

MATERIALS AND CHARACTERISTICS OF RETAINING WALLS

Types of retaining walls used in landscaping

- 1 Brick
- 2 Concrete Block
- 3 Rock - Veneer (Pitch)
- 4 Dry stone
- 5 Boulder
- 6 Crib - concrete
- 7 Crib - wooden
- 8 Timber Log - CCA, Bush log
- 9 Timber Sleeper - CCA, Old Railway
- 10 Link Wall Systems - Terrace Block, Diamond crib, Inca, Windsor
- 11 Formed concrete
- 12 Gabions
- 13 Concrete sleeper
- 14 Mixed materials

BRICK

single brick isn't very strong

double brick with reinforcing in centre is stronger.

looks very pleasing

readily available

many different patterns and colours

drainage required behind

CONCRETE BLOCK

looks neat and appealing

readily available

strong when reinforced and core filled with concrete

multipurpose

can be rendered over and coloured or painted

fast construction

can be faced with tiles/ stone glued to surface for appearance

drainage required behind

ROCK – Pitch

very strong

aesthetically pleasing

can be laid wet or dry stacked

can be mortared together

high skill level required

can be costly

time consuming

variety of materials and patterns

drainage required behind

BOULDER – Dry pack rock

large rocks

set in dry using their weight as strength

sloped backwards

reinforced with geo-textile

may need large machinery

well drained soil needed behind

drainage required behind

concrete footing sometimes required

fast construction

CRIB – concrete

inter locking layers stacked on top of one another, sloped backwards

set out in headers and stretchers

strong

easy to construct

relatively cheap

CRIB – timber

same principle as concrete

can use CCA logs and timber sleepers and posts

TIMBER LOG – CCA/Tan E

pleasing appearance

reasonable strength - may need reinforcing

can also be done in pallsade

good weather resistance

expensive compared to timber sleeper

uprights with concrete footings

fast construction

can be bolted together

TIMBER SLEEPER

similar to CCA Log only square appearance

similar properties

relatively cheap in comparison to log

may need reinforcing with tie backs

uprights with concrete footings

fast construction

LINK WALL SYSTEMS

inter-locking

engineer approved

easy to construct

reasonable strength

relatively cheap

readily available

many colours

FORMED CONCRETE

strong and comparatively cheap

simply boxed up and filled with concrete

can be reinforced

can be rendered, plastered or bagged

can be veneered with stone or tiles

drainage required behind

GABIONS

wire baskets filled with stone

stacked together

need machinery to lift and move

strength in their own weight

MIXED MATERIALS

creative design

combination of different materials

add variety to retaining wall appearance

construction methods vary depending on material used

aesthetically pleasing

ANGLES OF REPOSE

The angle of repose of a soil in landscaping is the gradient of the slope at which the soil settles naturally. A firm soil will have a steeper angle of repose than a loose soil.

Angles of repose will be affected by the water content of the soil - the wetter the soil, generally the lower the angle of repose. Embankments formed at gradients

steeper than the angle of repose will need to be immediately stabilised at that angle, otherwise natural forces will reduce the angle.

While each soil type is stable at the angle of repose, an unstabilised slope will be subject to erosion by wind, water or physical use.

Probable angle of repose (natural)

very wet clay 15°

wet clay 18°

wet sand 25°

sandy gravel 26° - 27°

dry earth/dry clay 30°

damp sand 33° - 34°

dry sand 35° - 36° shingle 40°

well drained clay/moist earth 45°

clean gravel in natural deposit 50°

SURCHARGE ANGLE

Surcharge angle in landscaping is the angle between the slope of soil behind the wall and the horizontal.