430 N/A WHS 15162 N/A WHS</p>	<p>15377 N/A-WHS 15436 N/A-WHS 15482 N/A-WHS 15484 N/A-WHS 15486 N/A-WHS 15671 N/A-WHS 16119 N/A-WHS</p> <p>Corrected in Conformed Specification-WHS-6-5-90</p>



METRO RAIL PROJECT
REVIEW / COMMENT SHEET

Reviewer Ken Kouser File No. _____ Date 6/19/90

Dept. / Section S/ES Submittal No. and/or Date _____ Sheet 2 of 2

Design Review / Submittal Title A187, MDS - (STAGE II)

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
2	0134	2-2 #3.1A	REVIEW SEPTANCE STRUCTURE, SEEMS LIKE WORDS ARE MISSING.	OK - WHS 6/5/90
3		GENERAL	A # SHOULD BE ADDED TO COVER QUALITY ASSURANCE PROGRAM PLAN SUBMITTAL BY THE CONTRACTOR.	See each Spec. Section for applicable QA requirements WHS-6-5-90
4		DRAWINGS	ON MANY SHEETS OF THE DRAWINGS, LETTERING OF NOTES IS TOO LIGHT & IS HARD TO READ, BOTH IN FIELD & IN REVISION BLOCK.	See final set of Confirmed Plans. WHS-6-5-90

8 of 10





METRO RAIL PROJECT
REVIEW / COMMENT SHEET

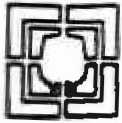
Reviewer L. Boyden File No. A 187 Date 6-22 1989

Dept. / Section SCSDist Submittal No. and/or Date _____ Sheet 1 of 1

Design Review / Submittal Title A 187, MOS.1. STAGE II

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
1	01530-1	para 1.2	QUALITY ASSURANCE (Replace with) Fencing shall comply with all applicable codes and regulations. In addition fencing shall be constructed and placed such that it will provide a strong, complete and secure barrier to encroachment both inadvertent and intentional and shall be acceptable to the district	para. is in accordance with baseline document for Stage II Contract. WHS-6-5-90
2		General	A GENERAL QUALITY ASSURANCE PROVISION IS NEEDED AND MUST BE ADDED TO PREVENT PROBLEMS WE HAVE ENCOUNTERED THIS FAR IN OTHER CONTRACTS. Use former Quality Assurance Sections previously used in the Facility contracts	Refer to DEC #84-11620 Dated 10-22-84 WHS-6-5-90

84-07804 84-07004



METRO RAIL TRANSIT CONSULTANTS
DMJM / PBQD / KE / HWA

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TRANSMITTAL

July 27, 1984

TO: W. Rhine
FROM: *Ret* T. Tanke *Tanke*
Wood SCRTD SAFETY & SYSTEM ASSURANCE
SUBJECT: Train Approaching Warning System
FILE NO: S400X028

A thorough review of existing literature (codes, guidelines and standards) indicates that there is no specific requirement for determining the manner in which visually impaired persons and/or hearing impaired persons are alerted that a train is approaching a station. It is therefore determined that the use of the transit vehicle horn and headlights fulfills the needs of audio and visual warnings of an approaching train, and further, they meet the intent of system safety criteria.

TT:RW:las

cc: M. Becher
A. Dale
C. Fisher
C. Melton
KR K. Rummel
DCC (2)
Chron
Subject
File



64-11620

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October 22, 1984

[Handwritten signature]

SEARCHED	INDEXED
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OCT 22 1984	
FBI - LOS ANGELES	

[Handwritten initials]

Mr. David ~~_____~~
Project Director
Metro Rail Transit Consultants
348 South Spring Street
Los Angeles, CA 90013

Subject: Specification Revisions, Quality Assurance/Quality Control

Dear Mr. ~~_____~~:

This letter will confirm verbal instructions given to your staff on October 18, 1984, to revise the general conditions and technical specifications by deleting specific requirements that construction contractor provide a formal quality assurance, quality control program and personnel.

Contract requirements such as contractor-required inspections, tests, materials, certifications, and sample submittals as indicated in the contract ~~_____~~ shall remain as is.

This work, consisting of developing a formal quality assurance, quality control program, is currently required to be performed by the District's Construction Manager.

These specification revisions will delete a duplication of work effort and costs and result in a substantial savings to the District.

If you have any questions, please call Robert Whalen at 972-6431.

Sincerely,

Digital Signd by
I. Z. Crawley

James E. Crawley, P.E.
Director of Engineering,
Transit Facilities

cc: R. Murray
J. ~~_____~~
R. O'Hall (PDCD) ✓

JEC:ELM:llglo



.





October 24, 1986
A-130 - A-170

RECEIVED
OCT 29 1986
D.C.C.

Mr. Howard J. Chaliff
Project Director
Metro Rail Transit Consultants
548 S. Spring Street
Los Angeles, CA 90013

Subject: Underground Hazardous Material Storage Tanks, MOS-1

Dear Mr. Chaliff:

The list and maps showing locations or suspected locations of underground hazardous material storage tanks sent to you on September 6, 1985, have been revised and updated. The revised list, dated October 8, 1986, is attached herewith for your information and use. The disposition status of a number of the tanks has been changed by the Fire/Life Safety Committee and additional locations/suspected locations have been identified. The additional locations are numbered from 52 through 60 on the attached list and the tanks whose disposition status has changed are as follows:

	<u>Site No.</u>	<u>From Category</u>	<u>To Category</u>
141	6	A	B
	7	F	E
	12	B	E
	16	F	D & C
	18	F	E
	23	C	E & C
	31	F	C
	44	E	E & B
	51	B	A

The revised list shows 19 sites which may have tanks and related piping in areas prohibited by Section 2.3.2.3 et. seg. of Metro Rail System Design Criteria and Standards (Categories A and B). The Los Angeles Fire Department will ensure compliance with the Project criteria on the 13 sites identified as Category B. The remaining six Category A sites should be handled as follows:

- o Site No. 4: Removal of tank, pump and appurtenances via C.C.U. A135 contract
- o Site No. 21 & 22: Removal of tanks via C.C.U. A145 contract

1/12


Howard Chaliff
Page 2

- o Site No. 29: Removal of tanks via C.C.U. A146 contract
- o Site Nos. 51 & 60: Removal of tanks via C.C.U. A175 contract

Please insure that these tank removals are included in the appropriate contract plans and specifications.

Of the nine Category "C" locations, where underground tanks are suspected but where sufficient evidence is not present to confirm this, only Site No. 20 in C.C.U. A145 and Site No. 54 in C.C.U. A165 are within cut and cover construction areas. In the event a tank is encountered during construction, payment for removal will be made under the "Differing Site Condition" section of the General Conditions of the Specifications.

Sincerely,



James E. Crawley, P.E.
Director of Engineering
Transit Facilities

Attachments

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

Attached is a list of locations of underground hazardous material storage tanks in the proximity of the underground portion of the Metro Rail alignment (MOS-1). Some of these locations were obtained by canvassing the alignment and making inquiries to building engineers, managers, superintendents, etc. Other locations were obtained by looking for tank filler sites (castings, etc.) in sidewalks and around buildings suspected of, at some time, utilizing fuel oil for their boilers. In these cases, the assumption is made that the tanks are directly under or very close to the fill points. And still other locations were determined from examination of Metro Rail Project utility plans.

On the attached R/W maps, the approximate locations of the tanks are plotted with identifying numbers corresponding to the numbers on the list. (The list has in parenthesis the number of the R/W map on which the tanks are plotted).

Preceding each number on the list is a letter corresponding to recommended dispositions of the tanks, as follows:

- A. Tank(s) affect the Metro Rail Project (per Section 2.3.2.3 et. seq. of Metro Rail System Design Criteria and Standards). Removal/replacement to be negotiated between property owner and RTD.
- B. Tank(s) affect the Metro Rail Project. Abandonment, removal or modifications to meet criteria to be handled by L.A.F.D.
- C. Unable to determine location or if tank exists. Contractor should be informed of the possible presence of tank.
- D. Tank(s) do not affect the Metro Rail Project, however, L.A.F.D. may require abandonment/removal.
- E. Tank(s) do not affect the Metro Rail Project (by virtue of location, type of installation or abandonment) and no further action required.

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

STATUS

- E 1. Parcel between Commercial Street and Santa Ana Freeway frontage road, west of A. T. & S. F. Ry. (Parcel Al-019). Apparent filler for gasoline tank located approximately 40' west of N. E. corner of building in Parcel Al-019, 2' south of N. edge building. (RW 010).
- B 2. Former Hertz Rent-A-Car site at N. W. corner of Vignes and Ramirez Streets (Parcel Al-025). Appears to be former pump island about 70' west of chain link fence along west side Vignes and 25' north of chain link fence along north side Ramirez. Possible fuel tank filler about 27' north of Ramirez chain link fence and 41' west of Vignes chain link fence. Within proposed Park-N-Ride Facility. (RW 011)
- A 4. Union Station (Parcel Al-027). Two gasoline tanks (one abandoned) and pump island (one pump). Tank filler located about 50' south and 45' east of N. E. corner of Mail and Express building. In triangular area bordered by loading dock and two ramps, about 50' north of southerly point of triangular area, in area level with bottom of ramps. (RW 012 and 013)
- E 5. 901 N. Alameda (N. W. corner Alameda and Macy) Chevron Station. Three 10,000 gallon gasoline tanks. Fillers about 32' north of N. curb Macy and 45', 56' and 67' west of W. curb Alameda. Per plot plan, these tanks more than 25' from Metro Rail structure. (RW 013)
- B 6. 701 N. Main (N. W. corner Main and Macy) ARCO Station (Parcel Al-101). Five gasoline tanks: Two 4,000 gal. (the two closest to Macy Street), one 6,000 gal., one 10,000 gal. and one 12,000 gal. Per plot plan, the two 4,000 gal. and the pump island are in zone requiring relocation. (RW 013)
- E 7. L. A. County steam and air conditioning plant at N. E. corner of Hill and Temple Streets. Four tanks in planter island about 150' north of N. curb Temple Street behind Hill Street sidewalk: one 50,000 gal., one 45,000 gal. and one 5,000 gal. PS 400 fuel oil, and one 5,000 gal. diesel. Also on the site are a 5,000 gal. sulfuric acid tank in a vault, 43' + north of N. curb Temple Street and 47' + east of E. curb Hill Street, and a 20 ton salt tank for brine (for water softening system) 230' + north of N. curb Temple and 40' + east of E. curb Hill Street. (RW 015)

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

- E 9. L. A. County Hall of Records building at S. E. corner Hill and Temple Streets. Two tanks: (1) 1,000 gal. diesel tank located 60' + east of E. curb Hill Street and 30' + south of S. curb Temple Street; (2) 5,000 gal. diesel tank about 15' west of W. curb Broadway near south side building (300' + south of Temple). (RW 016)
- E 10. County Mall. West side Hill Street between County Court House and Hall of Administration. 5,000 gal. diesel tank 50' + west of W. curb Hill Street in southerly pedestrian walk, 380' + north of N. curb First Street. (RW 016)
- E 12. State Office Building between First and Second Streets, Hill Street and Broadway. One 5,000 gal. diesel tank located about 10' west of W. edge sidewalk on Broadway about mid-block between First and Second Streets (345' + north of N. curb Second Street; filler about 1.5' west of W. curb Broadway). Also, three 10,000 gal. tanks (one diesel and two unleaded gasoline); all have fillers about 15' east of E. curb Hill Street at about 150', 166' and 182' north of N. curb Second Street. (RW 017)
- E 13. Hotel at 208 S. Hill Street. Apparent filler for fuel oil in narrow alley on east side of building, 88' + south of S. curb Second Street and 123' + east of E. curb Hill Street. (Boiler in hotel basement visible from alley, adjacent to filler.) (RW 017)

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

- B 14. 222 S. Hill Street, Webster Career College. L.A.F.D. lists one 3,000 gal. tank. Building representative not aware of any tanks on property. Possible filler 37' + north of S. edge building and 6' + east of E. curb Hill Street (210' + south of S. curb Second Street). A-141 Drawing No. U-034 shows two additional tanks: (1) 194' south of S. curb Second Street and 3' east of E. curb Hill Street. There is a small casting with brass cover, 6" diameter, about 10' south and 3' east of this location. (2) 237' south of S. curb Second Street and 2' east of E. curb Hill Street. No evidence of filler casting, however, sidewalk has been patched. (RW 017)
- E 15. 240 S. Hill, old Press Building, now entirely a parking structure. Filler for gasoline tank about 4' east of E. curb Hill Street and 215' + north of N. curb Third Street (E'ly). Per parking attendant, this tank was abandoned and filled with sand and concrete. (RW 018)
- D&C 16. F. P. Fay Building. Old seven story office building at S. E. corner Third and Hill Streets, not now in use (entrance chained and locked). Apparent filler for fuel oil located about 4' south of S. curb Third Street and 70' east of E. curb Hill Street (status "D"). (No record of tank in L.A.F.D. files). A-141 Drawing No. U-035 indicates a tank 16' south of S. curb Third Street and 3' east of E. curb Hill Street. There is a 12" square "United Casting Co." casting in sidewalk 5' east of E. curb at this location (status "C"). (RW 018)
- E 17. Angeles Center. CRA apartment development bounded by Hill Street, Olive, Second Street and Third Street. Three tanks: (1) Filler for diesel tank located 42' + west of W. curb Hill Street, 3' south of N. edge loading dock driveway (310' + north of N. curb Third Street; 300' + south of S. curb Second Street). Last filled summer of 1982. (2) Filler for diesel tank 70' + south of S. curb Second Street, 40' + east of E. curb Olive. (3) Filler for diesel tank 27' + east of E. curb Olive, 320' + north of center line Third Place. (RW 018)
- E 18. S. W. corner Fourth and Hill Streets. Possible filler about 2.5' south of S. curb Fourth Street, 33' + west of W. curb Hill Street (L.A.F.D. lists three 2,000 gal. abandoned, sand filled tanks at 401/405 S. Hill Street. Now a paved parking lot addressed as 409 S. Hill Street). (RW 019)

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

- C 20. Clark Hotel (Parcel A1-146). Concrete plug, flush with sidewalk, 5' south of N. edge building, 2' east of E. curb Hill Street, could be location of former fill for fuel oil tank, but unable to verify. A-146 Drawing No. U-036 indicates a tank 328' north of N. curb Fifth Street and 7' east of E. curb Hill Street. No evidence of filler casting, however, sidewalk has been patched. (RW 019)
- A 21. Pershing Square Building, 448 S. Hill Street at N.E. corner Fifth and Hill Streets. (Parcel A1-151). Filler about 2' east of E. curb Hill Street, 82'+ north of S. side building (N. line Fifth Street). Per Kim Clark, building manager, tank not now in use nor will it be in future. (RW 019)
- A 22. Thrifty Drug Store at N.W. corner Fifth and Hill Streets (Parcel A1-150). Tank (now abandoned?) apparently under Hill Street sidewalk 17'+ south of N. edge building (68+ north of N. line Fifth Street), 8'+ west of W. curb Hill Street (10' east of old sidewalk elevator door). (RW 019)
- E & C 23. Pershing Square Garage, bounded by Hill, Olive, Fifth and Sixth Streets (Parcel A1-144). Four gasoline tanks (all Status E), 10,000 gal. each: Two tanks about 120' and 160' west of W. line Hill Street at about 160' south of S. line Fifth Street (fillers for these on S. side Fifth Street, mid-block between Hill and Olive Streets); two tanks also about 120' and 160' west of W. line Hill Street at about 185' north of N. line Sixth Street (fillers for these on E. side Olive, 200'+ north of N. line Sixth Street). 1,000 gal. waste oil tank (Status E), 83'+ west of E. basement wall, 60'+ south of center line of N. spiral ramp (270'+ south of N. edge basement wall at S. line Fifth Street. Supervisor with 27 years experience at garage is not aware of the 3,200 gal. fuel oil tank (Status C) noted on the L.A.F.D. list. (Contractor should be made aware of its possible existence). (RW 020)
- E 24. International Jewelry Center at 550 S. Hill Street. 1,000 gal. diesel tank located at east side of building about 80' north of N. line Sixth Street. (RW 020)
- B 25. California Jewelry Mart at S.W. corner Sixth and Hill Streets (Parcel A1-161). Fuel oil tank located in alley 10'+ south of S. edge building and 115'+ west of E. edge building. Not now in use; has been drained and will be abandoned per building engineer. (RW 020)

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

- B 26. Park Central Building on south side Sixth Street at mid-block between Hill and Olive Streets (Parcel Al-162). Building now uses natural gas. Per building engineer, old tank probably in alley along south side of building about 30' east of W. edge building. (FW 020)
- B 27. Los Angeles Jewelry Center at 629 S. Hill Street. Boiler located in basement at about mid-building along west wall now uses natural gas. Possible filler for fuel tank about 15' south of N. edge building, 1' west of W. wall (in Mercury Ct.). (FW 020)
- E 28. Los Angeles Athletic Club at N.E. corner Seventh and Olive Streets. Old fuel oil tank in Mercury Ct. has been abandoned and filled with sand. (FW 020)
- A 29. 640 S. Olive Street (Parcel Al-163). Two gasoline tanks, 3,000 gal. each. Fillers 8' east of E. curb Olive Street about 33' and 40' south of N. edge building (102'+ and 109'+ north of S. edge building). (FW 020)
- B 30. 643/645 S. Olive Street (Parcel Al-167). Building representative not aware of tank on site; boilers have been removed. Possible former filler for fuel oil about 15' north of S. side building, 1.5' west of W. curb Olive Street. (FW 021)
- C 31. Building on N.W. corner Seventh and Olive Streets (Parcel Al-168). Old fuel oil tank probably exists somewhere on the site per the building engineer but the location unknown to him. No evidence of fillers in sidewalk areas. FW 021)
- B 32. Second building easterly of Grand Avenue on N. side Seventh Street (Parcel Al-171). Building engineer not aware of tanks on site, but possible filler for fuel oil located 2' north of N. curb Seventh Street, 26'+ west of E. edge building. (FW 021)
- D 33. Building on N.E. corner Seventh Street and Grand Avenue (Parcel Al-172). Two fuel oil fillers located in sidewalk, 1' and 8' east of E. curb Grand Avenue, both 26'+ south of N. edge building (82'+ north of N. line Seventh Street). (FW 021)

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

- B 35. Kyowa Bank at 635 W. Seventh Street (N.E. corner Seventh and Hope Streets). Building representative believes a fuel oil tank (no longer in service) exists on this site but does not know location. Possible filler in sidewalk, 5.5' north of N. curb Seventh Street, 170' west of W. curb Grand Avenue (22' west of E. edge building). Boiler room located near N.E. corner of building. A-146 Drawing No. U-039 shows a tank 143' west of W. curb Grand Avenue and 7' north of N. curb Seventh Street. It is believed that this is the same tank. (RW 021)
- E 37. Roosevelt Building at 727 W. Seventh Street (N.E. corner of Seventh and Flower Streets). (Parcel A1-175) Two tanks, both 60'+ deep, both located under sidewalk on E. side Flower Street, 60'+ north of N. line Seventh Street. One unused and filled with sand; the other, 1,200 gal. fuel oil, still in use. (RW 022)
- D 38. Fine Arts Building at 811 W. Seventh Street. Fuel oil tank, currently unused, on west side building (next to Lebanon Street) 120' north of N. line Seventh Street. Tank 21' deep and empty. Possible filler 4.5' south of N. edge building, 3' west of W. edge building in sidewalk E. side Lebanon Street. (RW 022)
- D 39. Barker Brothers' Building at 818 W. Seventh Street (Parcel A1-178). Fuel tank about 10' east of E. line Figueroa Street, 30'+ south of S. line Seventh Street. Possible filler 1.5' east of E. curb Figueroa Street, 65'+ south of S. curb Seventh Street. (RW 022)
- E 40. City Corp Building at 725 S. Figueroa. Three new fuel tanks have been installed adjacent to Seventh Street right-of-way. Fillers about 75' south of N. curb Seventh and 220' west of W. curb Figueroa Street (N'ly of Seventh). (RW 022)
- E 41. Thomas Cadillac, used cars, at 1041/1049 W. Seventh Street (N. side Seventh Street between Bixel and Harbor Freeway). One gasoline tank. Filler located about 80' north of N. curb Seventh Street and 145' east of E. curb Bixel Street. (No surface evidence found for other tanks noted on L.A.F.D. list). (RW 023)

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

- E 42. Thomas Cadillac, new cars, at 1076 W. Seventh Street (south side Seventh Street between Bixel Street and Harbor Freeway). Fillers for tanks located 13'+ east of E. line main building (120+ east of E. curb Bixel Street) at about 125' and 145' south of S. curb Seventh Street. Another tank, partly visible, under ramp about 130' east of E. curb Bixel Street and 210' south of S. curb Seventh Street. (RW 023)
- D 43. 728 S. Valencia Avenue at S.E. corner of first alley south of Seventh Street and Valencia Avenue. Unused 8,000 gal. gasoline tank in driveway adjacent to alley. (RW 025)
- E&B 44. 1533 W. Seventh Street, on N. side Seventh Street about 205' east of E. curb Union Avenue. 1,000 gal. waste oil tank at N.W. corner of building, about 100 feet north of N. line Seventh (Status "E"). A-171 Drawing No. U-009 shows a gasoline tank located 6' north of N. curb Seventh Street and 220' east of E. curb Union Avenue. Apparent filler casting in sidewalk opposite doorway to Beeline Auto Body and Paint. Proprietor for 11 years says tank has never been used (Status "B"). (RW 026)
- E 45. 1551 W. Seventh Street. Shell service station at N.E. corner Union Avenue and Seventh Street. Four fillers located about 20', 30', 40' and 50' east of E. line Union Avenue and all 35'+ north of N. line Seventh Street. Per plot plan, these tanks are more than 25' from Metro Rail structure. (RW 026)
- E 46. 1546 W. Seventh Street. Texaco service station at S.E. corner Union Avenue and Seventh Street. Fillers for gasoline tanks near S.W. corner of property about 90' south of S. line Seventh Street. Per plot plan, these tanks are more than 25' from Metro Rail structure. (RW 026)
- E 47. - 1620/1622 W. Seventh Street, S.E. corner of Beacon Avenue and Seventh Street. Fuel tank, now abandoned and filled with concrete slurry, located at rear of building. (RW 026)
- E 48. 1705 W. Seventh Street, second parcel east of Little Street on N. side Seventh Street (Parcel A1-201). 285 gal. waste oil tank, 8'+ east of W. property line, 40'+ south of N. property line. (RW 027)

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

- E 49. 1819 W. Seventh Street. L.A.F.D. Station at N.W. corner of Seventh Street and alley between Burlington Avenue and Bonnie Brae Avenue. (Parcel Al-207) 1,000 gal. diesel tank under sidewalk on N. side Seventh Street. Filler located 8' west of E. property line. (RW 027)
- E 50. 668 Bonnie Brae Avenue. Parcel on E. side Bonnie Brae Avenue about 330' north of N. curb Seventh Street. Per L.A.F.D. personnel, a 10,000 gal. fuel tank exists on this site. (RW 027)
- A 51. 661 Bonnie Brae Avenue. On W. side Bonnie Brae Avenue between Seventh Street and Wilshire Boulevard (Parcel Al-209). Appears that two fuel tanks exist in alley along west side of parcel. Apparent filler for one located 5' west of parking structure at about 60' north of its S.W. corner. Concrete patches in alley and building slab (for piping to gas pump) indicate another tank located in alley 112'+ north of S.W. corner parking structure. (RW 028)
- E 52. Hilton Hotel at N.W. corner 7th Street and Figueroa. Two 10,000 gal. fuel oil tanks in vault under sidewalk about 34' deep. Fillers located about one foot north of N. curb Seventh Street, 320' west of W. curb Figueroa and 120' east of E. curb Francisco Street (produced S'ly). Per building engineer, these are currently in use for heating fuel (when nat. gas not available) and for emergency generators. (RW 022 and 023)
- C 53. 235 S. Hill Street. A-141 Drawing No. U-034 shows a tank 134' south of S. curb Second Street and 6' east of W. curb Hill Street. This is in the most westerly travel lane of Hill Street which has relatively new P.C.C. paving. There are no filler eastings in this area. (RW 017)
- C 54. 654 S. Figueroa Street (Home Savings). A-165 Drawing No. U-019 shows a tank 73' north of N. curb Seventh Street and 7' east of E. curb Figueroa Street. No evidence of tank. Construction activity has begun on this parcel, which also is the District's Parcel Al-176. (RW 022)
- C 55. 1124 W. Seventh Street. A-171 Drawing No. U-005 shows a tank 7' south of S. curb Seventh Street and 170' west of W. curb Bixel Street. No evidence of filler casting. Near area of fairly new sidewalk in front of Thomas Cadillac parking lot. (RW 024)

UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS - MOS-1

- C 56. 1221 W. Seventh Street. A-171 Drawing No. U-006 shows an abandoned tank 6' north of N. curb Seventh Street and 230' west of W. curb Lucas Avenue. No evidence of filler casting. The site is a parking lot. (RW 024)
- E 57. 1320 W. Seventh St. (Elf Liquor Store). A-171 Drawing No. U-008 shows three tanks on this site, all filled with sand: (1) 15' south of S. curb Seventh St. and 6' east of E. curb Columbia Ave. No. evidence of filler casting, however, sidewalk has been patched. (2) 7' south of S. curb Seventh St. and 13' east of E. curb Columbia Ave. There is an apparent filler casting in the sidewalk near this location. (3) 7' south of S. curb Seventh St. and 22' east of E. curb Columbia Ave. No casting present, but sidewalk has been patched. Proprietor has no knowledge of the tanks. (RW 025)
- C 58. 1512 W. Seventh St. A-171 Drawing No. U-008 shows a tank 6' south of S. curb Seventh St. and 180' west of W. curb Valencia St. No tank filler casting in sidewalk. (RW 026)
- B 59. 1534 W. Seventh St. A-171 Drawing No. U-009 shows a tank 5' south of S. curb Seventh St. and 200' east of E. curb Union Ave. "Pacific Oil Pump and Tank Co." casting in sidewalk in front of Anthony Enterprises. An employee said tank not used for at least 10 years. (RW 026)
- A 60. 676 S. Alvarado Street. A-175 Drawing No. U-027 shows a gasoline tank 6' east of E. curb Alvarado Street and 238' north of N. curb Seventh Street. Two possible filler castings, about 13' apart, in front of Rumpus Room bar and Scott's Clothes. Per the clothing store proprietor, the covers have never been removed in the 15 years he has been there. This is District Parcel Al-221. (RW 028)

Revised October 8, 1986.

Attachment

FW:pas-Dsk/V#13

12/12



M. Ingram

87-04568

M E M O R A N D U M

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
TRANSIT SYSTEMS DEVELOPMENT DEPARTMENT
SYSTEMS AND CONSTRUCTION SAFETY

DATE: December 29, 1987
TO: J. Crawley
FROM: H. E. Storey *HES*
SUBJECT: Combined Standpipe/Sprinkler Systems -
Metro Rail Underground Stations

RECEIVED

JAN 05 1988

D.C.C.

Attached for your further action is a request from the Systems and Construction Safety Department and the Fire/Life Safety Committee, dated December 24, 1987, concerning the combining and simplifying of the standpipe and sprinkler systems at Metro Rail underground stations.

If you have any additional questions, please contact me as soon as possible.

Attachment

- cc: W. Rhine
- L. Boyden
- K. Murthy
- N. Brown
- F/LSC





FIRE/LIFE SAFETY
COMMITTEE

FLSC 87-12-050
STA. 87-6

December 24, 1987

Mr. Harold Storey
Director, Systems & Construction Safety
Southern California Rapid Transit
District
425 South Main Street
Los Angeles, CA 90013

Dear Mr. Storey:

Combined Standpipe/Sprinkler Systems-Metro
Rail Underground Stations

During a number of prior Fire/Life Safety Committee (FLSC) discussions concerning the Fire Protection System for the 7th/Flower Station, it came to this Committee's attention that the Fire Standpipe Systems between the MRT & LRT portions were interconnected, but that the Fire Sprinkler Systems were not and no feasible means were available to incorporate an interconnection.

Since original design required separate Standpipe and Sprinkler inlet connections at each end of both MRT & LRT station structures, this would cause Fire Department response procedures to require four separate connections to the 7th/Flower Station's fire protection system. Since this operation would be time consuming, not to mention the need for additional response companies, the FLSC proposed a change to this station for incorporation of a combined standpipe/sprinkler system.

The incorporation of a combined standpipe/sprinkler system in the 7th/Flower Station has caused the following changes to be enacted:

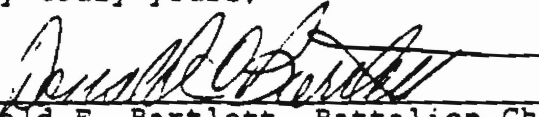
1. Fire Department response locations will be reduced from four to two. (MRT Hope & Figueroa St. entrances)
2. Existing 7th/Flower Station Fire Department inlet connections will only require one-4way connection @ each location. (The 2way sprinkler connections are no longer required)
3. The two-4way and 2-2way inlet connections for the LRT portion of this station are no longer required.

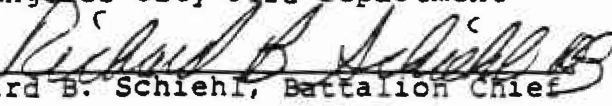
Mr. Harold Storey
December 24, 1987
Page 2

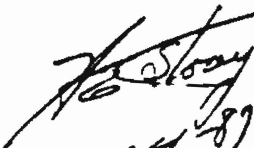
As a result of the 7th/Flower Station fire protection discussions, it became known that none of the other Metro Rail underground stations had interconnection of the sprinkler systems. As a result, the FLSC hereby recommends that all other Metro Rail underground station Fire Protections Systems be amended to incorporate a combined standpipe/sprinkler system, thereby incorporating a further reduction in the heretofore required 2-2way sprinkler inlet connections at each station.

Should you have any questions regarding this matter, please contact the FLSC at 972-3457.

Very truly yours,


Donald E. Bartlett, Battalion Chief
Los Angeles City Fire Department


Richard B. Schiehl, Battalion Chief
Los Angeles County Fire Department


12-24-87



88-01182



METRO RAIL TRANSIT CONSULTANTS
DMJM/PBQD/KE/HWA

MEMORANDUM

March 22, 1988

TO: K. N. Murthy
FROM: M. Ingram *M. Ingram*
SUBJECT: Combined Wet Standpipe/Sprinkler Systems

FILE NO: S440X033
X028

At the July 29, 1987 F/LSC meeting, the fire service representatives were made aware that directive drawing MD-030 did not indicate an interconnection of the auto sprinkler system risers at opposite ends of Metro Rail stations. This same directive drawing does however require interconnection of the wet standpipe system risers. In late December 1987, the F/LSC requested a revision to the design of station fire suppression systems to result in a combined system in order to facilitate fire department response procedures. Please see attached correspondence.

Similar revisions have already been made to the 7th/Flower station design based on previous direction from the District. The changes requested by the F/LSC have been endorsed by the District's Systems & Construction Safety Department and an action item was assigned to me to take the necessary action to effect the changes. The contracts affected are A136, A147, A157, and A187. Per our previous discussion a change request is not required as these Stage II contracts have not yet been baselined; however, discussion with mechanical design personnel indicate there may be minor impact on some Stage I contracts at the street level valve pits.

Please instruct Facilities Division personnel to take the necessary actions to make the requested revisions. Design personnel should contact me should they have any questions or need for clarification.

*See M-001
RAA
4-10-90*

K. N. Murthy
March 22, 1988
Page 2

Additionally, during the next update of standard and directive drawings, MD-030 should be revised to reflect a combined system.

MI:djr

Attachment

cc: MRTC

SCRID

E. Bencze
J. N. Brown
G. Cofer
H. J. Chaliff
A. M. Dale
K. Sain
DCC (2)
Chron
Subject

B. Aaron
J. Crawley
D. Schiehl
H. Storey



.



MEMORANDUM

TO: M. Ingram
B. Hanlon
D. Diwan

FROM: E. Bencze *E.B.*

DATE: February 1, 1988

SUBJECT: Coordination of Supervisory Control Functions between Stage II Station Contracts and Contract A-640

REF: Comments No. 24 and 25 - 100% Submittal of Contract A-167 by Rolf Jensen & Associates (copy attached)

FILE NO: T420A640

Based on our recent meeting on the subject of smoke detectors associated with HVAC systems or equipment, and combination fire/smoke dampers, a summary of the discussion and the resulting revisions to Contract A-167 are listed below:

- SF 8 RCU UNIT*
SF 10 (REVISED)
SF - MC SDC
- (1) As required by NFPA 90A and in compliance with Comment No. 24 above, a duct type smoke detector shall be installed in each supply system with a fan capacity of over 2000 CFM, downstream of the filter. Supply units AHU-41, 42, 43 and 44, ACU-1, SF-7, 8, 9, & 10 and SSF-41 and 42 will be equipped with duct type smoke detectors in Contract A-167.
 - (2) All smoke detectors shown on mechanical drawings shall be furnished, installed and wired under Contract A-640. Access panel on HVAC ducts to facilitate installation and service of duct type smoke detectors, and exposed or embedded conduits for wiring between smoke detectors and the CIC will be provided in Stage II Contracts, or in this case in Contract A-167.
 - (3) Combination fire/smoke dampers wired to a smoke detector will be provided at each emergency exit corridor or stairs, where supply ventilation is provided. In Contract A-167 combination fire/smoke dampers FSD-10, 11, 13 and 14 will have their own duct type smoke detectors.

The function of all the remaining fire/smoke dampers is that of a fire damper, rated as required. The purpose of using a motorized fire/smoke damper equipped with integral thermostat (firestat) in lieu of a fusible link fire damper is being able to reset these dampers after fire closure from a remote location.



RECEIVED

JAN 13 1989

D.C.C.

MEMORANDUM

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
TRANSIT SYSTEMS DEVELOPMENT DEPARTMENT
SYSTEMS AND CONSTRUCTION SAFETY

Date: January 11, 1989
To: James E. Crawley/Samuel K. Louis
From: Harold E. Storey *[Signature]*
Subject: California State Assembly Bill 3841
Installation of Fire Protection Systems by
Licensed Contractors

I have attached for your information and further action a letter to me dated December 28, 1988, from the F/LSC concerning the subject Assembly Bill. You will note that effective January 1, 1990, all installations of fire protection systems will have to be done by a licensed C-16 installer. Consequently, contractors or their subs working under present Metro Rail contracts will be required to have a C-16 license for the subject work after January 1, 1990. In addition, this C-16 license requirement should be added to all future Stage II contracts which include a technical specifications Section 05500 Metal Fabrication, 1.2.B Quality Assurance. I believe this information should be brought to a contractor's attention in the metal fabrication section in lieu of relying upon the general contract requirement that all work be done according to state and local codes.

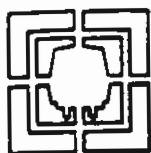
Attachment

- cc: N. Brown
- ~~T. ...~~
- R. Frias
- K. N. Murthy
- M. L. Polacek
- W. J. Rhine

*See spec. sect
15 331.1.2.A
RW
4-10-90*



89-03461



METRO RAIL TRANSIT CONSULTANTS
DMJM / PBQD / KE / HWA

RECEIVED

APR 20 1989

D.C.C.

April 20, 1989

Mr. Douglas A. Low
Director of Architecture
Southern California Rapid Transit District
425 South Main Street
Los Angeles, California 90013

Subject: A-187 Wilshire/Alvarado Station
MOS-1 Stage II
Art in Transit Program

File No: V400A187X011

Dear Mr. Low:

Subsequent to our letter to you of April 5, 1989 regarding Art in Transit, some additional items have come to attention which should be addressed with the artist as follows:

1. The metal murals, if rectangular and of the 15'x 45' dimension described in the List of Artwork (9/1/83) will be larger than the mezzanine wall available. We have assumed, based on discussion with you, that the mural can still be done to fit the available space. A dimensioned elevation of the mezzanine wall is included here for your reference.
2. An edge space or reveal detail around each mural may be desirable. Please provide information on the mural shape and dimension if this detail is to be included in construction documents.
3. The mural materials, including any plywood and adhesive, must comply with criteria and flammability requirements of UBC and NFPA.

Douglas A. Low
April 20, 1989
Page 2

If you have any questions on this please contact me.

METRO RAIL TRANSIT CONSULTANTS

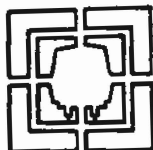


Ronald W. Johnson
Project Manager

Attachment

cc: W. Rhine, TSD,RTD
R. Thakarar, TSD,RTD
DCC/TSD,RTD
J. Ball, MRTC
MRTC/DCC (2)





METRO RAIL TRANSIT CONSULTANTS
DMJM / PBQD / KE / HWA

January 12, 1989

JAN 17 1989

Mr. Michael I. Lingenfelter
Resident Engineer, A640
PDCD
c/o Bechtel Civil, Inc.
12440 E. Imperial Highway
Norwalk, California 90650

A640-DRE-0147

Subject: Union Station Fire Alarm Zone Schedule

Reference: A640-CRE-0147 and FI-16

Dear Mr. Lingenfelter:

In response to Field Inquiry 640-FI-16, the Fire Alarm Zone Schedule for ancillary rooms protected by fire alarms apparently has been derived from Stage II drawing riser diagrams and does not reflect the current design basis for fire detector location. As a result MRTC must closely review the schedule and add or delete rooms requiring detector coverage.

Due to the extra time requirements for this review, the Schedule will be divided, reviewed and returned according to station.

Attached is a mark up of the Union Station Schedule which is the first installment.

Sincerely,

Robert A. Hanlon
Engineer, Communications

RAH/gs

Enclosure

cc: B. Blakesley *B*
P. Burgess
A. Dale
R. Hettrick
T. Lewis
DCC(2)





MEMORANDUM

DATE: May 10, 1989

TO: Aziz Kohan

FROM: Malcolm Ingram *M. Ingram*

SUBJECT: Metro Rail Project
Wilshire/Alvarado Station Entrance-Guardrail
Requirements

FILE NO.: S440A187X052

In response to your verbal request, MRTC Safety, Assurance and Security personnel have reviewed the applicable codes to determine the requirements for installation of guardrails at the circular, sloped architectural treatment associated with stairs 2, 2A and 3/ escalator 3 at the Wilshire/Alvarado station entrance. Reference A187 drawings A-038/Rev. 2 and A-039/Rev. 3. The codes considered applicable to this particular situation are Title 8 CAL/OSHA Subchapter 7-General Industry Safety Orders and the Uniform Building Code.

Specifically, Uniform Building Code Section 1711 was considered applicable in this case (copy attached). UBC section 4407(b) was also reviewed but determined to be non-applicable as it pertains to requirements during construction or demolition. The specific sections of Title 8, Subchapter 7 deemed applicable to this case were 3210(a) and 3273(c) (Copies attached).

Upon review and due consideration of the cited code sections, it does not appear that guardrails are required at the architectural treatment depicted by the referenced A187 drawings. This decision, with respect to the UBC, is based on the fact that the area in question does not fit the definition of any of the areas included in UBC section 1711 as requiring guardrails. Furthermore, the area in question is not one that would normally be or reasonably expected to used by transit system patrons or the general public. With respect to Title 8, which is considered applicable because the continuous drain gutter shown on the referenced drawings will assumably require periodic maintenance, the decision is based on Section 3210, exception 12.

Notwithstanding the above interpretations, the following recommendations are made:

1. A partial guardrail should be installed to the approximate extent marked in red on the attached copy of A187 drawing A-038/Rev. 2. This will serve to discourage reasonably easy access by thrill seekers or vandals/graffiti artists. Specific design of this limited extent guardrail should be coordinated with the SCRTD Systems and Construction Safety staff.
2. The methods of maintenance and protection of maintenance personnel aspects of this situation should be reviewed by SCRTD Systems and Construction Safety staff and the Metro Rail Operations and Maintenance Committee. Alternate means of protection, as allowed by Title 8, Section 3210, exception 11, may be more desirable than safety belt and lanyard once the specific maintenance requirements are considered by those personnel ultimately responsible for maintenance activities.

Please feel free to contact me should you have any questions.

MI:gr

Attachments

cc: J.N. Brown ^{NB}
G. Cofer
A.M. Dale
R. Desimone
K.N. Murthy
DCC (2)
Chron
File





Rolf Jensen & Associates, Inc.

FIRE PROTECTION ENGINEERS • BUILDING CODE CONSULTANTS

RECEIVED

JUN 19 1989

D.C.C.

June 14, 1989

FAX
(213) 622-4670

Mr. Malcolm Ingram
Metro Rail Transit Consultants
548 South Spring Street, 7th Floor
Los Angeles, California 90013

RECEIVED BY MRTC

JUN 19 1989

MECHANICAL EQUIPMENT

A187 WILSHIRE/ALVARADO
DESIGN REVIEW STAGE II

Malcolm:

We have reviewed the subject package. Our comments are detailed on the attached sheets.

If you have questions, please call.

Sincerely,

David R. Fiedler, P.E.

DRF:mhh - H3275-Wilshire/Alvarado

Enclosure

Cross Reference
see section II
Design Review Comments
Dated:

6-6-89





FIRE/LIFE SAFETY
COMMITTEE

RECEIVED BY MRTC

JUN 28 1989

89-05323

SAFETY & ASSURANCE FLSC 89-6-031
STA. 89-9-A-187
ITEM 824

RECEIVED

JUN 27 1989

D.C.C.

June 21, 1989

Mr. Harold E. Storey, Director
Systems & Construction Safety
Southern California Rapid Transit
District
425 South Main Street
Los Angeles, CA 90013

Dear Mr. Storey:

SUBJECT: A-187, Wilshire/Alvarado Station, Stage II, Final Design

On June 1, 1989, the Fire/Life Safety Committee (FLSC) received a transmittal from MRTC requesting review of the Final Design, A-187, Wilshire/Alvarado Station, Stage II, dated June 1, 1989.

After review of this submittal, the FLSC hereby forwards its comments on the attached Review/Comment sheet(s).

Should you have any questions regarding this matter, please contact the Fire/Life Safety Committee at (213) 972-3815 or 972-3816.

Very truly yours,

R. L. Aaron by RBS
Robert L. Aaron, Battalion Chief
Los Angeles City Fire Department

Richard B. Schiehl
Richard B. Schiehl, Battalion Chief
Los Angeles County Fire Department

Cross Reference
see Section II
Design Review Comments
Dated:
June 1989

cc: Malcolm Ingram, MRTC



OCPM-122
REV 3/86

SCRIP — ROUTE SLIP

DATE

6/21/89

TO:

M. Ingram

89-05329

FROM:

H. Storey

RECEIVED

JUN 27 1989

FOR ACTION AS INDICATED:

D.C.C.

- | | | |
|---|---|--|
| <input type="checkbox"/> Reply—
My signature | <input type="checkbox"/> Forwarded
Per Request | <input checked="" type="checkbox"/> Information
Note and
Forward |
| <input type="checkbox"/> Reply—
Copy to me | <input type="checkbox"/> Signature | <input type="checkbox"/> Note and File |
| <input type="checkbox"/> Please Summarize | <input type="checkbox"/> Approval | <input type="checkbox"/> Note and Return |
| <input type="checkbox"/> Please Investigate | <input type="checkbox"/> Action | <input type="checkbox"/> Please Phone me |
| | <input type="checkbox"/> Comments | <input type="checkbox"/> Please See me |

REMARKS:

Contract A187
SCS & F/WSC Review
Comments

Cross Reference
See section II
Design Review Comments
Dated:

5-30-89
6-19-89
6-22-89
6-9-89



89-06239



METRO RAIL TRANSIT CONSULTANTS
DMJM/PBQD/KE/HWA

MEMORANDUM

DATE: July 31, 1989

TO: R. Johnson

FROM: M. Ingram *M. Ingram*

SUBJECT: A187 Wilshire/Alvarado Station Stage II - Final Design Review Comments

FILE NO.: S440A187X082
X028

Attached are copies of MRTC Safety and Assurance and Rolf Jensen & Associates comments on the subject submittal. These comments were submitted to you informally on June 14 and 15, 1989. This transmittal is for file purposes only.

Responses to these comments have already been reviewed and discussed. No further action is required at this time. As part of the Safety Certification process, the bid documents, once issued, will be reviewed to verify incorporation of the appropriate comment resolution.

MI/bp

cc: J. Ball w/o attachment
J. N. Brown
T. W. Cook
A. M. Dale w/o attachment
Chron
DCC - (2)
~~Alvarado~~

*Cross Reference
See section II
Design Review comments
Dated:*

*6-14-89
6-13-89
6-15-89*

Attachment





FIRE/LIFE SAFETY
COMMITTEE

FLSC 87-12-050
STA. 87-6

December 24, 1987

Mr. Harold Storey
Director, Systems & Construction Safety
Southern California Rapid Transit
District
425 South Main Street
Los Angeles, CA 90013

Dear Mr. Storey:

Combined Standpipe/Sprinkler Systems-Metro
Rail Underground Stations

During a number of prior Fire/Life Safety Committee (FLSC) discussions concerning the Fire Protection System for the 7th/Flower Station, it came to this Committee's attention that the Fire Standpipe Systems between the MRT & LRT portions were interconnected, but that the Fire Sprinkler Systems were not and no feasible means were available to incorporate an interconnection.

Since original design required separate Standpipe and Sprinkler inlet connections at each end of both MRT & LRT station structures, this would cause Fire Department response procedures to require four separate connections to the 7th/Flower Station's fire protection system. Since this operation would be time consuming, not to mention the need for additional response companies, the FLSC proposed a change to this station for incorporation of a combined standpipe/sprinkler system.

The incorporation of a combined standpipe/sprinkler system in the 7th/Flower Station has caused the following changes to be enacted:

1. Fire Department response locations will be reduced from four to two. (MRT Hope & Figueroa St. entrances)
2. Existing 7th/Flower Station Fire Department inlet connections will only require one-4way connection @ each location. (The 2way sprinkler connections are no longer required)
3. The two-4way and 2-2way inlet connections for the LRT portion of this station are no longer required.

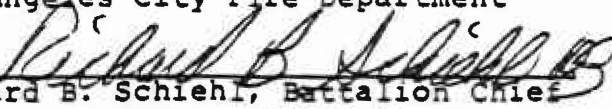
Mr. Harold Storey
December 24, 1987
Page 2

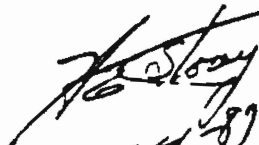
As a result of the 7th/Flower Station fire protection discussions, it became known that none of the other Metro Rail underground stations had interconnection of the sprinkler systems. As a result, the FLSC hereby recommends that all other Metro Rail underground station Fire Protections Systems be amended to incorporate a combined standpipe/sprinkler system, thereby incorporating a further reduction in the heretofore required 2-2way sprinkler inlet connections at each station.

Should you have any questions regarding this matter, please contact the FLSC at 972-3457.

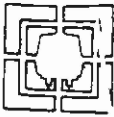
Very truly yours,


Donald E. Bartlett, Battalion Chief
Los Angeles City Fire Department


Richard B. Schiehl, Battalion Chief
Los Angeles County Fire Department


12-24-87





1989

89-07619
RECEIVED

SEP 28 1989

D.C.C.

SURANCE

DISTRICT
DEPARTMENT
CITY

the subject
safety required

ROUTING	
1. <u>Row Johnson</u>	<input checked="" type="checkbox"/> FOR YOUR INFORMATION
2. _____	<input type="checkbox"/> FOR APPROVAL
3. _____	<input type="checkbox"/> FOR SIGNATURE
4. _____	<input type="checkbox"/> FOR COMMENTS
5. <u>CC: A187 File</u>	<input type="checkbox"/> PER YOUR REQUEST
6. _____	<input checked="" type="checkbox"/> FOR ACTION
	<input type="checkbox"/> RETURNING MATERIAL
	<input type="checkbox"/> COPY
	<input type="checkbox"/> FOR YOUR FILE
	<input type="checkbox"/> PLEASE SEE ME
	<input type="checkbox"/> RETURN TO SENDER

REMARKS
Add'l. comments from SCRTD - SCS AND F/LSC on A187. Resolutions should be discussed with ME AND PLANNED FOR inclusion in an addendum.

FROM <u>Mohed Ingra</u>	DATE <u>9/14/89</u>
----------------------------	------------------------

P001-002-0883

Cross Reference
See section II
Design Review comments
Dated
5-30-89
June 89
6-9-89
6-19-89
6-22-89



.

M. Ingram
87-04568

M E M O R A N D U M

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
TRANSIT SYSTEMS DEVELOPMENT DEPARTMENT
SYSTEMS AND CONSTRUCTION SAFETY

DATE: December 29, 1987
TO: J. Crawley
FROM: H. E. Storey *[Signature]*
SUBJECT: Combined Standpipe/Sprinkler Systems -
Metro Rail Underground Stations

RECEIVED
JAN 05 1988
D. C. C.

Attached for your further action is a request from the Systems and Construction Safety Department and the Fire/Life Safety Committee, dated December 24, 1987, concerning the combining and simplifying of the standpipe and sprinkler systems at Metro Rail underground stations.

If you have any additional questions, please contact me as soon as possible.

Attachment

- cc: W. Rhine
- L. Boyden
- K. Murthy
- N. Brown
- F/LSC



.



MEMORANDUM

March 22, 1988

TO: K. N. Murthy
FROM: M. Ingram *M. Ingram*
SUBJECT: Combined Wet Standpipe/Sprinkler Systems

FILE NO: S440X033
X028

At the July 29, 1987 F/LSC meeting, the fire service representatives were made aware that directive drawing MD-030 did not indicate an interconnection of the auto sprinkler system risers at opposite ends of Metro Rail stations. This same directive drawing does however require interconnection of the wet standpipe system risers. In late December 1987, the F/LSC requested a revision to the design of station fire suppression systems to result in a combined system in order to facilitate fire department response procedures. Please see attached correspondence.

Similar revisions have already been made to the 7th/Flower station design based on previous direction from the District. The changes requested by the F/LSC have been endorsed by the District's Systems & Construction Safety Department and an action item was assigned to me to take the necessary action to effect the changes. The contracts affected are [REDACTED], and [REDACTED]. Per our previous discussion a change request is not required as these Stage II contracts have not yet been baselined; however, discussion with mechanical design personnel indicate there may be minor impact on some Stage I contracts at the street level valve pits.

[REDACTED]

K. N. Murthy
March 22, 1988
Page 2

Additionally, during the next update of standard and directive drawings, MD-030 should be revised to reflect a combined system.

MI:djr

Attachment

cc: MRTC

SCRTD

E. Bencze
J. N. Brown
G. Cofer
H. J. Chaliff
A. M. Dale
K. Sain
DCC (2)
Chron
Subject

B. Aaron
J. Crawley
D. Schiehl
H. Storey



Speed Letter

To Ron Johnson

From M. INGRAM

Subject A187 - REQUIRED Action to Close-Out Open F/LS COMMENTS

MESSAGE

Date 10/4 19 89

Attached is a list of actions NECESSARY to provide ACCEPTABLE RESOLUTION of F/LS related COMMENTS PREVIOUSLY MADE AGAINST CONTRACT A187. It is STRONGLY RECOMMENDED that these REVISIONS be included in the forthcoming addendum for this contract.

PLEASE FEEL FREE to CONTACT ME if THERE ARE ANY QUESTIONS.

cc: R.N. Murthy Chron

J. Ball A187 File

G. Cofer

A.M. Dale
J.N. BROWN

Signed Malcolm Ingram

REPLY

Date _____ 19 _____

ALAN,

All is fine. Addendum #2 will close out REMAINING 2-3 ISSUES.

MI
11/23/89 10/20

~~Follow up 10/19~~

Malcolm Did these comments get addressed to your satisfaction?

Alan

Signed

Discussed w/ E. BENCZE
10/23/89. Will correct in Add. #2.

MT
10/27/89

Dwg. A-102/046 ✓ Rating for Door No. 1 @ Rm. 21.2 should be 1 1/2 hrs. in lieu of 3 hrs.
NJK 10/27/89

Dwg. M-008/164 — Provide 1 1/2 hr. rated access door in 2 hr. ceiling in corridor #21.2 to provide access to 1 1/4" DCW valve, or relocate valve out of corridor. Coordinate with reflected ceiling plan.
open 10/27/89

~~NO~~ AITS CR

Dwg. S015/126 Wall openings #52-55 on structural dwg. do not correspond to ductwork shown on mech. dwg. Please coordinate. All 4 openings will require some type of fire-rated assembly as they penetrate a rated walls for an exit stair.
OK 10/27/89

	opening	duct
50	10x8	10x14
51	10x8	10x14
52	1'6" x 1'2"	—
53	1'8" x 1'2"	—
54	1'8" x 1'2"	—
55	1'9" x 1'2"	3" x 4"

* See AITS-CR-053.

Dwg. E076/323 — Verify that conduits are available for the FTELS that are required at FHV's at column line ①, dwg. M003/159 and between column lines ⑦ & ⑧ on dwg. M004/160.
NJK 10/27/89

Dwg. A004/034 — Reswing door at Toilet Rm. #9 on dwg. A056/Plan B to agree with A004. Door must swing inward.
A056/084
NJK 10/27/89

A187 Addendum #2

Dwg. M009/165 — 8" WSP COP 9'-0" on dwgs. M009 & M010 conflicts with 6" WSP shown on M015/Detail 1. Please coordinate.
M00/166
M015/171
NJK 10/27/89

Dwg. E083/330
E085/332

alt
Rut
2-11-90

FTELS ARE REQUIRED IN VALVE ROOMS # 29 & # 38
PLEASE ADD FTEL SYMBOL AND VERIFY THAT
ADEQUATE CONDUIT IS PROVIDED. F/LS CRITERIA
2.7.4.3

Systemwide SERVICES
ELECTRICAL DWGS

E-083 alt
E-085 alt

alt
Rut
2-11-90

VERIFY THAT ADEQUATE CONDUIT IS PROVIDED FOR
FTELS THAT ARE REQUIRED TO BE INSTALLED AT
STREET LEVEL FIRE DEPT. CONNECTIONS ASSOCIATED
WITH THE EAST & WEST FIRE PROTECTION VALVE PITS.
THIS MAY BE A PART OF A175.

Spec-Section 01545 - Add REQUIREMENTS FOR LOCK OUT/TAG OUT
PROCEDURE, PER THE ATTACHED COMMENT

alt
Rut
2-11-90

Spec. Section 15010-1.2.B.1 - REVISE PER THE ATTACHED, IN ORDER TO
BE CONSISTENT WITH SUPPARA. 1.3.H

alt
Rut
2-11-90

METRO RAIL REVIEW/COMMENT SHEET



REVIEWER Byron M. Ishkanian FILE NO. _____ DATE Sept. 6, 1989

DEPARTMENT/SECTION SCS Department and/or DATE _____ SUBMITTAL NO. _____ SHEET 1 OF 1

DESIGN REVIEW/
SUBMITTAL TITLE A-187 for inclusion in the Addendum

REF NO.	PAGE NO.	DRAWING NO./ DOCUMENT SECT.	COMMENT	RESPONSE/ACTION
1545	2	Worksite Safety Requirements	<p>In order to emphasize the need for a lock out/tag out procedure for each contractor, the following is submitted as an addition for the "Worksite Safety Requirements" Section 1545 of the Specifications for this contract as follows:</p> <p>PART 4 LOCK OUT/TAG OUT PROCEDURES</p> <p>4.1. The Contractor shall include a written Lock Out/Tag Out procedure in his Safety and Security Program that complies with Section 2.4.4 of the Safety and Security Manual and applicable sections of the CAL/OSHA Safety Orders.</p>	<p>SEE PDED CONSTRUCTION SAFETY AND SECURITY MANUAL SECTION 2, PARAGRAPH 2.6, PAGE 2-15 UHS-6-5-90</p>

7. Department of Defense, Military Specifications (MIL)

- MIL-G-13210 Rubber Gaskets
- MIL-S-16293 Strainers, Sediment: Pipeline, Water, Air, Gas, Oil
- MIL-V-13612 Valves, Relief, Pressure and Temperature

8. Manufacturers Standardization Society (MSS)

- MSS SP-70 Cast Iron Gate Valves, Flanged and Threaded Ends
- MSS SP-80 Bronze Gate, Globe, Angle and Check Valves

9. National Association of Corrosion Engineers (NACE)

- NACE RP-02-74 High Voltage Electrical Inspection of Pipeline Coatings Prior to Installation.

B. Perform installation and testing of mechanical Work in accordance with the Specifications and the instructions provided by equipment suppliers. Use installers qualified in accordance with the following requirements:

- 1. Welders - ^{AWS D10.9} ~~ANSI B31.9~~ except as indicated otherwise.
- 2. Sheet Metal Workers - Standard procedures, SMACNA Manuals. Furnish certification of qualifications by previous training and experience.
- 3. Plumbers and Pipe Fitters - Under the direct responsible supervision of a plumber licensed by the State of California.
- 4. Inspection, Certification and Testing of Coatings
 - a. Furnish a manufacturer's certificate of compliance for all coating materials. Include in the certificate, material identification, quantity, batch number, date of manufacture, and other laboratory data covering requirements of specifications under which the material is being furnished.
 - b. The preparation of surfaces and application of coatings and related materials will be subject to inspection by the District or its designee. Perform Work in the presence of the District or its designee, unless the District or its designee has granted prior approval to perform such Work in its absence.



Speed Letter.

To RON JOHANSON

From BILL SMITH

Subject FIRE HOSE CABINET LOCATION - CONTRACT - A-181, DWE. A-013, REV. 3

MESSAGE

Date 2-20 19 90

RECOMMEND FIREHOSE CABINET LOCATED 13'-4" FROM COLUMN LINE (30)
DWE. A-013 REV. 3 BE DELETED.

FIREHOSE CABINETS LOCATED AT COLUMN LINES (16) AND 13'-4" FROM COLUMN
LINE (20) MEET THE REQUIREMENTS OF SYSTEM DESIGN CRITERIA & STANDARDS
VOLUME I, SECTION 2 FIRE/LIFE SAFETY, PARAGRAPH 2.2.6.3.1, FOR DISTANCE
BETWEEN FIRE HOSE CABINETS.

No PIPING
ARGUMENTS
15 11 P.O.C.
see M-005

Chron
A187 File

AGREE: P.O.C. stub-up
not indicated (or req'd.)
on MEch. dwg. MI

Signed

Bill Smith

2/28/90

REPLY

Date _____ 19 ____

Cabinet will be deleted - WHS-6/22/90

Signed



Speed Letter.

To RON JOHNSON

From M. Ingram / B. Smith

Subject FIRE HOSE CABINET REQUIREMENTS, CONTRACT - A-175 AND A-187

MESSAGE

Date 2-22 19 90

TECHNICAL SPECIFICATION FOR CONTRACT A187, SECTION-10522-2, PARA:

2.2 STATES: FIRE HOSE CABINET FHC-2 (RECESSED)- NOT USED.

A-175 CONTRACT DRAWINGS NO.'S A-00E, REV.2, A-012, REV.3 AND A-013, REV.3,
REFLECT 1- FIRE HOSE CABINET FHC-2 (RECESSED) INSTALLATION. PLEASE RESOLVE
this INCONSISTENCY.

Also, PLEASE BE AWARE THAT CLOSE SCRUTINY SHOULD BE GIVEN TO COORDINATION
BETWEEN STAGE I & STAGE II CONTRACTS AND BETWEEN ARCHITECTURAL AND
MECHANICAL DISCIPLINES WITH RESPECT TO FHC LOCATIONS AND THE APPURTENANT
MECHANICAL PIPING. THIS IS AS A RESULT OF A RECENT PROBLEM DISCOVERED ON
THE A165/A167 CONTRACTS.

- No 8 FOLD

cc: Chron
A187 FILE

Signed

M. Ingram

REPLY

Date _____ 19 _____

OK WHS
6/21/90

- No 8 & 10 FOLD

Signed



To Grady Coler

From Eva Bencze

Subject Contract A-187

MESSAGE

Date 6/15 1990

After their recent review of A-187, the MRTC Safety Assurance Group pointed out, that there is no access provided to a DCW valve, which is located in a rafter ceiling space above Corridor 21.2.

It seems to me that this is a simple enough item to be provided by field change. For your information and use I enclose two A187 dupl. marked up w/info. on size and location of the access panel

Attachment

Signed Eva Bencze

REPLY

Date _____ 19____

*Cross Reference to
Lon Harley Comment #25,
dated 6/13/89, Pg. 6 of 12.*

Signed _____



Reviewed by MRTC
Safety, Assurance & Security
No adverse Impact on Safety
Certification

A D D E N D U M

covering

CHANGE IN SPECIFICATIONS AND/OR PLANS

Date Issued: October 4, 1989

Addendum No: A187-1

Addendum Date: October 4, 1989

Bid No: _____

Contract: A187: WILSHIRE/ALVARADO STATION - STAGE II

INTENT

1. This addendum is issued prior to receipt of bids to provide for modifications in Contract Drawings and Specifications. Acknowledgement of this addendum shall be made, and cost of work included or excluded, in bidder's proposal.

2. This addendum consists of the following items:

The Bid due date is changed from October 24, 1989 to November 21, 1989.

Revisions to the following Specification Sections and the pages included:

- Table of Contents. Pages 1 through 6.
- Invitation to Bid. Pages 1 and 2.
- Special Conditions. Pages 1 through 4, 7 and 8.
- General Conditions. Pages 5, 6, 27 through 30 and 39 through 42.
- Exhibit 5, Minimum Wage Rates. Pages 1 through 50.
- Section 01011, Summary of the Work. Page 5.
- Section 01018, District-Furnished Equipment Interface. Pages 1 through 4.
- Section 01047, Elevator Interface. Pages 3 and 4.
- Section 01200, Contract Meetings. Pages 3 and 4.
- Section 01505, Mobilization. Pages 1 through 3.
- Section 01545, Worksite Safety Requirements. Pages 1 and 2.
- Section 03304, Cast-in-Place Concrete Benches. Pages 1 and 2.
- Section 05500, Metal Fabrications. Pages 1 through 9.
- Section 05513, Aluminum Assemblies. Pages 1 and 2.
- Section 07250, Sprayed-On Fireproofing. Pages 5.
- Section 08331, Overhead Coiling Doors, Electric. Pages 3 through 6.
- Section 09310, Ceramic Tile. Pages 3 and 4.
- Section 09330, Quarry Tile. Pages 7 and 8.
- Section 09511, Acoustical Vermiculite Cement Plaster. Pages 1 through 4.

Revised and New Contract Drawings as follows: (Continued)

Revised Drawings:

Revised Drawings:

<u>Sheet No.</u>	<u>Drawing No.</u>	<u>Sheet No.</u>	<u>Drawing No.</u>
A187			
066	A035	182	M041
071	A040	183	M042
074	A043	188	M046
080	A048	193	M050
084	A056	195	M052
088	A096	197	M054
091	A099	201	M058
092	A100	222	E114
098	ZP504	224	E002
099	ZP505	225	E003
100	ZP506	226	E004
101	ZP510	227	E005
102	ZP512	228	E006
103	ZP513	229	E007
104	ZP514	230	E008
105	ZP515	231	E009
106	ZP516	232	E010
107	ZP517	233	E011
108	ZP519	234	E012
109	ZP601	235	E013
110	ZP602	236	E014
111	ZP603	237	E015
112	ZP604	238	E016
113	ZP605	239	E017
114	ZP606	244	E022
115	ZP607	247	E025
116	ZP608	248	E026
117	ZP609	249	E027
118	ZP610	253	E115
119	ZP611	254	E116
120	ZP612	255	E117
121	ZP616	256	E118
122	ZP617	257	E125
123	ZP618	258	E119
124	ZP619	259	E120
125	ZP801	260	E121
156	M001	266	E103
161	M005	267	E104
162	M006	268	E105
163	M007	269	E129
168	M012	272	E029
171	M015	273	E030
172	M016	277	E034
178	M037	278	E035
180	M039	280	E037



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A D D E N D U M

covering

CHANGE IN SPECIFICATIONS AND/OR PLANS

Date Issued: November 1, 1989

Addendum No: A187-2

Addendum Date: November 1, 1989

Bid No: _____

Contract: A187: WILSHIRE/ALVARADO - STAGE II

INTENT

1. This addendum is issued prior to receipt of bids to provide for modifications in Contract Specifications. Acknowledgement of this addendum shall be made, and cost of work included or excluded, in bidder's proposal.

2. This addendum consists of the following items:

The Bid due date is changed from November 21, 1989 to January 16, 1990.

Revisions to the following Specification Section and the pages included:

° Invitation to Bid. Pages 1 and 2.

Specification addendum revisions are identified by the Addendum Number in the margins before and after each line modified. Pages changed due to relocation of lines or paragraphs that are not modified by addendum will not have identifying numbers, but are included to keep the Contract Specifications Book intact and continuous. Please place the enclosed pages in your Contract Specifications Book and remove amended pages.

The District is currently reviewing the physical construction access dates specified in Special Conditions Article SCl.B and anticipates that these dates will be revised to later time. The revised dates will be forthcoming in A187 Addendum Number 3.

Issued By: _____

Paul Como
Director

Office of Contracts

Procurement and Materiel
MZW/RV/ez



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Safety, Assurance & Security
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A D D E N D U M

covering

CHANGE IN SPECIFICATIONS AND/OR PLANS

Date Issued: December 11, 1989

Addendum No: A187-3

Addendum Date: December 11, 1989

Bid No:

Contract: A187: WILSHIRE/ALVARADO STATION - STAGE II

INTENT

1. This addendum is issued prior to receipt of bids to provide for modifications in Contract Drawings and Specifications. Acknowledgement of this addendum shall be made, and cost of work included or excluded, in bidder's proposal.

2. This addendum consists of the following items:

Revisions to the following Specification Sections and the pages included:

- Table of Contents. Pages 1, and 2.
- Instructions to Bidders. Pages 1, 2, and 7 thru 10.
- Special Conditions. Pages 1 thru 8.
- General Conditions. Pages 5, 6, 61 and 62.
- Section 01018, District-Furnished Equipment. Pages 3 and 4.
- Section 01519, Temporary Ventilation. Pages 1 and 2.
- Section 09310, Ceramic Tile. Pages 3 and 4.
- Section 09330, Quarry Tile. Pages 3 and 4.
- Section 09853, Fixture Coating. Pages 1 and 2.
- Section 15888, Air Distribution and Duct System. Pages 3 thru 6.
- Section 16050, Basic Electrical Materials and Methods. Pages 9 and 10.

Specification addendum revisions are identified by the Addendum Number in the margins before and after each line modified. Pages changed due to relocation of lines or paragraphs that are not modified by addendum will not have identifying numbers, but are included to keep the Contract Specifications Book intact and continuous. Please place the enclosed pages in your



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CHANGE IN SPECIFICATIONS AND/OR PLANS

Date Issued: January 10, 1990

Addendum No: A187-4

Addendum Date: January 10, 1990

Bid No:

Contract: A187: Wilshire/Alvarado Station

INTENT

1. This addendum is issued prior to receipt of bids to provide for modifications in Contract Drawings and Specifications. Acknowledgement of this addendum shall be made, and cost of work included or excluded, in bidder's proposal.
2. This addendum consists of the following items:
Revisions to the following Specification Sections and the pages included:
 - Bid Form. Pages 1 through 3.

Specification addendum revisions are identified by the Addendum Number in the margins before and after each line modified. Pages changed due to relocation of lines or paragraphs that are not modified by addendum will not have identifying numbers, but are included to keep the Contract Specifications Book intact and continuous. Please place the enclosed pages in your Contract Specifications Book and remove amended pages.

The following Sections have been DELETED:

The Bid Form included in the Extra Forms for submittal of Bids.

Issued By: 
Robert J. Murray
Assistant General Manager
Transit Systems Development

MZW/RV/ez

Addendum A187-4

Page 1 of 1