

**Jefferson County School District, R-1
Support Services**

TECHNICAL GUIDELINES

DIVISION 11 – EQUIPMENT

AUGUST 2022

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

Table of Contents

DIVISION 11 – EQUIPMENT

11 06 00 Schedules for Equipment - October 2010.....	2
11 11 00 Vehicle Service Equipment - August 2015	2
11 12 00 Parking Control Equipment - October 2010.....	2
11 13 00 Loading Dock Equipment - August 2015.....	2
11 16 16 Safes - August 2020.....	3
11 24 00 Maintenance Equipment - August 2015	4
11 27 00 Photographic Processing Equipment – August 2017	4
11 28 00 Office Equipment - August 2015.....	4
11 30 00 Residential Equipment – August 2021	5
11 40 00 Food Service Equipment - August 2022.....	6
11 51 00 Library Equipment - August 2015.....	14
11 51 23 Cantilever Bracket Metal Library Shelving – August 2022	15
11 52 00 Audio-Visual Equipment - August 2015	17
11 53 00 Laboratory Equipment – August 2020	17
11 55 00 Planetarium Equipment – October 2010	19
11 57 00 Vocational Shop Equipment - August 2019.....	19
11 61 00 Theater and Stage Equipment – August 2020	20
11 62 00 Musical Equipment - October 2010.....	22
11 66 00 Athletic Equipment - August 2022.....	22
11 67 00 Recreational Equipment- October 2021	27
11 68 00 Play Field Equipment and Structures - August 2021	28
11 82 00 Solid Waste Handling Equipment – August 2015.....	29
11 90 00 Other Equipment – October 2022.....	29

DIVISION 11 – EQUIPMENT

11 06 00 Schedules for Equipment - October 2010

- No requirements at this time

END SECTION 11 06 00

11 11 00 Vehicle Service Equipment - August 2015

- Work in this section is open to any product or material meeting the requirements of this Technical Guideline.
- Submittals
 1. Product Data:
 - a. Required
 2. Shop Drawing:
 - a. Required
 3. Closeout:
 - a. Submittals listed above
 - (1) Updated to record status
 - b. Operation and Maintenance Manual
- Applications
 1. High School Auto Shop
 2. Support Facilities
- Fuel Dispensing Equipment:
 1. Only with approval of District Project Manager
 2. Use only at District Transportation and Maintenance Facilities
 3. All fuel dispensing types and methods are prohibited at school locations.

END SECTION 11 11 00

11 12 00 Parking Control Equipment - October 2010

- Work in this section is open to any product or material.

END SECTION 11 12 00

11 13 00 Loading Dock Equipment - August 2015

- Work in this section is open to any product or material.
- Submittals
 1. Product Data:
 - a. Required
 2. Shop Drawing:
 - a. Required

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

3. Closeout:
 - a. Submittals listed above
 - (1) Updated to record status.
 - b. Operation and Maintenance Manual
- Applications
 1. School building loading areas
 2. Support Facilities
- Wood is prohibited

END SECTION 11 13 00

11 16 16 Safes - August 2020

- Work in this section is open to any product or material meeting the requirements of this Technical Guideline.
- Acceptable Manufacturers and Models:
 1. School Financial Safes:
 - a. American Security, “BWB3020FL” (BWB2020FL is a smaller model)
 - (1) Nom. 40”x20”x20” – (verify if 30x20x20 is desired)
 - (2) Manual Combination Lock
 - (3) Interior Locker with single camlock with keys
 - (4) Front-loading Depository with large package capacity
 - (5) Floor anchored
 - (6) Color: Black
 2. School Stores and Concessions:
 - a. American Security, “DSF2014C”
 - (1) Nom. 20”x 14”x14”
 - (2) Manual Combination Lock
 - (3) Front-loading Depository
 - (4) Floor anchored
 3. School Kitchen:
 - a. Amazon Basics, “27EI-43”
 - b. Nom. 17”x15”x11”
 - c. Standalone Safe
- Coordination
 1. With Jefferson County School District Purchasing Department.
 2. District Project Manager
 3. District Locksmith
 4. Installation requirements
- Locations:
 1. High Schools:
 - a. Financial Office
 - b. Athletic Office
 2. Middle Schools
 - a. Financial Office
 3. Elementary Schools
 - a. Administration Area

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Submittals
 1. Product Data:
 - b. Required

END SECTION 11 16 00

11 24 00 Maintenance Equipment - August 2015

- Work in this section is open to any product or material.
- Typically provided by Owner.
- Coordinate with District Project Manager for specific project requirements.

END SECTION 11 24 00

11 27 00 Photographic Processing Equipment – August 2017

- Use only to support existing traditional photography programs.
- Work in this section is open to any product or material.
- Submittals
 1. Product Data:
 - a. Required

END SECTION 11 27 00

11 28 00 Office Equipment - August 2015

- Work in this section is restricted to bidders previously approved and listed by Jefferson County Public Schools Purchasing Department.
- Typically provided by Owner
- Coordination
 1. Jefferson County School District Purchasing Department.
 2. District Project Manager for specific project requirements
 3. Placement and relocation of photocopiers
 4. Utilities
 - a. Electrical receptacle type, location, and circuit with power requirements of the equipment item.
 - b. HVAC/Ventilation requirements.
- Submittals
 1. Product Data:
 - a. Required
 2. Manufacturer Instructions:
 - a. Required
 3. Closeout:
 - a. Submittals listed above
 - (1) Updated to record status.

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

END SECTION 11 28 00

11 30 00 Residential Equipment – August 2021

- Work in this section is restricted to manufacturers previously approved and listed by Jefferson County Public Schools Purchasing Department.
- Coordination
 1. Utilities:
 - a. Electrical service
 - b. Gas, at limited locations
 - c. Hot and cold water supply
 - d. Direct and indirect drainage
 - e. HVAC / exhaust
 2. Reference Educational Specifications for acceptable locations
- Range Hood:
 1. Ducted
 - a. Min. two speed fan - min. 300 cfm.
 - b. Carbon filter
 - c. LED Lighting
 2. Recirculating units are prohibited.
 3. Color: White, Stainless Steel, or Black
- Appliances:
 1. All major appliances shall be Energy Star Rated.
 2. Refrigerators
 - a. Nominal 30-inches wide (standard)
 - b. Nominal 33-inches wide (with approval of District Project Manager)
 - c. Top freezer
 - d. Frost-free
 - e. optional ice maker kit
 - f. Total capacity: 18 - 21 Cu ft
 - g. Color: White, Stainless Steel, or Black
 - h. Mfr: Select from district pre-approved list only
 3. Dishwashers
 - a. Built-in only
 - b. Countertop or portable dishwashers are prohibited
 - c. Standard size only (24-in nominal width) to accommodate a 36-inch high countertop. 34-inch countertops height prohibited at dishwashers.
 - d. Stainless steel tub and door liner
 - e. Top controls with delay start
 - f. Decibel level < 51 dBA
 - g. Color: White, Stainless Steel, or Black
 - h. Mfr: Select from district pre-approved list only
 4. Ranges
 - a. Slide-in electric only
 - b. Nominal 30-inches wide
 - c. Cooktop Surface: Smoothtop – 4 burner areas
 - d. Self-cleaning

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- e. Color: White, Stainless Steel, or Black/black slate
- f. Mfr: Select from district pre-approved list only
- 5. Over-the-Range Microwaves
 - a. Built-in only with integral ducted ventilation and fan with carbon filter
 - b. Recirculating units are prohibited.
 - c. Color: White, Stainless Steel, or Black
 - d. Mfr: Select from district pre-approved list only
- 6. Countertop Microwaves
 - a. Small
 - (1) 0.7 cu ft capacity
 - (2) Color: White or Black
 - (3) Mfr: Select from district pre-approved list only
 - b. Large
 - c. 1.4 – 1.6 cu ft capacity
 - d. Color: White, Stainless Steel, or Black
 - e. Mfr: Select from district pre-approved list only
- 7. Undercounter Refrigerator
 - a. For use in School Clinics that cannot accommodate a full-size refrigerator
 - b. Fits under standard countertop height
 - c. Nominal Size Approx. 34"h x 20"w x 21"d
 - d. Refrigerator with separate freezer
 - e. Door locks
 - f. Mfr: Select from district pre-approved list only.
- 8. Ice Makers: See 11 40 00 Food Service Equipment
- 9. Clothes Washers
 - a. Front load with fill hose
 - b. Stainless steel wash basket
 - c. Controls with delay wash capability
 - d. 4.5 cu ft capacity
 - e. Color: White
 - f. Mfr: Select from district pre-approved list only
- 10. Clothes Dryer
 - a. Front load
 - b. Texture paint coated steel drum
 - c. 7.5 cu ft capacity
 - d. Color: White
 - e. Mfr: Select from district pre-approved list only

END SECTION 11 30 00

11 40 00 Food Service Equipment - August 2022

- Work in this section is limited to the commercial products and materials specified.
- Professional Kitchen Consulting Services Providers shall be pre-approved by Jeffco Schools. Consult the District Project manager for a list of acceptable Consultants.
 - 1. Initial project site visits and assessments must be conducted with the district's Food and Nutrition Services (FNS).

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Food and Nutrition Services (FNS) Kitchen Equipment Contractors and Installers (sub-contractors) shall be pre-approved by Jeffco Schools. Consult the District Project manager for a list of acceptable Contractors and Installers (sub-contractors).
- General:
 1. All installations must conform to installation standards from FNS, Jeffco Schools, Authorities having Jurisdiction, local health department, and manufacturer's installation recommendations and standards.
 2. The District Project Manager and FNS Dept. shall be notified no less than two days in advance of the start of equipment installation work.
 3. Any deviations from the documented installation standards must be approved by FNS and the District Project Manager.
 4. Provide additional 120/20 circuits/receptacles throughout the kitchen and server
 5. Where a GFCI receptacle serves an oven or any refrigeration equipment, the FCI shall sound an audible alarm when tripped.
 6. Provide hard-wired connections in the office and at all POS stations.
 7. Submittals
 - Product Data:
 - Required (cut sheets)
 - Shop Drawing:
 - Required
 - Including ¼ inch scale kitchen plan and elevations showing details and rough-in.
 - Closeout:
 - Submittals listed above
 - Updated to record status.
 - Provide factory trained engineers for start-up and demonstration of equipment.
 - Demonstration shall be done in two stages:
 - One for operation personnel
 - Second to maintenance personnel.
 8. In the absence of other information, standards of the following organizations apply:
 - American Gas Association
 - A.S.M.E.
 - A.S.T.M.
 - N.F.P.A. – 96 for exhaust system
 - National Board of Fire Underwriters
 - National Sanitation Foundation (N.S.F.)
 - O.S.H.A.
 - Jefferson County Public Health Department
 - Colorado Department of Health and Environment
 - U.S. Public Health Service
 - Underwriter Laboratories (U.L.) or other approved NRTL's.
 9. Coordination
 - With District Food and Nutrition Services and permitting authorities.
 - District Project Manager for specific project requirements.

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Pre-installation conference with Jefferson County School District, R-1 is mandatory before work in this section is permitted to begin.
 - Utilities:
 - Electrical service
 - Gas
 - Hot and cold water supply
 - Direct and indirect drainage
 - HVAC.
 - Locate equipment and connecting utilities to avoid restricting service access.
 - Gas shutoff for the kitchen shall be by mechanical valve only
 - Electric solenoid valve or a combination mechanical and electric solenoid valve is not permitted
- Commercial Kitchen Equipment List:
 1. Coordinate with the District Project manager and FNS on which equipment is included in the project.
 2. No substitutions unless approved by FNS prior to bid.
 3. Convection Oven:
 - Blodgett DFG200
 - Double stacked
 - Manual solid state controls. No digital controls or temperature display
 - Commercial grade flexible gas connector
 - DFG100 may be used where hood depth won't allow SFG200.
 4. Exhaust Hood:
 - Localized ability to turn on the hood at any time.
 - Mechanically operated gas solenoid valve is required. Interruption of gas flow to standing pilots is not acceptable during a power outage.
 - Coordinate with HVAC and Fire protection standards
 5. Microwave Oven:
 - Amana RC17S2
 - Place on shelf
 - Requires 208/1
 6. Cooking Range:
 - Vulcan, Southbend, Garland, or Blodgett
 - Two burner
 - Solid tops
 - Commercial grade flexible gas connector
 7. Steamer:
 - Cleveland 24CGA10.2
 - Double stacked
 - Commercial grade flexible gas connector
 - Everpure water filtration system
 - EV9797-21 Kleensteam II Single Systems
 8. Holding Cabinet, Heated, Pass-Thru:
 - Winston HA4522
 - Glass door production side
 - Provide water supply and autofill
 - Provide drain, pipe unit drain to kitchen plumbing

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Stainless steel finish above unit to match well with pass-thru reach-in refrigerator and wall opening
 - Provide electrical power from above
9. Plumbing:
- Disposer:
 - ISE SS100
 - When drain is hard-piped a union is required to drain line
 - Faucets:
 - Central, T&S, or Chicago
 - Faucets – Hand Sinks:
 - Manually operated foot valves
 - Floor sinks:
 - Porcelain
 - Mop sink:
 - Recessed in floor. Flush mounted stainless steel grate over the top
 - Sprayer head:
 - Fisher
10. Work Tables:
- All stainless steel
 - Provide drawers
 - Prefer legs
 - Bull nose edges
 - Facilitate trash can storage
11. Ice Machine:
- Manitowoc IYT-0420A
 - Include Manitowoc D-420 storage bin
 - Narrow width (22")
 - Everpure water filtration system. EV9324-60 Insurice Single 4SI
12. Reach-in Freezer and Refrigerator:
- Traulsen R Series
13. Reach-in Refrigerator – Pass-Thru:
- Traulsen R Series
 - Glass doors production side
 - Stainless steel finish above unit to match well with pass-thru heated holding cabinet and wall opening
 - Provide electrical power from above
14. Refrigerated Beverage Merchandiser
- RPI
 - Accepts milk crates
 - Condensate waste piped to drain
 - Provision for night security
 - Rear door where applicable
15. Walk-in Refrigerators/Freezers
- Thermo-Kool, KPS (Kysor)
 - Exposed exterior: stainless steel, diamond plate to 48" above floor level
 - Door: diamond plate kick to 48" above floor level inside and out. Window and foot treadle required.

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Quarry tile floor
 - Exterior light at back door for morning entry
 - Center mount low profile evaporator unless 16” clear from evaporator to shelf beneath it can be maintained.
 - Hard-nosed edges. Foam panel edges are not acceptable
 - LED lighting. Provide additional lighting beyond manufacturer’s standard
 - 24” shelving – Metromax I
 - RDT roof mounted condensing unit(s)
 - Temperature monitoring controls are neither required not desired.
16. Walk-in Freezer Compartment:
- Prefabricated ThermoKool factory installed complete working assembly:
 - Special size compartment with 4” thick sections assembled as indicated on the drawings minimum 8’-4” high A.F.F. Corner panels shall be matching one-piece construction including ½” minimum radius at all inside vertical corners. Assemble using standard cam fasteners and sealed with PVC double bubble gasket at interior and exterior of panel edges.
 - Interior face of wall panels shall be clad with 0.040” aluminum with stucco finish.
 - Interior face of ceiling panels shall be clad with 0.040” aluminum with smooth finish.
 - Exterior non-exposed face of panels shall be clad with stucco-embossed aluminum. Exterior exposed face of wall panels on the interior of the building shall be clad with #20 gauge stainless steel and 1/8” aluminum tread plate 48” high.
 - Exterior doors to match exterior finish and interior to match interior finish. Metal joints to be welded, ground, and polished. Interior and exterior jamb guards of 1/8” tread plate 48” high. Exterior kick plates of 1/8” tread plate 48” high. Freezer door to be provided with 120 volt dedicated circuit heater cable around perimeter including heated threshold. Provide three (3) chrome-plated hinges, (one spring loaded) latch with interior safety release and cylinder lock.
 - Vaults to have 4” thick factory floor sections. Floor panels are to be covered with 1/8” aluminum tread plate. All corners are to be coved to meet NSF requirements. Kitchen Equipment Contractor to furnish vapor barrier film to General Contractor for installation. Provide and install one (1) custom fabricated 12 gauge stainless steel “T” shaped transition strip in the threshold between the walk-in compartment and existing building location and completely seal to all adjacent surfaces with clear silicone.
 - Accessories: Provide Kason model 809, LED vapor proof lights with bulb located in each compartment. Basic analog temperature display for an outdoor installation. Manufacturer to furnish fixtures pre-assembled with wiring for installation by Electrical Contractor. All exposed conduit to be installed in a professional and workmanlike condition, with conduit plumb and level. Extend

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

conduits to electrical junction boxes located on the side facing the existing building below the roof line. Penetrations are not allowed through roof panels other than those required for hanging the evaporator coils.

- Factory mount in head section, electrically heated vacuum pressure relief vent, with dedicated circuit. Kason model #1832 (or approved equal), flush mounted. Mount away from direct air stream of coil. All rough-ins required shall originate from door panel location as shown.
- Walk-in Manufacturer condensing unit shall utilize factory low ambient controls for operation in a -10 degree F ambient. Condensing unit shall utilize R-448A refrigerant. Enclosure or condensing unit constructed so birds cannot enter enclosure and coil face to be protected from hail damage. Electrical disconnect shall not be attached to the enclosure.
- Furnish sufficient quantity of 3/8" diameter nylon threaded rods with stainless steel nuts and washers to support refrigeration coils.
- Furnish sufficient quantity of 5" diameter stainless steel escutcheon plates to dress off utility penetrations by other trades.
- Pre-wire door defrosters to top of vaults for final connection by Electrical Contractor.
- Vaults to be installed by unit manufacturer. Manufacturer to verify the finished work of the electrician, plumber, and refrigeration installer, in particular the vault wall penetrations and sealing of light fixtures.
- Provide one (1) year free service including parts, labor and a minimum of ten (10) year warranty on walk-in panels.

17. Condensing Units for Walk-in Refrigerators/Freezers

- RDT
- RDT mechanical equipment is preferred. Control panel to be coordinated with FNS monitoring requirements

18. Installation Requirements for Walk-in Refrigerators/Freezers:

- In addition to code requirements and manufacturer's standards, provide:
 - Refrigerant to be compliant with most recent EPA regulations. Obsolete or soon-to-be obsolete refrigerants are not acceptable.
 - Refrigeration compressors are to be manufactured by Copeland or Tecumseh.
 - Outdoor condensing units shall have factory installed low ambient controls. No field adaptations permitted.
 - Condensing units shall be provided with an enclosure that prevents the entry of birds or hail into the compressor/coil area, including the face of the condenser coil.
 - Roof mounted condensing units shall be mounted on a built-up curb and installed according to district standards
 - Refrigeration system joints shall either be flared or brazed
 - Quick connects of soft solder joints are not acceptable

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Refrigerant piping within the cooled space shall be minimized in favor of placing long or complicated runs in ceiling void above the walk-in box
- Electrical conduit within the cooled space shall be minimized in favor of placing long or complicated runs in ceiling void above the walk-in box
- If line sets are utilized, they shall not exceed the length required to complete the run. If the length of the line set exceeds the run, the line set shall be cut to the appropriate length. Soft copper tubing, where used, shall be formed straight and bends in tubing will be mechanically created or fittings used.
- Escutcheons shall be provided for all refrigerant, condensate, and electrical piping penetrations in walk-in walls or ceilings.
- Penetrations to be sealed on both sides with Permagum or silicone.
- Foam refrigerant and condensate line insulation shall not be directly exposed to weather. Aluminum jacketing is required where exposed to weather.
- Condensate lines shall be routed to minimize exposure to temperatures below 32 degrees F. Condensate lines located within a space expected to fall below 32 degrees F are to be heat taped and then insulated. These lines shall also be pitched to the greatest extent possible but under no circumstances less than ¼” per foot. Condensate lines located within a space expected to fall below 32 degrees F may not have a trap located within the refrigerated space.
- Electrical disconnects, switches, or connections may not be attached to removable panels
- Electrical connections to be liquid tight vapor proof with no path to exterior moisture.

19. Serving Line:

- Duke, BSI
- Custom-designed serving line
 - Elementary tray slide height = 30” A.F.F.
 - Secondary tray slide height = 34” A.F.F.
 - Number of Lines:
 - Elementary School: 1-2 lines
 - Middle School: 3 lines plus a snack bar
 - High School: 4 lines plus a snack bar
 - All lines within the Kitchen
- Enclosed operator side
- Wells drain to floor sinks and auto-fill
- Custom 3Form front facing panels
- Components: All or some of the following:
 - Hot/cold wells, ala carte space, beverage merchandiser, hot/frost top, frozen merchandizing

20. Dish Machine:

- Meiko

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Pot and pan washer, sized for application
 - Booster Heater:
 - Hatco C-Series
 - Stainless steel enclosure
 - Unions installed at water lines and temperature/pressure relief valve discharge
 - Disposer:
 - ISE SS100
 - When drain is hard-piped a union is required on the drain line.
21. Other:
- Refrigerant piping within the cooled space shall be minimized in favor of placing long or complicated runs in ceiling void above the walk-in box
 - New Age 4339
 - Casters, two locking
 - Utility Cart:
 - Lakeside 221/4722
 - Small/Large
 - Dunnage:
 - New Age 20**
 - Provide 6” clear below, 2,500 pound capacity
 - Shelving:
 - Intermetro Metromax I
 - Multi-use
 - Braising Pan
 - Groen BPM-15G and BPM-30G
 - Trash Can:
 - Rubbermaid
 - Red, to designate food service only
 - Condiment Cart: Custom manufactured
- Standards for Storing, Relocating, and Moving Commercial Kitchen Equipment:
 1. Commercial Kitchen Equipment moving and relocating shall be performed by a district pre-qualified company. Obtain a pre-qualification list from the District Project Manager.
 2. Transportation of large and small food equipment will be coordinated by the general contractor as part of the project.
 3. Coordinate with FNS as to disposition of all equipment.
 4. Account for temporary storage of food service equipment required to facilitate construction
 5. When large equipment is to be removed and relocated for construction, clean and paint, if necessary, before reinstalling equipment
 6. Protect all equipment not able to be relocated from construction activity, physical damage, dust, etc.
 7. FNS must approve any variation from these standards.
 - Misc. Equipment (Non-Commercial Use)
 1. All equipment not listed shall be coordinated through the District Project Manager.
 2. Ice Makers
 - a. Small

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- (1) Nominal 15”w x 38”h x 24”d with condensate removal pump
 - (2) Stainless steel
 - (3) cube-medium
 - (4) Air-cooled, self-contained condenser
 - (5) Unit must sit in an overflow pan
 - (6) Mfr: Select from district pre-approved list only
- b. Large
- (1) Nominal 22”w x 71”h x 34”d, including ice maker and ice storage bin with adjustable legs
 - (2) Stainless steel construction
 - (3) Full-size cubes
 - (4) Air cooled condenser
 - (5) Shall be placed adjacent to a floor drain/sink
 - (6) Mfr: Manitowoc “ iT0420A – Indigo NXT Series”

END SECTION 11 40 00

11 51 00 Library Equipment - August 2015

- See Division 12 for Library Casework Furniture Requirements.
- Work in this section is open to any product or material.
- Coordinate requirements with District Project Manager
- Submittals
 1. Product Data:
 - a. Required
 2. Shop Drawing:
 - a. Required
 3. Manufacturer Instructions:
 - a. Required
 4. Closeout:
 - a. Submittals listed above
 - (1) Updated to record status.
 - b. Operations and Maintenance Manual for Book Theft Protection Equipment
 - c. On-site demonstration and video for book theft protection equipment.
- Book Theft Protection Equipment:
 1. Work in this section is restricted to specific manufacturers that have been previously approved by Jefferson County Public Schools Purchasing Department.
 2. Fully functional within an environment of electromagnetic interference from computers, monitors, copiers, ballasts and other sources.
 3. Electromagnetic or radio frequency type
 4. Portable or fixed station
 5. Suitable for protecting both printed and electronic media
 6. Manufacturer qualifications
 - a. Minimum 5 consecutive year firm history of manufacturing institutional grade Library Equipment
 - b. Minimum 5 installations of the specific product in public schools or comparable institutional occupancies in Colorado or adjacent states.
 7. Maintenance Service

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- a. Full time service based or branched in Colorado or an adjacent state.
- b. 24-hour 365 day per year telephone support
- c. Repair and service training for Jefferson County School District, R-1 maintenance personnel.
- d. Optional renewable annual service contract for 72 hour response for factory authorized on-site repair and service.

END SECTION 11 51 00

11 51 23 Cantilever Bracket Metal Library Shelving – August 2022

- General: Floor-mounted cantilever bracket type metal library bookstack shelving for anchoring to walls.
 1. Reference Division 12 for library free-standing casework shelving and mobile units
- Work in this limited to those manufacturers listed below and meeting the minimum standards listed.
- Cantilever Bracket Type Metal Library Bookstack as defined by the American Library Association and published in their Library Technology Reports. Each individual shelf shall be equipped with 2 separate end brackets to allow for the adjustment of each individual shelf in a section and range. Sharing of end brackets by adjacent shelves is unacceptable.
- Submittals:
 1. Product Data
 2. Shop Drawings showing fabrication, locations, and layout.
 3. Maintenance Data
- Warranty:
 1. Limited Lifetime Warranty: Free from defects in materials and workmanship for the lifetime of the shelving.
- Manufacturer Qualifications:
 1. ISO 9001 certified for the design, production, installation and service of library bookstacks
- Installer Qualifications:
 1. Manufacturer's authorized representative for the specified products for assembling and installing library bookstacks
 - Minimum Qualifications: 1-year experience installing library bookstacks of comparable size and complexity to specified project requirements.
- Acceptable Manufacturers:
 1. Provide products from the following manufacturers. Products provided must meet or exceed the requirements of this section
 - Library Bureau Steel
 - Estey-Tennsco
 - Palmieri
 - Borroughs
 - Spacesaver Corp.
- Sizes: Shelving units max. 72-inches high (may provide up to 78-inches high if 72-inches is not a standard height from manufacturer with approval of District Project Manager).

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

1. Width: as designed using manufacturer's standard widths.
 2. Coordinate with District Project Manager for maximum height of shelving units appropriate for specific educational programs, i.e. Elementary, Middle, and High School programs.
- Metal Finishes: Factory-applied electrostatic powder coat paint
 1. Coordinate colors with free-standing casework provided under Division 12.
 - Welded Frame Upright:
 1. Welded frame: 2 vertical upright columns constructed of min 16-gauge steel. Upright column shall be min. 2" deep with a 1 1/4" face with return flanges. The uprights shall be fully welded to a tubular top spreader and a channel bottom spreader. The uprights shall have shelf attachment slots on 1" increments the entire length of the upright. Uprights shall include location indicators the entire length of upright on a minimum of 6" centers.
 2. Tubular top spreader shall be heavy gauge steel tube minimum 2 1/2" tall x 1" wide.
 3. Bottom spreader channel shall be a min. 16-gauge channel with attachment holes for use with levelers as needed.
 4. Non-welded frame cantilever type shelving units are prohibited
 - Base Supports:
 1. Minimum 16-gauge steel approx.. 9" high with a 1" return on the bottom for support. Support shall attach to frame upright with bolts and nuts. Support shall be designed and constructed with shear tabs that interlock/mate with the upright to provide a positive connection that will give additional stability to welded frame in addition to the bolted connectors. Provide shear tabs ensure squareness and alignment of the base support to the welded frame. Base support design must allow the frame to transfer loads to floor or levelers. Base support brackets that put the bolted connection in shear are unacceptable.
 - Leveler Kits:
 1. Consists of cage nut(s) and leveler(s) held by the single faced base support. Provide cage nuts and levelers on the welded frame itself.
 - Shelf End Brackets:
 1. Minimum 16-gauge steel of a depth not less than that of the shelf on which they are used and shall extend not less than 6" above the top surface of the shelf. The top and front edges shall be flanged outwardly to a half round profile. Shelf brackets shall have a minimum of two hooks at the top for engaging into the column (post) and one safety lug to prevent accidental dislodgment at the bottom. Outward embossment in the upper front corner of the shelf brackets shall act as shelf spacers and prevent overlapping of shelf end brackets. The upper front corner of the shelf brackets shall have a radius of not less than 1 inch. The base of the end brackets will have two lanced tabs that interlock with the shelf and provide firm support for the shelf. Lance tabs and shelf shall be provided with holes for optional bolting of components. The front edge of the end bracket shall have a slope.
 - Base Shelves:
 1. Minimum 18-gauge cold rolled steel with bends on the rear of shelf and a min. double bend with an approx. 3" surface at the front. Shelf ends to be turned down to engage and interlock into the shelf end brackets.

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Standard Shelves:
 1. Minimum 18-gauge cold rolled steel with bends on both front and rear edges.
Shelf ends to be turned down to engage and interlock into the shelf end brackets.
- Metal Canopy Tops:
 1. Minimum 18-gauge cold rolled steel with bends on front edges with a maximum edge thickness of $\frac{3}{4}$ ". Single face and double face units to be one-piece design.
- Accessories as required by final design and layout:
 1. Card Holders: painted steel
 2. Adjustable Shelf with Integral Low Back
 3. Periodical Display Shelf (Hinged)
 4. Flat Storage Shelf
 5. Multimedia Browsing Box
 6. Zig-Zag Display Backstop
 7. Base Shelf Filler
 8. Corner Filler: Fills shelf corner and canopy corner.
 9. Closed Back Kit
- End Panels:
 1. High-Pressure Decorative Laminate or Wood Veneer panels
 2. Edges: PVC T-mold
 3. Coordinate colors and textures with free-standing casework under Division 12.
 4. Fabric or non-laminated plastic finishes require approval of the District Project Manager

END SECTION 11 51 23

11 52 00 Audio-Visual Equipment - August 2015

- Work in this section is restricted to bidders previously approved and listed by Jefferson County Public Schools Purchasing Department.
- Coordination
 1. District Project Manager for specific project requirements.
 2. See Division 27, Integrated Audio Visual Systems
 3. Confirm source of materials (Owner/Contractor/Other) no later than DD review.
 4. Structural support and anchorage.
 5. Utilities:
 - a. Electrical power
 - b. Communications
 - c. Sound and Video connections per Data, Communications and Alarm Diagram (DCAD).
- Projector mounting hardware:
 1. See Division 27, Integrated Audio Visual Systems, for approved audio and video systems.

END SECTION 11 52 00

11 53 00 Laboratory Equipment – August 2020

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Except as noted, work in this section is open to any product or material meeting the requirements of this Technical Guideline.
- Submittals
 1. Product Data:
 - a. Required
 2. Shop Drawing:
 - a. Required
 3. Closeout:
 - a. Submittals listed above
 - (1) Updated to record status.
 - b. Operation and Maintenance Manual
- Coordination
 1. Utilities
 - a. Electrical
 - b. HVAC
 2. Jefferson County School District R-1 Science Safety Guide requirements
- Science Suite Fume Hood:
 1. See also Div 23 – 23 35 00
 2. Restricted to specific manufacturers that have been previously approved by Jefferson County School District, R-1 Facilities Management
 - a. Air Master
 - b. Fisher-Hamilton
 - c. Kewaunee
 - d. Taylor
 - e. Labconco
 3. Pre-wired and pre-piped
 4. Factory-finished sides, base and filler panels
 5. Drains, water supplies, or cup sinks are prohibited
 6. Venting to building exterior. Internal venting or re-circulation venting is prohibited.
 7. Installer, supplier, or manufacturer shall inspect and certify the fume hood upon installation to ensure unit is installed and operating according to manufacturer's specifications.
- Science Suite Acid and Chemical Storage Cabinet:
 1. Justrite Chemcor, or equivalent
 - a. 18 gauge, double-wall, welded construction with integral spill containment at cabinet bottom.
 - b. Dual vents.
 - c. Exterior baked enamel or powder-coated finish, interior coating to resist corrosion, deterioration, and staining
 - d. 2 self-closing doors with 1 adjustable shelf
 - e. Capacity: 30 gal.
 - f. Compliance
 - (1) FM Approved
 - (2) OSHA Compliant
 - (3) NFPA 1 and NFPA 30
 - g.
 - h. Cabinet or area where cabinet is located must be vented and continuously exhausted to the building exterior.

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Science Suite Flammables Storage Cabinet:
 1. Justrite Sure-Grip, or equivalent
 - a. 18 gauge, double-wall, welded construction with integral spill containment at cabinet bottom.
 - b. Dual vents with flame arresters, adjustable leveling feet, and grounding connector.
 - c. Exterior epoxy/polyester powder-coated finish, interior coating to resist corrosion, deterioration, and staining
 - d. 2 self-closing doors with 1 adjustable shelf
 - e. Capacity: 30 gal.
 - f. Compliance
 - (1) FM Approved
 - (2) OSHA Compliant
 - (3) NFPA 1 and NFPA 30
 - g. Cabinet or area where cabinet is located must be vented and continuously exhausted to the building exterior.
- Ammonium Hydroxide Storage Cabinet:
 1. Wood
- Ammonium Nitrate Storage Cabinet:
 1. Wood
- Flammable Organics Cabinet
 1. Noncombustible construction compliant with NFPA Code 30 and OSHA
 2. Explosion proof refrigerator permitted.
- Flammable Metals Cabinet
 1. Noncombustible construction compliant with NFPA Code 30 and OSHA
 2. Explosion proof refrigerator permitted.
- Fire Blanket:
 1. No requirements
- Safety Goggle Sanitizer Cabinet:
 1. Flinn UV Goggle Sanitizer SE1000, or equivalent
 2. UV-C Germicidal light
 3. Holds 36 goggles
 4. 120V power required

END SECTION 11 53 00

11 55 00 Planetarium Equipment – October 2010

- Work in this section is open to any product or material.

END SECTION 11 55 00

11 57 00 Vocational Shop Equipment - August 2019

- Testing and Certification

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

1. All equipment shall be tested and certified by a third party entity as referenced in NFPA 70 (NEC) and each entity shall be recognized by The Occupational Safety and Health Administration (OSHA) as a qualified electrical testing laboratory that performs evaluations, testing, and certification of certain products to ensure that they meet the requirements of both the construction and general industry OSHA electrical standards.
 - a. All equipment shall bear the listing mark of one of these entities
 - b. Any equipment not bearing a listing mark of one of the approved entities shall not be installed in any school or operated under any educational program in Jeffco Schools.
- Equipment
 1. Special Exhaust Systems: A separate exhaust system may be required for all equipment not specifically designed with self-contained exhaust and air filtration.
 2. Shop equipment and other equipment that produce dust, sawdust, and other particulates must be connected to a dust collection system specifically designed to remove dust, sawdust, and other particulates from the space where these particulates are being produced.
 3. All equipment shall be approved by the School District’s Career and Technical Education Department, Purchasing Department, and the District Project Manager prior to purchase and installation.
 4. Installation by a manufacturer’s certified installer if required by manufacturer.
- Submittals:
 1. Product and Electrical/Ventilation Data:
 - a. Required
 2. Operations and Maintenance Manual
 - a. Required
 3. Installation Information
 - a. Required

END SECTION 11 57 00

11 61 00 Theater and Stage Equipment – August 2020

- Work in this section is open to any product or material.
- Submittals
 1. Product Data:
 - a. Required
 2. Shop Drawing:
 - a. Required
 3. Closeout:
 - a. Submittals listed above
 - (1) Updated to record status
 - (2) Samples excluded
 - b. Operations and Maintenance Manual
 - c. Provide on-site demonstration/training for maintenance and operation of rigging systems and controls:
- Restrictions:
 1. Professional legitimate stage type flyloft apparatus is prohibited.

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- Choral/Instrumental Risers
 1. 3 tier assembly
 2. Rectangular sections only
 - a. Triangular filler sections are prohibited.
 3. Uncarpeted
- Stage Curtains
 1. Pre-bagged
 2. Pre-hung
 3. ASTM 701
 4. Certified flameproof with inherently flame-retardant fabric
 5. Velour
 6. Size:
 - a. 130% of proscenium width
 7. Structural inspection required at completion of installation to confirm proper installation and attachments to structure. Submit final structural inspection report to District Project Manager.
- Stage Safety Net
 1. Stage safety system that creates a safety barrier across the stage opening. Anchor into side proscenium walls to stretch across stage opening.
 2. 2-inch mesh netting with web border and corner ties. 42-inch high net suspended from min. 3/8-inch rope and tensioned cam straps.
 - a. Mesh fiber: High Tenacity Polypropylene
 - b. Cord Diameter: Min. 1/8-inch
 - c. Mesh size: 2-inch square opening
 - d. Color: Yellow
 - e. Mesh Break: Min. 280 lbf
 - f. Dynamic Test: 3,150 ft-lb as per ANSI A10.11
 - g. Rope:
 - (1) High-strength, braided-strand
 - (2) Min. Strength: 14,000 lb
 - (3) Min. diameter: 3/8-inch.
 3. Manufacturer certified or approved installers only
- Orchestra Pit Net
 1. Impact absorbing safety system designed to protect stage workers, performers and visitors from accidental falls off stage and into the orchestra pit.
 2. High tenacity mesh with sewn 1/4-inch rope border and 1/2-inch structural rope woven through the mesh
 - a. Mesh fiber: High Tenacity Polypropylene
 - b. Cord Diameter: Min. 3/16-inch
 - c. Mesh size: Max. 2-1/2-inch square opening
 - d. Mesh Break: 719 lb
 - e. Drop Test: 12,075 ft-lb
 - f. Weight: Min. 0.0528 lb/sf
 - g. UV Stabilizers: included
 - h. Color: Black
 3. Provide conductor's opening
 4. Provide openings at all pit access points for ease of access and emergency egress from pit.

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

5. Pit net shall be designed for the specific orchestra pit opening
6. Manufacturer certified or approved installers only

END SECTION 11 61 00

11 62 00 Musical Equipment - October 2010

- Work in this section is open to any product or material.
- Typically provided by the District.

END SECTION 11 62 00

11 66 00 Athletic Equipment - August 2022

- Work in this section is restricted to specific manufacturers that have been previously approved by Jefferson County Public Schools Purchasing Department.
- Coordination
 1. Inserts and sleeves with floor construction and floor finish.
 2. Electrical power per Division 26 for dividers, retractable backstops, mat hoists and scoreboards
- Submittals
 1. Product Data:
 - a. Required
 2. Shop Drawing:
 - a. Required
 3. Manufacturer Instructions:
 - a. Required
 4. Closeout:
 - a. Submittals listed above
 - (1) Updated to record status.
 - b. Operations and Maintenance Manual
- Gymnasium Basketball Backstops
 1. Restricted to specific manufacturers that have been previously approved by Jefferson County School District, R-1.
 - a. Aalco
 - b. Draper
 - c. JayPro
 - d. Porter
 2. Main Court:
 - a. Elementary School:
 - (1) Steel backboard
 - (2) Adjustable from 8 to 10 feet
 - b. Middle School and High School:
 - (1) Glass backboard
 - (2) Retractable
 3. Short Courts (2):
 - a. Elementary School:
 - (1) Steel backboard

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- (2) Adjustable 8-10 feet
 - (3) Retractable at cafeteria side
 - b. Middle School:
 - (1) Steel backboard
 - (2) Retractable with normally open manual key switch
 - c. High School:
 - (1) Glass backboard
 - (2) Retractable with normally open manual key switch
- 4. Safety retention system is required for all retractable basketball backboards.
- Weight Room and Exercise Equipment:
 - 1. Coordinate with the School District Athletics and P.E. Departments for equipment layouts and placement.
 - 2. Restricted to specific manufacturers and products that have been previously approved by Jefferson County School District R-1.
- Gymnasium Dividers
 - 1. Restricted to specific manufacturers that have been previously approved by Jefferson County School District, R-1.
 - a. Aalco
 - b. Draper
 - c. JayPro
 - d. National Gym Equipment (NGE)
 - e. Porter Athletic Equipment Company
 - 2. Power operated drop/roll up type curtain
- Floor Inserts
 - 1. Restricted to specific products of specific manufacturers that have been previously approved by Jefferson County School District, R-1 Facilities Management.
 - a. Senoh
 - b. PSS
 - 2. Elementary School:
 - a. One volleyball court
 - 3. Middle School:
 - a. Inserts for:
 - (1) Parallel bars
 - (2) Uneven parallel bars
 - (3) One main volleyball + (2) short court volleyball courts.
 - 4. High School:
 - a. Inserts for:
 - (1) Parallel bars
 - (2) Uneven parallel bars
 - (3) Rings
 - (4) One main volleyball court + (3) short court volleyball courts.
 - b. Coordinate locations in Main Gymnasium and / or Auxiliary Gymnasium with District personnel.
- Gymnasium Scoreboard
 - 4. Restricted to specific manufacturers that have been previously approved by Jefferson County School District, R-1 Facilities Management.
 - a. Daktronics
 - b. Fair Play

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- c. Nevco
- 5. Configuration
 - a. Minimum Sizes:
 - (1) Elementary Schools: 6'-6" x 3'-0"
 - (2) Middle Schools and K-8's: 8'-0" x 4'-0"
 - (3) High Schools- Main Gym: 10'-0" x 6'-0"
 - (4) High Schools – Aux Gym: 8'-0" x 4'-0"
 - b. Rear and side service access panels are prohibited.
- 6. Control panel:
 - a. Single solid state microprocessor with capability for multiple-sports (basketball, wrestling, volleyball)
 - b. Remote from scoreboard (for servicing)
 - c. Multiple interchangeable and mechanical type controls are prohibited.
 - d. Battery back-up is required
- 7. Scoreboard receiver modules:
 - a. Pluggable "black box" type units.
- 8. Plug/Socket:
 - a. Physically different from that used with gymnasium public address system to prohibit cross-connection.
- 9. Cable:
 - a. 75 ohm shielded coaxial
 - b. In conduit
 - c. Optional wireless
- 10. Dedicated power circuit to receptacle via lockable switch
- 11. Guard:
 - a. By Manufacturer
- 12. Display Bulbs:
 - a. LED
- 13. For radio control, supply 6 lineal feet of antenna
- Interior Video Boards
 - 1. Restricted to specific products of specific manufacturers that have been previously approved by Jefferson County School District R-1, Facilities Management.
 - a. Daktronics
 - b. Vantage
 - c. Nevco
 - 2. High Definition LED large screen display system composed of multiple interconnected panels
 - a. Physical Pitch: 3.9 mm
 - b. LED's per pixel: 3 in 1 SMD
 - c. Service Access: Front
 - d. Color Capability: 281 trillion colors
 - e. LED refresh rate: >3,000 Hz
 - f. Viewing angle: Min. 140 deg. Horizontal
 - g. Brightness: Min. 1400 nits (cd/m²)
 - h. Diming capability: Yes
 - i. Input voltage: 120-240V AC
 - j. Communication: Fiber Optic or Cat6 based on distance to controller
 - k. Local or cloud-based software included with no annual subscription fees

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

1. Warranty:
 - (1) Parts and Service: Min. 5 years.
 - m. Installation: Wall-mounted. Suspended models prohibited.
- Exterior Scoreboards
 1. Restricted to specific products of specific manufacturers that have been previously approved by Jefferson County School District R-1, Facilities Management.
 - a. Daktronics
 - b. Fair Play
 - c. Nevco
 2. Quality Control
 - a. FCC for radio frequencies
 - b. UL or C-UL Tested and Labeled
 - c. 5 Year parts and factory warranty on main components
 - d. Local factory or service representative with capabilities of servicing equipment.
 - e. Engineering: Qualified Structural Engineer design required for foundations, wind loads, and other supporting features.
 3. Electrical
 - a. Conduit for future electrical wiring
 - b. Conduit for future data wiring
 4. Configuration
 - a. 10 feet (L) x 4 feet (H) minimum for baseball/softball fields
 - b. 18 feet (L) x 8 feet (H) minimum for football/soccer fields.
 5. Control Panel (2 per scoreboard)
 - a. Solid state microprocessor with capability for multiple-sport scoring format (football and soccer) on football/soccer fields.
 - b. Water-resistant housing with integral keyboard.
 - c. Remote from scoreboard for servicing
 - d. Memory backup is required
 - e. Multiple interchangeable and mechanical type controls are prohibited
 - f. For radio controlled scoreboards
 - (1) Provide radio antenna in quantity sufficient for proper operation.
 - (2) Radio Control devices shall have frequencies that resist anti-hacking activities.
 6. Control cables:
 - a. Rated for underground (wet) locations
 - b. Install in PVC conduit around the perimeter of field using rigid metal conduit (RMC) 90° ELs at severe bends.
 7. A fusible disconnect switch (NEMA 3-R) is required for each scoreboard and will be mounted on scoreboard support pole/I-beam at 7 feet above grade.
 8. Guard:
 - a. Per manufacturer
 - b. Required for baseball/softball.
 9. Scoreboard Construction:
 - a. Aluminum faces and perimeter frame.
 - b. Acrylic polyurethane paint finish or electrostatic paint finish
 - c. Corrosion-resistant fasteners, anchors, and exposed hardware.
- Exterior Baseball/Softball Outfield Safety Netting

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

1. Nylon safety netting: #36 twine, 1-7/8-inch square hole (3.75-inch stretched), twisted knotted nylon dyed black and bonded, with a 5/16-inch black polyester rope border hand sewn to all sides and vertical rib lines at all posts
2. Height = 30 feet, or as approved by District Project Manager
3. Mounting: Vertical steel poles set in concrete footings and designed for wind loads with vertical cables at all poles for strength attachment and stability of nets.
- Interior Batting Cages
 1. Limited locations with approval of District Project Manager only.
 2. Acceptable Mfr: Porter Athletic or approved equivalent
 3. Retractable Ceiling Batting Cages designed for use in gymnasiums
 4. Size: 12-ft w x 12-ft h x 70-ft l.
 5. 7/8-inch square, knotless polypropylene mesh netting (#420 twine) all four sides and top.
 - a. Allow for 1-ft of netting material to lay on floor to stop balls from being driven under netting. Tuck netting under floor protection except where entering netting.
 6. Support Frame: Heavy-duty electro-plated tubing with cross spreaders located at appropriate intervals with tee fittings for hoist cable attachments.
 7. Hoist Cables: Galvanized cable
 8. Continuous tube line shaft with hoist drums secured to roof structure
 - a. Structural Engineer required. May need to modify existing roof structure to accommodate system.
 9. Line shaft safety lock
 10. Electric Operator:
 - a. Min ¾ HP with keyed control switch.
 - b. Worm gear
 11. Floor protection required by use of rubber roll padding to protect gym floors – full coverage of cage area as noted:
 - a. Acceptable Mfr: Rubber Flooring Inc. or approved equivalent
 - b. Heavy-duty commercial rolled rubber flooring.
 - (1) Density: ASTM D297: 0.96 min.
 - (2) Tensile Strength: ASTM D412, Die C: 247 min.
 - (3) Elongation: ASTM D412, Die C: 84 min.
 - (4) Compression: ASTM F36: 90% min. recovery
 - (5) Tear Strength: ASTM D624, Die C: 79 min.
 - c. Material – Recycled rubber buffings and colored EPDM virgin rubber flecks.
 - d. Width – Single width rolls or minimum roll width 4 ft wide with ability to butt to adjacent roll without gaps.
 - e. Length – longest rolls available that can be moved by two persons. Joints must have ability to butt to adjacent rolls without gaps.
 - f. Minimum Thickness – 3/8-inch
 - g. Weight – 2.2 Lbs. per square foot.
 12. Storage units, hoists, or trollies as needed to store and transport rubber flooring
 - a.
- Mat Hoist (Wrestling and Gymnastics)
 1. Restricted to specific manufacturers that have been previously approved by Jefferson County School District, R-1 Facilities Management.
 - a. National Gym Equipment (NGE)
 - b. Porter Athletic Equipment Company

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

2. Designed to support one 42 foot square mat equivalent to one ton live load (minimum).
 3. Key controlled switch box.
 4. Structural engineering is required.
- Ice Makers: See 11 40 00 Food Service Equipment

END SECTION 11 66 00

11 67 00 Recreational Equipment- October 2021

- Work in this section is open to any product or material meeting the requirements of this Technical Guideline.
- Climbing Walls
 1. May be provided at elementary, middle and high schools
 - a. Confirm need with District Project Manager
 2. Building permits are required for installation of climbing walls
 - a. Permits are obtained through the Division of Fire Safety
 - b. Provide a letter from a structural engineer licensed in the State of Colorado
 - (1) Certifying:
 - (a) Engineering of the wall system
 - (b) Attachment requirements of walls system
 - (c) Building wall construction structural adequacy to support the climbing wall
 - (2) Certification letter shall be submitted to Jefferson County School District R-1, Department of Facilities Planning and Construction and Risk Management.
 - c. Periodic maintenance and inspection of the climbing walls is required.
 3. Submittals:
 - a. Engineer’s certification letter
 - (1) Copies to:
 - (a) Facilities Planning and Construction
 - (b) Risk Management
 - b. Design documentation
 - (1) Copies to:
 - (a) Facilities Planning and Construction
 - (b) Facilities Maintenance
 4. Height of climbing walls is limited
 - a. Elementary and K-8 Schools: Maximum 8’-0” above finish floor
 - b. Middle Schools and High Schools: Maximum 10’-0” above finish floor
 - c. Vertical climbing walls are prohibited.
 5. Provide a means of securing the climbing wall when not in use, to prevent unauthorized and unsupervised use of the wall.
 6. Construction:
 - a. Grade AB plywood or better is required, if plywood is used for the installation of the “holds”.
 - (1) Plywood must be pre-finished or painted
 7. Floor Safety Pads:
 - a. Elementary and K-8 Schools: Min. 2-inch thick pads

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- b. Middle Schools and High Schools: Min. 3-1/2 – inch thick pads

END SECTION 11 67 00

11 68 00 Play Field Equipment and Structures - August 2021

- Work in this section is open to any product or material meeting the requirements of this Technical Guideline.
- In the absence of other information, standards of the following organizations apply:
 1. United States Consumer Product Safety Commission (CPSC) Handbook for Public Playground Safety
 2. ASTM F1487-11, Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.
- Submittals
 1. Product Data:
 - a. Required
 2. Shop Drawing:
 - a. Required
 3. IPEMA certification is required for each individual component.
 4. Closeout:
 - a. Submittals listed above, updated to record status.
- Playground Equipment and Play Structures
 1. District approval is required for all play equipment components and configurations for both new and retrofit conditions.
 2. Approval may be withheld if District review determines the components or configurations are not safe or may not be utilized by children as designed.
 3. All new play structures and components must comply with ADA Requirements.
 4. Highest designed use: 9 feet 0 inches
 5. Prohibited:
 - a. Play components designed for use higher than 9 feet 0 inches
 - b. Wood components
 - c. All poly-rope components
 - d. Vinyl-coated cables designed for climbing, walking, or standing
 - e. Multi-person whirl / merry-go-round
 - f. Truck, pulley, cable devices
 - g. See-saw
 6. Vinyl-coated cables or exposed chains are allowed for play component suspension only and shall not be designed for climbing, walking, or standing.
 7. Spinners, single-, or two-person whirls allowed with District approval only.
 8. Fall height
 - a. Maximum as approved by District for safety concerns.
- Portable Soccer Goal
 1. Removable steel with safety type covers for sleeves
 2. Set sleeves in concrete 1 inch (minimum) below finish grade level
- Soccer/Football/Lacrosse Goals

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

1. Restricted to specific products of specific manufacturers that have been previously approved by the school district
 2. Manufacturers
 - a. Sportsfield Specialties, Inc.
 - b. Kwik Goal
 - c. Gill Athletics
 - d. Approved Equivalent
 3. Products:
 - a. Combination H soccer/football goals are preferred for practice fields that are striped or marked for multiple sports
 - b. 8-foot Gooseneck football goals to facilitate 8-foot soccer goals are preferred for fields that will host competitive football games
 - c. Sleeves/footings in synthetic turf field applications shall be coordinated with turf installer
 - d. Portable lacrosse goals regulation inside dimensions – 6’ x 6’ goal face, 7’ depth. 4mm net.
- Tennis net:
 1. Fabric with concealed take up mechanism
 - Outdoor basketball backstop
 1. 4 foot cantilever type set in concrete.
 2. Prefinished galvanized steel only
 3. Chain nets prohibited.

END SECTION 11 68 00

11 82 00 Solid Waste Handling Equipment – August 2015

- Work in this section is open to any product or material.
- Bins, Dumpsters:
 1. Dumpsters for School District are provided by the Waste Disposal Contractor.
 2. Coordinate with District Project Manager for type, size, and number required.
- Waste Compactors and Destructors:
 1. Prohibited

END SECTION 11 82 00

11 90 00 Other Equipment – October 2022

- Work in this section is restricted to specific products of specific manufacturers that have been previously approved and listed by Jefferson County Public School District Facilities Management.
- Electric Kiln and Exhaust
 1. Coordination of electrical, mechanical, and code issues are required
 2. All electrical voltage requirements for each kiln must match voltage and phasing available at the building.
 3. Manufacturer:
 - a. Skutt KM-1027 kiln with Envirovent-2 exhaust

Jefferson County School District, R-1 TECHNICAL GUIDELINES 2022
Division 11 – Equipment

- (1) 208V single phase or three phase hard wired electrical connection
 - (2) Include manufacturer’s standard “furniture kit” that includes shelves
 - b. Optional at High Schools: Skutt KM-1227 kiln with Envirovent-2 exhaust
 - (1) 208V single phase or three phase hard wired electrical connection
 - (2) Include manufacturer’s standard “furniture kit” that includes shelves
- 4. Coordination:
 - a. See Data, Communications and Alarm Diagram (DCAD)
 - b. Utilities
 - (1) Electrical
 - (2) HVAC
- 5. Kiln installations and relocations are subject to permit and inspection procedures of the Colorado Department of Labor, Public Safety Section.
- Electric Table-top type kilns
 - 1. Table-top kilns designed for low-level firing and for glasswork
 - 2. Coordination of electrical, mechanical, and code issues are required.
 - 3. Dedicated circuit and signage at power receptacle identifying for use with table-top kilns
 - 4. Fire-resistant finishes on counter or table with fire-resistant finishes on any adjacent vertical and horizontal surfaces.
 - 5. Non-dedicated overhead switched exhaust fan in near proximity.
 - 6. Manufacturer:
 - a. Skutt Firebox 14 or GM 10F
 - b. 120V
- Gas Fired Kiln and Exhaust
 - 1. Locate in secured, outdoor enclosures. Interior locations are prohibited.
 - 2. Design Parameters and Performance:
 - a. Electronic ignition
 - b. High limit digital programmable controller and pyrometer
 - c. 16 – 20 cubic foot capacity
 - d. High efficiency stainless steel forced air burners @ 170,000 BTU
 - e. Electronic ignition
 - f. Front loading
 - g. Steel frame construction, with sheet metal walls, insulation, ceramic fiber lined
 - h. Down draft design
 - i. Center pivot door
 - j. Kiln furniture package
 - k. NRTL tested and certified
 - 3. Coordination:
 - a. See Data, Communications and Alarm Diagram (DCAD).
 - 4. Site fabricated gas fired kilns are prohibited

END SECTION 11 90 00