concrete mixing manual

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Book Descriptions:

concrete mixing manual

A concrete is said to be well mixed if it fulfills the following requirements. The following procedure is followed to mix concrete by hand. Construct a platform of bricks or lean concrete or iron sheets, of a size as per requirement of the volume of concrete to be mixed. Commonly a platform made of iron sheet having 3m 2 in size with strips or kerbs are used. Dump the cement on the sand and distribute it uniformly. Mix the sand and cement with the shovels, turning the mixture over and over again until it is uniform in colour. On top of this, spread the measured quantity of C.A coarse aggregate. Don't dump at one place; otherwise the bigger particles will tend to roll out. Mix again at least three times by shoveling from the center to side, and then back to the center and again to the side. While the material is turned in towards the centre with shovels, add the remainder of the water slowly, turning the mixture over and again until the colour and consistency are uniform throughout the pile. This will indicate that all ingredients are thoroughly combined. The water should be poured slowly into the mix. This is best done by means of a gardener's water can fitted with a rosehead. Throwing water from a bucket all at a time will result in its running away and taking cement with it. If the concrete is mixed properly, then after releasing the hand pressure, it will retain its shape. Also the surface of the sample will be moist without water dripping out of it. To know more about me just visit AboutMe Is this doable by one person only. Thank you very much indeed. Notify me of new posts by email. VIP members get additional benefits. VIP members get additional benefits. You will receive a link and will create a new password via email. Become VIP Member Become VIP Member The precautions and the correct way of performing hand mixing of concrete is to undergo the mixing process as recommended by the standard procedures.http://thetokyopages.com/paddyspalmspub/temp/95-accord-automatic-to-manual-conversion.xml

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Normally for mass concrete, where good quality of concrete is required, mechanical mixer is used. Alternatively, the measured quantity of coarse aggregate is spread out and the sand cement mixture is then spread on its top. The remaining water is added by a watercan fitted with rose head, slowly turning the whole mixture over and over again until a uniform color and consistency is obtained throughout the pile. Large works will ask for large quantity of concrete at a time, for which we must use either a machine mixer or ready mix concrete. This means we must not mix large quantities very earlier for a work that is going to start later. This platform have to be impervious. This can be either a concrete platform or a brick floor. The mixing is continued till a uniform mixture is obtained. An inappropriate order of addition of material must not be followed. Use of large buckets will end up having a large heap that is difficult to be mixed by hand. In some cases, the large heap is divided into two large heaps and performed individually. This can be only carried out by one will proper skill and experience. This must be avoided. This increase in temperature will evaporate the water

content, hence making the mixture dry. Once the required amount of mixing is performed, keep it idol and mixing in small quantities during the time of placing. She is an Author, Editor and Partner at theconstructor.org. How it Can Save. However its also possible to mix concrete by hand without a mixer with a little care and some effort. Sometimes the need arises to mix concrete for setting gate, fence posts or a clothes line into the ground. Another possibility is that you have to make a concrete slab to act as a base for something like a fuel bunker. All you need for mixing concrete are the three materials, water and minimal tools A shovel, a couple of buckets and optionally a sheet of plastic.http://www.otk-alfamos.ru/userfiles/95-accord-manual-transmission-fluid-change.xml

The three constituents on their own have no real strength but when bound together, stones interlock like a 3D jigsaw puzzle and sand and cement fills the gaps. Cement just glues the stones and sand together but its the stone that gives concrete its shear and compressive strength, not the cement. There are several different types of cement, two examples are Portland cement and blast furnace slag cement. Portland cement is made by baking limestone in kilns and grinding the clinker produced with a little gypsum to form a fine powder. Blast furnace slag cement is made from the waste products of the steel industry. This is available at all good home improvement stores. It has all the ingredients dry mixed together for making concrete, i.e. the cement, sand and stone. All you have to do is put it into a bucket, wheelbarrow or on a piece of plastic on the ground, add water and spend a few minutes mixing it. Usually the product comes in 2 to 4 stone bags 10 kg to 25 kg with varied setting times. Quick setting concrete is available for fixing posts into the ground so that they dont have to be stayed. The alternative is to mix your own. All you need is cement, sand and stone 20 mm. Instead of sand and stone you can use ballast or gravel, which is a mixture containing varying sizes of particles ranging from sand to stone. Gravel contains rounded stone and was deposited in gravel pits as a result of the ice age and other geological activity.In theory, this should make better concrete than rounded stone from gravel pits, because of the sharp angular edges. Materials are mixed by volume not weight. Sharp sand should be used, graded from 0 to 5mm.Therefore dont rely on it for structural applications such as building foundations. The max amount of water that should be added is 0.55 times the weight of cement. So for a 25 kg bag Concrete that is too dry is unworkable. Sloppy concrete due to excess water will be weak.

It means the concrete can withstand a compressive force or more correctly pressure of 20 newtons per square millimetre 20 MPa without crushing. So in theory, for a 10 cm x 10 cm square about 4 inches x 4 inches This is because the underside of the slab would be spanning the individual stones of the sub base foundation and not supported underneath at every point over its full extent. These figures really refer to the compressive strength of a 150 mm concrete cube, cured for 28 days as measured on a test jig. If the sand or stone is wet and you use this bucket afterwards for measuring cement, it will stick to the sides and bottom. It also makes it easier to scrape up all the leftovers with no wastage. I use 1200 gauge polythene the heavy stuff used as a damp proof membrane under concrete and this is widely available in hardware stores. You can of course mix concrete in a wheel barrow or bucket, but theres more room to mix on a sheet. For transporting the concrete to its final destination. Alternatively you can mix in situ. A dust mask will help to prevent the inhalation of fine cement dust while measuring out and loading the mixer. Cement is somewhat caustic when dry, so if you have sensitive hands, these will give protection. Steel toecaps protect your toes from dropped bricks, blocks or rocks. They normally also have a steel insole to protect feet from nails, glass or other objects that penetrate the outer sole. In the US it is sold in 47 or 94 pound bags This needs to be thoroughly dry mixed with a garden or block layers trowel. Water is then added, say half a pint at a time and mixed throughout the bucket. More water can be added until the concrete is at the required consistency. If the mixture becomes too sloppy, add more cement. If you are filling a hole in the ground e.g. around a post, the mixture can be a bit more sloppy so that it flows easier. However I find it easier to use buckets.

If you go for a C20 mix, a single mix using buckets which totals 7 buckets of material is enough to produce a wheelbarrow of concrete. Alternatively you may have gravel which is a composite mix of large and small stone and sand. If there isnt much sand in the gravel, you can add some more If you have someone to help you mix, it will be easier. Start at the edge of the pile with the other person facing you. The aim is for both people to keep shovelling the pile to one side to create a new pile adjacent to the old pile. Repeat this three times so thats four mixes in total. Make a crater in the top of the pile about half its diameter so that it looks like a volcano. Again, its important that the pile doesnt have slopes that are too steep so when you add the water it breaks through the crater and runs down the slope. Add half the water, the amount depends on the amount of dry mix you have created. Then use a chopping motion with the edge of the shovel to mix the water with the dry mixture. Continue to shovel the dry mixture from the edges of the pile towards the center. Eventually the mixture will become easier to control as the water becomes more distributed. Then keep sliding the shovel under the mixture and turn it over bit by bit and use a chopping motion with the edge of the shovel to thoroughly mix the concrete. Ideally concrete should be able to stand up in a pile on a shovel and not slump. Wear safety glasses and gloves If youre working alone, its important that everything is ready. Make sure all your tools are to hand, a mixer has a full fill of fuel and is running properly. Fill a barrel with water if you need to do lots of mixes. Dont add too much water initially. The consistency is right when a pile pulled to one side with a shovel stays put and doesnt slump. Add more water or cement as necessary. However things can go quickly wrong if you dont control the amount of water in the mix. However here are some tips to get the best results.

You can make the mix stronger by reducing the amount of stone to 3 buckets C30 mix Again a sheet of plastic or large wooden board such as a sheet of plywood keeps the ground clean and prevents contamination of the materials by soil and dirt Youll need multiple buckets of water and you dont want to have to go off filling a bucket from a tap or hose if a mix begins to stick to the drum. The abrasive nature of stone helps to scour any remaining wet concrete stuck to the drum from an earlier mix session. The mixing spoons can catch the shovel and swing it around and hit you in the face As you add cement and sand, watch for a moment to see how the mix is progressing and add water so that the mix is not over sloppy, but at the same time not so dry that it sticks to the drum However cement will stick to the inside of the drum and the likelihood is that material at the back of the drum wont mix properly and get wetted as you add water. So its better to add them a bit at a time Add some water first to rinse off the concrete stuck to the inside of the drum. This slush can be incorporated into the next mix. If you are working alone, stop the mixer so that you can deal with transporting and unloading the barrow Try to avoid getting water from the hose onto the engine. If the mixer is electric, unplug it and relocate the extension lead out of range while hosing You can also make up a makeshift rake using a long length of timber with a board nailed to the end Roughly scrape out the barrow and use a rake to spread the concrete, making sure its pushed into all corners. Use the back of the rake with the handle vertical to compact and pack the concrete, especially around the edges of the formwork. So some of the water you added actually never dries out. It is locked to the cement in a bond forever!

It needs to cure slowly, so ideally cover with plastic to prevent moisture loss Freezing weather conditions can weaken concrete and hot dry weather can cause water to evaporate too quickly so that there is insufficient water for it to cure properly, resulting in cracking. Minimum curing temperature should be 40 F 4C. In freezing weather conditions, water in concrete expands as it freezes. As ice crystals grow, they push the concrete outwards, breaking bonds between cement, stone and sand. Then when they melt, they leave millions of microcavities, so the concrete ends up porous like a sponge, potentially weakening it. If frost is due to set in at night, lay your concrete

early in the day so that it firms up, before covering with insulating material otherwise itll get marked by the covering. Then cover it with polythene to prevent moisture loss and cracking. This means that itll withstand being squeezed but not bent. So for instance a concrete pillar in a building can withstand tons of weight pushing down on it, but a concrete beam spanning an opening e.g. a large doorway in a building would snap under moderate load. To strenghten it, steel bars called reinforcing bar or rebar is inserted when the concrete is wet. Because steel is strong under tension, the resulting composite material becomes strong both under compression and tension. You can add rebar rods or grid to concrete when laying floor, pads or anywhere you think that itll be subject to heavy loads and in danger of cracking. Its also a great way of getting rid of any scrap iron youve accumulated. Content is for informational or entertainment purposes only and does not substitute for personal counsel or professional advice in business, financial, legal, or technical matters.Buckets are 3 imperial gallons or 3 x 4.54 liters. From a quick Google search, a builders wheelbarrow is 65 to 85 liters in volume. Helpful 8 Question What is curing.

Answer Its a chemical reaction in the concrete during which water bonds with calcium compounds. During the curing process, excess water also evaporates and the concrete becomes stronger. Helpful 8 Question How long does it take concrete to cure. Answer Under normal drying conditions, you can usually walk on concrete after 24 hours. A general rule is that it reaches 70% strength after a week and a month to get near full strength. Concrete will continue to strengthen however over months and years. Its best to avoid putting heavy items on it for a week and dont drag things across it which can leave scrape marks. Helpful 7 Comments are not for promoting your articles or other sites.Thank you for the sharing us this knowledge, How to Mixing Concrete by Hand. Other product and company names shown may be trademarks of their respective owners. HubPages and Hubbers authors may earn revenue on this page based on affiliate relationships and advertisements with partners including Amazon, Google, and others. HubPages Inc, a part of Maven Inc.HubPages Inc, a part of Maven Inc. To provide a better website experience, dengarden.com uses cookies and other similar technologies and may collect, process, and share personal data. Please choose which areas of our service you consent to our doing so. Login This is necessary to sign in to the HubPages Service. Google Recaptcha This is used to prevent bots and spam. Privacy Policy Akismet This is used to detect comment spam. Privacy Policy HubPages Google Analytics This is used to provide data on traffic to our website, all personally identifyable data is anonymized. Privacy Policy HubPages Traffic Pixel This is used to collect data on traffic to articles and other pages on our site. Unless you are signed in to a HubPages account, all personally identifiable information is anonymized. Amazon Web Services This is a cloud services platform that we used to host our service.

Privacy Policy Cloudflare This is a cloud CDN service that we use to efficiently deliver files required for our service to operate such as javascript, cascading style sheets, images, and videos. Privacy Policy Google Hosted Libraries Javascript software libraries such as jQuery are loaded at endpoints on the googleapis.com or gstatic.com domains, for performance and efficiency reasons. Privacy Policy Features Google Custom Search This is feature allows you to search the site. Privacy Policy Google Maps Some articles have Google Maps embedded in them. Privacy Policy Google Charts This is used to display charts and graphs on articles and the author center. Privacy Policy Google AdSense Host API This service allows you to sign up for or associate a Google AdSense account with HubPages, so that you can earn money from ads on your articles. No data is shared unless you engage with this feature. Privacy Policy Google YouTube Some articles have YouTube videos embedded in them. Privacy Policy Vimeo Some articles have Vimeo videos embedded in them. Privacy Policy Paypal This is used for a registered author who enrolls in the HubPages Earnings program and requests to be paid via PayPal. No data is shared with Paypal unless you engage with this feature. Privacy Policy Facebook Login You can use this to streamline signing up for, or signing in to your Hubpages account. Conversion Tracking Pixels We may use conversion tracking pixels from advertising networks such as Google AdWords, Bing Ads, and Facebook in order to identify

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Privacy Policy Comscore ComScore is a media measurement and analytics company providing marketing data and analytics to enterprises, media and advertising agencies, and publishers. Nonconsent will result in ComScore only processing obfuscated personal data. Privacy Policy Amazon Tracking Pixel Some articles display amazon products as part of the Amazon Affiliate program, this pixel provides traffic statistics for those products Privacy Policy Clicksco This is a data management platform studying reader behavior Privacy Policy . We often get asked exactly how to mix concrete perfectly. If you've tried it before, you may be familiar with a sloppy mess, which isn't ideal for pouring. Our secret Hire a concrete mixer ! A concrete mixer makes light work of creating the perfect concrete mix. All you need to do is pop your builders mix and cement into your concrete mixer, add the correct amount of water and press the on button. Once mixed, transfer to your wheelbarrow or pour directly from the mixer, lay and then repeat. But where's the fun in that when it really isn't that hard or expensive to do It isn't expensive, is very simple to make and with the right equipment you'll be set to complete whatever home improvement or construction project you have on your hands. From paths to driveways, foundations for fence posts, steps and even kitchen benches and sinks! Here are some top tips for getting prepped to mix and pour concrete The mix or ingredient portions depend on the job and the strength the concrete needs to have. So, you need to plan around the weather if you need a few days for your concrete to dry. Premixed concrete is the most convenient and arguably, the most costeffective way to purchase concrete, especially for DIY jobs. Generally, premixed concrete comes in three to four main types which covers most concrete jobs, even through to professional level. Bags will show the MPa and will also outline the jobs the concrete mix is suitable for.

If in doubt, chat to your friendly hardware store staff. This is a US site and while it gives the kg equivalent, it refers to the strength of concrete as Psi so here is a handy tool to convert Psi to the MPa metric measure used here in NZ. You can then use this alongside your own measurements of your job to work out how many premixed bags you need. Here's a great calculator for working out how much concrete you might need. Always read the instructions that come with your concrete mix as to how much water you need. You may think the concrete mix looks way to sloppy or way too stiff, when actually for that type of concrete mix, it's perfect. The amount of water added will also impact the drying time of your concrete, so always plan for that, too. If it's not close, do you have a hose long enough to reach. If not, you might want to consider buying or hiring a hose. The power cord on the electric mixers is pretty short 10cm so you will need to make sure you have an appropriate extension cord. Hirepool has a wide variety of lengths of extension cords available for hire. If using an extension cord it's vital that you keep it dry for the safety of yourself and anyone working around you. Hirepool's petrol concrete mixers all come with a full 6 litre tank, which will give you about 1.5 to 2 hours solid rotation time. You can borrow as many of our 5 litre petrol containers as you think you will need and can either take them pre filled from Hirepool or fill at your local petrol station. A concrete wheelbarrow, on the other hand, is designed to do just that. Hirepool's 87 litre tray capacity, makes our concrete wheelbarrow useful for most concrete projects. For heavier loads of concrete or uphill work, you may need a motorised wheelbarrow. A motorised wheelbarrow will reduce the manual labour required and help you complete your project much faster. Concrete mix is incredibly heavy and so shoveling the mix in as opposed to lifting the bags to empty them in will save your back.

Hirepool has a great all rounder shovel if you don't have one of your own. All of Hirepool's equipment come with easy to follow user instruction sheets and safety guides. It's really important

that you read these before your start your job. Never put your hand inside the drum while it's mixing! So, before you start, make sure you put on safety glasses, a dust mask and a pair of gloves. Ear muffs are also advised, especially with the noisier petrol powered concrete mixers. They also make larger concrete jobs much quicker to complete. Hirepool's single axel 2.4m x 1.3 trailer is ideal for getting this concrete mixer to and from your worksite if you don't have your own trailer. Make sure it's sitting securely on a level surface. If electric, plug it in and if petrol, make sure the petrol tank is full.Cut open the concrete mix bag if this is what you're using a shovel is good to use for this. Make sure you don't overload the concrete mixer. If you're new to concreting and using premix bags, we suggest making up a single bag to begin with to to get a feel for what your correctly mixed concrete should look like. Measure your water it can be tempting to just add water with a hose, but it can result in a very sloppy batch of concrete. A measuring bucket is ideal for this. If there is not enough water, the mix will become too thick, it will not combine thoroughly, and will become unusable. Keep reading to learn what concrete looks like if it's too sloppy, dry and when you know it's perfect! Most cement mixers will tip and turn to the appropriate location in order to do this with ease. If a novice user, Hirepool recommends turning the concrete mixer off for safety before pouring. If it's baking we're talking about, that's disappointing, but if it's concrete, that's a whole lot of effort, time and money down the drain! A good way to tell if you concrete mix is too sloppy is to keep an eye on how it's moving around your concrete mixer.

If your concrete mix doesn't reach the sides of the concrete mixer, then it is too wet or sloppy. Again, have a look at how your concrete mix is moving in your concrete mixer. If your concrete mix reaches the top of the concrete mixer before it falls, then this tells you that your concrete mix is too dry. It is important to aim for the same mixture consistency with every load so that your project has the same level of strength and durability throughout. Take a look around our Concrete and Masonry section to see what other tools we have that may help make light work of your concreting project. It's also time saving as hired equipment is gruntier than the hardware store equivalent, getting your jobs done faster and more effectively. Hiring comes with the added bonus that someone else is in charge of maintenance and storage. Saving you more time, money and space in the shed! These are the most commonly used when preparing for painting or decorating, and will work for almost all types of paint on any surface. It's an affordable way to add value to your garden as you can use the organic matter in your own yard such as leaves, grass clippings, wood and branches. It can be a difficult job, and without the proper equipment, it can be potentially dangerous. To ensure your deck is stable and lasts for a long time, attaching the decking boards is a crucial step in doing so. This step is done right after the rim joists and interior joists have been installed so that the decking boards can be attached securely and safely. It's not the hardest task to do and the end result makes it worth the effort and time. PO Box 12048 Penrose 1642. All Rights Reserved. Proportioning for Mixing Concrete. Methods of Mixing of Concrete. Mixing Concrete by Hand. How to Mix Concrete by Machine. Precautions in Mixing Concrete by Machines. Placing of Concrete. Handling and Transport. Formwork.

Internally, they are provided with blades that mix the ingredients intimately when the drums are made to rotate. Inclined dropping will lead to segregation. A bad workmanship may spoil even the best designed and mixed concrete. Thus a concrete mix of "135" signifies three parts of sand and five parts of coarseaggregate for one part of cement. Various methods have been applied to decide the proportions. It involves the determination of an exact quantity of water that should be mixed with the concrete aggregates to form concrete of desired qualities. The greater the subsidence, the higher the slump and thinner is the concrete mix. The slump is also used to decide about relative proportions. This is applied to both coarse and fine aggregates. Similarly, in fine aggregates also voids are left that have to be filled with still finer particles of cement. In this method, a watertight platform is made from bricks, steel or wood at a convenient distance from the actual place of Construction. Then, they are mixed thoroughly in the dry state using shovels. For major construction

jobs with concrete, machine mixing is an absolutely essential method. It is invariably power driven. For achieving thorough mixing, the mixer drum is provided with steel blades fixed at various angles. And this is especially true for water, which must be added simultaneously with sand, cement and coarse aggregate. It must be neither more nor less than required for complete blending. In either case, the quality of concrete will be effected adversely. Otherwise, lumps of hardened concrete from earlier batches may form a part of next batch, and thus spoil the quality of concrete. This condition is valid for batch type mixers. In continuous mixers, regular cleaning after fixed intervals is necessary. There it is laid or deposited in the formwork of suitable material according to the design requirement. All sorts of jerks to the transporting medium must be avoided.

This will destroy the effect achieved by mixing the ingredients. This must also be avoided. This last precaution is necessary to prevent loss of water from fresh concrete. Inclined placing increases chances of segregation. We are are redoing our driveway and will need to repave the entire area. I will be sure to find a mixing machine that is easy to transport and handle to make the process much easier. It’s a test that requires a little experience however, not really something that you can just be taught. Do you have a video tutorial on this by any chance Its Types, Parts Used in Construction. Below we provide an overview of commonlyused concrete mixing and pouring techniques to produce highquality material and final products. Care and effort are required to combine all ingredients into a wellmixed and homogeneous mixture. There are three common methods for mixing concrete This technique is used for small home improvement projects. Quality and consistency are difficult to achieve with this method. Machine mixing can involve a small portable drum mixer up to larger stationary mixer which include both jobsite mixers in a portable plant and central mixers in ready mix plants. This method is an efficient solution for projects that have limited onsite space. For a dry batch concrete plant, the raw materials are weighted and placed into the ready mix truck for complete mixing. For a wet batch concrete plant, the raw materials are completely mixed in a stationary central mixer and then transported by a ready mix truck. In contrast, ready mix trucks are more often used for larger applications. When working with ready mix concrete there are time limitations to watch for. Regardless of the mixing mode, concrete is a perishable construction material. First, if it begins to set before being placed and consolidated it is of little use. Second, if it is mixed and agitated excessively it can lose its air entrainment or the effects of certain admixtures can diminish.