



Recons Group is leading channel partner of JSW - GGBS. We, at Recons Group, supply the raw material to various RMC Mega Infrastructure Projects and Builders.

Although normally designated as GGBS, it can also be referred to as Slag Cement. Being a by-product and waste using it effectively up to some extent serves as a step for a greener environment.

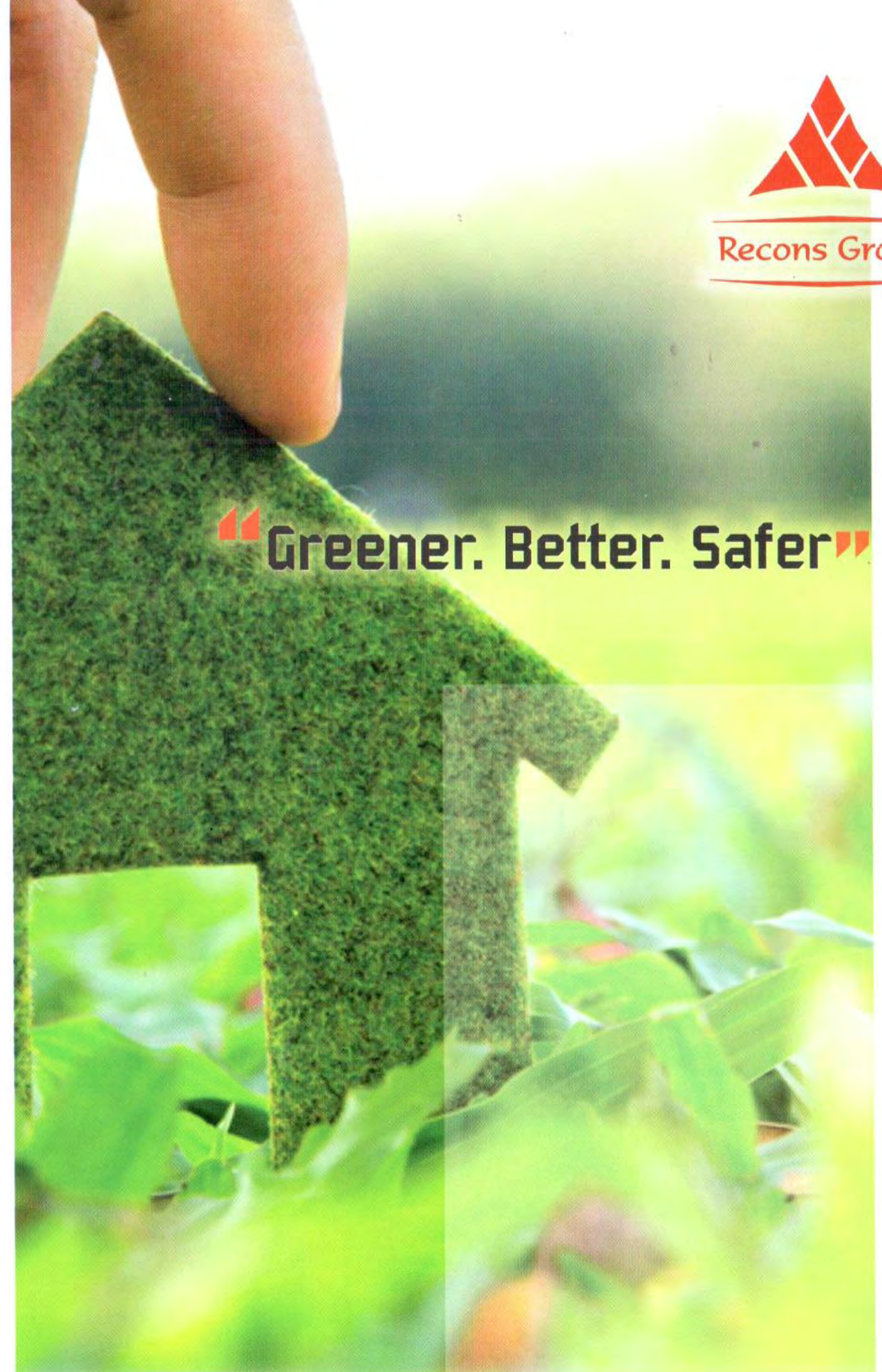
GGBS is used to make durable concrete structures in combination with ordinary Portland cement and/or other pozzolanic materials. GGBS has been widely used in Europe, and increasingly in the United States and in Asia (particularly in Japan and Singapore) for its superiority in concrete durability, extending the lifespan of buildings from fifty years to a hundred years.

Two major uses of GGBS are in the production of quality-improved slag cement, namely Portland Blast furnace cement (PBFC) and high-slag blast-furnace cement (HSBFC), with GGBS content ranging typically from 30 to 70% and in the production of ready-mixed or site-batched durable concrete.

Concrete made with GGBS cement sets more slowly than concrete made with ordinary Portland cement, depending on the amount of GGBS in the cementitious material, but also continues to gain strength over a longer period in production conditions. This results in lower heat of hydration and lower temperature rises, and makes avoiding cold joints easier, but may also affect construction schedules where the quick setting is required.

Uses Of JSW GGBS

- Better workability, making placing and compaction easier
- Lower early age temperature rise, reducing the risk of thermal cracking in large pores
- Elimination of the risk of damaging internal reactions such as ASR
- High resistance to chloride ingress, reducing the risk of reinforcement corrosion
- High resistance to attack by sulphate and other chemicals
- Considerable sustainability benefits



“Greener. Better. Safer”

Advantages Of GGBS Blended Concrete Over Fly Ash Blended Concrete:

- » Concrete made with GGBS has better particle packing due to particle shape and improved hydration.
- » The permitted replacement ratio of fly ash in OPC is 15-35 % (IS 1489 part -1), but its usually no more than 30% in concrete. On the other hand, the permitted replacement ratio of GGBS in OPC or concrete is 25-70% (IS 455) based on applications.
- » The density and volume of GGBS based concrete does not vary much with respect to normal concrete as specific gravity of GGBS is nearest to specific gravity of cement in comparison with the flyash based concrete and hence higher replacement of OPC with GGBS is possible.
- » long-term strength, sulphate resistance, chloride resistance and durability concrete is always better than that of fly ash blended concrete since the GGBS in reaction is both hydraulic and pozzolanic

GGBS is more consistent than flyash in concrete performance as it is factory made with state-of-the-art technology

Parameter	GGBS	As per IS: 12089 - 1987 (Reaffirmed 2008)
CaO	37.34%
Al ₂ O ₃	14.42%
Fe ₂ O ₃	1.11%
SiO ₂	37.73%
Magnesium Oxide(MgO)	8.71%	Max. 17.0%
Manganese Oxide (MgO)	0.02%	Max. 5.5%
Sulphide Sulphur	0.39%	Max. 2.0%
Loss On Ignition	1.41%
Insoluble Residue	1.59%	Max. 5%
Glass Content (%)	92%	Min. 85%

$\frac{1.CaO+MgO+1/3Al_2O_3}{SiO_2+2/3Al_2O_3}$	1.07	>1.0	The presence of major oxides with granulated slag shall satisfy atleast one of the equations.
$\frac{2.CeO + MgO + Al_2O_3}{SiO_2}$	1.60	>1.0	

Sulphate Resistance:

Concrete containing GGBS is acknowledged to have higher resistance to attack from sulphates than that made with only OPC. This is due to overall reduction in C3A level of concrete and to the inherent reduction in permeability.

Chloride Ingress:

GGBS blended concrete is significantly more resistant to the ingress of chlorides ions in concrete apart from reduced permeability. OPC used with GGBS chemically binds the chlorides with slag hydrates effectively reducing the mobility of chlorides thereby reducing the reinforcement corrosion risk.

Alkalinity:

Despite the reduction in Ca(OH)₂ caused by secondary slag hydration reactions, the PH of paste remains at a level which is well in excess of that which would affect the passivity of the reinforcing steel.

GGBS - A Sustainable Material For Green Building Construction:

Replacing the Portland cement by GGBS helps in reducing CO₂ emissions and in conserving non-renewable resources of time and space. Use of GGBS in concrete is recognized by LEED (Leadership in Energy and Environmental Design) and adds points towards its certification.

Packaging:

GGBS is available in bags & bulk packing.