

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

CONSULTANT GUIDELINES - April 22, 2005

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

CONSULTANT GUIDELINES

CG 001 Introduction - April 22, 2005

- Summary
 1. The Jefferson County School District, R-1 Technical Guidelines and Consultant Guidelines are intended to provide uniform and consistent minimum quality standards for consultant services and equipment, materials, and methods used in capital construction projects, including new construction, renovation, remodeling and maintenance.
 2. The Technical Guidelines and Consultant Guidelines are founded upon considerable design, maintenance, and contracting experience and are intended to extend the life cycle of materials, systems, and facilities while reducing future maintenance problems.
 3. Technical Guidelines and Consultant Guidelines supplement and should be referenced in conjunction with the following Jefferson County School District, R-1 documents:
 - a. Consultant Agreement
 - b. Contract for Construction
 - c. General Conditions of the Contract
 - d. Educational Specifications and Site Development Standards for elementary, middle school, and senior high school design.
 - e. Data, Communications, and Alarm Diagram.
 4. The focus of the Consultant Guidelines is professional services. The Consultant Guidelines are directed toward prime- and sub- design consultants to provide standards for the performance of professional services and serve as an outline for deliverables used for Jefferson County School District, R-1 capital construction projects.
 5. The focus of the Technical Guidelines is construction. The Technical Guidelines are directed toward prime- and sub- design consultants to define both the form and content of bid and construction documents for Jefferson County School District, R-1 capital construction projects.
 - a. NOTE: Since bid and construction documents will be interpreted by both the general and sub contractors, some Technical Guideline language may appear confusing because information applies to both Consultant (directly) and Contractor (indirectly; through the contract documents prepared by the consultant).
 6. “No Requirements” indicates that prevailing industry standards are acceptable.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- Quality Assurance
 1. Compliance: The design consultant is responsible for the quality control of his/her professional services and is accountable for providing a complete, constructable and operable design.
 2. Notification of Non-Compliance: The consultant shall notify Jefferson County School District, R-1 in writing:
 - a. When any portion of the Technical or Consultant Guidelines will not be met.
 - b. When system function or satisfactory performance will be compromised by conformance to the Technical Guidelines.
 - c. When there is a conflict between the Technical Guidelines and codes or industry standards.
 - d. When the consultant is given design direction with which s/he takes exception.
 3. Feedback: Jefferson County School District R-1 encourages pertinent comments regarding the accuracy and updating of these Guidelines. Questions, comments, criticism and requests for revision are welcome and should be directed in writing to Facilities Planning Specialist, Jefferson County School District, Facility Planning and Design, 809 Quail Street, Building #4, Lakewood, Colorado 80215; Or fax to 303-982-2400. E-mail address: rmatschu@jeffco.k12.co.us.
- Restrictions
 1. These Technical Guidelines and Consultant Guidelines supersede all previous Jefferson County School District, R-1 facility standards, Guide Standards and Technical Guidelines.
 2. The Technical Guidelines and Consultant Guidelines are intended for use only by active project prime- and sub- consultants retained by Jefferson County School District, R-1.
 - a. As of January 1, 2005 the primary means of distribution of the Consultant Guidelines/Technical Guidelines is via the Jefferson County School District, R-1, Facilities Planning and Design/Construction Management web-site:
<http://jeffco.k12.co.us/cm/>
 7. The Technical Guidelines and Consultant Guidelines are advisory only. Consultants assume full professional responsibility for research, engineering, regulatory compliance, design, product/material/system selection, budget compliance, and other functions defined by statute and prevailing standards of professional service.
 8. Under no circumstances are the Technical Guidelines to be used as master specifications.
 9. Jefferson County School District, R-1 assumes no liability for unauthorized use of the Technical Guidelines and Consultant Guidelines.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- Format
 1. Divisions 00 through 33 of the Technical Guidelines follow the Construction Specifications Institute (CSI) 2004 Master Format.
 2. The Technical Guidelines are generally written to CSI Master Format “Level 2 or Level 3” whereas most Project Specifications will likely be written to “Level 3 to Level 5.”
 3. The A/E/C industry is transitioning to MasterFormat 2004 during calendar year 2005.
 - a. During this period, either the 1998 or 2004 systems will be acceptable to Jefferson County School District, R-1.
 - b. Under no circumstances should the 1998 and 2004 systems be mixed on a single project or contract.

END SECTION CG 001

CG002 Design Principles - April 22, 2005

- In the absence of other information, standards and recommendations of the following organizations apply:
 1. American Institute of Architects (AIA) Architect's Handbook of Professional Practice
 2. AIA Architectural Graphic Standards
 3. AIA/Associated General Contractors (AGC) Guidelines for Better Communication and Understanding within the Construction Industry
 4. Construction Specifications Institute (CSI) Project Resource Manual including MasterFormat 2004.
 5. NIBS Uniform Drawing System (UDS), including Standard Reference Symbols
 6. CSI Standard Abbreviations
 7. Engineer's Joint Contract Documents Committee (EJCDC) Recommended Competitive Bidding Procedures for Construction Projects
 8. EJCDC Uniform Location of Subject Matter and Information in Construction Documents
 9. Regulatory requirements itemized in Section 01 41 00
- Design Philosophy
 1. Jefferson County School District, R-1 recognizes the important role of the physical environment in accomplishing our stated mission and goals. We are committed to the principle that excellence in education is linked with excellence in the learning environment.
 2. Jefferson County School District, R-1 facilities should reflect the commitment of this District to quality education. District buildings and grounds are to be attractive and stimulating environments yet functional and economical. Facilities should be neither palatial nor austere. Facilities should be state-of-the-art without being experimental or trendy.
 3. Design and construction excellence is judged after ten and twenty-five years of occupancy, not only at the time of initial occupancy.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- Standard Design Heights
 1. Listed dimensions are intended to supplement or interpret but not supersede requirements of applicable codes and regulations.
 2. Dimensions are measured from finished floor unless otherwise indicated.

STANDARD DESIGN HEIGHTS

ITEM	Preschool	Elementar y	MS/HS/Adult	Notes
Bench / Seat	10" - 12"	12" - 14"	14" - 18"	
Bookcase top shelf	3' - 6"	5' - 0"	7' - 0"	
Clock/Bell/Horn				7' - 0" typical
Coathook	48"	48" - 60"	60"-66"	also see ADAAG
Controls / Switches				ADAAG
Counter (standing)	24" - 28"	28" - 30"	36" - 42"	
Counter (sitting) top	20"	27"	30"	
Clear (minimum)	14"	21"	24"	
Display/write boards (bottom)	24"	24" - 30"	36"	36"
Drinking Fountain (spout)				ADAAG
Exhaust Hood (rim)				
Eyewash				
Electrical receptacle Counter Wall				
Electrical Panel (top)				6' - 6" maximum (typical)
Electrical Switch				
Fire Alarm: Pull Station Horn/Strobe				3' - 6" typical
Fire extinguisher cabinet (maximum finish floor to throat)				4' - 6" typical
Food Service tray slide				34" universal height
Hand Dryer	prohibited			
Hair Dryer	N/A.	-	6' - 0"	
Lavatory (rim)				
Loading Dock				24" - 36" above pavement
Map Rail				

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

ITEM	Preschool	Elementary	MS/HS/Adult	Notes
Mirror (bottom)				
Paper Towel Dispenser				
Projection Screen (bottom)				
Shower Head				
Soap Dispenser				
Switch				ADAAG
Telephone / Data outlet:				ADAAG 54" to centerline of jack Coordinate custom dimensions in areas of modular office furnishings
Thermostat				ADAAG
Toilet Paper Dispenser				
Urinal (rim)				
Water Closet (rim)				
Window sill				43" permits shelving below

END CG 002

CG 003 Procedures - April 18, 2005

- Coordination
 1. Prior to bidding, the Facilities Planning & Design Coordinating Architect serves as the primary liaison for Jefferson County School District, R-1.
 2. After bidding and through the warranty period, the Construction Management Project Manager serves as the primary liaison for Jefferson County School District, R-1.
 3. Both the Facilities Planning & Design Coordinating Architect and the Construction Management Project Manager participate during the bidding phase of the project
- Design Process
 1. Jefferson County School District, R-1 designs capital improvements through an open collaborative process including technical and non-technical staff, citizens, and representatives of other stakeholder groups who constitute the Design Advisory Group (DAG).
 2. To the greatest extent possible, students should be involved in the planning, design, and construction processes for the purposes of representing the largest user group, broadening learning, understanding the practical applications of curriculum, and exposure to career options.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- Reference Documents
 1. Reproductions of documents pertaining to existing construction are made available to active design consultants on an as-needed basis at no cost as follows:
 - a. Reproducible and electronic file of most current site survey
 - b. Copy of most current geotechnical report
 - c. Copy or .DXF transfer file of existing as-constructed CAD, text, spreadsheet, and database files via floppy disc or modem.
 - d. Sepia or blue line ozalid prints of existing record drawings: Limit 1 of either.
 - e. Copy of existing hardcopy record project manuals, specifications, reports and other hardcopy information: Limit 1 each.
 2. Jefferson County School District, R-1 charges full cost for the creation of other reproducibles, new drawings, or other special order graphics.
- Meetings
 1. Consultant or Contractor meetings with school staff, students, administration, municipality, or community are prohibited unless directed or accompanied by the Coordinating Architect and/or Construction Project Manager.
 2. The Consultant is responsible for recording and distributing written records of project-related meetings through construction contract award.
 3. The Contractor is responsible for recording and distributing written records of project-related meetings from pre-construction through project closeout.
- Permit Fees
 1. Building permit fee is paid directly by Jefferson County School District, R-1.
- Permits and Approvals
 1. Coordinate and process the Building Permit solely and directly through the Facilities Planning and Design, Jefferson County School District, R-1.
- Remodel/Retrofit Projects
 1. Field-verify information provided by Jefferson County School District, R-1.
 2. Field-verify critical conditions and dimensions required for each deliverable.
 3. Clearly identify and distinguish between existing, salvaged, relocated, demolished, abandoned, removed and new construction.
 4. Define disposition, delivery, and storage of salvaged items.
- Accounting
 1. Forms: Unless otherwise authorized by Jefferson County School District, R-1, only the following Jefferson County School District, R-1 standard forms will be accepted:
 - a. Consultant Agreement
 - b. Fee Adjustment
 - c. Application for Payment of Consultant Fee
 - d. Labor, Material and Performance Bonds
 - e. Construction Agreement
 - f. Contractor's Request for Payment, Estimate for Partial Payment, Payment Record of Subcontractors/Material Suppliers
 - g. Change Order
 - h. Subcontractor / material supplier payment record
 - i. Lien release

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

2. Application for payment of fees cannot be processed until:
 - a. A formal agreement or letter of proposal is accepted and countersigned by the Director, Facilities Planning and Design, Jefferson County School District, R-1
 - b. A purchase order is processed and countersigned by the Director, Facilities Planning and Design, Jefferson County School District, R-1
 3. Unless otherwise authorized by Facilities Planning and Design or Construction Management, Consultant invoices for a single project may be submitted no more frequently than monthly.
 4. Supplemental Fees
 - a. Submit a formal written proposal with hourly rates and a topset maximum total fee adjustment.
 - b. Do not proceed with additional work until supplemental fee is authorized by either the Director of Facilities Planning and Design or the Director of Construction Management.
- Document Distribution Schedule

	Pre-Design	Schematic	Des. Devel.	CD Review	Bid Sets
Facilities Planning and Design / Construction Management / Facilities Services TEAM	3	6	6	6	2
DAG/Principal	1	1	1	1	1
Shared Reference Set (*)	1	1	1	1	1
Rack Set	0	0	0	0	1
Public Safety Section	0	A	A	A	1
Environmental Services	A (1)	A (1)	A (2)	A (2)	*
Fire Department	0	A	A	*	*
Other Agencies (Municipality, Planning, Drainage, Zoning, Health, Highway, Utility, etc.)	*	*	*	A	A
State Geologic Survey	A	A	0	0	0
CM/GC	0	A	A	A	All Remaining (3 minimum)
Major Subcontractors	0	0	0	0	Minimum 1 each
Xcel/IREA	0	0	A	1	1
Plan Rooms (pick-up only)	0	0	0	0	Per Invitation
MINIMUM TOTAL	5	8	8	9	Per agreement

A = As required for specific project

*Shared Reference Set(s):

Community Superintendents

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

Communications
Chief Operating Officer
Energy Managers
Executive Director of Facilities Management
Facilities Maintenance
Food and Nutrition Services
Library Services
Information Technology
Risk Management
Transportation
Telecommunications

- Mechanical Engineering
 1. Documents reviewed by Jefferson County School District, R-1 shall be prepared in the form of redlined plans and annotated specifications. These documents will be reviewed with the Design Team. At the conclusion of the review the team may borrow them for a period not to exceed five working days. If the documents are not returned within the allotted period, the design team will not be allowed to remove documents for future reviews from Facilities Planning and Design offices.
 2. Only the Construction Project Manager is authorized to accept delivery of equipment or spare parts specified to be delivered to the owner. The specifications shall define time of delivery as a milestone early in the project and relative to some identifiable event.
 3. Warranties: Reference “General Conditions” for warranty periods and conditions except for special conditions, e.g. 5 year warranty on refrigerant compressors or 10 year on water heaters.
 4. When the contractor submits a request for substitution of the equipment specified, he shall include in his submittal complete drawings to the same level of detail as the construction documents. With written permission of Jefferson County School District, R-1 he may hire the consultant to prepare the drawings.
 5. Roofing details relating to the installation of mechanical equipment shall be shown on Architectural or Roofing drawings not on Mechanical.
 6. Do not attach or route any mechanical components directly to the roof in any manner that could interfere with future roof maintenance or replacement.
 7. Design Documents shall include a list of all parts and equipment deliverable to the owner (meters, gauges, valve handles, etc. etc.).
 8. Design Documents for renovation of existing equipment or piping shall include a specific list of work items. Statements of a global nature to rehabilitate "as required or “as necessary" are not acceptable.
 9. Design Documents for modification or demolition of existing systems shall include drawings of equipment and materials to be removed. Statements of a global nature such as “Remove all pipe in this area” are not acceptable.
 10. Carefully and completely coordinate between Fire alarm, Electrical, Temperature Control and Mechanical disciplines for the installation of Combination Smoke and Fire Dampers. Fire and Smoke dampers shall be included in the Coordination Schedule.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

11. The Architectural and Engineering design shall accommodate the largest and heaviest equipment listed as "acceptable" in the specifications. This includes structural loading capabilities and mechanical spaces.
 12. Pay particular attention to the O&M Manual requirements and assure that all project drawings, including temperature control diagrams and electrical one-line diagrams, appear on the same size mylar film as that used for the other project drawings. The intent is to archive all frequently referenced drawings into a single same-sized durable project drawing set.
- Capital Improvements Not Funded Through The Board of Education
 1. Volunteer, donated, and site-funded capital projects are not exempt from Jefferson County School District, R-1 policies, standards, and procedures.
 2. Submit a Work Order Request to the Facilities Information Center (303 982 2245) with attachments addressing items 2 through 8 below.
 - a. The Work Order is the key document for project coordination. Outline the proposed project in the greatest detail possible.
 - b. The "Requestor," "Requestor to Fund," and "Fund Commitment" information must be completed and authorized by the school principal/site manager.
 3. Designate one primary project spokesperson to work with Field Services staff. Include name, address, telephone, and fax numbers.
 - a. Identify company name and include business card, if applicable.
 4. Identify the project Architect/Engineer/Designer of record.
 - a. Regardless of project scope or cost, a qualified individual needs to assume full responsibility for project compliance with applicable laws, codes, regulations, standards, and procedures through professional or semi-professional design, documentation, specifications, and estimates.
 - b. The Architect/ Engineer/ Designer of record is responsible for project compliance with Jefferson County School District, R-1 Field Services Technical Guidelines including references to:
 - (1) Jefferson County School District R-1 Board of Education Policies on Facilities
 - (2) Jefferson County School District R-1 Educational Specifications
 - (3) AHERA Management Plan
 - (4) Colorado Revised Statutes governing Public School construction
 - (5) Applicable Building Codes, Regulations and Standards
 5. Professionally prepared, sealed, and signed construction drawings and specifications are mandatory for projects involving major construction in areas of human occupancy.
 6. Financial matters
 - a. Identify proposed funding or donation sources for material, labor, and contract costs.
 - b. The School District is not obligated to make financial contributions toward site-funded projects.
 - c. Construction on School District property cannot proceed without prior evidence of adequate funding or other resources to fully complete the project.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- d. Jefferson County School District, R-1 Field Services reserves the right to charge current hourly rates for employee time expended in assisting, coordinating, reviewing, inspecting, and correcting site-funded projects.
 - e. Develop or coordinate lease terms through Property Management office as necessary.
7. Project Schedule
- a. Regardless of project size, submit a written project development schedule allowing for the following typical sequence of events:
 - (1) Initial work order processing: 5 working days
 - (2) Preliminary scope development and estimate
 - (3) Preliminary design consultation and coordination
 - (4) Geotechnical investigation
 - (5) Site survey
 - (6) Schematic design and design development per Technical Guidelines
 - (7) Schematic design and design development reviews
 - (8) Construction documents per Technical Guidelines
 - (9) Construction document review
 - (10) Building permit: Allow 30 days between application and permit
 - (11) Bid
 - (12) Construction
 - (13) Closeout
 - (14) As-Constructed documentation
 - (15) Acceptance
 - (16) Occupancy permit
 - b. Upon project completion, formally convey the project ownership to Jefferson County School District, R-1
8. Responsibility Matrix
- a. If the project is not intended to be competitively bid, identify the General Contractor / Subcontractor / Vendor / Volunteer responsible for the entire project or each project component.
 - b. To expedite the process, items 5, 6, and 7 may be combined into a scope of work spreadsheet identifying the responsible party, dollar cost/donation status, and schedule for each work item/subcontract necessary to complete the project.
9. Legal matters:
- a. Board Policy KCD Public Gifts / Donations may apply.
 - b. Board Policy EC Buildings/Grounds/Property Management may apply.
 - c. Submit a copy of the proposed contractor's liability insurance certificate.
 - d. Submit the proposed contractor's written Waiver of Liability releasing Jefferson County School District, R-1 from liability associated with the project.
 - e. Proof of Workmen's Compensation insurance is mandatory except when work is under the direct supervision and control of the principal or site manager.
 - f. Performance and Payment Bonds may be required for projects exceeding \$50,000 total value.
 - g. Jefferson County School District, R-1 standard General Conditions of the Contract for Construction apply.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- h. The consequences of default or lack of completion are of particular concern to the School District.

END SECTION CG 003

CG004 Formats - April 18, 2005

- In the absence of other information, standards of the following organizations apply:
 1. Construction Specifications Institute (CSI) Project Resource Manual.
 2. National Institute of Building Sciences (NIBS) Uniform Drawing System (UDS)
- CAD
 1. Computer Aided Drafting (CAD) electronic media are required for Jefferson County School District, R-1 graphic deliverables:
 - a. Contract Documents and As-Constructed Record Drawings for capital construction.
 - b. Shop Drawings itemized in Section 01 78 39
 - c. Consultant reports, reviews, and deliverables defined in these Consultant Guidelines.
 - d. Other graphic documents originally created in electronic media.
 2. CAD File Format
 - a. 3-Dimensional CAD is mandatory for site survey and civil engineering submittals.
 - b. Preferred file creation application is MicroStation (.dgn)
 - c. AutoCad will be acceptable after completion of the following additional steps:
 - (1) The document (file) must be bound complete; without paper space, viewports, and/or Model View.
 - (2) Documents created using viewports, paper space, and/or Model View require a test set of files, including x-ref, Model, etc., to be furnished prior to closeout for review, testing, and acceptance by the Facilities Planning and Design Archives.
 - (3) Perform standard file compression and recovery until file is clean.
 - (4) Purge all unused tables from the file.
 - (5) Furnish ASCII.txt file of expected layering, layer names, pen color assignments.
 - d. Files generated on other CAD software are acceptable in the standard .DXF or IGES file translation methodology including the following:
 - (1) "Unbundle" all splines, blocks and other unique elements to original primitive elements before saving in .DXF format.
 - (2) Execute all available methods of repair diagnostics and recovery to assure a totally uncorrupted document.
 - (3) Furnish ASCII.txt files of expected layering, color-pen designations, etc.
 3. CAD As-Constructed Record Document Display Files (Mandatory)
 - a. Limit content to the exact information that appears on the As-Constructed plot.
 - b. Other reference information such as monument points is prohibited on any level, or outside the border boundary
 - c. One document (drawing sheet) per file
 - d. As-Constructed notation with date

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

4. CAD As-Constructed Native Production Files (Optional)
 - a. Copies of the consultant's As-Constructed working files including font files, shape files, etc. will be permanently archived on optical media to keep the consultant's original innate document intelligence intact.
 - b. Compressed file of consultant's native format
 - c. Uncompressed (ASCII) README.TXT file describing layering technique, compression system, and restoration instructions.
 - d. OPERAND.EXE file for decompression or re-splicing
- Adobe .pdf
 1. Preferred format for most electronic submittals
 2. Index-linked Adobe.pdf format is required for final and As-constructed Record Text documents, including reports and project manuals.
 3. Standard Adobe.pdf format (direct from CAD file, not scan) is required for final and As-constructed Record Graphic documents and drawings.
- Electronic File Transfer
 1. File Transfer Protocol (.ftp)
 - a. Consultant loads files onto his/her .ftp site
 - b. Consultant Emails notification with .ftp site address to Jefferson County School District, R-1 Facilities Planning and Design Archives.
 - c. FP&D Archives downloads files into its .ftp site.
 2. Alternate File Transfer Protocol (.ftp)
 - a. Consultant loads files directly onto Jefferson County School District, R-1 Facilities Planning and Design Archives .ftp site ([FTP://204.98.1.1/PUB/FPandD](ftp://204.98.1.1/PUB/FPandD))
 - b. Consultant Emails notification of file transfer to Jefferson County School District, R-1 Facilities Planning and Design Archives.
 3. Email: Attachment files totaling more than 1.0 Megabytes in any 24-hour period will be blocked by Jefferson County School District, R-1 firewall.
 4. CD-ROM
 5. Identification:
 - a. Type of file (Display or Native)
 - b. Facility and Project name
 - c. Consultant or subconsultant
 - d. Contact person
 - e. Contact person telephone number
 6. The originator of the file exchange is responsible for taking appropriate security and virus protection precautions before transmitting electronic information, regardless of mode of transfer.
- Graphic (hard copy and reproducible) media
 1. Presentation Board: 30" (horizontal) x 39" (vertical) with 2" minimum border at all 4 sides.
 2. Opaque original other than presentation board
 - a. 8 1/2" x 11"
 - b. 11" x 17"
 - c. 24" x 36"
 - d. 30" x 42"

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

3. CAD Plots
 - a. Laser or pen and ink on high quality bond paper
 - b. Paper and temperature sensitive mylar are categorically prohibited.
 - c. Direct image only. Reverse image not permitted.
4. Translucent ozalid reproducible plots and original mylars: Not required
5. Quality
 - a. Originals or first generation copies only.
 - b. Documents will be scanned as part of project acceptance and closeout.
 - c. Scanning reads the surface of the document which requires that background "noise" be minimized (i.e. screens, hand cast shading, poche, and other graphic techniques that can hide or garble lines, rebar section, dimensions, etc. must be single side and light or non-existent).
 - d. Any document that cannot produce a legible scan will be returned for corrective processing.
6. Reproducible Intermediates (Sepia) are categorically prohibited.
- Drawing Conventions (apply to all drawings itemized in CG012)
 1. Adhere to conventions of the NIBS Uniform Drawing System (UDS).
 2. Sheet Orientation:
 - a. Long dimension = horizontal
 3. North Orientation
 - a. A north arrow is mandatory for each and every plan drawing, including structural, mechanical, electrical, including partial, detail, and key plans.
 - b. Orient plan drawings so that North is within 90 degrees of top of drawing sheet (North between straight up and straight left is preferred).
 - c. North arrow should be consistently oriented throughout the entire drawing set.
 4. Cross Reference Orientation
 - a. Room names and numbers
 - b. Structural grid
 5. Border: 1/2-inch minimum, all sides
 - a. Binder margin must be adequate to read the entire drawing without disassembly of the bound set.
 6. Titleblock: at right edge or lower right corner.
 7. Key plan:
 - a. One reference or key plan showing the entire facility is required for all projects, regardless of scope.
 - b. Key plan is mandatory on each sheet containing plan drawing(s) of:
 - (1) Anything less than the entire building plan.
 - (2) A partial site project.
 - (3) Project that has multiple buildings
 8. Content:
 - a. Sheets containing shared information are not recommended
 - (1) One building or location per sheet is strongly preferred.
 - (2) Mixing more than two types of information (i.e. plans and sections; mechanical and electrical; HVAC air handling and HVAC piping; plumbing and HVAC) per sheet is not recommended.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

9. Integrity / Legibility
 - a. Per established drafting conventions:
 - (1) Contiguous lines shall touch or intersect and
 - (2) Lines representing unconnected components or elements shall not touch or intersect at any point.
 - b. Lettering: 1/8" or 9 point minimum font.
 - c. Annotations: Apply only to the drawing upon which they appear.
 10. Sequence plan drawings:
 - a. From lowest level to highest level
 - b. From campus to entire building to wing to area to detail plan
 11. Clearly distinguish between areas of new construction, existing, and remodeling
 12. To the greatest extent possible, avoid mixing types of information on a single sheet (plans with sections; site with architectural; etc).
 - a. For limited scope projects, required drawings may be combined onto single sheets as appropriate for the project and approved by the Coordinating Architect.
- Titleblock
 1. Per NIBS Uniform Drawing System (UDS)
 2. Drawing number
 3. Total sheets in set
 4. Project identification: The Official Project Title as assigned by Jefferson County School District, R-1 is to remain constant for all deliverables from pre-design through the post-construction period.
 5. Drawing title(s)
 6. Dates (original, revised, As-Constructed, etc.)
 7. Consultant firm name
 8. Sub-consultant firm name (Title sheet + each sheet of sub-consultant discipline)
 9. Professional seal and signature
 - Drawing Numbering
 1. Per NIBS Uniform Drawing System
 2. Index by total drawings in the complete document set, not just the sub-set.
 - a. Example: If set consists of title sheet + 2 L drawings + 6 A drawings + 1 P drawing + 10 M drawings + 5 E drawings, label the 5th M drawing "Sheet M5 of 25".
 3. Supplemental drawings:
 - a. To the greatest extent possible, annotated original drawings are preferred over supplemental drawings.
 - Scales
 1. Surveys:
 - a. 1" = 10'; 20'; 30'; 40'; 50'
 - b. Contour Interval = 1 foot
 2. Site drawings:
 - a. Same as Surveys or:
 - b. 1/16"; 1/8"; 1/4"
 3. Plans: 1/8"; 1/4"; or 1/16"
 4. Detail and Partial Plans: 1/4", 3/8" or 1/2"
 5. Elevations: match scale of plans

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

6. Building Sections: match scale of plans
7. Partial, Wall, and Detail sections: 3/8"; 3/4"
8. Details: 1 1/2"; 3"; Full
9. Interior Elevations: 1/8", 1/4"
- Reports
 1. Identification
 - a. Project
 - b. Submittal / Phase Title
 - c. Consultant(s) name, address, telephone, fax, email
 - d. Sub consultant(s) name, address, telephone, fax, and email as appropriate
 - e. Date
 - f. "Not for Construction" as appropriate
 2. Executive summary: Required for reports exceeding 50 pages.
 3. Table of Contents
 4. Sequential numbers on each and every page.
 5. Professional Certificate, Signature, and Seal as appropriate.
- Construction Cost Analysis
 1. Cost estimates must be unambiguous as to the inclusion or exclusion of the following factors:
 - a. Demolition/Abatement
 - b. Off-site infrastructure
 - c. Utilities and tap fees
 - d. Owner supplied materials
 - e. Equipment
 - f. Furnishings
 - g. Casework and shelving
 - h. Technology and communications
 - i. Professional fees
 - j. Other fees and permits
 - k. Testing
 - l. General Conditions
 - m. Contractor O & P
 - n. Management expense
 - o. Contingency
 - p. Estimate basis: RSM Index or Year and quarter
- Building Code Analysis
 1. Fire Zone
 2. General Height and Area; Number of Stories
 - a. Allowable Floor Area
 - b. Allowable Area Increases
 - c. Actual / Proposed Area Tabulation
 3. Use and Occupancy classification(s)
 4. Construction Types
 5. Fire Rated Construction
 - a. Exterior walls
 - b. Openings

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

6. Fire Protection
7. Egress
 - a. Occupant Load Tabulation or Graphic Representation
 - b. Exit System (description)
 - c. Requirements based on Occupancy Group
 - d. Maximum Travel Distance
 - e. Special Hazards
 - f. Other
8. Roof Design
 - a. Fire Retardancy
 - b. Drainage
9. Mechanical System
 - a. HVAC
 - b. Plumbing; fixture count
10. Electrical System
 - a. Service and Distribution
 - b. Lighting
11. Accessibility
12. Other
 - a. Itemize interpretations or variances allowed or being considered.
13. Description of Existing and Proposed Construction
 - a. Basement
 - b. First Floor Assembly
 - c. Second Floor Assembly
 - d. Roof / Ceiling Assembly
 - e. Columns
 - f. Beams
 - g. Exterior walls (bearing and non-bearing)
 - h. Interior bearing walls
 - i. Partitions
 - j. Shaft enclosures
- Project Manual
 1. To the greatest extent possible, the Project Manual, including specifications, should conform to the principles and formats of the current edition of the CSI Project Resource Manual.
- Project Development and Construction Schedules
 1. No Requirements
- Bid Tabulation
 1. Prepare, print, and distribute prior to bid opening
 2. Identification
 - a. Jefferson County School District, R-1
 - b. Project Title, number, other identification
 - c. Bid date and time

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

3. Format: Matrix for compiling the following information from the anticipated number of bidders:
 - a. Bidder
 - b. Bid Signed
 - c. Bid Security
 - d. Receipt of each Addendum
 - e. Bonding Company
 - f. Completion Date
 - g. Base Bid
 - h. Each Bid Alternate
 - i. Contractor Alternates
 - j. Identification of any attachments to the bid
 - k. Other
- Field Report
 1. Identification
 - a. Project Title
 - b. Inspector; firm
 - c. Date and time
 - d. Attendees
 - e. Sequence number
 2. Project Conditions
 - a. Personnel/sub-contractors on site
 - b. Weather
 3. Observations
- Project Meeting Minutes
 1. Identification
 - a. Project Title
 - b. Project Meeting date/time
 - c. Attendees
 - d. Distribution of Minutes
 2. Project Conditions
 - a. Personnel/sub-contractors on site
 - b. Weather
 3. Construction Schedule
 - a. Behind Schedule
 - b. Ahead of Schedule
 - c. 2 week plan
 - d. Fabrication + Delivery
 - e. Issues and corrective measures
 4. Field Observation
 - a. Items requiring attention of contractor
 - b. Items requiring attention of design consultant
 - c. Items requiring attention of Jefferson County School District

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

5. Field Quality Control
 - a. Test Reports
 - b. Field Reports
 - c. Other
6. Requests for Information
7. Change Requests, Proposal Requests
8. Submittals
9. Corrections to previous minutes

END SECTION CG 004

CG005 Consultant Services and Deliverables - March 10, 2005

- Jefferson County School District, R-1 standards and general requirements for consultant services and deliverables including:
 1. Site Survey (CG006)
 2. Geotechnical Engineering (CG007)
 3. Site Master Plan (CG008)
 4. Pre-Design (CG009)
 5. Schematic Design (CG010)
 6. Design Development (CG011)
 7. Bid and Construction Documents (CG012)
 8. Retrofit Roofing (CG013)
 9. Asbestos Abatement (CG014)
 10. Construction Contract Administration (CG015)
 11. Post-Construction (CG016)
- General
 1. Reports, Studies, Project Manuals, Drawings, and other deliverables will become part of the School District's permanent archives.
 2. They should be professional quality in form, content, grammar, and spelling.
 3. Master Plan, Pre-Design, Schematic Design, and Design Development documents should be meaningful to both technical and non-technical reviewers.
 4. Contents should be clear, concise, and above all relevant to the specific project, site, or facility.
 - a. Extraneous boilerplate, irrelevant standards, ambiguous filler, and superfluous references (such as non-applicable codes) will not be tolerated.

END SECTION CG 005

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

CG006 Site Survey - March 10, 2005

- Registered professional surveyor services are usually commissioned separately and in advance of:
 1. New Construction
 2. Additions
 3. Site redevelopment projects
- Registered professional surveyor services are also commissioned separately and following the above-referenced projects for the purpose of updating the original survey to As-Constructed status.
- Coordinate buried utility locations through the Utility Notification Center of Colorado.
- Scope of Professional Services
 1. Review documentation available from Jefferson County School District, R-1 including but not limited to:
 - a. Most recent site survey
 - b. Archived drawings
 - c. Relevant reports and studies
 2. Inspect the site with School District staff and others
 3. Review Title Commitment provided by Jefferson County School District, R-1.
 4. Meet periodically with School District staff and other individuals.
 5. Survey the site
- Content
 1. General Information
 - a. North Arrow
 - b. Names of Adjacent owners
 - c. Acreage Tabulation
 2. Legal Description
 - a. Locate the site to the nearest 15 seconds of Longitude and Latitude
 - b. Township, Range, Section, and Quarter Section
 - c. City, County, State
 - d. Subdivision
 - e. Lot and Block Number
 - f. Street and Number
 3. Boundary Information
 - a. Identification of corner markers
 - b. Encroachments or protrusions
 - c. Boundary fences and ties to actual boundary line
 - d. Distance and bearing of each boundary line
 - e. Radius and length of each curve
 - f. Tie to block corner or other suitable survey marker

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

4. Setbacks, Utilities, and Easements
 - a. Easements with purpose and agency having jurisdiction
 - b. Set back restrictions at front, sides, rear, and agency having jurisdiction
 - c. Gas mains: Location, manhole location, size, pressure, and existing connection for this property and agency having jurisdiction
 - d. Water mains: Location, size, existing connection and agency having jurisdiction
 - e. Storm sewers: Location, manhole location, size, invert elevation at MH and cleanouts, grade, capacity, existing connection, and agency having jurisdiction
 - f. Sanitary sewers: Location, manhole location, size, invert elevation at MH and cleanouts, grade, capacity, existing connection and agency having jurisdiction
 - g. Buried power line: Location, size of line, and agency-having jurisdiction
 - h. Overhead Power line: Location of poles/towers, size of line, and agency having jurisdiction
 - i. Telephone / Communications line: Depth or location of poles/towers, size of line, and agency having jurisdiction
 - j. CATV lines: Location, agency having jurisdiction
5. Topographic Information
 - a. Bench mark, including elevation, description
 - (1) Where permanent structures exist on-site, use or reference existing finish floor elevation(s) (FFE).
 - b. Contour interval = 1' - 0"
 - c. Spot elevations adjacent to existing building
6. Drainage
 - a. Identify receiving waters of site runoff including storm sewer system.
 - b. Identify on-site and adjacent site elevations that may require designation of mapped or identified 100-year flood plain.
7. Existing Improvements
 - a. Locations and elevations of pavement
 - b. Locations and elevations of storm drainage improvements
 - c. Locations and elevations of open ditches and natural water courses including width, depth, flow direction, drainage area, agency having jurisdiction
 - d. Locations and elevations of sidewalks, adjacent road centers, alleys, dividing islands, curbs, gutters, storm water outlets
 - e. Pavement material
 - f. Location and first floor elevation of existing structures, billboards, trees over 4" caliper, poles, other
 - g. Subsurface conditions such as cesspools, septic tanks, foundations, basements, oil or gas storage tanks.
- Deliverables
 1. 3 dimensional CAD file
 2. Plot of electronic file
 3. See Section CG 004 for format requirements

END SECTION CG006

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

CG007 Geotechnical Engineering - March 11, 2005

- Professional geotechnical engineering services are commissioned separately and in advance of:
 1. New construction
 2. Additions
 3. Major site redevelopment projects
- Coordinate buried utility locations through the Utility Notification Center of Colorado.
- Scope of Professional Services
 1. Review documentation available from Jefferson County School District R-1 including but not limited to:
 - a. Most recent site survey
 - b. Preliminary project scope statements and design concepts
 - c. Previous geotechnical reports
 - d. Archived drawings
 - e. Other relevant reports and studies
 2. Inspect the site with School District staff and others
 3. Locate buried utilities and obstructions prior to core drilling.
 4. Perform core drilling and other geotechnical investigations:
 - a. Initial Site Evaluation: 1 boring per acre in a uniform grid pattern
 - b. Project-Specific Evaluation:
 - (1) Project Specific: As instructed by Project Architect and Project Structural Engineer through Jefferson County School, District R-1.
 - (2) 1 boring per 10,000 - 20,000 gsf of building footprint
 - (3) 1 boring per 1500 - 2000 square yards of pavement
 - c. Exploratory pits and trenches within the Jefferson County geologic "red zone" qualify as additional services beyond the scope of this section.
 5. Infill cores and pits immediately after inspection and acceptance by Jefferson County School District, R-1.
 6. Perform laboratory analysis of on site soils and structural fill proposed to be imported to the site
 7. Electronic, graphic, and written submittals according to the following outline:
- Geotechnical Report
 1. Title Page
 2. Table of Contents
 3. Narrative
 - a. Executive summary statement
 - b. Overview, Scope
 - c. Proposed construction
 - d. Surface conditions
 - e. Geology and subsurface conditions
 - (1) Groundwater
 - (2) Bedrock
 - (3) Radon and other environmental conditions as requested or commissioned by Jefferson County School District, R-1

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- f. Conclusions and final recommendations for:
 - (1) Foundations
 - (2) Slab on grade
 - (3) Basement
 - (4) Subdrainage
 - (5) Flexible and Rigid Pavement Design
 - (6) Grading and drainage
 - (7) Landscaping
 - (8) Excavation and Compaction
 - (9) Cement type and Concrete mix design
 - (10) Construction details
 - (11) Retaining walls
 - (12) Notes, other
- 4. Required Graphics
 - a. Legend
 - b. Site location map
 - c. Location of exploratory borings and test pits
 - d. Log of each exploratory boring with graphic symbols of soils at each depth
 - e. Swell Consolidation test result graphs
 - f. Spreadsheet log summary of laboratory test results
- 5. Optional and Supplemental Information
 - a. Sites in the Jefferson County 'Red Zone' may require supplemental information such as bedrock topography.
 - b. Gradation curves
 - c. Photographs
 - d. Geologic cross section(s) of the site
- Deliverables
 - 1. See Section CG 004 for format requirements.
 - 2. Report and graphics in index linked Adobe.pdf file
 - 3. Report in hard copy.

END SECTION CG 007

CG 008 Site Master Plan - April 19, 2005

- Professional landscape design services are usually commissioned separately and in advance of, or in conjunction with, major site redevelopment projects. Depending upon the availability of capital resources, a funded design/construction site redevelopment project can follow the final Site Master Plan submittal in weeks, months, years, or in some cases...never.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- Scope of Professional Services
 1. Review historic documentation available from Jefferson County School District, R-1 including but not limited to:
 - a. Most recent site survey
 - b. Geotechnical report(s)
 - c. Archived drawings
 - d. Preliminary project scope statements
 2. Inspect the site with School District staff
 3. Perform supplemental site inspections as required
 4. Meet periodically with School District staff to "brainstorm" project overview, problems, requirements, possibilities, alternatives, approaches, proposed solutions, advantages, disadvantages, costs, schedules, etc.
 5. Develop no fewer than 2 site redevelopment concept plans
 6. Develop a single final recommended Site Master Plan
- Site Master Plan
 1. Narrative
 - a. Executive Summary, as appropriate.
 - b. Introduction / Background / History
 - c. Problem statement(s)
 - d. Meeting notes and chronology
 - e. Proposed options and resolutions to constraints and deficiencies identified in the site evaluation, with explanations of any proposed deviations from School District standards
 - f. Other recommendations (i.e. acquisition of additional parcels)
 - g. Conclusions
 - h. Final recommended Site Master Plan
 2. General Site Information
 - a. Location to student population
 - b. Size, shape, layout, function, efficiency, general usability
 - c. Gross and net acreages
 - d. Geotechnical considerations and constraints
 - e. Natural and legal property boundaries
 - f. Easements, setbacks and their implications
 - g. Adjacent land uses, zoning, development and their implications
 - h. Possibilities for joint use with municipality / parks / recreation
 3. Topography
 - a. Relative elevations of site components
 - b. Site efficiency, retaining structures, impediments
 4. Drainage
 - a. Roof drainage
 - b. Storm drainage
 - c. On and off site retention/detention
 - d. Erosion control

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

5. Safety
 - a. Traffic (service vehicle, bus, automobile, bicycle, and pedestrian)
 - b. Hazards (waterway, ice buildup, embankment, highway, adjacent land use, etc.)
 - c. Fire hydrant locations
 - d. Fire lanes and emergency vehicle access/turnaround clearances
 - e. Visual supervision
6. Condition Analysis
 - a. Landscaping, grass, trees, other natural vegetation
 - b. Irrigation system
 - c. Pavement and recreational surfaces
 - d. Fencing
 - e. Fixed play and athletic equipment
 - f. Site furnishings
 - g. Signage
7. Compare current Jefferson County School District, R-1 Site Standards with existing site conditions.
 - a. Matrix format is preferred
8. Code and regulation analysis
 - a. Accessibility; identify ADA non-compliance
 - b. Steps, ramps, guardrails, handrails
 - c. Storm drainage
9. Environmental issues
 - a. Wetlands
 - b. Orientation /solar exposure / microclimate
 - c. Wind
 - d. Snow management / removal / stockpiling
 - e. View
10. Site Redevelopment Concept Plans
 - a. Develop no fewer than two (2) Site redevelopment concept plans with brief explanatory text evaluating the advantages and disadvantages of each.
11. Site Master Plan
 - a. Develop a final recommended Site Master Plan from the concept plans
 - b. Recommend phased implementation in increments of \$50,000 to \$150,000 per phase
12. Construction Cost Analysis
 - a. Total project cost estimates for each phase or design option
 - b. Preparatory costs such as demolition, environmental mitigation
 - c. On and off site development costs
 - d. Components itemized to CSI "Level 2" detail

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

13. Coordination summary addressing the following:
 - a. Scheduling / sequencing issues
 - b. List of project-applicable utilities and contacts
 - c. List of project-applicable regulatory entities
 - d. List of non-regulatory coordinating entities such as Fire Department and Parks District
 - e. Unresolved issues
 - f. Other coordination issues
- Deliverables
 1. See Section CG 004 for format requirements
 2. Report in index linked Adobe.pdf file
 3. Report in hardcopy
 4. CAD file of large scale drawings and graphics
 5. Color presentation board of Final Site Master Plan
 6. 11 x 17 inch hardcopy color reductions of presentation board

END SECTION CG 008

CG009 Pre-design - March 11, 2005

- Pre-design professional design services such as site selection, facility analysis, concept plans and architectural programming are usually required in advance of large or complex projects.
- Pre-design professional design services may be included as an additional professional service for a funded project or commissioned separately to establish the scope and budget for a future project.
- Depending upon the availability of capital resources, a funded design/ construction project can follow pre-design service in weeks, months, years, or in some cases...never.
- Scope of Professional Services
 1. Review historic documentation available from Jefferson County School District, R-1 including but not limited to:
 - a. Archived drawings
 - b. Project manuals
 - c. Reports
 - d. Correspondence
 - e. Work orders
 - f. Estimates
 - g. Project scope statements

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

2. On-site inspection with School District staff including but not limited to:
 - a. Prime Consultant
 - b. Structural Consultant
 - c. Mechanical Consultant
 - d. Electrical Consultant
 - e. Other Consultants/Specialists as approved
 - f. Facilities Planning and Design
 - g. Construction Management
 - h. Facilities Services
 - i. Environmental Services
 - j. Facility representatives
 3. Additional on-site inspections as required to address report requirements.
 4. Meet with School District staff and other individuals listed above to "brain storm" project scope and budget, overview, problems, requirements, possibilities, solutions, alternatives, approaches, advantages, disadvantages, schedules, etc. and lay the groundwork for an eventual single schematic design proposal.
- Content
 1. Compare current Jefferson County School District, R-1 Educational Specifications (program requirements) to existing building and site conditions.
 - a. Matrix format is preferred
 2. Site Evaluation
 - a. Geotechnical
 - b. Storm drainage
 - c. Circulation/parking
 - d. Utilities
 3. Architectural Evaluation
 - a. Building envelope, including roof, insulation
 - b. Building structure
 - c. Building interior, finishes, amenities
 4. Structural Evaluation
 5. Mechanical Evaluation
 - a. HVAC
 - b. Temperature Control
 - c. Plumbing
 - d. Special systems (e.g. fire protection, Science Lab piping)
 6. Electrical Evaluation
 - a. Power Distribution
 - b. Lighting
 - c. Fire and Security Detection/Alarm
 - d. Communications / Data Systems
 7. Temperature Controls Evaluation
 8. Regulatory Issues
 - a. Building codes
 - b. Accessibility
 - c. Environmental compliance statement
 - d. Other applicable codes and regulations

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

9. Narrative
 - a. Problem statement(s) and proposals encompassing items listed in the Facility Evaluation above, with explanations of any proposed deviations from School District standards.
 - b. Meeting notes and chronology
 - c. Summary of alternative schemes and systems investigated, with pros and cons of various alternative designs.
 - d. Analysis of renovation vs. replacement
 - e. Recommendations and concluding statement of project scope, direction, and feasibility.
 10. Construction Cost Analysis
 - a. Detailed estimate in CSI format with a value corresponding to each and every Division applicable, including:
 - (1) Preparatory costs such as demolition, environmental
 - (2) On and off site infrastructure development costs
 - (3) Costs of components, systems or requirements unique to the facility or project.
 11. Coordination summary addressing the following:
 - a. Scheduling / sequencing issues
 - b. Coordination issues
 - c. Unresolved issues
 - d. List of project-applicable utilities and contacts
 - e. List of project-applicable regulatory entities
 - f. List of non-regulatory coordinating entities such as Fire Department.
 12. Conceptual site and building plans and sections as required to support the narrative
- Deliverables
 1. See Section CG 004 for format requirements
 2. Report in index linked Adobe.pdf file
 3. Report in hardcopy
 4. CAD file of large scale drawings and graphics
 5. Hardcopy plots of large scale drawings and graphics

END SECTION CG 009

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

CG010 Schematic Design - April 19, 2005

- Schematic Design professional design services are outlined in the standard Jefferson County School District, R-1 Consultant Agreement.
 1. The SD submittal should document:
 - a. Basic design decisions including materials, products, and systems.
 - b. Functional relationships of site and building spaces, circulation, and systems.
 - c. Conceptual appearance and context with existing site, neighborhood, and existing construction
 - d. Engineering concepts
- Scope of Professional Services
 1. Review historic documentation available from Jefferson County School District, R-1 including but not limited to:
 - a. Pre Design Report
 - b. Archived drawings
 - c. Project manuals
 - d. Correspondence
 - e. Work orders
 - f. Estimates
 - g. Project scope statements
 - h. Other
 2. On-site inspection with School District staff including but not limited to:
 - a. Prime Consultant
 - b. Structural Consultant
 - c. Mechanical Consultant
 - d. Electrical Consultant
 - e. Other Consultants/Specialists as approved
 - f. Facilities Planning and Design
 - g. Construction Management
 - h. Facilities Services
 - i. Environmental Services
 - j. Facility representatives
 3. Additional on-site inspections as required to produce a meaningful and relevant Schematic Design.
 4. Meetings with School District staff and Design Advisory Group (DAG)
- Content
 1. Narrative
 - a. Problem statement(s) or, if applicable, items listed in the Pre-Design Report
 - b. Design Parameters & Reference Data (codes, design criteria, geotechnical, survey, etc.)
 - c. Statements of scope of work, existing conditions, design criteria.
 - d. Statement of program compliance with list of and justifications for proposed deviations from School District standards.
 - e. Meeting notes and chronology
 - f. Summary of alternative schemes and systems investigated with summary of pros and cons of various alternative designs

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- g. Analysis of renovation vs. replacement is required for work in existing buildings.
- h. Conclusions and recommendations regarding project scope and direction.
- 2. Site statement of scope of work, existing conditions, demolition, program compliance, and design criteria
 - a. Area/Acreage Analysis
 - (1) Tabulate proposed design with Educational Specification standards (and existing when applicable).
 - (2) Indicate approximate areas of each space on Schematic Design (SD) plan(s).
 - b. Utilities availability/capacity statement
 - c. Geotechnical
 - d. Storm drainage and erosion control
 - e. Traffic / circulation
- 3. Architectural statement of scope of work, existing conditions, demolition, program compliance, and design criteria
 - a. Identify proposed materials, products, and systems by CSI division
 - b. Tabulate proposed design with Educational Specification standards (and existing when applicable).
 - c. Indicate approximate areas of each space on Schematic Design (SD) plan(s).
 - d. Summary tabulation of new, addition, and remodel areas.
- 4. Structural statement of scope of work, existing conditions, demolition, program compliance / design criteria
- 5. HVAC Report
 - a. Statement of Scope of Project – a brief description of the entire project.
 - b. Statement of Scope of Work.
 - c. Description of existing system(s) and major equipment.
 - d. Statement of Problems: failed systems, age of equipment, inadequate capacities, etc.
 - e. Utilities availability/capacity statement.
 - f. Design criteria & reference data (codes, design criteria, survey, etc.) for new systems.
 - g. Statement of program compliance and stated deviations, if any, from program.
 - h. List of proposed deviations from Jefferson County School District, R-1 Technical Guidelines with justification for each. If there are none, so state.
 - i. List of alternative system(s) complete with scope of work (including all affected disciplines), pros and cons of each and comparable estimates of construction costs. If a considered system is not viable, so state.
 - j. Conclusions and recommendations for systems.
 - k. Code and regulation analysis addressing mechanical systems.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

6. Temperature Control Report
 - a. Statement of Scope of Work
 - b. Description of existing system(s) and major equipment.
 - c. Statement of Problems: failed systems, age of equipment, inadequate capacities, etc.
 - d. List of proposed deviations from Jefferson County School District, R-1 Technical Guidelines with justification for each. If there are none, so state.
 - e. List of alternative system(s) complete with scope of work (including all affected disciplines), pros and cons of each and comparable estimates of construction costs. If a considered system is not viable, so state.
 - f. Conclusions and recommendations for systems.
7. Plumbing Report
 - a. Statement of Scope of Work.
 - b. Description of existing system(s) and major equipment.
 - c. Statement of Problems: failed systems, age of equipment, inadequate capacities, etc.
 - d. Utilities availability/capacity statement.
 - e. Design criteria & reference date (codes, design criteria, survey, etc.) for new systems
 - f. Statement of program compliance and stated deviations, if any, from program.
 - g. List of proposed deviations from Jefferson County School District, R-1 Technical Guidelines with justification for each. If there are none, so state.
 - h. List of alternative system(s) complete with scope of work (including all affected disciplines), pros and cons of each and comparable estimates of construction costs. If a considered system is not viable, so state.
 - i. Conclusions and recommendations for systems.
 - j. Code and regulation analysis
8. Electrical statement of scope of work, existing conditions, demolition, program compliance, and design criteria.
 - a. Include service, distribution, lighting, telephone, communication, fire detection/alarm, security, special systems
 - b. Existing and anticipated power distribution loads
 - c. Lighting levels and controls
 - d. Communication, detection, alarm systems, equipment, and level of coverage
 - e. Load assumptions
 - f. Illumination levels
 - g. Description of systems, existing, modified, new
 - (1) Scope
 - (2) Sizes
 - (3) Capacities
 - (4) Problems and issues both confirmed and potential. Identify by system and area served
 - h. Proposed system alternatives / Options
 - i. List exceptions to the Technical Guidelines with justifications for each.
9. Accessibility statement of scope of work, existing conditions, and design criteria.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

10. Environmental Compliance statement of scope of work, existing conditions, and design criteria.
11. Code and regulation analysis per Jefferson County School District, R-1 standard format and supplemental statements addressing Mechanical and Electrical systems.
12. Construction cost analysis
 - a. Unit cost per square foot method is acceptable with properly applied factors for complexity.
 - b. Minimum level of detail for site and architectural estimates: CSI Level 2 numbers and section titles
 - c. Minimum level of detail for mechanical estimates:
 - (1) HVAC
 - (a) Air systems
 - (b) Heating
 - (c) Cooling
 - (d) Specials (Kitchen, Laboratories, etc.)
 - (2) Temperature controls
 - (3) Plumbing
 - (a) Domestic water
 - (b) Drainage
 - (c) Specials (Fire protection, Kitchen, Laboratories, etc.)
 - d. Minimum level of detail for electrical estimates:
 - (1) Power Distribution
 - (a) Service entrance
 - (b) Branch panel
 - (2) Lighting
 - (3) Subsystem concepts for:
 - (a) Detection/alarm, fire
 - (b) Detection/alarm, security
 - (c) Telephone, paging
 - (d) Data
 - (e) Video
 - e. Factors, adjustments, and special considerations
 - (1) Preparatory costs such as demolition, environmental
 - (2) On and off site development costs
13. Project development schedule
 - a. Include projected review periods for Design Development and Construction Documents, release to bidders, bid opening, award, critical school calendar dates, construction start.
 - b. Construction phasing recommendations

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

14. Coordination summary addressing the following:
 - a. Temporary buildings
 - b. Pre-order
 - c. Work N.I.C. or by others
 - d. Schedule coordination
 - e. List of project-applicable utilities and contacts
 - f. List of project-applicable regulatory entities
 - g. List of non-regulatory coordinating entities such as Fire Department and Parks District
 - h. Summary of issues to be resolved
15. Graphics
 - a. Site and building plans, elevations, sections, and perspectives sufficient to communicate the design intent to both technical staff and non-technical reviewers.
 - b. HVAC floor and roof plans indicating locations of existing and proposed equipment:
 - (1) Primary air handling units
 - (2) Boilers, Pumps
 - (3) Chillers / towers / condensers, Pumps
 - (4) New and Existing – Large (>30 inch) duct routing, single line ductwork.
 - (5) New and Existing – Large (> 1 ½ inch) pipe routing
 - c. HVAC/Plumbing Roof plan
 - d. Temperature control zone map for cooling
 - e. Plumbing floor plans fixtures indicating locations of existing and proposed fixtures and equipment
 - (1) New and Existing – Large (> 1 ½ inch) pipe routing
 - f. Electrical building plan(s) indicating proposed locations of:
 - (1) Service entrance equipment and panels
 - (2) Main equipment
 - (3) Control panels for telephone, paging, fire, security, data, and video systems
- Deliverables
 1. See Section CG 004 for format requirements.
 2. Report in index linked Adobe.pdf file
 3. Report in hardcopy
 4. Electronic file of large scale drawings and graphics
 5. Hardcopy plots of large scale drawings and graphics

END SECTION CG 010

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

CG011 Design Development - March 11, 2005

- Design Development professional design services are outlined in the standard Jefferson County School District, R-1 Consultant Agreement.
- Purposes of the Design Development submittal:
 1. Review in-progress (50% complete) construction (bid) drawings and specifications based upon decisions made at the Schematic Design Review, with special emphasis on mechanical and electrical.
 2. Confirm design approach and establish agreement on materials and systems.
 3. Confirm compliance with Educational Specifications, Technical Guidelines, project budget, and schedule.
- Scope of Professional Services
 1. Additional on-site inspections as required to produce a meaningful and relevant Design Development.
 2. Additional Meetings with School District staff and Design Advisory Group (DAG)
 3. Electronic, graphic, and written submittals sufficient to communicate the design intent primarily to technical staff.
- Content
 1. General Drawings
 2. Hazmat Drawings
 3. Survey Drawings
 - a. Property lines, setbacks, rights of way, easements
 4. Civil Drawings
 - a. Demolition plans as appropriate
 - b. Storm drainage, erosion control
 - c. Site utilities
 - d. Fire hydrants and fire lines
 - e. Roads
 5. Landscape Drawings
 - a. Demolition plans as appropriate
 - b. Landscaping
 - c. Irrigation System
 - d. Site lighting
 - e. Pavement
 - f. Existing trees/landscaping to remain or to be removed
 - g. Dumpster locations
 - h. Temporary classroom buildings; both existing and proposed locations.
 - i. Area/acreage of programmed improvements
 - j. Construction contract limits, access, and staging areas
 6. Structural plans
 - a. Demolition plans as appropriate
 - b. Foundation
 - c. Floor
 - d. Roof

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

7. Architectural Drawings
 - a. Floor plans
 - (1) Building Code Plan
 - (2) Demolition plans as appropriate
 - (3) Partition types, locations, acoustical ratings
 - (4) Built-in and permanently attached items (Divisions 10, 11, 12)
 - (5) Prototypical furniture and equipment layouts
 - (6) Indicate approximate areas and ceiling heights of each programmed space, including non-assignable support spaces.
 - (7) Indicate utility chases, shafts.
 - b. Elevations
 - (1) Exterior
 - (2) Interior (typical or critical)
 - (3) Casework
 - c. Sections
 - (1) Building
 - (2) Wall/floor/roof
 - (3) Stair/ramp
 - d. Equipment and furnishing layouts
 - e. Roof plans
 - f. Perspective drawing, sketch, or rendering
8. Mechanical (HVAC, Temperature Control & Plumbing) drawings
 - a. All legends and abbreviations on the first drawing
 - b. HVAC
 - (1) Demolition plans as appropriate. Identify (with sizes) specific equipment, ductwork, and large (>1 ½ inch) piping, and all system elements to be removed and distinguish it from the equipment ductwork, and piping in the demolition area which is to remain undisturbed
 - (2) New Construction plans shall include:
 - (a) Air handling equipment and ductwork larger than 30"
 - (b) Fire/smoke dampers
 - (c) Heating, cooling condenser, refrigerant piping larger than 1 ¼"
 - (d) In-duct coils
 - (e) Locations of intakes and discharges
 - (f) Diagrams of air and water systems
 - (g) All equipment schedules with preliminary data filled in
 - (h) HVAC Systems/Plumbing roof plan
9. Fire suppression plans

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

10. Plumbing
 - a. Demolition plans as appropriate. Identify (with sizes) equipment and piping.
 - b. New construction plans
 - (1) Location of fixtures and major equipment
 - (2) Water, soil, and drain mains
 - (3) Plumbing Isometrics
 - (4) Schedules of equipment
 - (5) Details of major equipment
11. Temperature Controls
 - a. Heating Water and Chilled Water Plants Piping and Control Schematics.
 - b. Roof Top Units (Air Handling Equipment) Piping and Control Schematics
 - c. Schematics shall be per R-1 Standard Drawings.
 - d. Temperature control zone map for cooling
12. Electrical Drawings
 - a. Demolition plans as appropriate
 - b. Power Distribution one line diagram
 - (1) Feeder
 - (2) Short circuit
 - (3) Equipment size and capacity
 - (4) Preliminary service load calculation with possible load shedding
 - c. Electrical floor plans
 - (1) Panel, switchgear, transformer locations
 - (2) Receptacle locations
 - (3) Mechanical and other powered equipment locations
 - d. Lighting Floor Plan(s)
 - (1) Typical fixture and switch layout
 - (2) Design illumination levels
 - e. Fire and Security Alarm
 - (1) Riser
 - (2) Floor plans with device location
 - f. Paging and Telephone
 - (1) Riser
 - (2) Floor plans with device locations
 - g. Video and data
 - (1) Riser
 - (2) floor plans with device locations
13. Schedules: Complete schedules with draft information filled in for typical and types of applications.
 - a. Door, Window
 - b. Hardware Schedule (complete with keyway, finish, and manufacturer)
 - c. Finishes

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

14. Project Manual / Specifications
 - a. Complete, reviewed, and relevant (edited) working draft of all applicable specification sections in Divisions 02-17 numbered to correspond directly with Technical Guidelines.
 - (1) Product data sheets and other graphic material are preferred (required for luminaires)
 - (2) Identify proposed submittal and warranty requirements for each section.
 - (3) Identify exceptions to the Technical Guidelines with justifications for each.
 - b. Working draft of contract supplements and modifications
 - c. Division 01 outline
 - d. Proposed Price and Payment Items
 - (1) Allowances
 - (2) Alternates
 - (3) Unit Prices
15. Construction cost analysis by CSI Section
 - a. Mechanical and Electrical cost analysis should expand and refine SD estimate to include detailed costs for equipment and systems.
 - b. Subtotal estimates for each proposed bid alternate
16. Project development schedule
 - a. Include projected review period for Construction Documents, permits, approvals, release to bidders, bid opening, award, critical school calendar dates, construction start, phasing.
 - b. Construction phasing recommendations
17. Coordination summary addressing the following:
 - a. Temporary buildings
 - b. Pre-order
 - c. Work N.I.C. or by others, including pre-purchased Systems/Components and environmental compliance work
 - d. Utility contacts and temporary utility requirements for construction, including preliminary authorizations and approvals.
 - e. Updated list of project-applicable regulatory requirements.
 - f. Updated list of non-regulatory coordinating entities such as Fire Department and Parks District
 - g. Special bidding requirements (liquidated damages, allowances, unit prices, separate contracts)
 - h. Proposed alternates
 - i. Summary of unresolved issues

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

18. Design Development Report

- a. Summary of revisions implemented since Schematic Design submittal
 - b. Expand and refine all elements of the written Schematic Design submittal
 - c. Updated statements of scope of work, existing conditions, design criteria, program compliance with list and justifications proposed deviations from School District standards.
 - (1) Site (Civil and Landscape)
 - (2) Structural
 - (3) Architectural
 - (a) Summary tabulation of new, addition, and remodel areas
 - (4) Accessibility, Accessible route
 - (5) Structural
 - (6) HVAC Report
 - (a) Summary of revisions implemented since Schematic Design submittal
 - (b) Update, expand, and refine all elements of the SD report.
 - (c) System and subsystem descriptions
 - (d) Heating and cooling calculation summaries
 - (e) Product data sheets and other graphic material for major HVAC equipment
 - (7) Temperature Control Report
 - (a) Summary of revisions implemented since Schematic Design submittal
 - (b) Update, expand and refine all elements of the SD report.
 - (8) Plumbing Report
 - (a) Summary of revisions implemented since Schematic Design submittal
 - (b) Update, expand, and refine all elements of the SD report.
 - (c) Plumbing fixture count
 - (d) Design calculations for water service sizing
 - (e) Product data sheets and other graphic material for major Plumbing equipment
 - (9) Electrical
 - (a) Point by point illumination calculations on 4 x 4 grid for “typical” spaces
 - (10) Telecommunications
 - (11) Detection and Alarm
 - (12) Fire Suppression
 - (13) Environmental compliance
- Deliverables
 1. See Section CG 004 for format requirements.
 2. Report in index linked Adobe.pdf file
 3. Report in hardcopy
 4. Electronic file of large scale drawings and graphics
 5. Hardcopy plots of large scale drawings and graphics

END SECTION CG 011

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

CG012 Bid and Construction Documents - April 19, 2005

- Bid and Construction Documents professional design services are outlined in the standard Jefferson County School District, R-1 Consultant Agreement.
- Bid and Construction Documents have three distinct generations:
 1. Bid and Construction Document review submittal must be 100% complete, ready for immediate release to bidders.
 2. Bid Set
 3. Contract Award Set
- See Division 01 for As-Constructed Record Documents
- Coordination
 1. The prime consultant is responsible for assuring that subconsultants are thoroughly familiar with provisions and requirements of:
 - a. Consultant contract
 - b. General contract
 - c. Consultant Guidelines
 - d. Technical Guidelines, including Division 01
 2. Coordinate prime- and sub-consultant drawings to avoid conflicts in scale, appearance, orientation, symbols, abbreviations, etc.
 3. Coordinate prime- and sub-consultant specifications to avoid conflicts with the Construction Contract, General Conditions, Supplementary Conditions, Division 01, and other specification sections.
 4. Coordinate the following well in advance of the CD review submittal:
 - a. Drawings and Specifications
 - b. Roof Plan / Reflected Ceiling Plan / Architectural / Structural / Plumbing / Mechanical/Electrical
 - c. Easements, site utilities, site improvements
 - d. Utility profiles (depths) and valves/access points
 - e. Schedules/Plans/Sections/Details
 - f. Stormwater regulatory documents, reviews, and approvals
 - g. Water/sanitation district reviews and approvals
 - h. Traffic lights/crosswalks with traffic jurisdiction agency before CD submittal.
 - i. Xcel Energy or IREA re: site utilities, pads, and enclosures
 - j. Telephone lines for Temperature Controls
 - k. Items listed in Section 01 31 00
- In the absence of other information, standards of the following organizations apply:
 1. Construction Specifications Institute (CSI) Project Resource Manual, current edition.
 2. National Institute of Building Sciences (NIBS) Uniform Drawing System (UDS)

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- Quality Assurance
 1. Level of Detail in Bid and Construction Documents shall be of sufficient detail to exhibit compliance with applicable codes, standards, and these Technical Guidelines and relieve (not impose upon) the installing tradesperson or builder from making design decisions.
 2. Each and every Bid/CD component must have identical identification, titles, and dates.
 - a. Repeat basic project information on each volume of multiple volume sets of documents.
 3. Limit information on drawings to size, form, quantity, relationships, generic type and graphic representations of materials.
 4. Limit information in specifications to procedures and qualitative requirements for products, materials, and workmanship.
 5. Comply with NIBS Uniform Drawing System (UDS) to the greatest extent possible.
 6. See Construction Specifications Institute Project Resource Manual.
 - a. "Say it once...Say it correctly...Place it in the proper location."
 7. The following phrases and abbreviations are prohibited on any construction document without the written consent of Jefferson County School District R-1:
 - a. "By Owner"
 - b. "By Others"
 - c. "Not In Contract (N.I.C.)"
 - d. "Not Included"
 - e. "Typical"
- Content
 1. Construction Document Report
 - a. Summary of revisions implemented since Design Development Report
 - b. Summary tabulation of new, addition, and remodel areas.
 - c. Division 23 final calculation summaries (HVAC)
 2. Final, complete, and detailed construction cost analysis
 - a. Detailed estimate in CSI format with a value corresponding to each and every specification section applicable to the project
 - (1) Subtotals by Division
 - b. Unit costs summaries
 - (1) \$ per square foot for entire project, site, and systems
 - (2) \$ per acre for civil/ sitework / pavement
 - c. General Contractor Overhead and profit
 - d. Bid Alternates per Technical Guidelines 01 23 00.
 - e. Recommended bid and construction contingencies
 3. Construction schedule / phasing
 4. Coordination summary addressing the following:
 - a. Summary of revisions implemented since Design Development
 - b. Updated statements of scope of work, existing conditions, design criteria, program compliance with list and justifications proposed deviations from Jefferson County School District, R-1 standards.
 - c. Work not in contract or by others, including pre-purchased Systems/Components and environmental compliance work

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- d. Utility contacts and temporary utility requirements for construction, including preliminary authorizations and approvals.
 - e. Updated list of project-applicable regulatory requirements.
 - f. Updated list of non-regulatory coordinating entities such as Fire Department and Parks District
 - g. Final load calculations
 - (1) Mechanical
 - (2) Electrical (normal, emergency, and illumination)
 - h. Environmental compliance statement
 - i. Temporary buildings
 - j. Pre-order
 - k. Summary of unresolved issues
 - l. Restrictions on distribution of bid sets
5. Project Manual / Specifications
- a. Division 00 Introductory Requirements, Bidding Requirements, Contracting Requirements, Contract Forms, and Conditions of the Contract must be complete, accurate, pertinent to the specific project, and fully coordinated with other specifications and drawings.
 - (1) Jefferson County School District, R-1 standard contract forms may not be modified under any circumstances.
 - (a) Supplemental documents, modifications, and altered language require approval by the Director of Facilities Planning and Design.
 - (2) Clearly identify special bidding requirements such as liquidated damages, allowances, unit prices, separate contracts.
 - (3) "Sample" forms and formats contained in this Technical Guideline are examples of preferred content, format, and language. Editing of these documents is required in all cases to accommodate specific project requirements.
 - b. Division 01 and Supplemental General Conditions must be fully coordinated with General Conditions prior to Construction Document review submittal.
 - (1) Price and Payment issues
 - (a) Allowances
 - (b) Alternates
 - (c) Unit Prices
 - c. Divisions 02 - 33 must be complete, reviewed, coordinated, cross-checked, and project-relevant.
 - (1) Generally, a short, comprehensible, enforceable spec is preferred over a lengthy tome no one will ever read
 - d. Identify exceptions to the Technical Guidelines
 - e. Submit catalogue cut sheets for lighting fixtures and major mechanical equipment and other sections as appropriate or requested.

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

6. General Drawings (G)
 - a. Project Title and Index Sheet(s)
 - (1) Project identification
 - (2) Submittal identification (CD review or bid set number)
 - (3) Date(s)
 - (4) Consultant firm name, address, phone, registration number
 - (5) Sub-consultant name, address, phone, registration number
 - (6) Drawing index
 - b. Location (Vicinity) Map with north arrow
 - c. Symbols, abbreviations legends
 - d. General notes
 - e. Phased construction/prototype/alternates information
 - f. Gross/net areas
 - g. Design parameters/loads
 - h. Reference data (codes, design criteria, geotechnical, survey, etc.)
7. Hazardous Materials Drawings (H)
 - a. Typically bid as a separate contract and excluded from General Construction drawings.
8. Survey Drawings (V)
9. Civil Drawings (C)
 - a. Site plan
 - (1) Property lines
 - (2) Benchmark(s)
 - (3) Site data and notes
 - (4) Easements, Rights of way
 - (a) Utility easements
 - (b) Construction easements
 - (c) Drainage / slope easements
 - (5) Site access, contract limits
 - (a) Designate (fenced) area for staging, field office, stockpiled material
 - (6) Pavement
 - b. Grading Plan
 - (1) Storm Drainage
 - (a) Plan and Profiles
 - (b) Storm Water Management Plans (SWMP), including temporary construction
 - c. Composite site utility plan
 - (1) Consolidate site utility information regarding utility service, lines, control points, access points, meters, and connections to building for:
 - (a) Water
 - (b) Fire Hydrant
 - (c) Sanitary sewer
 - (d) Storm sewer
 - (e) Gas
 - (f) Telephone
 - (g) Electrical

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- (h) CATV
 - (i) Road / Highway / Traffic Control
 - (j) Plan / Profile
 - (k) Horizontal (& Vertical) Control
 - (l) Details
10. Landscape Drawings (L)
- a. Site Demolition Plans
 - b. Landscape Plans
 - (1) Temporary classroom buildings or area
 - (2) Existing trees/landscaping to remain or be moved
 - (3) Dumpster locations
 - (4) Service access
 - (5) Emergency access, and pavement configuration per fire department
 - (6) Emergency egress
 - c. Irrigation plans
 - d. Details
11. Structural Drawings (S)
12. Architectural Drawings (A)
- a. Architectural Cover Sheet
 - b. Building Code Plan
 - (1) Building Code Analysis
 - (2) Construction types
 - (3) Area/occupancy separations
 - (4) Rated/unrated construction
 - (5) Occupant load calculations
 - (6) Egress routes, maximum distances
 - (7) Fire suppression
 - c. Demolition Plans
 - d. Floor Plans
 - e. Roof Plans
 - f. Building Elevations
 - g. Building Sections
 - h. Wall, Stair, Partial, and other architectural sections
 - i. Windows
 - j. Doors/Frames
 - (1) Identify active leaf, glazing, label
 - k. Other / Miscellaneous
13. Interiors Drawings (I)
- a. Reflected Ceiling Plans
 - (1) Complete integrated composite of visible elements including Fire suppression, HVAC, Lighting, and Communications.
 - b. Detail Plans
 - (1) Furniture layout / Equipment Plans
 - c. Interior Elevations

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

14. Equipment Drawings (Q)
 - a. Composite (Divisions 21-28) detail equipment plans, partial plans, wall elevations, and/or 3-D Building Information Model (BIM) are required for boiler rooms, mechanical/electrical equipment rooms, and communications equipment rooms.
15. Fire Protection Drawings (F)
 - a. Fire Suppression Plans and Details
16. Plumbing Drawings (P)
 - a. Demolition – Full floor plans of areas with equipment to be removed. Identify (with sizes) specific equipment and piping and all system elements to be removed. Distinguish it from the equipment and piping in the demolition area which is to remain undisturbed.
 - b. Plans
 - c. Details
 - d. Isometrics
 - e. Equipment Schedules
17. Mechanical Drawings (M)
 - a. Mechanical / HVAC/Temperature Control/Plumbing Title Sheet
 - (1) Abbreviations, legends, symbols
 - b. HVAC
 - (1) Demolition – Full floor plans of areas with equipment to be removed. Identify (with sizes) specific equipment, ductwork, and piping and all system elements to be removed. Distinguish it from the equipment, ductwork, and piping in the demolition area which is to remain undisturbed.
 - (2) Complete airside subsystem with TC Sensors.
 - (3) Piping
 - (4) Mechanical equipment areas – large scale
 - (5) Details, elevations and sections
 - (6) Flow diagrams for air and water sub-systems with flow quantities
 - (7) Equipment Schedules
 - c. HVAC/Plumbing Roof Plan
 - (1) Roof details by Architect and shown on architectural drawings only
 - d. Temperature Control
 - (1) Complete final schematics
18. Electrical Drawings (E)
 - a. Electrical Title Sheet
 - (1) Abbreviations, legend
 - b. Electrical Site Plan
 - c. Electrical Demolition Plan
 - d. Electrical Power Distribution Plans
 - e. Lighting Plans
 - (1) Special lighting (i.e. theatrical)
 - f. Electrical Riser / One Line Diagrams
 - (1) Power
 - g. Electrical Details, Miscellaneous

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

19. Temperature Controls Drawings
 - a. Control/piping schematics for all mechanical systems and/or equipment. Format as defined by Jefferson County School District R-1 standard control/piping drawings.
 - b. Temperature controls schematic diagram showing each piece of controlled equipment with DDC in and out points for each.
 - (1) Room temperature-sensing elements
 - (2) Flow measuring stations
 - (3) Duct runs
 - (4) Water flow test stations
 - (5) Sequence of operation
 - (6) Network layout
 - (7) Piping air system layout
 - c. Symbol/legend; schedule, cover, valve, damper, network layout, piping layout, boiler layout, chiller, AHU, MAU, UH/EF/CUH/UV with parts listing for each system described.
20. Telecommunications and Special Systems Drawings (T)
 - a. Telecommunications and Special Systems Site Plan(s)
 - b. Fire detection / alarm
 - c. Security
 - d. Paging
 - e. Public Address (P/A)
 - f. Telephone
 - g. Data
 - h. Video
21. Resource Drawings (R)
22. Details
 - a. General
 - (1) Consultant option: locate details either on appropriate drawings or in the Project Manual.
 - (a) DO NOT use both options in a single project.
 - (b) Maintain sub-consultant format consistency.
23. Schedules
 - a. General
 - (1) Locate on or adjacent to appropriate drawing sheets for Divisions 02 – 14 work.
 - (2) Project Manual schedules are prohibited for Divisions 09, 13, 21, 22, 23, 25, 26, 27 and 28
 - (3) Structure schedules to permit post-award and post-construction entry of as-constructed record information.
 - b. Civil Schedules: No requirements
 - c. Landscape Schedules: No requirements

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- d. Architectural Schedules
 - (1) Finish Schedule
 - (a) Mark
 - (b) Name
 - (c) Floor
 - (d) Color/pattern
 - (e) Ceiling
 - (f) Walls
 - (g) Notes
 - (h) Blank for as-constructed records
 - (2) Door Schedule
 - (a) Mark
 - (b) Location
 - (c) Width
 - (d) Height
 - (e) Thickness
 - (f) Elevation
 - (g) Material
 - (h) Finish
 - (3) Frame Schedule
 - (a) Type
 - (b) Elevation
 - (c) Head, jamb, sill detail references
 - (d) Finish
 - (4) Hardware Schedule
 - (a) Hinge type, number
 - (b) Lock/latch/panic hardware
 - (c) Deadbolt
 - (d) Flushbolt
 - (e) Push/pull
 - (f) Kickplate
 - (g) Threshold
 - (h) Weather-stripping
 - (i) Closer
 - (j) Stop
 - (k) Blank for as-constructed keyway
 - (l) Blank for as-constructed manufacturer
 - (m) Blank for as-constructed item
 - (n) Blank for as-constructed finish
 - (5) Window Schedule
 - (a) Mark
 - (b) Type/designation
 - (c) Dimensions
 - (d) Head elevation
 - (e) Head, jamb, sill, mullion details
- e. Structural Schedules

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- f. Mechanical Schedules shall include but not be limited to:
- (1) Equipment Schedule
 - (a) Mark/symbol
 - (b) Location
 - (c) Description
 - (d) Manufacturer/model/number
 - (e) Provided by
 - (f) Installed by
 - (g) Connections by
 - (h) Electrical voltage/phase
 - (i) Capacities
 - (j) Utility/fluid (number, sizes, pressure, temperature, etc.)
 - (k) Notes
 - (l) Blank for as-constructed manufacturer/model
 - (2) Plumbing Schedules:
 - (a) Fixture and fitting schedules with blank for as-constructed data
 - (3) Electrical Schedules:
 - (a) Panel Schedule with blank for as-constructed data
 - (b) Luminaire Schedule with blank for as-constructed data
 - (c) Equipment Schedule with blank for as-constructed data
- Deliverables: CD Review(s)
 1. Project manual, report, and drawings in Adobe.pdf file
 2. Hardcopy report, project manual, drawings
 3. Optional: Electronic drawing files
 4. All components clearly labeled "Not For Construction".
 5. See CG 004 for format requirements
 - Deliverables: Bid Set
 1. Final Construction Drawings
 2. Final Project Manual
 3. Documents for release to Bidders and Plan Rooms
 4. Addenda
 5. Bid Tabulation
 6. Recommendation of Contract Award Letter
 7. See CG 004 for format requirements
 - Deliverables: Contract Award Set
 1. Construction Drawings
 2. Project Manuals
 3. CAD files of Architectural and Site Plans only.
 4. Presentation boards are required for projects valued over \$1,000,000.
 5. See CG 004 for format requirements
 - Deliverables: Closeout
 1. See Division 01

END SECTION CG 012

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

CG013 Retrofit Roofing - March 12, 2005

- In the absence of other information, standards of the following organizations apply:
 1. Roof Consultants Institute (RCI)
 2. National Roofing Contractors Association (NRCA)
- Coordinate roof drain discharge with plumbing and civil requirements of these Technical Guidelines.
- Scope of Professional Services
 1. Review historic documentation available from Jefferson County School District, R-1 including but not limited to:
 - a. Archived drawings
 - b. Project manuals
 - c. Reports
 - d. Correspondence
 - e. Work orders
 - f. Estimates
 - g. Project scope statements
 2. Meetings with School District staff
 3. On-site physical inspection(s) of the existing roof with and without School District staff :
 - a. Survey roof elevations to establish positive drainage.
 - b. Structural Engineering to establish dead and live load capacities of roof structure
 - c. Non-intrusive moisture mapping
 - d. Destructive testing as required and approved by Jefferson County School District, R-1.
 - e. Photographs, sketches, and other media to document existing conditions
 4. Prepare and submit a written and graphic report according to the outline below
 5. Design Development Review Submittal
 6. Bid and Contract Documents Review Submittal
 7. Bid and Contract Documents
 8. Construction Contract Administration including Closeout
- Content
 1. Executive Summary
 2. Problem statement(s) and proposals encompassing items listed in the Roof Inspections above, with explanations of any proposed deviations from School District standards.
 - a. Membrane condition
 - b. Insulation
 - c. Structure
 - d. Drainage
 3. Summary of alternative schemes and systems investigated, with pros and cons of various alternative designs.
 4. Analysis of repair vs. replacement
 5. Recommendations and concluding statement of priorities, alternatives, recommendations for correction, project scope, direction, and feasibility.
 6. Meeting notes and chronology

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

7. Graphics
 - a. Photographs
 - b. Moisture Map
 - c. Elevation Survey
 - d. Roof Plans, sections, details and other drawings as required to support the narrative.
8. Construction Cost Analysis
9. Coordination summary addressing the following:
 - a. Scheduling / sequencing issues
 - b. Coordination issues
 - c. Unresolved issues
 - d. Codes and regulations
- Deliverables
 1. Report: Per Consultant Guidelines for "Pre-Design" CG 009
 2. Other: Per Consultant Guidelines "Design Development" CG 011 and "Bid/Construction Documents" CG 012
 3. See CG 004 for format requirements

END SECTION CG 013

CG014 Asbestos Abatement - April 19, 2005

- Coordinate asbestos abatement with current renovation or improvement project to minimize impact on asbestos containing materials.
- In the absence of other information, standards of the following organizations apply:
 1. Environmental Protection Agency
 2. Occupational Safety and Health Administration
 3. Colorado Department of Health
- Scope of Professional Services
 1. Review historic documentation available from Jefferson County School District R-1 including but not limited to:
 - a. Archived drawings
 - b. AHERA Management Plan
 - c. SD Documents
 - d. DD Documents
 2. Meetings with school district staff
 3. On-site physical inspection(s) of the existing building with and without School District staff
 - a. Survey asbestos containing materials in building
 4. Prepare and submit a written and graphic report according to the requirements of this Section.
 5. Bid and Contract Documents Review Submittal
 6. Bid and Contract Documents
 7. Construction Contract Administration including Closeout.
 8. On site air quality, monitoring before, during, and after abatement activities.
 9. Visual inspections to confirm compliance with documents and regulations
 10. Daily log / checklist

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

11. Close out report
- Report Contents
 1. Identification and quantification of all asbestos containing material impacted by renovation documents.
 - a. Area of building, location of material
 - b. Scope of renovation work – significance of impact
 2. Summary of alternatives investigated, with pros and cons of various alternative designs.
 3. Analysis of options: Complete removal vs. minimal encapsulation
 4. Recommendations and concluding statement of priorities, alternatives, recommendations, costs, scheduling, project scope, direction, and feasibility.
 5. Meeting notes and chronology
 6. Graphics
 7. Construction Cost Analysis – including the scope of work for additional replacement/reconstruction which will be required by the abatement project so that the design team can estimate remodel work.
 8. Coordination summary addressing the following:
 - a. Scheduling/sequencing issues
 - b. Coordination issues
 - c. Unresolved issues
 - d. Codes and regulations
- Deliverables
 1. Report and drawings in Adobe .pdf file
 2. Hardcopy report
 3. Hardcopy of drawings
 4. See Section CG 004 for format requirements

END SECTION CG 014

CG015 Construction Contract Administration - March 12, 2005

- Construction Contract Administration services are outlined in the standard Jefferson County School District, R-1 Consultant Agreement.
- The prime consultant is responsible for assuring that subconsultants are thoroughly familiar with the Construction Contract Administration provisions and requirements of:
 1. Consultant contract
 2. Technical Guidelines, including Division 01
 3. Project Manual

**Jefferson County School District, R-1 TECHNICAL GUIDELINES 2005
CONSULTANT GUIDELINES**

- Scope of Professional Services
 1. Enforcement of Contract Documents
 2. Field Inspections
 3. Meetings
 4. Field Reports
 5. Administration of Payments to Contractor
 6. Submittal review and processing
 7. Coordination of Code and Regulatory permits and approvals
 8. Requests for Information (RFI)
 9. Change Orders
 10. Field Orders and Supplemental Instructions
 11. As-Constructed Record information
 12. Statement of Asbestos Content
 13. Project Closeout, including As-constructed Record Documents

END SECTION CG015

CG016 Post-Construction - March 12, 2005

- Post-Construction professional services are outlined in the standard Jefferson County School District R-1 Consultant Agreement.
- The prime consultant is responsible for assuring that subconsultants are thoroughly familiar with the Post-Construction Contract Administration provisions and requirements of:
 1. Consultant contract
 2. Technical Guidelines, including Division 01
 3. Project Manual
- Scope of Professional Services
 1. Post Construction Field Inspections
 2. Post Construction Field Reports
 3. Warranty Administration
 4. Meetings as required
 5. Correspondence as required

END SECTION CG 016