

Plant Room and Heating System Risk Assessment

Organisation name: Westhill Community Church

Signed on behalf of Westhill Community Church	Hugh Kelly (Building Manager), Alasdair Morrison, Fiona FitzGerald <i>Hugh Kelly</i>	Date:	1 st July 2021
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What are the hazards?	Who might be harmed and how?	What are you already doing?	Do you need to do anything else to control this risk?	Action by who?	Action by when?	Done
<p>Biomass pellets being loaded into storage bags via hose connection between delivery truck and storage bags</p> <ul style="list-style-type: none"> - Loss of containment - Dust - Static electricity build-up - Slips, trips, falls - Manual handling - Noise 	<p>Delivery driver Maintenance team Others in vicinity</p>	<p>During inclement weather, the car park is cleared and/or gritted as appropriate for safe access by the delivery truck.</p> <p>The transfer of the pellets takes place at the rear of the building which tends to have very little pedestrian traffic. The door to the pellet store leads directly to the car park. Prior to the loading of pellets, the area is cleared of all non-essential personnel. In the unlikely event that a kitchen delivery arrives at the same time, a discussion should take place to determine who takes priority. Strictly no smoking during loading operations and near the in the vicinity of the plant room and pellet store. Maintenance team rep to remain with driver until parked and in position.</p> <p>Hearing protection required during filling operation.</p> <p>Pellet room is fully enclosed and separated from plant room by brick wall. Connections are fixed by a competent person – delivery driver. Connections & flexible transfer hose are appropriately pressure rated</p> <p>“WCC Boiler Basics” document provides further instruction on the safe filling of the storage bags.</p> <p>The pellet bags are constructed from anti-static, woven plastic.</p>	<p>Ask Hasbro for their risk assessment and check grounding</p> <p>Provide foam ear plugs to keep in pellet store</p> <p>Investigate the need to switch off the heating system to be switched off for duration of pellet transfer (per instruction on hose cap)</p>	<p>Building Manager</p>	<p>Before next delivery</p>	

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<p>Normal operations in pellet store</p> <ul style="list-style-type: none"> - Static build-up, dust (fire) - Microbial proliferation (fire) - Dust (inhalation) - Carbon monoxide poisoning - CO2 build-up leads to oxygen depletion 	<p>Maintenance team Contractor personnel All building users</p>	<p>Keep external door to pellet room open for at least 1 minute to air the environment, prior to entering. More time required if the weather has been warm (> 20deg C) and humid. Door is slatted to aid ventilation. Keep the door open while inside the pellet store.</p> <p>Entry to pellet store restricted to maintenance team and authorised contractors only.</p> <p>Planned maintenance to keep pellet storage clean and reduce microbial proliferation.</p> <p>Strictly no smoking or naked flames in pellet store or within proximity of door.</p> <p>Carbon monoxide detector has been fitted in the pellet store.</p> <p>Compliance with the Renewable Heat Incentive Scheme (RHI) requires the use of certified and compliant Biomass Supplier List (BSL) pellets</p>	<p>Post signs, "DANGER – Risk of carbon monoxide poisoning" on both sides of pellet store door and also, "WARNING – Keep door open while inside store"</p> <p>Request Manufacturer's Safety Data Sheet (MSDS). Check type of pellet being supplied. Higher risk if:</p> <ul style="list-style-type: none"> - Manufactured within previous 6 weeks or are they seasonally or kiln dried? Which lowers moisture content and reduces risk of CO emission and microbial proliferation - Pine pellets (rather than spruce) 			

<p>Cleaning or “shake down” of hoppers (approx. 1 hopper per year, alternated)</p> <ul style="list-style-type: none"> - Manual handling (confined space, restricted access) - Build up of static electricity (fire) - Microbial proliferation (fire) - Exposure to carbon monoxide - Confined space entry 	<p>Maintenance team individuals cleaning out bag and others in vicinity</p>	<p>This task is typically conducted when the hopper is approaching empty.</p> <p>Ventilate the pellet room and hopper for at least a minute prior to entering. More time for ventilation required if the weather has been warm and humid (e.g. summer rain).</p> <p>Entry to pellet store restricted to maintenance team and authorised contractors only.</p> <p>Maintenance team to confirm they feel fit & well prior to undertaking task. Due to potential dust exposure, persons with respiratory issues are not permitted to assist with this task. Task requires some stretching to fit self between storage bag frame and into zip access. The bag is a small space so persons undertaking the task are encouraged to take stretch breaks, as required.</p> <p>Maintenance team must wear suitable respiratory protection to mitigate risk from pellet dust (N95) during emptying & cleaning the hopper. Coveralls are recommended.</p> <p>“WCC Boiler Basics” manual describes how task is undertaken safely. Dry clean using gloved hands, brushes and/or extraction only. No wet cleaning (to limit risk from CO and/or microbial proliferation)</p> <p>Vacuum out dust from hoppers during cleaning.</p> <p>Sweep down all floors and clean down shelving, trunking & lighting after operations to avoid build-up of dust.</p> <p>Heat detector fitted in pellet store. CO2 fire extinguisher located in pellet room.</p>	<p>Isolate heating system to ensure that pellets are not drawn into auger while person is inside silo</p> <p>ACTION: Isolation points need to be specified</p> <p>This task must not be carried out alone. A second person must be present to facilitate rescue if required.</p>			
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		Pre-task planning with all involved, including review of risk assessment.				
Transfer of pellets from hopper to day bin	Low likelihood of exposure to maintenance team or contractors who happen to be in the plant room or pellet store during feed	<p>The transfer of pellets from the store to the day bin that the boiler draws from in the boiler room, is an automatic process and does not require any manual intervention. Pellets are automatically drawn via an auger.</p> <p>In the event that there is a blockage in the hose or auger, the boiler shuts off and the contractor maintenance company is notified via the app.</p>				
<p>Heating system – normal operations</p> <ul style="list-style-type: none"> - Overpressure - Fire - CO release - Contact with hot water from leaks 	<p>Maintenance team Contractor personnel All building users</p>	<p>Heating system includes several built-in controls to reduce the risks from overpressure, fire and loss of containment.</p> <p>Overpressure tank built into heating system</p> <p>Digital communication of real time performance data provided to third party contractor, Building Manager and some members of building team via app</p> <p>Routine maintenance by Building Manager and maintenance team.</p> <p>6-monthly competent person (contractor) service</p> <p>Smoke & CO detectors; CO2 and foam extinguishers</p> <p>Main water supply valve is located inside plant room.</p>				

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Cleaning of day and ash bins in plant room <ul style="list-style-type: none"> - Dust (inhalation) - Smouldering/hot embers (skin burn, fire) 	Maintenance team Contractors	<p>Ash is carcinogenic but the exposure is minimal (20 minute task, every 2 weeks in winter).</p> <p>Follow documented procedure “WCC Boiler Basics Manual”. Ash is enclosed within container and emptied directly into storage bin with limited dust exposure. Storage bin is emptied into waste bag. Ash and storage bins are designed to fit together snugly to prevent leakage of ash or dust.</p> <p>Ash should be cool prior to disposal.</p> <p>Dispose of ash in metal bin.</p> <p>Foam fire extinguisher located in plant room.</p>				
Pressure & hot water systems <ul style="list-style-type: none"> - Pressure - Hot temperature exposure 	Maintenance team Contractors	<p>Boiler room is locked and accessible only by keyholders.</p> <p>Expansion vessel helps limit over-pressure.</p> <p>Pressure & temperature instruments are fitted to all pipework</p> <p>Annual boiler system service by competent third party contractor</p> <p>Digital communication of real time performance data provided to third party contractor, Building Manager and some members of building team. Error reporting is communicated to contractor.</p>	Identify pressure & temperature ranges from “WCC Boiler Basics” document and specify in monthly Building Manager Inspection Checklist.			

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Fire in heating system	Maintenance team Contractor All building users	<p>The heating system receives an annual service including flue cleaning by a third party, competent, contractor</p> <p>Ongoing maintenance routines executed by building team.</p> <p>Smoke and CO detectors fitted in plant room.</p> <p>CO2 and Foam extinguishers located in plant room</p> <p>Fire emergency response procedures</p>				
Cleaning of flue - Exposure to ash	Maintenance team	<p>See separate risk assessment on flat roof access</p> <p>Cleaning the flue should be conducted on a day with no wind</p> <p>Secure plastic bag to bottom of flue to catch ash as it is brushed from flue, and limit spread in plant room</p>				

Advice from the Health and Safety Executive:

All employers must conduct a risk assessment. If you have fewer than five employees you don't have to write anything down.

You should review your risk assessment if you think it might no longer be valid (eg following an accident in the workplace or if there are any significant changes to hazards, such as new work equipment or work activities).

For information specific to your industry please go to <http://www.hse.gov.uk>.

For further information and to view our example risk assessments go to <http://www.hse.gov.uk/risk/casestudies/>.

This document format is the risk assessment part of the combined risk assessment and policy template published by the Health and Safety Executive 08/14.

References:

[Ecclesiastical Biomass safety document](#)

[HSE Safety Alert on risks carbon monoxide poisoning with biomass pellet storage](#)

[HSE RR1077 Research Report into the Safe Storage of Wood Pellet and Wood Chip Fuel](#)

[HSE confined space entry guidance](#)

[HSE website – wood pellet and bio-fuel](#)

[HSE wood dust – selecting suitable RPE](#)

[HSE Safe handling of combustible dusts](#)