

We believe in retaining clients for lifetime.



Retainingwall
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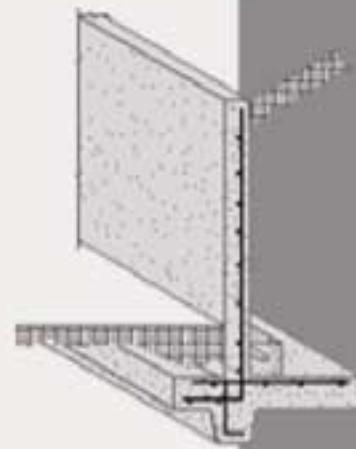
CONSULTING ENGINEERS, CORP.
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Concrete

Concrete Retaining Walls
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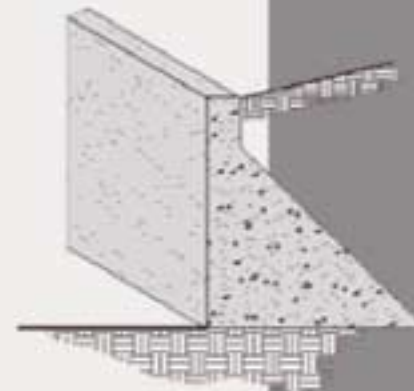
CANTILEVER

The CONCRETE CANTILEVER RETAINING WALL is constructed of reinforced concrete and it supports backfill soil by a cantilever action. The cantilevered stem portion is fixed at the bottom and is free at the top. The base slab serves as a fixed support and prevents against sliding and overturning. There is an option to install a key at the bottom of the base slab to ensure further safety against sliding. These walls provide prolonged durability and serviceability. They are widely used due to their ease in construction and cost-effectiveness.



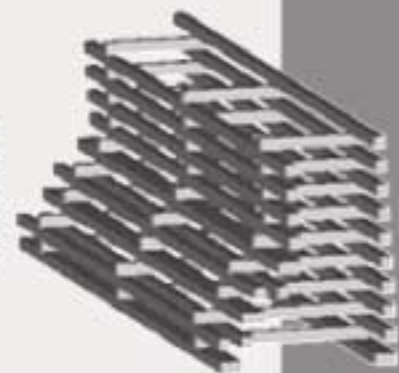
GRAVITY

The CONCRETE GRAVITY RETAINING WALL is constructed using mass concrete placement and generally without reinforcement. The support of backfill and other imposed loads on these walls is provided by the sheer weight of the unit. These walls are wide at the base and they taper towards the top. The overturning moment acting on this type of wall is counter-balanced by the resisting moment on account of the self-weight of the wall. The use of a separate drainage system is a typical requirement.



CRIBWALL

A CONCRETE CRIB WALL is an assemblage of individual concrete members of particular standard sizes. These walls are generally used for lower backfill heights and in areas where horizontal space is limited and foundation excavations are more difficult. These walls can be constructed at multiple heights along any cross-



section. The strong interlocking between individual crib members provides good stability to the overall structure. The positive drainage of water from the backfill material through the gaps between members alleviates the need for a separate drainage system. Minimum construction time, cost-effectiveness and less

BUTTRESSED (UNREINFORCED)

These walls are special types of Cantilever Retaining Walls with extra support in the form of buttress walls which are perpendicular to the retaining wall and are monolithic with the structure. These walls help in stiffening the retaining wall against heavy lateral loads. Such types of walls can support a greater height of backfill. Such a wall made of plain concrete is termed as unreinforced concrete buttressed wall.



BUTTRESSED (REINFORCED)

A special type of Cantilever Retaining Walls, the BUTTRESSED RETAINING WALL obtains additional strength and support from the monolithic construction of buttress walls perpendicular to the wall face. The buttress walls stiffen the retaining wall and provide the necessary strength for heavier lateral loads. These walls are reinforced with horizontal and vertical steel bars.

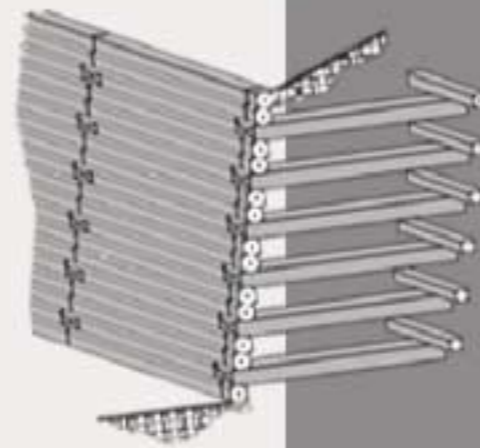


Lumber

Lumber Retaining Walls
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Lumber Retaining Walls

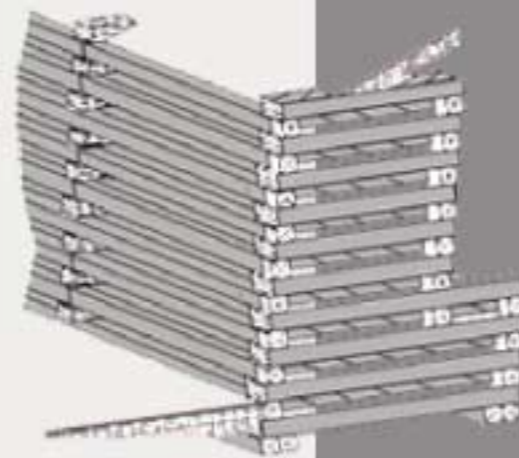
ANCHORED

The ANCHORED LUMBER RETAINING WALL is a popular retaining wall because of its ease in installation and lower costs. These walls use a system of timber members that form both the face and the anchorage for the wall. The anchors, most commonly referred to as deadmen, are attached to the face timbers by spikes and/or drift pins. The required length and spacing (vertical and horizontal) of the anchors are calculated based upon the wall height, lateral earth pressure and surcharge loading (just as with all types of retaining walls). Under certain loading conditions, a TEE is added to the ends of deadmen to provide greater resistance against sliding and overturning. These walls are commonly used in landscaped areas.



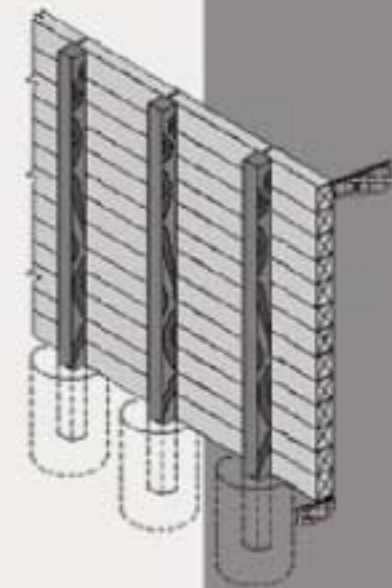
CRIBWALL

The LUMBER CRIB RETAINING WALL is similar to the Lumber Anchored Wall. Both walls use a system of timber members attached together by means of spikes and/or drift pins. However, the Crib Wall is better suited for areas where adequate space is not available or where the imposed loads are expected to be greater. The Crib Wall is constructed as an interconnected box with all sections working together to support the intended loads. These walls are commonly used in landscaped areas.



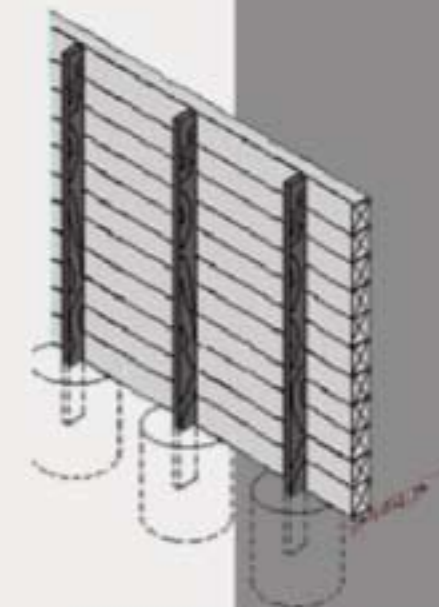
POST AND LAGGING

Lumber retaining walls made of wooden posts and wooden laggings are termed as POST AND LAGGING type of retaining walls. The posts can be with or without footing. These are specially suitable when space constraints are there. Construction of these walls is very fast.



FOR WIND BARRIER

The post and lagging lumber retaining wall with footings can be used as an effective WIND BARRIER if it is constructed so that the lumber laggings are above ground level.

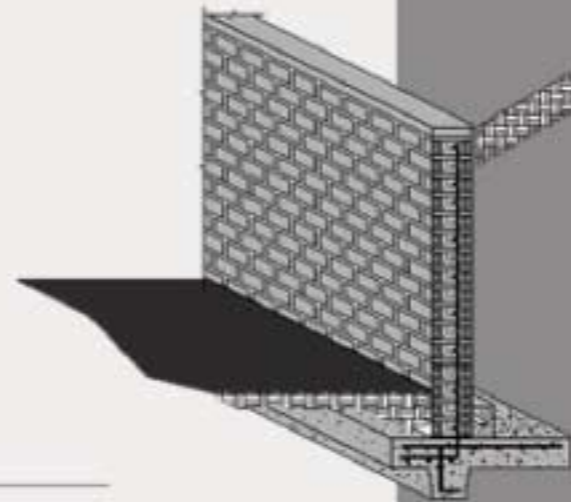


Masonry

Masonry Retaining Walls
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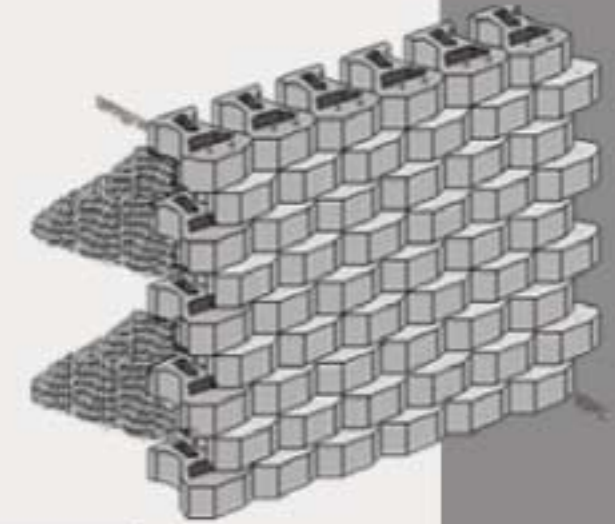
MASONRY CANTILEVER RETAININGWALL - REINFORCED

This type of retaining wall mainly consists of an assemblage of standard masonry blocks reinforced with steel. These walls are similar to concrete cantilever retaining walls in shape and also behave in much the same manner.



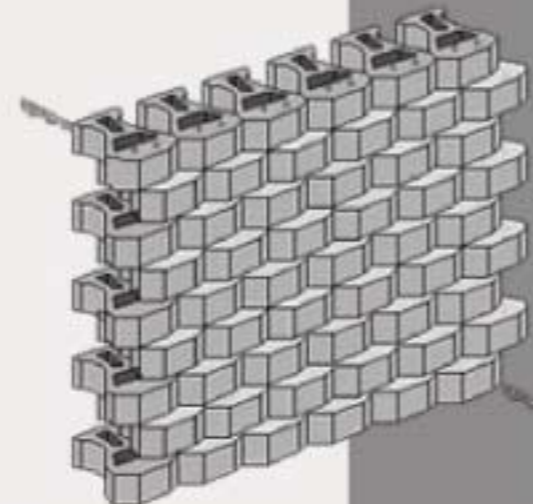
MASS BLOCK SEGMENTAL RETAININGWALL - REINFORCED

This type of retaining wall consists of precast block elements of standard shapes and dimensions with holes inside them which act as keys and ensure bondage between the elements to give stability to the whole system. These walls also have provision for reinforcement in the form of small precast holes through which steel rods can be inserted.



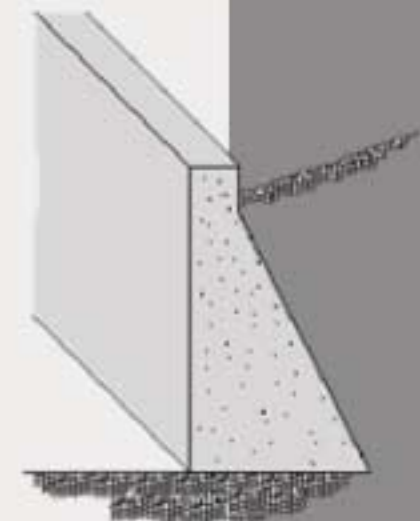
MASS BLOCK SEGMENTAL RETAININGWALL - GRAVITY

This type of retaining wall is constructed from interlocking, dry-stacked (without mortar), precast block elements of standard shapes and dimensions, which are arranged in a running bond configuration. These walls resist destabilizing forces due to retained soils solely through the self-weight and embedment of the block elements. For relatively low-height walls, this is adequate.



MASONRY RETAININGWALL - GRAVITY

These are similar to concrete gravity retaining walls as far as the functionality is concerned. The main difference being that it is mainly made up of masonry units. .

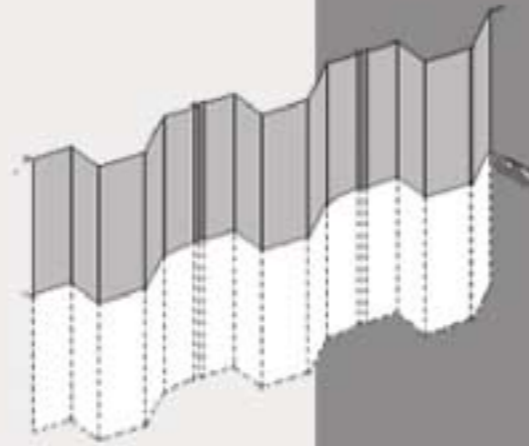


Steel

Steel Retaining Walls
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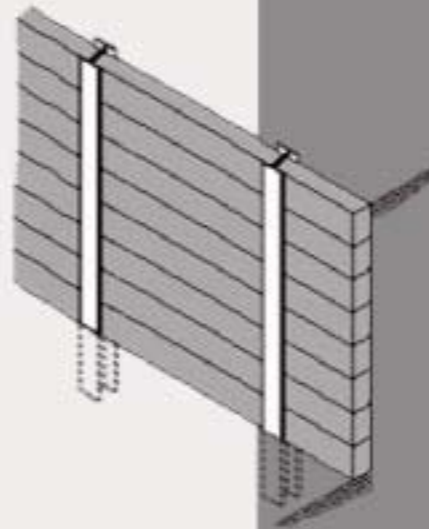
STEEL SHEET PILE RETAININGWALL - CANTILEVER

In this type of retaining wall, STEEL SHEETS are used as vertical members embedded into the ground, and they resist lateral soil pressure through cantilever action.



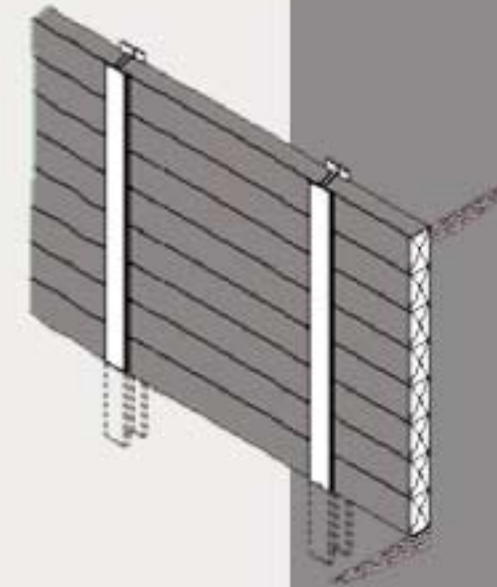
STEEL SOLDIER PILE RETAININGWALL - CONCRETE LAGGING

In this type of retaining wall, vertical I-SECTION STEEL POSTS are embedded into the ground at regular spacings and horizontal CONCRETE LAGGINGS are attached to them to retain soil.



STEEL SOLDIER PILE RETAININGWALL - LUMBER LAGGING

In this type of retaining wall, vertical I-SECTION STEEL POSTS are embedded into the ground at regular spacings and horizontal LUMBER LAGGINGS are attached to them to retain soil.



STEEL SHEET PILE RETAININGWALL - ANCHORED

STEEL SOLDIER PILE RETAININGWALL - ANCHORED

