



JOB DEMANDS ANALYSIS

Company: City of Burnaby

Location: Various City Buildings

Job Title: Building Service Worker

Classification: Regular Duty

Purpose of Activities

The Building Service Worker is responsible for cleaning and maintaining City of Burnaby buildings (recreation centres, City Hall and municipal buildings, etc.) as well as setting up and taking down for public and private functions in the building.

Tools and Equipment

The Building Service Worker will use the following tools and equipment to perform his duties:

- Cleaning tools – brooms, mops, scrapers, dust mops, long handle dust pan, squeegee, duster, doodle bug scrubbers, corn broom, shovel, rags, buckets, garden hoses, extension cords, small hand tools, scissors, putty knife, toilet plunger, garden hose nozzle
- Cleaning agents and chemicals – aqua ammonia, Ajax, insect killer, bleach, metal polish, glass cleaner, disinfectant, anti-bacterial gel, skin cleaner, helium, floor cleaner, odor eliminator, oven cleaner, carpet cleaner, pine all, toilet cleaner, traffic lane cleaner, urinal tablets, WD-40, etc.
- Power tools – floor scrubber, floor polisher, vacuum, backpack blower
- Fluorescent light bulbs, incandescent light bulbs, paper napkins, toilet paper, wax paper bags for sani containers,
- Step and extension ladders
- Wet floor signs,
- Rubber and leather gloves, dust mask
- Garbage containers, recycle bins, carts
- Chairs (stacking), table (round, rectangle, to 32-kg), chair and table carts

Usual Methods

Event Set Up

1. Read daily event calendar to determine time and priority of equipment set up.
2. Walk to location of set up in building.
3. Determine if a quick cleaning is necessary. Clean area if required.
4. Pull required equipment from storage area to location of set up (less than 5 to 25 metres or more). Equipment is usually loaded on a cart for easier handling.
5. Lift equipment off cart and set up in room as required by user. Chairs stack to above shoulder height.
6. Return any unnecessary equipment and carts to the storage area.



7. Leave room.

Event Take Down

1. Walk to room location in building.
2. Retrieve empty or partially empty carts from storage area.
3. Fold down then lift and place equipment onto the cart.
4. Repeat step 3 until entire room has been taken down or set up the room for the next user.
5. Push full carts back to storage area(s).
6. Sweep and mop room if required.
7. Leave room.

Building Cleaning and Maintenance

1. Gather cleaning tools, materials and chemicals in storage room.
2. Walk to area that requires cleaning. Pick up garbage from the floor, dust mop the floor and then wet mop the floor.
3. Empty garbage containers into main garbage.
4. Vacuum carpet floors.
5. Visually inspect room for defects or items that require replacing (burned out light bulbs, toilet paper, etc.).
6. Pick up and clean areas on an on-going basis throughout the shift.
7. Return cleaning tools, equipment and materials to storage.

The presence of ** indicates non-value added tasks. These tasks do not contribute to the stated purpose of the work.

Administrative Issues

The Building Service Worker will work an eight-hour day, evening or night shift with variable days off. The shifts can range from two days and three afternoons to a rotating shift. There will be a Building Service Worker on site six days per week. Start and end times for each shift may change from building to building, the event or the type of work required. Night shifts are not required in all buildings. The Building Service Worker receives two fifteen-minute rest periods or a 30-minute lunch break during the shift. Overtime is a requirement of this position but does not occur on a regular basis.

Activity Demand Variables

These variables are tasks that must be carried out by the employee and are implicitly or explicitly required as objectives of the job.

- Lift and carry cleaning tools, equipment and material from storage areas to work locations in the building
- Push or pull cleaning tools, equipment or material, chair and table carts to locations in the building
- Stand on concrete, tile, linoleum, carpet and hardwood floor
- Walk in building on concrete, tile, linoleum, hardwood and carpet floor.
- Walk up and down stairs



- Climb up and down ladders
- Use cleaning chemicals and agents
- Bend, stoop, crouch, kneel, crawl to perform cleaning and maintenance tasks as well as set up and take down for events in the building
- Work from below feet to above shoulder height to clean and maintain the building as well as set up and take down for events

Worker Decision Variables

These variables are the sub-routines and cognitive/physical decisions made by the worker in carrying out the objectives of the job.

- Lifting technique to some extent
- Body position during cleaning and maintenance tasks and set up and take down

Accommodative Considerations

1. People with injuries to the spine, in any region, may have difficulty with the static and dynamic movements required in this position.
2. People with shoulder injuries such as rotator cuff tendonitis, bursitis and instability may have difficulty with dynamic and static loading and reaching activities required in this position.
3. People with forearm and elbow injuries such as tennis elbow may have difficulty with the static grip forces required during any power or hand tool use.
4. People with nerve compression injuries in the upper extremities may have difficulty with repeated use of hand and power tools (compression and vibration) below, at and above shoulder height.
5. People with injuries to the hand and fingers will have difficulty with the fine motor manipulation tasks required to perform the activities of this position.
6. People with lower extremity injuries to the hips, knees and ankles may have difficulty with standing on concrete, tile, carpet, linoleum and hardwood floors; climbing up and down stairs and ladders; and the varied bending, stooping, crouching and kneeling positions required to clean and maintain a building.

Prepared By: Jeffrey J. McGinn, Kinesiologist

May 26, 1999



Summary of Stresses

Metabolic Stresses

The aerobic energy system will supply the major source of energy while performing the duties and responsibilities of the Building Service Worker. This energy system will be utilized during the cleaning and maintenance tasks as well as event set up and take down. The anaerobic energy systems may be required to supply energy for brief intense periods of work, which may include heavy lifting, carrying or holding tools, materials and equipment; or towards the end of the day when the aerobic energy system has been depleted (in an unfit individual). In this last instance, the anaerobic energy system becomes the primary energy source

Structural Stresses

Spine – Typically, flexion, extension, lateral flexion and rotation movements will be performed while the Building Service Worker is handling a load (hand or power tools, chairs, tables, etc., 1 to 36-kg). Forward flexed postures during hand and power tool use and lifting tasks require no activity from the torso musculature, but increase asymmetrical disc compression and passive stretch on the posterior spinal ligaments and disc fibres. This can contribute to disc integrity problems as well as the deconditioning of the torso support musculature. Lateral flexion and/or rotation with or without forward flexion (loaded or unloaded) will significantly increase the shear forces encountered by the discs, fibres and spinal ligaments.

Neck, Shoulders and Upper Extremity– This position requires prolonged and repeated static and dynamic movements from below to above shoulder height. The static and dynamic movements through the shoulder and upper extremity often require the rotator cuff muscle groups, upper trapezius and scalene muscles of the neck to maintain a constant and significant load. Hand and power tool use (predominately dominant hand) will increase the static and dynamic loading of the forearm flexors, extensors, supinator, pronator teres and the pronator quadratus. Hand and power tool use will increase the vibration and compressive forces from the grip to the elbow and shoulder that may lead to over use tendon or nerve injuries. Impingement and inflammatory injuries to the shoulders are likely due to the prolonged static arm position (flexed and abducted shoulder and elbow) required during some work.

Almost all of the Building Service Worker's work is carried out in front of his body with some type of tool or implement. This position will weaken the shoulder girdle support structure and increase the risk of injury to this area. Rotator cuff and biceps tendon tendonitis injuries are likely as the muscle of the upper back and shoulder weaken through prolonged use. As this happens, thoracic spine kyphosis will increase and the cervical spine will be pulled forward out of its neutral position.

Hips and Lower Extremities – will be taxed in the many dynamic movements associated with walking, standing, climbing, lifting and carrying on hard and/or wet surfaces. Twisting an ankle or knee or a slip and fall injury are the most likely to the lower extremities. Climbing up and down ladders and stairs will also increase the risk injury.



INTERVENTIONS

Recommendations that could be implemented to increase productivity and lessen the risk of injury are listed below:

1. Encourage the Building Service Worker to maintain an increased level of fitness away from work that will focus on cardiovascular endurance, muscular strength, muscular endurance and flexibility.
2. Provide the Building Service Worker with postural awareness training that focus on the importance of proper body posture and how it relates to their ultimate physical comfort and reducing fatigue level.
3. Investigate the use of a kneepad that will slide across the knee when the Building Service Worker is required to be on his knees. The kneepads should allow free movement of the knee between the clothing and kneepad.
4. Purchase lighter table and chairs. This will decrease the risk of injury to the Building Service Worker when he is required to set up or take down this equipment.
5. During large set up and take down events, provide a second or third worker to decrease the risk of injury to the Building Service Worker.
6. Investigate alternate shift rotations (permanent to rotating). Permanent night shifts will increase the risk of injury and illness to those who are assigned this shift.

PJDC-Building Service Worker

Referral: Lana Ho		Organization: City of Burnaby						Title: Building Service Worker		
Dept.: Engineering		Division: Parks						Contact: Don Hunter		
		FREQUENCY*						Date: February 11, 1999		
PHYSICAL DEMANDS		R E Q D	S I D E	Sel 1	Low 2	Mod 3	High 4	Max. Weight (kg)	Usual Weight (kg)	COMMENTS
S T R E N G T H	Lifting - Floor to Knuckle	X	E			X		30	<1-13	cleaning tools, chairs, tables, gym equipment
	Lifting - Knuckle to Waist	X	E				X	30	<1-13	cleaning tools, chairs, tables, gym equipment
	Lifting - Waist to Shoulder	X	B			X		30	<1-13	cleaning tools, chairs, tables, gym equipment
	Lifting - Over Head	X	B		X			30	<1-13	cleaning tools, chairs, tables, gym equipment
	Carrying - With Handles	X	D			X		30	<1-13	cleaning tools, chairs, tables, gym equipment
	Carrying - Without Handles	X	E			X		30	<1-13	cleaning tools, chairs, tables, gym equipment
	Pushing - Upper Extremity	X	E			X		36	<1-13	cleaning tools, chairs, tables, gym equipment
	Pushing - Hip/Leg Assist	X	E			X		36	<1-13	cleaning tools, chairs, tables, gym equipment
	Pulling - Upper Extremity	X	E			X		36	<1-13	cleaning tools, chairs, tables, gym equipment
	Pulling - Hip/Leg Assist	X	E			X		36	<1-13	cleaning tools, chairs, tables, gym equipment
	Reach - Shoulder or Above	X	E		X			30	<1-13	cleaning tools, chairs, tables, gym equipment
	Reach - Sho. or Above extnd	X	B	X				30	<1-13	cleaning tools, chairs, tables, gym equipment
	Reach - Below Shoulder	X	E				X	30	<1-13	cleaning tools, chairs, tables, gym equipment
	Reach - Bel. Shoulder extnd	X	B		X			30	<1-13	cleaning tools, chairs, tables, gym equipment
	Handling	X	E				X	30	<1-13	cleaning tools, chairs, tables, gym equipment
Gripping	X	E				X	50	<1-13	cleaning tools, chairs, tables, gym equipment	
Fine Finger Movements	X	D			X		mod.	low	cleaning tools, chairs, tables, gym equipment	
E N R G	Aerobic (percent)	X					95	clean building, set up/take down for events		
	Anaerobic (percent)			neg.				possibly heavy lift, fatigue at end of day, set up or take down		
	High Energy Expenditure									
	Low Energy Expenditure	X					X	clean building, set up/take down for events		
P O S T U R E + M O B I L I T Y	Neck - Static Flexion	X					X	work below shoulders to clean , set up, take down		
	Neck - Static Neutral	X					X	stand, walk, sit		
	Neck - Static Extension	X				X		work above shoulders from bend, stoop, crouch, kneel		
	Neck - Rotation	X	E			X		clean building, set up/take down for events		
	Throwing	X	E		X			to garbage		
	Sitting	X		X				drive van between buildings		
	Standing	X					X	on concrete, tile, hardwood floor, entire shift		
	Walking	X					X	on concrete, tile, hardwood floor, entire shift in/around building		
	Running/Jumping									
	Climbing - Arms and Legs	X		X				wall ladder to roof of building, step and extension ladders		
	Climbing - Legs Only	X			X			stairs in buildings		
	Bending/Stooping	X					X	clean buildings, set up/take down for events		
	Crouching	X			X			clean buildings, set up/take down for events		
	Kneeling	X			X			clean buildings, set up/take down for events		
	Crawling	X		X				clean buildings, set up/take down for events		
T Y G E N	Twisting	X	E			X		clean buildings, set up/take down for events		
	Balancing	X		X				on ladders, stairs		
	Traveling	X		X				between buildings in janitor van		
	Work Alone	X					X	one BSW in most buildings		
N	Interact with Public	X					X	usually during day or evening shift		
	Operate Equip/Machinery	X			X			power scrubbers, floor polishers, small power tools		
	Irregular/Extended Hours	X					X	permanent day, evening and night shifts, 8 hours, Monday/Sunday		

* Frequency Legend 1 = Seldom; Not Daily 2 = Low Daily Activity; < 1hr
3 = Moderate Demand; Repetition 1 - 3 hrs daily 4 = High Frequency Demand; Repetition > 3 hrs daily

The following shading denotes a HIGH RISK TASK: Modifications should be considered

REQD is marked with an X if the particular demand or category is relevant to the purpose of the job.

SIDE refers to the side or limb required to execute a task. If it is marked **E**, it indicates either side, the most common choice is listed first. **D** refers to dominant and **B** to both sides.

PJDC-Building Service Worker

Referral:		Organization:						Title: see 1st page header	
Dept.:		Division:						Contact:	
PHYSICAL DEMANDS		R E Q D	S I D E	FREQUENCY*				COMMENTS	
				Sel. 1	Low 2	Mod. 3	High 4		
PERCEPTION	Hearing - Conversations	X				X		co-workers, public, overhead speakers, cell phones	
	Hearing - Other Sounds	X			X			cell phone, overhead speakers,	
	Vision - Far	X					X	clean and maintain building, set up/take down for events	
	Vision - Near								
	Vision - Colour	X		X				paper recycling	
	Vision - Depth	X					X	clean and maintain buildings, set up/take down for events	
	Perception - Spatial	X					X	clean and maintain buildings, set up/take down for events	
	Perception - Form	X			X			tool and equipment selection	
	Feeling (Tactile)	X					X	clean and maintain buildings, set up/take down for events	
	Reading	X			X			time sheet, facility log, supply sheet	
WORKING CONDITIONS	Writing	X			X			time sheet, facility log, supply sheet	
	Speech	X				X		co-workers, public	
	Inside Work	X					X	in buildings	
	Outside Work	X		X				litter pick up, leaf blowing	
	Hot Conditions >25 deg. C	X		X				possibly when working outside in spring, summer, fall	
	Cold Conditions <10 deg.C	X		X				possibly when working outside in fall, winter, spring	
	Humid	X		X				working in a pool, wet weather conditions	
	Dust	X			X			floor dust	
	Vapor Fumes	X			X			possibly from cleaning agents and chemicals	
	Hazardous Machines	X		X				floor scrubbers, polishers, power tools	
ENVIRONMENT	Proximity to Moving Object	X					X	public in buildings when open	
	Noise	X					X	general noise from public use, power tool use	
	Electrical Hazard								
	Sharp Tools	X			X			utility knife	
	Radiant/Thermal Energy	X		X				possibly with some cleaning agents and chemical use	
	Slippery Conditions	X			X			wet floors, spills on floors, water in shower/locker facilities	
	Vibration and Related	X			X			floor scrubber, polisher use	
	Chemical Irritants	X			X			cleaning agents and chemicals	
	Organic Substances	X			X			human waste in washrooms	
	Medical Waste	X			X			discarded needles	
TASKS	Blood Products	X			X			discarded women's hygiene product in washroom, bloody nose, cuts	
	Congested Worksite								
	Lighting - Direct	X					X	overhead lights in buildings	
	Lighting - Indirect	X		X				day light, sunlight when working out doors	
	Lighting - Adjustable								
	Lighting - Fluorescent	X					X	overhead lights in buildings	
	Lighting - Incandescent	X					X	overhead lights in buildings	
	Lighting - Shadows etc.	X		X				depends on location in building	

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For detailed descriptions of each of the different categories, please refer to the reference guide or inquire with Human Effort at 1-888-4EFFORT