

**Jefferson County School District, No. R-1
Support Services**

TECHNICAL GUIDELINES

DIVISION 01 – April 22, 2005

General Requirements

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

DIVISION 01 – GENERAL REQUIREMENTS

01 10 00 Summary - April 19, 2005

- Division 01 General Requirements have an immense impact on direct and indirect project costs and obligations incurred by Jefferson County School District, R-1.
- Division 01 is not "boiler plate," but rather a very carefully crafted summary of requirements that govern all Divisions of work relevant to a specific project.
- Under-specifying in Division 01 can result in substandard project administration and unnecessary repetition or conflicts in other sections of the specifications.
- Over-specifying in Division 01 increases the potential for conflicts with the General and Supplemental Conditions of the Contract, and Agreements.
- Coordinate Summary issues with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Coordinating Architect / Project Manager during the entire project development process.

END OF SECTION 01 10 00

01 11 00 Summary of Work - March 12, 2005

- Section 01 11 00 is required in the Project Manual to identify:
 1. Name of building(s) and address(es)
 2. Official and permanent project title
 3. Overview of work covered by the Contract Documents

END OF SECTION 01 11 00

01 11 16 Work by Owner - April 19, 2005

- Section 01 11 16 is required in the Project Manual when the overall scope of work includes or requires coordination with items to be performed by Jefferson County School District, R-1.

END OF SECTION 01 11 16

01 11 19 Purchase Contracts - March 12, 2005

- Section 01 11 19 is required in the Project Manual when the overall scope of work includes or requires coordination with purchase contracts.

END OF SECTION 01 11 19

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01 12 00 Multiple Contract Summary - March 12, 2005

- Section 01 12 00 is required in the Project Manual when applicable.
- Jefferson County School District, R-1 can typically award separate contracts for systems and components identified in Section 01 31 00 – Project Management and Coordination and/or the Data, Communications, and Alarm Diagram.
- Pre-Ordered Long Lead Systems/Components:
 1. Prohibited without prior approval of Jefferson County School District, R-1
 2. General Contractor includes pre-order items in Schedule of Amounts
 3. Jefferson County School District, R-1 pays for costs up to the point of cancellation.
- Pre-Purchased Long Lead Systems/Components: Not Recommended

END OF SECTION 01 12 00

01 14 00 Work Restrictions - March 12, 2005

- Section 01 14 00 is required in the Project Manual.
- Access to Site:
 1. Arrange in advance with Jefferson County School District, R-1.
 2. Contract Documents need to define both physical and schedule limitations.
- Coordination with Occupants: Allow for continued occupancy of, access to, and egress from non-construction areas in compliance with applicable codes.
- Use of Premises: Per General Conditions
 1. Define Contract limits for work, access, staging, storage, etc.
 2. Non-school personnel are prohibited outside of designated contract areas at all times.
 3. For work in existing buildings, certain facilities may be made available to the General Contractor. Such spaces are to be vacated by the Stipulated Completion Date, regardless of authorized adjustments to construction schedule:
 - a. One set of toilet facilities, restricted to sanitary purposes only, may be designated at the pre-construction conference.
 - b. If available, one room or area may be designated for use as Field Office.
 4. Use of the following are prohibited unless authorized in writing by Jefferson County School District, R-1:
 - a. Elevators and lifts
 - b. Air conditioning

END OF SECTION 01 14 00

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01 18 00 Project Utility Sources - March 12, 2005

- Section 01 18 00 is required in the project manual when the project scope includes coordination with utility purveyors.
- Identify project-applicable utilities, including entity, contact person, telephone, fax, email, and mailing addresses.
 1. Water
 2. Sanitary Sewer
 3. Storm Sewer
 4. Gas
 5. Electricity
 6. Telephone/Data
 7. CATV
- Asbestos abatement activities may require uninterrupted power and water 24 hours a day. Any action that will impact power or water during abatement must be carefully coordinated well in advance with Jefferson County School District, R-1 and the Abatement Contractor.

END OF SECTION 01 18 00

01 20 00 Price and Payment Procedures - April 19, 2005

- Section 01 20 00 or individual narrow scope sections are required in the Project Manual to define procedures for allowances, unit prices, alternates, substitutions, value analysis, contract modification, and payment.
- Coordinate Price and Payment Procedures with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Coordinating Architect / Project Manager Team during the entire project development process.

END OF SECTION 01 20 00

01 21 00 Allowances - March 12, 2005

- Cash Allowances are not recommended.
- When approved by Jefferson County School District, R-1:
 1. Submit copies of invoices for items governed
 2. Include material only in allowance amount.
 3. Labor, equipment, overhead and profit are to be included in the base bid.
 4. Balance the difference between the cash allowance and actual final invoice cost by means of a Change Order.

END OF SECTION 01 21 00

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01 22 00 Unit Prices - March 14, 2005

- Limit unit prices to items of variable/indeterminate scope with the following controls:
 1. Precise definitions of unit and included/excluded scopes are required.
 2. Unit prices are inclusive of direct and indirect costs such as labor, material, equipment, overhead and profit.
 3. Establish, define, and enforce mechanisms for measurement and verification.
 4. Document actual quantities by means of a formal Change Order.

END OF SECTION 01 22 00

01 23 00 Alternates - April 19, 2005

- Bid Alternates:
 1. Alternates with a value less than 0.5% of the total bid are usually not worthwhile.
 2. Minimize the number of trades involved in each alternate.
 3. Add alternates are preferred over deduct alternates.
 4. Maximum of 5 bid alternates per project, unless otherwise authorized by Jefferson County School District, R-1.
 5. List and select alternates in priority order to prevent post-bid challenges
- Bidder Alternates: Per Instructions to Bidders only.
 1. No submittal requirements; include in Bid Form.
- Contractor Alternates: Per General Conditions.

END OF SECTION 01 23 00

01 24 00 Value Analysis - March 17, 2005

- Application of life cycle / sustainability criteria is mandatory.

END OF SECTION 01 24 00

01 25 00 Substitution Procedures - March 17, 2005

- Per General Conditions
- See 01 62 00 Product Options

END OF SECTION 01 25 00

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01 26 00 Contract Modification Procedures - March 17, 2005

- Per General Conditions 17.00
- Request for Information (RFI): Required; Written only.
- Change Orders: Use Jefferson County School District, R-1 standard form.
- Field Order / Architect's Supplemental Instructions / Directives / Interpretations: Written only

END OF SECTION 01 26 00

01 29 00 Payment Procedures - April 19, 2005

- Per General Conditions 23.00
- Submit typed or printed information on Jefferson County School District, R-1 standard Application for Payment and Estimate for Partial Payment forms.
- Schedule of Amounts
 1. Submit typed or printed information on Jefferson County School District, R-1 standard Application for Payment form.
 2. Multiple projects within a single contract/agreement require a separate Application for Payment and Schedule of Amounts for each project site.
 3. Format: Identify each line item with number and title of each specification section listed in the Table of Contents of the Project Manual.
 4. Include a separate line item for overhead and profit.
- Progress Payments
 1. Submit no more frequently than monthly intervals.
 2. Format and content should be identical to Schedule of Amounts
- Final Payment:
 1. Submit 2 separate applications as follows:
 - a. 100% completion, less retainage
 - b. Retainage release: Per General Conditions

END OF SECTION 01 29 00

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
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01 30 00 Administrative Requirements - April 19, 2005

- Section 01 30 00 or individual narrow scope sections are required in the Project Manual.
- Coordinate Administrative Requirements with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Coordinating Architect / Project Manager during the entire project development process.
- Submit one copy of each administrative document to the Jefferson County School District, R-1 Construction Project Manager.

END OF SECTION 01 30 00

01 31 00 Project Management and Coordination - April 19, 2005

- Coordination: Contract Documents must clearly define and specify unambiguous responsibilities to furnish, rough-In, install, and connect the following items:
 1. Access Control, Electronic Door Hardware
 2. Backflow prevention
 3. Building Interface Panel (BIP)
 4. Carpet
 5. Casework, Cabinetry, Countertops
 6. Concrete Pad
 7. Conduit
 8. Connectors (RJ11, RJ45)
 9. Controllers (speed, variable frequency)
 10. Control Panels (temperature, boiler, gas train)
 11. Cutting and Patching
 12. Dampers (combination fire/smoke)
 13. Data/LAN (cable, conduit, jacks, stub ups, terminations)
 14. Detectors (fire, smoke, security)
 15. Detection/Alarm system (Fire/Security jacks, terminations, wiring)
 16. Equipment Racks
 17. Excavation and backfill
 18. Fans
 19. Fence/ Enclosure (temporary and permanent)
 20. Fire Detection/Alarm System
 21. Fire Protection Control Valve
 22. Firestopping
 23. Furniture & Equipment
 24. Grilles
 25. Heaters (overload)
 26. Heat Tape
 27. Inserts (floor, elevator, equipment, signage)
 28. Kitchen Hood fire suppression
 29. LIC Circulation Desk
 30. LIC Shelving

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31. Local Area Network (LAN) (cable, jacks, stub ups, drops, terminations)
 32. Meters
 33. Motors (equipment, damper)
 34. Outlet boxes (including telecom, data, audio, and video)
 35. Overload heaters
 36. Owner supplied materials
 37. Paging/Intercom System
 38. Patching, reconstruction
 39. Penetrations, cutouts
 40. Phase Protection
 41. Pilot light
 42. Punch Down Blocks
 43. Pushbutton stations
 44. Raceway
 45. Relays (control, fan shutdown)
 46. Roof (curbs, details, penetrations, structure, traffic, debris)
 47. Safety Guards (protective cages over exposed items in gymnasium)
 48. Electronic Safety & Security System (Jacks, terminations, wiring)
 49. Signage
 50. Starters (motor, magnetic)
 51. Structural Support
 52. Switches (disconnect, heater, line, manual, manual, overload, speed, thermal, TC flow)
 53. Telephone (conduit, handsets, jacks, pedestal, Meridan switch, terminations, and wiring)
 54. Temporary Heat, Electricity, Water
 55. Temporary Buildings (communication, detection/alarm, utilities, vault)
 56. Thermostat (freezestat, aquastat)
 57. Transformer
 58. Utility Service
 59. Valves (control, motor, solenoid)
 60. Wiring (power, control)
 61. Other items in Divisions 02 - 49, which contain motors, plumbing, lights, speakers, communication interfaces, or data connections.
- Coordination: Wiring in divisions other than Division 26-Electrical is limited to 50 volts or less except:
 1. Control wiring in Division 23-Heating Ventilating and Air Conditioning
 2. Division 25-Integrated Automation up to 120 volts is to be performed by a journeyman electrician.
 - Also see Data, Communications, and Alarm Diagram.

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- Per individual specification sections, qualification requirements may be imposed upon one or more of the following:
 1. Fabricator
 2. Installer
 3. Manufacturer
 4. Manufacturer Facilities / Support
 5. Supplier
 6. Testing Agency
- Project Meetings
 1. A Pre-Construction Conference is mandatory for all Jefferson County School District, R-1 capital projects, regardless of contract amount or scope.
 2. Weekly Project meetings are mandatory for all Jefferson County School District, R-1 capital projects.
 3. The General Contractor is responsible for preparing and distributing Meeting Minutes to participants.
 4. Jefferson County School District, R-1 Construction Management Department agenda formats are recommended.
- Recorded logs, updated daily, are mandatory for the following administrative activities:
 1. Regulatory Requirements; permits and approvals
 2. Quality Control; testing and inspection
 3. Requests for Information (RFI) and responses
 4. Requests for changes or substitutions
 5. Architect's Supplemental Instructions / Field Orders
 6. Change Orders
 7. Submittals
- Project Web Site: No requirements
- Coordination Matrix:

Description	CSI Division	Funded By	PCE Account	Designed By	Furnished By	Installed By	Comments
Asbestos Abatement	02						
Building Interface Panel	25	JPS/CB	921	JCI	JCI	JCI	
Carpet (Base Bid)	09	GC/BP	921	AE	GC	GC	
Carpet (By District)	09	JPS/CB	921	AE	JPS	GC	
Electronic Safety & Security Wiring	28			SRI	SRI	SRI	See Data Communications and Alarm Diagram
Electronic Safety & Security Equip.	28			SRI	SRI	SRI	See Data Communications and Alarm Diagram
Fire Detection Interface Panel	25						For systems other than JCI to interface w/ Medisys system
Fire Suppression Interface Panel	25	JPS/CB	921	JCI	JCI	JCI	Kitchen Hood Suppression, Power by Div. 26
High Density Mobile Shelving	10	JPS/CB	921	AE	JPS/IV	JPS/IV	
LIC Circulation Desk	06	JPS/CB	921	AE	JPS/IV	JPS/IV	
LIC Perimeter Shelving	12	JPS/CB	921	AE	JPS/IV	JPS/IV	
New Fire Hydrants	33	JPS/CB	932/934	AE	GC	GC	
New/Relocated Water Mains	33	JPS/CB	932/934	UT	UT	UT	Relocated Service or Service Loop

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Paging System Wiring	27	JPS/CB	921	AE	CMC	CMC	Inside Building
LIC General Shelving	12	JPS/FF&E	920	AE	JPS/IV	JPS/IV	
Paging System Speakers	27	JPS/CB	921	AE	CMC	CMC	Backboxes installed by GC
Paging System Equipment	27	JPS/CB	921	AE	JPS		
Plan Review/Permit Fees	01	JPS/CB	921	NA	NA	NA	
Playground Equipment	11	JPS/CB	932	AE			
Qwest Cable (Telephone)	27	JPS/CB	932/934	UT	UT	UT	New Service to MDF
Special Systems Raceway	26						
Synthetic Turf	32						
Temperature Controls	25						
Toilet Accessories	10	GC/BP	921	AE	GC/BP	GC/BP	
Topographic Survey	01	JPS	931	NA	NA	NA	
Cable TV Service	27	JPS/CB	934	UT	UT	UT	New Service to MDF
Voice/Data/Video Cabling	27	JPS/CB	921	AE	CMC	CMC	Inside Building
Voice/Data/Video Equipment	27	JPS/CB	921		JPS	CMC	Phones, Computers, Monitors, etc.
Water/Sanitation District Fees		JPS/CB	932	NA	NA	NA	Design, Inspections, etc.
Water Tap Fee - Building		JPS/CB	932	NA	NA	NA	
Water Tap Fee - Irrigation		JPS/CB	932	NA	NA	NA	
Xcel Energy or IREA – Gas / Electric	33	JPS/CB	932	UT	UT	UT	New Service to facility, including pulse meter
AE = Architect/Engineer (Includes Prime & all Subconsultants)							
BP = Bid Package (Includes all work shown/specified in contract documents)							
CB = Construction Budget (Building & Sitework)							
CMC = Communications Contractor							
FF&E = Furniture, Fixtures & Equipment Budget							
GC = General Contractor (and all subcontractors included in bid package)							
IV = Interiors Vendor							
JCI = Johnson Controls Inc.							
JPS = Jeffco Public Schools Separate Contract							
NA = Not Applicable							
SC = Separate Contract							
SRI = Swanson Rink & Associates							
UT = Utility Company							

END SECTION 01 31 00

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01 32 00 Construction Progress Documentation - April 19, 2005

- Per General Conditions 24.00
- Construction Photographs: Comprehensive pre-construction photographs and videos are mandatory.
- Periodic Site Observation: Per Agreement
- Progress Schedules and Reports
 1. Submit schedule chart with separate listings for each major trade or operation
 2. Interval: 3 weeks maximum
 3. Indicate complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities.
 4. Indicate projected percentage of completion for each item of work at the time of each Application for Progress Payment.
 5. Indicate action dates for shop drawings, product data, samples and other required submittals.
 6. Show product delivery dates, including those furnished by Owner or Others.
 7. Identify Test and Balance as a separate line item
 8. Identify Closeout as a separate line item
- Scheduling of Construction
 1. This is a critical issue, especially at occupied sites and facilities
 2. Coordinate with Jefferson County School District, R-1 Coordinating Architect / Project Manager.
 3. Contract Documents should indicate critical dates for work under separate contract (such as asbestos abatement).

END SECTION 01 32 00

01 33 00 Submittal Procedures - April 19, 2005

- Coordinate submittal requirements with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Coordinating Architect / Project Manager during the entire project development process.
- Submittals constitute an implied statement by the Sub- and General Contractors that submitted items:
 1. Have been reviewed and approved by the Sub- and General Contractor
 2. Have been verified and coordinated with specifications, measurements, conditions, and relevant criteria of the Contract Documents.
 3. Can be fabricated and delivered to the project site within the proposed Project Schedule.
- Submittals are not Change Orders. The purpose of submittals is to demonstrate that the Contractor understands the design concept and confirms such through proposed detailing, fabrication, and installation methods.
- No Finish selection will be made until all appearance-related submittals have been received.

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- Under no circumstances shall unreviewed or unapproved submittals be used in conjunction with the work.
- Review by the design consultant and Jefferson County School District, R-1 shall not relieve the Contractor from full compliance with the Construction Documents.
- Label each submittal to clearly identify:
 1. Submittal, including specification section number.
 2. Project
 3. Architect or Prime Consultant
 4. Owner: Jefferson County School District, R-1
 5. Manufacturer
 6. Contractor
 7. Subcontractor
 8. Supplier, if different from Subcontractor
- Submittals are required to identify deviations from the Contract Documents.
- Provide space for review notes.
- Re-submittals: Clearly identify changes made since previous submittal
- Product Data:
 1. Submit manufacturer's standard catalog cuts, brochures, technical data, and specifications
 2. Mark each copy to identify project-specific applicable products, models, options and other data
 3. Supplement manufacturers' standard data with information unique to the work.
- Shop Drawings
 1. CAD generated plots are the preferred format for all Shop Drawings and are required per Section 01 78 39.
- Samples:
 1. Finishes: Submit full range of manufacturers' standard colors, textures and patterns for Jefferson County School District, R-1 selection.
 2. Mock Up: Submit full or reduced sized samples to illustrate functional characteristics of the assembled product, with integral parts and attachment devices per specifications.
- Submittal process: Design Consultant forwards one set of approved submittals to Jefferson County School District, R-1 Project Manager
 1. Include a summary/outline matrix of all submittal requirements of the Contract Documents in this section.
- Refer to specific requirements for submittals in other sections of Division 01 and in the individual specification sections of Divisions 02 through 33 of these Technical Guidelines.

END SECTION 01 33 00

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
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01 35 00 Special Procedures - April 19, 2005

- Alteration Project Procedures: Renovation and Reconstruction (including retrofit roofing projects):
 1. Limit/contain smoke, dust, dirt, noise (including radios) to immediate work area.
- Environmental Procedures: Asbestos Abatement
 1. Schedule Construction to allow for abatement work under separate contract.
 2. Due to time constraints, abatement and construction may occur simultaneously in different work areas of the same building.
 3. Maintain the integrity of containment or temporary dust barriers erected by the Abatement Contractor.
 4. Air monitoring will be conducted both inside and outside the containment at all times during asbestos abatement activities.
 5. Coordinate non-abatement construction activities that create dust or fumes with the Owner and the Abatement Contractor in order to avoid false air monitoring readings.
- Environmental Procedures: Storm Water Management
 1. The (site) general contractor shall obtain all storm water permits and construct protective measures.
 2. The general contractor shall be responsible for complying with the provisions of the permit, including inspection and maintenance, until the permit is inactivated. The general contractor will be liable for any non-compliance notices or penalties issued by the State.
 3. All runoff control items not supporting the final site drainage system shall be removed from the site prior to owner acceptance
 4. GC and A/E with Construction Management and Facilities Maintenance shall conduct a walk through of site's stormwater drainage system covered by the SWMP prior to acceptance.
 5. Deactivation of the construction activity permit requires prior approval by Jefferson County School District, R-1 Construction Management.
 6. A/E will recommend BMPs for the post-construction maintenance of the site's stormwater drainage system and a stormwater outfall map.
- Security Procedures:
 1. Per General Conditions
 2. Successful bidders will be required to complete Criminal Record Check on all employees who work on the site of the projects. Employees who have been convicted of a violent or serious felony, including crimes that require registration on the National Sexual Offender Registry will not be allowed to work on the site of the project. The Contractor must complete the Criminal Records Check Certification. Each Contractor will be responsible to adhere to any Federal, State or Local privacy and confidentiality requirements.
 3. Criminal Records Check Certification:\

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Criminal Records Check Certification

I, _____, certify that:

Name of Contractor

1. I have carefully read and understand Technical Guidelines Section 01 35 00 regarding the Criminal Records Check required by Jefferson County School District, R-1.
2. Due to the nature of the work I will be performing for the District, my employees May have contact with the students in the District.
3. None of the employees who will be performing the work have been convicted of a violent or serious felony as defined in Technical Guidelines Section 01 35 00 and this determination was made by a fingerprint check through the Department of Justice or the Colorado Bureau of Investigation.

I declare under penalty of perjury that the foregoing is true and correct.

Executed at _____, Colorado, on _____
Date

Signature _____

Typed or Printed Name _____

Title _____

Address _____

END SECTION 01 35 00

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01 40 00 Quality Requirements - April 20, 2005

- Section 01 40 00 or individual narrow scope sections are required in the Project Manual.
- Coordinate Quality Requirements with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Coordinating Architect / Project Manager during the entire project development process.
- Identify project-applicable regulatory requirements in the Contract Documents; including entity, contact person, telephone, fax, email, and mailing addresses.

END SECTION 01 40 00

01 41 00 Regulatory Requirements - April 20, 2005

- Federal Regulatory Requirements and guidelines:
 1. Environmental Protection Agency
 - a. Regulations governing underground storage tanks (UST)
 - b. Asbestos Hazard Emergency Response Act (AHERA)
 - c. Indoor Air Quality Tools for Schools (IAQ/TFS)
 2. Occupational Safety and Health Administration (OSHA)
 3. Americans with Disabilities Act (ADA)
 - a. ADA Architectural Guidelines (ADAAG),
 - b. ADAAG Recommendations for Accessibility Standards for Children's Environments
 - c. ANSI A117.1, and applicable codes.
 4. U. S. Corps of Engineers (303) 979-4120
 - a. 404 Permit is required for work in or around natural watercourses.
- State of Colorado Regulatory Requirements and Guidelines:
 1. International Building Code (IBC) 2003 edition:
 - a. Colorado State Statute CRS 22-32-124 requires that building codes for schools be administered and enforced through the Colorado Department of Labor and Employment, Division of Labor, Public Safety Section, Tower 3, Suite 660, 1515 Arapahoe Street, Denver, Colorado 80202-2117; (303) 318-8499.
 - b. IBC Type V construction is prohibited for permanent Jefferson County School District, R-1 buildings larger than 2500 g.s.f.
 2. International Fire Code (IFC):
 - a. Enforced through Colorado Department of Labor and Employment, Division of Labor, Public Safety Section.
 - b. In the event of conflict, IBC prevails
 3. International Mechanical Code (IMC):
 - a. Enforced through Colorado Department of Labor and Employment, Division of Labor, Public Safety Section.

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4. Uniform Plumbing Code (UPC) or International Plumbing Code (IPC):
 - a. Enforced through Colorado State Examining Board of Plumbers, Department of Regulatory Agencies, 1580 Logan Street, Suite 550, Denver, Colorado 80203-1941 (303) 894 -2300.
 - b. Note: Certain Water and Sanitation Districts reserve the authority to engineer service sizes, grease traps, and other components of the plumbing system.
5. National Electrical Code (NEC):
 - a. Enforced through Department of Regulatory Agencies, State Electrical Board, 1580 Logan Street, Suite 550, Denver, CO 80203-1941
6. Model Energy Code (International Code Conference):
 - a. Enforced as an appendix to the IBC through Colorado Department of Labor and Employment, Division of Labor, Public Safety Section.
7. International Solar Energy Code (ISEC):
 - a. Enforced through Colorado Department of Labor and Employment, Division of Labor, Public Safety Section.
8. ANSI/ASME A17.1 Safety Code for Elevators:
 - a. Enforced through Colorado Department of Labor and Employment, Division of Labor, Public Safety Section.
9. National Fire Protection Association (NFPA):
 - a. Not applicable unless directly referenced by one of the above state-adopted codes.
10. Colorado Department of Health; Enforced through Jefferson County Health Department:
 - a. "Rules and Regulations Governing Schools in the State of Colorado."
 - b. "Rules and Regulations Governing the Sanitation of Food Service Establishments in the State of Colorado."
 - c. Other regulations of the Colorado Department of Health as enforced by local Department of Health including but not limited to:
 - (1) Colorado Primary Drinking Water Regulations
 - (2) Water Quality - Cross Connection Control
 - (3) Asbestos
 - (4) Hazardous Materials
11. Colorado Department of Highways "Uniform Traffic Control Device Manual"
12. State of Colorado Water Quality Regulations Water Quality Control Division (303) 692-3517; <http://www.cdphe.state.co.us/wq/permitsunit/wqcdpmt.html>
 - a. Stormwater: Discharge Permit System (CDPS) / Stormwater Management Plan (SWMP)
 - b. Construction dewatering
13. American Society of Mechanical Engineers (ASME) Boiler Code:
 - a. Enforced through Colorado State Boiler Inspection Branch (303) 572-2900
14. State of Colorado Geological Standards and Regulations:
 - a. Enforced through Colorado Geological Survey (303) 866-2611
 - b. Construction on virgin sites only: Submit site plan and geotechnical report for review and approval
15. Rules Regulating Child Care Centers
 - a. Enforced through The Division of Child Care, Colorado Department of Human Services, 1575 Sherman Street, Denver, Colorado 80203 (303) 866-5958

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16. Climbing walls: Submit a letter to the Public Safety Section from a registered structural engineer certifying that both system components and building attachment are structurally adequate.
- Jefferson County Regulatory Requirements apply to projects in unincorporated areas.
 1. Zoning Ordinance
 2. Jefferson County Land Development Regulations
- Industry Standards
 1. Comply with industry standards identified in individual sections of these Technical Guidelines.
 2. Underwriters Laboratories (UL) label is mandatory for all electrical apparatus, equipment, and devices.
- Municipality Regulatory Requirements excluding City of Lakewood:
 1. Zoning Ordinance
 - a. Submit a site development to the Planning Commission plan for review and comment prior to construction of any building or structure.
 - b. Municipal and county zoning regulations have no jurisdiction over Jefferson County School District R-1. However, the District is required to consult with the Planning Commission having jurisdiction prior to acquiring a site "in order that the proposed site shall conform to the adopted plan of the community insofar as is feasible" (CRS 22-32-124).
 2. Grading, Erosion, and Drainage permits (City of Lakewood)
 3. Curb Cut Permit
- Projects within the City of Lakewood require special procedures according to the 1997 Intergovernmental Agreement with Jefferson County School District, R-1.
- Other Regulatory Requirements
 1. Fire/Smoke Detection/Alarm System installation requires review and authorization by the local fire protection district unless the installer has a valid permit issued by the State Electrical Board for general electrical work.
 2. The general contractor is required to contact the municipality for full compliance of applicable and latest editions of codes and regulations with amendments.

END SECTION 01 41 00

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01 45 00 Quality Control - April 20, 2005

- Jefferson County School District, R-1 reserves the right to procure qualified independent evaluation of any materials and workmanship in the project.
- Specifications should define: Criteria, limits, witnessing, and correction of non-complying construction.
- Independent field and/or laboratory testing for construction quality control can be procured directly by Jefferson County School District, R-1 for the following:
 1. 02 50 00 Site Remediation
 2. 02 80 00 Facility Remediation
 3. 03 30 00 Concrete slab to receive finish flooring
 4. 31 23 00 Excavation and Fill
 5. 31 60 00 Special Foundations and Load Bearing Elements
 6. 32 10 00 Bases, Ballasts, Pavements
 7. 03 30 00 Cast-In-Place Concrete
 8. 03 40 00 Precast Concrete
 9. 04 20 00 Unit Masonry
 10. 05 05 00 Common Work Results for Metals: Structural welding
 11. 09 80 00 Acoustic Treatment
 12. 23 21 00 Hydronic Piping: Joint integrity

END SECTION 01 45 00

01 50 00 Temporary Facilities and Controls - March 17, 2005

- Section 01 50 00 or individual narrow scope sections are required in the Project Manual.

END SECTION 01 50 00

01 51 00 Temporary Utilities - March 14, 2005

- Coordinate Temporary Utility requirements with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Facilities Team during the entire project development process.
- For general construction work in existing buildings, Jefferson County School District, R-1 usually provides the following utilities without charge to the Contractor:
 1. Gas
 2. Water
 3. Electricity
 4. Heat/normal ventilation (but not air conditioning)

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

- Use of sanitary sewer is permitted for normal wastewater only; not construction debris, plaster, paint, etc.
 1. The General Contractor is responsible for the full costs of cleanout and correction of related damage due to blockages.
 2. The General Contractor is responsible for temporary voice and data systems.
 3. Special attention is required for Asbestos Abatement projects.

END SECTION 01 51 00

01 58 00 Project Identification - March 14, 2005

- One (1) exterior sign (4 feet x 8 feet) is required for all capital projects over \$250,000 construction value.
- Content and format
 1. Jefferson County School District, R-1 logo and colors
 2. Facility name and/or project name
 3. Design Consultant(s)
 4. General Contractor
 5. Source of funding
 6. Other information as directed by Jefferson County School District, R-1

END SECTION 01 58 00

01 60 00 Product Requirements - April 20, 2005

- Section 01 60 00 and/or 01 61 00 is required in the Project Manual.
- Coordinate Product requirements with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Coordinating Architect / Project Manager during the entire project development process.
- These Technical Guidelines assign each material, product and system to one of four categories as follows:
 1. Tier 1: Product/Model specific: Proprietary; sole source, closed specification restricted to specific products of specific manufacturers. No substitutions or alternates.
 2. Tier 2: Manufacturer specific: Proprietary; restricted sources specification. No substitutions or alternates.
 3. Tier 3: Performance criteria: Unrestricted descriptive specification or reference standard. Open to any materials, products, and systems that meet specified requirements.
 4. Tier 4: Commodity. Unrestricted descriptive specification or reference standard. Open to any materials, products, and systems.
- As a public entity, Jefferson County School District, R-1 seeks to procure products and materials through open, competitive bidding to the greatest degree possible.

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

- However, the School District is a conservative purchaser, preferring known or proven products and materials over unknown or experimental ones.
- Jefferson County School District, R-1 does not have sufficient resources to serve as a testing laboratory for products, materials or designs.
- Domestically manufactured products and materials are strongly preferred over those of foreign manufacture.
- Standard production materials, products, systems, and finishes are preferred over custom.
- Local product support is strongly preferred

END SECTION 01 60 00

01 62 00 Product Options - April 20, 2005

- Also see 01 60 00 Product Requirements
- Materials, products, and systems identified as Tier 3 and 4 require no evaluation or approval of options.
- Options to Tier 1 and Tier 2 materials, products, and systems require formal approval.
 1. Formal approval is defined as unanimous approval by representatives of Jefferson County School District, R-1 Facilities Planning and Design + Construction Management + Facilities Management
- Options will be evaluated according to the following criteria:
 1. Compliance with these Technical Guidelines and intended quality.
 2. Performance record in public schools in Colorado or adjacent states
 3. Life cycle cost
 4. Initial cost
 5. Availability / Impact on construction schedule
 6. Maintenance procedures, access, service, parts availability
 7. Risk / reward
 8. Compatibility with existing, including District-wide considerations.
 9. Ramifications for other components of the finished construction.
 10. Physical size, configuration for the intended use.

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

- Product Substitution Procedures
 1. Substitutions are governed by the General Conditions of the Contract.
 2. References to "equal" or "approved equal" in the project specifications are prohibited unless the process governing consideration of such substitutions is defined in this section of the specifications.
 3. Product options and substitutions are categorically prohibited without the confirmation of compliance with project-specific:
 - a. Specifications
 - b. Measurements
 - c. Details and interfaces
 - d. Schedule implications
 - e. Physical conditions
 - f. Operation and maintenance requirements
 - g. Other relevant criteria of the Contract Documents
- Jefferson County School District, R-1 “ Request for Substitution” form is required to evaluate Product Options proposed after the bid opening.

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
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JEFFERSON COUNTY PUBLIC SCHOOLS
809 Quail Street, Building #4 / Lakewood, Colorado 80215
Department of Facilities Planning & Design and Construction Management

SUBSTITUTION REQUEST

Substitution Request # : _____

Date: _____

TO: _____
Architect / Consultant

Location: _____

Project I D #: _____

FROM: _____
Contractor / Vendor

Project Description: _____

The above listed Contractor / Vendor here by requests approval of the following product in accordance with Section GC 36.00 of the General Conditions of the contract.

Material Or Product	
Specified Material or Product:	_____
Manufacture:	_____
Model #:	_____
Specification Section:	_____
Substituted Material or Product:	_____
Manufacture:	_____
Model #:	_____

Reason for Substitution:

- A) Specified Product is no longer available: C) The Owner will receive a Savings of: _____
- B) Substitution will improve lead time by: _____ Days D) The Quality of the Material or Product will be Improved:

Give Details:

Contractor's or Vendor's Comments on Substitution:

Contractor / Vendor _____
Signature

Architect / Consultant Recommendations:

Architect / Consultant _____
Signature

Owner Approval Date: _____

Owner Rejection Date: _____

School District's Project Manager _____

Signature

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

01 64 00 Owner-Supplied Products - April 20, 2005

- Coordinate between Contractor and Jefferson County School District, R-1 Coordinating Architect / Project Manager Team.
- See Section 01 31 00 – Project Management and Coordination

END SECTION 01 64 00

01 70 00 Execution and Closeout Requirements - April 20, 2005

- Coordinate Execution requirements with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Coordinating Architect / Project Manager
 3. Section 01 77 00 – Closeout Procedures
 4. Sections 01 78 13 – 01 78 53– Closeout Submittals

END SECTION 01 70 00

01 71 00 Examination and Preparation - March 18, 2005

- Field-verify condition and performance of existing pavement, components, systems, lines, etc. before beginning demolition or new construction, including retrofit/remodeling projects.
- Advise Jefferson County School District, R-1 in writing of substandard conditions or performance that could adversely affect work in the Contract for Construction

END SECTION 01 71 00

01 77 00 Closeout Procedures - April 20, 2005

- Jefferson County School District, R-1 expects to operate and maintain its facilities for a minimum of 40 years beyond the date of Final Acceptance. To be efficient, economical, and effective in this mission, it is imperative that the School District receive accurate and permanent "as constructed" records, in both electronic and reproducible formats, of every graphic and text document used directly or indirectly to execute the construction project.
- Section 01 77 00 is required in the Project Manual.
- Coordinate Closeout Submittal requirements with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Consultant Guidelines (particularly Formats)
 3. Coordinating Architect / Project Manager throughout the entire project development process.

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Division 01 – General Requirements

- The mandatory sequence of events for acceptance and closeout of Jefferson County School District, R-1 capital construction projects is as follows:
 1. Contractor maintains "As Constructed" set of documents at the project site at all times.
 2. Contractor submits "As Constructed" document set to Design Consultant.
 3. Design Consultant integrates Contractor information with other documentation of post-award changes and submits updated text, CAD, and plotted reproducible record documents directly to the Design Consultant at the closeout meeting.
 4. Preparation: Before requesting a Final Inspection, the Contractor personally inspects the work to certify completion of all contract requirements and develops: Punch-List of deficiencies by discipline (i.e. Civil, Architectural, HVAC, Plumbing, Electrical, etc.). Partial Punch-Lists by area of construction may be permitted with the approval of the Jefferson County School District, R-1 Project Manager.
 5. Written Notification of Project Completion: The Contractor certifies inspection, acceptance, and suitability of the work for the Architect's Final Inspection and attaches the Punch-List.
 6. Final Inspection: Upon receipt of the Written Notification, the Architect schedules a Final Inspection with the Jefferson County School District, R-1 Project Manager to confirm the Punch-List and initiate Project Acceptance. Following this inspection, the Architect prepares and distributes a Final Inspection Report.
 7. Notice of Completion: The Contractor advises the Architect in writing that the items identified in the Punch List and Final Inspection Report are complete, inspected, and ready for Final Acceptance.
 8. Final Acceptance Inspection: Upon receipt of the Notice of Completion, the Architect schedules a Final Acceptance Inspection with the Contractor and the Jefferson County School District, R-1 Project Manager.
 9. Project Closeout Meeting: Contractor schedules a meeting to transmit closeout documents to the Prime Consultant with Subcontractor and Jefferson County School District, R-1 Project Manager in attendance.
 10. Acceptance: After Punch-List items and closeout submittals have been completed to the satisfaction of the Architect, the Architect issues a written letter to Jefferson County School District, R-1 recommending acceptance of the project. The Architect's letter of acceptance includes asbestos content certifications and the recommended date of acceptance.
 11. Final Application for Payment: Upon completion of the Final Acceptance process, the Contractor submits to the Architect:
 - a. Closeout submittals per sections 01 78 13 – 01 78 53.
 - b. Final Applications for Payment per section 01 29 00.
 12. Final Payment: Upon verification of the preceding items:
 - a. The Architect recommends Final Payment.
 13. Jefferson County School District, R-1 issues Final Payment after a waiting period following the publication of a formal announcement of Final Payment

END SECTION 01 77 00

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

01 78 00 Closeout Submittals - March 18, 2005

- Refer to sections 01 78 13 – 01 78 53

END SECTION 01 78 00

01 78 13 Completion and Correction List - March 18, 2005

- Per General Conditions

END SECTION 01 78 13

01 78 19 Maintenance Contracts - March 18, 2005

- No requirements

END SECTION 01 78 19

01 78 23 Operation and Maintenance Data - March 15, 2005

- Process:
 1. Submit draft(s) within 90 days of contract execution
 2. Contractor submits O&M data to Design Consultant at closeout meeting
- Format
 1. 3 ring binder with index tabs
 2. Indexed Adobe.pdf files and videotapes are recommended but not required.
- Contents
 1. Title Sheet: “Operation and Maintenance Data and Instructions”
 2. Project Title
 3. Identification of project participants. Include company name, the name of the business address, telephone, fax, and email address for the following:
 - a. Architect
 - b. Sub Consultant(s)
 - c. Owner: Jefferson County School District, R-1
 - d. Manufacturer(s)
 - e. Contractor/ Construction Manager
 - f. Installing Subcontractor
 - g. Supplier, if different from Subcontractor
 - h. Maintenance contractor, if appropriate
 - i. Local source of supply for parts and replacement
 4. Table of Contents for each volume, arranged by specification division and section then presented alphabetically within each section.
 5. Identify each product by product name and other identifying symbols consistent with the Contract Documents.

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

6. General catalog data sheets: Include only those sheets pertinent to the installed product(s). Annotate each sheet to clearly identify the installed product and data applicable to installation. Delete or overwrite inapplicable information to create a true "as constructed" record.
7. Printed text to supplement product data and organize into a consistent format under separate headings for different procedures. Provide logical sequence of instructions for each procedure.
8. List of manufacturer's recommended spare parts, their current prices and recommended quantities to be maintained in storage.
9. List proper procedures in event of failure
10. Itemize conditions, which might affect validity of warranties or bonds
11. Drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems.
 - b. Control and flow diagrams of devices installed.
 - c. Correct illustration of completed installation.
12. Diagrams and Charts
 - a. Each subcontractor's coordination drawings, and as-installed color-coded diagrams (required by contract, and used in the project).
 - b. Charts of equipment with location and function of each.
13. Instructions for operation, adjustment, maintenance and repair of installed equipment and systems by Jefferson County School District, R-1 personnel.
14. Manufacturers' Manuals for Equipment and Systems including:
 - a. Description of unit and component parts
 - b. Complete nomenclature and commercial part number of replaceable parts.
 - c. Function, normal operating characteristics and limiting conditions of parts and assemblies.
 - d. Performance curves, engineering data and tests for pumps larger than $\frac{3}{4}$ HP and fans greater than 1000 cfm. Curves shall include flow rate, pressure, HP, RPM and efficiency.
 - e. Recommended procedures
 - f. Start-up, break-in, routine lubrication and operating instructions, cautions
 - g. Regulations, control, start/stop, shutdown
 - h. Emergency instructions
 - i. Special summer and winter operating cautions
 - j. Maintenance
 - k. Routine care
 - l. Guide to trouble shooting
 - m. Disassembly, repair and reassembly
 - n. Alignment, adjusting and checking
 - o. Water treatment

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Division 01 – General Requirements

- p. List of required lubricants and schedule
- q. Filter cleaning or replacement schedule
- r. Maintenance parts list, illustrations, assembly drawings and diagrams
- s. Predicted life of parts expected to be replaced

END SECTION 01 78 23

01 78 29 Final Site Survey - March 15, 2005

- A post-construction survey is mandatory for all capital projects where the scope of work includes sitework or alteration of the building footprint.
 - 1. Included in the General Contract for new buildings on new sites only.
 - 2. Separate contract for other projects where scope of work includes site work.
- When required, comply with survey criteria outlined in the Consultant Guidelines.
- Submit with record documents

END SECTION 01 78 29

01 78 33 Bonds - March 15, 2005

- No requirements

END SECTION 01 78 33

01 78 36 Warranties - April 20, 2005

- Manufacturer warranties are typically limitations of liability and therefore are categorically not recommended.
- Do not include Warranties and Bonds within O & M manuals.
- When provided, extended term warranties must comply with the following:
 - 1. Be underwritten by the product or system manufacturer.
 - 2. Provide coverage term from the date of project final acceptance.
 - 3. Provide full replacement product or material with no dollar limit.
 - 4. Incremental Warranties (i.e. "5 plus 5") are not acceptable.
- Process:
 - 1. Submit sample within 60 days of contract execution
 - 2. Contractor submits original and 2 copies to Design Consultant at closeout meeting

END SECTION 01 78 36

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

01 78 39 Project Record Documents - April 20, 2005

- Field Record Documents
 1. Maintain at the job site one "As Constructed" active record copy of :
 - a. Contract Drawings
 - b. Project Manual
 - c. Specifications
 - d. Addenda
 - e. Shop Drawings
 - f. Change Orders and other modifications to the Contract
 - g. Field inspection reports, permits, approvals, test reports, certifications, and other documents used in the construction of the facility or the fabrication of its components and systems.
 2. Accurately mark these documents with all changes made during construction, using pencil or ink of a contrasting color.
 - a. Cable systems: Accurately indicate system status including terminations, routing, and labels.
 3. Store Project Record Documents apart from documents used for construction.
 4. Maintain Project Record Documents in a clean legible condition.
 5. Label each document "PROJECT RECORD COPY" in large, bold letters.
 6. Keep record documents current.
 7. Do not permanently conceal any work until required information has been recorded.
 8. Make the project record documents available at all times for the Owner's, Architect's, or Engineer's inspection.
- CAD and Reproducible Record Documents
 1. At Contract closeout, the prime consultant is responsible for developing permanent Project Record Documents by transcribing information contained in the Field Record Documents onto original (electronic) media.
 2. As-Constructed Specifications: A single, bookmarked Adobe .pdf file plus one hardcopy printout in 3 ring binders, updated with the following annotations for each component or specification section as appropriate:
 - a. Per General Conditions GC-41.00 cross reference each specification section to a master list of subcontractor, suppliers, and installers, complete with addresses and telephone numbers.
 - b. Clearly differentiate between actual installed items and bid options or substitutions.
 - c. Identify manufacturer, trade name, catalog number and supplier of each product and item or equipment actually installed.
 - d. Document installed color, texture, and pattern.
 - e. Indicate changes made by Addendum, Change Order, Alternate, and Field Order.

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3. As-Constructed Product/Finish/Equipment Schedules: Text, Spreadsheet or Database file plus one reproducible plot updated with the following annotations:
 - a. Manufacturer, trade name, catalog number and supplier of each product and item or equipment actually installed.
 - b. Color, texture, pattern.
 - c. Changes made by Addendum, Change Order, Alternate, and Field Order.
 4. As-Constructed Record Construction Drawings: CAD file plus Adobe .pdf file plus hardcopy plot on high quality bond paper updated with the following annotations and corrections:
 - a. Addenda
 - b. Bid Alternates accepted/not accepted
 - c. Change Orders, Field Orders, Supplemental Instructions
 - d. Differing/Uncovered conditions
 - e. Size/position/dimensional differences exceeding 4 inches
 - f. Locations of concealed or buried utilities and systems
 - g. Other items not originally indicated.
- Supplemental Documents
 1. Per CSI Uniform Drawing System
 2. Required As-Constructed Annotations
 3. Cross reference both original document and supplement to each other
 4. Identify supplemental documents in Index/Table of Contents
 - Approved Shop Drawings:
 1. CAD file plus one hardcopy plot updated per As-Constructed Record Construction Drawings are required for:
 - a. 21 00 00 Fire Suppression; including one (1) hardcopy set approved (stamped) by the ‘Authority Having Jurisdiction’ (AHJ)
 - b. 25 30 00 Integrated Automation Instrumentation (Temperature Controls)
 - c. 27 53 13 Clock System
 - d. 28 10 00 Access Control
 - e. 28 20 00 Electronic Surveillance
 - f. 28 30 00 Electronic Detection and Alarm Systems; including one (1) hardcopy set approved (stamped) by the ‘Authority Having Jurisdiction’ (AHJ)
 - g. 32 80 00 Irrigation System
 2. Hardcopy reproduction of original approved shop drawings is required for all other specification sections.
 - Submittal log, complete with review comments, corrections, and authorizations
 - Project Files
 1. One complete set of project administration records identified in Section 01 31 00.
 2. Correspondence including hard copies of significant e-mail communications.
 - Label closeout submittals to clearly identify:
 1. Submittal, including specification section number.
 2. Project – specific title
 3. Architect or Prime Consultant
 4. Owner: Jefferson County School District, R-1
 5. Date
 6. “As Constructed” when applicable

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

- “As Constructed” Closeout submittals are not required for:
 1. Demolition
 2. Temporary Construction
 3. Reference Documents provided by Owner.

END SECTION 01 78 39

01 78 43 Spare Parts - March 18, 2005

- Process: Contractor submits directly to Jefferson County School District, R-1 Project Manager.

END SECTION 01 78 43

01 78 46 Extra Stock Materials - March 15, 2005

- Provide products, spare parts and maintenance materials in quantities specified in each section of these Technical Guidelines.
- For items of work delayed materially beyond the Date of Final Acceptance provide updated submittal(s) within ten (10) days after acceptance, listing actual date(s) of the start of the warranty period.
- Process: Contractor submits directly to Jefferson County School District, R-1 Project Manager.
 1. Submit draft list within 60 days of contract execution
 2. Submit items to Project Manager with transmittal upon project acceptance.

END SECTION 01 78 46

01 78 53 Sustainable Design Documentation - March 15, 2005

- No Requirements

END SECTION 01 78 53

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements

01 79 00 Demonstration and Training - March 18, 2005

- Jefferson County School District, R-1 routinely requires Demonstration and Training for systems in Divisions 14 – 28.
- Specific requirements for Demonstration and Training will be found in the individual specification sections of Divisions 14 - 28 of these Technical Guidelines.
- To the greatest extent possible, the Operation and Maintenance Manual shall serve as the ‘textbook’ for instruction.
- Submit outline draft of proposed program and generic video within 60 days of contract execution.
- Submit proposed program outline and video upon project closeout

END SECTION 01 79 00

01 81 00 Facility Performance Requirements - April 20, 2005

- Accessibility
 1. As defined by the Americans with Disabilities Act (ADA) and ADA Architectural Guidelines (ADAAG), new construction including building additions, temporary buildings, sites, and playgrounds, are to provide full accessibility to physically disabled students, teachers and citizens.
 2. Remodeling and retrofit construction, including site work, is to provide improved accessibility as defined by the ADA, professional judgment, and case law.
- Acoustic Performance - General
 1. Proper room acoustics are essential to providing a conducive learning environment for students, and a comfortable working environment for Teachers and Staff.
 2. Design goals for Reverberation Times (T60) are provided for each space.
 3. To meet the criteria (and approach the goal), the Architect shall select finish materials to provide the space-averaged Noise Reduction Coefficients (NRC) required by Table 1 below.
 4. The worksheet given in Table 1 may be used to calculate the space-averaged NRC.
 5. NRC values of some common construction materials are given in Table 2, and should be used for the calculation unless another value can be supported by laboratory test data of the selected material.
 - a. The NRC values for ceiling tile and other materials that are not listed should be acquired from the product manufacturer (and be based on laboratory tests).

Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
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TABLE 1 - ROOM ACOUSTICS CRITERIA

<u>Room Description</u>	<u>Minimum Space Averaged NRC</u>	<u>Design Goal T_{60} (seconds)</u>
Classroom	0.23	0.5
Art Studio	0.20	0.8
Private Office	0.16	0.5
Computer Lab (if provided)	0.20	0.6
Conference Room	0.22	0.5
Teacher Work Room	0.18	0.5
Library (LIC)	0.23	1.0
Cafeteria / Multi-Use Room	0.18	1.4
Gymnasium	0.21	1.5
Instrumental Music / Conference Room	0.20	0.8
General Music / Performance Room	0.20	0.8

- Acoustic Performance – Sound Isolation
 1. Isolate noise-generating activities, areas, and equipment.
 2. Most rooms in a school can be grouped into the following categories:
 - a. Type A: Classrooms, Art Studio, Library Information Center (LIC), Principal’s Office, Health Office/Clinic
 - b. Type B: Assistant Principal’s Office, Teacher Work Rooms, Conference Rooms, Computer Lab
 - c. Type C: Stairways, Locker Rooms, Staff Restrooms, Fitness Room
 - d. Type D: Instrumental Music/Conference Room, General Music/Performance Room, Student Restrooms, Cafeteria/Multi-use Room
 - e. Type E: Corridor
 - f. Type F: Mechanical Rooms, Electrical Rooms with transformers (25 KVA or larger)
 3. The airborne sound insulation requirements between each type of space are given in the matrix shown by Table 3 (with the exceptions given by the numbered notes).
 - a. The requirements are listed as Sound Transmission Class (STC) values.
 - b. The selected walls or floor-ceiling assemblies should meet these requirements, based on their laboratory STC ratings, or ratings estimated by qualified personnel.
 4. To ensure compliance, the partitions may be field tested per ASTM E336, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings. Sound insulation test results will be reported as a Field Sound Transmission Class (FSTC) value in accordance with ASTM E413, Classification for Rating Sound Insulation.
 - a. The measured FSTC should be no more than 5 points below the required STC rating (according to Table 3). For example, a wall separating two classrooms should have a laboratory STC rating of 40, or a minimum FSTC of 35.

**Jefferson County School District, No. R-1 TECHNICAL GUIDELINES
Division 01 – General Requirements**

TABLE 3: SOUND TRANSMISSION CLASS (STC) RATINGS BETWEEN SPACES.

	A	B	C	D	E	F
A	40	45	45	55	40	Note 4
B		40	45	55	40	Note 4
C			40	55	30	Note 4
D				60 ^{Notes 1,2}	45 ^{Note 3}	Note 4
E					--	Note 4
F						Note 4

Table 3 - Notes

1. Wherever practical, the following guidelines should be followed: Instrumental and Vocal Music rooms should not be located directly adjacent to each other.
2. Sound isolation between Restrooms should be STC-40 or greater.
3. Sound isolation between a Restroom and a Corridor should be STC-40 or greater.
4. Separation of Type F rooms from other occupied spaces should be analyzed on a case-by-case basis. Where practical, Type F rooms should be separated from occupied space with a buffer space (i.e., Storage rooms or other unoccupied space). In any case the partition(s) separating the Type F room from the occupied room should be designed to reduce the intrusive noise into the occupied room to 5 decibels below the required mechanical Noise Criterion (NC) level at each octave-band frequency, for the occupied room. Refer to Division 15 for the applicable mechanical noise level criteria.
5. Sound isolating gypsum board partitions should be installed and sealed per ASTM E497, Standard Practice for Installing Sound-Isolating Gypsum Board Partitions, and ASTM C919, Standard Practice for Use of Sealants in Acoustical Applications
6. Doors in sound isolating walls shall be solid-core wood or insulated metal doors.
7. Where the wall must be rated for STC-40, the doors should be equipped with a perimeter smoke seal.
8. Where the wall is rated for STC-45, the doors should be equipped with a perimeter smoke seal, an automatic door bottom, and threshold (if the floor is carpeted)
9. For walls rated 55 or higher, the doors shall be an acoustically rated door assembly having an STC rating no less than 5 points below the wall rating.

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- Acoustical Performance – Mechanical System
 1. The mechanical system design shall include means and methods to reduce the mechanical noise levels in occupied spaces to the levels shown by Table 4.
 - a. The criteria is given as Noise Criterion (NC) ratings.
 - b. These ratings must be maintained at any location within the room that may be occupied by a person as part of the normal use of the room.
 2. To determine compliance with this specification, octave band noise levels will be measured (by the Owner) in an unoccupied space, with all mechanical systems operating, at locations that are 3 feet or more from the floor, ceiling, walls, or other solid surface.
 - a. A Type 1 or 2 sound level meter (according to ANSI S1.4-1983, Specification for Sound Level Meters) will be used. NC ratings will be determined from the octave band noise levels.

TABLE 4 - MECHANICAL NOISE CRITERIA

Room Description	Maximum RC(N) & NC Rating ¹
Art Studio	35
Auditeria	30
Auditorium Control Room	30
Auditorium	25
Cafeteria (Commons)	45
Cafeteria / Multiuse Room	35
Classroom	35
Computer Lab	35
Conference Room	35
Corridor / Stair	50
Fitness Room	40
Music / Performance / Practice	30
Gymnasium	40
Instrumental Music Room	30
Instrumental Music Room / Conference Room	35
Library Information Center (LIC)	40
Open Plan Office Administrative areas	40
Private Offices	35
Science Classroom / Lab	35
Stage	25
Stagecraft Workroom	40
Work Room	35
Vocal Music Room	30
Wrestling Room	40

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Table 4 Notes

1. Refer to Chapter 7 of the 1997 ASHRAE Handbook - Fundamentals, for a description of the NC curves.
 2. NC-35 is the maximum allowable noise level. A noise level of NC-30 is desirable.
- Appearance
 1. Jefferson County School District, R-1 buildings and grounds are the visible image of the School District to a large segment of the community. As such, they should physically represent the underlying philosophies of the School District and be consistent with the current mission and belief statements adopted by the Board of Education.
 2. Designs for additions and modifications to existing facilities are to respect, enhance, complement and unify existing construction.
 - Durability / Maintainability
 1. Design and construction decisions are to recognize the fact that Jefferson County School District R-1 anticipates operating and maintaining viable facilities for at least 40 years.
 2. Buildings are to be resistant to vandalism and use and abuse typical for public / institutional facilities.
 - a. Typical "commercial" construction design and materials are usually unacceptable for educational occupancies, which are "institutional."
 3. Layouts, designs, materials, and details must respect Colorado weather extremes including hail, snow, winds over 120 mph, ambient temperatures from -30°F to +105°F, hundreds of freeze-thaw cycles per year, and thermal shock of 60°F within a period of hours.
 4. Positive drainage is paramount, from the highest roof level to the lowest elevation of the site.
 5. Building layouts, materials and components are to be maintainable (serviceable, repairable, in-kind replaceable) for the life of the facility.
 - a. Provide adequate access to service and replace components (i.e. lamps, glazing, valves, boilers, and air handling units).
 6. Design to discourage birdnests in exterior fenestration and exposed structure.
 - Economy
 1. Adherence to these Technical Guidelines is intended to result in Jefferson County School District R-1 designs, materials, equipment, and facilities that will provide the best long-term value. Completed facilities are to be efficient and economical but not "cheap."
 - a. Value is based upon life-cycle criteria, not first cost: "Biggest bang for the buck"
 - Energy Efficiency
 1. New buildings: Target should be no more than 35 kbtu/sq.ft./year of energy (natural gas & electricity).
 2. Renovation: Coordinate efficiency requirements with Jefferson County School District, R-1 Facilities Planning and Design and office of Energy Management.
 - a. EPA Energystar "Target Finder" software design assistance should be utilized to reach a score of 75 or better.

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3. Lighting efficiency target: 0.8 watt/sq.ft. or less.
 4. Project design submittals shall include a discussion of possible system enhancements for energy conservation and cost implications thereof.
 5. Basic designs shall reflect currently accepted cost effective standards of energy efficiency for building envelope, lighting, mechanical equipment and systems design.
 6. Use of natural daylighting technologies is encouraged.
 7. Use of passive solar technologies is encouraged.
 8. Use renewable energy resources whenever possible or practicable.
- Flexibility
 1. Demographic trends and educational programs are not constant. Design and construction of Jefferson County School District R-1 buildings must take these realities into account and be able to accommodate inevitable changes.
 2. Employ the principles of universal design to the greatest extent possible.
 3. The facility must allow for modification at minimal cost and within short time frames.
 4. Facilities are intended to serve multiple functions such as community centers, meeting places and other after-hours group activities.
 5. Additions and remodels during the life of the facility are likely.
 6. Portable or relocatable components preferred over built-in.
 7. With limited resources and an average facility life in excess of 50 years, individually customized facilities, spaces, and amenities are prohibited.
 - HVAC Criteria
 1. The “Educational Specifications – Facilities Planning Standards” contain criteria for HVAC (Mechanical) systems and shall be considered a part of these Guidelines.
 2. Install all HVAC control devices in “Readily Accessible” locations as defined by Chapter 1, Article 100, of the most recent issue of the National Electrical Code.
 3. Include access doors or hatches in hard ceiling or walls where needed to reach mechanical devices such as valves, strainers dampers, etc. or where in the judgment of the designer maintenance access will be necessary.
 4. When reusing or connecting to existing piping clarify to what extent the contractor is to clean and test the existing system. Connections to existing pipe shall be made with new isolation valves.
 5. Evaluate discharge plenums vs. horizontal discharge ductwork on Roof Mounted Air Handling Units for the effect on cost, noise and unit efficiency.
 6. Equipment Room Recommendations: Comply with ASHRAE Standards 15-1992 with special emphasis on:
 - a. Oxygen Deprivation Sensor for A1 Refrigerants or a Refrigerant Sensor for B1 and all other refrigerants
 - b. Equipment Room Alarm
 - c. Mechanical Ventilation
 7. Comply with ASHRAE 62-89 *Ventilation for Acceptable Indoor Air Quality* Paragraph 6.1.3.1 Multiple Spaces
 8. Schools at elevations below 7,000 feet shall be air-conditioned. Schools above 7,000 feet elevation shall not be air-conditioned.
 9. Design for major remodels of existing buildings that do not have air-conditioning shall include the addition of air-conditioning.

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Division 01 – General Requirements

10. Heating and Cooling Calculations – When sizing heat transfer media quantities, heat transfer equipment, pumps, boilers and chillers base calculations on the use of a 30% Propylene glycol solution heat transfer media.
11. Roof mounted equipment and piping: Refer to Division 07 of these guidelines.
- HVAC Design Conditions
 1. Temperature:
 - a. Outside:
 - (1) Cooling – 87°F db, 62°F wb
 - (2) Heating - (-10°F) at elevations below 7,000 feet and - 20°F at elevations above 7,000 feet.
 - b. Inside:
 - (1) Occupied Spaces:
 - (a) Cooling - 75°F, +/- 2.0°F
 - (b) Heating - 72°F, +/- 1.5°F
 - c. Unoccupied Spaces:
 - (1) No cooling.
 - (2) Heating - 65°F
 2. Occupancy and Ventilation (occupancy to be verified):
 - a. Classrooms: 30 occupants, ventilation 15 cfm per occupant.
 - b. Gymnasiums:
 - (1) Elementary Schools
 - (a) Occupied Cycle 30 occupants, ventilation - 20 cfm per occupant.
 - (b) Events Cycle 500 occupants, ventilation – 15 cfm per occupant.
 - c. Middle Schools
 - (1) Occupied Cycle 60 occupants, ventilation - 20 cfm per occupant.
 - (2) Events Cycle 600 occupants, ventilation – 15 cfm per occupant.
 - d. High Schools
 - (1) Occupied Cycle 90 occupants, ventilation - 20 cfm per occupant.
 - (2) Events Cycle 2,500 occupants, ventilation – 15 cfm per occupant.
 - e. Cafeterias:
 - (1) Elementary Schools – Cafeteria
 - (a) Class Cycle 30 occupants, ventilation - 15 cfm per occupant.
 - (b) Lunch Cycle 160 occupants, ventilation – 15 cfm each. HVAC w/ Economizer
 - (2) Middle Schools – Auditoria
 - (a) Class Cycle 60 occupants, ventilation - 15 cfm per occupant.
 - (b) Lunch Cycle 300 occupants, ventilation – 15 cfm per occupant.
 - (c) Events Cycle 600 occupants, ventilation – 15 cfm per occupant.
 - (3) High Schools - Commons
 - (a) Class Cycle 100 occupants, ventilation - 15 cfm per occupant.
 - (b) Lunch Cycle 650 occupants, ventilation – 15 cfm per occupant.
 - f. Kitchens: Air changes for ventilation and equipment heat gain.
 - (1) Coordinate with Kitchen design.

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- g. Auditoriums – High Schools only
 - (1) Stage:
 - (a) Occupied Cycle 60 occupants, ventilation - 20 cfm per occupant.
 - (2) House Seating:
 - (a) Events Cycle 575 occupants, ventilation – 15 cfm per occupant.
 - h. Music Rooms – Minimum air circulation 1.5 cmf/sq.ft.
- Indoor Air Quality
 - 1. Follow the recommendations of the EPA Indoor Air Quality “Tools for Schools.”
 - Safety/Security
 - 1. General
 - a. Electronic Safety and Security systems are standard components of Jeffco Schools facilities. See Division 28 of these Technical Guidelines.
 - (1) Access Control
 - (2) Intrusion Detection
 - (3) Video Surveillance: Video surveillance systems are required for all new construction and major renovation at facilities housing grades 7 – 12.
 - (4) Fire detection and Alarm
 - 2. Attractive Nuisances and Hazards
 - a. Avoid projections, details, site amenities, rustication, etc. which could permit unauthorized access to roofs or upper building levels.
 - b. Open, unsecurable areaways are prohibited.
 - c. Details and materials must not adversely affect the safety of occupants, students, staff and community.
 - d. Non-slip walking surfaces are required, interior and exterior.
 - e. Projections and sharp corners are prohibited at student/pedestrian traffic patterns, interior and exterior.
 - 3. Site
 - a. Layout and design to minimize ice buildup at pedestrian and vehicle areas.
 - b. Address snow removal and stockpiling
 - c. Separate pedestrian, bicycle, auto, bus and service traffic
 - 4. Stairs and Steps
 - a. Tread/riser ratios: Per Architectural Graphic Standards, and applicable codes.
 - b. Exterior stairs:
 - (1) Maximum riser = 6"
 - (2) Minimum tread = 13.5"
 - 5. Ramps: Per ADAAG

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- Sustainable Design
 1. Major new construction and renovation are to comply with LEED criteria to the greatest extent possible. Formal LEED certification is not an objective
 2. Optimize material use and recycling to minimize waste during construction.
 3. Design, install and maintain low water use, low maintenance landscaping appropriate to the local environment.
 4. Consider life cycle impacts of materials, from production to end-of-life recycling
 5. Use building materials:
 - a. With low embodied energy.
 - b. Made from recycled materials
 - c. Can be recycled at the end of their useful life
 - d. Do not offgas pollutants
 6. Design, install and maintain low water use, low maintenance landscaping
 7. Water efficient fixtures
 8. Promote recycling within the buildings.
 9. Use high efficiency systems within buildings
 10. Use locally produced materials to the greatest extent possible
 11. Apply these same principles to remodeling and renovation of existing structures.

END SECTION 01 81 00

01 90 00 Life Cycle Activities - March 15, 2005

- No requirements

END SECTION 01 90 00

01 91 00 Commissioning - March 18, 2005

- Jefferson County School District, R-1 routinely performs or contracts Commissioning and Proof-of-Performance for systems in Facility Services Subgroup (Divisions 21 – 28) and reserves the right to perform or contract similar quality control measures at any time on systems in any other Division.

END SECTION 01 91 00

01 92 00 Facility Operation - March 15, 2005

- No requirements

END SECTION 01 92 00

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01 93 00 Facility Maintenance - March 15, 2005

- No requirements

END SECTION 01 93 00

01 94 00 Facility Decommissioning - April 20, 2005

- Section 01 94 00 is required in the Project Manual when any aspect of facility decommissioning, regardless of scale, is included in the project scope.
- Coordinate Facility Decommissioning with Jefferson County School District, R-1:
 1. General Conditions of the Contract
 2. Coordinating Architect / Project Manager
 3. Jefferson County School District, R-1 Environmental Compliance Office
- Submit Jefferson County School District, R-1 "Asbestos Sign Off Sheet" when scope of work includes hazardous materials abatement.
- Ownership of salvageable material/equipment is to be determined by Jefferson County School District, R-1 on a project-by-project basis. Typical Owner-salvaged items include:
 1. Division 08: Door hardware
 2. Division 23: Mechanical units and equipment including components such as motors, fans, and compressors. No chillers.
 3. Division 25: Thermostats
 4. Division 26: Electrical panels, breakers, and fuses
 5. Division 27: Clock/bell/intercom system components and consoles
 6. Division 28: Fire / Security Detection and Alarm components
 7. Historically significant items

END SECTION 01 94 00