



Manual on

Sustainable Guidelines for Construction Management

A GRIHA Council Publication



Developed by:

GRIHA Council
Core 1B, 3rd Floor
India Habitat Centre, Lodhi
Road
New Delhi – 110003

Tel: (+91 11) 46444500/24339606-08)
Email id: info@grihaindia.org
Website: www.grihaindia.org

Disclaimer:

1. All rights on the written and pictorial content are reserved.
2. No part of this publication may be reproduced in any form or by any means without prior written permission of GRIHA Council.

Preface



It is with great pleasure that we are introducing and integrating the manual for “Good Construction Management Practices” developed by GRIHA Council. In today’s world, where environmental stewardship and resource efficiency are paramount, this manual serves as a guide for construction managers, supervisors, and workforce who are committed to building responsibly.

This manual has been meticulously crafted to provide extensive guidance on adequate practices for construction activities on-site that not only ensure resource efficiency and the safety and well-being of our workforce, but also safeguard our environment. This manual encapsulates the fundamental aspects such as tree preservation, air and soil protection, water conservation, material and waste management and labour safety.

Within these pages, you will find practical cases on a wide range of construction processes and procedures. I hope this manual provides a reference guide to the construction industry and strives for continuous improvement.

Together, let us uphold the highest standards of construction excellence and foster a culture of safety and innovation on every site.

Table of contents

1. Are the **trees** preserved?
2. Is the **air** and **soil** getting polluted?
3. Is the **water** conserved?
4. Are the construction **materials** and **wastes** managed?
5. Are my **workers** safe?

Are the trees preserved?

Why is it important to preserve the trees?

Green spaces are integral components of urban ecosystems. They contribute to enhanced environmental quality, better quality of life, and sustainable urban development. The crucial necessity of green areas within urban social-ecological systems to ameliorate several urban problems of pollution, energy use, lack of leisure/recreation spaces carbon sequestration and so on that have become more pertinent in recent times.

However, the increasing construction activities have led to sharp decline in the tree cover resulting in escalated pollution levels and urban heat island effect while disrupting the natural ecosystem.

Therefore, it becomes vital to preserve the existing vegetation on site to minimize the detrimental impact of construction on the environment.

How to ensure that my trees are preserved?

Provision of barricading for trees

Barricading trees on construction sites is essential for preserving tree health, minimizing environmental impact, complying with regulations, and promoting sustainable and good construction practices.

Barricading trees ensure, protection from physical damage, preservation of root system, prevention of soil

contamination, minimization of soil grade changes and protection from construction debris.

The means of barricading can be selected depending upon the affordability and feasibility factors such as by using green shade cloth, waste cement bags, steel rods, bricks etc.



▲ Group of existing mature trees protected by fine net

Project location:
Daman



▲ Demonstration of barricading of trees using rubble masonry

Project location:
Chamba, H.P.



▲ Demonstration of barricading of trees using concrete blocks

Project location:
Jajpur, Odisha



▲ Demonstration of barricading of trees using steel rods and safety tapes

Project location:
Bijnor,
Uttar Pradesh



▲ Demonstration of barricading of trees using green net

Project location:
Haridwar,
Uttarakhand



▲ Demonstration of barricading of trees using green net

Project location:
Daman



▲ Demonstration of barricading of trees using green net and tape

Project location:
Bijnor,
Uttar Pradesh



▲ Demonstration of reuse of waste concrete blocks to safeguard trees

Project location:
Chamba, H.P.



▲ Demonstration of reuse of waste concrete blocks to safeguard trees

Project location:
New Delhi

Preservation of trees

Preserving trees is crucial for myriad reasons. They serve as vital carbon sinks, mitigating climate change by absorbing carbon dioxide and releasing oxygen, while also providing habitat for diverse wildlife and contributing to ecosystem services like soil stabilization and water regulation. Trees enhance human health and well-being, offering shade, reducing stress, and improving air quality. Preserving trees not only sustains ecosystems and biodiversity but also fosters resilience to climate change and supports sustainable development for generations to come.

Measures taken by the project team of one of the GRIHA registered projects to safeguard existing trees on site:

1



2



▲ 7 existing trees were wrapped by 10 layers of hessian cloth to prevent soil collapse

5



▲ Present condition of the trees after 20 months of the project

Project location:
New Delhi, Delhi

3



4



▲ These trees were sprinkled with water everyday

Is the **air & soil** getting polluted?

Why is it important to keep the air clean?

Air pollution is the most immediate environmental impact experienced near a construction site.

Air pollution impacts both humans and environment. Construction activities release dust, particulate matter (PM_{2.5}/10), and other pollutants. Poor air quality can harm workers' health and lead to respiratory issues.

Long term air pollution leads to depletion of flora and fauna and make the living conditions worse.

Air pollution releases sulfur dioxide and nitrogen oxides, which combine with water vapor to form acid rain.

Why is it important to conserve the soil?

Soil must be considered as a finite, non-renewable resource since its regeneration through chemical and biological weathering of underlying rock requires a long time.

At the time of construction, nutrient-rich topsoil is excavated along with the rest of the soil from the site and discarded in a construction landfill or backfill. Even when stored on site, it gets mixed with the construction and waste material, leading to contamination. During monsoon, the lack of channelized way to drain excess run-off water from the site leads to soil erosion.

How to prevent air & soil pollution?

Provision of 3 meter high barricading along the site boundary

A continuous 3 meter high barricading must be constructed around the construction activity to provide an enclosed area so that the movement of dust outside the site is restricted.

A 3m high barricading effectively contains the particulate matter within the site.

Barricading can be in the form of permanent boundary wall, temporary walls made of galvanized iron sheets, or fine net with adequate support to prevent from toppling during strong winds. The barricading should be solid throughout the boundary line with that meets the intent while ensuring feasibility for the project team.



▲ 3 meter high barricading along the site boundary | Project location: Daman



▲ Barricading done by solid concrete wall

Project location:
Bhubaneswar,
Odisha



▲ Barricading done by galvanized iron sheets

Project location:
New Delhi



▲ Permanent barricading height increased by adding galvanized iron sheets

Project location:
Bangalore,
Karnataka



▲ Iron bars on the boundary wall are covered with fine net

Project location:
Palakkad, Kerala

Ensuring DG sets have 2 meter high stack

A Diesel Generator exhaust emits toxic air contaminants such as carbon monoxide, hydrocarbons, nitrogen oxides and carbon dioxide into the atmosphere. Inhaling these hazardous gases may risk human health.

As a preventative measure, DG sets should be placed away from the construction zone and the height of the exhaust should be above the working area of workers to avoid direct inhaling of toxic air. It is recommended to keep the height atleast 2m from the top of the generator and a cowi should be provided at the outlet of the pipe.



▲ Exhaust (along with a cowi) of a diesel generator with a stack height of 2m from the top of DG set

Project location:
Golaghat, Assam



▲ Diesel generator placed on site

Project location:
New Delhi



▲ Diesel generator placed on site away from the construction zone

Project location:
Manesar, Haryana

Spill prevention plan for hazardous material

Discharge of hazardous substances into the soil is a common cause of soil pollution on any construction site. Toxic material absorbed by the soil can pollute groundwater or, if discharged to water drains, may damage it. Spills involving fuel and lubricants can occur during construction owing to mishandling, damage, or vandalism.

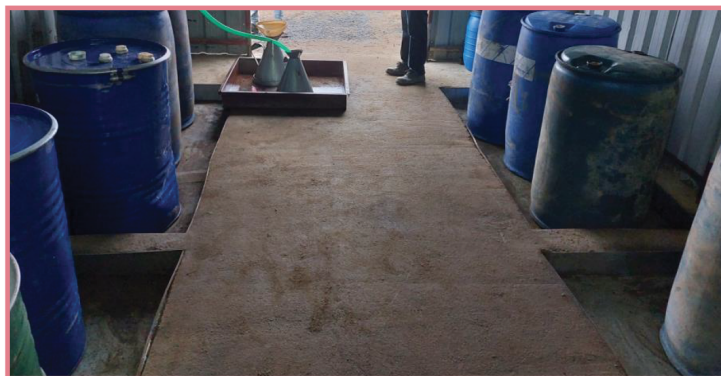
For the storage of these materials, the following spill prevention measures can be adopted:

- Dedicated enclosed area should be provided to store all hazardous materials used on-site. The materials should be placed on an impervious surface.
- Channels should be constructed along the periphery to direct the toxic material in an impervious pit in case of any spill.
- Spill prevention kit should be available near the storage area, and it should include gloves, absorbent materials, and disposal bags.
- Proper equipment (pumps, funnels) should be used to transfer fluids and such transfers should be performed only in designated areas.
- Secondary containment (drain pan) should be provided to catch any spills while removing or changing fluids.



▲ Diesel storage yard on-site

Project location:
Chamba, H.P.



▲ Hazardous material stored under covered area on paving with collection trays

Project location:
Palakkad, Kerala



▲ Hazardous material stored on impervious land

Project location:
Golaghat, Assam

Wheel washing facility at the site exits

This facility is constructed as a slight depression filled with water, so that the tyres of vehicles can be washed and construction muck from the site is not carried away along with tyres outside the site.

Length of the depression should be equal to the perimeter of the tyre so that at least one type rotation is completed within it, whereas width should be equal to width of the vehicle, and the bottom should be impermeable.



▲ Mechanical washing of tyres using sprinklers. The water is collected and reused again for washing.

Project location:
New Delhi



▲ Wheel-washing facility at the exit of the site

Project location:
New, Delhi



▲ Tyres of a truck getting washed by a mechanical wheel-washing facility

Project location:
New Delhi



Pathway topped with gravel to suppress dust

Project location:
Visakhapatnam,
Andhra Pradesh

Provision of Gravel beds at the site exits

In place of providing a wheel-washing facility, the vehicles can be passed through a gravel pad to remove dirt from tyres. The design should be similar to a wheel washing facility in terms of dimensions.

Additionally, it should be lined from all four sides to prevent the gravels from getting dispersed after every vehicular movement.



Gravel bed along with wheel washing facility to suppress dust

Project location:
New Delhi

Gravel bed at the site to suppress dust from vehicles

Project location:
Mumbai, Maharashtra



Limit the speed of vehicles

To minimize the impact of dust during construction, the speed of vehicular movement on-site should be limited to 10km/h. This should be done through the means of clear signage at intended locations on site. Along with this, there should be clear segregation between pedestrian and vehicular pathways. Low speed of the vehicles will result in lesser displacement of dust particles from the ground to the air.

Signage showcasing the speed limit on the site being limited to 10km/h

Project location:
Navi Mumbai,
Maharashtra



▲ Signage showcasing the speed limit on the site being limited to 10km/h

Project location:
Hyderabad,
Telangana



▲ Signage showcasing the speed limit on the site being limited to 10km/h

Project location:
Daman

Sprinkling of fine materials with non-potable water

In order to safely handle construction materials that have a tendency to get airborne, non-potable water is sprinkled over them. This minimizes the impact of dust during construction. Along with fine aggregate, excavated earth, and other construction materials, unpaved pathways are also sprinkled with water for the same reason.



▲ Spray gun being used to spray water on to the fine material

Project location:
New Delhi



▲ Fine material being sprayed on with water by a worker

Project location:
Hyderabad,
Telangana



▲ Periodic water sprinkling of the road

Project location:
Tuticorin,
Tamil Nadu

Covering of fine materials

To minimize the impact of dust during construction, fine construction materials that can go air-borne must be covered with impervious fabric/material while being carried in and out of the site. For storage on-site, the dust-creating materials should be either covered with impervious fabric or stored in enclosed spaces.

Fine material being covered with a layer of impervious fabric

Project location:
Mumbai,
Maharashtra



▲ Fine material being covered with a layer of impervious fabric

Project location:
Namchi, Sikkim



▲ Fine material being covered with a layer of impervious fabric

Project location:
Haridwar,
Uttarakhand

Construction of Soil Erosion channels

Soil erosion channels reduce the movement of soil outside the site throughout the construction phase of the project, thereby preventing pollutants from spilling over into neighbouring sites and municipal drainage lines. These channels run through the periphery of the site and are connected to a sedimentation tank.

A sedimentation tank is a temporary basin designed and constructed at the lowest level of the site in order to collect the sediment produced during the construction.



▲ Sedimentation tank connected via soil erosion channel

Project location:
Adilabad,
Telangana



▲ Soil erosion channel with gravel bed

Project location:
Kolhapur,
Maharashtra



▲ Soil erosion channel made of concrete running through the site

Project location:
Tuticorin,
Tamil Nadu

Preservation of fertile Topsoil

Ecologically, topsoil is a resource that takes many years to come up to an acceptable level of nutrient richness and fertility. It is a mix of organic matter which make up valuable ingredient required for the growth of vegetation. If the soil is found to be fertile as per fertility test report, the topsoil should be stripped off and separated from the subsoil debris and stones larger than 50mm in diameter. This topsoil is then needed to be stored at a designated location on-site which is proposed to remain undisturbed.

For stockpiling of the topsoil, the height should not be more than 400mm and mulching has to be done to maintain its fertility.

Mulch is a protective layer of material that is spread on top of the soil, which can be either organic or inorganic. Construction of temporary soil erosion channels around the periphery of the soil storage area needs to be done to prevent the soil flowing along the run-off water.



▲ Storage of Topsoil in stock yard

Project location:
Hyderabad,
Telangana

TAMIL NADU AGRICULTURAL UNIVERSITY

From
Dr. S. Suresh, Ph.D
Professor and Head
Dept. of SS&AC
AC&R, Kilikulam
Theerthakudi-628 252

To
KFC International Limited
Tuticorin Airport Project
Tuticorin

No. P&H/SS&AC/KKM/Soil Samples-Analytical Results/2021 dated 27.07.2021

Sir,

Sub : SS&AC-AC&R/KKM-Soil Samples-Analytical results-reg
Ref : Lr. No. Nil KFC/Chil/TCN Airport/QC/20-21/02 dated 15.07.2021

Asent to the reference cited, the analytical results of the Soil samples is furnished below. The bill of cost for Rs. 5120/- Bill No. 150764 dated 27.07.2021 is enclosed.

Analytical Results

S. No.	Parameters	pH	EC (dSm ⁻¹)	Organic carbon (%)	Available Nitrogen (kg ha ⁻¹)	Available Phosphorus (kg ha ⁻¹)	Available Potassium (kg ha ⁻¹)
1.	Sample 1 (Passenger Terminal Building)	2.21	1.04	0.24	140	17.4	102
2.	Sample 2 (Fire Station)	5.31	0.11	0.49	180	25.9	130
3.	Sample 3 (ATC tower and technical building)	9.38	0.16	0.40	196	9.5	160
4.	Sample 4 (Service Building)	6.55	0.03	0.55	240	12.2	220
5.	Sample 5 (Landscape area)	7.48	0.44	0.71	278	13.5	230
6.	Sample 6 (Landscape area)	8.73	0.07	0.68	260	10.6	190
7.	Sample 7 (Road area)	6.54	0.02	0.74	271	12.8	210
8.	Sample 8 (Road area)	4.40	0.03	0.28	162	20.5	110

(Soil sample location taken from Airport Project Drawing)

S. Suresh
Professor and Head
Dept. of SS&AC
PROFESSOR AND HEAD
Dept. of Soil Science & Agr. Chemistry
Agricultural College & Research Institute,
Kilikulam, VALLANADU-621 252

◀ Fertility report of topsoil



▲ Preservation of topsoil on-site

Project location:
Pune,
Maharashtra

Is the **water** conserved

Why is it important to conserve the water?

Water is an essential resource for ensuring environmental stability, food security, and industrial production.

Water is required for a lot of construction activities, such as mixing of concrete, mortar, and plaster, curing of bricks, slabs, columns, and walls, washing of equipment, etc. It is estimated that for every 1sqm of wall construction, an average of 350L of water gets consumed.

Given the risen growth of construction industry, there is an urgent need to implement water conservation strategies in construction sites.

Hence, water should be used in a wise, judicious, and non-wasteful manner. It is important to meter and monitor the sources to understand the utilization of water during the entire construction process. Alternatively, choice of materials plays an equivalent important

How to ensure that you are conserving the water ?

Strategies to reduce water demand in the structural con-

During construction, a huge quantum of water is used in the structural concrete and for curing. Therefore, strategies must be adopted to reduce the same without compromising on the structural stability.

Strategies that maybe adopted to reduce curing water demand:

1. Ponding for curing of slabs
2. Curing using hessian cloth



▲ Ponding technique used for curing of concrete

Project location:
Tuticorin,
Tamil Nadu

Vertical surfaces such as walls and columns lose curing water rapidly. Therefore, it is preferable to retain the formwork longer or use wetting frequently.

Traditional methods such as the use of gunnybags or hessian cloth, which are kept permanently damp with adequate water, are also efficient ways for curing the concrete on vertical surfaces.



Bags of water with hessian cloth to ensure continued moistening for effective curing

Project location:
Palakkad,



Hessian cloth laid on slab for curing

Project location:
New Delhi



Use of hessian cloth on-site for curing of concrete

Project location:
Haridwar,

Use of curing compound

Application of
polymer modified
self-curing mortar
on-site

Project location:



▲ Use of curing compound on-site

Project location:
Panvel,
Maharashtra

▲ Containers of curing compound kept
on-site

Project location:
New Delhi

Strategy to reduce water demand in structural concrete

Water-reducing admixtures are added to concrete to achieve certain workability (slump) at low water-cement ratio. Water reducers are mostly used in hot weather concreting and in pumping.

Company name: ULTRATECH CEMENT LTD Task name: SUJATA BUILDCON

Project Name: SUJATA BUILDCON CM 6.00

Project Part: SUJATA BUILDCON Recipe No: M35P1RC008 Driver: S

Grade: M35 Work Method: Truck: UP14HT2162 Task No: 206

Docket No.: 20769 Density: 2370 Distance: 0 Date: 11-01-24 11:27:47

BATCH START BATCH END

DATE: 11-01-2024 TIME: 11:29:32 DATE: 11-01-2024 TIME: 12:00:08

SEQ	CASIMM	CA20MM	FANSI	RFANS	CEMENT	FLYASH	Cement 3	FLYASH1	WATER	ADMPPLAST	ADMPURE 2
SET 1-3	436	655	641	0	300.0	161.0	0.0	0.0	160.0	2.70	0.00
MT THEOR	2616	3930	3846	0	1800.0	966.0	0.0	0.0	960.0	16.20	0.00
BATCH NO	DOSE	ACT	MAIOS	CORR	ACT	MAIOS	CORR	ACT	MAIOS	CORR	ACT
1	218	219	0.00	328	322	0.00	341	356	6.40	0	0.00
2	217	205	0.00	334	329	0.00	326	321	6.40	0	0.00
3	230	220	0.00	333	322	0.00	346	343	6.40	0	0.00
4	228	229	0.00	339	331	0.00	344	334	6.40	0	0.00
5	217	215	0.00	336	327	0.00	351	346	6.40	0	0.00
6	220	208	0.00	337	328	0.00	346	340	6.40	0	0.00
7	230	221	0.00	337	329	0.00	347	333	6.40	0	0.00
8	227	226	0.00	336	327	0.00	355	340	6.40	0	0.00
9	219	216	0.00	337	329	0.00	356	354	6.40	0	0.00
10	221	214	0.00	336	325	0.00	343	337	6.40	0	0.00
11	225	223	0.00	339	331	0.00	347	339	6.40	0	0.00
12	220	228	0.00	336	328	0.00	349	339	6.40	0	0.00
STAT	2624.00	3928.00		4082.00	0.00		1798.60	963.40	0.00		0.00
ATER	0.00	0.00		261.25	0.00		-1.40	-2.60	0.00		-244.60
STENT	8.00	-2.00		-25.25	0.00		-0.08	-0.27	0.00		-25.48
RROR	0.31	-0.05		-0.66	0.00						0.49

Ames

Batch-mix report showing the quantity of admixture

Project location: Greater Noida,



Drums containing Admixture being stored on-site

Project location: Namchi, Sikkim

Auramix 400

Advanced Low Viscosity High Performance Superplasticiser, based on Polycarboxylic technology

Uses

- Self-compacting concrete,
- Pumped concrete,
- Concrete requiring long workability retention,
- High performance concrete.

Standard Compliance

Auramix 400 complies with IS-9103-1999(2007). It also complies with ASTM C494 Type G depending on the dosage used.

Advantages

- Low viscosity suitable for pumping of different grades of concrete to higher floors

Technical support

Fosroc provides a technical advisory service for on-site assistance and advice on mix design, admixture selection, evaluation trials and dispensing equipment.

Properties

Appearance	: Light yellow coloured liquid
pH	: Minimum 6.0 *
Volumetric mass @ 20° C	: 1.09 kg/litre
Chloride content	: Nil to IS-456 *
Alkali content	: Typically less than 1.5 g Na ₂ O equivalent / litre of admixture.

* The uniformity parameters like specific gravity, pH, chloride content etc. will vary for specific customer requirements a mix design. Please refer our MTC issued for specific product configuration for measuring our product parameters that will be constantly and consistently administered.

Technical specifications of admixture

Project location: Chamba, H.P.

Strategies to manage water wastage: Metering

Project team should meter the usage of the water at source, that is, groundwater, municipal connection or water tankers, to manage water consumption during construction of the project and should maintain record of the usage on-site.

It is practically very difficult to monitor water used for each activity on-site, but overall water used per day can be measured using water meters and recorded daily so that some preventive steps can be taken to avoid water wastage during construction and reduce the consumption of water.

**Water Supply 300 Bedded Hospital Namchi
407 Car Water Tank Per tank 4000 Ltrs**

Date	Driver Dipak(SK04D0407)		Driver Raju(SK05D0242)		Remarks
	Time	Trips	Time	Trips	
10/1/2021	7:45 AM	3	8:00 AM	3	3 trips for Assangthang
	11:45 AM		11:00 AM		
	2:15 PM		2:30 PM		
10/2/2021	7:45 AM	3	7:45 AM	3	3 trips for Assangthang
	9:50 AM		11:45 AM		
	2:10 PM		2:30 PM		
10/4/2021	9:25 AM	2	9:30 AM	1	1 trips for Assangthang
	11:00 AM				
10/5/2021	2:00 PM	1	12:00 PM	2	2 trips for Assangthang
			2:50 PM		
10/6/2021	9:20 AM	3	12:00 PM	3	3 trips for Assangthang
	2:20 PM		2:50 PM		
	5:00 PM		9:30 AM		
10/7/2021	10:00 AM	2	9:00 AM	3	3 trips for Assangthang
	2:20 PM		12:10 PM		
			3:00 PM		
10/8/2021	9:00 AM	2	1:00 PM	2	2 trips for Assangthang
	12:00 PM		3:30 PM		
10/9/2021	10:30 AM	2	11:10 AM	2	2 trips for Assangthang
	2:20 PM		2:30 PM		
10/25/2021	11:30 AM	1	2:30 PM	1	1 Trip for Assangthang
10/26/2021	11:45 AM	1	2:30 PM	1	1 Trip for Assangthang
10/27/2021	8:10 AM	3	8:30 AM	3	3 trips for Assangthang
	12:00 PM		11:10 AM		
	3:00 AM		2:25 PM		
10/28/2021	7:45 AM	3	9:00 AM	3	3 trips for Assangthang
	11:30 AM		11:45 AM		
	2:40 AM		3:10 PM		
10/29/2021	8:15 AM	3	8:30 AM	3	3 trips for Assangthang
	12:00 PM		11:50 AM		
	2:30 AM		2:45 PM		
10/30/2021	8:10 AM	1	10:00 AM	1	1 Trip for Assangthang
		30		31	

Note: Water supply at site for site work, sprinkling at road near site and Assangthang Dumping point and supply of drinking water for Labour Camp.

▲ Sample daily water usage log

Project location:
Namchi, Sikkim



▲ Installation of meter at the source to monitor water consumption during construction

Project location:
New Delhi



▲ Water consumption record

Project location:
Golaghat,
Assam

Are the construction materials & waste managed?

Why is it important to manage the construction material and waste on-site?

To ensure that the quality of the construction materials is maintained, it is important to plan and manage the site considering different stages of the construction process and accordingly store the material.

Further, to manage the waste material, separate areas should be provided on-site and later the waste material should be sold to recyclers to minimize the load on landfill.

In construction, staging is a good strategy to manage resources on-site. Staging refers to the process of preparing and organizing materials, equipment, and resources required for a construction project. Staging involves strategically planning and managing the flow of materials from procurement to installation or use on the construction site.

How to ensure the proper management?

Staging of construction materials

Key components of site management: Material procurement, storage and organization, inventory management and quality control. Staging ensures that the right materials are available at the right time and in the right place, thereby optimizing efficiency, minimizing waste, and contributing to the successful completion of the project.



▲ Staging of materials done on-site

Project location:
Jajpur, Odisha



▲ Staging of cement bags

Project location:
Lakhimpuri, U.P.



▲ Staging of concrete blocks

Project location:
New Delhi



▲ Temporary steel yard on-site

Project location:
Kozhikode, Kerala



▲ Stone yard on-site

Project location:
Kozhikode, Kerala



▲ Staging of construction materials

Project location:
Jajpur, Odisha



▲ Staging of construction materials

Project location:
Jajpur, Odisha



▲ Staging of steel

Project location:
Tuticorin, Tamil Nadu



▲ Staging of plumbing materials

Project location:
Varanasi, Uttar Pradesh

Segregation of construction waste

Segregating construction waste materials on site is an essential practice for promoting environmental sustainability, reducing waste disposal costs, and ensuring resource generation from waste.

By implementing effective waste management strategies, construction projects can minimize their environmental footprint and contribute to a more sustainable built environment.



▲ Demonstration of segregation of wood scraps | Project location: Jajpur, Odisha



▲ Demonstration of segregation of concrete waste | Project location: Chamba, H.P.



▲ Demonstration of segregation of construction waste | Project location: Haridwar, Uttarakhand



▲ Demonstration of segregation of steel rods of varying diameter

Project location:
Jajpur, Odisha



▲ Demonstration of segregation of steel scraps

Project location:
Jajpur, Odisha



▲ Demonstration of segregation of steel scraps

Project location:
Tuticorin, Tamil Nadu



▲ Demonstration of segregation of construction waste

Project location:
Varanasi, Uttar Pradesh

Reuse of construction waste

Construction waste contribute significantly to landfill volumes and environmental degradation. By reusing this waste, we reduce the burden on landfills and mitigate pollution and habitat destruction associated with waste disposal.

Construction materials like concrete, wood, and metals require significant amounts of natural resources to produce. By reusing these materials, we conserve natural resources such as timber, aggregates, and ores, thus promoting sustainability. Reusing materials can lead to cost savings for construction projects. Salvaging and reusing materials can reduce the need for purchasing new materials, lowering construction costs.



▲ Plastic bottles being used to create masonry units

Project location:
New Delhi



▲ Demonstration of reuse of waste plywood used at site

Project location:
New Delhi



▲ Demonstration of reuse of waste rebar used at site

Project location:
New Delhi



▲ Demonstration of reuse of waste concrete used on site | Project location: New Delhi



▲ Demonstration of reuse of waste insulation material and plywood used on site | Project location: New Delhi



▲ Demonstration of reuse of waste flyash bricks used on site | Project location: New Delhi



▲ Demonstration of reuse of waste concrete used on site to make lintels | Project location: Jajpur, Odisha

Are my workers safe

Why is it important to keep the construction workers safe?

The safety and welfare of construction workers is of paramount importance; therefore it is important to pay attention to the same.

Ensuring safety measures and providing facilities for construction workers is crucial for several reasons:

Worker Well-Being:

Prioritizing health and safety protects the well-being of construction employees. It ensures they can work in a secure environment without unnecessary risks while ensuring physical and mental well-being.

Accident Prevention:

Implementing safety measures minimizes/eliminates the number of accidents and injuries on construction sites. This leads to lesser disruptions on site which turn out to be cost beneficial.

Social welfare:

Providing adequate welfare facilities, such as rest areas, toilets, and dining spaces, ensures a sense

Provision of personal protective equipment and gears

Personal Equipment (PPE) is an indispensable part of ensuring safety on construction sites. PPE offers several benefits, including risk reduction, accident prevention, lower workers' compensation costs, improved compliance with health and

safety regulations, and a boost in employee morale as they feel safer at work.

The 'National Building Code of India' by the Bureau of Indian Standards contain regulations that lay down the minimum provisions to be made for the safety of well-being of construction workers.

How to ensure that my workers are safe?



▲ Showcasing PPE equipments on a dummy model in a safety park

Project location: Chamba, H.P.



▲ Adherence of safety compliance with provision of safety boots and helmets.

Project location:
Bhubaneswar,
Odisha



▲ Adherence of safety compliance with provision of safety glasses and gloves on-site.

Project location:
Kozhikode, Kerala



▲ Demonstration of safety induction programme on-site.

Project location:
Hyderabad,
Telangana



▲ Adherence of workers with safety harnesses working at height on-site.

Project location:
Bijnor,
Uttar Pradesh

Projection of Safety

Prominently displayed safety signs increase awareness among construction workers. They remind individuals to be mindful of their working practices and potential hazards.

The safety signs should be displayed at strategic locations on the site in a language that could be easily understood by the employed workers.



Sign boards at strategic locations on the site in English as well as the local language.

Project location:
New Delhi



Projection of safety sign boards at the main gate of the project site in a local language

Project location:
New Delhi

Display of safety signage with innovative ideas.

Project location:
Chamba, H.P.





▲ Signage in local language showcasing prohibition of children entering the construction site

Project location: Pune, Maharashtra



▲ Signboard at the entrance of the site that showcases the safety rules

Project location: Sambalpur, Odisha



▲ Multiple signanges put on site

Project location: Palakkad, Kerala



▲ Safety signage in local language to spread awareness among construction

Project location: Palakkad, Kerala

Provision of First-aid facility, Paramedics, and Ambulance

Construction sites are inherently hazardous environments with potential for accidents, falls, and injuries. Having first aid facilities and ambulances mitigates risks, providing timely care when needed.

Provision of first-aid and ambulance ensures that in the event of an accident, immediate medical attention can significantly reduce the severity of injuries and, in some cases, save lives. Having trained personnel and well-equipped first aid stations ensures rapid response to emergencies.



▲ Provision of First-aid facility on the construction site for the staff and workers.

Project location:
Daman



▲ Provision of medical room at the construction site with doctor available on call.

Project location:
Hyderabad,
Telangana



▲ Provision of ambulance in case of emergency.

Project location:
Tuticorin, Tamil Nadu

Provision of Safety Nets and Barricading

Safety nets play a fundamental role in ensuring job site safety by protecting workers from falls and injuries. These nets are designed to catch falling workers and prevent them from hitting the ground, minimizing the risk of serious injuries or fatalities.

Barricading of critical zones (along excavated sites, staircases, and open slabs) prevents unauthorized entry to hazardous area, thus reducing the risk of accidents and protecting both workers and the public from potential dangers.



▲ Provision of safety nets at height in a building under construction

Project location:
New, Delhi



▲ Provision of safety nets for a multi-storey | Project location:
Panvel, Maharashtra



▲ Barricading of open slab on-site

Project location:
Hyderabad, Telangana



▲ Demonstration of barricading of open lift shafts on-site

Project location:
Palakkad, Kerala



▲ Barricading of openings on the construction site

Project location:
Mumbai, Maharashtra



▲ Barricading of excavated area on-site

Project location:
Tuticorin, Tamil Nadu



▲ Barricading along the crossway

Project location:
Bijnor, Uttar Pradesh

Provision to combat Fire Emergency

Construction sites involve flammable materials, electrical installations, and machinery. An emergency plan identifies potential fire risks and outlines preventive measures to minimize these risks.

The construction site should be apt with the preparation of an emergency plan in case of fire, highlighting fire exits and assembly points throughout the site, and provision of firefighting equipments at required locations.



▲ Fire Emergency Assembly point marked on-site through apt signage

Project location:
Tuticorin,
Tamil Nadu



▲ Fire balls in the kitchen at the labour accom-

Project location:
Pune, Maharashtra



▲ Dedicated area for fire extinguishers on-site

Project location:
Mumbai, Maharashtra

Provision of Crèche facility on-site

Provision of crèche facilities at construction sites ensures that the children are safe during working hours and the workers can concentrate better when their children are in safe hands, leading to better productivity.

Crèche facilities appeal to mother in senior roles, promoting gender equality as more mothers can work as breadwinners.



▲ Children taken care of at the crèche facility during daytime hours

Project location:
Pune, Maharashtra



▲ Provision of a crèche facility for the children of construction workers

Project location:
Pune, Maharashtra



▲ Dedicated play area for children at the crèche facility for construction workers.

Project location:
Hyderabad,
Telangana

Tobacco & Smoke control

Smoking poses a significant threat to health and can pose fire risk, especially in environments with flammable materials. Prohibiting smoking helps maintain air quality and protects workers' health. Display of 'No Smoking' signs at strategic locations on site clearly communicate that smoking is prohibited, reducing the likelihood of accidental fires.



Display of "No Smoking" Signage on the construction site.

Project location:
Panvel,

Display of "No Smoking" Signage on the construction site.

Project location:
Tuticorin,
Tamil Nadu



Humorous way of spreading awareness against tobacco consumption.

Project location:
New Delhi

गुटखा खाओ-पुरस्कार पाओ
योजना अवधि-मात्र से जीवन प्रयत्न

प्रथम पुरस्कार- कैंसर।
द्वितीय पुरस्कार- गले हुये गाल।
तृतीय पुरस्कार- छोटा मुँह।
चतुर्थ पुरस्कार- जवानी में बुढ़ापा।
पंचम पुरस्कार- किडनी खराब।
षष्ठम पुरस्कार- रज्जौसी।
सप्तम पुरस्कार- राम नाम सत्य है।
फार्म मिलने का स्थान- पान की दुकान

पुरस्कार स्थान- शमशान घाट
मुख्य अतिथि- यमराज
अतिशीघ्र योजना का लाभ उठाये।
हर गुटखे के साथ कमजोरी मुफ्त पार।

Cem ITD Cementation India Limited

Provision of clean drinking

Clean drinking water facility should be provided at the site and at the accommodation and the water should meet BIS standards.

providing clean drinking water to laborers is not just a legal or ethical obligation; it is a fundamental aspect of responsible and humane management practices in the construction industry. It contributes to the well-being, safety, and productivity of workers, ultimately benefiting both the workers and the employers.



▲ Provision of clean drinking water facility at the site

Project location:
Hyderabad, Telangana



▲ Provision of clean drinking water facility at the site

Project:
New Delhi, Delhi



▲ Provision of clean drinking water facility at accommodation

Project:
Jajpur, Odisha



▲ Provision of clean drinking water facility at the site | Project: Palakkad, Kerala



▲ Provision of clean drinking water facility at the site | Project location: Hyderabad, Telangana



▲ Provision of clean drinking water facility at the site | Project location: Hyderabad, Telangana



▲ Provision of clean drinking water facility at the site | Project location: Kolhapur, Maharashtra

Provision of clean sanitation facilities

Clean, hygienic and separate toilets for male and female workers at the construction site as well as at the workers accommodation are recommended in NBC. All the bathrooms and toilets should have solid compartments, and intact doors with fastenings.

Clean sanitation facilities are a basic necessity for workers at construction sites. They play a critical role in safeguarding health, ensuring safety, enhancing productivity, and promoting dignity and well-being among the workforce. By prioritizing the provision of clean sanitation facilities, employers can create a healthier, safer, and more respectful work environment for their workers.



▲ Provision of clean sanitation facility at the site

Project location:
New Delhi, Delhi



▲ Provision of clean sanitation facility at the accommodation

Project location:
Kozhikode, Kerala



▲ Provision of clean sanitation facility at the accommodation

Project location:
Palakkad, Kerala



▲ Provision of clean sanitation facility at accommodation | Project location: Hyderabad, Telangana



▲ Provision of clean sanitation facility at the site | Project location: Chamba, H.P.



▲ Provision of clean sanitation facility at the site | Project location: Hyderabad, Telangana



▲ Provision of clean sanitation facility at the site | Project location: Tuticorin, Tamil Nadu



▲ Provision of bathing facility at the site | Project location: Hyderabad, Telangana



▲ Provision of bathing facility at the site | Project location: Mumbai, Maharashtra



▲ Provision of bathing facility at the site | Project location: New Delhi



▲ Provision of bathing facility at the site | Project location: Jajpur, Odisha

Provision of clean accommodation facilities

Clean and hygienic accommodation facilities should be provided as recommended in NBC. Safe and clean accommodation with minimum height 2.7 meter, along with provision for ventilation, daylight and artificial light should be provided.

Providing clean accommodation facilities is not only a legal and ethical responsibility but also a strategic investment in the health, well-being, and productivity of the workforce. By ensuring that workers have access to safe and hygienic living quarters, employers can create a positive work environment that promotes employee satisfaction, retention, and overall success.



▲ Provision of clean and safe accommodation with daylighting and ventilation

Project location:
Kozhikode, Kerala



▲ Provision of clean and safe accommodation with daylighting and ventilation

Project location:
Kozhikode, Kerala



▲ Provision of clean and safe accommodation with daylighting and ventilation

Project location:
New Delhi, Delhi



▲ Provision of clean sanitation facility with head height 2.7 meter | Project location: Hyderabad, Telangana



▲ Provision of kitchen facility at the accommodation | Project location: New Delhi



▲ Provision of grocery store | Project location: New Delhi



▲ Provision of dustbins at accommodation near dining area | Project location: Palakkad, Kerala

