

BSF Technician Competencies: Installation


Instructions

This competency assessment tool was designed by CAWST to measure and guide the professional development of BSF Technicians. The tool contains a scale from 1-3, representing competencies in foundation, intermediate, and specialist skill levels. Level 1 is for technicians that build biosand filters (BSF). The specialist level is for people training or providing consulting support on the BSF. Technicians should complete the levels within the competencies groups that are relevant to their work. A specialist must complete all competency groups.

Each competency level contains multiple bullets that describe expected behaviours or knowledge at that level. To have these competencies validated they must be physically demonstrated or verified with knowledge or theory-based questions in a discussion. Further instructions for this assessment are described below and within the framework guide.



Sample Table

This section will list a specific competency group


	Foundation	Intermediate	Specialist
1			
Competency group	This section describes a basic level of competency for a technician.	This section describes an intermediate level of competency for a supervisor	This section describes a high level of competency. It is for people providing training or consulting support on the BSF
Competencies verified through observation are unmarked. Competencies verified through knowledge questions are marked with the following book symbol  .			

Before using the tool, ensure you understand the competency process overall. In conducting the assessment, select the competency level which can be verified and mark it complete. Once all competency groups are completed, revisit them and select specific areas to improve. Competencies a candidate wishes to identify for improvement can be prioritized within this document and then carried over to their *Learning Plan*. The *Competency Development Activities* document will help you select ways to improve your priority competencies. Once a candidate has demonstrated all competencies within a particular level they can be validated at that level and receive a certificate for their achievement.

Competency Group: Workplace Safety

	Foundation	Intermediate	Specialist
1 Workplace Safety	<ul style="list-style-type: none"> <input type="checkbox"/> Follows workplace safety procedures <input type="checkbox"/> Uses personal protective equipment properly <input type="checkbox"/> Identifies the location of first aid and safety equipment <input type="checkbox"/> Identifies the person to call in an emergency 	<ul style="list-style-type: none"> <input type="checkbox"/>  Describes safety concerns during the production <input type="checkbox"/>  Explains how workplace safety procedures reduce the risk of injuries 	<ul style="list-style-type: none"> <input type="checkbox"/> Identifies gaps in workplace safety procedures <input type="checkbox"/> Recommends way to improve workplace safety

Competency Group: Monitoring

	Foundation	Intermediate	Specialist
2 Monitoring	<ul style="list-style-type: none"> <input type="checkbox"/> Demonstrates how to use monitoring forms 	<ul style="list-style-type: none"> <input type="checkbox"/>  Explains the importance of using monitoring forms for installation <input type="checkbox"/> Consistently uses monitoring forms <input type="checkbox"/> Uses monitoring forms to identify problems with filter installation 	<ul style="list-style-type: none"> <input type="checkbox"/> Recommends changes to improve installation processes based on monitoring forms

Competency Group: Pathogens

		Foundation	Intermediate	Specialist
3	Pathogen Removal	<input type="checkbox"/> Explains why it's important to treat your water	<input type="checkbox"/> Describes the four categories of water-borne pathogens <input type="checkbox"/> Explains the mechanisms through which the BSF removes pathogens <input type="checkbox"/> Explains the role of the biolayer in the BSF <input type="checkbox"/> Explains what the biolayer needs to survive <input type="checkbox"/> Explains the limitations of the BSF <input type="checkbox"/> Explains how pathogen removal in the BSF improves over time	<input type="checkbox"/> Explains how the BSF removes: helminths, protozoa, bacteria, and viruses <input type="checkbox"/> Explains the effectiveness of the BSF at removing different types of pathogens

Competency Group: Installing the BSF

	Foundation	Intermediate	Specialist
4 Transporting and Positioning the BSF	<input type="checkbox"/> Minimizes breakage in the transport of BSF bodies <input type="checkbox"/> Describes qualities of a good installation location <input type="checkbox"/> Supports the household to select a proper installation location <input type="checkbox"/> Stabilizes and/or levels a placed BSF body	<input type="checkbox"/> Explains how a good installation location affects operation of the BSF <input type="checkbox"/> Determines if concrete container breakage is due to poor transportation	<input type="checkbox"/> Recommends changes to BSF transport to reduce breakage <input type="checkbox"/> Determines whether location is contributing to performance issues <input type="checkbox"/> Recommends changes to BSF location to improve performance
5 Installing Sand and Gravel	<input type="checkbox"/> Adds water to the BSF body before adding sand and gravel <input type="checkbox"/> Levels each layer of material <input type="checkbox"/> Ensures the correct depth of each layer of material	<input type="checkbox"/> Explains the reason behind the installation procedures of the sand and gravel <input type="checkbox"/> Corrects installation technique where necessary	<input type="checkbox"/> Determines whether problems in performance are due to installation of sand and gravel <input type="checkbox"/> Recommends changes to the sand and gravel installation process
6 Completing the installation	<input type="checkbox"/> Describes the function of each part of the BSF <input type="checkbox"/> Flushes the BSF effectively after installation <input type="checkbox"/> Installs diffuser, lid and safe storage container	<input type="checkbox"/> Explains the importance of the diffuser, lid, and safe storage container	
7 Checking the installed BSF	<input type="checkbox"/> Identifies cracks or leaks in a BSF <input type="checkbox"/> Adjusts the standing water level, if necessary <input type="checkbox"/> Determines if the flow rate is within the acceptable range	<input type="checkbox"/> Deals appropriately with leaks in a BSF <input type="checkbox"/> Explains how the standing water level affects the biolayer <input type="checkbox"/> Explains the relationship between flow rate and pathogen removal <input type="checkbox"/> Determines when it is necessary to reinstall a BSF because of the flow rate	<input type="checkbox"/> Determines if repeated problems with cracks or leaks in the BSF are due to transport or incorrect installation <input type="checkbox"/> Determines the reason for repeated problems with standing water levels <input type="checkbox"/> Determines why the flow rate is outside of the acceptable range <input type="checkbox"/> Recommends changes to the sand and BSF body to address flow rate issues

Competency Group: Effectively educating the user

	Foundation	Intermediate	Specialist
8 Multibarrier approach	<input type="checkbox"/> Demonstrates how to settle or strain highly turbid water	<input type="checkbox"/> Explains the importance of the steps of the multibarrier approach <input type="checkbox"/> Determines if source water needs to be settled or strained <input type="checkbox"/> Demonstrates options for disinfecting BSF water	
9 BSF use (at installation)	<input type="checkbox"/> Explains why user education is important <input type="checkbox"/> Explains the key points for the correct use of the BSF to the user <input type="checkbox"/> Demonstrates to the user how to clean the diffuser basin, lid, outlet tube, and safe storage container <input type="checkbox"/> Demonstrates to the user how to do a swirl and dump <input type="checkbox"/> Explains to users how to avoid recontaminating water from their BSF	<input type="checkbox"/> Explains to users why it is important to disinfect water after filtration <input type="checkbox"/> Discuss with users the advantages and limitations of locally available disinfection options <input type="checkbox"/> Explains to the user why the pause period is important	<input type="checkbox"/> Determines if problems with the correct, consistent and continuous use of disinfection, the BSF, or the safe storage container are due to user education at the point of installation <input type="checkbox"/> Recommend ways of improving user education at the point of installation