

22386915

SCRTD
METRO RAIL PROJECT
SAFETY CERTIFICATION PROGRAM
CRITERIA CONFORMANCE CERTIFICATION

CONTRACT A-745

AIR HANDLING EQUIPMENT

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INTRODUCTION

This Criteria Conformance Verification package is submitted for review and compliance assessment in accordance with the SCRTD Metro Rail Project Safety Certification Plan, dated May, 1986. 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 Safety, Assurance and Security personnel, in conjunction with Rolf Jensen & Associates and the Metro Rail Project Fire/Life Safety Committee, have reviewed design documents at the 60%, 85% and 100% levels. The 100% design review for this contract was held in September, 1985. Comments were resolved, the document revised and then archived. In May, 1987, the contract documents were distributed for a Legal/Technical review immediately prior to advertisement for bid. At each review level, design review checklists were utilized and appropriate design review comments generated. Subsequent reviews were initiated by determining the resolution 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 are indicated in the text of the design criteria and pertinent Change Requests.

The comments included in this package represent the result of reviews performed at the 100% and Legal/Technical level. The checklists included are the updated checklists applied at the Legal/Technical review. Design group responses to the comments are indicated in most cases, as well as resolution verification by MRTC Safety, Assurance & Security personnel. Supporting correspondence has been included where deemed appropriate. Additionally, addenda issued for each contract were reviewed to determine impact on the Safety Certification Program. Addenda distribution letters, annotated to indicate results of the review, are included.

The scope of this contract encompasses the design, manufacture, factory testing and delivery of station air supply units, traction power substation fans and their associated motor-controlled dampers and roll-filters. As none of these ventilation system components are part of an emergency ventilation system, there are no specific Fire/Life Safety or system safety design criteria directly applicable. However,

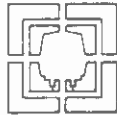
checklists for reliability, maintainability, quality assurance and configuration management were applied, as appropriate, and are included in this document.

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



RTD
Metro Rail Project

**CRITERIA CONFORMANCE
VERIFICATION**



Metro Rail Transit Consultants
DMJM/PBQD/KE/HWA

Safety Certification Program

DESIGN REVIEW CONTRACT NUMBER A-745 AIR HANDLING EQUIPMENT

REVIEWING DISCIPLINE MRTC SAFETY, ASSURANCE AND SECURITY

EXCEPTIONS NOTED: NONE

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. N. Brown Date 9/30/87
Manager - MRTC SAFETY, ASSURANCE
AND SECURITY

Signature [Signature] Date 10/2/87
MANAGER - MRTC FACILITIES DIVISION



METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRC SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G. L. WASZ

DISCIPLINE: RELIABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.2

REVIEW LEVEL: BID

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.	N/A		N/A to A745 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.	N/A		N/A to A745 Contract ↓
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	N/A		N/A to A745 Contract ↓



METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G.L. WASEL

DISCIPLINE: RELIABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.2

REVIEW LEVEL: B10

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</p>			<p>N/A</p> <p>N/A to A745 Contract</p>



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: METRO SAFETY, ASSURANCE, & SECURITY DATE: 7/8/87

REVIEWER: G.L. WASZ

DISCIPLINE: RELIABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN
CRITERIA AND STANDARDS - VOL. 1, SECTION 5.2

CONTRACT No.: A745

REVIEW LEVEL: B/D

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	MTBF, MTBSF, MCBF, and failure rates as specified by contract.			↓
5.2.3.A	Contractors shall be legally bound to ensure that contractual reliability requirements are achieved.	MA		See Section 01450 Reliability not addressed
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.	MA		N/A To A745 ME 9/25/87
5.2.4.A	Contractors shall be required to use the format designed by the SCRTRD for reporting failures.	MA		↓
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.	N/A		N/A to A745 Contract ↓
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	N/A		N/A to A745 Contract ↓



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE, & SECURITY DATE: 7/8/87

REVIEWER: C. L. WASZ


DISCIPLINE: RELIABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A 745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.2

REVIEW LEVEL: B/D

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	<p>the following environmental parameters throughout the indicated range of values:</p> <ol style="list-style-type: none"> 1. Air temperature: Minimum: 20°F Maximum: 110°F Average: 66°F 2. Relative humidity: 24 hour range: 45% to 85% 3. Rainfall in 24 hours: Maximum recorded: 6.11" 4. Rainfall in 1 hour: Maximum recorded: 1.87" 5. Wind speed: Average: 10 mph Maximum recorded: 49 mph 6. Seismic activity: (Reference "DESIGN EARTHQUAKE PARAMETERS" and "DESIGN FAULT PARAMETERS" tables of Criteria) 7. Air pollution: <ul style="list-style-type: none"> o Dust Particulates: Size: 1 to 200 microns Concentration: (max.) 0.248 mg/m³ (avg.) 0.142 mg/m³ o Acid Precipitation: pH of 4.41 o Gases and fumes: (Reference "Types" and "Concentrations" table of Criteria) 			



METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G.L. WRSZ

DISCIPLINE: MAINTAINABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN
CRITERIA AND STANDARDS - VOL. 1, SECTION 5.3

CONTRACT No.: A-745

REVIEW LEVEL: B/D

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		N/A to A-745 Contract
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. 	N/A		N/A to A-745 Contract



METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE, & SECURITY

DATE: 7/18/87

REVIEWER: G. L. WASEZ

DISCIPLINE: MAINTAINABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.3

REVIEW LEVEL: BID

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	2. Maintenance Tasks			↓ N/A to A745 Contract ↓
	a. Scheduled Maintenance			
	i. Preventive Maintenance			
	ii. Service Maintenance			
	b. Corrective Maintenance.			
	3. Shop Facilities			
	a. Union Station maintenance activities			
	b. Hollywood maintenance activities			
	c. Component Repair Facilities.			
	4. Shop Equipment and Tools			
	a. Furnished by Vehicle/Train Control/ Fare Collection Contractor			
	b. Furnished by Shop Equipment Contractor.			
	5. Spare Part Requirements			
	a. Expected Part Life			
	b. Consumables and Repairables.			
	6. Skill Levels and Mechanics Required.			
5.3.2.B	A Maintenance Analysis shall be developed and submitted to the SCRTD by the Vehicle,	N/A		



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MARC SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G.L. WASZ

DISCIPLINE: MAINTAINABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A-745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.3

REVIEW LEVEL: BID

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.3.4.A	<p>Train Control, and Fare Collection contractors.</p> <p>The Maintenance Analysis shall be submitted iteratively (every 90-180 days) as the design develops.</p> <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>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 	✓		<p style="text-align: center;">↓</p> <p>See Section 01730 O & M Manual</p> <p style="text-align: center;">↓</p> <p>See Article 3.3 & Section 01730</p> <p style="text-align: center;">↓</p>



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G.L. WASZ

DISCIPLINE: MAINTAINABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.3

REVIEW LEVEL: B/D

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.3.4.B	2. Heavy Repair Maintenance Manuals	✓		↓ See Article 3.2 of Section 01730.
	3. Parts Catalogs	✓		
	4. Test Equipment Maintenance Manuals.	✓		
	The manuals shall be designed for continuous, long term service in a maintenance shop environment.	✓		
5.3.5.A	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).	✓		See Article 3.2.A of 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.	✓		See Article 1.2.B of Section 01730. format Submitted.
	Contractors shall be required to provide a comprehensive training program for SCRTD maintenance personnel.	✓		See Section 01050.
	Contractors shall provide the SCRTD with course materials, instructors, training aids, equipment, and all literature required.	✓		See Section 01050
	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.	✓		See Articles 1.1.B and 32 of Section 01050



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MATC SAFETY, RESURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G. L. WRSZ

DISCIPLINE: MAINTAINABILITY

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A-745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.3

REVIEW LEVEL: BID

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.3.6.A	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.		✓	See Section 61450. Not found in A745 Contract N/A To A745. MI 9/25/87



METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MPIC SAFETY, ASSURANCE, & SECURITY

DATE: 7/2/87

REVIEWER: G.L. WASZ

DISCIPLINE: Quality Assurance

REVIEW REFERENCE: SCR TD Metro Rail Project System
Design Criteria & Standards - Vol. 1, Sect. 5.4

CONTRACT No.: A745

REVIEW LEVEL: BID

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 SCR TD System Assurance Program Plan and the SCR TD QA Manual as a guide for style, content, and format.</p>	✓		<p>See Article 1.1 of Section 01450.</p> <p>See Article 1.1.A of Section 01450. Plan must be submitted for approval.</p>
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 	✓	N/A	<p>See SC5 of Special Conditions</p> <p>N/A to A745 Contract</p> <p style="text-align: center;">↓</p>



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: M/R/T/S SAFETY, ASSURANCE, & SECURITY DATE: 7/2/87

REVIEWER: G. L. WASZ

DISCIPLINE: Quality Assurance

REVIEW REFERENCE: SCRTD Metro Rail Project System

CONTRACT No.: A745

Design Criteria & Standards - Vol. 1, Sect. 5.4

REVIEW LEVEL: BID

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.4.3	4. Gear reducers for propulsion subsystem - 5 years.			↓
	QUALITY PROGRAM CONTENT			
A.	<u>Receiving Inspection</u>			
	Contractors shall provide for the inspection of all incoming material. Statistical sampling is acceptable.	✓		See Articles 1.11 & 1.14 of Section 01450
	All material certifications and test reports used as the basis for acceptance by the contractors shall be maintained as quality records.	✓		See Article 1.3 of Section 01450.
B.	<u>Statistical Sampling Plans</u>			
	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.	✓		See Article 1.14 of Section 01450. Plans shall be approved.
C.	<u>Changes to Drawings and Specifications</u>			
	Contractors shall ensure that all inspection and acceptance test are based on the latest revision or changes to drawings and specifications.	✓		See Articles 1.6 & 1.10 of Section 01450.
	An acceptable configuration management and control system shall be established and maintained.	✓		See Article 1.4.A of Section 15850
	The responsibility for control of changes shall extend to suppliers.	✓		See Articles 1.6 of Section 01450 and 1.4.C of Section 15850.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MARC SAFETY, ASSURANCE, & SECURITY DATE: 7/28/87

REVIEWER: G.L. WBSZ

DISCIPLINE: Quality Assurance

REVIEW REFERENCE: SCR TD Metro Rail Project System
Design Criteria & Standards - Vol. 1, Sect. 5.4

CONTRACT No.: A745

REVIEW LEVEL: B/D

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
D.	<u>Identification of Inspection Status</u> Contractors shall maintain a system for identifying the progressive inspection status of components or materials as to their acceptance, rejection or non-inspection.	✓		See Article 1.15 of Section 01450.
E.	<u>Shipping Inspection</u> Contractors shall provide for the proper inspection of products to ensure completion of manufacturing and conformance to contract requirements prior to shipment.	✓		See Article 1.13 of Section 01450
F.	<u>Quality Assurance Organization</u> The organization of each contractor's QA Program shall be well defined.	✓		See Article 1.2 of Section 01450.
	QA personnel shall have sufficient, well-defined responsibilities and organizational freedom which encourage the identification and evaluation of quality problems.	✓		See Article 1.2 of Section 01450.
	Contractors shall have a QA Program that can verify compliance with contract requirements.	✓		See Article 1.1.A of Section 01450.
G.	<u>Qualification of Personnel</u> Contractor personnel performing inspections, test or special processes shall be qualified for such work based on prior experience and training.	✓		See Articles 1.7 and 1.8 of Section 01450.



METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE & SECURITY

DATE: 7/8/87

REVIEWER: C.L. WASZ

DISCIPLINE: Quality Assurance

REVIEW REFERENCE: SCR TD Metro Rail Project System
Design Criteria & Standards - Vol. 1, Sect. 5.4

CONTRACT No.: A745

REVIEW LEVEL: BID

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	Records of personnel qualifications shall be maintained and available for review.	✓		See Article 1.7.B of Section 01450.
H.	<u>In-Process Inspection</u> 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.	✓		See Article 1.12 of Section 01450.
I.	<u>Handling, Storage and Delivery</u> Contractors shall provide adequate work and inspection instructions for handling, storing, preserving, packing, marking, and shipping to protect the quality of products and to prevent damage, loss, deterioration, or substitution thereof.	✓		See Article 1.17 of Section 01450.
J.	<u>Corrective Action</u> Contractors shall establish, maintain, and document procedures to ensure that conditions adverse to quality are promptly identified and corrected.	✓		See Article 1.18 of Section 01450.
K.	<u>Nonconforming Material</u> Contractors shall establish and maintain an effective system for controlling nonconforming material including procedures for identification, segregation, and disposition.	✓		See Article 1.19 of Section 01450.



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRP SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G.L. WASS

DISCIPLINE: Quality Assurance

REVIEW REFERENCE: SCRTD Metro Rail Project System
Design Criteria & Standards - Vol. 1, Sect. 5.4

CONTRACT No.: A745

REVIEW LEVEL: BID

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	A Material Review Board consisting of appropriate SCRTD, contractor, QA and design personal shall be established.		✓	See Article 1.19 of Section 01450. MRB not specified N/A To A745. MI 9/25/87



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: C.L. WASSZ

DISCIPLINE: CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6

REVIEW LEVEL: BID

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 Vehicle o Train Control o Communications o Fare Collection o Traction Power. 		N/A	N/A to A745 Contract See Article 1.4.A of Section 15850. ↓
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. 	✓		See Article 1.4.A of Section 15850. ↓
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 SCRTRD, 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.	✓		See Article 1.4 of Section 15850. ↓ ✓ Not found in A745 Contract. N/A To A745. ME 9/25/87



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTD SAFETY, ASSURANCE, & SECURITY

DATE: 7/2/87

REVIEWER: G.L. WASZ

DISCIPLINE: CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6

REVIEW LEVEL: BID

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 SCRTRD that at the time he receives Notice to Proceed he has in place adequate procedures for: <ul style="list-style-type: none"> o Drawing Release and Control o Change Control o Drawing Number and (if required) Part Numbering Identification o Change Status Reporting. 	✓		See Article 1.4 of Section 15850 ↓
5.6.1.B.5	Drawing numbering shall be in accordance with the system being established by the GC for the Metro Rail Project.		✓	Not found in A745 Contract.
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:	✓		See Article 1.4.A.1 of Section 15850. ✓ Not found in A745 Contract. See Article 1.4 of Section 15850 ✓ Not found in A745 Contract. See Article 1.4 of Section 15850. ↓



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTD SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G.L. WINSZ

DISCIPLINE: CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6

REVIEW LEVEL: B/D

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	<ol style="list-style-type: none"> The composition of any part number at any level in terms of subordinate part numbers All next assembly part numbers of any part The specification document or drawing number associated with the part number. 			↓
5.6.3.B	<p>All part numbers used by contractors or subcontractors shall identify a specific item having a specific configuration.</p> <p>All items, beginning with the lowest replaceable or repairable unit, and identified by the same part number, shall have the same physical and functional characteristics, shall be equivalent in performance and durability and shall be interchangeable without alteration to themselves or associated items, other than normal field adjustments.</p>	✓		<p>See Article 1.4.C of Section 15850.</p> <p>See Article 1.4.C.3 of Section 15850.</p>
5.6.3.C	<p>Contractors shall assure that all engineering change proposals are screened at management levels high enough so that only essential changes are submitted. All potential impacts of the change shall be considered including:</p> <ol style="list-style-type: none"> Safety Reliability Maintainability 	✓		<p style="text-align: right;">MI 9/15/87</p> <p>Not found in A745 Contract. See Article 1.4.B of Section 15850.</p> <p style="text-align: center;">↓</p>



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: C.L. WASEZ


DISCIPLINE: CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A-745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6

REVIEW LEVEL: BID

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
	4. Human Engineering 5. Scheduling and Cost Impact 6. Test(s) Implications 7. Retrofit Requirements 8. Publications 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 SCRTRD for approval prior to implementation.			 Not found in A-745 Contract. See Article 1.4.B of Section 15850.
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.	✓		See Articles 1.4.C.3 & 1.4.C.4 of Section 15850.
	A serialization and configuration record shall be maintained for all items delivered by a contractor to the SCRTRD.	✓		See Articles 1.4.C.3 & 1.4.C.4 of Section 15850.
5.6.4	The following design reviews and audits * shall be conducted jointly by the SCRTRD and the contractors.	✓		See Section 01300
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.	✓		See Section 01300 *NOT APPLICABLE - OFF-THE-SHELF EQUIPMENT. ME 9/25/87



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRPC SAFETY, ASSURANCE, & SECURITY

DATE: 7/8/87

REVIEWER: G.L. WABZ

DISCIPLINE: CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6

REVIEW LEVEL: B/D

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
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.		✓	See Section 01300.
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		N/A to A740 Contract
5.6.4.D	Functional configuration audits shall be conducted on system equipment subjected to qualification testing after successful completion of qualification testing.	✓		See Articles 1.10.A & 1.6 of Section 01450.
	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.	N/A		N/A to A740 Contract
5.6.4.E	As configuration baselines are established, the baseline documentation shall be identified and recorded.	✓		See Articles 1.4.A & 1.4.B of Section 15850.
	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.	✓		See Articles 2.1 & 1.4 of Section 01340



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

METRO RAIL PROJECT DESIGN REVIEW CHECKLIST

CERTIFIABLE ELEMENT: AIR HANDLING EQUIPMENT

GROUP: MRTC SAFETY, ASSURANCE, & SECURITY

DATE: 7/2/87

REVIEWER: C.L. WASZ

DISCIPLINE: CONFIGURATION MANAGEMENT

REVIEW REFERENCE: METRO RAIL PROJECT SYSTEM DESIGN

CONTRACT No.: A745

CRITERIA AND STANDARDS - VOL. 1, SECTION 5.6

REVIEW LEVEL: BID

REQ. I.D.	REQUIREMENT	YES	NO	COMMENT
5.6.5.A	Drawings shall be of a quality where every line, number, and symbol is clearly legible.	✓		See Article 1.4 of Section 01340.
5.6.5.B	Standard drawing size shall be 22" by 34" unless approved by the SCRTD.	✓		See Article 2.1.A of Section 01340.
5.6.5.C	Any microfilm provided shall be 35mm silver halide film and shall be processed to archival standards.		N/A	N/A to A745 Contract

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

CROSS REFERENCE
DCL # 87-02044
Section III, MI
9/25/87
RTD

Reviewer H.E. STOREY File No. A745 Date 5-19 1987

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

Design Review / Submittal Title TPSS Air Handling Equipment
Traction Power Substation

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
1	26	Table of contents 2.2	This is the only location in contract I note where "TPSS" is defined. I believe cover of contract, definition area and summary of work section should spell out entire TPSS name. Also "Invitation To Bid" section should have TPSS spelled out in its entirety - <u>Traction Power Substation</u>	TPSS deleted from contract title & Invitation to Bid. Term is spelled-out in Section 01010-1.1.
2	01050 -1	1.1.A	I do not understand the purpose of this section. The District or its present representative (SARTC or MWD) should do the Field Service & inspection to insure proper installation - Not A Contractor's Representative	Contractor's rep. is required to ENSURE equipment, to be installed by others, is installed in a manner acceptable to manufacturer. Precludes warranty problems.
3	01050 -1	1.1.B	This section should be elaborated upon or made into its own contract section. This section is now too vague. Follow other procurement spec for training requirements.	SEE 01050-3.2. Also, Field Instruction Plan & Instructions must be submitted for District approval.

O.K.
MI
9/29/87

O.K.
MI
9/29/87

O.K.
MI
9/29/87



METRO RAIL PROJECT
REVIEW / COMMENT SHEET

Reviewer H E Storey File No. A 745 Date 5-18 1987

Dept. / Section 575A Submittal No. and/or Date _____ Sheet 2 of 2

Design Review / Submittal Title TPSS Air Handling Equipment

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
4	01200 -1	3.1	<p><u>Insert words to make this section comply with other contract wording for this section</u> - introduce the District's Representations for Safety and Quality Assurance and Construction Management to their counterparts ----- This will be in agreement with Sections 01450-1.5 & 1.6</p>	<p>AGREE. WILL DO. DONE. ME 9/25/87 O.K.</p>



METRO RAIL PROJECT
REVIEW / COMMENT SHEET

DCC # 87-02044,

SECTION III. ^{ME} 9/25/87

Reviewer

L. Boyden

File No. _____

Date 5-18 198 7

Dept. / Section

545A

Submittal No. and/or Date _____

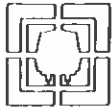
Sheet 1 of 1

Design Review / Submittal Title

A 745 TPSS AIR HANDLING EQUIPMENT PROCUREMENT

REF NO.	PAGE NO.	DRAWING NO. / DOCUMENT SECT	COMMENT	RESPONSE / ACTION
/	01310 -1	PART 1 1.1	<p>A special procurement contract appears unnecessary and expensive. Oversight and direction will still be required by the District. MRTC should be charged with the design. Manufacturers should supply equipment instruction and installation procedures. The contract resident engineer should provide installation verification. The District should provide test verification and purchasing functions in the normal course of progress.</p> <p>The contract appears to be an unnecessary additional expense requiring redundant work and an additional party between supplier installer and District. If problems occur more confusion in "whose fault" may exist.</p> <p>Recommend dropping contract and performing work internally for control and cost effectiveness</p>	<p>THIS IS PER ^{ME} 9/25/87 SCRTD DIRECTION.</p> <p><u>NO CHANGE</u></p>

O.K. ^{ME} 9/25/87

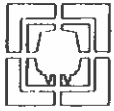


MI
9/25/87

DESIGN REVIEW COMMENTS

REVIEWER M. Ingram FILE NO. 5440 A745 X082 ORGANIZATION MRTC S, A9 S
L/T % SUBMITTAL FOR A745 TPSS Air Handling Equip.

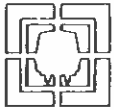
REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
1	TOC-2	-	Add Appendices A-I to the Table of Contents.	WILL ADD TO T.O.C. of Tech. Provisions	O.K. MI 9/25/87
2	01750-1	2.1	REVISE to READ AS follows: "Products ARE NOT REQUIRED for this Section."	SPARE PARTS added.	O.K. MI 9/25/87
3	15850-6	2.1.D.4	1 st Line - INSERT the word "with" after "Provide damper"	REVISED	O.K. MI 9/25/87
4	01050-2	3.1.D	Line 4 implies that Field Test requirements ARE included in spec.; HOWEVER 15850-PART 3 MAKES only a GENERAL statement relative to field tests. RECOMMEND MORE SPECIFICS for required field testing be provided, AS WAS done in the A740 contract.	FIELD TEST reqmts. to be furnished by A745 contractor. SEG App. A-Item 9.	O.K. MI 9/25/87
5	15850-2	1.3.A.5	This indicates field tests to be performed by others, but A745 contractor is required to develop Field Test Procedures. CLARIFY in conjunction with Ref. No. 4	WILL DO	O.K. MI 9/25/87



DESIGN REVIEW COMMENTS

REVIEWER M. INGRAM FILE NO. _____ ORGANIZATION MRTC S, A & S
LIT % SUBMITTAL FOR A745

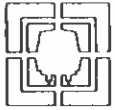
REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
6	TP-A-1-2	App. A.	Add "Quality Assurance Program" to CDRL. SEE 01450-1.1.A	WILL DO	DONE O.K. ME 5/27/87
7	-	GENERAL	RECOMMEND identifying CDRL items in the body of the specs. AS IS DONE FOR OTHER SYSTEMWIDE PROCUREMENT SPECS. (A620, A640, A650)	NO CHANGE	O.K.
8	TP-A-1-2	App. A	RECOMMEND adding REFERENCE column to App. A. to provide consistency with other system-wide procurement contracts.	WILL DO	DONE O.K.
9	TP-A-1-2	App. A-Item 7	Scheduled Due Date should be REVISED to 30 DB Testing. 10 days is not sufficient time to REVIEW documents. Also, 30 days will be consistent with A740 contract.	WILL DO	DONE O.K.
10	TP-A-1-2	App. A-Item 11	Scheduled Due Date APPEARS to BE in ERROR. Change to "90 DB" to coincide with A740.	WILL DO	DONE O.K.
11	-	App. C, D & G	THERE ARE duplications of STATION I.D. NUMBERS. Is the intent to HAVE UNIQUE		



DESIGN REVIEW COMMENTS

REVIEWER M. INGRAM FILE NO. S211A745 X082 ORGANIZATION S, A+S-QA
100 % SUBMITTAL FOR A 745 TPSS Air Handling Equip.

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
1	01010-1	1.1	Line 5 - Add the word "factory" before "testing" to clearly distinguish from "field testing" which will be performed by others PER 15850-1.3-A.5	WILL DO	DONE O.K. ME 9/25/87
2	01010-1	1.1	2 nd SENTENCE - Add "Field Engineering SERVICES AND field instruction" in order to give a complete SUMMARY of the Work.	WILL DO	DONE O.K.
3	01050-1	1.2	In order to be complete and consistent, REQUIREMENTS for the submittal of the Field Installation Instructions and Field Instruction Plan called out in Appendix A should be added to this paragraph.	WILL DO	DONE O.K.
4	01050-1	1.3	MEASUREMENT by "NUMBER of trips to the project site" MAKES NO SENSE if a COMPLEMENTARY PAYMENT item is NOT included.	WILL CLARIFY	DONE O.K.
5	01050-2	3.2	Add REQUIREMENTS for the Field Instruction PLAN, CDRL Item No. 15:	WILL ADD TO SUBMITTALS	DONE O.K.



DESIGN REVIEW COMMENTS

REVIEWER M. Ingram FILE NO. S211A745 X082 ORGANIZATION S, A45-QA
100 % SUBMITTAL FOR A745

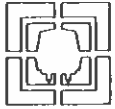
REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
6	01200-1 01300-1 01311-1 01321-1	1.4 1.3 1.3 1.4	Pay Item No. should be consistent with the Schedule of Bid Items and Prices. 01340-2/1.6 ; 01370-1/1.5 ; 01720-1/1.4 ; 01730-1/1.5 ; 01750-1/1.3	WILL REVISE	DONE O.K. MI 9/25/87
7	01200	GENERAL	This section, as written, is not applicable to the scope of A745 contract. Should be tailored to the specifics of this procurement contract.	WILL DO	DONE O.K.
8	01311-1	1.1	2 nd sentence - "construction" should be revised to read " ^{design} MANUFACTURE, test and delivery" so the section will be germane to procurement.	WILL REWORD	DONE O.K.
9	01311-1	1.2-B	The Initial Bar Chart Schedule and narrative describing approach should be added to Appendix A. Coordinate number of copies req'd. and time frame for submittal. Delete "interim milestone" in 3 rd line as there are none.	WILL DO	DONE O.K.



DESIGN REVIEW COMMENTS

REVIEWER M. INGRAM FILE NO. S211A745 XDR2 ORGANIZATION S, A 95-QA
100 % SUBMITTAL FOR A745

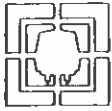
REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
10	01311-2	3.1-C	THERE ARE NO INTERIM MILESTONES SPECIFIED IN THE SPECIAL CONDITIONS. REVISE ACCORDINGLY.	WILL DO	DONE O.K. MF 4/25/87
11	01311-3 15850-13	3.3 Item No. 2	COORDINATE TERMINOLOGY, TIMING OF SUBMITTAL AND NUMBER OF COPIES REQ'D.	WILL DO	DONE O.K.
12	01311-5	3.7	THE REFERENCED ARTICLE 32 OF THE CONTRACT GENERAL CONDITIONS IS IN ERROR.	CONFLICT STILL EXISTS. DOES NOT IMPACT SAFETY CERT.	O.K.
13	01321-1	3.2	PRIOR NOTIFICATION OF WITNESS/ASSEMBLY HOLD POINTS SHOULD BE ADDED TO CDRL.	NO CHANGE	NO IMPACT O.K. ON SAFETY CERT.
14	01340-1 15850-13	1.2-B Item No. 3	COORDINATE AND MAKE CONTRACT SPECIFIC, WITH RESPECT TO WHAT, HOW MANY AND WHEN SUBMITTALS ARE REQ'D.	WILL DO	DONE O.K.
15	01340-1	1.3	REFERENCED SECTION 01630 NOT INCLUDED	OMISSION STILL EXISTS.	NO IMPACT O.K. ON SAFETY CERT.
16	01370-2	3.2-A	REFERENCED ARTICLE 22.6 OF GENERAL CONDITIONS IS IN ERROR.	WILL REVISE	DONE O.K.



DESIGN REVIEW COMMENTS

REVIEWER M. Ingram FILE NO. S211A745 X082 ORGANIZATION S.A.C.S.
100 % SUBMITTAL FOR A745

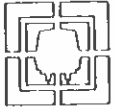
REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
17	01412	GENERAL	This section is not appropriate for this procurement contract. Factory and field testing are the responsibility of the respective contractors, to be witnessed by the District	WILL DELETE	DONE O.K. MS 9/23/87
18	01450-1	1.1-A	For consistency, delete (CDRL) here or add in other spec. sections, as appropriate. Also, measurement and payment paragraphs are needed.	WILL DO	No PAY or O.K. MEAS. PARA.
19	01720	GENERAL	Clarify who has the responsibility for "as-built" drawings for the installed equipment. Procurement Contractor or Facility Contractor?	WILL DO	O.K.
20	01730-1 15850-13	1.2-B, C & D Item Nos. 11912	Coordinate with respect to terminology, number to be submitted and timing of submittals	WILL DO	DONE O.K.
21	01750-1	3.3	This para. conflicts with Special Conditions Article 1.2.	WILL CORRECT	DONE O.K. MS 9/23/87



DESIGN REVIEW COMMENTS

REVIEWER M. Ingram FILE NO. S211A745X082 ORGANIZATION S, AAS-QA
100 % SUBMITTAL FOR A745

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
22	15850-12	-	END OF SECTION should be deleted here, as pagination extends through 15850-17.	WILL CORRECT	DONE O.K. MF 9/25/87
23	15850-13	Appendix A	Need to add the QA Program & Procedures called out in section 01450.	WILL DO	DONE O.K.
24	15850-13	Item Nos. 9410	Could not locate any requirements in the Technical Provisions pertaining to Field Test Procedure or Field Test Data. Verify responsibility for submittal of Field Test Data, as this activity is to be performed by others, per 15850-1.3-A.5.	WILL REVISE	DONE O.K.
25	BR-6 BR-7	6.0/Line 17 Line 2	Construction Agreement should be revised to Contract Agreement for consistency.	WILL REVISE	DELETED O.K.
26	01370-1	1.2-B	Schedule of Values is req'd. by Special Conditions, not General Conditions.	WILL CORRECT	DONE O.K.
27	15850-13	Appendix A	CDRL Item Nos. 2, 3 & 4 from the A740 Contract should be added to the CDRL	WILL DO	DONE O.K. MF 9/25/87



DESIGN REVIEW COMMENTS

REVIEWER W. E. Price # FILE NO. 5211A740X082 ORGANIZATION SAFETY, ASSURANCE & SECURITY
100 % SUBMITTAL FOR A 740 & A 745

REF. NO.	PAGE NO.	DRAWING NO./ SPEC. SECTION	COMMENTS	RESPONSE	ACTION
1	-	1450	Section does not contain reliability requirements for fans, dampers, and control equipment per SCRTD.	NO CHANGE	* O.K. MF 9/25/87
2	-	1450	Section should contain a requirement to the "Contractor" to conduct and submit failure mode, effects and criticality analysis per SCRTD agreement.	NO CHANGE	O.K.
3	-	1450	Section should contain a requirement to the "Contractor" to submit a fault isolation and troubleshooting plan based on accepted maintenance policies.	NO CHANGE	O.K.
			* NOT APPLICABLE. THIS IS STANDARD, OFF-THE-SHELF EQUIPMENT. NOT A PART OF EMERGENCY VENTILATION SYSTEM.		MF 9/25/87

MAY 20 1987

SAFETY & ASSURANCE

M E M O R A N D U M

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
TRANSIT SYSTEMS DEVELOPMENT DEPARTMENT
SYSTEMS DESIGN AND ANALYSIS

DATE: May 19, 1987

TO: B. Hansson

RECEIVED

FROM: H. Storey *HS*

MAY 21 1987

SUBJECT: Contract A745, TPSS Air Handling Equipment **P.C.C.**
Legal/Technical Submittal

The Safety and Systems Assurance Section and the Fire/Life Safety Committee have reviewed the subject contract package. Our comments are indicated on the attached Review/Comment sheets.

Attachments

cc: F/LSC
M. Becher

*No comments
submitted by F/LSC.*

*MI
5/28/87
PER H. STOREY*



MEMORANDUM

May 14, 1987

TO: Ken Sain
FROM: *M. Ingram*
Malcolm Ingram
SUBJECT: MRTC Safety, Assurance & Security Design Review Comments
A-745 TPSS Air Handling Equipment Legal/Technical
Review
FILE NO: S440A745X028
X082

The attached comments are submitted for your resolution. Please contact me should you have any questions regarding these comments or those submitted by the F/LSC.

MI:djr

Attachment

cc: J. N. Brown *KB*
H. Chaliff
T. Cook *
A. Dale
K. N. Murthy
T. Tanke
DCC (2) *
Chron
Subject

(* w/attachment)



Rolf Jensen & Associates, Inc.
Fire Protection Engineers
Building Code Consultants

RECEIVED

O. C. C.

October 2, 1985

FEDERAL EXPRESS

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

A-740 VENTILATION EQUIPMENT
A-745 TPSS AIR HANDLING EQUIPMENT
100 PERCENT DESIGN REVIEW

Malcolm:

Our comments and checklist for the subject packages are enclosed.

Sincerely,

David R. Fiedler, P. E.

DRF:pkj - H3275 - Ventilation

Enclosures

cc: Mr. Daniel K. Bloomfield

CHECKLIST NOT APPLICABLE
TO THIS CONTRACT.

MI
9/25/87

NO CORRESPONDENCE RELATIVE
TO SAFETY/ASSURANCE



REVIEWED by MRTC Safety, Assurance & Security. No ADVERSE impact on Safety Certification.

MI
8/20/87

A D D E N D U M

covering

CHANGE IN SPECIFICATIONS AND/OR PLANS

Date Issued: August 13, 1987

Addendum No: A745-1

Addendum Date: August 13, 1987


Bid No: _____

Contract: A745: AIR HANDLING EQUIPMENT

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 revisions to the following Specification Sections and the pages included:
 - Invitation to Bid. Page 1.
 - Bid Form C. Pages 1 and 2.
 - Bidder's Qualification and Business References Questionnaire. Page 5.
 - Special Conditions. Pages 3, 5, and SC-I-1.
 - Technical Provisions Appendixes. Pages TP-B-2-2, TP-C-1-1, TP-E-2-2, TP-F-1-1, TP-G-1-1, and TP-H-1-1.

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 addended pages.

Issued By: 

Maynard Z. Walters
Director

Office of Contracts
Procurement and Materiel

MZW/RV/ez



REVIEWED by MRTC Safety, ASSURANCE &
SECURITY. NO ADVERSE IMPACT ON SAFETY
CERTIFICATION - ME
8/31/87

A D D E N D U M

covering

CHANGE IN SPECIFICATIONS AND/OR PLANS

Date Issued: August 21, 1987

Addendum No: A745-2

Addendum Date: August 21, 1987

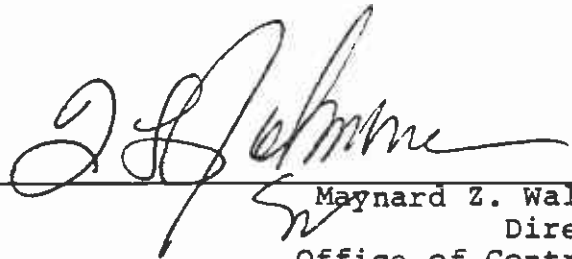
Bid No: _____

Contract: A745: AIR HANDLING EQUIPMENT

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 revisions to the following Specification Sections and the pages included:
 - Bid Form A. Page 2.
 - Bid Form C. Pages 1 and 2.
 - Special Conditions. Pages 3 and SC-I-1.
 - Section 15850. Page 5.

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 addended pages.

Issued By: 

 Maynard Z. Walters
 Director
 Office of Contracts
 Procurement and Materiel

MZW/RV/pg



REVIEWED by MRTC Safety, ASSURANCE &
SECURITY. NO ADVERSE IMPACT ON
SAFETY CERTIFICATION.

A D D E N D U M

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9/10/87

covering

CHANGE IN SPECIFICATIONS AND/OR PLANS

Date Issued: August 28, 1987

Addendum No: A745-3

Addendum Date: August 28, 1987

Bid No: _____

Contract: A745: AIR HANDLING EQUIPMENT

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 revisions to the following Specification Sections and the pages included:
 - ° Instructions to Bidders. Pages 2, 3, and 5.

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 addended pages.

Issued By: _____

Mr. Maynard Z. Walters
Director
Office of Contracts
Procurement and Materiel

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