



## baker

The baker's job involves the production of all bread products including rolls, loaves and twists. Bread is produced by mixing the dough, cutting and forming product, proving (leaving it aside to rise), baking, finishing and placing on shelves. Whilst the steps are listed separately the baker frequently moves from one step to the other and back again depending on production stage e.g. whilst waiting for dough to mix baker may be doing intermediate proving or roll/loaf formation.

Bread bakers tend to work the night before the product is to be sold and shifts are generally 8 hours long with intermittent breaks of short duration (5-10 minutes) every 1-2 hours, depending on the progress of production. Some bakers work during the day.

## work environment

- > tiled or concrete floor which can become slippery
- > multiple work benches 85-90cm high on average and 80cm deep on average
- > artificial overhead lighting
- > ventilation over ovens usually
- > temperature within comfort zone
- > low level noise
- > limited storage space

## tools and equipment used

- > mixer - large metal tub below waist level (approximately 85cms to rim of tub) with blades and mainly with interlocked guard on top
- > moulder with a rotating receiver at approximately shoulder level and tray below waist level
- > bun rounder with a vertical lever above shoulder level for cutting and an angled lever below waist level for rounding
- > proving ovens with a vertical outward swinging door or sliding door and multiple shelves
- > baking ovens with horizontal doors ranging in height from approximately 34cms to 180cms above floor level
- > baking trays measuring on average 70cms by 40cms
- > tray racks/trolleys up to 180cms high
- > hand-held cutter/scrapper
- > scissors of varying size
- > rolling pins of various sizes up to 30 cms long
- > buckets (generally 20 litres in size)
- > knives of varying size
- > spatula
- > probe thermometer for checking mixture status

## personal protective equipment

- > closed in rubber soled shoes
- > latex / vinyl gloves (may wear cotton gloves underneath)
- > uniform and / or apron
- > head cover / hair net
- > oven mitts

## human factors

### physical factors

- |                              |  |
|------------------------------|--|
| <b>reaches</b>               | > Ranges from overhead to floor level  |
| <b>controls and displays</b> | > Knobs, levers and push button - analogue and digital displays                                    |
| <b>force exertion / lift</b> | > Up to 25kgs lift between floor and waist level<br>- low level push/pull force at maximum of 8kgs |
| <b>endurance required</b>    | > Constant standing  |
| <b>static muscle loading</b> | > Frequent static neck flexion   |
| <b>work / rest patterns</b>  | > Short breaks as per work demands, generally in standing position                                 |
| <b>frequency of handling</b> | > Constant product handling and raw ingredient handling  |
| <b>grasping requirement</b>  | > Mainly power and palmar hand grips   |

### social, interpersonal and psychosocial factors

- > Generally works with others as a team but may work alone for some periods
- > Generally works during the night
- > Provides supervision or is supervised
- > Production of some products can become monotonous

### cognitive factors

- > Information ordering
- > Memorisation
- > Ability to apply mental arithmetic
- > Ability to shift back and forth between two or more activities
- > Ability to quickly respond to a signal

## task analysis - preparation



Bags of flour are carried or dragged to the work bench and placed under or near the work area. Flour, spices and other dry ingredients are scooped from containers (usually stored on shelves or under bench) and weighed and placed in a separate bowl or directly into mixing bowl. Dry ingredients and buckets or jugs of water are poured into the mixing bowl.

Approximately 12 mixtures per shift taking up to 2 hours are prepared per baker.

physical demands	frequency	comment
standing	constant	
walking	frequent	1 - 2 metres per mixture
lifting	occasional	up to 25kgs
	frequent	5 - 15 kgs
trunk flexion	occasional	up to 90 degrees
shoulder flexion	frequent	up to 90 degrees
power grip	frequent	

## task analysis - mixing



Cover of mixing bowl is put in place and controls are operated. Dough is checked for readiness by inserting a temperature probe or by visual inspection and side of bowl may be scraped down. Dough is removed from bowl by hand and placed on bench. If the mixture is large, manageable chunks of dough may be cut with a large knife from the mixture whilst it is still in the mixer and removed.

Bakers make up to 12 mixtures per shift taking approximately 15 minutes to complete each mixture.

physical demands	frequency	comment
standing	constant	
walking	frequent	1 - 2 metres per mixture
lifting	frequent	5 - 15kgs
trunk flexion	occasional	up to 90 degrees
shoulder flexion	frequent	up to 90 degrees
power grip	frequent	scraper, knife and product
fine manipulation	occasional	mixer controls

## task analysis - intermediate proving



Dough is cut into smaller portions with cutter, weighed and rolled and placed on a tray or left on bench. Once a tray is full it is lifted and placed in a rack.

The process takes 10-15 minutes per mixture.

physical demands	frequency	comment
standing	constant	
walking	frequent	1-2 metres per tray and several times per mixture
lifting / carrying	frequent	up to 8kgs
trunk flexion / squatting	occasional	to lower shelves of rack
trunk rotation	occasional	from side to side on bench or between bench and rack
static neck flexion	frequent	
shoulder flexion	frequent	up to 90 degrees
elbow flexion	frequent	90 degrees
wrist extension	frequent	90 degrees whilst rolling
power grip	frequent	mixture
palmar grip	frequent	lifting trays

## task analysis - roll / loaf formation



Dough is taken from intermediate proving and rolled by hand on work bench or placed in hopper of moulder to form loaves. Formed loaf is taken from lower tray and placed on/in baking trays which are placed on rack in proving oven.

Some dough may be rolled flat with a rolling pin and placed on a plastic tray before placing in bun rounder. Bun rounder is operated by pulling down a vertical lever with one hand and pulling across an angled lever with the other hand at the same time to cut and round the dough into bread rolls. Bread rolls are then placed individually by hand onto baking trays and trays placed on rack in proving oven for further rising.

Some rolls/loaves may require the dough to be flattened using a rolling pin and a paste applied with brush or spatula before rolling up by hand. Some loaves are cut on the top with scissors to form twist appearance. Some rolls may be dipped in a container of seeds etc before being placed on baking tray.

The process takes 15-30 minutes per mixture depending on whether rolls or loaves are formed.

## task analysis - roll / loaf formation



physical demands	frequency	comment
standing	constant	
walking	frequent	1-2 metres per tray and several times per mixture
lifting / carrying	occasional frequent	up to 18kgs 5-6kg
trunk flexion	occasional	20-90 degrees – reaching across bench and to lower shelves of rack
static neck flexion	frequent	rolling at bench
repetitive shoulder flexion	frequent	up to 160 degrees
repetitive elbow flexion	frequent	90 degrees
static wrist extension	frequent	90 degrees whilst rolling
push / pull force	occasional	up to 5kgs unilaterally
exposure to vibration	occasional	bun rounder
power grip	frequent	
palmar grip	frequent	carrying trays

**task analysis - load / unload baking oven**



Ovens are pre-heated. Trays are removed from the proving oven and placed on a bench while opening door of baking oven. Loaves may be scored on top with a knife or brushed with a glaze. Tray is slid onto shelf of baking oven and door is closed. Controls are operated and when baking is completed the trays are removed using oven mitts. Loaves/ rolls are tipped from trays and slid onto shop display racks or into bread crates for delivery. 60-80 trays per shift are produced, depending on whether loaves or rolls are prepared.

<b>physical demands</b>	<b>frequency</b>	<b>comment</b>
standing	constant	
walking	frequent	1-2 metres per tray
lifting / carrying	frequent	up to 6kgs
trunk flexion / squatting	occasional	up to 90 degrees
shoulder flexion	frequent	up to 150 degrees
elbow flexion / extension	frequent	90-180 degrees
exposure to heat	frequent	
power grip	frequent	oven doors, knife/brush and crates
pinch grip	occasional	oven controls
palmar grip	frequent	trays

## task analysis - cleaning



Benches are wiped down between mixtures. Dirty cooking trays are placed in sink and washed with a scrubbing brush and/or high pressure hose.

physical demands	frequency	comment
standing	constant	
walking	frequent	3 - 4 metres per transport of dirty item(s)
lifting / carrying	frequent	1- 8kgs
trunk flexion	frequent	5 - 40 degrees
shoulder flexion	frequent	up to 90 degrees
push / pull force	occasional	up to 3kgs unilaterally
power grip	frequent	hose nozzle or brush
palmar grip	frequent	trays

notes