deGruchy's LIME WORKS.us
Makers of ecologic® Brand
Mortar & Plaster For Historic Restoration and Green Building
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Comparison Ecologic™ Mortar with Saint-Astier® Natural Hydraulic Lime 3.5/Sand vs. Typical Portland Cement Based Mixes	Units	Ecologic™ Mortar 1:2.5	Type N Cement 1:1:6	Type O Cement 1:2:9
Water Content		7.76 oz	200 gr	200 gr
Water to binder ratio		1.07	0.72	0.65
Penetration	Inch	23/64	9/32	9/32
Set (beginning)	Hours	6	1.3	1
Bulk density (no curing)	lb / ft3	134	131	131
Air content	%	0	0	0
Elasticity Moduli	Mpa			
28 days		9000	16200	15595
6 months		13505	22010	19300
12 months		13620	22210	19700
24 months		13785	22150	19650
Flexual strength	PSI			
7 days		83	297	239
28 days		69.6	283	225
6 months		246.5	304	217
12 months		297.25	319	246
24 months		290	319	254
Compressive strength	PSI			
7 days		83	728	719
28 days		213	1116	834
6 months		774	1174	834
12 months		588	1261	877
24 months		870	1232	863
Permeability (vapor exchange)	gr. (of air)/m2/ hour/mmHg	0.64	0.23	0.25
Shrinkage at 28 days	mm.m	0.44	0.63	0.42
Water absorption	L.h.m2	7.3	0.23	25
Capillarity	g.min	4.7	1.08	6.86

Type N and O mortars can successfully be replaced by Ecologic™ Natural Hydraulic Mortars. Work can continue on brick and stone walls built with this lime mortar with no delay between days for standard walls up to 24" thick and built 3' in height daily. The final strengths of these lime mortars will be realized over time (see above). The mortar will provide adequate weight distribution for the work until final strengths are achieved. The six best benefits of Ecologic™ lime mortar is it is immune to salt attack. It won't trap water in the hearting of a wall forcing water to go inward and bubble up plaster and paint. It accommodates slight movements of a building. It has 20% free lime which promotes self healing properties. It has a much lower carbon footprint. The mix constituents have historically been used since Roman times. Note that the minimum strength to reach Type N strength mortar is actually 750 psi by definition. This chart shows that real Type N mortar can create much stronger, denser + brittle mortars over 1200 psi. Ecologic™ Mortar will reach only what is required for Type N mortar over time without ending up being too strong for soft, historic masonry units yet durable enough to hold up to extreme freeze / thaw cycles conserving masonry and/or is ready for service in all new work where a Type N mortar would be used.