

# **Bamfield VFD, West Side Mini-Pumper Specification**

## **Background:**

The Bamfield Volunteer Fire Department is replacing, outdated, existing apparatus. The apparatus usage will be for response to fire and First Responder incidents. The proposed apparatus will be expected to drive on, narrow, winding, and steep grade roads.

## **Standards**

The successful bid will be expected to liaise with all companies required to complete this apparatus to these required specifications. The proposed apparatus design and installation shall meet those specific requirements of the following regulatory bodies:

- Transport Canada
- Canadian Electrical Code
- BC Fire Code requirements
- Worker's Compensation Board
- NFPA
- ULC

The apparatus shall be compliant to the latest edition of the following publications at the time of delivery:

- NFPA 1901, Standard for Automotive Fire Apparatus, most current edition.
- CAN/ULC S515-13-EN-EL, Automobile Fire Fighting Apparatus, most current edition.
- Note: Any discrepancy between the NFPA and CAN/ULC standards shall be noted. Any exceptions to this requirement must be clearly noted.

The apparatus shall meet all requirements of NFPA 1901 Standard for Automotive Fire Apparatus (current edition) including the minimum for Pumper Fire Apparatus Chapter 5 and "Special Service Fire Apparatus" Chapter 10 unless otherwise stated in this document or advised by the fire department.  
Note: Any discrepancy between the NFPA and CAN/ULC standards shall be noted.

The apparatus shall meet all requirements of CAN/ULC-S515-13 Automobile Firefighting Apparatus.  
Note: Any discrepancy between the NFPA and CAN/ULC standards shall be noted.

Notwithstanding any other requirements, all firefighting apparatus shall meet the requirements contained in the Canadian Motor Vehicle Safety Standards (CMVSS), and all applicable regulations and requirements from the authority having jurisdiction.

## **ULC Certification**

The unit is to be tested and plated by Underwriters Laboratories of Canada (ULC). Further, the Proponent must be certified by ULC as being qualified to build fire apparatus in compliance with their standards.

Any test or expense incurred for the ULC testing shall be borne by the Proponent supplying this apparatus. This apparatus is to be delivered with a ULC plate demonstrating that the apparatus is listed to CAN/ULC S515- 12.

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Underwriters Laboratories of Canada will be the only testing authority approved by the fire department. The original notarized copy shall be delivered to the fire department upon completion of testing to CAN/ULC-S515- 12 prior to acceptance and payment.

### **Warranty**

A table listing of all applicable warranties shall be provided as part of the manufacturer's proposal. Warranties shall include, but not be limited to, paint, cab, chassis, body, pump, engine, electrical and electronic components.

### **Training**

Upon delivery of the apparatus fire department personnel shall be properly and comprehensively instructed as to the proper and safe use of the apparatus. This training shall include topics of chassis, fire pump, mechanical components, and any other special functions. Factory-trained representatives shall complete all training. All training will be performed in the Village of Bamfield for a period of one day with all costs of the training forming part of this proposal.

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001	<b>General Requirements</b>	<b>Yes/No or Exception</b>
002	The apparatus shall comply with all requirements of WorkSafe BC (Workers' Compensation Board of British Columbia)	
003		
004	The apparatus shall be a Single Cab and chassis enclosed cab type, <b>four-wheel drive</b> , the apparatus shall have a maximum:	
005	<ul style="list-style-type: none"> <li>• overall height of 100 inches,</li> </ul>	
006	<ul style="list-style-type: none"> <li>• width of 96 inches (8Ft) and</li> </ul>	
007	<ul style="list-style-type: none"> <li>• length of 276 inches (23ft), bumper to bumper.</li> </ul>	
008		
009	Details of all standard chassis features to be provided as part of the proposal.	
010		
011	The Proponent shall provide manufacturer's drawings of the apparatus showing the principal dimensions, heights, of various components of the chassis and complete apparatus.	
012		
013	All valves, adjustments and controls will have labels (color coded if applicable) to indicate function or use. No duplicate numbering of outlets or inlets. Labelling to be standardized as per department requirements.	
014		
015	The apparatus shall be designed for climbing steep roadways.	
016	Truck shall be governed to meet NFPA 1901 (current edition)	
017	Drive gear ratio should be specked for hill climbing.	
018	The Apparatus will be four-wheel drive	
019		
020	<b>Welding:</b>	
021	All welding shall be high quality and consistent with best practices for aluminium and steel as applicable. Welding shall be by facilities and personnel fully experienced in the welding of aluminium and steel. Written procedures, certification of welding personnel and quality of welding shall be in accordance with recognized standards (e.g. AWS or CSA). Weld quality shall be according to the loading conditions (static or dynamic) as applicable.)	
022	Welding shall not be employed in the assembly of the apparatus in a manner that will prevent the ready removal of any component part for service or repair. All steel and stainless-steel welding shall be done to American Welding Society D1.1-83 recommendations for structural steel welding. All aluminium welding shall be done to American Welding Society and ANSI D1.2-83 requirements for structural welding of aluminium.	
023		
024	<b>Cab, Chassis and Vehicle Components</b>	

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025	Truck is to be built on and F650 Ford or 6500 GM Single Cab and Chassis, with the diesel engine Automatic Transmission options. The vehicle must have hydraulic brakes matched to the maximum allowable GVW for B.C. Transmission sized appropriately for the apparatus engine, weight and long-term performance.	
026		
027	Manual, emergency shut down shall be provided at driver's location.	
028		
029	Audible alarms for low oil pressure and high water temperature shall be provided	
030		
031	Wheels shall be standard steel. Tires to meet all requirements for apparatus load and handling as well as Province of British Columbia Commercial Motor Vehicle requirements.	
032	Preferred tires M-55 Toyo	
033		
034	Differential is required to be single speed with limited slip. The ratio will provide for the ability to climb steeply inclined roads.	
035		
036	Extended extreme duty front bumper to 18 inches c/w hose well and cover to accommodate 150ft of 1.5-inch hose, nozzle with 3" plumbing with auto drain. Discharge to be 2.5" inch BC Thread with reducer to 1.5" chrome and terminate on top of the bumper, driver's side. Complete with Bumper Guide, indicator marker light posts.	
037		
038	Towing eyes shall be provided at the front bumper and the rear tailboard. All inner edge of the tow eyes shall be chamfered. Exact configuration to be determined at prebuild meeting.	
039		
040	Block heater to be powered by 120-volt connection	
041	Heater pump 120v	
042	Please indicate detailed proposed optical warning and scene lighting package using the latest generation of LED lighting including make, model, locations and controls Light bar to include alley lights and brow light.	
043		
044	Provide built-in battery charger in cab with a continuous charge rate to provide charging of both the apparatus and accessory batteries (Mobile Workstations) designed and installed with protection of all systems. Note: Charging to occur both when on and off of shore power. Similar to existing apparatus.	
045		
046	Provide minimum 1000watt 120V to 12V inverter to power four 120V outlets inside the cab area. Department to specify location at pre-build.	
047		
048	Provide recessed male 120V auto eject receptacle for built in battery charger and block heater. To be accessed at left exterior cab adjacent	

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049		
050	Provide controls for siren and warning equipment accessible from both driver and officer's position. Department to specify location at pre-build.	
051		
052	Provide one electronic siren, c/w 2 100-watt speakers in front bumper. Department to specify locations at pre-build.	
053		
054	Provide a <b>siren</b> recessed in front bumper. Provide label and control from driver and officer's side.	
055		
056	Compartments, under body, pump panel and other work areas shall be provided with LED lighting providing maximum illumination of all spaces. Strip lighting or similar to be installed in compartments.	
057		
058	Provide for two power supplies and antenna leads for mobile radios. Department to specify radios to be installed. Department to specify location at time of prebuild.	
059		
060	Provide a 12V outlet on officer's side and one on driver's side. Department to specify location at prebuild. This is in addition to USB charging ports.	
061		
062	Minimum alternator output shall exceed maximum continuous load at idle without the use of a load management system.	
063		
064	Additional 12V power and ground stud to be provided inside the cab area.	
065		
066	Provide 12V LED scene lighting on three sides of cab: Front, Right and Left.	
067		
068	Windows in cab doors shall be manually operated and fully opening. Option: Electrically operated windows. Prefer Manual	
069		
070	Windshield and all window glass shall be tinted, shatter proof safety glass	
071		
072	Heat and air conditioning to be provided to ensure both front and rear seating areas are kept at an acceptable temperature during all seasons.	
073		
074	All mirrors shall be electrically controlled and heated with a single convex mirror. Controls to be located directly adjacent to, and easily manipulated from, the driver's position via a toggle switch.	
075		
076	Back up camera system. Safely usable from the driver's position. Optional	
077		
078	<b>Apparatus Body and Components</b>	
079		

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080	Apparatus Body material must be aluminum. Indicate thickness and construction type	
081		
082	All body surfaces shall be designed to prevent corrosion	
083		
084	The complete truck except for roll-up doors and checker plate shall be painted red. Note: Colour as per existing Bamfield apparatus.	
085		
086	Department door decal on each side of apparatus, Unit ID# lettering on all sides of apparatus. Style and locations shall be determined at pre-build.	
087	Note: Configuration as per existing Engine apparatus.	
088		
089	Reflective warning stripe shall meet NFPA and include black pin striping below and above. Department to specify location and size at prebuild.	
090		
091	Compartment configuration to be 'rescue style', as deep and as wide as possible while continuing to have good body strength. The bottom of all compartments shall be above the bottom of the door edge.	
092		
093	There shall be a <b>ladder</b> on the left (driver's side) rear of the truck, with grab rails, and flip style steps on the right-side rear, to gain access to the hose bed / upper storage areas.	
094		
095	There shall be a grab handle installed on the upper hose bed side to assist with access to the top of the hose bed.	
096		
097	All flip up step surfaces shall be covered with bright finished aluminum alloy diamond mill finish tread plate with corrosion resistance.	
098		
099	Compartment doors shall be the roll-up type. Pan door options may be accepted where practicable and justified for space savings or other relevant reason.	
100		
101	A drip cap over compartments must be provided.	
102		
103	Adjustable shelving to be provided. Department to determine mounting system for equipment at pre-construction meeting.	
104		
105	All horizontal surfaces within the compartment shall have raised plastic tile systems installed	
106		
107	Compartment lighting shall be inward facing, LED strip system providing for maximum effective illumination for the compartment space configuration.	
108		

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109	Two (2) transverse hose lays with 2-inch plumbing capable of holding 200 feet of 1.5-inch hose and a nozzle, in each storage area, trays, to be two (2) hose widths wide in all cases.	
110	Note: Configuration as per or similar to existing Engine apparatus.	
111		
112	Rear hose bed configuration must include storage to accommodate the following hose volumes, complete with all necessary dividers (estimated 2 removable dividers required): • 1000 ft of 2.5-inch supply line and 500 feet of 2.5-inch hose in single wide stacks of 250 feet.	
113		
114	One (1) each of an 8ft and 6ft New York style hook (fibreglass type), plus one (1) 4ft NY style hook. Mounting of pike poles to be identified at pre-build meeting. All will have D-ring handle configuration. All to be supplied with the apparatus.	
115		
116	A side mounted overhead ladder rack shall be installed on the right side of the apparatus body above the body compartments. This ladder rack shall accommodate <b>three</b> individual ladders; a <b>10' attic, 16' roof, 24' extension</b> all to be supplied with apparatus.	
117		
118	A slide out SCBA rack in a compartment directly behind the single cab accessed from both the left and right side to hold four SCBA units and eight spare bottles 2500 psi aluminum bottles. Storage of spare bottles can be around the wheel wells as this is normally wasted space.	
119		
120	The pump shall be mid-mounted / controlled and single stage having a <b>minimum rating of 650 IGPM/750 USGPM.</b>	
121		
122	A gauge cluster package shall be provided for information to the pump operator about engine and pump characteristics Department will specify other details such as pressure scales at prebuild.	
123		
124	Pump panel to be located on the left side forward of the apparatus body. Lay out to be approved by department. <u><i>Our current trucks are center walk through so this is our first side mount build</i></u>	
125		
126	All discharges and intakes will have cable or chain complete with a cap. 2.5 to 1.5 chrome adapter with cap on all 2.5" sized discharges.	
127		
128	All valves will be color coded to match discharge and inlet labels. Colour coding specifics to be determined at or about preconstruction.	
129		
130	An electric pump primer of the oil-less type with push/pull control shall be installed	
131		

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132	All plumbing will be stainless steel with anodes installed. Galvanized option will be considered.	
133		
134	Pressure governor system.	
135		
136	A heat exchanger and pump cooler bypass shall be provided	
137		
138	A relief valve shall be provided for all intakes	
139		
140	All finished threads to be used to connect to shall be compatible with common British Columbia fire service threads as used by Bamfield Volunteer Fire Department.	
141		
142	All intakes will have a screen and designed to have minimum friction loss. Configured in the following pattern:	
143	<ul style="list-style-type: none"> <li>• (1) Left side 6.0"</li> </ul>	
144	<ul style="list-style-type: none"> <li>• (1) Left side 2.5"</li> </ul>	
145	<ul style="list-style-type: none"> <li>• (1) Right side 6.0"</li> </ul>	
146	<ul style="list-style-type: none"> <li>• (1) Right side 2.5"</li> </ul>	
147		
148	All intakes and master pump drain will be controlled. Department to identify location and type at pre-build.	
149		
150	All discharges will have a quarter turn drain valve and be configured in the following pattern:	
151	<ul style="list-style-type: none"> <li>• (2) Left side 2.5"</li> </ul>	
152	<ul style="list-style-type: none"> <li>• (2) Right side 2.5"</li> </ul>	
153	<ul style="list-style-type: none"> <li>• Rear 2.5"</li> </ul>	
154	<ul style="list-style-type: none"> <li>• Bumper pre connect 2.5" with reducer to 1.5"</li> </ul>	
155	<ul style="list-style-type: none"> <li>• Cross lays 1.5"</li> </ul>	
156	<ul style="list-style-type: none"> <li>• Monitor 2.5 for master stream appliance</li> </ul>	
157		
158	Each discharge will include a manually controlled valve at the pump operator' position and a 30-degree elbow.	
159		
160	All discharges to include pressure gauges in proximity to their control location. Option: Include flow indicators.	
161		
162	The apparatus will be ULC Listed and Tested prior to acceptance by the department with a plate attached on the pump house at the operator's area.	
163		
164	Maximum access shall be provided to the pump area from three sides. Prefer inclusion of removable side panels on pump housing for improved access.	



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165		
166	A monitor on the top of the apparatus will be manual operation and flow 750 GPM/2800 LPM. The department prefers an Akron deck monitor c/w a saber master nozzle and stacking tips. Monitor will be manually operated. Monitor must be equipped to deploy/extend above cab and ladders for 360-degree operation. Storage for monitor parts should be provided on the top of the apparatus.	
167		
168	Required to be a <b>minimum of 500 IMP Gallons</b> (approx. 600 USG). The tank shall have a lifetime warranty and be readily removable from the apparatus. Maximize tank volume with a comfortable GVW of the finished Apparatus	
169		
170	The tank construction shall be at least ½” thick polypropylene construction	
171		
172	The tank shall have a removable lid for servicing	
173		
174	A water tank gauge shall be provided in the pump operators’ area. Optional Additional indicators visible from both the rear and right side of the apparatus are also required. The tank level will be displayed in five increments.	
175		
176		
177		
178	Provide for four 120V outlets (supplied by the inverter) as follows:	
179	<ul style="list-style-type: none"> <li>• One on front bumper</li> </ul>	
180	<ul style="list-style-type: none"> <li>• One on rear tailboard area</li> </ul>	
181	<ul style="list-style-type: none"> <li>• One right side pump housing or mid-body</li> </ul>	
182	<ul style="list-style-type: none"> <li>• One left side pump housing or mid body</li> </ul>	
183		
184	Department to confirm locations and configuration at pre-build.	
185		
186	Design characteristics shall allow for the following weights of equipment and personnel without being overweight: 2 Firefighters (300 lbs per), full fluid levels including water tank, 600lbs or more per compartment and full hose beds as designed for this proposal.	
187		
188	Special Tools: A list of any special tools required is to be supplied with the proposal	
189		
190	Face to Face Instruction provided for Cab & Chassis and pump. List how much time is included.	
191		
192	Third Party Certifications	
193		
194	Any additional items not listed but standardly included.	

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195		
196	Completed British Columbia Commercial Vehicle Inspection Certificate (CVI) prior to delivery.	
197		
198	One set of complete filters for first major service.	
199		
200	Provide a full table of options with pricing attached to the proposal.	
201	Provide 600 feet of 1.5-inch attack hose in 50 foot lengths c/w couplings	