

BRIEF DESIGN & TECHNICAL SPECIFICATION for

FOUNDATIONS to

MILBURY PRECAST, PRESTRESSED VERTICAL CANTILEVER PANELS

Design Parameters

Walls and foundations are individually designed using Milbury Systems Ltd's (MSL) interpretation of BS8110, BS8002 and BS8004 with the design parameters supplied by the client or his representative. When MSL carries out the site installation site specific Method Statements and Risk Assessments are provided.

Walls can be designed to be loaded by level fill, vertical surcharge, line or point loads, sloped fill to the natural AoR or above.

Ground Bearing Pressures

Foundations for contracts are individually designed for the variance in loading, design life, durability and ground bearing pressure (GBP).

The Client or his Engineer generally to supply details of ground conditions, site investigations and allowable GBP. MSL does not carry out site investigations except in exceptional circumstances.

Wall or tank foundations are designed to the following Factors of Safety (FoS):-

Overturning and Sliding

Temporary	2 but could be reduced to 1.5 in certain circumstances.
Permanent	2 but could be increased in certain circumstances.

In bunkers and basements part of the floor slab will be included in the foundation shape and used to assist in both overturning and sliding

Storage Structures - including bunkers, bunds or clamps.

The forces and moments generated by the retention of granular materials are calculated using Rankine's theory. Those generated by the retention of cohesive materials are calculated using Coulomb's theory.

Earth Retaining walls – including basements, free-standing walls etc.

The forces and moments generated by the retention of granular materials are calculated using Rankine's theory. Those generated by the retention of cohesive

materials are calculated using Coulomb's theory.

Backfilling

Generally by free-draining granular materials. Loading from ground water is not calculated unless specifically requested and noted. Drainage at the rear of the wall (or weepholes) to prevent hydrostatic loading from normal or perched water tables is essential and provided by others.

Backfilling should be carried out by compacting the fill material evenly behind the wall in layers not exceeding 300 mm.

Reinforcement

Generally high yield rebar with f_y of 460 N/mm². This passes through pre-formed holes in the panels and under the panels in the gap formed by the cradles.

Concrete cover shall be 40 mm, sufficient for a 'very severe' exposure to table 3.3 of BS8110.

Concrete

To BSEN206-1 with a minimum exposure class – XC4, XS2, XD3, XF1 and XA1.

Minimum strength class (foundations and blinding) to be C40/45.

Maximum aggregate size to be 20 mm.

Maximum water/cement ratio to be 0.55.

Slump class to be S2 (50-90 mm).

Minimum cementitious content to be 350 kg/m³.

Method of Construction

After bulk excavations (by others) the foundation trench shall be excavated (generally by MSL) to the required depth and shape. This is then blinded with 100 mm of concrete to present a flat, level working surface to receive cradles, supplied by MSL. These cradlers are not structural, merely aids for lining and levelling and are not used a temporary support.

The next working day the cradles can be located and the panels installed and shimmed to the correct line and level. Props are used for temporary stability. Joints are sealed.

Reinforcement is positioned and tied. Shuttering (if required) is fixed. Foundation is cast, finished and cured. Props removed once base is sufficiently cured to resist loadings.

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