



**INDUSTRIAL
PACKAGING**

FORMAROUND

Circular column moulds



Using **FORMAROUND** to build columns and create voids can save time and money.

With cardboard forms, all circular columns on a floor can be poured simultaneously, requiring only one crane lift, reducing crane or concrete truck costs. This makes these moulds a fast, labour-saving alternative to steel shuttering, which usually means several stages of pouring with cleaning and oiling in between, as well as storage between sites. The cardboard can be left on to protect the new pillars while the floor above is being poured.



Why **FORMAROUND**?

Incredible finish

Circular column formers deliver columns with a highly impressive finish, for both indoor and outdoor environments. They give a smooth finish, requiring no smoothing, polishing or painting (whereas shuttering has gaps in it, leaving lines that need to be polished out or painted over). Time and labour savings delivered by cardboard moulds can therefore be significant in areas where visual appeal is important.

Made to measure

Diameters ranging from 100mm to 1200mm and standard heights ranging from 1m to 7m allow you to deliver faithfully on the architect's vision, and easily incorporate columns of different heights and widths on the same job. This is a major advantage of FORMAROUND moulds over traditional shuttering.

Easy to use on site

Using FORMAROUND is the most efficient way to pour concrete columns on all types of construction site, because:

- ✓ They are ready to use as delivered.
- ✓ They are simple to install, meaning faster job progress.
- ✓ Easy to remove, thanks to a rip-strip and non-stick internal lining.
- ✓ Inner non-stick surface eliminates any need for oiling and thus risk of staining.
- ✓ Easy to recycle (no cleaning, storage or maintenance).





Allow you to pour a whole floor at once

Using FORMAROUND will save time and reduce costs of concrete delivery, while ensuring colour match, because you can order the right number of forms to allow you to pour all columns together. The cardboard can also be left in place while you pour the floor above, protecting the floor below from concrete run-off.



Deliver the benefits of voids

FORMAROUND tubes are also an economical way to create voids in concrete floors, roof slabs, bridge decks, beams and piles. They can be used with cast-in-place concrete and pre-cast concrete. While voids are of course convenient to accommodate insulation, electric wires, cables or pipework, they can also allow you to reduce weight and materials used, without losing out on strength or integrity (strength can be provided by steel cables and rebar, rather than excessive amounts of concrete). This can reduce project costs and is more sustainable.



Applications

- Office buildings, commercial and public buildings.
- Transportation, energy and data infrastructure.
- Pilings for fences, electricity poles and signposts.
- Bridge supports.
- Stub piers for elevated ramps.
- Voids for concrete floors, roof slabs, bridge decks.

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With circular column formers, you can have your columns in place, order in your concrete and pump a whole floor at a time, which saves time and labour. On large projects, where each floor could have 20-40 columns, you would never have enough shuttering to do a whole floor at once, which means multiple deliveries of concrete for each floor, plus the waiting time for the concrete to set, so you can remove and re-use the shuttering. Shuttering also needs to be cleaned and oiled between columns, which means more time.”

Vinny Coyle, GDC Construction





Where have **FORMAROUND** column moulds been used?

- **Transportation hubs** including Dublin Airport and Sealink Terminals, as well as London Heathrow Terminal 4 and the recent Heathrow Redevelopment. Heathrow's ambition was to create "a light and modern welcome for visitors", which circular columns helped deliver.
- **Functional and beautiful tourism amenities** such as the iconic Convention Centre Dublin and the Curragh Racecourse Grandstand – a project with 11 floors, the signature feature of which is large, uniquely flexible floor-plates, ideal for collaborative work spaces. The integration of pillars is an important contribution to this design.
- **Office sites** in many of Dublin's business districts, including over 12 in Sandyford. Numerous landmark new developments in London, including 245 Hammersmith and the Royal Albert Dock – a large new business district opposite London City Airport.
- **Corporate headquarters** – for example those of Microsoft, Intel and Hewlett Packard.
- **Almost all the major Irish universities** – UCC, UCD, DCU, UL, UU; and many major hospitals – Ulster Hospital, Royal Victoria Belfast, Mater Hospital and Enniskillen Hospital.
- **Government buildings** such as Dublin Corporation Civic Offices.
- **High traffic commercial constructions** such as The Square Shopping Centre and The Conrad Hotel, Dublin.

Use guide

FORMAROUND cardboard form work is made of multiple reinforced cardboard plies, bonded together with water resistant adhesive. It has a coating inside, to prevent concrete from sticking to it. The smooth finish version also has a poly finishing.

Transport and storage

Always lay the tubes completely flat during transport in order to prevent pressure spots. Protect against wind, moisture and damage from abrasion. Store vertically and protect from rain and damp. Seal any damaged surfaces with adhesive tape. If storage is under plastic tarpaulins, allow for sufficient ventilation and protect from rising damp from the ground.

INSTALLATION

1

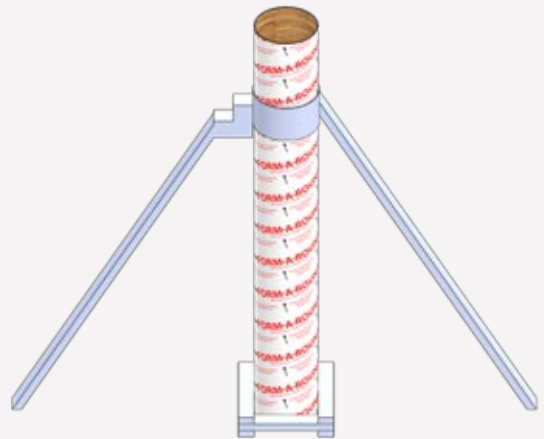
Check the cardboard form for damage before installation. Always set up with arrow pointing upwards. Do not place in a puddle of water. Secure the lower end with restraint templates or with wooden cross-pieces constructed on site. Secure the top end with strapping and props and adjust to plumb vertical. In the case of supports constructed on site, use support blocks with a large surface area to prevent pressure spots.



BRACING

2

On all diameters, wooden collars are generally used at the top, often at the bottom also. Alternatively, a kicker can be poured in a lined piece of the same size form. It is important that lift should not occur at the bottom when pouring, and that concrete should not get between the lining and the tube. On smaller diameters, up to 300mm, it is prudent to brace with 3 or 4 vertical timbers, but on larger diameters no bracing is required. However, from a height of 4m, it is best to make circular collars from heavy ply to brace and help plumb, about every 2–3m.

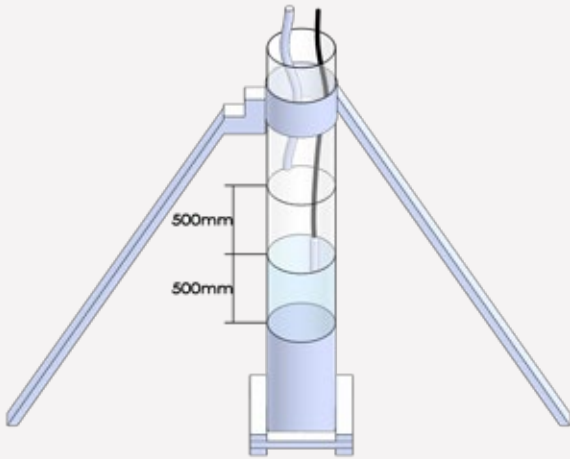


POURING

3

Pour concrete from a skip in sections of 500mm and compact. Only compact using an internal vibrator. Do not touch the internal wall of the column former with the vibrator as this will damage it. Take care not to cut or damage the rip-strip and to keep it taut. The smooth lining is only fixed at the top and bottom. It is not fixed to the form elsewhere, so the fixing tape at the ends should be replaced if broken or cut, to prevent dirt or water getting inside the liner.

As the concrete fills the form, the liner is ironed to the form's surface and any trapped air will be chased to the top and expelled.



Estimation of concrete requirements
(Custom diameters also available)

Internal form diameter (mm)	Concrete requirement (m ³ per metre of height)
150	0.018
200	0.031
250	0.049
300	0.071
350	0.096
400	0.126
450	0.159
500	0.196
550	0.246
600	0.283
650	0.332
700	0.385
750	0.442
800	0.503
900	0.636
1000	0.785
1200	1.131

REMOVAL OF THE FORM

4

Stripping is recommended 48 to 72 hours after pouring. Leaving the column former in place for longer than this will begin to darken the concrete. Stripping can be done by wrapping a steel bar or hammer around the rip chord and using it as a lever to pull down, tearing away the column former. Protective gloves should be worn when handling the rip chord.

Note: If the rip-strip has been cut or damaged, you can set a circular power saw to just less than the thickness of the form wall and make a vertical cut almost through the wall. Finish off with a sharp knife, to avoid damaging your new pillar.



Disposal

FORMAROUND tubes consist of cardboard and a very low proportion polypropylene internal lining. These materials can be easily separated for recycling as separate waste streams or both components can be sent for waste to energy incineration.

Making buildings more beautiful

Circular columns add space and light to construction, with less view obstruction than other shapes. They are easily finished and have no sharp corners to chip and break, requiring maintenance. Furthermore, they can deliver concrete savings of up to 21.5% over square-shaped columns.

FORMAROUND circular column moulds provide construction companies with a fast, cost-efficient and reliable method to create perfectly beautiful round columns.

The history and concept

Circular cardboard moulds have been used in the USA since the 1930s. Specialist Irish manufacturer, Industrial Packaging Ltd., has pioneered the concept in the Irish and UK markets since the 1980s, with its robust and reliable FORMAROUND product. The product has gained many advocates among the construction industry, over decades of use.

Fabrication of the cardboard moulds works according to the same principle as plywood – famously about 300% stronger than traditional board of the same thickness: thin, reinforced cardboard strips are laminated together, with special adhesives, around a forming mandrel. This produces a circular shape which does not bend under pressure, has a 2:1 safety factor and exceptional strength. The circular shape ensures equal distribution of internal pressure as concrete is poured and sets.

Today, most of Ireland's public sector and commercial developers and many in the UK use FORMAROUND moulds for concrete column construction. Due to their simplicity, aesthetic appearance and low maintenance, circular columns deliver huge benefits to the builder, the architect, the developer and the building user.

Contact us today to discuss your project.





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