

THORNTON FIRE MUSEUM

Appendix C — Specifications and Tables
August 14, 2026



OWNER

City of Thornton
Fire Department
Thornton Fire Museum

EXHIBIT DESIGN



Studio Tectonic
400 Marine Street, Carriage House
Boulder, CO 80302

PROJECT ARCHITECT



Architectural Workshop
2 Kalamath Street
Denver, CO 80223

Table of Contents

00 01 00 Project Information and Document Use

01 11 00 Summary of Work

01 23 00 Alternates, Allowances, and Coordination Items

01 31 00 Project Coordination

01 33 00 Submittals and Reviews

01 45 00 Quality Control and Mockups

01 60 00 Product Requirements and Substitutions

01 74 00 Installation, Protection, and Cleaning

01 78 00 Closeout, Training, and Manuals

05 50 00 Metal Fabrications

06 40 00 Exhibit Casework and Millwork

08 80 00 Glazing and Acrylic Protection

09 90 00 Finishes, Paint, Laminate, Vinyl, and Flooring

10 14 00 Exhibit Graphics

10 59 00 Exhibit Specialties and Interactive Elements

11 52 00 Media, Audio-Visual, and Controls

12 93 00 Artifact Mounting and Object Installation

TABLE A - Design Development Exhibit Element Scope Matrix

TABLE B - Design Development Media System Matrix

TABLE C - Finish and Graphic Type Schedule

TABLE D - Owner / Buyout / Coordination Items

00 01 00 Project Information and Document Use

This appendix supplements the Thornton Fire Museum Design Development exhibit drawing package and media appendix for bidding, fabrication, installation, and commissioning. It consolidates the current design development scope, material references, graphic production requirements, media requirements, and bidder coordination items into one bidder-facing specification package.

This specification package does not replace the drawings. Where dimensions, graphics, exhibit codes, or details vary from this appendix, bidders shall use the current Design Development exhibit drawings, media appendix, and written clarifications issued by the Owner or Designer.

- Owner: City of Thornton Fire Department.
- Designer: Studio Tectonic LLC, Boulder, Colorado.
- Project: Thornton Fire Museum exhibit fabrication, media integration, graphics, and installation scope.
- Design documents referenced: StudioTectonic-Thornton_DD_ExhibitDrawings.pdf, StudioTectonic-Thornton_DD_Appendix-A Content and Graphic Layouts.pdf, and StudioTectonic-Thornton_DD_Appendix-B Media.pdf dated July 23, 2026.
- This package is written for museum-quality exhibit fabrication and public-use durability.

Document Intent

- Provide a clear basis for bidding, technical drawing, fabrication, and installation and providing a complete, operational, durable exhibit system.
- Describe workmanship, coordination, submittals, shop drawings, mockups, testing, and closeout requirements.
- Identify owner-provided and buyout items versus fabricator-provided integration responsibilities.
- Make clear that the contractor shall provide incidental components required for complete, safe, accessible, serviceable, and operational installations even if every fastener, bracket, cable, or backing block is not shown.

01 11 00 Summary of Work

The work consists of fabrication, procurement, integration, delivery, installation, coordination, testing, and closeout of exhibit elements for the Thornton Fire Museum. The scope includes custom exhibit structures, graphics, media systems, exhibit casework, object display, artifact mounting, fire-safety interactives, retail/display integration, and owner-provided object coordination.

General Description of Work

- Custom exhibit casework, millwork, freestanding exhibit structures, wall-mounted exhibit elements, reader rails, and mobile kiosks.
- Wall-mounted interpretive graphics, hanging graphics, graphic panels, banners, reader rail graphics, object IDs, and flap/vinyl graphics.
- Media displays, touchscreens, media players, projectors, speakers, amplifiers, controls, sensors, cabling, mounts, access panels, programming, and commissioning.
- Integration of Pyrosoft fire extinguisher simulator equipment including CPU, extinguisher unit, Bluetooth sensors, activation buttons, projector, sound, and service access.
- Coordination and installation of owner-provided artifacts, salvaged components, hose/nozzle, helmets, uniforms, gear, engine-related components, and buyout elements where assigned.
- Shop drawings, samples, mockups, field verification, final adjustment, cleaning, training, manuals, and spare parts.

Single Complete System Requirement

Provide all labor, materials, fabrication, engineering, anchors, cables, wiring, raceways, brackets, blocking coordination, access provisions, power distribution, finish materials, labels, and incidentals required to deliver complete exhibit elements whether or not every minor

component is specifically shown. Shop drawings shall identify proposed deviations, assumptions, unresolved field conditions, or required substitutions before fabrication.

Museum Quality Standard

Finished work shall be appropriate for a public museum environment with frequent visitor use, family audiences, school groups, and guided groups. Accessible and touchable elements shall be durable, cleanable, stable, free of sharp edges, free of exposed fasteners except where intentionally detailed, free of loose wiring, and free of unfinished backs or exposed construction defects visible to visitors.

01 23 00 Alternates, Allowances, and Coordination Items

Bidders shall include the Design Development base scope except where alternates are specifically requested by the bid form. Alternates listed below are deduct alternates unless otherwise directed.

Alt ID	Type	Item	Base Bid Scope	Alternate Scope
D-01	Deduct	HT2.EX1 Key Individuals	Full touchscreen interactive unit	Remove full interactive unit and replace with flat wall-mounted graphic only. Related sheets EX.23, EX.28.
D-02	Deduct	LS2.EX1 Getting Ready For The Call	Bed recreation	Remove bed recreation completely. Related sheets EX.38, EX.45.
D-03	Deduct	FS3.EX1 Safe Route Planning	Full interactive unit with silhouette-cut graphic	Remove full interactive unit and replace with flat wall-mounted graphic only. Related sheets EX.49, EX.59.
D-04	Deduct	FS4.EX1 T-Town Clowns	Full interactive unit	Remove full interactive unit and replace with flat wall-mounted graphic. Keep existing silhouette-cut graphic. Related sheets EX.49, EX.61.
D-05	Deduct	FR1.EX1 and FR1.EX2 Thornton in Pictures	South and north wall photo collage graphics	Remove wall graphics completely. Related sheets EX.77, EX.79.

Known Coordination Items

- Control the Flow FF4.EX1 uses a modified typical mobile kiosk with an additional divider to permit placement of control panel components. Coordinate salvaged/available pump panel parts, material thickness, and mounting with Owner, TFD, Designer, and any specialty supplier before fabrication.
- Fire Extinguisher Fun FS1.EX1 requires close coordination of Pyrosoft hardware, projector throw, Bluetooth sensors, modified rail-mounted extinguisher, separate ignition button, service laptop/CPU, recessed speakers, and removable access panels.
- Ride Along with TFD FF1.EX1 display and arm shall be coordinated with final engine/cab conditions and any engine exhibit vendor work.
- Bunk Room LS2.EX1 is a public-use sit/climb element; final dimensions, surface material, foam density, cleanability, and restraint details require sample review before fabrication.
- Owner-provided artifacts, helmets, modified equipment, side packs, original map, oral history media, and screen-ready content require coordination before final mounts and graphics are released.
- Buyout retail, mirror, Tensabarrier, and existing information desk elements are identified separately. Include installation, integration, covers, or anchoring only where specifically assigned to the exhibit fabricator.

Allowances and Unit Pricing

- Provide unit pricing for additional small object mounts, standoffs, tethers, and object ID labels if final quantities are not confirmed at bid.
- Provide unit pricing for reprint of graphic panels by square foot for late content or image revisions after production approval.
- Provide hourly rates for post-install media programming revisions requested after approved content insertion.
- Identify any exclusions or assumptions for Owner-supplied equipment, power, blocking, or field modifications.

01 31 00 Project Coordination

Coordination with Drawings and Field Conditions

- Field verify all dimensions, outlet locations, blocking, wall construction, floor conditions, clearances, service access, and door paths before shop fabrication.
- Coordinate wall anchoring, floor anchoring, cleats, standoffs, and fasteners with existing construction and architectural/engineering documents.
- Do not rely on design development dimensions for final fabrication without field verification and approved shop drawings.
- Coordinate electrical requirements with owner and electrical contractor. Exhibit media systems are local and do not require network connections unless later directed by owner.
- Coordinate all media kiosk and equipment access locations with actual electrical outlet positions before final fabrication.

Access, Service, and Maintainability

- Provide concealed but practical access to media players, amplifiers, power supplies, sensors, laptop/CPU equipment, projectors, control wiring, outlets, and power distribution.
- Access panels shall be removable or lockable as appropriate and shall not require destructive disassembly for routine service.
- Label internal media components, power supplies, outlet strips, HDMI/USB/audio cables, sensor cables, and cable runs in plain language.
- Use service loops, strain relief, grommets, and cable management to prevent abrasion, accidental disconnection, or visitor access.

Accessibility and Visitor Safety

- Maintain required circulation clearances and clear floor space at interactive elements.
- Use rounded, eased, or protected edges at all visitor-contact surfaces.
- Secure freestanding and mobile elements against tipping, rolling, unintended movement, or visitor misuse. Lock casters where provided.
- Use safety glazing or acrylic protection where required for object protection or visitor safety.
- Coordinate final reach ranges, button locations, touchscreen heights, and sightlines with the Designer before fabrication.

01 33 00 Submittals and Reviews

Required Submittals

- Complete shop drawings for each exhibit element as well as overall floor plans and exhibit spacing showing dimensions, materials, joinery, anchoring, access panels, removable components, finishes, graphic interfaces, power/data routing, and field attachment methods.
- Media shop drawings showing displays, players, projectors, speakers, amplifiers, sensors, buttons, power, cable paths, access doors, ventilation, service clearances, and control diagrams.
- Graphic production proofs and color proofs for each graphic type before final production.
- Material and finish samples for paint, laminate, vinyl, flooring, edge banding, powder coat/anodized finish, acrylic, glass, banner material, and touchable bedding material.
- Prototype or mockup for the bed/mattress element, home safety flaps, safe route planning button/prototype components, fire extinguisher rail/sensor assembly, and any unusual visitor-operated mechanism.
- Engineering documentation when required for sliding glass casework, large freestanding structures, overhead/hanging elements, and any element subject to visitor climbing/sitting forces.

Shop Drawing Requirements

- Show final field-verified dimensions and clearances.
- Identify all Owner-provided components to be integrated.

- Identify all service access doors and removable panels.
- Show actual equipment models if substitutions are proposed.
- Show anchoring, leveling, and anti-tip provisions.
- Show graphics, object mounts, artifact supports, and label locations in relation to final casework.
- Provide shop drawings for review and approval as a complete set of documentation inclusive of all elements (not partial or rolling submittals). Anticipate no less than two rounds of revisions (allowing for 10 working days of review).

01 45 00 Quality Control and Mockups

Mockups and Samples

- Provide one representative graphic panel sample showing print quality, laminate, edge treatment, and mounting method.
- Provide a representative mobile kiosk finish/edge sample including laminate, edge banding, corner treatment, and fastener concealment.
- Provide bed/mattress surfacing and foam samples sufficient to confirm density, comfort, cleanability, print quality, and public-use durability.
- Provide sample or prototype of Home Safety FS2.EX1 flap construction showing attachment to MDF backer, double-sided vinyl printing, edge finishing, and repeat-use durability.
- Provide prototype of any pushbutton, sensor, or mechanical component requiring visitor operation before final production.

Acceptance Criteria

- Exhibit elements are plumb, level, square, stable, and cleanly finished.
- Visitor-facing surfaces are smooth, durable, and free from exposed sharp edges, splinters, burrs, loose fasteners, or visible construction flaws.
- Graphics are flat, aligned, color-consistent, bubble-free, and free of scratches, dents, delamination, or contaminated laminates.
- Sliding glass panels operate smoothly with no binding and locks function correctly.
- Media systems power on automatically after power loss, play correct content, activate correctly, reset correctly, and are serviceable through intended access points.
- All owner training, operator notes, media files, BrightAuthor/project files, as-built drawings, and manuals are delivered before final acceptance.

01 60 00 Product Requirements and Substitutions

- Basis-of-design products establish quality, performance, size, finish, and coordination intent. Equivalent substitutions may be proposed for review unless a product is identified as Owner-provided or specifically required for compatibility.
- Substitutions shall include product data, dimensions, finish samples, warranty information, performance comparison, and notes describing any effect on graphics, structure, access, programming, power, heat, sound, or maintenance.
- Bidders remain responsible for additional hardware, mounting plates, adapters, brackets, cables, extenders, amplifiers, ventilation, sensors, and integration required to make substituted products operational.
- Do not make substitutions that reduce durability, cleanability, accessibility, service access, or visitor safety.

01 74 00 Installation, Protection, and Cleaning

- Protect existing building finishes, historic features, Owner artifacts, engine, floor, walls, and adjacent work during delivery and installation.
- Deliver elements using paths and methods that avoid damage to building openings, floors, door frames, and finished surfaces.
- Install all elements plumb, level, aligned, and securely anchored. Shim and level without visible shims or improvised exposed hardware.

- Clean all exhibit surfaces, graphics, glass, acrylic, media displays, and touch surfaces before turnover.
- Remove packing, debris, labels, fingerprints, adhesive residue, dust, and construction waste from the site.

01 78 00 Closeout, Training, and Manuals

- Provide final as-built drawings or marked shop drawings for each exhibit element and overall floor plan
- Provide media system diagrams, equipment lists, serial numbers, passwords if applicable, microSD card locations, file structures, and reset/startup procedures.
- Provide owner training covering power-up, shutdown, replacing microSD cards, editing BrightAuthor projects, basic troubleshooting, cleaning, and safe access to service cavities.
- Provide manufacturer manuals, warranties, spare keys, spare touch-up materials, spare graphic material where available, and recommended maintenance schedules.
- Provide final exported media files and editable project/source files where applicable.

05 50 00 Metal Fabrications

Materials and Fabrication

- Provide metal components, brackets, frames, tabs, posts, cleats, shoes, track supports, standoffs, and anchors required for complete exhibit installation.
- Welded aluminum or steel shall be straight, square, ground smooth where exposed, and finished to the approved color and sheen.
- Welcome Panel AO2.EX1 shall use tubular welded aluminum with recessed GT.1 graphics, floor bolting as required for level/plumb conditions, and acorn-top nuts where visible as indicated.
- Overhead/hanging elements and banners shall include hardware sized for load, attachment conditions, and visitor safety. Coordinate building attachment points and blocking before fabrication.
- Provide concealed reinforcement in casework and bases where visitor loads, sliding glass loads, or object loads require it.

Finish

- Powder coat, anodize, or paint exposed metal as indicated by finish schedule or approved shop drawings.
- Visible components shall be cleanly aligned, free of burrs, scratches, weld discoloration, drips, or rough edges.
- Touch up field scratches only with approved materials and methods.

06 40 00 Exhibit Casework and Millwork

General Casework

- Provide high-quality exhibit casework using plywood, MDF, metal reinforcement, laminate, paint, edge banding, removable panels, and concealed fastening as required by each element.
- Casework shall be rigid, stable, dimensionally accurate, and able to withstand public museum use.
- Provide access panels where equipment, outlets, sensors, laptop/CPU, media players, amplifiers, or lighting/power components require service.
- Finish all exposed, semi-exposed, and visitor-visible surfaces. Backs and returns visible from normal visitor circulation shall be finished.

Mobile Kiosk Typical

- Mobile kiosks shall follow the Design Development mobile kiosk typical and individual exhibit details. Typical kiosks receive graphics on both sides with exhibit-specific case additions, object areas, or panel modifications as indicated.

- Provide concealed structure, level base, finished sides/returns, durable corners, and locking casters or concealed leveling/anchoring provisions where required by final use.
- Coordinate object cases, divider panels, panel thickness, and specialty components before fabrication.

AO3 Retail Buyout Integration

- AO3.EX1 Mobile Retail Kiosk is owner-provided GearGrid standard mobile locker unit, four-pack version, with adjustable shelving, lockable casters as required, and lockable fabric cover from manufacturer.
- AO3.EX2 Mobile Wall Retail Display is owner-provided GearGrid Slinger workstation small size with attached back tool grid, top shelf, work surface, lockable storage option, and lockable casters as required. Fabricator shall provide lockable fabric cover only if assigned in final scope.
- Coordinate any graphic, anchoring, signage, or cover integration with owner-provided retail units.

Bunk Room Bed Recreation LS2.EX1

- Provide built-in bed platform to simulate fire station bunk. Construct of 3/4 inch plywood core with dHPL woodgrain to match lockers, 2 mm PVC edge banding at exposed edges, fully enclosed box construction with internal cleats, and solid deck to support mattress element.
- Coordinate final dimensions with mattress; target platform size is 36-39 inches W x 75-80 inches L and target platform height is 12-16 inches AFF before mattress.
- Provide minimum 500 lb load capacity with no deflection or movement under use. Anchor to wall/floor with concealed anchorage. No visible hardware or tipping/movement.
- Provide custom foam mattress element for public use: multi-layer foam with firm base and softer top, total thickness 6-8 inches, sized tight to platform with no gaps over 1/2 inch.
- Cover shall be healthcare-grade vinyl or PU-coated fabric, antimicrobial, bleach-cleanable, high abrasion, matte finish, concealed zipper or sealed seams, non-slip bottom, and no accessible zippers or loose components.
- Visual surface shall simulate period bedding using printed/integrated graphic. Optional low-profile integrated pillow form may be included. No removable bedding or fabric sheets.
- Element shall be safe for climbing, sitting, and light jumping, with rounded/soft corners, no bottoming out, and concealed restraint or non-slip means to prevent sliding.
- Provide samples of bed surfacing and foam section to confirm feel, density, cleanability, print quality, and quality before production.

08 80 00 Glazing and Acrylic Protection

Acrylic Protection

- Provide clear acrylic protective covers, barriers, vitrines, or shields where indicated for object protection or visitor safety.
- Edges shall be polished, eased, and free of saw marks. Mounts shall be secure, aligned, and reversible where appropriate.
- Use UV-stable acrylic where sunlight or strong exhibit lighting exposure is expected.

Sliding Glass Case HT3.EX1-CA1

- Provide freestanding case adjacent to Quonset hut with three sliding laminated low-iron tempered glass panels sized to allow overlapping travel and full access across opening.
- Tracks shall allow smooth, stable, quiet operation. Bottom track shall include low-profile guide system to prevent panel wander; top track shall be primary load-bearing element where required.
- Provide concealed roller assemblies rated for panel weight, anti-lift devices to prevent removal from exterior, and integrated stops to control panel travel.
- Provide integrated locking system securing sliding panels. Locks shall engage multiple panels simultaneously or lock the active panel, be keyed alike across case unless otherwise noted, and be discreetly located.

- Sliding panels shall be set within minimal aluminum head and sill. Finish shall be powder coat or anodized, color as selected. Vertical sliding panel edges shall remain frameless.
- Provide concealed welded steel frame within base so case is self-supporting, rigid, and stable under full load. Glass shall bear on continuous recessed metal shoe anchored to frame. Include leveling system for field adjustment.
- Provide fixed laminated glass top, silicone-glazed to side panels unless otherwise indicated. Provide brush seals or minimal gaskets at sliding panel overlaps. Case is not airtight unless a higher-performance case is separately directed.
- Fabricator shall provide signed shop drawings and engineering addressing glass thickness and deflection, track load capacity, structural stability, and applicable ASTM safety glazing standards.
- All visible components shall be aligned, square, free of visible defects, and silicone joints shall be clean, consistent, and free of air bubbles.

09 90 00 Finishes, Paint, Laminate, Vinyl, and Flooring

Code	Product / Manufacturer	Color / Name	Finish / Notes
P.1	Sherwin-Williams SW-6258	Tricorn Black	Satin finish
P.2	Sherwin-Williams SW-6255	Morning Fog	Satin finish
P.3	Sherwin-Williams SW-6090	Java	Satin finish
P.4	Sherwin-Williams SW-6608	Rave Red	Satin finish
P.5	Rosco TV Paint 5735	TV White	Matte finish
L.1	Wilsonart D307-60	Hollyberry	Matte finish
L.2	Wilsonart 1573	Frosty White	Matte finish
L.3	Wilsonart 7943K-07	Colombian Walnut	Textured gloss
V.1	Gerber 220 High Performance Vinyl	Matte White	Use specified product
V.2	Gerber 220 High Performance Vinyl	Matte Black	Use specified product
V.3	Gerber 220 High Performance Vinyl	Matte Cardinal Red	Use specified product
FL.1	Inverness Travertine	Click Lock Waterproof Vinyl Tile Flooring	22 mil, 11.9 in. W x 23.8 in. L or matched substitution

- Painted and laminated finishes shall match approved samples for color, sheen, and surface quality.
- Laminate seams shall be minimized and located away from high-visibility faces where possible.
- Vinyl flooring and finish materials shall be installed per manufacturer requirements and coordinated with adjacent building finishes.
- Provide touch-up materials for painted and laminated work where practical.

10 14 00 Exhibit Graphics

Graphic Production Types

Graphic Type	Description	Performance / Installation Notes
GT.1	Digital print with low-luster overlaminate, adhered as required.	Use for wall graphics, reader rails, mobile kiosk graphics, and typical panel graphics unless otherwise indicated.
GT.2	Digital high-pressure laminate, 1/2 inch thick, chamfered edge.	Use where drawings call for durable high-pressure laminate panel graphics.
GT.3	Digital print on opaque banner material.	Use for overhead area banners and hanging banner graphics.
GT.4	Digital print on vinyl, double-sided.	Use for Home Safety flap top/underside graphics and other double-sided vinyl components.

Wall Graphic Typical

- Wall graphics shall follow the DD graphic panel typical. Provide cleats, standoffs, adhesives, backing panels, wall blocking coordination, and edge finishing as required by final graphic type and mounting condition.

- Graphic panels shall be cleanly aligned, level, and removable where indicated. Coordinate final mounting heights and edge alignment with graphic location plans and elevations.
- Where graphic panel faces are recessed or inset, maintain consistent reveals and flush/parallel relationships.

Hanging Graphic Typical

- Hanging banners and suspended pole banners shall follow the DD hanging graphic typical. Provide poles, end caps, hanging hardware, anchors, safety cables where required, and concealed/clean termination details.
- Coordinate overhead attachment points, ceiling/floor clearances, and final banner positions before production.

Graphic Schedule Requirement

Produce all graphics listed in the Design Development Graphic Schedule, including wall graphics, kiosk graphics, reader rail graphics, object IDs, overhead banners, Home Safety flap graphics, T-Town Clowns monitor graphic, CPAT and media-adjacent graphics, Gear Try-On locker graphics, and Thornton in Pictures photo collage graphics unless removed by accepted alternate.

10 59 00 Exhibit Specialties and Interactive Elements

Reader Rails

- Provide reader rails as indicated for HT3.EX2, FF2.EX1, FF7.EX1, FS1.EX1.3, and other locations shown. Rails shall be stable, cleanly finished, and securely anchored.
- Reader rail graphics shall be produced to the designated graphic type and mounted to resist visitor contact, cleaning, and edge lifting.
- Coordinate rail height, angle, and clearance with circulation and accessibility requirements.

Quonset Hut Recreation HT3.EX1

- Coordinate hut recreation, adjacent freestanding case, Ken Freiberg media monitor, recreated sign, helmet object IDs, and artifact display as a single integrated zone.
- Protect existing/historic-looking finishes during media and case installation. Mount media and object components without visible wiring or distracting hardware.

Fire Extinguisher Fun FS1.EX1

- Provide aiming extinguisher activity with rails and attached modified fire extinguisher, wall projection screen, reader rail, recessed/deck audio, and service access as shown.
- Fabricator shall provide housing and installation as required for Bluetooth optic receiver and route power cable through rail system. Coordinate outlet location in field.
- Provide removable access panel allowing access to electronics and wall outlet. Access shall not be visible as unfinished work from normal visitor approach.
- Coordinate modified Bluetooth fire extinguisher so rails pass through safely; separate ignition button shall be mounted as indicated and integrated with Pyrosoft system.
- Projection screen surface shall coordinate with P.5 Rosco TV White or media projection requirements. Projector blocking/support shall be coordinated with electrical plan and field conditions.

Home Safety Interactive FS2.EX1

- Provide Get Out Safely model house / wall interactive with overall house graphic and multiple double-sided vinyl fabric flaps as shown.
- Fabric flaps shall reveal underside graphics and be secured to MDF backers. Edges shall be finished cleanly and withstand repeated visitor use.
- Use GT.4 double-sided vinyl for flap top and underside graphics. MDF edges and visible substrate shall be painted/finished per callouts.
- Prototype flap attachment and durability before final fabrication.

Safe Route Planning FS3.EX1

- Provide Safe Route Planning interactive as base bid unless D-03 deduct alternate is accepted. Include graphics FS3.EX1-GR1 and FS3.EX1-GR2, removable access, buttons/prototype components, and all casework shown.
- Fabricator shall prototype the button or interactive mechanism before production and coordinate final service access.
- If D-03 is accepted, replace full interactive unit with flat wall-mounted graphic only as shown on the alternate sheet.

T-Town Clowns FS4.EX1

- Provide full interactive unit with surface-mounted monitor, pushbutton activation, media player, monitor graphic, and silhouette-cut graphic as base bid unless D-04 deduct alternate is accepted.
- If D-04 is accepted, remove full interactive unit and replace with flat wall-mounted graphic while keeping existing silhouette-cut graphic as indicated.

Control the Flow FF4.EX1

- Provide modified typical mobile kiosk with additional divider and provisions for control/pump panel components. Coordinate final parts, material thickness, access, mounting, and visitor-safe edges before fabrication.
- Provide secure mounting of all owner-provided control panel elements and protect visitors from sharp, heavy, loose, or pinch-point components.

Equipment Display LS1.EX2

- Owner modifies selected equipment; fabricator shall install and secure Owner-modified equipment as shown, including wall-mounted equipment display, graphics, extended IDs, and concealed hardware.
- Coordinate actual object dimensions, weight, and mounting requirements before drilling or fabrication.

Gear Try-On Lockers LS3.EX3

- Fabricator shall provide wall-mounted gear lockers where indicated, which should include nameplate holders. Owner provides mirror LS3.EX2. Coordinate locker graphics and final mounting height with gear try-on area layout.
- Lockers shall be secure, durable, cleanable, and appropriate for repeated visitor handling of try-on gear.

11 52 00 Media, Audio-Visual, and Controls

General AV Requirements

- All exhibit AV systems shall be fully stand-alone and operate without network connectivity. Media shall be stored locally on industrial microSD cards or local CPU storage as required by each system.
- Standard media player basis of design: BrightSign HD1025 with HDMI output, GPIO inputs, analog audio output, microSD storage, and automatic restart after power loss.
- Displays shall be surface mounted unless noted otherwise. Speakers shall be recessed into exhibit structures with flush grilles. Pushbuttons shall be flush mounted through exhibit panels.
- All wiring shall be concealed within exhibit structures or walls. Equipment including media players, amplifiers, power supplies, CPU/laptop components, and cabling shall be located in protected service cavities with access doors.
- Provide all additional hardware, cabling, adapters, mounts, extenders, ventilation, power strips, programming, and integration required for complete operational systems.
- Provide system commissioning, owner training, operator manuals, and BrightAuthor/project files for future edits where BrightSign systems are used.

AV Equipment Basis of Design

System / Component	Basis of Design	Notes
Standard media player	BrightSign HD1025	Use for BrightSign-based video, audio, touchscreen, and

		pushbutton media systems.
Touchscreen display	Planar Helium PCT3285, approx. 32 inch	Used for HT2 Key Individuals and LS1 CPAT Test; HDMI and USB connection to BrightSign.
Commercial display	Samsung QM32C, approx. 30-32 inch	Used for Ken Freiberg, Ride Along, and T-Town Clowns video systems.
Projector	Panasonic PT-VMZ71 with ET-ELW22 short throw lens	Used for FS1 Fire Extinguisher Fun projection.
Amplifier	QSC MP-A20V	Used where external audio amplification is required.
Speakers	JBL Control 25-1 recessed into exhibit deck/panel as indicated	Used for FS1 deck audio and LS1 incoming call audio per DD media appendix.
Activation buttons	28 mm arcade-style pushbuttons	Flush mounted; quantity varies by exhibit.
Fire extinguisher simulator	Pyrosoft CPU, extinguisher unit, Bluetooth sensors and activation buttons	Vendor to integrate, commission, train Owner, and provide manuals.

Media Content Responsibilities

- Contractor shall program BrightSign players, insert approved screen content, and provide BrightAuthor tools/project files for future edits.
- Owner/Designer provide screen-ready photography, biographies, edited videos, oral history clips, CPAT video/audio, dispatch audio tracks, and other final content listed in the media appendix unless otherwise assigned.
- All video/audio content shall be tested in the installed equipment at final resolution, volume, captions, interaction timing, and reset conditions.

Testing and Commissioning

- Test automatic restart after power loss for every media system.
- Test each touchscreen, pushbutton, motion sensor, Bluetooth sensor, amplifier, speaker, display, projector, and media player.
- Test idle screens, activation, playback, reset behavior, volume, caption visibility, and service access.
- Test Pyrosoft extinguisher system with final extinguisher, sensors, projector, projection surface, audio, and reset logic.
- Correct rattles, exposed wires, overheating, audio distortion, button sticking, sensor misreads, ghost touches, and any service access deficiencies before turnover.

12 93 00 Artifact Mounting and Object Installation

Owner-Provided Objects and Artifacts

- Owner will provide original artifacts, photographs, equipment, modified display objects, engine components, hose/nozzle, helmets, uniforms, and final media/content as applicable.
- Fabricator shall review each object before final mount fabrication and shall not alter original artifacts without written approval.
- Mounts shall support objects safely, minimize visual distraction, avoid unnecessary stress, and be reversible where reasonable.
- Use inert, padded, or barrier materials where objects contact mounts. Coordinate any conservation-sensitive material choices with Owner/Designer.

Specific Artifact / Object Scope

- AO1.EX1-AR1: Owner-provided model fire engine artifact: Securely mounted on wall behind information desk. Coordinate location/position with lighting
- KN.EX1-AR1: Station 1 Assignment Board, Owner-provided artifact to be securely mounted on the wall.
- KN.EX1-AR2: Original "Pit" Sign, Owner-provided sign to be re-installed and connected to provided power.
- HT1.EX1: Mobile kiosk includes case area for artifacts/objects where indicated. Coordinate final objects before fabrication.
- HT3.EX1-AR1: Six owner-provided Helmet artifacts to be secured and tethered as required.
- HT3.EX1-CA1-AR1: Object case, secured by fabricator, with allowance for up to three vintage uniforms (owner-provided). Fabricator to provide mounts as required for uniforms. Coordinate final objects before fabrication.

- LS1.EX2: Owner-modified equipment display secured by fabricator.
- FF2.EX1-CA1: Protective acrylic cover on standoffs with original hand-drawn map; provide safe support, glazing/protection, and reader rail coordination.
- FF3.EX1 and FF3.EX1-CA1: Fire engine side pack and object case; Owner-provided side pack shall be as required
- FF7.EX1 / FF7.EX2: Engine 508 reader rail and Owner-provided Tensabarrier coordination.

TABLE A - Design Development Exhibit Element Scope Matrix

Code	Element	Specification Scope Notes
AO2.EX1	Welcome Sign	Welcome panel with welded tubular aluminum, recessed GT.1 graphics, floor bolting, and acorn-top nuts where visible.
AO3.EX1	Mobile Retail Kiosk	Owner buyout GearGrid mobile retail kiosk / gear lockers; coordinate cover and placement.
AO3.EX2	Mobile Wall Retail Display	Owner buyout GearGrid wall retail workstation/display; fabricator cover if assigned.
AO1.EX1	Information Desk	Existing information desk by Owner; coordinate exhibit interface only if required.
HT1.EX1	Founding TFD / Building Thornton	Mobile kiosk unit with Side A and Side B content and case on Side A.
HT1.EX1.1-CA1	Founding TFD Case	Case on mobile kiosk Side A; coordinate objects and protection.
HT2.EX1	Key Individuals	Touchscreen interactive with graphic panel; D-01 deduct may replace with flat wall graphic.
HT2.EX2	Key Individuals	Wall graphic.
HT3.EX1	From Pit to Hut	Quonset hut recreation with adjacent object/media coordination.
HT3.EX1-CA1	From Pit to Hut Case	Freestanding sliding glass case adjacent to Quonset hut.
HT3.EX2	Ken Freiberg	Reader rail and pushbutton video monitor attached to hut.
HT3.EX3	From Pit to Hut	Helmet object IDs.
HT3.EX4	From Pit to Hut	Quonset hut sign recreation.
KN1.EX1-EX5	Second Family / Around the Table	Kitchen wall graphics.
FF1.EX1	Ride Along with TFD	Climb-through cab with surface-mounted display and media arm coordinated with engine/cab conditions.
FF2.EX1	Mapping the Route	Reader rail.
FF2.EX1-CA1	Mapping the Route	Protective acrylic cover on standoffs for original map.
FF3.EX1	Firefighters Then and Now	Fire engine side pack display.
FF3.EX1-CA1	Firefighters Then and Now	Object case.
FF4.EX1	Controlling the Flow	Modified mobile kiosk with control panel divider and salvaged/pump panel coordination.
FF5.EX1	Spirit of Innovation	Mobile kiosk with Side A/Side B content
FF6.EX1	Natural Disasters / Historic Events	Mobile kiosk with Side A/Side B content
FF7.EX1	Engine 508	Reader rail.
FF7.EX2	Engine 508	Owner-provided Tensabarrier.
FF8.EX1	Larry Jolley Memorial	Wall graphic.
FF9.EX1	Fighting Fires, Helping Health	Overhead area banner.
FF10.EX1	First Female Firefighter	Wall graphic.
FF11.EX1	Fire Chief Timeline	Wall graphic.
FS1.EX1	Fire Extinguisher Fun	Aiming an extinguisher activity with rails, projection screen, Pyrosoft integration, reader rail, and audio.
FS1.EX1.1	Fire Extinguisher Fun	Rails with attached fire extinguisher.
FS1.EX1.2	Fire Extinguisher Fun	Wall screen for projection.
FS1.EX1.3	Fire Extinguisher Fun	Reader rail.
FS2.EX1	Home Safety	Get Out Safely activity / model house with double-sided vinyl flaps.
FS3.EX1	Safe Route Planning	Wall graphics and interactive; D-03 deduct may replace with flat wall graphic.
FS4.EX1	T-Town Clowns	T-Town clown area with media monitor; D-04 deduct may replace unit with flat wall graphic while retaining silhouette.
FS5.EX1	Be Fire Safe	Overhead area banner.
LS1.EX1	DYHWIT Incoming Call	Audio speaker interactive with four pushbuttons.
LS1.EX2	DYHWIT Equipment Display	Wall-mounted equipment display secured by fabricator with labels/graphics.
LS1.EX3	DYHWIT CPAT Interactive	Touchscreen CPAT video interactive.
LS2.EX1	Getting Ready For The Call	Public-use bed recreation; D-02 deduct may remove.
LS2.EX3	Bunk Room	Life at the Station graphic.
LS2.EX4	Bunk Room	Bunk room photo graphic.
LS3.EX1	Gear Try-On	Wall graphic.
LS3.EX2	Gear Try-On	Owner-provided mirror.
LS3.EX3	Gear Try-On	Fabricator-provided wall-mounted gear lockers.
LS4.EX1	Life at the Station	Overhead area banner.
FR1.EX1	Thornton in Pictures	South wall photo collage graphics; D-05 deduct may remove.
FR1.EX2	Thornton in Pictures	North wall photo collage graphics; D-05 deduct may remove.

TABLE B - Design Development Media System Matrix

Code	Name	Primary Equipment	Function / Contractor Responsibility	Owner Content
HT2.EX1-ME1	Key Individuals	Surface-mounted Planar Helium PCT3285 approx. 32 inch touchscreen; BrightSign HD1025; HDMI/USB; built-in speakers.	Touchscreen alphabetical menu of key individuals; portraits and biographies up to approx. 150 words.	Owner provides screen-ready photos and biography content.
HT3.EX2-ME1	Ken Freiberg Oral History	Surface-mounted Samsung QM32C approx. 30-32 inch display; BrightSign HD1025; one 28 mm pushbutton; built-in speakers.	Idle introductory graphic; pushbutton plays Ken and Mary Freiberg oral history clip; returns to home after full clip.	Owner provides clipped oral history selection.
FF1.EX1-ME1	Ride Along with TFD	Surface-mounted Samsung QM32C approx. 30-32 inch display; BrightSign HD1025; custom arm in fire engine exhibit.	Continuously looping dashboard/windshield ride-along footage; audio activated by motion sensor.	Owner provides edited video/audio, approx. 30 minutes.
FS1.EX1-ME1	Fire Extinguisher Fun	Panasonic PT-VMZ71 projector with ET-ELW22 lens; Pyrosoft CPU; Bluetooth sensors/buttons; QSC MP-A20V; two JBL Control 25-1 recessed speakers.	Button-activated extinguisher simulator; visitors move nozzle/squeeze trigger; reset to home screen when complete or abandoned.	Owner content: none; vendor integrates Pyrosoft system and provides commissioning/training/manuals.
FS4.EX1-ME1	T-Town Clowns	Surface-mounted Samsung QM32C approx. 30-32 inch display; BrightSign HD1025; one 28 mm pushbutton; built-in speakers.	Idle graphic; pushbutton plays T-Town Clowns video clip and returns to graphic after full playback.	Owner provides screen-ready edited video, approx. 5-10 minutes.
LS1.EX1-ME1	Incoming Call	BrightSign HD1025 audio-only interactive; four 28 mm pushbuttons; QSC MP-A20V; two JBL Control 25-1 recessed speakers.	Four selectable audio tracks: fire, medical, rescue, and fire alarm/beeping alarm call.	Owner provides four edited dispatch response calls, approx. 60 seconds each.
LS1.EX3-ME1	CPAT Test	Surface-mounted Planar Helium PCT3285 approx. 32 inch touchscreen; BrightSign HD1025; HDMI/USB; built-in speakers.	Home screen offers full CPAT sequence or selected CPAT events; videos include captions; returns home approx. 5 seconds after video ends.	Owner provides screen-ready CPAT video/audio, approx. 2-3 minutes.

TABLE C - Finish and Graphic Type Schedule

Code	Specification
P.1	Sherwin-Williams SW-6258 - Tricorn Black; Satin finish
P.2	Sherwin-Williams SW-6255 - Morning Fog; Satin finish
P.3	Sherwin-Williams SW-6090 - Java; Satin finish
P.4	Sherwin-Williams SW-6608 - Rave Red; Satin finish
P.5	Rosco TV Paint 5735 - TV White; Matte finish
L.1	Wilsonart D307-60 - Hollyberry; Matte finish
L.2	Wilsonart 1573 - Frosty White; Matte finish
L.3	Wilsonart 7943K-07 - Colombian Walnut; Textured gloss
V.1	Gerber 220 High Performance Vinyl - Matte White; Use specified product
V.2	Gerber 220 High Performance Vinyl - Matte Black; Use specified product
V.3	Gerber 220 High Performance Vinyl - Matte Cardinal Red; Use specified product
FL.1	Inverness Travertine - Click Lock Waterproof Vinyl Tile Flooring; 22 mil, 11.9 in. W x 23.8 in. L or matched substitution
GT.1	Digital print with low-luster overlaminate, adhered as required.
GT.2	Digital high-pressure laminate, 1/2 inch thick, chamfered edge.
GT.3	Digital print on opaque banner material.
GT.4	Digital print on vinyl, double-sided.

TABLE D - Owner / Buyout / Coordination Items

Code	Owner or EX Fabricator	Exhibit Name	Description
AO3.EX1	Owner	Retail Area	Mobile retail kiosk / gear lockers.
AO3.EX2	Owner	Retail Area	Wall retail display / gear lockers.
AO1.EX1	Owner	Information Desk	Existing information desk by Owner.
FF7.EX2	Owner	Engine 508	Tensabarrier.
LS3.EX2	Owner	Gear Try-On	Mirror.
LS3.EX3	Fabricator	Gear Try-On	Wall-mounted gear lockers.