



Central University of
Technology, Free State



Centre for Innovation in Learning and Teaching (CILT)



Civil Engineering

English

Sesotho

LEXICON BOOKLET

LEXICON



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PREFACE

In response to the Language Policy Framework for Public Higher Education Institutions, which seeks to promote multilingualism as a strategy to facilitate meaningful access and success in higher education institutions, the Centre for Innovation Learning and Teaching (CILT) initiated the Lexicon Development Project. This project aims to promote and strengthen the use of SeSotho language to facilitate student understanding of complex scientific concepts. In this way, the project enables access to knowledge within the disciplines through the use of indigenous African languages.

CILT in collaboration with the Faculty of Engineering, Built Environment and Information Technology held workshops to discuss the development of a discipline specific lexicon booklet. These engagements resulted in the production of the English–Sesotho Civil Engineering lexicon booklet. The translation into Sesotho was authenticated and verified by the Pan South African Language Board (PanSALB).

This lexicon booklet will be an invaluable resource as it would assist CUT lecturers and students to enhance their understanding and use of discipline specific terminologies in Sesotho.

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How to use the Civil Engineering Lexicon booklet

This booklet is monodirectional (English–Sesotho). It serves to facilitate understanding of Civil Engineering concepts in Sesotho. Therefore, users should take note of the following:

- a) Headwords and the contextual guidance are presented in English.
- b) Each headword has a translation equivalent presented in Sesotho.

This lexicon booklet is informed by the lemmatisation principle illustrated below:

(headword)» (Part of speech) » (Translation equivalent) », /; (Translation equivalent) » (Definition) »

Example:

(headword)» **partition** (Part of speech) » **(noun)** (Translation equivalent¹) » phatishene; searodi **(definition)** » A wall that subdivides spaces within any story of a building or room.

From the above lemmatisation rule, note the following:

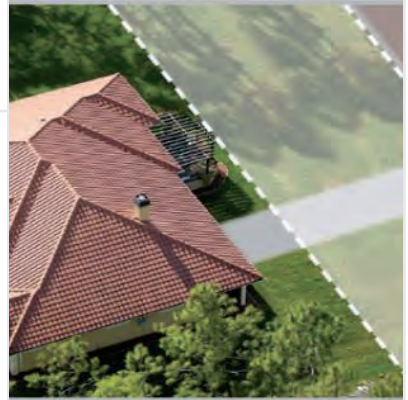
Structural Marker	Explanation
,	the translation equivalent can be used interchangeably or can be considered as alternates.
;	the translation equivalent cannot be used interchangeably. Thus, the user should check the context of the text before using the equivalent.

A

abrasion
(noun)

**kgohlano; konalo;
kgumoho**

The process of scuffing, scratching, wearing down, marring or rubbing away. It can be intentionally imposed in a controlled process using an abrasive. Abrasion can be an undesirable effect of exposure to normal use or exposure to the elements.



abutment
(noun)

**tshehetso, setshehetso;
tshiya pilara**

The substructure at the ends of a bridge span or dam on which the structure's superstructure rests or contacts. Single-span bridges have abutments at each end that provide vertical and lateral support for the bridge, and act as retaining walls to resist lateral movement of the earthen fill of the bridge approach.



accelerator
(noun)

sepotlakisi; seakofisi

An admixture that enhances early strength (hardening). However, the long-term strength remains unaffected. It is regularly used in cold weather when urgent strengthening is required.

ADMIXTURE

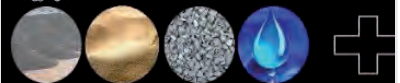
Admixtures are formulated chemical compounds that are used to modify concrete.

Admixtures are the material, other than

Cement

Water

Aggregates



These admixtures are added to concrete mix before or during

active earth pressure
(noun)

kgatello leboteng

The horizontal pressure that is exerted on a retaining wall by the mass of soil it retains.

Active Earth Pressure "P" at depth "h"
 $P = K_a \rho h$

$$K_a = \tan^2 \left(45 - \frac{\phi}{2} \right) = \frac{1 - \sin(\phi)}{1 + \sin(\phi)}$$

addendum or addenda
(noun)

shlomathiso; tlatsetso; adendamamo (diadendamamo)

Issued by a client during the bidding process. It becomes part of the contract documents when the contract is awarded.

Sample
Amendment to Construction Contract

In reference to the _____ (agreement) made by and between _____ ("Owner") and _____ ("Contractor") and dated _____, such agreement is hereby amended to include the following conditions:

1. The Contractor agrees to hold harmless, and in any contract with any subcontractor agrees to provide that the subcontractor will also hold harmless, The Regents of the University of California, the Cardiff Terrace Homeowner's Association, and The Cardiff Terrace Architectural Review Board from any claim, cost, liability, or loss arising from personal injury, death, or property damage resulting from any willful or negligent act, error, or omission of the contractor or subcontractor.
2. The Contractor agrees that in the event the owner fails to perform his or her contract with the Contractor, the Contractor will, upon the request of the Regents, recognize the Regents as Owner's assignee under the same terms and conditions as in Owner's contract with the Contractor.
3. The Owner and Contractor recognize The Regents as a third-party beneficiary to this contract, and The Regents are entitled to investigate or intervene in any action or proceeding to enforce its provisions.

adhesion or bond
(noun)

momahano, kgomarellano, mamarellano

The tendency of dissimilar particles or surfaces to cling to one another (cohesion refers to the tendency of similar or identical particles, surfaces to cling to one another). The forces that cause adhesion and cohesion can be divided into several types.

Adhesive Forces

admixture or additive
(noun)

setswakelletsi

An ingredient other than water, aggregates, cement or fibre that is added to a cementitious mixture during the mixing process. This ingredient is added to modify the mixing, setting or hardening properties.

Additive Manufacturing

Here burner tips are made using additive manufacturing, where parts for smaller gas turbines are actually being produced using

The particulate burner needs a nozzle. A digital production plan is created on a computer.

A thin layer of gas turbine component is applied.



A laser beam fuses the powder, creating the first layer of metal.

The platform lowering a thin micro-layer, creating the component being produced.

Another layer of metal powder is applied.

The laser again melts the surface of the piece being produced.

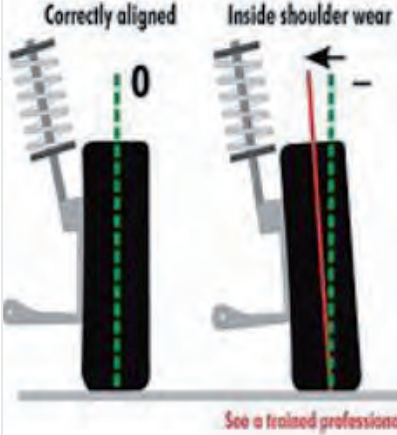
Layer by layer, a new burner tip is fused into the component.

<p>affidavit of non-collision (noun)</p>	<p>kano ya ho se dumellane, Afidaviti ya ho se dumellane</p>	<p style="text-align: center;">AFFIDAVIT</p> <p>I, Rakesh Sharma S/O Shri. Pradeep Sharma R/O A- 59,Janak Puri, New Delhi, do hereby solemnly affirm and declare as under:</p> <ol style="list-style-type: none"> 1. That I am an Indian Citizen. 2. That my Date of Birth is _____ 3. That I am enclosing these Documents with my Affidavit. 4. _____ 5. _____ 6. _____
<p>A factual or written statement or evidence made under oath. Documents sworn in under an affidavit are called “exhibits”.</p>		
<p>agent (noun)</p>	<p>moemedi ; thometsano; eijente</p>	
<p>An agent works alongside contractors and subcontractors to make sure building contracts are carried out on schedule. Agents are usually employed by building firms and civil engineering companies.</p>		
<p>air-entrained concrete (noun)</p>	<p>konkreiti e nang le moya; konkreiti e bobebe; konkreiti e sa teteenang; konkreiti e nang le dipudulwana</p>	
<p>A low-density type of concrete through which small air bubbles are dispersed in order to increase its frost resistance. It is used to construct roads. With 1% air, the loss of strength is approximately 5%.</p>		

alignment
(noun)

tsepamo

An arrangement of a single row, or of multiple rows, of standing stones at a site formerly occupied by humans. In a survey for a highway, railroad or similar installation, it is a ground plan that shows the horizontal direction of the route. The term also refers to the horizontal and vertical positioning of a linear structure (e.g. road, railway line, etc.) in terms of the characteristics of surrounding land.



allowance(s)
(noun)

tlatsetso

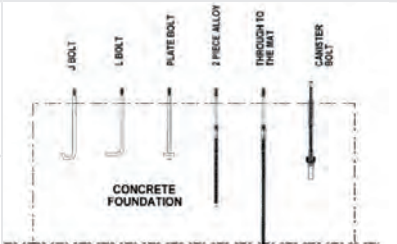
Sum of money set aside in the construction contract for item that have not been selected and specified in the construction contract.



anchor bolts
(noun)

diboutu tse ankerang;
diboutu tse kginang

Bolts to secure a wooden sill plate to concrete, masonry floors or walls.

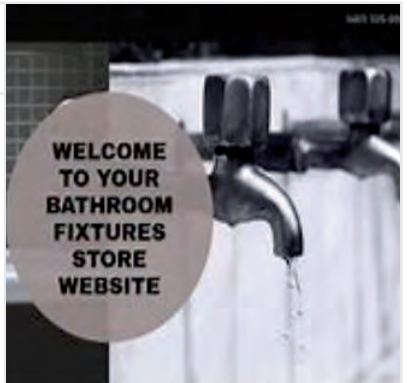

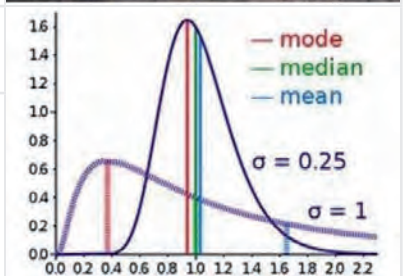
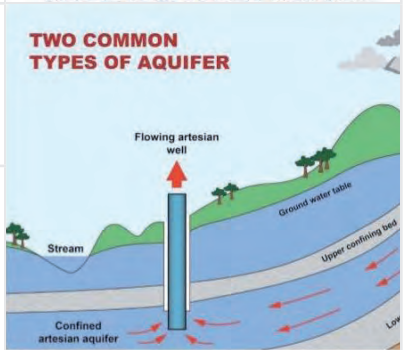


appraisal
(noun)






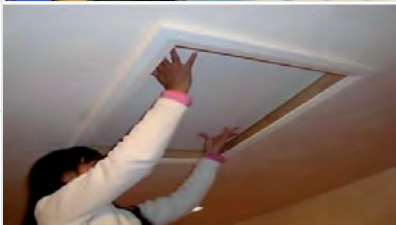
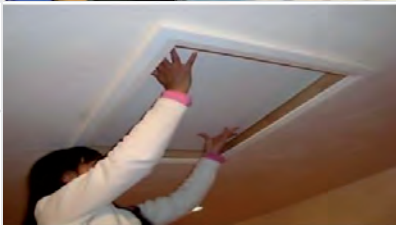
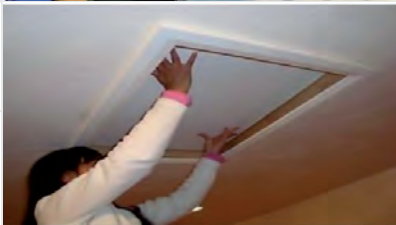
tekolo, tlhahlobo

An expert valuation of property.



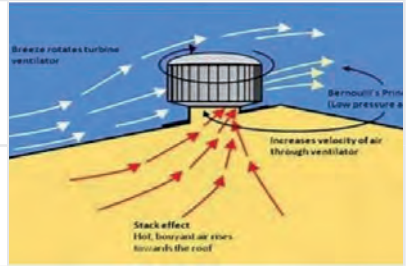
<p>appurtenance (noun)</p>	<p>mphefeela; pasela</p>	
<p>Anything attached to a piece of land or building in such a way that it becomes a part of that property and is passed on to a new owner when the property is sold. It may be something tangible, such as a garage, septic system or water tank, or something abstract, such as an easement or right of way.</p>		
<p>area wells (noun)</p>	<p>sethibamobu</p>	
<p>Corrugated metal or concrete barrier walls that are installed around a basement window to hold back the earth.</p>		
<p>arithmetic mean (noun)</p>	<p>palohare</p>	
<p>The representation of a central value. The set of data used for arithmetic mean calculation is mostly obtained by sampling or measurement from a statistical population.</p>		
<p>artesian well (noun)</p>	<p>sediba se kopotsang, Sediba se runyang</p>	
<p>A well drilled deep enough to reach water that is draining down from higher surrounding ground above the well, so that the pressure will force the flow of water upward.</p>		

arterial highway <i>(noun)</i>	mmila o bulehileng wa mokenellwa, mmila o methapo	
<p>An arterial road or arterial thoroughfare is a high-capacity urban road. For example, in many cities, arteries are arranged in concentric circles (commonly referred to as “ring roads”) or in a grid. Many jurisdictions also classify arterial roads as either principal (major) or minor. It is also referred to as “traffic arteries” in urban environments in South Africa.</p>		
assumption <i>(noun)</i>	qalo; tshimollo, thomeho	
<p>When a buyer assumes responsibility for an existing loan, instead of having to obtain a new loan.</p>		
as-built drawings or record drawings <i>(noun)</i>	motako ho ya ka kaho , motako ho ya ka kgaho	
<p>Drawings prepared by the contractor as the project is constructed, and on which the actual locations of the building components (above and below surface) and changes to the original contract documents are documented.</p>		

<p>asphaltic concrete (<i>adjective</i>)</p>	<p>konkreiti ya Asfalte , konkreiti e mahaila , konkreiti e kgorofa</p>	
<p>A composite material commonly used to surface roads, parking lots, airports and the core of embankment dams (e.g. the surface of a road).</p>		
<p>asphaltic (<i>adjective</i>)</p>	<p>- e boasfalte</p>	
<p>Asphaltic rubber, also known as rubberised asphalt or rubberised asphalt concrete (RAC), is a noise reducing pavement material made of regular asphalt concrete mixed with crumb rubber made from recycled tyres.</p>		
<p>astragal (<i>noun</i>)</p>	<p>astrakale</p>	
<p>A molding attached to one of a pair of swinging double doors against which the other door strikes.</p>		
<p>attic access (<i>noun</i>)</p>	<p>monyako wa marulelo; trepdo</p>	
<p>An opening that is placed in the drywalled ceiling of a home to provide access to the attic.</p>		

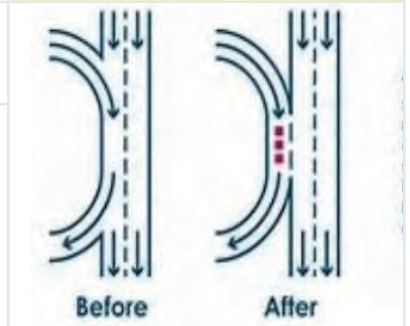
attic ventilator(s) **sefhlamoya sa marulelo**
(noun)

Screened openings in houses that are provided to ventilate an attic space.








auxiliary lane **tsela ya tse butle; tse**
(noun) **tswang**



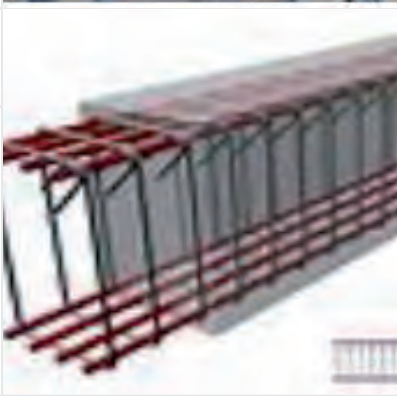

Auxiliary lanes are lanes for slow vehicles on the left side of multilane highways. They can provide safe overtaking opportunities for vehicles using the original lane, instead of the opposite lane.



B

<p>back charge (noun)</p>	<p>tefiso ya tse sa phethelwang</p>	
<p>Billings for work performed or costs incurred by one party that, in accordance with the agreement, should have been performed or incurred by the party who was billed. Owners bill back charges to general contractors, and general contractors bill back charges to include charges for clean-up work or to repair damage by another subcontractor, such as a tub chip or broken window.</p>		
<p>backfill (noun)</p>	<p>mobu o katang</p>	<p>The replacement of excavated earth into a trench around or against a basement, crawl space foundation wall.</p>
<p>base course (noun)</p>	<p>moalo wa motheo</p>	
<p>A layer of material in an asphalt roadway, race track, riding arena or sporting field. If there is a sub-base course, the base course is constructed directly above this layer.</p>		

<p>base shore (noun)</p>	<p>lebanta la fuluru</p>	
<p>Molding used next to the floor on the interior base board. It is sometimes called a “carpet strip”.</p>		
<p>basement window inserts (noun)</p>	<p>festere e mokatong o ka tlase</p>	
<p>The window frame and glass unit that are installed in the window buck.</p>		
<p>bat (noun)</p>	<p>papanana</p>	
<p>A half brick.</p>		
<p>batt (noun)</p>	<p>phate</p>	
<p>A section of fiberglass or rock-wool insulation measuring 400 to 600 mm wide, by 1,2 to 2,4 m long, with varying thickness. It can be faced (meaning to have a paper covering on one side) or unfaced (without paper).</p>		
<p>batten (noun)</p>	<p>bathene</p>	
<p>Narrow strips of wood used to cover joints, or as decorative vertical members over plywood or white boards.</p>		

batter <i>(noun)</i>	lebota le tshekaladitsweng	
<p>A receding slope of a wall, structure or earthwork. The term is used with buildings and non-building structures to identify when a wall is intentionally built with an inward slope.</p>		
bay window <i>(noun)</i>	Festere; Phera e kolomota; Festere e dimpana; Phera, festere e sepono	
<p>Any window space projecting outward from the walls of a building, either square or polygonal in plan.</p>		
beam (noun)	bimi	
<p>A structural element that primarily resists loads applied laterally (horizontally or vertically) to the beam's longitudinal axis. Its mode of deflection is primarily by bending. The loads applied to the beam result in reaction forces at the beam's support points.</p>		
bearing <i>(noun)</i>	bering	
<p>A component of a bridge that typically provides a resting surface between bridge piers and the bridge deck. The purpose of a bearing is to allow controlled movement, thereby reducing the stresses involved.</p>		

benchmark
(noun)

letshwao la papiso, letshwaopapiso



Any reference point on site with a height assigned to it. For most surveys and construction work, several benchmarks would normally be established by levelling from the datum.

bending formula
(noun)

fomula ya ho kobeha



A bending moment is the reaction induced in a structural element when an external force or moment is applied to the element, causing the element to bend.

berm
(noun)

lenkorota; beme



A berm is a physical, stationary barrier of some kind. For example, in modern highway construction, a berm is a noise barrier constructed of earth, often landscaped, running along a highway to protect adjacent land users from noise pollution.

bernoulli equation
(noun)

ikhweishene ya Bernoulli

Bernoulli Equation

Conservation of Energy Principle
Relationship between Velocity and Pressure

$$\Delta P = \frac{1}{2}\rho(V_2^2 - V_1^2) + \int \rho \frac{dy}{dt} \times ds + R(V)$$

convective acceleration flow acceleration viscous friction

Modified Bernoulli's Equation $\Delta P = 4 (v_2^2 - v_1^2)$

Simplified Bernoulli's Equation $\Delta P = 4 v^2$

An increase in the speed of a fluid occurs simultaneously with a decrease in pressure in the fluid's potential energy.

<p>bidding (noun)</p>	<p>boiketo</p>	
<p>The process of submitting a proposal (tender) to undertake or manage a construction project. The tender is treated as an offer to do the work for a certain amount of money (“firm price”), or a certain amount of profit (“cost reimbursement” or “cost plus”).</p>		
<p>bifold door (noun)</p>	<p>lemati le menhang habedi</p>	
<p>Doors that are hinged in the middle for opening in a smaller area than standard swing doors. Bifold doors are often used for closet doors.</p>		
<p>binder (noun)</p>	<p>sekgomaretsi, baendara</p>	
<p>Any material or substance that holds or draws other materials together to form a cohesive whole mechanically, chemically, or by adhesion or cohesion.</p>		
<p>bituminous seal coat (noun)</p>	<p>sekontiri se dilang</p>	
<p>A final coat of bituminous material applied during construction to a bituminous macadam or concrete to seal the surface of the pavement.</p>		

bleeding or flushing
(noun)

ho qhitsa; motshwetsshwe

A shiny, black surface film of asphalt on the road surface caused by upward movement of asphalt in the pavement surface. Bleeding is a safety concern, as it results in a very smooth surface, without the texture required to prevent hydroplaning.



blemish
(noun)

letheba; Sekodi

Concrete, noted for its desirable structural characteristics, is unfortunately also noted for non-uniform and aesthetically poor surface appearance.



blinding
(noun)

ho batalatsa , patalatso

A base layer of weak concrete or sand that is laid above a layer of hardcore material to provide a clean, level and dry working surface. The concrete used for blinding is weak compared to structural concrete and can withstand less loading. The blinding layer primarily evens out an irregular surface, for example to rest pipes firmly in a trench, or to provide a firm surface for placement of nuclear density measurement devices.



<p>blow insulation (<i>noun</i>)</p>	<p>phate e butswelwang, phate e futhelwang</p>	
<p>Fibre insulation in loose form used to insulate attics and existing walls where framing members are not exposed.</p>		
<p>blueprint(s) (<i>noun</i>)</p>	<p>khopi, bluprinte</p>	
<p>A type of copying method often used for architectural drawings. Usually used to describe the drawing of a structure that is prepared by an architect or designer for purposes of designing, planning, estimating, securing permits, and actual construction.</p>		
<p>blue staking (<i>verb</i>)</p>	<p>ho tshwaya</p>	
<p>Another phrase for utility notification. This is when a utility company (telephone, gas, electric, cable TV, sewer and water, etc.) comes to the job site, locates the service, and spray-paints the ground and, or installs little flags to show where the service is located underground.</p>		

blotter
(noun)

semonyi, seomeletsi

A record of trades and the details of the trades made over a period of time (usually one trading day). The details of a trade will include such things as the time, price, order size, and a specification of whether it was a buy or sell order.

WEEKLY CONSTRUCTION PROGRESS REPORT			
North Dakota Department of Transportation, Construction Services SPN 10200 (9-2017)			Number
Contractor	Week Ending	Project Control Number	Project Number
Type of Work		County	
Week Completed	Contract Amount	Percent Completed	
WORKING DAY CONTRACT		COMPLETION DATE CONTRACT	
Allowable working days	Contract completion date		
Time charge started	Calendar days from start to completion date		
Working days charged this week	Calendar days expired	Percent time	
Working day charged to date	- WITH GUARANTEED MIN. NO. OF WORKING DAYS -		
Percent of time expired	Quaranteed number of working days		
Time charge started		Working days charged to date	
Working days charged this week		Working days charged to date	
Items of Work	Portion of Structure or Location of Work	Percent Completed Last Report	Percent Completed To Date

board-ometer
(noun)

botfutu; bodomitha

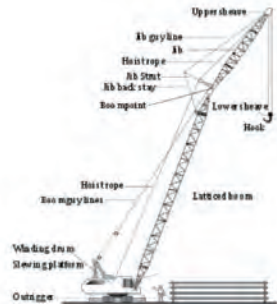
A unit of measure for lumber equal to 25 mm x 300 mm x 5 m = 5 board meter; and 50 mm x 300 mm x 5 m = 10 board meter.



boom
(noun)

bumu; nkgodi

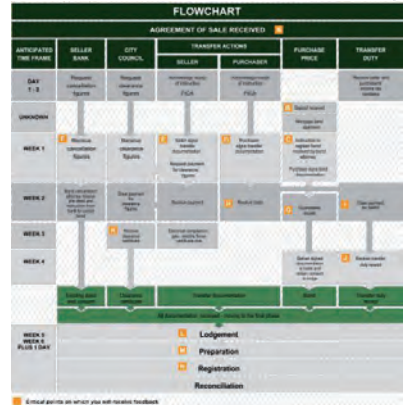
A truck used to hoist heavy material up and into place, to put trusses on a home, or to set a heavy beam into place.



bond or bonding
(noun)

setlami, tlamo, setshwarisi, bonto

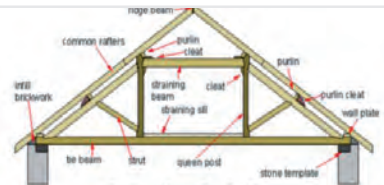
An amount of money that must be on deposit with a governmental agency to secure a contractor's license. The bond may be used to pay for the unpaid bills or disputed work of the contractor. Not to be confused with a performance bond. Such bonds are rarely used in residential construction. They are an insurance policy that guarantees the proper completion of a project. The term also refers to structural bonding, where two different material types are adhered to each other to form a firm joining of such materials.



bottom chord
(noun)

setshehetsi

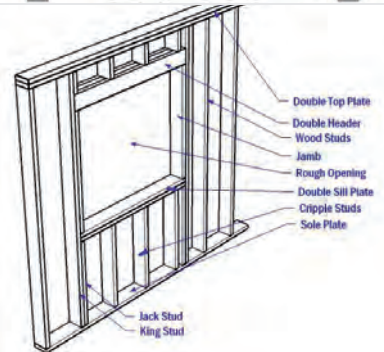
The lower or bottom horizontal member of a truss.



bottom plate
(noun)

plata e ka tlase

The 38 x 76 mm or 114 mm beam that lies on the subfloor upon which vertical studs are installed. Also called the “sole plate” or “base plate”.



boring
(*verb*)

ho phunya; ho bora

Used for various applications in geology, agriculture, hydrology, civil engineering, and mineral exploration. Today, it is used in most earth drilling services to return samples of the soil and, or rock through which the drill passes.



borrow pit
(*noun*)

kgatampi

A borrow pit, also known as a “sand box”, is an area where material (usually soil, gravel or sand) has been dug for use at another location. Borrow pits can be found close to many major construction projects. This is done when local material at a construction site is not of suitable strength, or of low structural strength.



boulder
(*noun*)

lejwe

A rock fragment with a size greater than 25,6 cm (10,1 inches) in diameter. Smaller pieces are called “cobbles” and “pebbles”.


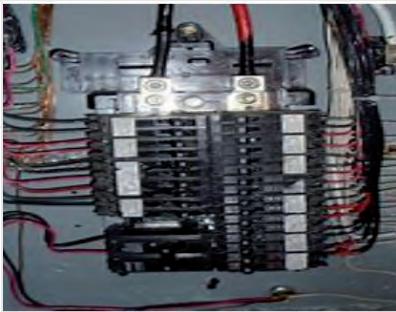




boulevard
(*noun*)

bulevate

A type of road with a high traffic volume that usually runs through a city, typically connecting highways, throughways. In modern American usage, it often means a wide, multilane arterial.



<p>brace (noun)</p>	<p>setshhetsi</p>	
<p>An inclined piece of framing lumber applied to a wall or floor to strengthen the structure. It is often used on walls as temporary bracing until framing has been completed.</p>		
<p>breaker panel (noun)</p>	<p>phanele ya boreikara, seabamotlakase</p>	
<p>The electrical box that distributes electric power entering the home to each branch circuit (each plug and switch) and is composed of circuit breakers.</p>		
<p>brick ledge (noun)</p>	<p>mothati wa setene</p>	
<p>Part of the foundation wall where brick (vener) will rest.</p>		
<p>bridge (noun)</p>	<p>borokgo</p>	
<p>A structure built to span and provide passage over rivers, chasms, roads or any other physical hurdles.</p>		

bridge bearing <i>(noun)</i>	bering ya borokgo	
<p>A component of a bridge that typically provides a resting surface between bridge piers and the bridge deck. The purpose of a bearing is to allow controlled movement, thereby reducing the stresses involved.</p>		
bridge deck <i>(noun)</i>	mokato wa borokgo	
<p>The surface of a bridge, which is one structural element of the superstructure of a bridge. It is not to be confused with the deck of a ship. The deck may be constructed of concrete, steel, open grating, or wood. When a bridge deck is installed in a through truss, it is sometimes called a “floor system”.</p>		
bridge length <i>(noun)</i>	bolelele ba borokgo	
<p>The distance between two intermediate supports for a structure, e.g. a beam or a bridge.</p>		
bridge roadway width <i>(noun)</i>	bophara ba tsela ya borokgo	
<p>This refers to the total width of all lanes and shoulders on the bridge, measured between the points on the bridge rail, curb, or other vertical elements that project the farthest onto the roadway.</p>		

<p>building code (noun)</p>	<p>mela ya ho aha, khoutu ya ho aha</p>	
<p>A set of rules that specify the standards for constructed objects such as buildings and non-building structures. Buildings must conform to the code to obtain planning permission, usually from a local council.</p>		
<p>bypass doors (noun)</p>	<p>mamati a fapanang</p>	
<p>Doors that slide by each other; commonly used as closet doors.</p>		
<p>building insurance (noun)</p>	<p>inshoreense ya moaho</p>	
<p>Insurance covering the structure of the building.</p>		
<p>building paper (noun)</p>	<p>pampiri ya kaho</p>	
<p>A general term for papers, felts and similar sheet materials used in buildings without reference to their properties or uses. It generally comes in long rolls.</p>		
<p>built-up roof (noun)</p>	<p>marulelo a mealo</p>	
<p>A roofing composed of three to five layers of asphalt felt laminated with coal tar, pitch, or asphalt. The top is finished with crushed slag or gravel. It is generally used on flat or low-pitched roofs.</p>		

**bull-nose
(drywall)**
(noun)

khona e tshitjha; huku e tshitjha



Rounded drywall corners.

bundle
(noun)

seshoba



A package of shingles. Normally, there are three bundles per square, and 27 shingles per bundle.

butt edge
(noun)

pento e tlase ; ntlhana e tlase

Butt and Edge Joints

Used on boxes and frames that are reinforced with screws or nails

- Butt joint
- Plain edge
- Doweled edge
- Rabbeted edge or edge lap
- Tongue and groove
- Spined and edge

Butt Joint

The lower edge of the shingle tabs.

butt hinge
(noun)

sekaniri



The most common type of hinge. One leaf is attached to the door's edge, the other to its jamb.

butt joint
(noun)

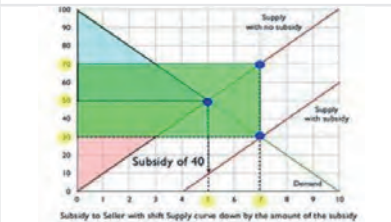
mateanong




The junction where the ends of two timbers meet, and where sheets of drywall meet on the 1,2 m edge, to place materials end-to-end or end-to-edge without overlapping.

buy-down
(noun)




theolelo



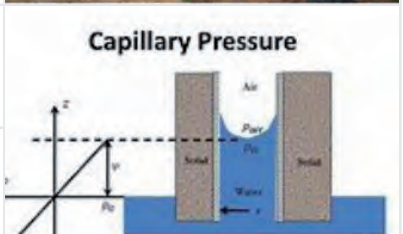
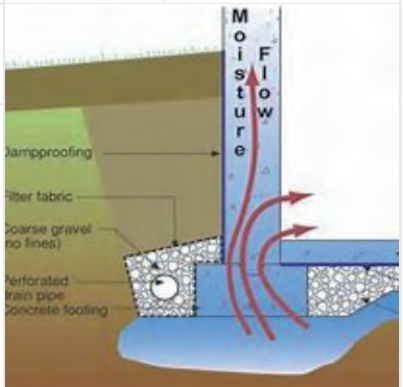


A subsidy (usually paid by a builder or developer) to reduce monthly payments on a mortgage.

bifold door (noun)	lemati le menhang habedi	
<p>Doors that are hinged in the middle for opening in a smaller area than standard swing doors. They are often used as closet doors.</p>		
bypass doors (noun)	mamati a fapanang	
<p>Doors that slide by each other; commonly used as closet doors.</p>		

C



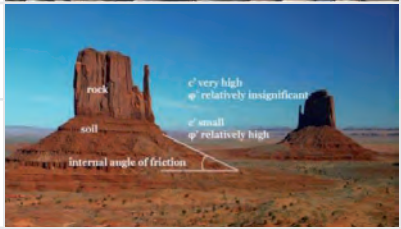
<p>caisson (noun)</p>	<p>khashene</p>	
<p>A 250 to 300 mm diameter hole drilled into the earth and embedded 1 000 to 1 250 mm into bedrock. The structural support for a type of foundation wall, porch, patio, mono post, or other structure. Two or more “sticks” of reinforcing bars (rebar) are inserted into, and run the full length of, the hole, and concrete is poured into the caisson hole.</p>		
<p>calendar day (noun)</p>	<p>letsatsi</p>	
<p>A calendar day is a subset meaning of day, relating to any day of the week, month or year, including weekends and holidays.</p>		
<p>camber (noun)</p>	<p>mokokotlo wa tsela</p>	
<p>The word camber is typically used to describe a type of arch, truss or beam. The term also refers to the cross-section slopes of a road formation, showing cross-gradients of the road.</p>		

<p>cantilever (noun)</p>	<p>khanthiliva</p>	
<p>This is a long projecting beam or girder fixed at only one end, used in bridge construction.</p>		
<p>cantilever footing (noun)</p>	<p>motheo wa khanthiliva</p>	
<p>A footing used to carry a load from two columns, with one column and one end of the footing placed against a building line or exterior wall.</p>		
<p>capillary pressure or seepage force (noun)</p>	<p>kgatello ya motshwetshwe</p>	<p style="text-align: center;">Capillary Pressure</p>  <p>er in a capillary tube. Capillary forces must balance the weight</p> $2\pi r\sigma \cos(\beta) = \gamma r r^2 \psi$ $\psi = \frac{2\sigma \cos(\beta)}{\gamma r}$ <p>pressure head</p> $\psi = -\frac{P_w}{\gamma_w} > 0$
<p>Capillary pressure is the difference in pressure across the interface between two phases, which is defined as the pressure differential between two immiscible fluid phases occupying the same pores, caused by interfacial tension between the two phases that must be overcome to initiate flow.</p>		
<p>capillary water (noun)</p>	<p>motshwetshwe; mongobo</p>	
<p>The movement of pore water against the gravity force. It is a prominent phenomenon in unsaturated soil mechanics. Many environmental consequences, such as the transportation of saline materials to the ground surface, are attributed to capillary rise.</p>		

carriageway <i>(noun)</i>	tsela e bulehileng, tsela e sephara	
<p>A width of road on which a vehicle is not restricted from moving laterally by any physical barriers or separation.</p>		
cast-in-place or cast-in-situ <i>(noun)</i>	seetsetswasetsheng	
<p>Refers to a construction material, a beam or a pile that is to be assembled or cast on site, rather than prefabricated in a factory.</p>		
caulking <i>(noun)</i>	ho kiba	
<p>It refers to either the caulking substance, or to the process of applying it. Caulking as a term has spread to the building trade, meaning the activity of closing up joints and gaps in buildings.</p>		
cement <i>(noun)</i>	samente	
<p>The grey powder that is the “glue” in concrete e.g. Portland cement.</p>		
cement mortar <i>(noun)</i>	seretse sa samente, taka	
<p>A mixture of sand, a binder such as cement or lime, and water. Mortar fills and seals the irregular gaps between the building blocks.</p>		

<p>centre line of highway (noun)</p>	<p>molahare wa mmila o moholo, molahare wa haewei</p>	
<p>One of the road surface markings that divide traffic lanes moving in opposite directions.</p>		
<p>channel (noun)</p>	<p>bolelele, tjheneije</p>	
<p>A type of (usually structural steel) beam, used primarily in building construction. It also refers to the provided longitudinal flow way for storm water running along a linear structure, such as a road.</p>		
<p>chainage (noun)</p>	<p>bolelele, tjheneije</p>	
<p>The horizontal distance as measured along a combination of curves and straight lines (curvilinear) between two points. This term is usually used in conjunction with route surveying along the survey control line of right-of-way maps. It is often referred to as “stationing”. In transportation engineering, this distance is typically measured in multiples of 20 m.</p>		
<p>change order (noun)</p>	<p>tokomane ya diphetoho, tokomane ya diphetolo</p>	
<p>A written document that modifies the plans and specifications, and, or the price of the construction contract.</p>		

characteristic <i>(noun)</i>	semelo; letshwao le kgethollang	
<p>The site-specific nature of construction means that each project has a high number of unique features that need to be resolved through the project's life cycle.</p>		
chevron <i>(noun)</i>	tjheforono	<p>Chézy's Equation</p> $V = C R^{1/2} S^{1/2}$ <p>V is average velocity (m/s) R = hydraulic radius (m) S = energy slope (m/m) $C = \frac{\sqrt{pg}}{\alpha}$, where α is a roughness coefficient</p>
<p>Chevron refers to any kind of device or material that is used on a road surface in order to convey official information, which is commonly placed with road marking machines, road marking equipment, or pavement marking equipment.</p>		
chezy equation <i>(noun)</i>	ikhweishene, fomula ya chezy	
<p>The mean flow velocity of steady, turbulent open male.</p>		
chromating <i>(noun)</i>	tshireletso ya tshepe ka kroumu	
<p>A type of conversion coating used to passivate steel, aluminium, zinc, cadmium, copper, silver, magnesium and tin alloys. It is primarily used as a corrosion inhibitor, primer and decorative finish, or to retain electrical conductivity.</p>		

<p>clay (noun)</p>	<p>letsopa</p>	
<p>A common name for a number of fine-grained, earthy materials that become plastic when wet. Chemically, clays are hydrous aluminum silicates, usually containing minor amounts of impurities such as potassium, sodium, calcium, magnesium or iron.</p>		
<p>coarse aggregate (noun)</p>	<p>majwe a konkreiti; krashara</p>	
<p>A broad category of coarse- to medium-grained particulate material used in construction, including sand, gravel, crushed stone, slag, recycled concrete and geosynthetic aggregates.</p>		
<p>cobble (noun)</p>	<p>lejwe le alwang</p>	
<p>A rock fragment, often rounded, with a diameter of 64 to 256 mm; thus, smaller than a boulder, but larger than a pebble.</p>		
<p>cohesion of soil (noun)</p>	<p>momahano ya mobu</p>	
<p>The component of shear strength of a rock or soil that is independent of interparticle friction.</p>		
<p>cohesive soil (noun)</p>	<p>mobu o letsopa</p>	
<p>A sticky soil that can be termed “clay” or “silty clay”. The surface tension of capillary water exerts the capillary forces, which reduces the soil’s strength.</p>		

cohesionless soil
(noun)

mobu o lehlbathe

Soil that contains elements that do not stick together. Soil analysis prior to construction provides information critical to the success of trenchless operations.



compaction
(noun)

ho kata

A process in which stress applied to a soil causes densification as air is displaced from the pores between the soil grains.



compound
(noun)

kompone

An area that contains a group of buildings surrounded by a fence or wall.



concrete
(noun)

konkreiti

A mixture of cement, sand, gravel and water used to make garage and basement floors, sidewalks, patios, foundation walls, etc. It is commonly reinforced with steel rods (rebar) or wire screening.

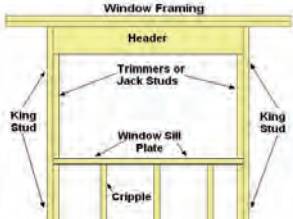











cricket
(noun)

krikete

A second roof built on top of the primary roof to increase the slope of the roof or valley. A saddle-shaped, peaked construction connecting a sloping roof with a chimney. It is designed to encourage water drainage away from the chimney joint.

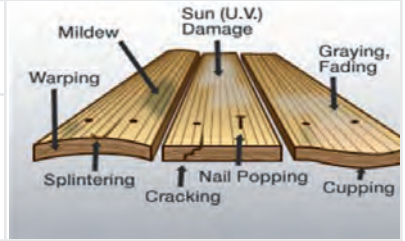


<p>cripple (noun)</p>	<p>lentele ya lehong</p>	
<p>A short, vertical, 38 x 76 mm or 114 mm frame lumber installed above a window or door.</p>		
<p>cross-bridging (noun)</p>	<p>mateano a fapanyetsanang</p>	
<p>Diagonal bracing between adjacent floor joists placed near the center of the joist span to prevent joists from twisting.</p>		
<p>cross tee (noun)</p>	<p>setshehetsi sa 't'</p>	
<p>A short metal T-beam used in suspended ceiling systems to bridge the spaces between the main beams.</p>		
<p>crown molding (noun)</p>	<p>mokgabiso wa krone</p>	
<p>A molding used on cornice or wherever an interior angle is to be covered, especially at the roof and wall corner.</p>		
<p>culvert (noun)</p>	<p>kotopo; kholebete</p>	
<p>A round, corrugated drain pipe, normally 375 to 450 mm in diameter, that is installed beneath a driveway, parallel to and near the street. It also refers to a rectangular shaped concrete unit, placed below ground level, to channel storm water flow to natural deposit locations (e.g. veld or earth dams).</p>		

cupping
(noun)

khapeng; kobeho

A type of warping that causes boards to curl up at their edges.



curb
(noun)

khebo; foreime ya sekenyaganya

The short elevation of an exterior wall above the deck of a roof, normally a 50 to 150 mm box on the roof, on which a skylight is attached.



curb stop
(noun)

sekwahelo sa mitara wa metsi, sekwahelo sa khebo; stopara

Normally a cast iron pipe with a lid, at 125 mm in diameter, that is placed vertically into the ground near the water tap in the yard where a water cut-off valve to the home is located (underground). A long pole with a special end is inserted into the curb stop to turn the water off, on.

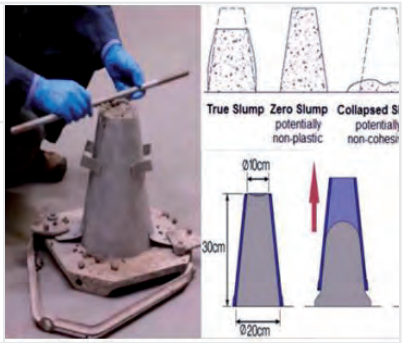




conduit
(noun)

khonjutu, motjha; tjhupu

A tube or trough used to protect electric wiring.



<p>consistency of concrete (<i>adjective</i>)</p>	<p>bometsi ba konkrite</p>	
<p>Refers to the workability of freshly made concrete, and therefore the ease with which concrete flows. A slump test is used to measure the consistency of fresh concrete before it sets.</p>		
<p>consolidation (<i>noun</i>)</p>	<p>pokellong</p>	
<p>A distribution facility that can be used in the process of managing project logistics, or channelling material deliveries to a large, single construction site or a number of different sites. It also refers to the compaction that occurs naturally over periods of time.</p>		
<p>continuous beam (<i>noun</i>)</p>	<p>bimi e tswelang</p>	<p>Continuous Beam Metal Framing</p>
<p>A beam that is moment resisting at the rigid beam-to-column connection and provides frame stability and lateral load resistance solely through connection rigidity and member stiffness.</p>		
<p>continuous or combined footing (<i>noun</i>)</p>	<p>motheo o kopaneng, motheo o tswelang</p>	
<p>A component of a building's foundation. It is a type of combined footing, consisting of two or more column footings connected by a concrete beam.</p>		

contractor
(noun)

mokontraka

A general contractor is a person responsible for the day-to-day oversight of a construction site, the management of vendors and trades, as well as the communication of information to all parties involved, from the start to the completion of a construction project. Sometimes a contractor is referred to as the “project manager” of a construction project.



contract
(noun)

kontraka, selekane

A formal agreement for construction, alteration, or repair of buildings or structures (bridges, dams, facilities, roads, tanks, etc.). A construction contract is distinct from a contract to assemble, fabricate or manufacture.








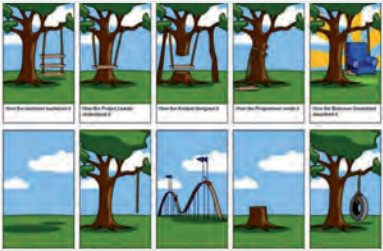
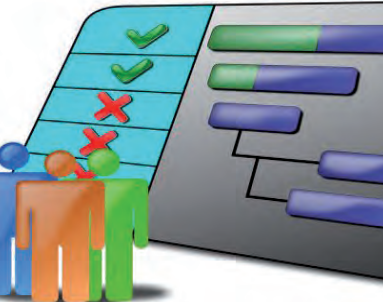


construction
(noun)

kaho



The action of designing, planning, constructing and managing infrastructure such as roads, tunnels, bridges, airports, railroads, facilities, buildings, dams, utilities and other projects.





contract payment bond <i>(noun)</i>	bonto ya kontraka, shorithi	
<p>A type of surety bond used by investors in construction projects to protect against disruptions or financial loss due to a contractor's failure to complete the project or to meet contract specifications.</p>		
coping <i>(noun)</i>	katiba ya lebota	
<p>A covering of stone, concrete, brick or terracotta, placed on the exposed top of a wall to prevent water seepage. It may also be provided on the top of a compound wall.</p>		
corrosion <i>(noun)</i>	mafome; rusi	
<p>The deterioration of a material due to interaction with its environment. It is the process in which metallic atoms leave the metal, or form compounds in the presence of water and gases.</p>		
corrugations <i>(noun)</i>	maqhubu	
<p>A series of parallel ridges and furrows on a corrugated surface.</p>		
course <i>(noun)</i>	phate; moalo	
<p>A row of shingles or roll roofing running the length of the roof. Parallel layers of building materials such as bricks or siding laid up horizontally.</p>		

<p>criteria (noun)</p>	<p>metjha; mekgwa, ditsela</p>	
<p>Requirements that should facilitate the measuring of the project's success during the execution stage, as well as at the end of the project.</p>		
<p>critical path analysis (noun)</p>	<p>tlhophollo e hlokolosi ya mosebetsi</p>	
<p>An algorithm for scheduling a set of project activities. Critical Path Analysis is commonly used in all types of projects, including construction projects.</p>		
<p>cracking in concrete (noun)</p>	<p>ho peperana ha konkreite; matlere konkreiting</p>	
<p>A complete or incomplete separation of either concrete or masonry into two or more parts by breaking or fracturing.</p>		
<p>crack (noun)</p>	<p>lepatso; letlere</p>	
<p>A narrow space between two surfaces that has broken or been moved apart. If a structure is unable to accommodate a movement, cracking is likely to occur.</p>		


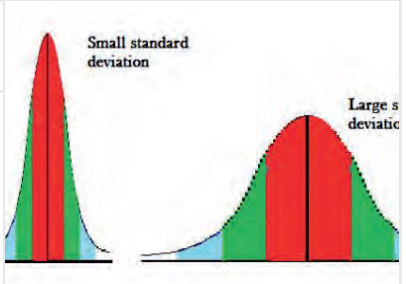

alligator crack <i>(noun)</i>	ho peperana sa tlalo la kwena	
<p>A crack consisting of interconnecting cracks that form small (less than 300 mm by 300 mm), irregularly shaped blocks that resemble the patterns found on an alligator’s skin. Alligator cracks range from 0% to 100% of the wheel path length.</p>		
block crack <i>(noun)</i>	ho peperana sa boloko	
<p>A narrow space between two surfaces, which have broken or been moved apart, that normally occurs over a large portion of pavement area, but sometimes occurs in non-traffic areas.</p>		
random crack <i>(noun)</i>	peperano e lehlahlatha	
<p>A series of closely spaced, crescent-shaped cracks near a joint, corner or crack. It is caused by the freeze-thaw expansion of the large aggregate within the Portland cement concrete (PCC) slab. Durability cracking is a general PCC distress, and is not unique to pavement PCC.</p>		


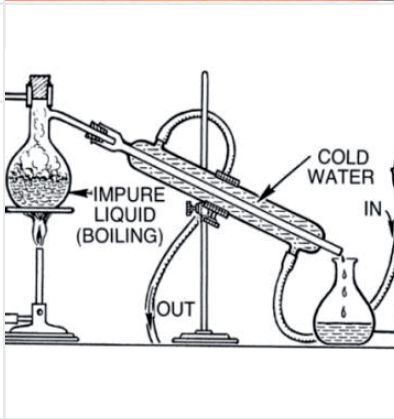

<p>reflective crack (<i>noun</i>)</p>	<p>lepatso la mateanong a mealo</p>	
<p>A type of failure in asphalt pavement. A reflective crack can also open a way for water to enter the pavement's body and increase the deterioration rate. Reflective cracks can also occur in overlays placed on joints or cracks in concrete pavements (composite pavements).</p>		
<p>transverse or temperature crack (<i>adjective</i>)</p>	<p>lepatso le parolang</p>	
<p>Refers to large cracks perpendicular to the pavement. A significant number of concrete bridge decks develop transverse cracking, often at an early age. They might develop right after construction, or at a later stage, due to (1) poorly constructed paving lane joints; (2) shrinkage of the asphalt concrete (AC) surface due to low temperatures or hardening of the asphalt; or (3) a reflective crack caused by cracks beneath the surface course, including Portland cement concrete (PCC) slabs (but not at the PCC joint).</p>		
<p>craze crack (<i>noun</i>)</p>	<p>lepatso la lefatsane</p>	
<p>Craze cracks are small pattern cracks on a slab's surface. They are associated with early surface drying, causing the immediate surface to shrink differently from the underlying concrete.</p>		




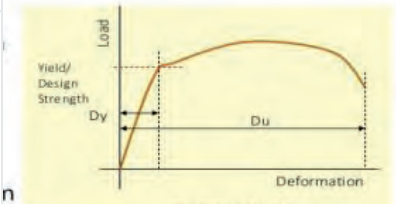
<p>culvert (<i>noun</i>)</p>	<p>kotopo; kholobete</p>	
<p>A culvert is a structure that allows water to flow from one side to the other under a road, railroad, trail or similar obstruction. Typically embedded, so as to be surrounded by soil, a culvert may be made from pipes, reinforced concrete or other material.</p>		
<p>curing (<i>verb</i>)</p>	<p>ho ngobafatsa, ho boloka mongobo</p>	
<p>Maintaining satisfactory moisture content and temperature in freshly cast concrete for a definite period of time immediately following placement.</p>		

D

<p>dado (<i>noun</i>)</p>	<p>dado</p>	
<p>A groove cut into a board or panel that is intended to receive the edge of a connecting board or panel.</p>		
<p>datum (<i>noun</i>)</p>	<p>letshwao la bophahamo</p>	
<p>A single piece of information, as a fact, statistic, or code; an item of data. In civil engineering, this refers to a collection of specific points on the earth, with known heights either above or below a nationally defined reference surface (e.g. mean sea level).</p>		
<p>deck, decked (<i>verb</i>)</p>	<p>ho ala lepatlelo; ho etsa sebae</p>	
<p>To install plywood or wafer board sheeting on floor joists, rafters, or trusses.</p>		
<p>deformed bar (<i>noun</i>)</p>	<p>moqala o ditlhetlhekwa, moqala o dirata</p>	
<p>A steel bar with surface projections that increase its bond strength when used in reinforced concrete.</p>		

<p>density index (noun)</p>	<p>letshwao la teteano</p>	<p>•D_r can be expressed either in terms of void ratios or dry densities.</p> $D_r = \frac{e_{max} - e}{e_{max} - e_{min}}$ <p>where D_r = relative density, usually given as a percentage e = <i>in situ</i> void ratio of the soil e_{max} = void ratio of the soil in the loosest state e_{min} = void ratio of the soil in the densest state</p> $D_r = \frac{\left[\frac{1}{\gamma_{d(max)}} \right] - \left[\frac{1}{\gamma_d} \right]}{\left[\frac{1}{\gamma_{d(max)}} \right] - \left[\frac{1}{\gamma_{d(min)}} \right]} = \frac{[\gamma_d - \gamma_{d(min)}]}{[\gamma_{d(max)} - \gamma_{d(min)}]} \left[\frac{\gamma_{d(max)}}{\gamma_d} \right]$ <p>where $\gamma_{d(max)}$ = dry unit weight in the loosest condition (at a void ratio of e_{max}) γ_d = <i>in situ</i> dry unit weight (at a void ratio of e)</p>
<p>The ratio of the difference between the void ratios of a cohesionless soil in its loosest state and existing natural state, to the difference between its void ratio in the loosest and densest state.</p>		
<p>detour (noun)</p>	<p>mmila ya nakwana</p>	
<p>A (normally temporary) route taking traffic around an area of prohibited or reduced access, such as a construction site.</p>		
<p>deviation (noun)</p>	<p>kgeloho</p>	
<p>The difference between the planned borepath and the actual borehole. Deviation can occur due to problems with the drill, operator errors, or unforeseen sub-surface conditions.</p>		
<p>diaphragm (noun)</p>	<p>letswalo la kaho</p>	
<p>A structural element that transmits lateral loads to the vertical resisting elements of a structure (such as shear walls or frames). Diaphragms are typically horizontal but can be sloped such as in a gable roof on a wood structure or concrete ramp in a parking garage.</p>		

<p>dilution (noun)</p>	<p>ho hlapolla; tlhapollo</p>	
<p>A result of a reduction in the ownership percentage of a company, or shares of stock, due to the issuance of new equity shares by the company. Dilution can also occur when holders of stock options, such as company employees or holders of other optional securities, exercise their options.</p>		
<p>distillation (noun)</p>	<p>ho tswakolla; tswakollo</p>	
<p>The process in which the components of a substance or liquid mixture are separated by heating it to a certain temperature and condensing the resulting vapours. Some substances (such as crude oil) have components that vaporise at different temperatures and can thus be separated by condensing their vapours in turn.</p>		
<p>ditch (noun)</p>	<p>foro</p>	
<p>A long trench or pit dug into the ground. If your lawns are always soggy, build a drainage ditch for the excess water to flow into. Originally used in farming, the term “ditch” is now used to refer to any pit in the ground.</p>		

<p>divided highway (noun)</p>	<p>mmila o moholo o arotsweng, haewei</p>	
<p>A major road carrying high traffic volumes that has something (such as a guardrail or an area with grass and trees) that separates lanes of traffic moving in opposite directions.</p>		
<p>dredge (verb)</p>	<p>ho fata metsing , ho rafa metsing</p>	
<p>Recovering materials of commercial value. These may be high-value minerals, or sediments such as sand and gravel, that are used by the construction industry.</p>		
<p>duct (noun)</p>	<p>motjha</p>	
<p>An often-enclosed passage or channel for conveying a substance, especially a liquid or gas.</p>		
<p>ductility (noun)</p>	<p>ho kobeha le ho sarolleha, kobeho le tsharolleho</p>	<p>on and Usage</p> 
<p>The ability of material to undergo large deformations without rupture before failure. Ductility in concrete is defined by the percentage of steel reinforcement within it.</p>		
<p>durability (noun)</p>	<p>ho tshwarella</p>	<p>Pros</p> <ul style="list-style-type: none"> • Verifies long-term fatigue life <p>Cons</p> <ul style="list-style-type: none"> • If successful, does not establish (or replicate) a failure mode • Does not establish a safety margin • Does not allow for quantitative comparisons between designs, surface finishes, heat treatment, etc. • High test frequencies do not replicate corrosion fatigue conditions
<p>The ability of a product to maintain its required performance over a given or long time under the influence of foreseeable actions.</p>		


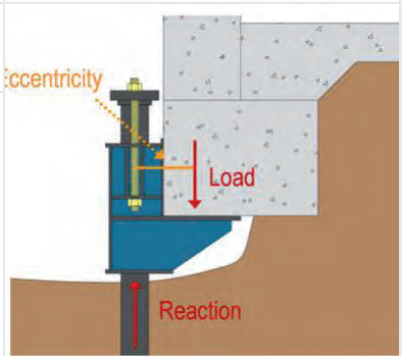
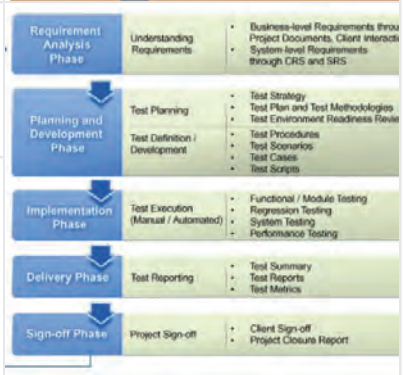
dyke
(noun)

letsatsa; leropo; daeke

A natural or artificial slope or wall to regulate water levels. It is also called a “ditch” or a “water-filled drainage trench” and is a regional term for a drystone wall.



E

<p>easement (noun)</p>	<p>pebofatso, tumello</p>	 <p>Property A</p> <p>Property B has an easement over Property A to access the road</p>															
<p>Areas of a property that were defined for use by utility companies when the property was first put on a plat. They are designated for overhead electric, telephone and television lines, and underground electric, water, sewer, telephone and cable lines.</p>																	
<p>eccentric load (noun)</p>	<p>morwalothokwana</p>	 <p>eccentricity</p> <p>Load</p> <p>Reaction</p>															
<p>A load that is carried by a structural member at a point other than the centroid of the section. Increase in the eccentric load increases the axial load and the moment acting. This refers to when a load acts on a point which is not the centroid of that area.</p>																	
<p>efficiency (noun)</p>	<p>tshebetso e tswileng matsoho, tshebetso e ntle</p>	 <table border="1"> <tr> <td>Requirement Analysis Phase</td> <td>Understanding Requirements</td> <td> <ul style="list-style-type: none"> Business-level Requirements thru Project Documents, Client Interviews System-level Requirements through CRS and SRS </td> </tr> <tr> <td>Planning and Development Phase</td> <td>Test Planning Test Definition / Development</td> <td> <ul style="list-style-type: none"> Test Strategy Test Plan and Test Methodologies Test Environment Readiness Review Test Procedures Test Scenarios Test Cases Test Scripts </td> </tr> <tr> <td>Implementation Phase</td> <td>Test Execution (Manual / Automated)</td> <td> <ul style="list-style-type: none"> Functional / Module Testing Regression Testing System Testing Performance Testing </td> </tr> <tr> <td>Delivery Phase</td> <td>Test Reporting</td> <td> <ul style="list-style-type: none"> Test Summary Test Reports Test Metrics </td> </tr> <tr> <td>Sign-off Phase</td> <td>Project Sign-off</td> <td> <ul style="list-style-type: none"> Client Sign-off Project Closure Report </td> </tr> </table>	Requirement Analysis Phase	Understanding Requirements	<ul style="list-style-type: none"> Business-level Requirements thru Project Documents, Client Interviews System-level Requirements through CRS and SRS 	Planning and Development Phase	Test Planning Test Definition / Development	<ul style="list-style-type: none"> Test Strategy Test Plan and Test Methodologies Test Environment Readiness Review Test Procedures Test Scenarios Test Cases Test Scripts 	Implementation Phase	Test Execution (Manual / Automated)	<ul style="list-style-type: none"> Functional / Module Testing Regression Testing System Testing Performance Testing 	Delivery Phase	Test Reporting	<ul style="list-style-type: none"> Test Summary Test Reports Test Metrics 	Sign-off Phase	Project Sign-off	<ul style="list-style-type: none"> Client Sign-off Project Closure Report
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<p>Efficiency is the (often measurable) ability to avoid wasting materials, energy, efforts, money, of an estimator; Material efficiency, compares material requirements between construction.</p>																	

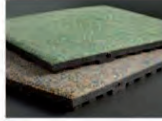
elastomer
(noun)

elastoma

An elastomer is a type of polymer that can stand very large amounts of elastic deformation. Silicone is an elastomer, which has characteristics similar to rubber. Rubber is an elastomer, a large molecule that can be stretched and returned to its original shape.

Uses in :

- Flooring
- Bridge construction
- Expansion joints
- Windows
- Pipes
- Roofing
- Sound insulation



embankment
(noun)

lebopo

A raised structure (such as of earth or gravel) used specially to hold back water or to carry a roadway.



empirical formula
(noun)

fomula e sebetang; fomula e utlwisichang

A chemical compound is the simplest positive integer ratio of atoms present in a compound. The molecular formula, on the other hand, shows the number of each type of atom in a molecule.

Empirical Formula

The empirical formula is the simplest whole-number ratio of the atoms in a compound.
Examples: benzene, CH
phosphorus pentoxide, P₂O₅

Molecular Formula

The molecular formula is the simplest whole-number ratio of the atoms in a single molecule of a compound.
Examples: benzene, C₆H₆
phosphorus pentoxide, P₄O₁₀

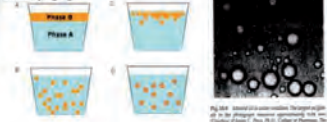
emulsion
(noun)

motswako o reberebe


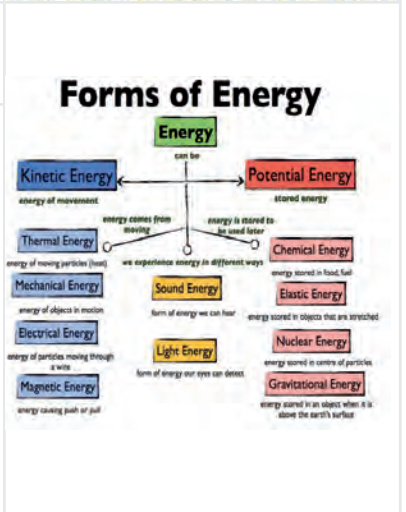

Material widely used in pavements to bind and waterproof aggregate mixtures and to seal surfaces. Emulsions are very common materials; for example, ice cream is an emulsion.

Emulsion

An emulsion is a thermodynamically unstable system consisting of at least two immiscible liquid phases, one of which is dispersed as globules in the other liquid phase, stabilized by the presence of an emulsifying agent.



A: Two immiscible liquids, not emulsified; B: An emulsion of Phase B dispersed in Phase A; C: The unstable emulsion progressively separates; D: The (purple) surfactant positions itself on the interfaces between Phase A and Phase B, stabilizing the emulsion

<p>encroachment (noun)</p>	<p>qhekanyetso mobung; bokamele</p>	
<p>Unlawful intrusion (gradually and without permission) on the land, property, other possessions, or the rights of another. For example, a building extending beyond the legal boundaries onto neighbouring private or public land, or beyond the building line of a road or street.</p>		
<p>energy (noun)</p>	<p>matla</p>	
<p>Energy of a building refers to the prominent building performance aspects, namely energy efficiency, thermal comfort, indoor air quality, and daylighting. The energy performance of a building shall be determined on the basis of the calculated or actual annual energy that is consumed in order to meet the different needs associated with its typical use and shall reflect the heating energy needs and cooling energy needs (energy needed to avoid overheating).</p>		
<p>engineer (noun)</p>	<p>enjinerere, enjinie, enjiniri</p>	
<p>A professional that deals with the designing, planning, construction and management of infrastructure such as roads, tunnels, bridges, airports, railroads, facilities, buildings, dams, utilities and other projects.</p>		

<p>engineering (noun)</p>	<p>boenjinere</p>	
<p>The branch of science and technology concerned with the design, building and use of engines, machines and structures.</p>		
<p>epoxide, epoxy, ethoxylene resin (noun)</p>	<p>ephoksaete, ephoksi, boreku ba ethoksile</p>	
<p>Uncrosslinked monomers in construction. Sekgorametsi sa dintho tse boima: le folletswe</p>		
<p>erosion (noun)</p>	<p>kgoholeho</p>	
<p>Is the process of eroding or being eroded by wind, water, or other natural agents. Erosion control is the practice of preventing or controlling wind or water erosion in agriculture, land development, coastal areas, river banks and construction.</p>		
<p>erratic (noun)</p>	<p>leritsa</p>	
<p>Refers to a rock or boulder that was moved from one place to another by a glacier.</p>		
<p>error (noun)</p>	<p>phoso</p>	
<p>The result of an action that is inaccurate or incorrect.</p>		

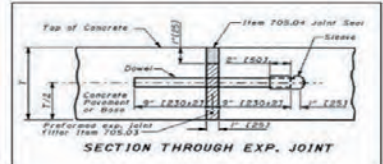
expansion or contraction joint
(noun)

mateano a tsharoloho kapa kgonyelo

An expansion joint or movement joint is an assembly designed to safely absorb the temperature-induced expansion and contraction of construction materials, to absorb vibration, to hold parts together, or to allow movement due to ground settlement or earthquakes.



Typical Expansion Joint Basket Assembly



expressway
(noun)

mmila o bulehileng, mmila wa lebelo le phahameng, mmila wa sekaja

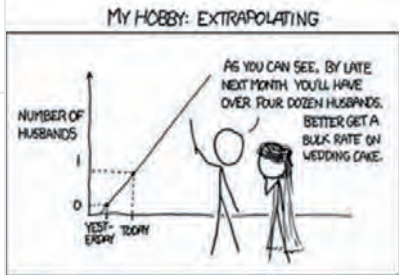
A wide road that is specifically designed so that a lot of traffic can move along it very quickly.



extrapolation
(noun)

kgakanyo

An estimation of a value within two known values in a sequence of values. Polynomial interpolation is a method of estimating values between known data points.



extra work
(noun)

mosebetsi o ka thoko

Extra work in construction law refers to that work which is not required under the contract. A contractor is generally entitled to charge for extra work that consists of labour and materials not contemplated by, or subsumed within, the original contract.

ADDITIONAL WORK AUTHORIZATION

COMPANY NAME
123 Main Street
City, ST 12345
Tel: 123-456-7890 | Fax: 123-456-7890

Client _____ Date _____
 Attention _____ Telephone _____
 Address _____
 Existing Contract No. _____ Date of Existing Contract _____
 Job Name _____
 Job Location _____
 City, State and Zip Code _____

You are hereby authorized to perform the following specifically described additional work.

Terms for Payment _____ Additional Charge for Above Work is: _____

\$


extrusion
(noun)

seforongwa

Products formed by pushing heated metal through an opening called a die, the outline of which defines the cross-sectional shape of the product. An extrusion is a part or length of material formed by pushing a material through a die with a cross-section.



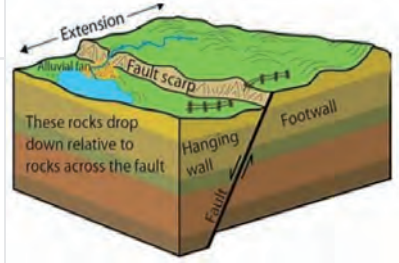
F

<p>factor of safety (noun)</p>	<p>tekanyetso ya polokeho; sekala sa polokeho</p>	<p>Factor of Safety</p> <ul style="list-style-type: none"> For design purposes ultimate strength can NOT be applied directly and a factor of safety is introduced. $\text{Factor of Safety} = \frac{\text{Ultimate Load}}{\text{Allowable Load}}$ <p>Reasons:</p> <ul style="list-style-type: none"> Not sure about magnitude of applied force Assumed Uniformity of material is no exactly true. Corrosion Plastic deformation under sustained loads Cyclic Loading and Fatigue Residual Stresses
<p>A term describing the load-carrying capability of a system beyond the expected or actual loads. Essentially, the factor of safety is how much stronger the system is than it needs to be for an intended load. It is also known as (and used interchangeably with) “safety factor (SF)”.</p>		
<p>falsework (noun)</p>	<p>setshehetsi sa nakwana</p>	
<p>Temporary structures used in construction to support spanning or arched structures in order to hold the component in place until the construction thereof is sufficiently advanced for it to support itself.</p>		
<p>fault (noun)</p>	<p>letlere la ho ritsa</p>	
<p>A fault is a planar fracture or discontinuity in a volume of rock across which there has been significant displacement as a result of rock-mass movement.</p>		

Faulting
(noun)

(ho bothela)

A fault is a fracture or zone of fractures between two blocks of rock. Faults allow the blocks to move relative to each other. This movement may occur rapidly, in the form of an earthquake - or may occur slowly, in the form of creep. Faults may range in length from a few millimeters to thousands of kilometers.



fill
(verb)

kata

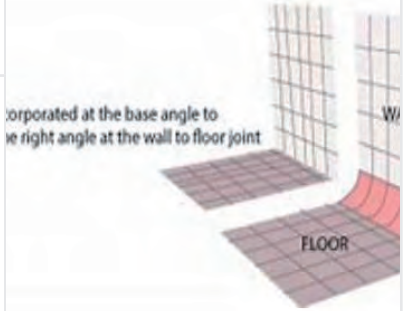
Constructing a railway, road or canal whereby the amount of material from cuts roughly matches the amount of fill needed to make nearby embankments, thus minimising the amount of construction labour.



fillet
(noun)

filete

A fillet is a narrow band with a vertical face. Fillets are often interposed as rectangular or square ribbon-like bands between curved mouldings and ornaments. They may also be found between the flutings of columns.



<p>fillet weld (<i>verb</i>)</p>	<p>filete e tjheseleditsweng</p>	
<p>Joining two pieces of metal together, regardless of whether they are perpendicular or at an angle. These welds are commonly referred to as “tee joints”, which are two pieces of metal perpendicular to each other, or “lap joints”, which are two pieces of metal that overlap and are welded at the edges.</p>		
<p>fine aggregate (<i>noun</i>)</p>	<p>lehlhlojane</p>	
<p>Fine aggregate is the portion of the aggregate passing the 2.00 mm (No. 10) sieve for bituminous concrete or passing the 4.75 mm (No. 4) sieve for Portland cement concrete.</p>		
<p>fixed costs (<i>noun</i>)</p>	<p>ditjeho tse tsepameng</p>	<p>Fixed Costs</p> 
<p>Expenses that remain the same regardless of an increase or decrease in the number of goods or services sold or produced. They are incurred regularly, and they tend to show little fluctuation from period to period. Examples of fixed costs include insurance costs, interest expenses, property taxes, utilities expenses, and asset depreciation.</p>		

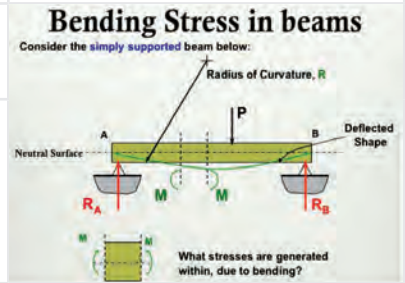
flexible pavement **tsela ya sekontiri**
(noun)

Pavement composed of a bituminous material surface course, and underlying base and sub-base gravel courses. The bituminous material is often asphalt, whose viscous nature allows significant plastic deformation. Flexible pavement distributes load over a relatively smaller area of the subgrade beneath.



flexure **kobebo**
(noun)

The stress in a material just before it yields in a flexure test. The flexural strength represents the highest stress experienced within the material at its moment of yield.



flume **foro**
(noun)


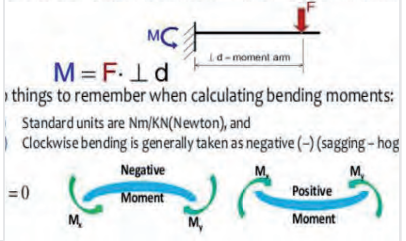




An artificial channel or trough for conducting water, as one used to transport logs or provide water power.



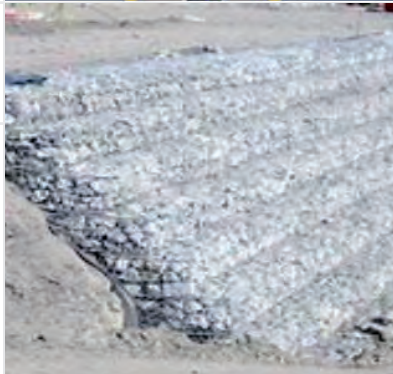





fly ash **molora**
(noun)

Fine powder that is a byproduct of burning pulverized coal in electric generation power plants. Fly ash is a pozzolan, a substance containing aluminous and siliceous material that forms cement in the presence of water.





<p>force (noun)</p>	<p>sefutho; sekgahla</p>	
<p>Any interaction that, when unopposed, will change the motion of an object, forcing it to bend. The bending moment at a section through a structural element may be defined as “the sum of the moments about that section of all external forces acting to one side of that section”. The concept of bending moment is very important in engineering, particularly in civil engineering.</p>		<p>Definition Bending moment is a measure (magnitude) of bending effect due to forces acting on a beam, measured in terms of force times the distance. Bending moment is a rotational force created when a force is applied perpendicular to a point (axis) at a distance away from that point. It is calculated as the perpendicular force times the distance from the point.</p> <p>$M = F \cdot d$</p> <p>Things to remember when calculating bending moments: Standard units are Nm/kN (Newton), and Clockwise bending is generally taken as negative (-) (sagging – hogging)</p> 
<p>formation level (noun)</p>	<p>motheo wa folamente</p>	
<p>Prepared ground on which a sub-base layer is laid. It is the level at which excavation ceases and construction starts. It is the lowest point of the path structure.</p>		
<p>formwork (noun)</p>	<p>mashatara</p>	
<p>Term given to either temporary or permanent moulds into which concrete or similar materials are poured. In the context of concrete construction, the falsework supports the shuttering moulds.</p>		

<p>foundation failure (noun)</p>	<p>ho se tsitse ha motheo; ho se tsitse ha folamente, phoso folomenteng</p>	
<p>Foundation failure is when the foundation settles below the level of original construction to a point where damage has occurred.</p>		
<p>freeway (noun)</p>	<p>mmila o bulehileng, haewei</p>	
<p>Also known as a “highway” in South Africa, a freeway is a wide road for fast-moving traffic, with a limited number of places at which drivers can enter and leave it.</p>		
<p>frictional soil contacts (noun)</p>	<p>ho kala momahano ya mobu</p>	
<p>A term used in soil mechanics to describe the magnitude of the shear stress that a soil can sustain. The shear resistance of soil is a result of friction and the interlocking of particles, and possibly cementation or bonding of particles.</p>		

frontage road <i>(noun)</i>	mmila o fetang kapela matlo	
<p>The boundary between a plot of land or a building and the road onto which the plot or building fronts. In the case of contiguous buildings, individual frontages are usually measured to the middle of any party wall.</p>		
frost <i>(noun)</i>	serame se lalang	
<p>A deposit of small, white ice crystals formed on the ground or other surfaces when the temperature falls below freezing. In civil engineering, frost damage is caused by moisture freezing in the construction.</p>		
fusion welding <i>(noun)</i>	tjheseletso ka qhibihidiso	
<p>A generic term for welding processes that rely on melting to join materials of similar compositions and melting points. In contrast to fusion welding, solid-state welding does not involve the melting of materials.</p>		

G

<p>gabion (<i>noun</i>)</p>	<p>gabiyone</p>	
<p>A cage, cylinder, or box filled with rocks, concrete, or sometimes sand and soil for use in civil engineering, road building, military applications and landscaping. Typically used to prevent erosion along roads, railway lines, or even at natural water bodies such as dams.</p>		
<p>gantry (<i>noun</i>)</p>	<p>Gantri</p>	
<p>A bridge-like overhead structure with a platform supporting equipment such as a crane, signals, or camera.</p>		
<p>geosynthetics (geomatrix) (<i>noun</i>)</p>	<p>jiosenthetiki (jiometriki)</p>	
<p>Planar products manufactured from a polymeric material that is used with soil, rock, or other geotechnical-related material as an integral part of a civil engineering project, structure, or system.</p>		

geomembrane (geotextile) <i>(noun)</i>	jiomembreine (jiothekstaele)	
<p>A low-permeability geosynthetic material used in geotechnical and civil engineering applications for purposes of reducing or preventing the flow of fluid through the construction.</p>		
girder <i>(noun)</i>	leballo; gedara	
<p>A support beam used in construction. Girders often have an I-beam cross-section, comprising two load-bearing flanges separated by a stabilising web, but may also have a box shape, Z-shape and other forms.</p>		
gore <i>(noun)</i>	setsiketsi	
<p>A gore was a small, narrow strip of land. In modern land law and surveying, a gore is a strip of land, usually triangular in shape.</p>		
gradient <i>(verb)</i>	motheo le moepa	
<p>Is an inclined part of a road or railway commonly known as a slope. Ensuring a level base, or one with a specified slope, for construction work, such as a foundation, the base course for a road or a railway, landscape and garden improvements, or surface drainage.</p>		

grain
(noun)

molapatsi



The direction, size, arrangement, appearance, or quality of the fibres in wood.

gravel
(noun)

kerabole



A loose aggregation of rock fragments. Gravel is classified by particle size. Thus, gravel means the small stones which make up such a beach on the coast.

grid
(noun)

kiriti




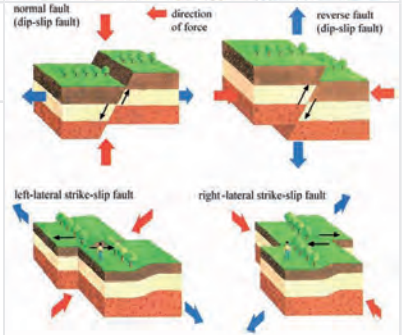

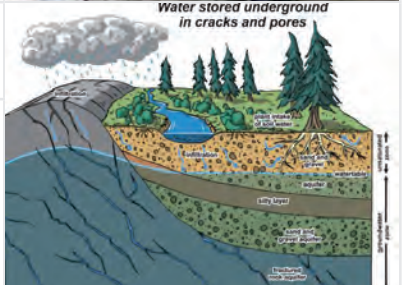
The completed assembly of main and cross tees in a suspended ceiling system before the ceiling panels are installed. Also, the decorative slats (Manton) installed between glass panels.





grooving
(noun)



ho korufa





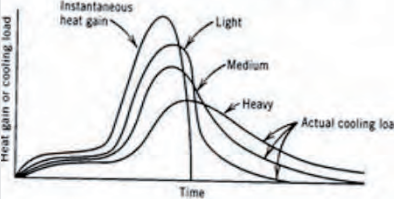
A long and narrow indentation built into a material, generally for the purpose of allowing another material or part to move within the groove and be guided by it.


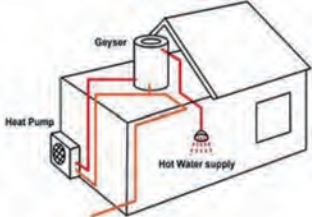

<p>ground (noun)</p>	<p>boitsetelo ba motlakase</p>	
<p>Refers to electricity’s habit of seeking the shortest route to earth. Neutral wires carry it there in all circuits. An additional grounding wire or the sheathing of the metal-clad cable or conduit protects against shock if the neutral leg is interrupted.</p>		
<p>ground fault (noun)</p>	<p>polaka e kgaolang motlakase</p>	
<p>An ultra-sensitive plug designed to shut off all electric current. Used in bathrooms, kitchens, exterior waterproof outlets, garage outlets, and “wet areas”. There is a small reset button on the plug.</p>		
<p>ground iron (noun)</p>	<p>phaepe ya dikgwerekgwere</p>	
<p>The plumbing drain and waste lines that are installed beneath the basement floor. Cast iron was once used, but black plastic pipe (ABS) is now widely used.</p>		
<p>groundwater (noun)</p>	<p>metsi a ka tlasa lefatshe</p>	
<p>Water from an aquifer or subsurface water source.</p>		

grout <i>(noun)</i>	kraoto	
<p>A wet mixture of cement, sand and water that flows into masonry or ceramic crevices to seal the cracks between the different pieces. Mortar made of such consistency (by adding water) that it will flow into the joints and cavities of the masonry work and fill them solid.</p>		
gully <i>(noun)</i>	gali; lengope	
<p>A deep ditch or channel cut in the earth by running water after a prolonged downpour.</p>		
gunite <i>(noun)</i>	ganaete, sethunya sa samente	
<p>A building material consisting of a mixture of cement, sand and water that is sprayed onto a mould.</p>		
gusset <i>(noun)</i>	gasete	
<p>A flat steel plate, wood, plywood, or similar type of member used to provide a connection at the intersection of wood members. It is most commonly used at joints of steel or wood trusses. They are fastened by nails, screws, bolts, welding or adhesives.</p>		

gutter <i>(noun)</i>	kgitire	
<p>A shallow channel or conduit of metal or wood set below and along the (fascia) eaves of a house to catch and carry off rainwater from the roof. Along a road, the gutter is made from concrete, channeling storm water to the nearest gully inlet.</p>		
gypsum plaster <i>(noun)</i>	pleistere ya gypsum	
<p>Gypsum formulated to be used with the addition of sand and water for base-coat plaster.</p>		

H

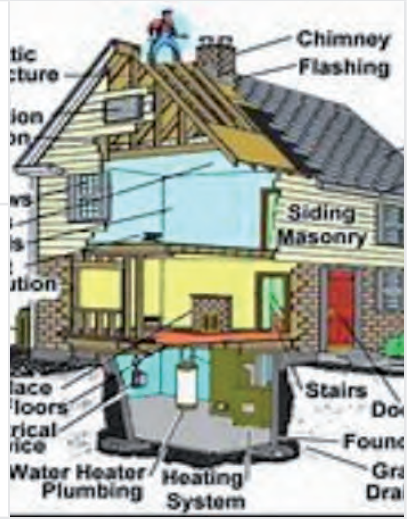
<p>header (noun)</p>	<p>balaka</p>	
<p>(a) A beam placed perpendicular to joists, and to which joists are nailed. (b) Inframing for a chimney, stairway or other opening. (c) A wood lintel. (d) The horizontal structural member over an opening (for example over a door or window).</p>		
<p>hearth (noun)</p>	<p>leifo</p>	
<p>The fireproof area directly in front of a fireplace. The inner or outer floor of a fireplace, usually made of brick, tile or stone.</p>		
<p>heating load (noun)</p>	<p>sekgahla sa motjheso</p>	<p style="text-align: center;">Heat Gain \neq Cooling Load Thermal storage and Construction Type</p> 
<p>The amount of heating required to keep a building at a specified temperature during the winter, usually 18° C, regardless of outside temperature.</p>		

<p>heat meter (noun)</p>	<p>mitara wa motjheso</p>	
<p>A device which measures thermal energy provided by a source or delivered to sink, by measuring the flow rate of the heat transfer fluid and the change in its temperature (ΔT) between the outflow and return legs of the system.</p>		
<p>heat pump (noun)</p>	<p>pompo ya motjheso</p>	
<p>A mechanical device that uses the compression and decompression of gas to heat and, or cool a house.</p>		
<p>heat rough (noun)</p>	<p>marangrang a motjheso, disebediswa tsa motjheso; difuthumatsi</p>	
<p>Work performed by the Heating Contractor after the stairs and interior walls have been built. This includes installing all duct work and flue pipes. Sometimes, the furnace and fireplaces are installed at this stage of construction.</p>		

heat trim
(noun)

**phethelo ya disebediswa
tsa motjheso, phethelo ya
difuthumatsi**

Work done by the Heating Contractor to get the home ready for the municipal Final Heat Inspection. This includes venting the hot water heater; installing all vent grills, registers, air conditioning services; turning on the furnace; installing thermostats, venting ranges and hoods; and all other heat-related work.



heave
(verb)

kokomoho ya mobu

The upward movement of the ground, usually associated with the expansion of clay soils that swell when wet. The impact of heave is opposite to the effect of subsidence, which is where soil is unstable and sinks downward, or settlement, which is caused by the weight of a building.



hedge
(noun)

lekgwagwa, motero

A line of closely spaced shrubs, and sometimes trees, planted and trained to form a barrier, or to mark the boundary of an area, such as between neighbouring properties.

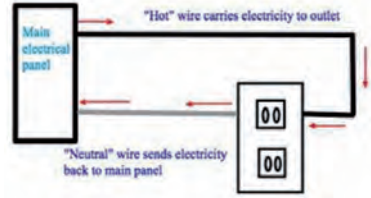


<p>heel cut (noun)</p>	<p>moseho wa serethe</p>	
<p>A notch cut in the end of a rafter to permit it to fit flat on a wall and on the top, doubled, exterior wall plate.</p>		
<p>highway (noun)</p>	<p>mmila o moholo , haeweii</p>	
<p>A main road, especially one connecting major towns or cities. The constructions of highways are usually done by state, local communities, or any agency specially designated for it.</p>		
<p>hip (noun)</p>	<p>standaka; marulelo a phahameng; optaka</p>	
<p>A roof with four sloping sides. The external angle formed by the meeting of two sloping sides of a roof.</p>		
<p>honey combs (noun)</p>	<p>kgekgge</p>	
<p>The appearance concrete makes when rocks in the concrete are visible, and where there are void areas in the foundation wall, especially around concrete foundation windows.</p>		
<p>hose bib (noun)</p>	<p>hlooho ya pompo</p>	
<p>An exterior water faucet. Also called a “sill cock”.</p>		

hot wire
(noun)

thapo e isang motlakase

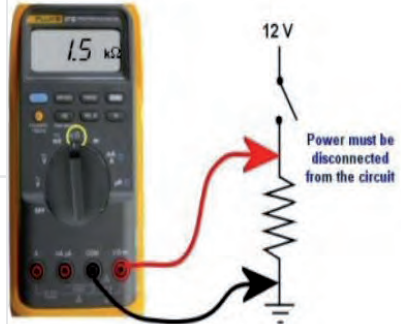
The wire that carries electrical energy to a receptacle or other device, in contrast to a neutral, which carries electricity away again. Normally the black wire. (Also see “ground”).



hveems' resistance value test (the r-value) conditions
(noun)

teko ya hveems ya boleng ba tsitlallo

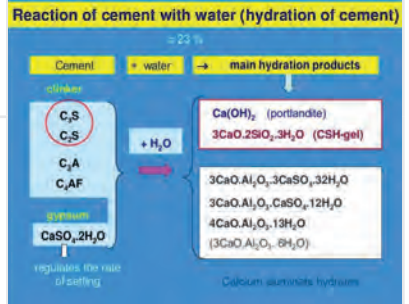
A test that measures the response of a compacted sample of soil or aggregate to a vertically applied pressure under specific conditions.



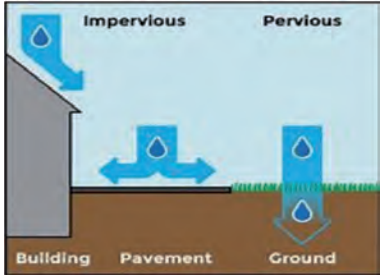


hydration
(noun)

kolobiso; mongobiso, ngobafatso

The chemical reaction by which a substance (such as cement) combines with water, giving off heat to form a crystalline structure in its setting and hardening.



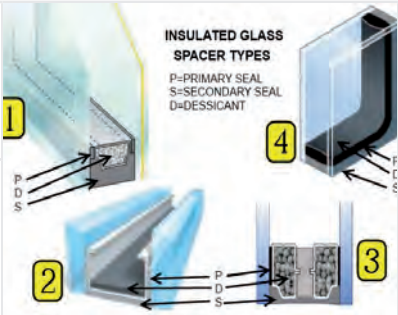
I

impervious <i>(noun)</i>	- e sa ngobeleng	
<p>Refers to a surface that not allowing fluid to pass through. Surfaces are mainly artificial structures, such as pavements, roads, sidewalks, driveways and parking lots, as well as industrial areas, such as airports, ports, and logistics and distribution centres, all of which use considerable paved areas that are covered by impenetrable materials such as asphalt.</p>		
infiltration <i>(noun)</i>	ho kenela moya; ho phutlela	
<p>The passage of air from indoors to outdoors, and vice versa. The term is usually associated with drafts from cracks, seams or holes in buildings.</p>		
inside corner <i>(noun)</i>	huku e ka hare	
<p>The point at which two walls form an internal angle, such as the corner of a room.</p>		

insulating glass
(noun)

kgalase e thibelang motjheso kapa serame

Refers to two panes of glass, with a sealed air space between, used for windows or doors. Also known as “double glass”.



inherent settlement
(noun)

mobothelo

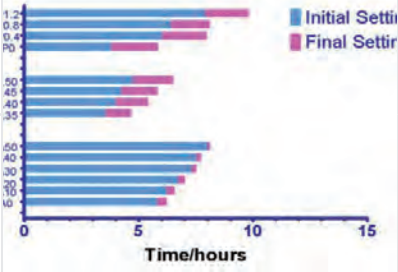
The distortion or disruption of parts of a building due to unequal compression of its foundations; shrinkage, such as that which occurs in timber-framed buildings as the frame adjusts its moisture content; or undue loads being applied to the building after its initial construction.



initial setting time
(noun)

qalo ya ho tiya

Is the time elapsed between the moment water is added to the cement to the time at which paste starts losing its plasticity.


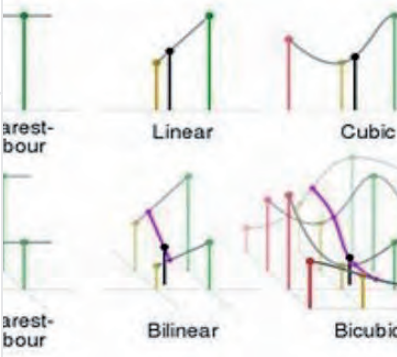
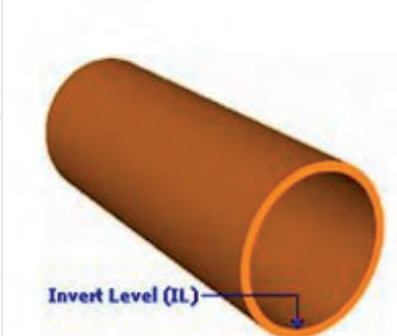


insulation
(noun)



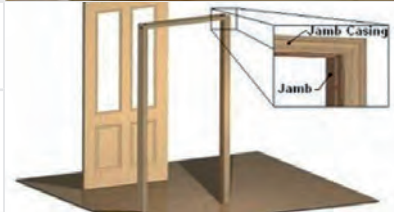

thibelo ya motjheso; thibelo ya mohatsela



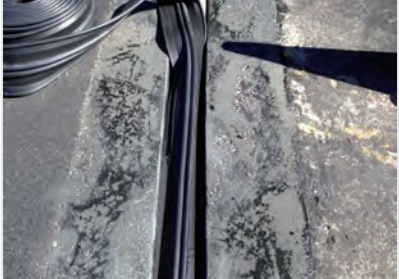


Any material high in resistance to heat transmission that, when placed in the walls, ceiling or floors of a structure, will reduce the rate of heat flow.



<p>interference settlement (noun)</p>	<p>tshusumetso ya katamelano ya meaho</p>	
<p>When buildings are constructed close to each other, forcing the engineers to place the foundation footings close.</p>		
<p>interpolation (noun)</p>	<p>kgakanyo e mahareng</p>	
<p>A method of constructing new data points within the range of a discrete set of known data points. It is often required to interpolate, i.e., estimate the value of that function for an intermediate value of the independent variable.</p>		
<p>invert level (noun)</p>	<p>botlase ba bokahare ba peipe</p>	
<p>The base interior level of a pipe, trench or tunnel; it can be considered the “floor” level. Conversely, the obvert level is the highest interior level, and can be considered the “ceiling” level.</p>		

J

<p>jack post (noun)</p>	<p>jeke</p>	
<p>A type of structural support made of metal, which can be raised or lowered through a series of pins and a screw to meet the height required. Basically, it is used as a replacement for an old supporting member in a building.</p>		
<p>jack rafter (noun)</p>	<p>balaka e tshhetsang</p>	
<p>A rafter that spans the distance from the wall plate to a hip, or from a valley to a ridge.</p>		
<p>jamb (noun)</p>	<p>jempe, kosene</p>	
<p>The side and head lining of a doorway, window, or other opening. It includes studs as well as the frame and trim.</p>		
<p>joint (noun)</p>	<p>makopanong, mateano, mateanong , joene</p>	
<p>The location between the touching surfaces of two members or components joined and held together by welding, nails, glue, cement, mortar, or other means.</p>		

joint tenancy <i>(noun)</i>	bodulammoho	
<p>A form of ownership in which the tenants own a property equally. If one dies, the other automatically inherits the entire property.</p>		
joint trenching <i>(verb)</i>	foro e kopanetsweng	
<p>When the electric company and telephone company dig one trench and “drop” both of their service lines in.</p>		
joint seal <i>(noun)</i>	sethibametsi mateanong	
<p>A process of ensuring moisture that does not enter the joint.</p>		
joist <i>(noun)</i>	maballo	
<p>Wooden 2 X 8's, 10's, or 12's that run parallel to one another and support a floor or ceiling, which, in turn, is supported by larger beams, girders or bearing walls.</p>		
joist hanger <i>(noun)</i>	setshwara maballo	
<p>A metal U-shaped item used to support the end of a floor joist, and that is attached with hardened nails to another bearing joist or beam.</p>		

jumpers
(noun)

dijampase

A water pipe installed in a water meter pit (before the water meter is installed), or an electric wire that is installed in the electric house panel meter socket before the meter is installed. This is sometimes illegal.



keeper
(noun)

selotolotsi , seloto

The metal latch plate in a door frame into which a doorknob plunger latches.



keyless
(noun)

switjhi e hulwang

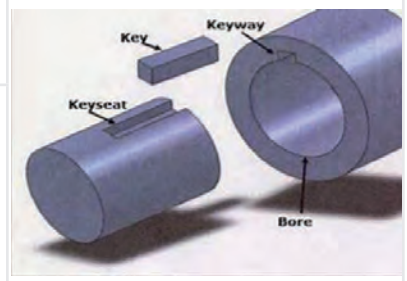
A plastic or porcelain light fixture that operates by a pull string. Generally found in the basement, crawl space, and attic areas.




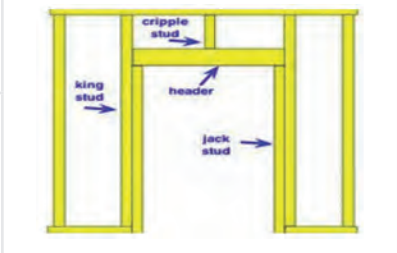

keyway
(noun)

seloto

A slot formed and poured on a footer or in a foundation wall when another wall will be installed at the slot location. This gives additional strength to the joint, meeting point.



K

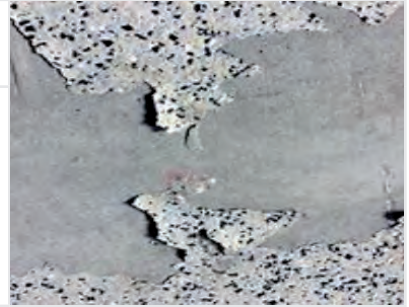
<p>kinetic energy (noun)</p>	<p>matla a khaenetiki</p>	
<p>The energy of motion, observable as the movement of an object, particle, or set of particles. Any object in motion uses kinetic energy: a person walking, a thrown baseball, a crumb falling from a table, and a charged particle in an electric field are all examples of objects using kinetic energy.</p>		
<p>king stud (noun)</p>	<p>tshiya ya foreime</p>	
<p>The vertical “2 X’s” frame lumber (left and right) of a window or door opening that runs continuously from the bottom sole plate to the top plate.</p>		
<p>knot (noun)</p>	<p>lefito</p>	
<p>In lumber, the portion of a branch or limb of a tree that appears on the edge or face of the piece.</p>		

L

laitance
(noun)

leithense

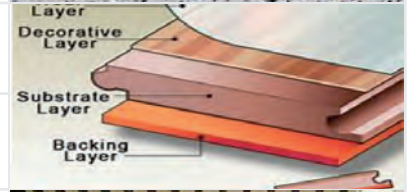
A weak layer of cement and aggregate fines on a concrete surface that is usually caused by an overwet mixture, overworking the mixture, improper or excessive finishing, or a combination thereof.



laminating
(verb)

laminecita

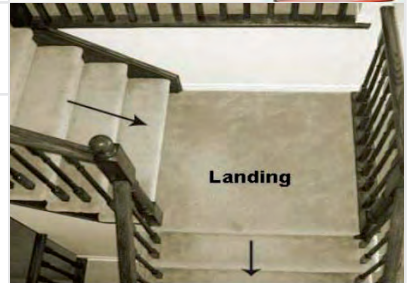
Bonding together two or more layers of materials.



landing
(noun)

kgefutso ditepising

A platform between flights of stairs, or at the termination of a flight of stairs, normally no less than 1 m by 1 m square. It is often used when stairs change direction.



landslip or landslide
(noun)

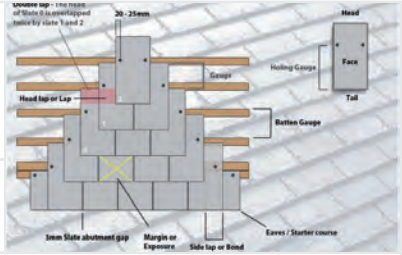
ho theleha , ho ritsa ha mobu

The sliding surface located within the soil mantle or weathered bedrock (typically to a depth of few decimetres to some metres). Often called a “shallow landslide”. They usually include debris slides, debris flow, and failures of road cut-slopes.



lap
(verb)

**ho fafiella, ho mamiella;
ho lapa, ho kantisetša**



To cover the surface of one shingle or roll with another.

latch
(noun)

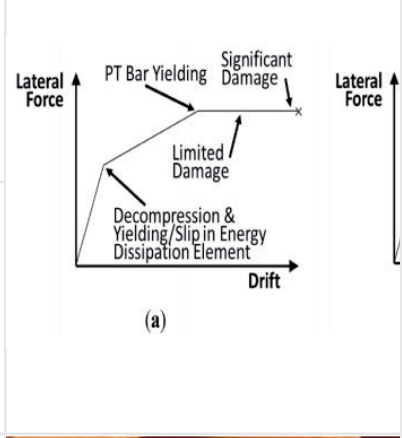
**letjhe; berebere,
moshuto**



In contrast to a dead bolt, a latch is a beveled metal tongue operated by a spring-loaded knob or lever. The tongue's bevel lets you close the door and engage the locking mechanism, if any, without using a key.

lateral force
(electric, gas, telephone, sewer and water)
(noun)

sefutho, sekgahla se yang ka mahlakore



The underground trench and related services (i.e. electric, gas, telephone, sewer and water lines) that will be buried within the trench. Lateral forces refer to the sideways direction of movement or force movement on a structural element.

lath
(noun)

leballo; mmerikapa



A building material of narrow wood, metal, gypsum or insulating board that is fastened to the frame of a building to act as a base for plaster, shingles or tiles.

lattice
(noun)

lathisi



An open framework of crisscrossed wood or metal strips that form regular, patterned spaces.

lean concrete base (LCB)
(noun)

motswako wa samente e fokolang, motswako o fokollwang ke samente



Concrete that has a lower water-cement ratio, with a lesser percentage of cement paste. It is usually a low-slump concrete used in the construction of footings and foundations. The subgrade, specified equipment, and construction of joints for the base.

ledge
(noun)

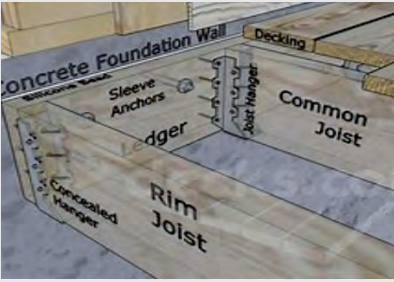
kalana , modimako



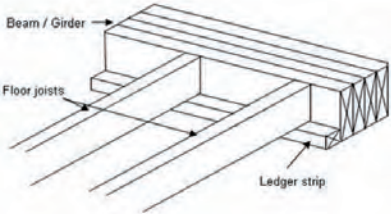



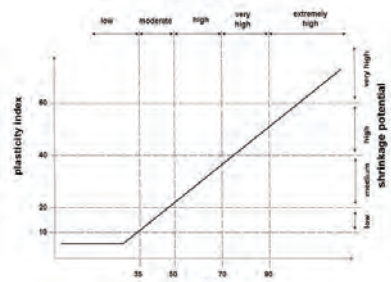
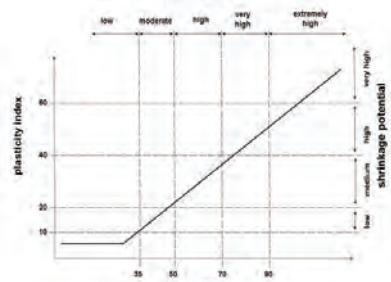
A relatively narrow, projecting part, such as a horizontal, shell-like projection on a wall or a raised edge on a tray. A more or less flat shelf of rock protruding from a cliff or slope.

ledger (for a structural floor)
(noun)

balaka ; mmerikapa



The wooden perimeter frame lumber member that bolts onto the face of a foundation wall and supports the wood structural floor.

<p>ledger strip (noun)</p>	<p>setshhetsadikapa</p>	 <p>The diagram shows a cross-section of a floor joist system. A horizontal beam or girder is supported by vertical floor joists. A ledger strip is shown as a horizontal member resting on the top of the floor joists, positioned below the main beam/girder.</p>
<p>A strip of lumber nailed along the bottom of the side of a girder on which joists rest.</p>		 <p>A person wearing a red glove is pouring a thick, white, powdery substance from a container into a shallow, round metal bowl. The substance is being poured in a steady stream, creating a small mound in the center of the bowl.</p>
<p>lime (noun)</p>	<p>laeme ; kalaka</p>	 <p>A person wearing a red glove is pouring a thick, white, powdery substance from a container into a shallow, round metal bowl. The substance is being poured in a steady stream, creating a small mound in the center of the bowl.</p>
<p>A white, caustic alkaline substance consisting of calcium oxide. Lime is a truly a versatile material in the construction of buildings or earthworks treatment. It can be used in the construction of masonry systems as a component of mortar or of the masonry unit. In the hardened state, lime products react with carbon dioxide to regenerate calcium carbonate or limestone. Mixing lime with soils (e.g. clayey soils) reduces the soil's stickiness, making the soil more workable.</p>		 <p>A person wearing a red glove is pouring a thick, white, powdery substance from a container into a shallow, round metal bowl. The substance is being poured in a steady stream, creating a small mound in the center of the bowl.</p>
<p>liquid limit (noun)</p>	<p>tekanyo ya mokedikedi</p>	 <p>The graph plots Plasticity Index (PI) on the y-axis (ranging from 0 to 80) against Shrinkage Potential (SP) on the x-axis (ranging from 0 to 90). The x-axis is also labeled with soil consistency zones: low, moderate, high, very high, and extremely high. A diagonal line represents the relationship between PI and SP, starting at approximately (10, 10) and rising to (90, 80).</p>
<p>The minimum amount of water required to be added to a soil, expressed as a percentage of the dry weight of the soil, that will cause it to flow like a liquid when slightly jarred.</p>		 <p>The graph plots Plasticity Index (PI) on the y-axis (ranging from 0 to 80) against Shrinkage Potential (SP) on the x-axis (ranging from 0 to 90). The x-axis is also labeled with soil consistency zones: low, moderate, high, very high, and extremely high. A diagonal line represents the relationship between PI and SP, starting at approximately (10, 10) and rising to (90, 80).</p>

liquidated damages
(noun)

tjhelete ya malebela

An amount of money that contracting parties agree on as the amount for damages that one can recover if one of the parties breaches the contract. In construction contracts, you'll most often see liquidated damages apply when the contractor breaches the contract by not finishing the work on time.

Different types of dam

Liquidated damages – This represent a sum fixed or ascertained by the parties of the contract. It is a fair and genuine pre – estimate of the probable loss that might ensure as a result of the breach.



lloyd davies formula
(noun)

fomula ya lloyd davies

A rational method for the design of sewers. An old way of estimating runoff by the simple formula: $Q = 0.167 ARC$.

Lloyd Davies – Rational Method

- Put simply: flow = impermeable area multiplied by rainfall intensity
- Method originally developed to size pipes rather than to calculate flow rates
- Main difficulty is how to calculate the correct rainfall intensity to use in the analysis
- Provides only a peak flow (not a hydrograph)

loess
(noun)

loese

A light-coloured, fine-grained accumulation of clay and silt particles that have been deposited by the wind.





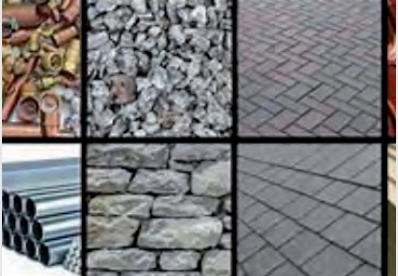
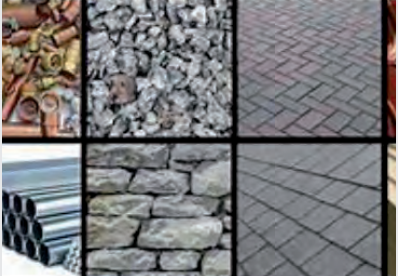
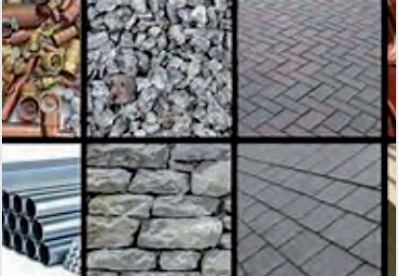
long column
(noun)

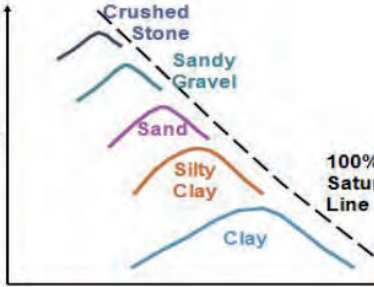
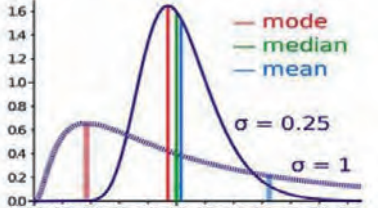
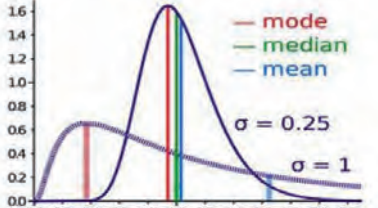
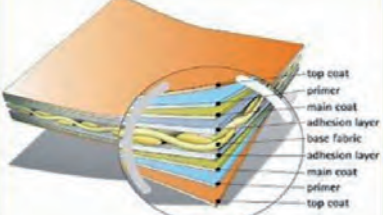
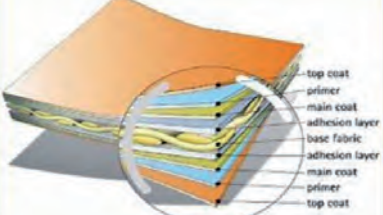
pilara, kholomo; tshiya e telele

A column or pillar in architecture and structural engineering that is a structural element that transmits, through compression, the weight of the structure above to other structural elements below. In other words, a column is a compression member.



<p>longitudinal joint (noun)</p>	<p>mateano a sekonitiri ka bolele</p>	
<p>Refers to the interface between two adjacent and parallel hot mix asphalt (HMA) mats.</p>		<p>LOSS OF PRESTRESSING FORCE</p> <p>Total Loss: $f_{pT} = \Delta f_{RES} + \Delta f_{pLT}$ $f_{pT} = 17.9\text{ksi} + 25.4\text{ksi} = 43.3\text{ksi}$ $loss = \frac{43.3\text{ksi}}{202.5\text{ksi}} = 0.214 = 21.5\% < 25\%$ $f_p = 202.5\text{ksi} - 43.3\text{ksi} = 159.2\text{ksi}$ $P_p = 44\text{strand} (.153\text{in}^2 / \text{strand}) (159.2\text{ksi}) = 1072\text{k}$ 25% loss was assumed. Since the actual loss is less, the design is probably OK. This will be verified when service loads are checked.</p>
<p>lot (noun)</p>	<p>pokello; moshobo, seshob</p>	
<p>Defined quantity of a thing used as a unit of inventory, output, sale, sampling, or transportation. An exact lot is called a “round lot”; any quantity more or less than a lot is called an “odd lot”.</p>		
<p>luminaire (noun)</p>	<p>mabone</p>	<p>A complete electric light unit (used especially in technical contexts).</p>

manning equation <i>(noun)</i>	ikhweishene ya manning	<p>Manning Equation for Velocity</p> $v = \frac{1.49 R^{0.67} S^{0.5}}{n}$ <p>where, v = velocity, ft/sec n = roughness, s/ft^{1/3} R = hydraulic radius, ft S = hydraulic slope, ft/ft</p> <p>Note: If R increases, v increases If s increases, v increases If n increases, v decreases</p>
<p>An equation used to calculate the flow of water in open, non-full channels and pipes without the need for a flume, weir or other structure.</p>		
marshes <i>(noun)</i>	mekgwabo	
<p>Wetland that is dominated by herbaceous rather than woody plant species. Marshes can often be found at the edges of lakes and streams, where they form a transition between the aquatic and terrestrial ecosystems. They are often dominated by grasses, rushes or reeds. Such areas should be avoided as far as possible when considering the route of new roads.</p>		
materials <i>(noun)</i>	disebediswa , thepa	
<p>Any material used for construction purposes. Many naturally occurring substances, such as clay, rocks, sand, and wood, even twigs and leaves, have been used to construct buildings.</p>		

<p>maximum dry density (noun)</p>	<p>palo e hodimodimo ya teteano e ommeng</p>	 <p>Water Content</p>
<p>The maximum density of a material for a specific compactive effort is the highest density obtainable when the compaction is carried out on the material at varied moisture contents.</p>		
<p>mean (noun)</p>	<p>palohare</p>	
<p>The average of the numbers, or a calculated central value of a set of numbers.</p>		<p>Mean, Median, Mode, and Range</p> <p>Mean: Average Median: Middle Mode: Most Range: biggest - smallest</p>
<p>median (noun)</p>	<p>mediene ; searolahare sa haawei</p>	<p>Mean, Median, Mode, and Range</p> <p>Mean: Average Median: Middle Mode: Most Range: biggest - smallest</p>
<p>The median or central reservation is the reserved area that separates opposing lanes of traffic on divided roadways, such as divided highways, dual carriageways, freeways, and motorways.</p>		<p>Mean, Median, Mode, and Range</p> <p>Mean: Average Median: Middle Mode: Most Range: biggest - smallest</p>
<p>membrane (noun)</p>	<p>lera</p>	
<p>A membrane is a selective barrier; it allows some things to pass through but stops others.</p>		

metre of concrete **mitara wa konkreite**
(noun)

A cubic metre is a unit of volume measurement that is 1 metre wide, 1 metre in height and 1 metre in depth. One cubic metres of concrete will cover 20 square metres of 50 mm sidewalk, or 10 square metres basement,garage floor, 100 mm thick.



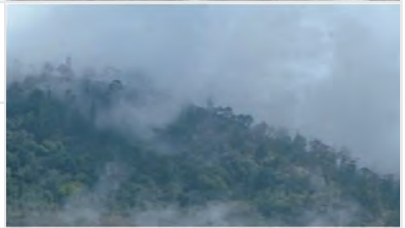
milling **pikitlo**
(noun)

Milling is a process performed with a machine in which the cutters rotate to remove the material from the work piece present in the direction of the angle with the tool axis.



mist **mohodi**
(noun)

A cloud of tiny water droplets suspended in the atmosphere at or near the earth's surface.



moisture content **sesupo sa mongobo**
(noun)

An indicator of the amount of water present in soil. Optimum moisture content for effective compaction is determined in a geotechnical laboratory.

Content is Defined as:

$$\frac{\text{Weight of Water}}{\text{Weight of Wood}} \times$$

<p>moment carrying ability of reinforced concrete beam (nominal strength, mn) (noun)</p>	<p>mahetla a bimi</p>	<p>Moment capacity of singly reinforced beam</p> <p>Moment capacity of the</p> $M = F_{cc}z = \frac{0.67f_{cu}}{\gamma_{mc}} 0.5$
<p>How much moment can be taken or resist by beam is called moment carrying capacity of beam.</p>		<p>equilibrium F_{cc} stress x area $0.67f_{cu} 0.9bx$ γ_{mc}</p>
<p>monolithic construction (noun)</p>	<p>kaho ya monolithiki; kaho ya sehong</p>	
<p>The construction of the entire structure as a single, continuous structure in which no connections or joints are provided between members, and the whole structure is ideally constructed at the same time.</p>		
<p>mortar (noun)</p>	<p>seretse sa ho aha, daka; motha</p>	
<p>A mixture of cement (or lime) with sand and water used in masonry work.</p>		
<p>movement joints in concrete (noun)</p>	<p>sekena dipakeng</p>	
<p>Joints placed in concrete slabs to control random cracking.</p>		

mulch
(noun)

sesireletsamobu

Organic material applied to the soil surface to protect it from raindrop impact and overland flow. Mulch covers the soil, absorbs the erosive impact of rainfall, and reduces the flow velocity of runoff.



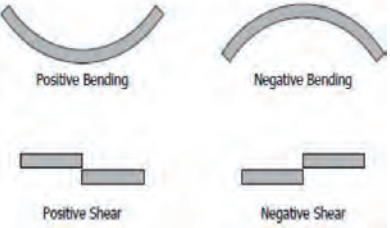


municipality
(noun)

masepala




The sector of construction that builds units that serve the inhabitants of cities, urban-type settlements, region rural centres, and populated points in the rural areas. Such units include water supply and sewage systems with purification structures and networks; urban electrical transportation structures with line and power systems depots, and repair enterprises; and gas and heat supply networks with distribution points, and regional and block boilers.

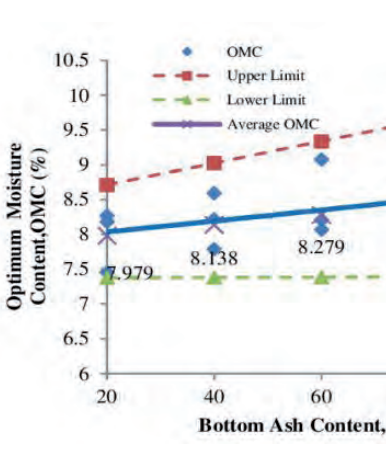


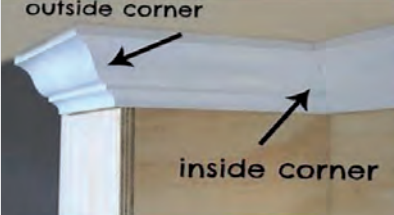


N

<p>negative moment (noun)</p>	<p>mokobeho</p>	 <p>The diagrams show four types of beam deformation: Positive Bending (concave up), Negative Bending (concave down), Positive Shear (downward step), and Negative Shear (upward step).</p>
<p>Clockwise bending moments are referred as negative moments. A bending moment is the reaction induced in a structural element when an external force or moment is applied to the element, causing the element to bend. The most common or simplest structural element subjected to bending moments is the beam. The example shows a beam that is simply supported at both ends.</p>		
<p>neoprene (noun)</p>	<p>neoprine</p>	 <p>A photograph showing a concrete structure with a dark neoprene sealant applied to a joint between two sections.</p>
<p>A family of synthetic rubbers that are produced by the polymerisation of chloroprene. Neoprene exhibits good chemical stability and maintains flexibility over a wide temperature range.</p>		
<p>neutral surface (noun)</p>	<p>bonamelo bo bohareng; bokahodimo bo bohareng</p>	 <p>A photograph of a wooden surface, possibly a floor or wall, showing a neutral surface where water has traveled a short distance without being absorbed.</p>
<p>Refers to a plane or surface in which a portion of water travels a little distance without the necessity of work against buoyancy.</p>		




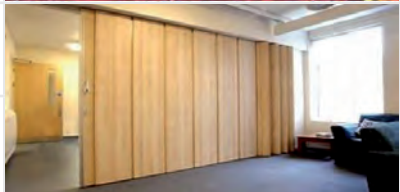
O

<p>oakum <i>(noun)</i></p>	<p>oukamo</p>	
<p>Loose hemp or jute fibre that is impregnated with tar or pitch, used to caulk large seams, or for packing plumbing pipe joints.</p>		
<p>offset <i>(noun)</i></p>	<p>semetho</p>	
<p>Lateral measurements to chain lines for locating ground features. A surveyor swings tape on the chain line and selects the point on the chain where the offset distance is the least.</p>		
<p>open hole inspection <i>(noun)</i></p>	<p>tlhahlobo ya mokoti</p>	
<p>When an engineer or municipal inspector inspects an open excavation and examines the earth to determine the type of foundation (caisson, footer, wall on ground, etc.) that should be installed in the hole.</p>		

<p>optimum moisture content (noun)</p>	<p>mongobo o lekaneng</p>	 <table border="1"> <caption>Data from Optimum Moisture Content vs Bottom Ash Content Graph</caption> <thead> <tr> <th>Bottom Ash Content (%)</th> <th>OMC (%)</th> <th>Upper Limit (%)</th> <th>Lower Limit (%)</th> <th>Average OMC (%)</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>~8.2</td> <td>~8.8</td> <td>~7.5</td> <td>~8.0</td> </tr> <tr> <td>40</td> <td>8.138</td> <td>~9.0</td> <td>~7.4</td> <td>~8.1</td> </tr> <tr> <td>60</td> <td>8.279</td> <td>~9.3</td> <td>~7.4</td> <td>~8.2</td> </tr> </tbody> </table>	Bottom Ash Content (%)	OMC (%)	Upper Limit (%)	Lower Limit (%)	Average OMC (%)	20	~8.2	~8.8	~7.5	~8.0	40	8.138	~9.0	~7.4	~8.1	60	8.279	~9.3	~7.4	~8.2
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<p>The optimum moisture content is the moisture content at which the maximum density is obtained. The relationship between the maximum dry density of soil and the optimum moisture content can be obtained from a soil compaction curve, obtained from a standard proctor test. This relationship helps to determine the optimum water content at which the maximum dry density of soil can be attained on site through compaction.</p>																						
<p>oriented strand board or osb (noun)</p>	<p>osbo, osb</p>																					
<p>A manufactured 1,2 m by 2,4 m wood panel made of 25 mm to 50 mm wood chips and glue. Often used as a substitute for plywood.</p>																						
<p>outrigger (noun)</p>	<p>maballo a hlahelletseng</p>																					
<p>An extension of a rafter beyond the wall line. Usually a smaller member nailed to a larger rafter to form a cornice or roof overhang.</p>																						
<p>outside corner (noun)</p>	<p>mateano a kantle</p>																					
<p>The point at which two walls form an external angle, one you usually can walk around.</p>																						

<p>overhang (noun)</p>	<p>karolo ya marulelo a lepelletseng</p>	
<p>The outward-projecting eave-soffit area of a roof; the part of the roof that hangs out or over the outside wall. (Also see “cornice”).</p>		
<p>overburden (noun)</p>	<p>mobu o sa hlokeheng tshebetsong</p>	
<p>All soil and ancillary material above the bedrock horizon in a given area.</p>		
<p>overlay (noun)</p>	<p>ho ala botjha, kalobotjha</p>	
<p>A repair topping of asphalt or concrete placed on a worn roadway.</p>		

P

<p>padding (noun)</p>	<p>moalo o ka tlase, moalo wa mathomo</p>	
<p>A material installed under a carpet to add foot comfort, isolate sound, and prolong carpet life.</p>		
<p>parapet (noun)</p>	<p>pharapete</p>	
<p>A wall placed at the edge of a roof to prevent people from falling off.</p>		
<p>parkway (noun)</p>	<p>mmila o bulehileng; mmila o moholo wa phakeng</p>	
<p>A parkway is a broad, landscaped highway thoroughfare. The term is particularly used for a roadway in a park, or one connecting to a park, from which trucks and other heavy vehicles are excluded.</p>		
<p>partition (noun)</p>	<p>phatishene, searodi</p>	
<p>A wall that subdivides spaces within any story of a building or room.</p>		

passive pressure
(noun)

kgatello motheong wa letamo

A condition in which the retaining system exerts a force on the soil.

Passive earth pressure occurs when the wall is pushed into the soil (typically a seismic load pushing the wall into the soil or a foundation pushing into the soil)

K_p can be calculated as follows:

$$K_p = \tan^2 (45 + \phi/2)$$

$$\text{thus: } \sigma_p = K_p \sigma_v + 2 c (K_p)^{1/2}$$



pavement
(noun)

mokato

An outdoor floor or superficial surface covering. Paving materials include asphalt; concrete; stones such as flagstone, cobblestone and setts; artificial stone; bricks; tiles; and sometimes wood. Not to be confused with “sidewalk”.


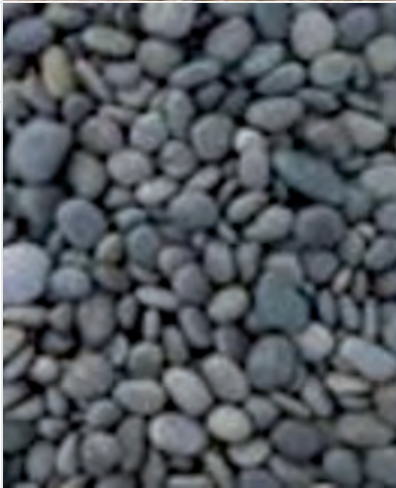



pavement structure
(noun)

sebopeho sa mokato ; sebopeho sa pheifemente

The combination of sub-base, base course, and surface course placed on a subgrade to support the traffic load, and to distribute it to the roadbed. A typical flexible pavement structure consists of a surface course, wearing course, base course and subsequent course(s). The layer in contact with traffic loads is referred to as the “surface course, wearing course”, situated as the top layer. It provides characteristics such as friction, smoothness, noise control, rut resistance and drainage.



<p>peat (noun)</p>	<p>podiswa</p>	
<p>A highly organic material found in marshy or damp regions, composed of partially decayed vegetable matter. Construction technologies currently employed by engineers are, amongst others, piled foundation, raft foundation, lightweight concrete, stabilised soil on peat, and geogrids.</p>		
<p>pebble (noun)</p>	<p>majwana a bohakwe</p>	
<p>A small, rounded stone, especially one worn smooth by the action of water. Often used for landscaping, construction and as decorative elements. Beach pebbles are often used on walkways and driveways; around pools; in and around plant containers; and on patios and decks. Small pebbles are also used to create living spaces and gardens on the rooftops of buildings.</p>		
<p>pedestal (noun)</p>	<p>phedestale</p>	
<p>A compression element provided to carry the loads from supported elements like columns, statues, etc. to footing below the ground. It is generally provided below metal columns.</p>		

perforate
(verb)

ho phunya masoba

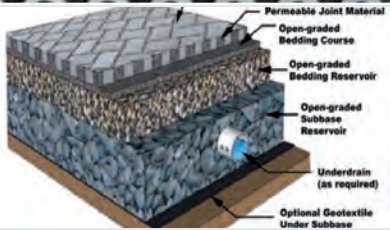
Refers to an act of piercing and making a hole or holes in a material. Perforated metal, also known as perforated sheet, perforated plate, or perforated screen, is sheet metal that has been manually or mechanically stamped or punched to create a pattern of holes, slots, or decorative shapes.



permeability
(noun)

bokgoni ba ho monya, kgoneho ya ho monya

A measure of the ease with which water penetrates a material.



permit
(noun)

phemiti

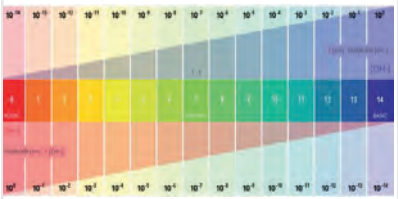
A governmental, municipal authorisation to perform a building process.



ph value
(noun)

boleng ba ph

A measure of the acidity or alkalinity of water soluble substances (pH stands for “potential of Hydrogen”). A pH value is a number from 1 to 14, with 7 as the middle (neutral) point. The pH of a water sample is an important parameter, which is to be constantly checked for, or monitored, either for performing the various tests on water samples, or for the release of waste water into streams or rivers.

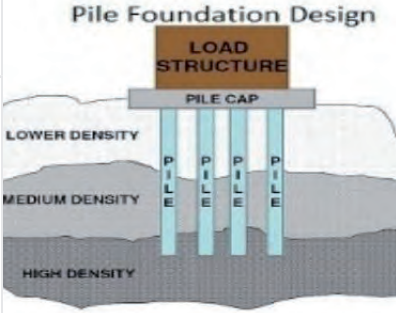


<p>pier (noun)</p>	<p>borokgo bo kenang lewatle; phiya</p>	
<p>A column of masonry, usually rectangular in horizontal cross-section.</p>		
<p>pier cap (noun)</p>	<p>sekwahelo sa phiya; sekwahelo sa borokgo</p>	
<p>The upper or bearing part of a bridge pier; usually made of concrete or hard stone; designed to distribute concentrated loads evenly over the area of the pier. It provides sufficient seating for the bridge girders and disperse the loads. Concrete or prestressed concrete is used for the construction of piers.</p>		
<p>pier shaft (noun)</p>	<p>tjhafo ya phiya; tjhafo ya borokgo</p>	
<p>The vertical load-bearing member, such as an intermediate support for the adjacent ends of two bridge spans. In foundations for large buildings, these are usually cylindrical concrete shafts, cast in prepared holes, whilst, in bridges, they take the form of caissons that are sunk into position.</p>		

pile
(noun)

qubu, phaele

A heap of things laid or lying one on top of another. In modern civil engineering, piles of timber, steel, or concrete are driven into the ground to support a structure; bridge piers may be supported on groups of large-diameter piles.



plan
(noun)

moralo

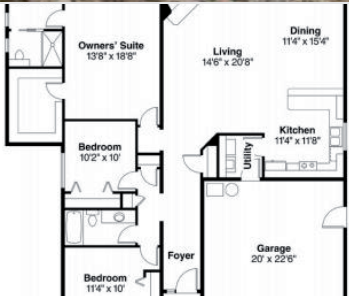
A plan is a set of drawings or two-dimensional diagrams used to describe a place or object, or to communicate building or fabrication instructions. Plans are used in a range of fields, from architecture and urban planning, to mechanical engineering, civil engineering, industrial engineering and systems engineering.



plasticity
(noun)

bopolastiki

The quality of being easily shaped or moulded. In brittle materials such as rock, concrete and bone, plasticity is caused predominantly by slip at micro cracks.



<p>plasticity index (pi) (noun)</p>	<p>sesupo sa boplastiki</p>	<p>Classification of fine-grained soils fine-grained fraction of coarse-grained soils Equation of "A" - Line Initial at PI=4 to LL = 25.5, then PI = 0.73(LL-20) Equation of "U" - Line Initial at LL=16 to PI=7 then PI=0.9(LL-8)</p>														
<p>The plasticity index (PI) is a measure of the plasticity of a soil. The plasticity index is the size of the range of water contents where the soil exhibits plastic properties. The PI is the difference between the liquid limit and the plastic limit ($PI = LL - PL$).</p>																
<p>plasticiser or water reducer (noun)</p>	<p>motswako o fokotsang metsi, sefokatsametsi</p>															
<p>Water reducers, retarders, and superplasticisers are chemical admixtures that can be added to concrete to improve workability.</p>		<p>Plasticity Index - Definition</p> <p>Plasticity Index is the difference between the liquid limit and plastic limit of a soil.</p> $PI = LL - PL$ <table border="1"> <thead> <tr> <th>PI</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Nonplastic</td> </tr> <tr> <td>1-5</td> <td>Slightly plastic</td> </tr> <tr> <td>5-10</td> <td>Low plasticity</td> </tr> <tr> <td>10-20</td> <td>Medium plasticity</td> </tr> <tr> <td>20-40</td> <td>High plasticity</td> </tr> <tr> <td>>40</td> <td>Very high plasticity</td> </tr> </tbody> </table>	PI	Description	0	Nonplastic	1-5	Slightly plastic	5-10	Low plasticity	10-20	Medium plasticity	20-40	High plasticity	>40	Very high plasticity
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<p>plastic limit (noun)</p>	<p>moedi wa polastiki</p>															
<p>The plastic limit signifies the percentage of moisture at which the soil changes, with decreasing wetness, from a plastic to a semi-solid state.</p>																
<p>plat (noun)</p>	<p>poloto</p>															
<p>A plat is a map or drawing that shows the boundary or division of land. Typically, a property is replotted when consolidating multiple lots, or dividing a tract of land into multiple lots.</p>																

portland cement
(noun)

samente ya portland



Cement made by heating clay and crushed limestone into a brick, and then grinding it to a pulverised powder state.

post-tensioning
(noun)

ho tiisa kamora hore samente e ome



The technique for reinforcing concrete. Once the concrete has gained sufficient strength, the tendons are pulled tightened (tensioned) and anchored, clamped against the outer edges of the concrete.

potable water
(noun)

metse a hlwekileng



Water that can be consumed without concern for adverse health effects. Potable water does not necessarily taste good.

potential energy
(noun)

matla a bobileng



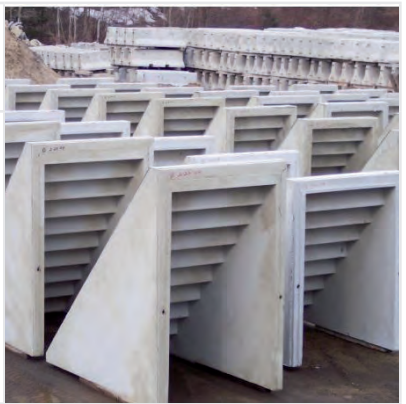
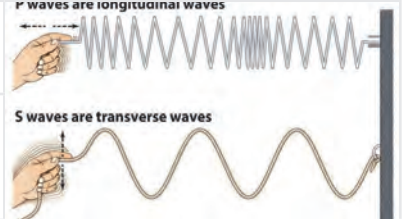
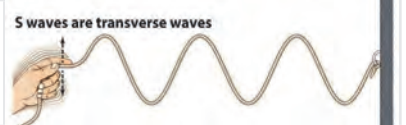
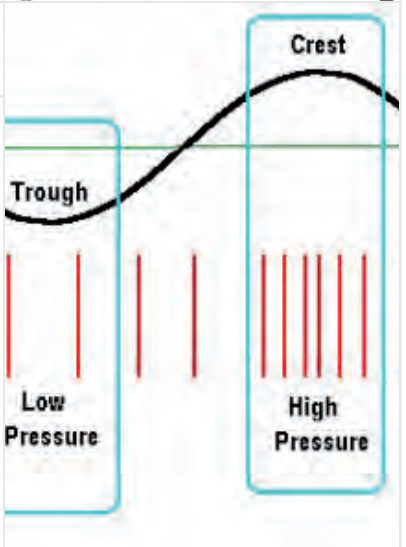
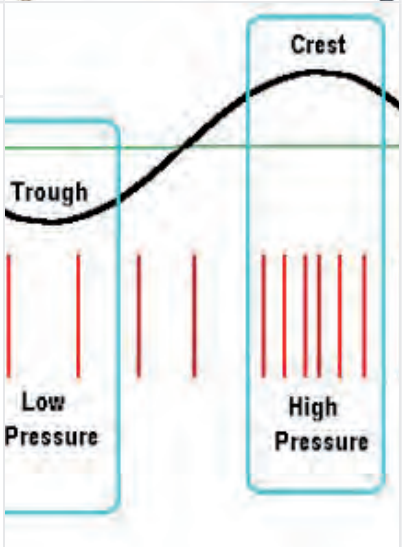
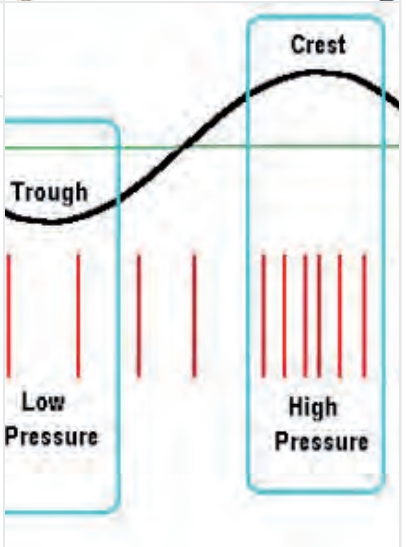
Stored energy, or the energy of position.

precision
(noun)

nepahalo



The quality, condition or fact of being exact and accurate.

<p>precast concrete (noun)</p>	<p>konkereite ya motlaotutswe</p>	
<p>A form of concrete that is prepared, cast and cured off site, usually in a controlled factory environment, using reusable moulds. Many buildings now include a mixture of both construction techniques, sometimes incorporating structural steelwork, in-situ concrete and precast concrete elements.</p>		
<p>pressure (noun)</p>	<p>kgatello</p>	
<p>Continuous physical force exerted on or against an object by something in contact with it.</p>		
<p>prestressing (noun)</p>	<p>matlafatso ka tsharollo</p>	
<p>Strengthening by the application of stress during manufacturing, especially of concrete by means of rods or wires inserted under tension before the material is set. Concrete is an architectural and structural material possessing great strength. The unique characteristics of prestressed concrete allow predetermined engineering stresses to be placed in members to counteract stresses that occur when the unit is subjected to service loads.</p>		

prestressed concrete
(noun)

konkereite e matlafaditsweng ka tsharollo

A structural material that allows for predetermined, engineering stresses to be placed in members to counteract the stresses that occur when they are subject to loading. As a general rule, traditional reinforced concrete is the most economic method for a span of up to 6 m.



prime coat
(noun)

moalo wa sekontiri wa pele, khoutu ya sekontiri ya pele

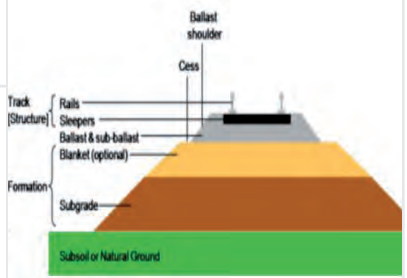
The layer between an asphalt course and a crushed aggregate base course (CABC). Its purpose is to bind the loose aggregates of CABC, so that it can be prepared for the subsequent construction activity of laying.





profile
(noun)

profaele , maemo a mmila

A profile consists of a plotted line which indicates grades and distances (and typically depths of cut and, or elevations of fill) for excavation and grading work.



<p>profilograph (noun)</p>	<p>profilokrafo , sesebediswa se rekotang profaele</p>	
<p>An instrument borne on wheels for recording automatically the profile of the land over which it travels. New highway profiles are usually measured with profilographs in order to establish incentives or disincentives for pavement construction.</p>		
<p>project (noun)</p>	<p>moreero, projeke</p>	
<p>The construction and renovation of a structure, or significant alteration in the environment.</p>		
<p>proposal (noun)</p>	<p>tokomane ya tshisinyo, tokomane ya tlhahiso</p>	<p>Project proposal sample</p> <p>Overview</p> <p>The subject of our animation will be a plane flying over an African desert. This will give us ample opportunity to experiment with lighting, shadows, background scaling, landscape tilting and motion effects. We have decided to build our animation purely in 2D since this will give each member of our group equal opportunity to contribute to the animation itself. The desert looks itself well to that sort of animation for several reasons. First, desert images, being fairly uniform, can easily be revealed with minimal manipulation. This means that we can create more environments with fewer images. Also, a desert landscape is conducive to dramatic lighting and shadows which should show us great creative flexibility. Finally, because it is relatively flat, details on the ground should stand out well. This means that we should be better able to make the background as attractive as possible.</p> <p>Tools</p> <p>The primary tools, which we expect to use for this project, are Photoshop, Image Ready and Google. We will also explore the possibility of using Java 2D for some of our image processing in the event that Photoshop does not offer the flexibility that we require. By using these tools, rather than more programmatic ones, we will better be able to make a well-informed effort in developing our animation. Although Google will not play a part in our image processing or animation rendering, we expect that it will be the primary resource for acquiring the necessary images for the project.</p> <p>Tringe</p> <p>Needs:</p> <p>A plane Although we have not decided on a specific model, we know that we will need multiple images</p>
<p>A document that is aimed at persuading readers to accept the writer's idea.</p>		
<p>punch list (noun)</p>	<p>tokomane ya diphoso</p>	
<p>A list of discrepancies that should be corrected by the contractor.</p>		
<p>punch out (verb)</p>	<p>ho lekola le ho thathamisa diphoso</p>	<p>Contractor "Punch Out" List</p> <p>Upon inspection of the job site, the following items, which were specified in the contract, remain to be completed. Contractor is to complete the following items prior to receiving any additional or final payment. Contractor shall notify Customer at the completion of these items, and not before, for final inspection.</p> <p>This "Punch-Out List" is relative to the agreement entered into by the parties on the ____ day of _____, 20____, for work to be performed by Contractor on Job Location _____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>To inspect and make a discrepancy list.</p>		

<p>putty (noun)</p>	<p>poti; potapota</p>	
<p>A type of dough used in sealing glass in the sash, filling small holes and crevices in wood, and for similar purposes.</p>		
<p>pump mix (noun)</p>	<p>konkreite e pompuwang; pomptjwang</p>	
<p>A pumping process that allows for the uniform placement of concrete into areas not easily accessible by other means. Concrete is pumped in concrete columns or in similar confined spaces to achieve better flow, compaction and finishing.</p>		

Q

quarry tile
(noun)

thaele ya kwari

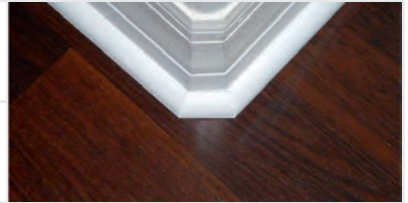
A man-made or machine-made clay tile used to finish a floor or wall; generally, 150 x 150 x 10 mm in size.



quarter round
(noun)

**sekgurumetsi;
sekwahedi**

A small trim moulding with the cross-section of a quarter circle.

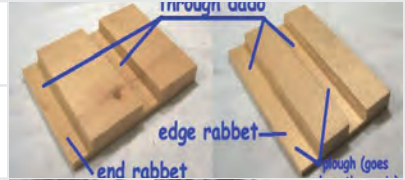


R

rabbet
(noun)

rabete, korufu

A rectangular longitudinal groove cut in the corner edge of a board or plank.



ridge
(noun)

motshetshe

The horizontal line at the junction of the top edges of two sloping mountain ranges or watersheds.



ramp
(noun)

rempe

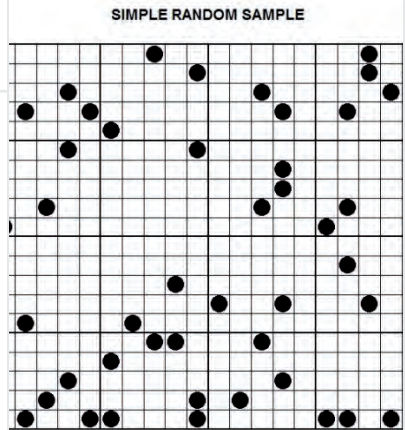
When space permits, a sloping surface, or ramp, can be used to connect different levels or floors. As a means of saving space in some garages, the floors serve as ramps.

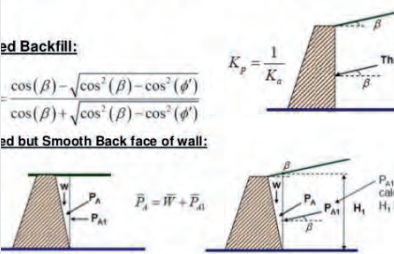

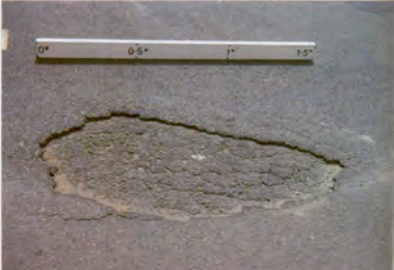


random sample
(noun)

sampole ya lehlahlatha

A subset of individuals (a sample) chosen from a larger set (a population). Each individual is chosen randomly and entirely by chance, such that each individual has the same probability of being chosen at any stage during the sampling process. In the majority of civil engineering fields, it is necessary to deal with sample data.



<p>rankine theory (noun)</p>	<p>thiori ya rankine</p>	<p>RANKINE'S THEORY: SPECIAL CASES</p> <p>emergence: $\sigma_n = K_a \sigma_v' + u$ $\sigma_v' = \sigma_v - u$ $u =$ pore water pressure</p> <p>Smooth Backfill:</p> $K_p = \frac{1}{K_a}$ <p>$\frac{\cos(\beta) - \sqrt{\cos^2(\beta) - \cos^2(\phi')}}{\cos(\beta) + \sqrt{\cos^2(\beta) - \cos^2(\phi')}}$</p> <p>Smooth but Smooth Back face of wall:</p> 
<p>The Rankine theory assumes that failure will occur when the maximum principal stress at any point reaches a value equal to the tensile stress in a simple tension specimen at failure. It further assumes a frictionless soil-wall interface and a vertical wall (i.e. no wall slope).</p>		<p>rapid hardening or high early-strength cement (noun)</p> <p>samente e tiyang kapele, samente e phakisang ho tiiya</p> 
<p>ravelling or fretting (noun)</p>	<p>ho phothuleha ; ho rafoleha</p>	
<p>The loss of material from the pavement surface. It is a result of insufficient adhesion between the asphalt, cement and the aggregate.</p>		

ravine
(noun)

kgohlo

A landform narrower than a canyon that is often the product of stream-cutting erosion. Ravines are typically classified as larger in scale than gullies, but smaller than valleys.



recycled pavement
(noun)

phcifemente e entsweng ka dintjhafatswa

A pavement made from recycled tyres. A recycling agent is used to soften and rejuvenate the existing asphalt pavement. Pavement is the top layer of a roadway and is made of Portland cement concrete (PCC) or Asphalt Concrete AC. The pavement is supported by the base and sub-base, which consist of aggregate and other materials.

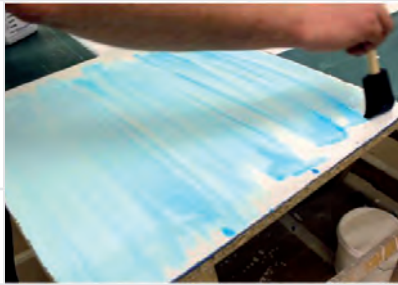


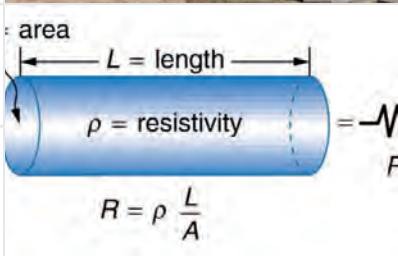
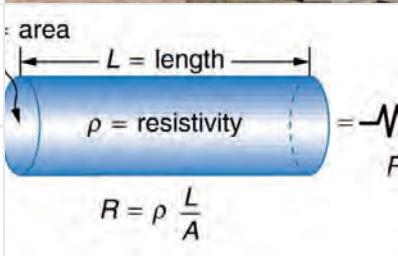





rehabilitation
(noun)

tlhabollo

The systematic application of engineering sciences to design, develop, adapt, test, evaluate, apply, and distribute technological solutions to problems confronted by individuals with disabilities. It also refers to the correcting failures appearing over time, mainly where proper maintenance is not done, for example on roads, buildings, etc.

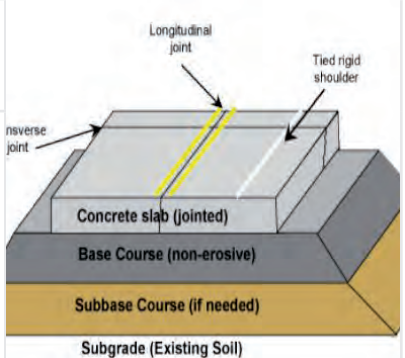


<p>release agent, parting agent or parting compound (noun)</p>	<p>khemikhale e etsang hore dintho di se kopane</p>	
<p>A chemical used to prevent other materials from bonding to surfaces.</p>		
<p>reinforced concrete (noun)</p>	<p>konkreite e mareinefose</p>	
<p>Also called “reinforced cement concrete (RCC)”, reinforced concrete is a composite material in which concrete’s relatively low tensile strength and ductility are counteracted by the inclusion of reinforcement, thus having higher tensile strength or ductility.</p>		 <p>area</p> <p>$L = \text{length}$</p> <p>$\rho = \text{resistivity}$</p> <p>$R = \rho \frac{L}{A}$</p>
<p>resistivity (noun)</p>	<p>bohanedi ba phallo ya motlakase</p>	 <p>area</p> <p>$L = \text{length}$</p> <p>$\rho = \text{resistivity}$</p> <p>$R = \rho \frac{L}{A}$</p>
<p>A measure of the resisting power of a specified material to the flow of an electric current.</p>		
<p>retarder or retarder of set (noun)</p>	<p>tiehiso ya ho tiya ha konkreti</p>	
<p>This is used to slow the setting time of concrete. By slowing their initial setting time, concrete mixtures are able to maintain fresh plastic properties.</p>		

rigid pavement
(noun)

tsela ya konkereite e thata

Rigid pavement, also known as “rigid road”, is a pavement composed of a Portland cement concrete (PCC) surface course. Such pavements are substantially “stiffer” than flexible pavements due to the high modulus of elasticity of the PCC material.



right-of-way
(verb)

tokelo ya ho feta

A type of easement granted or reserved over the land for transportation purposes. This can be for a highway, public footpath, rail transport, canal or bike trail, as well as electrical transmission lines, oil and gas pipelines



rigidity
(noun)

boleng ba ho se kobehe

The inability of a structural element to be bent or be forced out of shape.







riprap
(noun)

majwe a sireletsang mabopo metsing



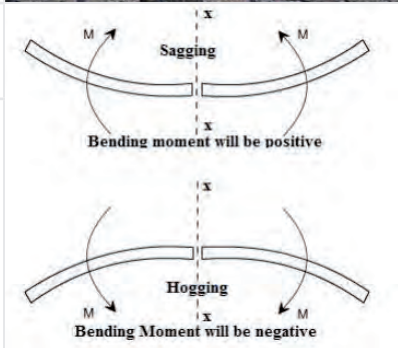
Riprap, also known as “rip rap”, “rip-rap”, “shot rock”, “rock armour” or “rubble”, is rock or other material used to armour shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour, water or ice erosion.







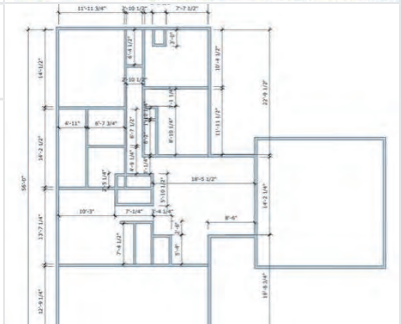

<p>roadbed (<i>noun</i>)</p>	<p>moalo wa tsela</p>	
<p>A roadbed is a structure onto which the road base course is laid. Roadbeds play an important role in road construction. They have their own specific aspects and different structures, depending on whether they are located in a cut or in an embankment.</p>		
<p>roadside (<i>noun</i>)</p>	<p>bokathoko ba tsela, ka thoko ho tsela</p>	
<p>The strip of land next to a road.</p>		
<p>roadway (<i>verb</i>)</p>	<p>mmila</p>	
<p>The part of a road intended for vehicles, in contrast to the pavement or verge. The construction of a new road, whether from asphalt or concrete, requires the production of an excellently bonded pavement structure, beginning with a stable base layer, and going all the way to a precisely levelled surface course.</p>		
<p>rumble strip, serrated strip or jiggle bar (<i>noun</i>)</p>	<p>mola o thothometsang</p>	
<p>An indentation often placed on the shoulders of highways to alert drivers that the edge of the paved roadway surface is near.</p>		



<p>runoff (<i>noun</i>)</p>	<p>metsi a phophomang</p>	
<p>The flow of water that occurs when soil in is infiltrated to full capacity, and excess water from rain, meltwater or any other precipitation flows over the land. Also called “surface runoff”.</p>		
<p>rustication (<i>noun</i>)</p>	<p>mokgabiso ka majwe</p>	
<p>A type of decorative stonework that emphasises a building’s stone construction. Specifically, the edges are chamfered, or cut at a 45-degree angle, with a sloping edge that creates a V-shaped joint, with the stone next to it.</p>		
<p>rut (<i>noun</i>)</p>	<p>foro</p>	
<p>A rut is a depression or groove worn into a road or path by the travel of wheels or skis. Ruts can be formed by wear, as from studded snow tires common in cold climate areas, or they can form through the deformation of the asphalt concrete pavement or sub-base material.</p>		





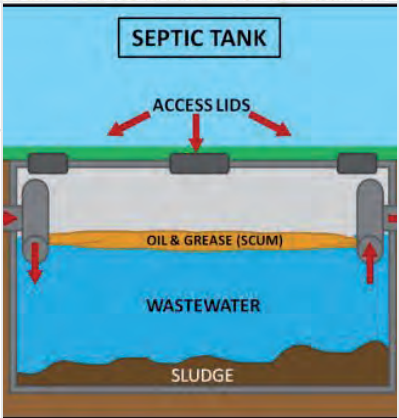
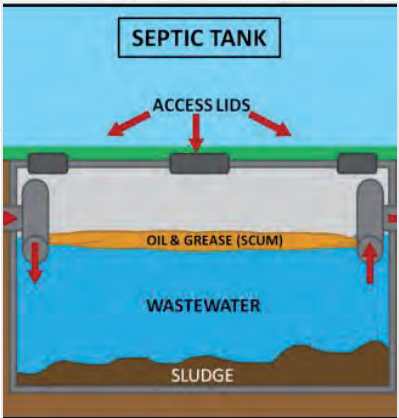
S

<p>sack mix (noun)</p>	<p>samente e hlokehano motswakong</p>	
<p>The amount of Portland cement per cubic meter of concrete mix. E.g., five or six sacks are generally required for a foundation wall.</p>		
<p>saddle (noun)</p>	<p>marulelo a tjomela, sale</p>	
<p>A small second roof built behind the back side of a fireplace chimney to divert water around the chimney. Also, the plate at the bottom of some – usually exterior – door openings. Sometimes called a “threshold”.</p>		
<p>sagging moment (noun)</p>	<p>ho kobehela tlase</p>	
<p>A sagging moment, also known as a “hogging moment” describes the shape of a beam or similar long object when loading is applied. Hogging describes a beam that curves upwards in the middle, and sagging describes a beam that curves downwards.</p>		

<p>sand (noun)</p>	<p>santa; lehlabathe</p>	
<p>Sand is a naturally occurring granular material composed of finely divided rock and mineral particles. The most common constituent of sand is silica (silicon dioxide, or SiO₂), usually in the form of quartz.</p>		
<p>sand equivalent (noun)</p>	<p>papiso ya lehlabathe le letsopa</p>	
<p>Sand equivalent is the ratio of the height of sand to the height of clay, times 100. The sand equivalent test quantifies the relative abundance of sand versus clay in soil. The significance of this test assigns an empirical value to the relative amount, fineness, and character of clay-like material present in the test specimen.</p>		
<p>sash window (noun)</p>	<p>festere ya foreime e tsamayang</p>	
<p>A sash window, also known as a “hung sash window”, is made of one or more movable panels, or “sashes”, that form a frame to hold panes of glass, which are often separated from other panes (or “lights”) by glazing bars.</p>		

<p>saturated surface dry (SSD) <i>(adjective)</i></p>	<p>bokahodimo bo ommeng</p>	
<p>The condition of an aggregate in which the surfaces of the particles are “dry” (i.e., surface adsorption would no longer take place), but the inter-particle voids are saturated with water.</p>		
<p>scaling plan <i>(noun)</i></p>	<p>moralo ho ya ka sekala</p>	
<p>Refers to plans which are usually “scale drawings”, meaning that the plans are drawn at a specific ratio relative to the actual size of the place or object. Various scales may be used for different drawings in a set.</p>		
<p>scarifier, ripper or rooter <i>(noun)</i></p>	<p>skerifaya , sengwapi</p>	
<p>A tool with spikes or prongs used for breaking up matted vegetation in the surface of a lawn. As a dedicated front-mounted attachment, the scarifier operates when traveling in reverse. While scarifying, a manual lock holds teeth in a stored position for continuous operating results. Adjustable depth skids allow digging depth to be preset, which delivers a steady operating depth.</p>		

<p>scour or erosion (<i>noun</i>)</p>	<p>kgoholeho</p>	
<p>The action of scouring or the state of being scoured, especially by swift-flowing water. It refers to a general lowering of the ground surface over a wide area. Scour refers to a localised loss of soil, often around a foundation element. There is a difference between coastal erosion and scour.</p>		
<p>screed, screed board, screed rail or tamper (<i>noun</i>)</p>	<p>boto ya sekrite kapa tampara</p>	
<p>A levelled layer of material (e.g. cement) applied to a floor or other surface. Screed has three meanings in building construction:</p> <ol style="list-style-type: none"> 1. A strip of wood, plaster or metal placed on a wall or pavement as a guide for the even application of plaster or concrete. 2. A layer or strip of material used to level off a horizontal surface, such as a floor. 3. A smooth final surface of a substance, such as concrete, applied to a floor. 		

<p>sealant or sealing (noun)</p>	<p>sethibelametsi , sethibe- lamongobo</p>	
<p>A substance used to block the passage of fluids through the surface, joints or openings in materials; i.e. a type of mechanical seal. In building construction, sealant is sometimes synonymous with caulking, and also serve the purposes of blocking dust, sound and heat transmission.</p>		
<p>sediment (noun)</p>	<p>maritsa , tshila tsa metsi, sedimente</p>	
<p>A naturally occurring material that is broken down by processes of weathering and erosion, and is subsequently transported by the action of wind, water, or ice, and, or by the force of gravity acting on the particles.</p>		
<p>septic tank (noun)</p>	<p>tanka ya dikgwerekgwere , stamkoko</p>	
<p>A tank made of concrete, fibreglass, PVC or plastic through which domestic wastewater (sewage) flows, for primary treatment. Settling and anaerobic processes reduce solids and organics, but the treatment is only moderate. A septic tank system is a type of on-site sewage facility (OSSF).</p>		

**settlement or
subsidence**
(noun)

kgohlomelo

It is either the sudden sinking, or the gradual downward settling, of the ground's surface, with little or no horizontal motion, which is not restricted by either rate, magnitude or area involved in the downward movement. It occurs in new or relatively new buildings. It is caused by the ground compacting beneath the building. Some movement occurs as the ground adjusts to accommodate the new load. Also, adjustments can occur as different construction materials settle down with different shrinkage rates.

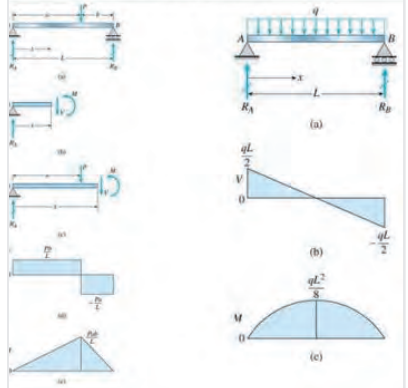




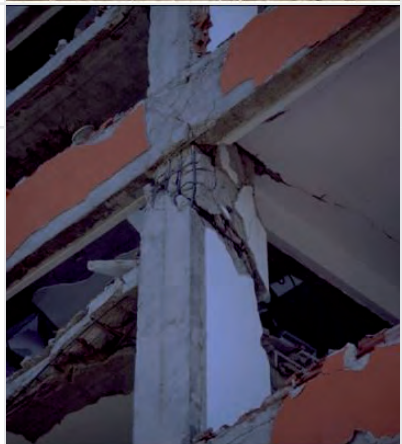
shear
(noun)

kgaoho

A directional word referring to forces or stresses. A shear stress within an object will occur when a force parallel to the plane causes one plane of the material to want to slip against another, thus deforming the material. On a vertically loaded beam, a vertical shear force will result inside the beam fibres, with the maximum shear force normally occurring one or both supports. Shear stress will typically be caused by such shear force.

Shear Force & Bending Moment Diagram


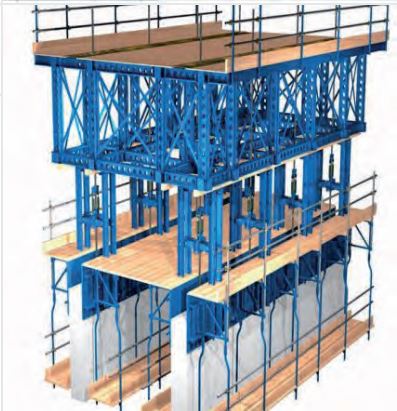
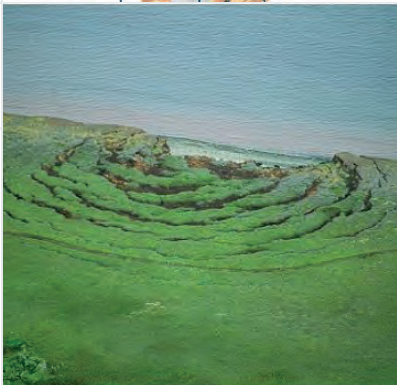


<p>sheathing (noun)</p>	<p>tshireletso, selata</p>	
<p>A layer of board or panel material that forms a part of floor, wall and roof assemblies. The materials most commonly used as sheathing include engineered timber, plywood, gypsum and oriented strand board (OSB).</p>		
<p>sheet piles (noun)</p>	<p>diphaele</p>	
<p>One of a number of piles, usually flat, driven side by side to retain earth, etc., or to prevent seepage into an excavation. They are used to support excavations for below-grade parking structures, basements, pump houses and foundations; and to construct cofferdams, seawalls and bulkheads. Permanent steel sheet piles are designed to provide a long service life.</p>		
<p>short column (noun)</p>	<p>kholomo e kgutshwane</p>	
<p>A column whose lateral dimension is very small when compared to its length or height, is called a “long short column”. The smallest cross-section dimension to the effective length of the column is expressed as the slenderness ratio. This slenderness ratio determines whether the column is considered short or long.</p>		

<p>shoulders (noun)</p>	<p>mahetla a mmila</p>	
<p>A shoulder or hard shoulder is an emergency stopping lane at the verge of a road or motorway, on the right side in countries where drivers drive on the right, or on the left side in countries where drivers drive on the left side.</p>		
<p>shoving (noun)</p>	<p>maqhubusekontiring</p>	
<p>A form of plastic movement typified by ripples (corrugation) or an abrupt wave (shoving) across the pavement surface. The distortion is perpendicular to the traffic direction. Usually occurs at points where traffic starts and stops (corrugation) or areas where HMA abuts a rigid object.</p>		
<p>shrinkage (verb)</p>	<p>kgonyelo , ho honyela</p>	
<p>The volume reduction that occurs primarily due to moisture loss after the concrete has hardened.</p>		
<p>shuttering (noun)</p>	<p>leshatara</p>	
<p>Shuttering is the term given to either temporary or permanent moulds into which concrete or similar materials are poured. In the context of concrete construction, the falsework supports the shuttering moulds.</p>		

sidewalk <i>(noun)</i>	tsela ya maoto, pheifemente	
<p>A paved path for pedestrians at the side of a road; a pavement. A concrete sidewalk is typically a 100 mm to 150 mm thick slab on a gradient or grade. Usually, the distance between construction joints (slab length) is marginally larger than the width of the sidewalk.</p>		
silt <i>(noun)</i>	siliti , mahohodi a mobu	
<p>Fine sand, clay, or other material carried by running water, and deposited as a sediment, especially in a channel or harbour. A silt fence, sometimes (misleadingly) called a “filter fence”, is a temporary sediment control device used on construction sites to protect water quality in nearby streams, rivers, lakes and seas from sediment (loose soil) in storm water runoff.</p>		

slab <i>(noun)</i>	selebo	 <p>ethylene vapor barrier, steel mesh, and foundation wall are all in place.</p>
<p>A large, thick, flat piece of stone or concrete, typically square or rectangular in shape, used in paving, known as “paving slabs”, or an outer piece of timber sawn from a log, a seen cabin walls. A concrete slab is a common structural element of modern buildings. Horizontal slabs of steel reinforced concrete, typically between 100 mm and 500 mm thick, are most often used to construct floors and ceilings, while thinner slabs are also used for exterior paving.</p>		
slag <i>(noun)</i>	phofo ya manya , seleke	
<p>A stony waste matter separated from metals during the smelting or refining of ore. Ground-granulated slag is often used in concrete in combination with Portland cement as part of a blended cement. Ground-granulated slag reacts with water to produce cementitious properties. The slag can also be used to create fibres used as an insulation material called “slag wool”.</p>		

slag cement <i>(noun)</i>	samente ya seleke	
<p>Cement produced by grinding blast-furnace slag, and mixing it with lime, Portland cement, or dehydrated gypsum. It is used in concrete for virtually any construction application, either in conjunction with traditional Portland cement, part of blended cement, or as a separate component. It typically replaces part of the Portland cement in concrete mixes. Slag cement is as old as ironmaking itself.</p>		
slip form <i>(noun)</i>	mashatara a tsamayang	
<p>Slip forming, continuous poured, continuously formed, or slip form construction is a construction method in which concrete is poured into a continuously moving formwork. Slip forming is used for tall structures (such as bridges, towers, buildings and dams), as well as horizontal structures, such as roadways.</p>		
slump <i>(noun)</i>	bometsi ba konkreiti, selampo	
<p>Simply defined, slump is a measure of the consistency of fresh concrete. The slump test is a very simple test. The slump cone is a right circular cone that is 300 mm high. The base of the cone is 200 mm in diameter, and the top of the cone is 100 mm in diameter.</p>		

slurry
(noun)

seleri, seretse

A technique used to build reinforced concrete walls in areas of soft earth close to open water, or with a high groundwater table. This technique is typically used to build diaphragm (water-blocking) walls surrounding tunnels and open cuts, and to lay foundations. It also refers to a mixture of sand and binder (typically bitumen) used to provide a wearing course for flexible roads.


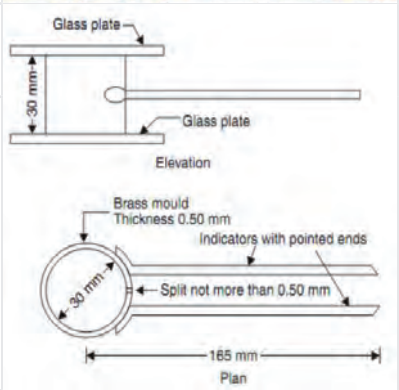



soil
(noun)

mobu

The upper layer of earth in which plants grow; a black or dark brown material typically consisting of a mixture of organic remains, clay, and rock particles. The importance of the characteristics of soil, such as the size and nature of particles, its density and structural properties, means soil surveys are often required to inform design and construction decisions. A soil survey will classify the soil according to a standard classification system.

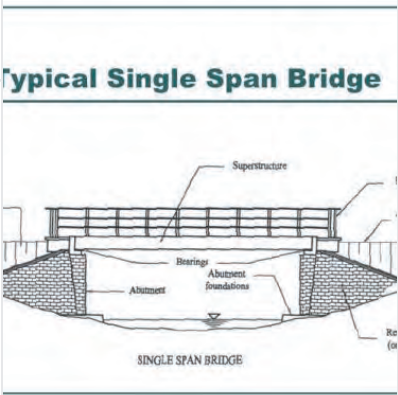


<p>soldier pile (noun)</p>	<p>phaele ya moqala</p>	
<p>Soldier pile, also referred to as “concrete soldier pile” is a type of pile that requires that the soil is stable enough to arch between the piles for at least a short time period. A soldier pile is a common retaining wall strategy in which H-shaped steel beams (“piles”) are drilled deep into the earth at regular intervals that are usually about 1.82 to 3.65 apart.</p>		
<p>soundness (noun)</p>	<p>nepahalo</p>	
<p>The soundness of cement is the property of hardened cement paste undergoing large change in volume after setting without delayed destructive expansion. It refers to the ability of a hardened cement paste to retain its volume after setting, without delayed destructive expansion.</p>		
<p>spalling (verb)</p>	<p>ho senyeha , ho onala</p>	
<p>Refers to the flaking, cracking, peeling, crumbling or chipping of concrete or brickwork, particularly where parts of the surface might be said to have “blown off”. This can occur as a result of water penetration or heating (such as during a fire), or via mechanical processes.</p>		

span
(noun)

**sebaka dipakeng tsa
ditshehetso**

Span is the distance between two intermediate supports for a structure, e.g. a beam or a bridge. A span can be closed by a solid beam or by a rope. The first kind is used for bridges, and the second one for power lines, overhead telecommunication lines, some types of antennas, or aerial tramways.



spill or wasteway
(noun)

selaolaphallo

A structure used to provide the controlled release of flows from a dam or levee into a downstream area, typically the riverbed of the dammed river itself.

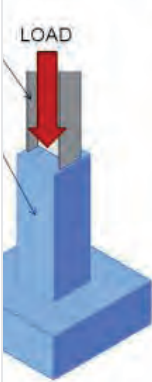


spread footing
(noun)


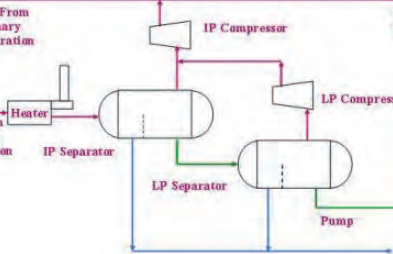
**lejwe la motheo,
setshehetso sa motheo**

A type of the shallow foundation, defined as the structural members used to support the column and walls, as well as transmit and distribute the load coming on the structure to the soil beneath it. It may be either made with wide bases placed directly beneath the load-bearing beams or walls, mat (consisting of slabs, usually of reinforced concrete, which underlie the entire area of a building), or floating types.

Spread (Column) Footing



- The widened foundation transmits the column load over a broader area
- Design based on
 - Soil Bearing Capacity
 - Column Load

<p>specifications (noun)</p>	<p>dipehelo</p>	<p>Project Requirements Specification Template</p> <p>Project Name: _____ Reference Code: _____</p> <p>Prepared By: _____ Release No: _____ Release Date: _____ Location: _____ Issue Date: _____</p> <p>Detailed Project Requirements: _____</p> <p>Reference Number: _____ Project Requirement Description _____ Scope _____ Inputs _____ Outputs _____ Issue Date _____ Acceptance Criteria _____ Testing and Quality Control _____ Additional Instructions _____ Technical Requirements _____</p>
<p>A set of documented requirements to be satisfied by a material, design, product, or service. A specification is often a type of technical standard. They do not include cost, quantity or drawn information, and so need to be read alongside other information, such as quantities, schedules and drawings.</p>		
<p>special provisions (adjective)</p>	<p>dipehelo tse ikgethileng</p>	
<p>soil stabilisation (noun)</p>	<p>tsitsiso ya mobu</p>	<p>Multistage Oil Stabilization</p> 
<p>The alteration of soils to enhance their physical properties. Stabilisation can increase the shear strength of a soil and, or control the shrink-swell properties of it, thus improving the load bearing capacity of a subgrade to support pavements and foundations.</p>		

standard specifications
(noun)

dipehelo tsa setlwaedi

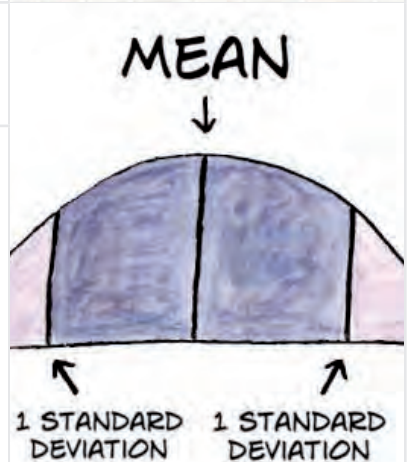
A set of documented requirements to be satisfied; a type of technical standard. A document that gives contractors guidance during construction work.

SPECIFICATIONS							
CATCH	LIVING ROOMS	KITCHEN ROOMS	OTHER ROOMS	KITCHEN	TOILET (WATER RES ROOM)	TOILET (OTHER RES ROOM)	TERACE / PORCH
FRONT	8mm / 10. Ribs with oil bound primer	8mm / 10. Ribs with oil bound primer	8mm / 10. Ribs with oil bound primer	8mm / 10. Ribs with oil bound primer	8mm / 10. Ribs with oil bound primer	8mm / 10. Ribs with oil bound primer	8mm / 10. Ribs with oil bound primer
WALL	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer
CEILING	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer
DOOR	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer
WIND	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer
WALL	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer
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WIND	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer	12mm / 14. Ribs with oil bound primer

standard deviations
(noun)

mekgelo e tlwaelehileng

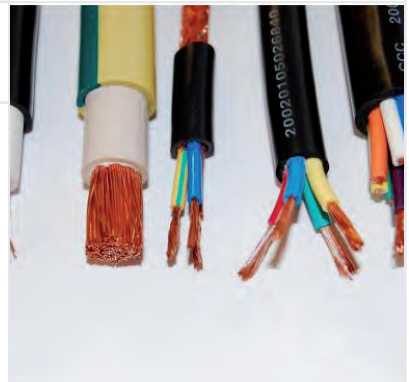
A quantity expressing by how much the members of a group differ from the mean value for the group. A low value of standard deviation indicates more consistent results. On the other hand, higher values represent inconsistent results. In parking design for vehicles, deviation from standards refer to providing wider parking spaces for disabled people's vehicles.



strand
(noun)

strande

Strands are made of single high tensile wires. These are placed helically around an insert (heart wire) in the steel cable factory. Cable construction is the combination and arrangement of wires in a rope. Many individual steel wires are helically-laid together to form a wire rope.

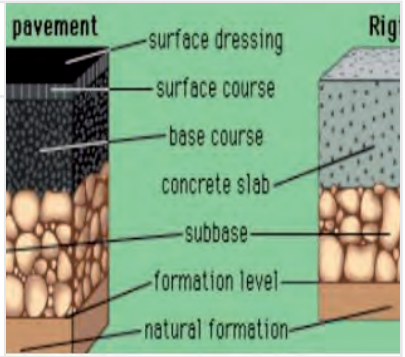


<p>street (<i>noun</i>)</p>	<p>seterata</p>	
<p>A public road in a city, town or village, typically with houses and buildings on one or both sides. Street segments are given a rating based on the pavement condition. Private utility companies such as gas, telephone and cable companies are informed if streets are to be rehabilitated, to assist them in their construction planning.</p>		
<p>structures (<i>noun</i>)</p>	<p>dibopeho, meaho</p>	
<p>A building or other object constructed from several parts. In building construction, the particular method chosen to of assemble and construct the structural elements of a building should ensure that they support and transmit applied loads safely to the ground without exceeding the allowable stresses in the members.</p>		
<p>stripping (<i>verb</i>)</p>	<p>ho ebola, ho fefa</p>	
<p>A continuous strip of concrete that serves to spread the weight of a load-bearing wall across an area of soil. It is a component of a shallow foundation. Strip footing, as the name itself indicates, is footing in strips or series. It is also called “continuous footing”.</p>		

sub-base course
(noun)

moalo o ka tlasetlase

The layer of aggregate material laid on the subgrade, on which the base course layer is located. It may be omitted when there will be only foot traffic on the pavement, but it is necessary for surfaces used by vehicles.



subcontractor
(noun)

kontraka e tshhehatsang

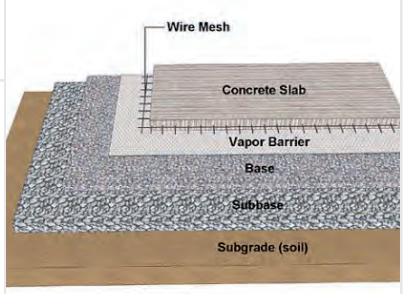
A firm or person that carries out work for a company as part of a larger project.



subgrade
(noun)

moalo wa mantlha

The native material underneath a constructed road, pavement or railway track. It is also called a “formation level”. The term can also refer to imported material that has been used to build an embankment.









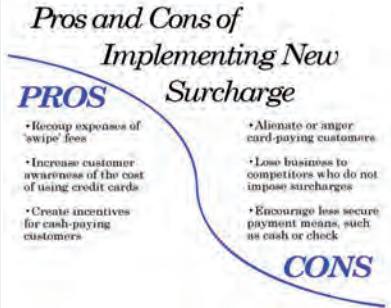
substructure
(noun)

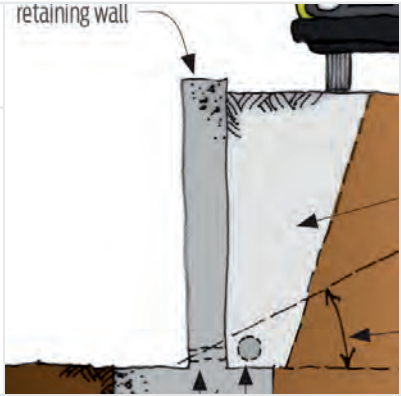
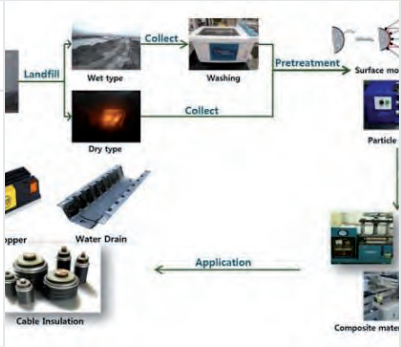

moaho o tshhehatsang

The structural work below ground level used to support the structure above, e.g. foundations, basements and subfloors.



<p>subsoil (noun)</p>	<p>mobu o tlasa lekgothe</p>	
<p>The soil lying immediately under the surface soil. Subsoil drainage protects your property from water damage. A subsoil drainage system is installed within the ground and should be installed by either a landscaper or qualified plumber.</p>		
<p>sulphate-bearing soils (noun)</p>	<p>mobu o nang le sebahole, mobu o nang le salfa</p>	
<p>Soil with a high content of sulphate, which can cause expansion problems in structures.</p>		
<p>sump (noun)</p>	<p>sampo</p>	
<p>An infiltration basin used to manage surface runoff water and recharge underground aquifers. It also refers to the recessed area below a pipe outlet in a manhole facility, where solids are allowed to settle, rather than flow down the exit pipe, possibly blocking the pipe.</p>		
<p>superelevation (noun)</p>	<p>phahamiso ya mothinya</p>	
<p>The provision of a transverse slope by raising the pavement outer edge with respect to the inner edge in order to counteract the effect of centrifugal force and reduce the tendency of vehicles to overturn and skid laterally outwards. The super-elevation of a road is determined by the design speed on that road.</p>		

<p>superstructure <i>(noun)</i></p>	<p>lerako</p>	
<p>A superstructure is an upward extension of an existing structure above a baseline. This term is applied to various kinds of physical structures such as buildings, bridges, or ships having the degree of freedom zero (in the terms of theory of machines).</p>		
<p>surety <i>(noun)</i></p>	<p>netefatso ka tjelele</p>	
<p>The surety is the guarantee of the debts of one party by another. A surety is an organization or person that assumes the responsibility of paying the debt in case the debtor policy defaults or is unable to make the payments. The party that guarantees the debt is referred to as the surety, or as the guarantor.</p>		
<p>surcharge <i>(verb)</i></p>	<p>kekeletso</p>	
<p>A surcharge is an extra fee, charge, or tax that is added on to the cost of a good or service, beyond the initially quoted price. Often, a surcharge is added to an existing tax and is not included in the stated price of the good or service. The charge could reflect a locality's need to collect money for extra services, a hike to defray the cost of increased commodity pricing, such as with a fuel surcharge, or an extra fee on your wireless bill for access to emergency services.</p>		

<p>surcharge wall (noun)</p>	<p>lebota la ho tshwara mobu</p>	 <p>The diagram shows a vertical retaining wall. On the left side, there is a horizontal ground line. On the right side, there is a sloped soil mass. The wall is labeled 'retaining wall' with an arrow pointing to it. Arrows indicate the lateral pressure of the soil against the wall.</p>	
<p>A surcharge wall, also known as a “retaining wall”, is a relatively rigid wall used for supporting the soil mass laterally, so that the soil can be retained at different levels on the two sides. Retaining walls are structures designed to restrain soil to a slope that to which it would not naturally keep (typically a steep, near-vertical or vertical slope).</p>	<p>surface recycling (noun)</p>	<p>katobotjha, ho ala sekontiri botjha</p>	 <p>The flowchart illustrates the surface recycling process. It starts with 'Landfill' which branches into 'Wet type' and 'Dry type'. 'Wet type' goes through 'Collect' to 'Washing', then 'Pretreatment' to 'Surface material'. 'Dry type' goes through 'Collect' to 'Particle'. 'Surface material' and 'Particle' are combined and go through 'Application' to 'Cable Insulation' and 'Composite material'. Other components shown include 'Water Drain' and 'Copper'.</p>
<p>A process to correct minor surface cracks or irregularities. Repaving is used to eliminate rutting, shrinkage cracking, and ravelling; and remixing is used to restore the pavement to a greater depth with the addition of virgin aggregate or hot mix asphalt.</p>	<p>surface water (noun)</p>	<p>metsi a ka hodimo ho lefatshe</p>	 <p>The photograph shows a wide river flowing through a lush, green landscape. The banks are covered in tall grasses and dense trees. The sky is clear and blue.</p>
<p>Water that collects on the surface of the ground or the top layer of a body of water, e.g. the surface water of a pond or lake. Civil engineering projects range from planning and analysis of river catchments and water resource development, to the design and implementation of storm water control measures.</p>			

surfacing
(noun)

ho phethela

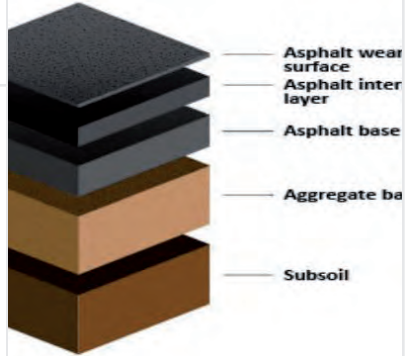
The action or process of giving a finished surface to something. Planetary-surface construction is the construction of artificial habitats and other structures on planetary surfaces.



surface course
(noun)

moalo o ka hodimo

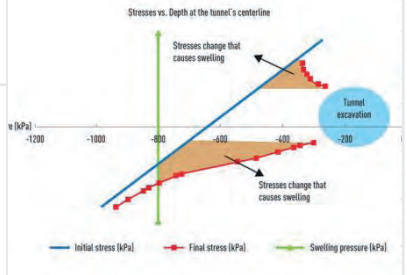
One or more layers of a pavement structure designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion and the disintegrating effects of climate. The top layer of flexible pavements is sometimes called the “wearing course”.



swelling pressure
(noun)

kgatello ya kokomoho

The pressure that heated and softened coal exerts when it is obstructed from free swelling. The pressure exerted by a contained clay when absorbing water in a confined space.



taping
(noun)

ho theipa

The process of covering drywall joints with paper tape and joint compound.



tandem roller
(noun)

rolara e katang

A type of road roller in which the front and back wheels consist of rollers of about the same diameter. A road roller (sometimes called a “roller compactor” or just “roller”) is a compactor-type engineering vehicle used in the construction of roads and foundations to compact soil, gravel, concrete or asphalt.



tack weld
(noun)

tjheseletso ya nakwana

A tack weld is a weld made to hold the parts of a weldment in proper alignment until the final welds are made.



teco metal strap
(noun)

lerapo la thekho, lerapo la tshepe

A teco metal strap, also known as a “hurricane clip”, is a type of strap or clip that is nailed to a truss to secure the roof rafters and trusses to the top horizontal wall plate.

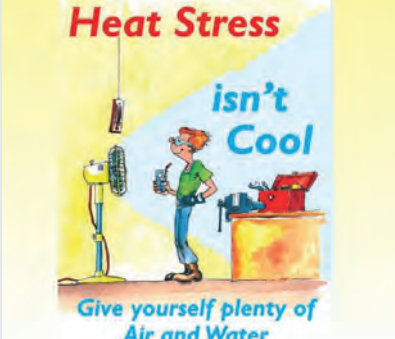

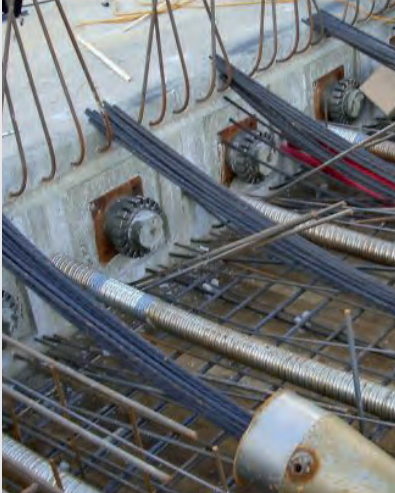


temperature steel
(noun)

tshepe ya motjheso

The steel required for shrinkage and temperature stresses perpendicular to the main flexural steel.



temperature stress <i>(noun)</i>	kgatello ya motjheso	
<p>A stress caused by a change in the thermal state of a body upon heating, cooling, or prolonged exposure to elevated or low temperatures. For example, the hardening of steel parts produces temperature stresses.</p>		
tempered glass <i>(noun)</i>	kgalase e matlafaditsweng	
<p>Tempered glass, also known as “toughened glass”, is a type of safety glass processed by controlled thermal or chemical treatments to increase its strength compared with normal glass. Tempered glass will not shatter nor create shards but will “pelletise” like an automobile window. It is required in tub and shower enclosures and locations, entry door glass and sidelight glass, and in a window when the window sill is less than 500 mm from the floor.</p>		
tendon <i>(noun)</i>	thendone	<p>A complete assembly of a prestressing element, comprising one or more tensioned elements (bar, strand, wire, etc.) used to apply compression to the surrounding concrete, along with any associated components, such as ducting, anchorages, etc. required to enclose and anchor these tensioned elements. It may be located either within the concrete volume (internal prestressing), or wholly outside of it (external prestressing).</p>

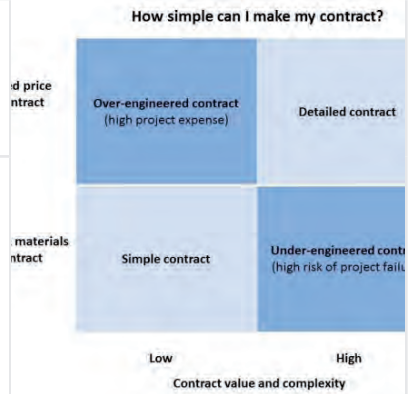
termites <i>(noun)</i>	masetlaoka, bohlwa	
<p>Wood-eating insects that superficially resemble ants in size and general appearance, and that live in colonies.</p>		
termite shield <i>(noun)</i>	sethibelabohlwa , sethibelamasetlelaoka ; tsit-abohlwa	
<p>A shield, usually of galvanised metal, placed in or on a foundation wall, or around pipes, to prevent the passage of termites.</p>		
terra cotta <i>(noun)</i>	therakota	
<p>A fired mixture of clay and water that can be used in a non-structural, semi-structural or structural capacity on the exterior or interior of a building. Terracotta is an ancient building material that translates from Latin as “cooked earth”.</p>		
terzarghi-meyerhoff equation <i>(noun)</i>	ikhweishene ya terzaghi-meyerhoff	<p style="text-align: center;">Bearing Capacity Theory LIMIT EQUILIBRIUM</p> <p>Ultimate bearing capacity = $q_{ult} = ?$ <i>(Bearing press. required to cause a BC failure)</i></p> <p>Moments about point A</p> $M_A = (q_{ult} \cdot Bb) \left(\frac{B}{2} \right) - (s_u \pi \cdot Bb)(B) - (\sigma_{zD} \cdot Bb) \left(\frac{B}{2} \right)$ $q_{ult} = 2 \cdot \pi \cdot s_u + \sigma_{zD} \rightarrow \text{BC Factor}$ $q_{ult} = N_c s_u + \sigma_{zD}$
<p>Ultimate bearing capacity (q_u) is the theoretical maximum pressure which can be supported without failure; allowable bearing capacity (q_a) is the ultimate bearing capacity divided by a factor of safety.</p>		

<p>thermoply™ (noun)</p>	<p>themoplae</p>	 <p>GREEN/GREEN AMG Light Structural Grade, .078" thickness, 290 lbs/MSF, 400 sheets per skid</p> <p>RED/RED AMG Standard Structural Grade, 0.113" thickness, 414 lbs/MSF, 300 sheets per skid</p> <p>BLUE/BLUE AMG High Structural Grade, 0.135" thickness, 504 lbs/MSF, 250 sheets per skid</p>
<p>Exterior laminated sheathing nailed to the exterior side of exterior walls. Normally 4 mm thick, 4 X 8 or 4 X 10 sheets with an aluminised surface.</p>		
<p>thermostat (noun)</p>	<p>themostate , selekan-yamotjhese , selaolam-otjhese</p>	
<p>A device that regulates the temperature of a room or building by switching heating or cooling equipment on or off.</p>		
<p>threshold (noun)</p>	<p>botlase ba kosene</p>	<p>The bottom metal or wood plate of an exterior door frame. Generally, they are adjustable to keep a tight fit with the door slab.</p>
<p>thrust block (noun)</p>	<p>boloko bo laolang phallo</p>	<p>A casting or frame carrying or containing the bearings on which the collars of a propeller shaft press. Thrust blocks are anchors placed between pipes or fittings and the solid trench wall. They can be constructed from available lumber, if braced properly. Thrust blocks should be constructed so the bearing surface is in direct line with the major force created by the pipe or fitting.</p>

time and materials contract
(noun)

selekane sa ditekanyetso

A construction contract that specifies a price for different elements of the work, such as cost per hour of labour, overhead costs, profit, etc. A contract might not stipulate a maximum price or may state “price not to be exceeded”.



tinner
(noun)

mokontraka wa phuthumatso

Tinner is another name for a certified heating contractor.

- Most **metals** are good conductors.
 - Ex: Copper, silver, iron, steel, aluminum, glass
- In a piece of metal, there are **electrons** that are not bound to individual atoms, but can **move** easily through the metal.
- Collisions** between these electrons and other particles in the metal enable thermal energy to be transferred more quickly than in other materials.

tip-up
(noun)

sekgelosametsi

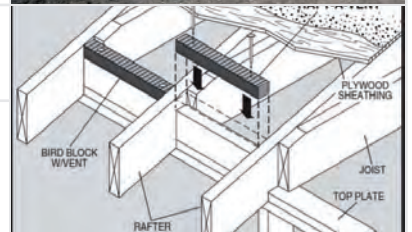
The downspout extension that directs water from a home’s gutter system away from the home. It typically swings up when mowing the lawn, etc.



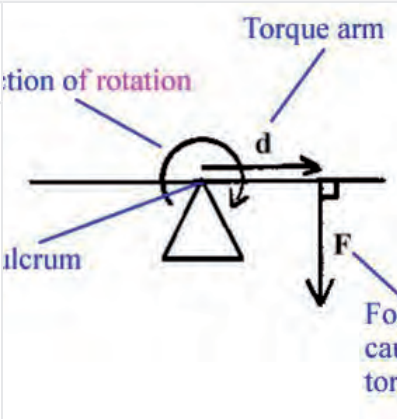
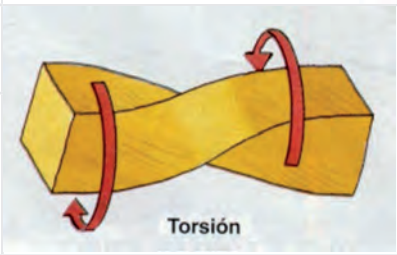
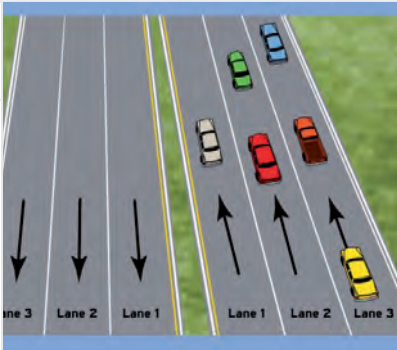
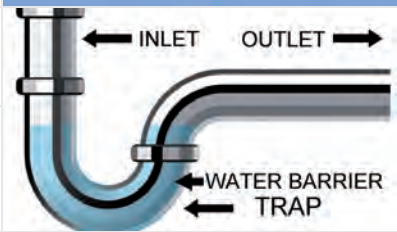
top plate
(noun)

setshehetsi sa maballo


The top horizontal member of a frame wall, supporting ceiling joists, rafters or other members.



<p>top soil (noun)</p>	<p>lekgothe</p>	
<p>The top layer of soil. It is an important part of ensuring soil sustainability during construction projects. Without a soil management plan, there is a risk of losing, damaging or contaminating valuable soil resources, (whether the soil will be retained for future landscaping on site, or used or sold off site).</p>		
<p>tolerance (noun)</p>	<p>moedi</p>	
<p>toughness (noun)</p>	<p>ho ba thata</p>	
<p>In materials science and metallurgy, toughness is the ability of a material to absorb energy and plastically deform without fracturing. One definition of material toughness is the amount of energy per unit volume that a material can absorb before rupturing.</p>		

<p>torque (noun)</p>	<p>matla a ho sotha, thoko</p>	
<p>Refers to a force that tends to cause rotation. It occurs when it is twisted causing twisting force acting on the member, known as torque, and the resulting stress is known as shear stress. This stress is added to the existing shear stress due to vertical and lateral applied loads.</p>		
<p>torsion (noun)</p>	<p>ho sotha, mosotho, tshotho</p>	
<p>The action of twisting or the state of being twisted, especially of one end of an object relative to the other.</p>		
<p>traffic lane (noun)</p>	<p>leine ya sephethephethe</p>	
<p>A lane for the movement of vehicles traveling from one destination to another, not including shoulders. Engineering techniques that will ensure the safe and efficient movement of people and goods on roadways, are used.</p>		
<p>trap (noun)</p>	<p>leraba la metsi</p>	
<p>A plumbing fitting that holds water to prevent air, gas and vermin from backing up into a fixture.</p>		

<p>travel lane (noun)</p>	<p>leini ya sephethephethe</p>	<p>my, uh, if you remove a travel lane, then traffic will backup.</p> <p>Before: A four-lane road behaving After: A Road Diet providing a</p>
<p>A travel lane, also known as a “traffic lane”, is a lane for the movement of vehicles traveling from one destination to another, not including shoulders.</p>		
<p>travelled way (noun)</p>	<p>karolo ya tsela ntle le dileine tsa tlatsetso</p>	
<p>The portion of the roadway for the movement of vehicles, exclusive of shoulders or auxiliary lanes.</p>		
<p>pressure treated lumber (noun)</p>	<p>lehong le tshetsweng moriana</p>	
<p>Wood impregnated with preserving and, or fire retarding chemicals under pressure.</p>		
<p>truss (noun)</p>	<p>trase</p>	
<p>A truss is a structure that “consists of two-force members only, where the members are organised so that the assemblage as a whole behaves as a single object”. A “two-force member” is a structural component where force is applied to only two points.</p>		

turf <i>(noun)</i>	mohlwa: jwang, thefo																					
<p>Grass and the surface layer of earth held together by its roots; a piece of such grass and earth cut from the ground; a heavy, clayey, but fertile black soil. Soil compaction is one of the most common causes of poor turf on athletic fields constructed from natural or modified soil mixes. It is caused by squeezing together of the soil particles during trampling and by the use of heavy construction or maintenance equipment.</p>		<table border="1"> <thead> <tr> <th colspan="2" data-bbox="647 600 1037 675"> Types of Portland cement </th> </tr> <tr> <th data-bbox="647 675 680 715">Cement type</th> <th data-bbox="680 675 1037 715">Use</th> </tr> </thead> <tbody> <tr> <td data-bbox="647 715 680 754"></td> <td data-bbox="680 715 1037 754">General purpose cement, when there are no extenuating conditions</td> </tr> <tr> <td data-bbox="647 754 680 778"></td> <td data-bbox="680 754 1037 778">Aids in providing moderate resistance to sulfate attack</td> </tr> <tr> <td data-bbox="647 778 680 802"></td> <td data-bbox="680 778 1037 802">When high-early strength is required</td> </tr> <tr> <td data-bbox="647 802 680 826"></td> <td data-bbox="680 802 1037 826">When a low heat of hydration is desired (in massive structure)</td> </tr> <tr> <td data-bbox="647 826 680 850"></td> <td data-bbox="680 826 1037 850">When high sulfate resistance is required</td> </tr> <tr> <td data-bbox="647 850 680 874"></td> <td data-bbox="680 850 1037 874">A type I cement containing an integral air-entraining agent</td> </tr> <tr> <td data-bbox="647 874 680 898"></td> <td data-bbox="680 874 1037 898">A type II cement containing an integral air-entraining agent</td> </tr> <tr> <td data-bbox="647 898 680 922">A</td> <td data-bbox="680 898 1037 922">A type III cement containing an integral air-entraining agent</td> </tr> </tbody> </table>	Types of Portland cement		Cement type	Use		General purpose cement, when there are no extenuating conditions		Aids in providing moderate resistance to sulfate attack		When high-early strength is required		When a low heat of hydration is desired (in massive structure)		When high sulfate resistance is required		A type I cement containing an integral air-entraining agent		A type II cement containing an integral air-entraining agent	A	A type III cement containing an integral air-entraining agent
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<p>type i: normal portland cement <i>(noun)</i></p> <p>samente e tlwaelehleng</p> <p>Portland cement is the most common type of cement, generally used as a basic ingredient of concrete, mortar, stucco, and non-specialty grout throughout the world. Type I is the general-purpose cement.</p>																						

<p>type ii: modified portland cement (sulphate-resistant portland cement) <i>(noun)</i></p>	<p>samente e tswakilweng</p>	<p>Types of Portland Cement</p> <p>There are several types of portland cement are used for various physical and chemical requirements. Portland cements are made according to the specifications of ASTM C150.</p>												
<p>Portland cement is cement manufactured from chalk and clay which hardens under water and when hard resembles Portland stone. It is the most common type of cement, generally used as a basic ingredient of concrete, mortar, stucco, and non-specialty grout throughout the world. Type II has moderate sulfate resistance.</p>		<p>ASTM C150 provides for ten types of portland cement:</p> <table border="1" data-bbox="644 363 1049 659"> <tr><td>Normal</td></tr> <tr><td>Normal, air-entraining</td></tr> <tr><td>Moderate sulfate resistance</td></tr> <tr><td>Moderate sulfate resistance, air-entraining</td></tr> <tr><td>Moderate heat of hydration and moderate sulfate resistance</td></tr> </table>	Normal	Normal, air-entraining	Moderate sulfate resistance	Moderate sulfate resistance, air-entraining	Moderate heat of hydration and moderate sulfate resistance							
Normal														
Normal, air-entraining														
Moderate sulfate resistance														
Moderate sulfate resistance, air-entraining														
Moderate heat of hydration and moderate sulfate resistance														
<p>type iii: high early-strength portland cement <i>(noun)</i></p>	<p>samanete e tiyang ka pele</p>	<p>ADVANTAGES AND USES OF TYPE III PORTLAND CEMENT</p>												
<p>Portland cement is the most common type of cement, generally used as a basic ingredient of concrete, mortar, stucco, and non-specialty grout throughout the world. Type III is designed to develop early strength. It is used for maintaining a rapid pace of construction, as it allows cast-in-place concrete to bear loads sooner, and it reduces the time for which precast concrete elements must remain in their forms.</p>		<table border="1" data-bbox="644 799 1049 1230"> <thead> <tr> <th>Salient features</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>Rate of strength development and heat evolution are medium</td> <td>General purpose</td> </tr> <tr> <td>C₃A and C₃S contents are comparatively lower than OPC</td> <td>Aids in sulfate resistance and general use</td> </tr> <tr> <td>Higher C₃S content and higher fineness</td> <td>When early strength is required</td> </tr> <tr> <td>C₃S and C₃A contents are further lowered</td> <td>For use in sulfate-resisting concrete</td> </tr> <tr> <td>C₂A content is reduced</td> <td>For use in sulfate-resisting concrete</td> </tr> </tbody> </table>	Salient features	Use	Rate of strength development and heat evolution are medium	General purpose	C ₃ A and C ₃ S contents are comparatively lower than OPC	Aids in sulfate resistance and general use	Higher C ₃ S content and higher fineness	When early strength is required	C ₃ S and C ₃ A contents are further lowered	For use in sulfate-resisting concrete	C ₂ A content is reduced	For use in sulfate-resisting concrete
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**type iv: low-heat
portland cement**
(noun)


samente e omang butle

Portland cement is the most common type of cement, generally used as a basic ingredient of concrete, mortar, stucco, and non-specialty grout throughout the world. Type IV is designed to release heat and gain strength slower. A slower rate of heat release limits the increase in the core temperature of a concrete element.

Materials Used to Make C

- Portland Cement – 5 types
 - ◆ Should conform to ASTM C150
 - Type 1 – standard; widely used for floor slabs, beams
 - Type 2 – has a lower heat of hydration; used in massive pours; e.g. Dams, construction
 - Type 3 – high early strength; used in cold weather
 - Type 4 – termed low heat; used in massive pours to diminish cracking
 - Type 5 – sulfate resistant; used in treatment plants & concrete dam structures

U

<p>undercoat (noun)</p>	<p>khouto e tlang pele ho ya ho qetela</p>	
<p>A coating applied prior to the finishing or top coats of a paint job. It may be the first of two, or the second of three coats. It is sometimes called the “prime coat”.</p>		
<p>underground plumbing (noun)</p>	<p>diphaepe tse ka tlasa lefatshe</p>	
<p>The plumbing drain and waste lines that are installed beneath a basement floor.</p>		
<p>underlayment (noun)</p>	<p>phate e ka tlase</p>	
<p>A 5-mm material placed over the subfloor plywood sheeting and under finish coverings, such as surface. Also, a secondary roofing layer that is waterproof or water-resistant, installed on the roof deck and beneath shingles or another roof-finishing layer.</p>		

steady uniform flow
(noun)

phallo e tshwanang

Form Flow

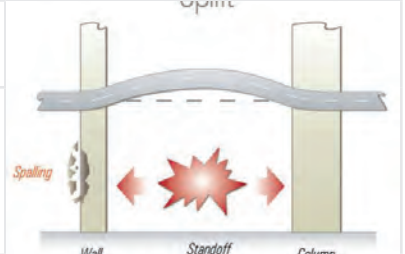
hydrodynamic parameter will have a unique value, irrespective of whether it is steady or unsteady. It does not change with time → **steady uniform flow**. It changes with time → **unsteady uniform flow**.

Steady uniform flow is a type of flow in which the conditions of flow do not alter with regard to time at any given point on the passage. Graphical method is given for construction of the surface profile for flow at constant. The ubiquity of steady non-uniform flow in open channels establishes the relationship between the depths at the ends of the channel.

Type	Example
Uniform flow (Flow)	Flow at constant rate through a duct of uniform cross-section. (The region close to the walls of the duct is disregarded.)
Non-uniform flow (Flow)	Flow at varying rates through a long straight duct of uniform cross-section. (Again the region close to the walls of the duct is ignored.)

uplift pressure
(verb)

kgatello e nyollang



An uplift pressure is any upward pressure applied to a structure that has the potential to raise it relative to its surroundings.

union
(noun)

sekopanyi



A fitting used in pipe systems to connect the straight pipe or tubing sections, adapt to different sizes or shapes, and for other purposes, such as regulating fluid flow.

utility easement
(noun)

sebaka sa nolofaletso ya phano ya ditshebeletso



The area of the earth that has electric, gas or telephone lines. These areas may be owned by the homeowner, but the utility company has the legal right to enter the area as necessary to repair or service the lines.

V

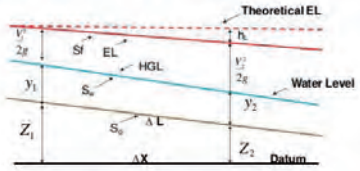
<p>valley (noun)</p>	<p>phula</p>	
<p>The V-shaped area of a roof where two sloping roofs meet. Water drains off the roof at the valleys.</p>		
<p>valley flashing (noun)</p>	<p>ho kenya sekgakeletsi , ho flesha</p>	
<p>Sheet metal that lays in the V-area of a roof valley.</p>		
<p>vapor barrier (noun)</p>	<p>sethibelaphofudi</p>	
<p>A building product installed on exterior walls and ceilings under the drywall, and on the warm side of the insulation. It is used to retard the movement of water vapour into walls and prevent condensation within them. Normally, polyethylene plastic sheeting is used.</p>		
<p>variable rate (noun)</p>	<p>sekgahla se fetofetohang, sekgahla se sa tsitsang</p>	
<p>An interest rate that will vary over the term of a loan.</p>		

varied flow
(noun)

phallo e sa tsitsang

Steady, non-uniform flow in a channel in which there are gradual changes in the water depth. For rapidly varied flow (abrupt changes, steps, weirs, etc.), the influence of bed slope and channel friction can be ignored.

Energy Equation for Gradually Varied Flow.



$$Z_1 + y_1 + \frac{V_1^2}{2g} = Z_2 + y_2 + \frac{V_2^2}{2g} + h_f$$

Remember: Both sections are subject to atmospheric pressure

veneer
(noun)

veniri , venie

Extremely thin sheets of wood. Also, a thin slice of wood, brick or stone covering a framed wall.



vent
(noun)

vente, phaepa kapa peipi ya moya

A pipe or duct that allows the flow of air and gasses to the outside. Also, another word for the moving glass part of a window sash, i.e. a window vent.



vermiculite
(noun)

vemikhulaete

A yellow or brown mineral found as an alteration product of mica and other minerals, used for insulation or as a moisture-retentive medium for growing plants.



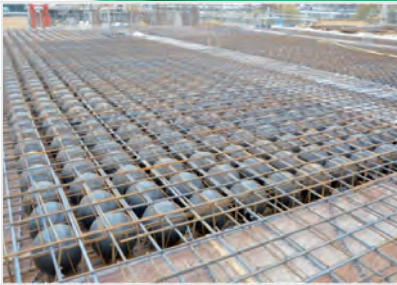
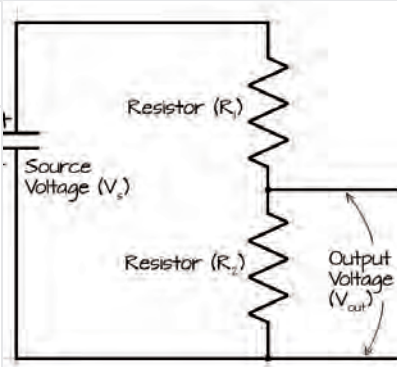


vibrated concrete
(noun)

konkereiti e fehluweng


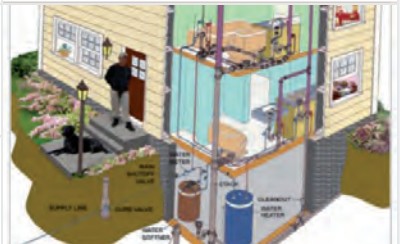
Concrete that has been vibrated, either internally or externally, after it has been placed in order to produce a denser mass.



<p>vibrator (noun)</p>	<p>lefehlo</p>	
<p>A concrete vibrator is a construction tool typically used on concrete pouring sites. These machines, and an assortment of attachments, are designed for multiple applications built by a variety of manufacturers. The vibrators are used to ensure that the pour is free of air bubbles and are even.</p>		
<p>visqueen (noun)</p>	<p>demkose; viskhwini</p>	
<p>A 4- or 6-mil plastic sheeting.</p>		
<p>void (noun)</p>	<p>voede</p>	
<p>Rectangular cardboard boxes that are installed between the earth (between caissons) and the concrete foundation wall. Used when expansive soils are present.</p>		
<p>voltage (noun)</p>	<p>voltheije</p>	
<p>A measure of electrical potential. Most homes are wired with 110- and 220-volt lines. The 110-volt power is used for lighting and most of the other circuits. The 220-volt power is usually used for the kitchen range, hot water heater, and dryer.</p>		

W

wafer board <i>(noun)</i>	boto ya mafoforetsane	
<p>A manufactured wood panel out of 25 to 50 mm wood chips and glue. Often used as a substitute for plywood in the exterior wall and roof sheathing.</p>		
walk-through <i>(noun)</i>	tekolo, tlhahlobo ya ho qetela	
<p>A final inspection of a home before “closing” to look for, and document problems that need to be corrected.</p>		
wall out <i>(verb)</i>	ho futha ka hare ka pente	
<p>When a painter spray-paints the interior of a home.</p>		
warping <i>(noun)</i>	ho kobeha	
<p>Any distortion in a material.</p>		

<p>warranty (noun)</p>	<p>tiisetso e ngotsweng</p>	 <p>The image shows a 'Construction Warranty Form' with sections for 'CONTRACTOR/SUPPLIER CONTACT INFORMATION', 'OWNER(S) CONTACT AND PROJECT INFORMATION', and 'WARRANTY CONDITIONS'. The 'Warranty Period' section contains the following text: 'Supplier/Service Provider hereby warrant its work performed on, and project, the time period shown above from the date of the certificate of completion. The materials guaranteed to remain free from all defects and is guaranteed to be replaced or repaired within 5 business days and other Contract Documents governing the work. The Contractor shall be responsible for the cost of repair and/or replacement of the Contractor's work in writing immediately upon discovery and must allow the owner a reasonable amount of time in which to make the repair(s)/replacements null and void should any party other than the Contractor/Supplier or its subcontractors make or attempt to make any repairs and/or replacements to any work performed by the Contractor/Supplier. This warranty does not cover damage caused by, hail, and other acts of nature whether wholly or in part, nor does it cover work not directly associated with the Contractor/Supplier.'</p>														
<p>waste pipe and vent (noun)</p>	<p>peipi kapa phaephe ya dikgwerekgwere</p>	 <p>The diagram illustrates a cross-section of a house showing the internal plumbing system. It highlights the waste pipe and vent system, showing how waste water is collected and transported through the pipes to the municipal system. Labels include 'Waste Pipe', 'Vent Pipe', 'Trap', 'Sewer Main', and 'Municipal Sewer System'.</p>														
<p>water for domestic use (noun)</p>	<p>metsi a sebediswang lapeng</p>	 <p>The pie chart displays the distribution of water usage across different sectors. The data is as follows:</p> <table border="1"> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Agriculture</td> <td>60%</td> </tr> <tr> <td>Domestic</td> <td>27%</td> </tr> <tr> <td>Industrial</td> <td>4%</td> </tr> <tr> <td>power</td> <td>3%</td> </tr> <tr> <td>Mining</td> <td>3%</td> </tr> <tr> <td>Other</td> <td>3%</td> </tr> </tbody> </table>	Sector	Percentage	Agriculture	60%	Domestic	27%	Industrial	4%	power	3%	Mining	3%	Other	3%
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<p>Water for drinking, washing, cooking, toilets, livestock, etc.</p>																

water board
(noun)

boto e thibelang metsi

Water resistant drywall to be used in tub and shower locations. It is normally green or blue in colour.



water closet
(noun)

ntlwana

Another name for a toilet.



water meter pit (or vault)
(noun)

mokoti wa mitara

The box, cast iron bonnet and concrete rings that contain the water meter.



water-repellent preservative
(noun)

sesireletsalepolanka metsing

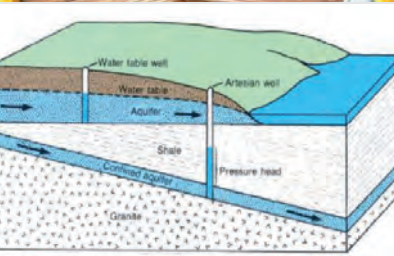
A liquid applied to wood to give it water-repellant properties.




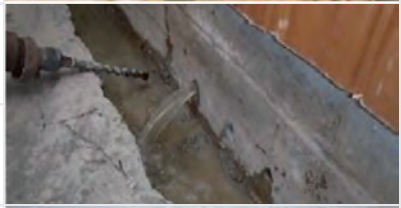





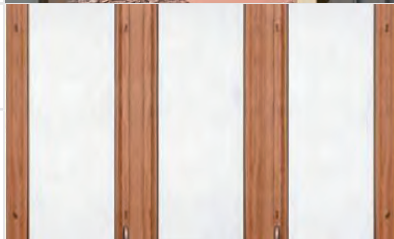

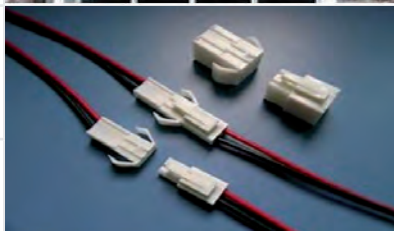
water table
(noun)

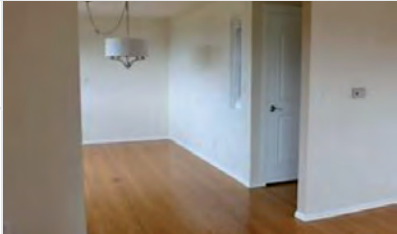
botebo ba metsi ka tlasa lefatshe

The location of the underground water, and the vertical distance from the surface of the earth to this underground water.



<p>water tap (noun)</p>	<p>hlowana ya pompo ya metsi, thepe</p>	
<p>The connection point where the home water line connects to the main municipal water system.</p>		
<p>weatherisation (noun)</p>	<p>tokisetso ya dikoduwa tsa tlhao</p>	
<p>Work on a building exterior in order to reduce energy consumption for heating or cooling. Work involving adding insulation, installing storm windows and doors, caulking cracks, and putting on weather stripping.</p>		
<p>weather strip (noun)</p>	<p>rekere ya mamati le difestere, rabara ya mamati le difestere</p>	
<p>Narrow sections of thin metal or other material installed to prevent the infiltration of air and moisture around windows and doors.</p>		
<p>weep holes (noun)</p>	<p>masoba a fetisang metsi</p>	
<p>Small holes in storm window frames that allow moisture to escape.</p>		
<p>whole-house fan (noun)</p>	<p>sefhlamoya, fene ya ntlo yohle</p>	
<p>A fan designed to move air through, and out of, a home. It is normally installed in the ceiling.</p>		

<p>wind bracing (noun)</p>	<p>setshehetsi</p>	
<p>Metal straps or wood blocks installed diagonally on the inside of a wall, from the bottom to the top plate, to prevent the wall from twisting, racking or falling over in a “domino” fashion.</p>		
<p>window buck (noun)</p>	<p>kosene ya nakwana</p>	
<p>A square or rectangular box that is installed within a concrete foundation or block wall. A window will eventually be installed in this buck during the siding stage of construction.</p>		
<p>window frame (noun)</p>	<p>foreime ya phera, foreime ya festere</p>	
<p>The stationary part of a window unit. The window sash fits into the window frame.</p>		
<p>window sash (noun)</p>	<p>phera e foreime e tsamayang, festere e foreime e tsamayang</p>	
<p>One or more movable panels or sashes that form a frame to hold the panels of glass, which are often separated from other panels.</p>		
<p>wire nut (noun)</p>	<p>nate tse kopanyang dithapo</p>	
<p>A device (with a thread inside) used to connect bare wires together.</p>		

<p>work on engineering contracts (noun)</p>	<p>tshebetseho, ho sebetscha</p>	<p>AGREEMENT FOR THE PROVISION OF CONSULTANCY ENGINEERING SERVICES</p> <p>..... agreement is made and entered into, on date of of 1991 by and between:</p> <p>..... of P.O. Box hereinafter referred to as the "Owner" on the First part.</p> <p>..... of P.O. Box hereinafter referred to as the "Consultant" on the second part.</p> <p>..... two parties agreed as follows:-</p> <p>(1) Whereas the first party is desirous to have constructed, complete and maintained (hereinafter referred to as the "project") and has assigned the provision of Consultancy Engineering Services thereof to the second party who accepted the assignment subject to the terms and conditions of this contract agreement.</p> <p>(2) The Consultancy Engineering services shall cover studies, design and supervisors works to be provided according to the following stages:-</p>														
<p>workability (noun)</p>	<p>tshebetseho , ho sebetscha</p>	<table border="1"> <thead> <tr> <th>Classification of workability</th> <th>Slump (mm)</th> </tr> </thead> <tbody> <tr> <td>No Slump</td> <td>0</td> </tr> <tr> <td>Very Low</td> <td>5-10</td> </tr> <tr> <td>Low</td> <td>15-30</td> </tr> <tr> <td>Medium</td> <td>35-75</td> </tr> <tr> <td>High</td> <td>80-150</td> </tr> <tr> <td>Very High</td> <td>160 to 200</td> </tr> </tbody> </table>	Classification of workability	Slump (mm)	No Slump	0	Very Low	5-10	Low	15-30	Medium	35-75	High	80-150	Very High	160 to 200
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Very High	160 to 200															
<p>Is a measure of the ease with which a fresh mix of concrete or mortar can be handled and placed. The useful internal work is a physical property of concrete alone, and is the work or energy required to overcome the internal friction between the individual particles in the concrete.</p>																
<p>wrapped drywall (noun)</p>	<p>diphanele tse kwahetsweng</p>	<p>Complete drywall covering, such as the doorway openings of bifold and bypass closet doors.</p>														

X

xylem
(noun)

zaeleme

The tissue that transports water in plants, highlighting the engineering efficiency of water-centric business by linking it with the best water transportation.



Y

yield or bucket volume
(noun)

mothamo wa motswako wa samente

Yield measures volume of concrete. A better figure to be aware of, is relative yield. It is important, because you expect a load of concrete to fill a certain volume in your forms or slabs.

$$\begin{aligned} 1 \text{ Bag} &= 50 \text{ kg of cement} \\ 1 \text{ m}^3 &= 25.3147 \text{ cft} \\ \text{No. of Bags required in } 1 \text{ m}^3 &= \frac{1440}{50} \\ &= 28.8 \text{ Nels} \\ \therefore 1 \text{ Bag} &= \frac{1}{28.8} = \underline{0.0347 \text{ m}^3} \\ 35.3147 \text{ cft} &= 28.8 \text{ Nels} \\ \therefore 1 \text{ Bag} &= \frac{35.3147}{28.8} = \underline{1.226 \text{ cft}} \\ \therefore 1 \text{ m}^3 &= 10^3 \text{ Litre} \\ 1 \text{ Bag} &= 0.0347 \text{ m}^3 = 0.034722 \times 10^3 \text{ Litre} \end{aligned}$$

yoke
(noun)

joko; sebaka seo ho sona ho dulang mitara

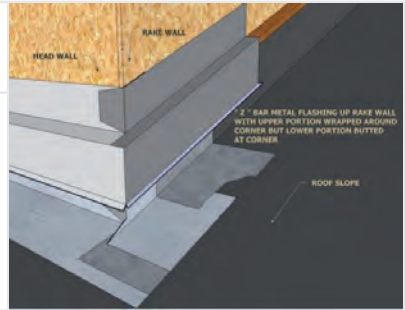
The location where a home's water meter is installed, sometimes between two copper pipes, and located in the water meter pit in the yard.



Z

ho flesha ka sethibela sa 'z'

galvanized metal flashing that is attached to the horizontal trim board of a window, door, or brick run. It prevents water from getting behind the trim, brick, and into the home.



zone
(noun)

zounu

The section of a building that is served by one heating or cooling loop, as it has noticeably distinct heating or cooling needs. Also, the section of property that will be watered from a lawn sprinkler system.



zone valve
(noun)

valofo ya zounu

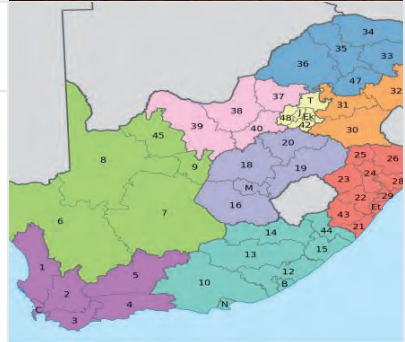
A device usually placed near the heater or cooler, which controls the flow of water or steam to parts of the building. It is controlled by a zone thermostat.



zoning
(noun)

ho zouna

A governmental process and specification that limits the use of a property, for example, single-family use, high-rise residential use, industrial use, etc. Zoning laws may limit where you can locate a structure. (Also see “building codes”).



LEXICON

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