

1: A Guide to Dry Stone Walling by Andy Radford (, Hardcover) | eBay

Dry stone walling is one of the oldest country crafts. These structures form one of the most striking features of the rural landscape, whether meandering through a field or gracing a home.

Dry stone walls are durable because they contain no mortar, but are held together by the weight of stone, and by the skill of the builder who selected and fitted the stones together. Dry stone walling involves either stripping and rebuilding existing walls that have fallen into disrepair, or gapping – repairing gaps where the wall has collapsed. Fewer new walls are built, although foundations sometimes have to be relaid. Hands-on techniques for building a dry stone wall

Stripping out Sort out the coping stones from the collapsed wall first and place them two to three metres from the wall. Take out the main stones and put the top ones furthest from the wall. Keep the largest ones nearest the wall to aid building. Leave a gap of about 60cm alongside the wall for working. Keep throughstones safe and separate. When stripping out a gap, step the ends to tie in the new wall. Batter frames Batter frames are used to ensure accurate work. Set the frames at the ends of the section you are working on and run guidelines along the wall. Foundations The foundations or footings should be set in a trench a few centimetres wider than the wall, dug down to a firm base. They could be as little as 3cm up to 30cm deep depending on soil type. Use the biggest stones, except those that are good for coping, wallheads or throughstones. Place the long edges into the wall whenever possible. Stones should be steady and unable to slip. Avoid roundbacked stones that are hard to build on. Pack between the footings with angular, freedraining hearting stones. Courses The wall is built up in horizontal courses lines of stones of even height for ease of construction, strength and appearance. Use the biggest stones in the bottom of the wall and the smallest in the top. This produces a stronger wall and is easier to build. Try to ensure that each joint in one course is bridged by a stone in the next course. Place stones level or dipping outwards slightly and where possible with the long edge into the wall. Hearting stones are important. Use solid angular stones. Place them carefully, almost as you would the face stones. Add hearting stones as you go, keeping them at or just below the level of the face stones. Make sure people follow the designated batter of the wall. Try to keep the face of the wall smooth – it discourages climbers. Throughstones Throughstones located at regular intervals straddle the wall, holding the two sides together to stop it bulging out and collapsing. Ensure that they pin all the stones below them. How many to use and where to put them depends on the regional style of wall and the type of stone. Coping Coping stones straddle the wall in the same way as throughstones, holding the sides together and holding down and protecting the upper courses. There are many types of coping, so follow the local style as far as possible. Keep the top of the coping even by using a line. Avoid wedging the stones to keep them steady. Wallheads The wall head is a pillar which acts like a bookend to hold the wall up. It is the section least well supported and most prone to damage. Use the largest and most rectangular stones available. Slopes Build in horizontal courses. Grade the courses so that the biggest stones are near the hillside, but keep the course as level as possible. Start from the bottom and work uphill. Gapping Remove and sort all the unstable stones so that you have a firm base to work from. Sort the coping stones out first. Step the ends of the gap so that you can tie in the new wall. Look at the old wall to see how it was built and try to recreate its style. Season Generally spring and summer because it is difficult to stay warm in walling in cold weather. Preparation and working with groups Site visit Visit the work site in advance to gain a clear idea of what you will be doing on the day. If working for a client, meet with them on site to discuss the project. Assess the suitability of the project for the group you will be leading and the time available. Consider the following questions: What resources are required for the project and who will supply and deliver them? Are there any access difficulties? Consult plans or drawings to establish the location of underground services. Undertake a risk assessment for both project and site. Ensure the tools are in good condition before using them. Here is a list of the tools and equipment you might need:

2: NEW A Guide to Dry Stone Walling by Andy Radford | eBay

Dry stone walling is one of the oldest country crafts. These structures form one of the most striking features of the rural landscape, whether meandering through a field or gracing a home. In this hands-on guide, landscaper Andy Radford explores the history of dry stone walls and explains how and.

Back to Top of Page Safety Dry stone walling does include some elements of risk. By using safety gear, proper techniques, and being safety conscious, you can dramatically reduce the chance of injury. Safety Gear Wearing the appropriate clothing and safety gear is important when walling. Steel-toed boots are very important. It does not take a very large rock to seriously crush a toe. While some professional wallers prefer to work with bare hands, most people prefer to wear gloves. I find that the cloth covered gloves with the palm and fingers coated in rubber provide the best combination of protection and dexterity. Different weights are available for different temperatures. Leather gloves provide more protection, but limit dexterity. I do use insulated leather gloves in the winter to keep my hands warm. However, even the toughest leather gloves only last about for 50 hours when working with stone. I always recommend wearing long pants and sleeves when working with stone. It saves me from numerous minor scrapes and abrasions. If you choose to wear shorts expect to get scraped up a bit. In hot temperatures I use clothing made from lightweight light-colored fabrics. I find that I stay surprisingly cool because my skin is shaded from the sun. Eye protection is very important if you are doing any reshaping or cutting, and really should be worn continuously. You only have two eyes, and you want to keep it that way. If you are using any power tools drills, saws, etc. Breathing stone dust, particularly the fine dust from running dry power saws should be avoided. While limestone based dust is not directly harmful, silica dust is. Granite, and related stones, along with Portland cement is very high in silica so it is important to avoid exposure. If you have to dry-cut stone wear a respirator. Safe Building Techniques Keep a work space clear of loose stones right along the base of the wall you are building. Typically inches wide is sufficient. Walking on loose stones all day is both dangerous and tiring. Primarily lift with your legs, not your back. If you are working with stones too big to lift, pry-bars and blocks of wood can often be used to great effect. If you take your time, you can safely move very heavy stones using levers. Planks can also be used as ramps to roll or slide stones up onto the wall. Make sure any stone you are putting your hand under is very secure. A light stone falling just a few inches can seriously crush fingers. Try to avoid holding a stone with one hand while pounding on it with a hammer. The vibrations going up your wrist often eventually cause problems. If you are working with others make sure you have clear vocal signals and a specific plan before you lift a stone together. If equipment tractor, excavator, etc. If you are yelling over the equipment noise you are risking miscommunication. When working around equipment, make sure the operator completely removes his or her hands from the controls before you approach the bucket. An accidental movement by the operator can be very dangerous. Some of the worst finger pinches I have seen were because the waller took his eyes off his hands in an effort to work faster. If you are using rebar for stakes to hold string lines, buy the plastic safety caps that keep people from being impaled if they fall on the end. Avoid breathing stone dust, particularly when using power tools to shape the stone. Breathing stone dust eventually will lead to silicosis, which cannot be healed. If you start to think that what you are doing is not that safe, it probably is not. Stop and think of a different way to do it. Nearly all injuries related to walling are due to rushing. You want to work efficiently, so think ahead and communicate clearly. Back to Top of Page Setting Up Setting up is one of the most important parts to building a wall efficiently. Setting up for rebuilding an old wall involves stripping out the existing wall, and preparing the foundation. Setting up for a new wall includes preparing a foundation, having stone brought to the site, and organizing the work site. Rebuilding an old wall If you are rebuilding an old wall, rebuilding typically happens in sections 10 to 25 feet long. Ideally you want reasonably clear ground for about feet on both sides of the wall. Once you have clear space, begin disassembling the wall, this is called stripping out. Take the time to sort the stones as you strip out. This will speed up the rebuilding. Stones should primarily be sorted by thickness, with thicker stones near the wall, and thinner stones farther away. Through stones should be set aside, and cope stones should be set farthest from the wall. Small stones to be used for

hearting should be placed in piles near the wall every 6 feet along the wall. Remember to leave a path clear of stones about 18 inches wide right along both sides of the wall. This gives you a place to stand. On retaining walls, typically all the stones should be stripped out to the downhill side. Excavated soil, and sometimes cope stones or hearting, can be placed on the uphill side. The Stone Trust has written detailed engineering specifications for dry stone retaining walls for use by contractors and designers, [click here to access these design specs](#). Generally speaking all the stones should be removed, right down to bare dirt, when stripping out. Any roots or organic debris in foundation should be removed and dirt should be flattened and firmly compacted. Stomping back and forth several times with your boots is typically sufficient. If the wall is going up a slope, step the foundation so you have level shelves. The foundation should typically be inches below ground level on the lower side. Going deeper serves little purpose and uses up more stones. If the footing stones are excessively large, they can be re-positioned one at a time without fully removing them from the wall foundation. Once the stone is sorted and the foundation is prepared, you are ready to set up string lines and begin building. Building a new wall begins by preparing a foundation. When building a field wall, remove any topsoil, roots and organic matter from the where the wall will be built, and firmly compact the subsoil. Typically inches below ground level is sufficient. Just like for rebuilding, clear space is needed along the wall. There should be sufficient access to have the stone delivered right next to where the wall will be built. If not, you will need to figure out a way to get it there. When stone is delivered in a dump truck it leaves a big pile, sizes are all mixed up, and hearting, if there is any, is at the bottom. It is worth every bit of your time to sort through the pile before you begin building. I find the most efficient method is start on one side of the pile and sort it into rows according to thickness, not overall size. As the pile gets sorted the rows get longer. If you are working from palletized stone, it is still often worth opening all the pallets and sorting through the stone before beginning to build. Some palletized stone is already graded by size in which case further sorting is not needed. However, these pallets are often intended for veneer, and lack the large stones you need for though stones and features. I try to avoid palletized stone whenever possible. It is more expensive, tends to have inadequate size variation, and dealing with the pallets and wire cages takes time. You also need a big piece of equipment to move pallets of stone, which often weigh over lbs. Determining how much stone you need for a new wall is always a challenge. When buying stone by the ton, I find I get about 10 cubic feet of wall per ton of stone delivered. Note that is cubic feet, not square foot of wall face, so if your wall is an average of 2 feet thick and 45 inches high, 1 ton of stone will give you 2 feet of length. This translates into about 1. Of course, there is considerable variation due to the density of the stone, and how tightly the stone is stacked in the wall, so this is just a place to start. [Back to Top of Page](#) Understanding Stone

A basic understanding of stone is important to be able to wall efficiently. Some stone is easy to work with, and other stone can be very challenging. Wall stone can be divided into two basic categories: Level bedded stones have parallel top and bottom surfaces, and will often split into thinner stones. Slate and shale and sandstone are typically level bedded stones. Some limestone and schist are also level bedded. Some wallers will also refer to level bedded stone as regular stone.

3: dry stone walling guide to good practice

Learn the art of dry stone walling Building with dry stone is one of the earliest skills developed by humans. Dry stone walls are durable because they contain no mortar, but are held together by the weight of stone, and by the skill of the builder who selected and fitted the stones together.

Share via Email Master craftsman and dry stone waller Richard Ingles. It takes a certain kind of eye-brain co-ordination, dry stone walling: To build a wall, you first mark out your base line, then mount a wooden A-frame corresponding to the shape of the finished wall – always wider at the bottom than the top – at each end. You stretch lengths of string between the frames to act as guidelines, and a plumb bob ensures the wall stays vertical. A dry stone wall is actually two separate but interlocking walls, tied at regular intervals by longer through or tie stones, and a middle filled with a mass of smaller rocks and pebbles. You begin building at the end, known as the quoin or cheekend. This is perhaps the hardest bit, Ingles says: The base stones, big and heavy, are laid in a shallow trench, and then off you go, building up layer by layer course by course, a waller would say, each new stone bridging the joint between the two beneath it, like a brick wall. Most are pinned from behind with a smaller stone, so they sit solidly. And in a well-built wall, each stone will slope slightly downwards from the centre, to let the rainwater out. The tie stones go in every metre or so. Then you lay large, flat stones on the top, and stand upright cope or coping, cap or capping stones along it: Finally, pebbles are hammered down between the cap stones, setting everything solidly in place. Wallers like to cut stones to shape as little as possible; in some parts of the country, the stone is too hard to dress anyway and must be used as is. In the Cotswolds, where Ingles and his son Chris work, the sedimentary limestone is more amenable. Britain boasts a staggering , miles of dry stone walls. A few are ancient, dating back to 3, BC. Most are field walls and went up in the early- to mids, in the wake of the enclosure acts. For a century they were well maintained; these days, farming lacks the resources. Neglected for long, soil gets in and seedlings follow: Including labour and materials, a basic 1. Walling is hard work: The reward – apart from an OK but hardly generous wage – lies in making something natural and sound and beautiful that, looked after, will stand for centuries. Watch Richard Ingles build a dry stone wall in our online audio slideshow here from Monday Topics.

4: A Guide to Dry Stone Walling: Andy Radford | NHBS Book Shop

Download a guide to dry stone walling or read online books in PDF, EPUB, Tuebl, and Mobi Format. Click Download or Read Online button to get a guide to dry stone walling book now. This site is like a library, Use search box in the widget to get ebook that you want.

If you are wanting to try your hand at the craft or have engaged a contractor and are concerned about the standard of their work, the following guide outlines the key aspects of dry stone wall construction. Looking at a cross section of the wall while it is being built you should notice these key points. The wall is built with two skins that taper evenly to the top, this tapering is referred to as batter. The width of the base of the wall is determined by the overall height and should never be less than mm. Insufficient batter allows the two skins to peel outward and eventually collapse. Batter should be even and looking along the face of the wall there must be an even plane, without bulges or hollows. The largest stones are used to build the first course, the footing. As your eye moves up the wall the height of the stones gradually decreases, it is acceptable for some deviation from this point within reason. The majority of stones should sit with their length into the wall, all should sit firm and level. The cavity formed by the two skins is built up with hearting stones. About half way up the wall there should be through stones which join both skins together these are ideally placed every 1. The wall is finished with toppings that stand up vertically and span the wall joining the two skins. Toppings should be worked with a hammer to match the surrounding style, rough and random, curved as shown or square faced and regular. Viewing the wall from the front the courses should follow reasonably straight level lines, again check the size of the footings and that there is a fairly even decrease in the height of courses. Most importantly of all when inspecting a wall you are checking that all stones touch each other tightly and that there are no straight joints. Every join on a wall should be bridged by a stone above, unless two courses run into one thicker course. Check the face of the wall for small pins that have been used to prop these rockers from the front, this is poor practice as the wall will settle and they will fall out. In particularly shoddy examples, you can pull them out easily. Retaining walls Retaining walls follow the same rules and should be built with two skins even though only one is visible. It is essential to have a solid foundation to build off so if the ground is at all soft use compacted hardcore or even consider concrete if the wall is to be particularly high. Larger stone is required to build retainers, especially in the footing see pic below and it is wise to get as many throughs in as possible. The batter is more severe and the bulk of stones must be placed with their length into the wall. A stout retaining wall the open end shows the stones facing into the wall.

5: How To Build A Dry Stone Wall – The Stone Trust

A BRIEF GUIDE TO THE INSPECTION OF DRY STONE WALLING WORK PREAMBLE This is one of a series of leaflets designed to give guidance on particular aspects of dry.

History[edit] The Lion Gate of the Mycenae acropolis is dry stone. Some dry-stone wall constructions in north-west Europe have been dated back to the Neolithic Age. Some Cornish hedges are believed by the Guild of Cornish Hedgers to date from BC, [2] although there appears to be little dating evidence. In County Mayo , Ireland, an entire field system made from dry-stone walls, since covered in peat, have been carbon-dated to BC. The cyclopean walls of the acropolis of Mycenae have been dated to BC and those of Tiryns slightly earlier. In Belize , the Mayan ruins at Lubaantun illustrate use of dry stone construction in architecture of the 8th and 9th centuries AD. Location and terminology[edit] Terminology varies regionally. When used as field boundaries, dry stone structures often are known as dykes, particularly in Scotland. Dry stone walls are characteristic of upland areas of Britain and Ireland where rock outcrops naturally or large stones exist in quantity in the soil. They are especially abundant in the West of Ireland, particularly Connemara. They may also be found throughout the Mediterranean , including retaining walls used for terracing. Such constructions are common where large stones are plentiful for example, in The Burren or conditions are too harsh for hedges capable of retaining livestock to be grown as reliable field boundaries. Many thousands of miles of such walls exist, most of them centuries old. In the United States they are common in areas with rocky soils, such as New England , New York , New Jersey , and Pennsylvania and are a notable characteristic of the bluegrass region of central Kentucky as well as Virginia , where they are usually referred to as rock fences or stone fences, and the Napa Valley in north central California. The technique of construction was brought to America primarily by English and Scots-Irish immigrants. Mosaic embedded in a dry stone wall in Italian Switzerland Similar walls also are found in the Swiss-Italian border region, where they are often used to enclose the open space under large natural boulders or outcrops. Sometimes also the dry stone terracing is apparent, often combined with parts of stone masonry house foundations and shed walls that are held together by a clay-cum-needles[definition needed] "composite" mortar. They also employed this mode of construction for freestanding walls. Their ashlar type construction in Machu Picchu uses the classic Inca architectural style of polished dry-stone walls of regular shape. The Incas were masters of this technique, in which blocks of stone are cut to fit together tightly without mortar. Many junctions are so perfect that not even a knife fits between the stones. The structures have persisted in the high earthquake region because of the flexibility of the walls and that in their double wall architecture, the two portions of the walls incline into each other. Most older walls are constructed from stones and boulders cleared from the fields during preparation for agriculture [3] field stones but many also from stone quarried nearby. For modern walls, quarried stone is almost always used. The type of wall built will depend on the nature of the stones available. Construction work on dry stone. Illustration of the Valencian Museum of Ethnology One type of wall is called a "double" wall and is constructed by placing two rows of stones along the boundary to be walled. The foundation stones are ideally set into the ground so as to rest firmly on the subsoil. The rows are composed of large flattish stones, diminishing in size as the wall rises. Smaller stones may be used as chocks in areas where the natural stone shape is more rounded. The walls are built up to the desired height layer-by-layer course by course and, at intervals, large tie-stones or through stones are placed which span both faces of the wall and sometimes project. These have the effect of bonding what would otherwise be two thin walls leaning against each other, greatly increasing the strength of the wall. Diminishing the width of the wall as it gets higher, as traditionally done in Britain, also strengthens the wall considerably. The voids between the facing stones are carefully packed with smaller stones filling, hearting. The final layer on the top of the wall also consists of large stones, called capstones, coping stones or copes. As with the tie stones, the capstones span the entire width of the wall and prevent it breaking apart. In some areas, such as South Wales, there is a tradition of placing the coping stones on a final layer of flat stones slightly wider than the top of the wall proper coverbands. In addition to gates a wall may contain smaller purposely built gaps for the passage or control of wildlife and livestock such as sheep. Single walls work best with large,

flatter stones. Ideally, the largest stones are being placed at the bottom and the whole wall tapers toward the top. Sometimes a row of capstones completes the top of a wall, with the long rectangular side of each capstone perpendicular to the wall alignment. Galloway dyke on Fetlar, Shetland Islands, UK Galloway dykes consist of a base of double-wall construction or larger boulders with single-wall construction above. They appear to be rickety, with many holes, which deters livestock and people from attempting to cross them. These dykes are principally found in locations with exceptionally high winds, where a solid wall might be at risk of being unsettled by the buffeting. The porous nature of the wall significantly reduces wind force but takes greater skill to construct. They are also found in grazing areas where they are used to maximize the utility of the available stones where ploughing was not turning up ever more stones. Another variation is the "Cornish hedge" or Welsh clawdd, which is a stone-clad earth bank topped by turf, scrub, or trees and characterised by a strict inward-curved batter the slope of the "hedge". As with many other varieties of wall, the height is the same as the width of the base, and the top is half the base width. Different regions have made minor modifications to the general method of construction – sometimes because of limitations of building material available, but also to create a look that is distinctive for that area. Whichever method is used to build a dry stone wall, considerable skill is required. Correcting any mistakes invariably means disassembling down to the level of the error. Selection of the correct stone for every position in the wall makes an enormous difference to the lifetime of the finished product, and a skilled waller will take time making the selection. As with many older crafts, skilled wallers, today, are few in number. With the advent of modern wire fencing, fields can be fenced with much less time and expense using wire than using stone walls; however, the initial expense of building dykes is offset by their sturdiness and consequent long, low-maintenance lifetimes. As a result of the increasing appreciation of the landscape and heritage value of dry stone walls, wallers remain in demand, as do the walls themselves.

6: Dry Stone Walling Techniques & Traditions ~ DSWA-GB – The Stone Trust

Dry Stone Walling - Guide to Good Practice Armed with the right knowledge it is easy to spot poor workmanship with a few simple visual checks. If you are wanting to try your hand at the craft or have engaged a contractor and are concerned about the standard of their work, the following guide outlines the key aspects of dry stone wall construction.

7: How to build a dry stone wall | Money | The Guardian

Dry Stone Walling: A practical guide to dry-stone walling by Alan Brooks, Sean Adcock and Elizabeth Agate, published by The Conservation Volunteers (formerly BTCV) and also available from the publications section of their own online shop.

8: Dry stone - Wikipedia

The Stone Trust can also provide design consulting for projects. Dry stone walling can seem complex at first, with all the different parts and terms. Fortunately the basic techniques needed to build a strong wall can be condensed down to five basic rules.

9: A Guide to Dry Stone Walling by Andy Radford

A dry stone wall is a stone wall built without a binding agent such as mortar. The stones are held together by gravity and friction, and the wall relies on good.

A GUIDE TO DRY STONE WALLING pdf

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