



## The New Bridge

The Samuel Beckett Bridge is the latest addition to Dublin's impressive inventory of Liffey bridges. Located in the heart of Dublin's docklands it provides a valuable new link between the north and south quays in the area. The iconic structure was commissioned by Dublin City Council and designed by the internationally acclaimed artist, architect and engineer Santiago Calatrava.

The concept for the bridge came from Calatrava's glance at the harp on the back of an Irish coin, leading him to be inspired to design a bridge that reflected the shape of the national emblem. Its curved pylon produces a dramatic shape giving the appearance of a harp lying on its side. The structure is a magnificent paradox of slenderness and strength that embellishes the cityscape, particularly when it is illuminated against the night sky. The cable stay bridge is unique in Ireland as it is capable of rotating through an angle of 90 degrees to accommodate occasional maritime traffic.

Samuel Beckett Bridge was opened by the Lord Mayor of Dublin, Councillor Emer Costello, on 10<sup>th</sup> December 2009.

## An Droichead Nua

Is é Droichead Samuel Beckett an droichead is nua sa liosta suntasach de dhroichid thar an Life. Agus é lonnaithe i gcroílár cheantar dúgáí Bhaile Átha Cliath, nasc tábhachtach is ea é idir céanna thuaidh agus céanna theas an cheantair. Ba é Comhairle Cathrach Bhaile Átha Cliath a choimisiúnaigh an struchtúr sonraíoch agus ba é an ealaíontóir, ailtire agus innealtóir cáiliúil Santiago Calatrava a rinne é a dhearadh.

Nuair a d'fhéach Calatrava ar an gcláirseach ar chúl bhoinn Éireannaigh tháinig coincheap an droichid chuige, agus spreag sé é droichead a dhearadh a mbeadh an feathal náisiúnta le brath air. Tugann an piolón cuartha cruth drámata dó, amhail is dá mbeadh cláirseach ina lú a a thaobh. Paradacs a iontach is ea an struchtúr sa chaoi is a bhfuil sé tanaí agus láidir ag an am céanna. Feabhsaíonn sé dreach na cathrach go mór, ach go hairithe nuair a shoilítear é san oíche. Tá an droichead staghcháblaí uathúil in Éirinn mar gur féidir leis casadh faoi 90 céim le go mbeadh trácht muirí ócáideach in ann dul tríd.

Osclaíodh Droichead Samuel Beckett ag Ardmhéara Bhaile Átha Cliath, an Comhairleoir Emer Uí Choisdealbha, ar an 10ú Nollaig 2009.



**Emer Costello**  
Lord Mayor of Dublin



**John Tierney**  
City Manager



**Michael Phillips**  
City Engineer





## Its Origins

The construction of Samuel Beckett Bridge and James Joyce Bridge are part of an overall plan to remove through traffic from the City centre. In 2000 Dublin City Council (then Dublin Corporation) carried out an Environmental Impact Study for a bridge over the river Liffey linking Guild Street to Macken Street in the docklands area. The proposal had been developed, in accordance with central and local government policies, to improve the road network in the inner city east of O'Connell Street.

The bridge is intended to:

- facilitate the regeneration of the north and south docklands;
- provide an important pedestrian and cycle crossing facility;
- accommodate bus priority and a future Luas line across the Liffey;
- facilitate the implementation of the network of environmental traffic cells in Dublin City centre;
- improve traffic circulation, public transport and the pedestrian environment in the City centre.

The design brief for the bridge sought to achieve a landmark structure of unmistakable modernity and unique character. On this basis, world-renowned architect and engineer, Santiago Calatrava was appointed, as its designer.

## Bunús an Droichid

Cuid de phlean iomlánach chun tréthracht a bhaint de lár na cathrach atá i gceist le Droichead Samuel Beckett agus Droichead James Joyce a thógáil. Rinne Comhairle Cathrach Bhaile Átha Cliath (Bardas Átha Cliath mar a bhí) Staidéar ar an Tionchar Comhshaoil maidir le droichead thar an Life a dhéanfadh Sráid na nGildeanna agus Sráid Uí Mhaicín a nascadh. Forbraíodh an moladh, de réir bheartas rialtais lárnaigh agus áitiúil, chun an gréasán bóithre sa chathair lárnach ar an taobh thoir de Shráid Uí Chonaill a fheabhsú.

Tá sé mar aidhm ag an droichead:

- athghiniúint na gceantar dugáil thuaidh agus theas a éascú;
- áis thábhachtach a chur ar fáil a ligeann do choisithe agus rothaithe an abhainn a thrasnú;
- tosaíocht na mbusanna agus líne Luas amach anseo trasna na Life a éascú;
- cur i bhfeidhm ghréasán na gceall tráchta comhshaoil i lár chathair Bhaile Átha Cliath a éascú;
- cúrsaíocht tráchta, iompar poiblí agus áiseanna do choisithe a fheabhsú i lár na cathrach.

Ba é a bhí ag teastáil sa chúram deartha don droichead ná struchtúr uathúil a chur i gcrích a mbeadh blas na nua-aimsearthachta aige agus a bheadh ina dhíol suntais. Ar an mbonn seo ceapadh ailtire agus innealtóir a bhfuil clú bainte amach aige ar fud an domhain, Santiago Calatrava, mar dhearthóir an droichid.

## Samuel Beckett

Samuel Beckett was born in Dublin on 13<sup>th</sup> April 1906. After education in Portora Royal School in Enniskillen and Trinity College Dublin he settled in France in the late 1930's and became friendly with James Joyce. His writing, in both English and French, includes novels, plays, stories, poetry, criticism and short prose. His most famous play *Waiting for Godot*, changed the course of theatre. In 1969 Beckett became the third Irishman, after Yeats and Shaw, to be awarded the Nobel Prize for Literature. In 1986 he became the first Saoi of Aosdána, an honour he prized highly. He died in Paris on 22<sup>nd</sup> December 1989.



## Samuel Beckett

Rugadh Samuel Beckett i mBaile Átha Cliath ar an 13 Aibreán 1906. Fuair sé a chuid oideachais in Portora Royal School in Inis Ceithleann agus i gColáiste na Tríonóide, Baile Átha Cliath, agus ina dhiaidh sin shocraigh sé síos sa bhFrainc go déanach sna 1930í, áit a a ndearna sé cairdeas le James Joyce. Cuimsíonn a shaothar liteartha i mBéarla agus i bhFraincis úrscéalta, drámaí, gearrscéalta, filíocht, saothar critice agus próis gearr. Is é *Waiting for Godot* an dráma is cáiliúla a chum sé, dráma a d'athraigh cúrsaí amharclannaíochta go buan. Ba é an tríú Éireannach é, i ndiaidh Yeats agus Shaw, ar bronnadh an Duais Nobel le haghaidh Litríochta, nuair a bhain sé an duais sin amach i 1969. Ba é an chéad duine ar bronnadh an gradam Saoi Aosdána air i 1986, onóir a bhí ina ábhar mórtais dó. Fuair sé bás i bPáras ar an 22 Nollaig 1989.

“Again the last ebb  
the dead shingle  
the turning then the steps  
towards the lights of old”

– *Dieppe*





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## Dr Santiago Calatrava

The Samuel Beckett Bridge was designed by one of the world's great architects and engineers, Dr Santiago Calatrava. One of the world's elite designers, he has offices in Zurich, New York and Valencia.

Dr Calatrava has received numerous awards from the very beginning of his career and has received 18 honorary doctorates to date. Professional societies and publications have honoured him throughout his career. His extension to the Milwaukee Art Museum was in Time's 'Best of 2001'. Calatrava projects have received five ECCS European Steel Design Awards to date from the European Convention for Constructional Steel. The Liege Guillemins High Speed Railway Station won the ESCN European Award for Excellence in Concrete in 2006.

The Samuel Beckett Bridge is Dr Calatrava's second bridge project in Dublin. In 2003, the James Joyce Bridge, at Blackhall Place was completed. His unique design skills have given Dublin two iconic structures, which will become landmarks in the City's future.

## An Dr Santiago Calatrava

Ba é duine de mhór-aitirí agus mhór-innealtóirí an domhain, an Dr Santiago Calatrava, a dhear Droichead Samuel Beckett. Duine de scothdhearthóirí an domhain, tá oifigí aige in Zürich, Nua-Eabhrac agus Valencia.

Ó thús a ghairmréime tá an iliomad duaiseanna bainte amach aige agus go nuige seo tá 18 de chéimeanna dochtúireachta oinigh bronnta air. Le linn a ghairmréime thug cumainn agus foilseacháin ghairmiúla onóir dó. Luadh an fadú a rinne sé ar Mhúsaem Ealaíne Milwaukee ar 'Éachta 2001' in iris Time. Thug an Coinbhinsiún Eorpach um Chruach Tógála cúig cinn de Dhámhachtana Eorpacha le haghaidh Dearadh Cruach do thionscnaimh de chuid Calatrava. Bhain Stáisiún Traenach Ardлуais Guillemins i Liège Dámhachtain Eorpach ECSN le haghaidh Barr Feabhais sa Saothar Coincréite sa bhliain 2006.

Is é Droichead Samuel Beckett an dara tionscadal droichid de chuid an Dr Calatrava i mBaile Átha Cliath. Críochnaíodh Droichead James Joyce, ag Plás Blackhall, in 2003. Mar thoradh ar a scileanna uathúla deartha tá dhá struchtúr iontacha ag Baile Átha Cliath, a bheidh ina ndíol suntais i dtodhchaí na cathrach.

## The Construction Process

The construction process was unusual in that the steel bridge superstructure was fabricated off-site and transported fully assembled by barge. Construction began in Rotterdam, Holland in May 2007 and involved the assembly of 8 steel bridge sections to create a 123 metre deck span. A 46 metre high steel curved pylon was fabricated and connected to the deck and 25 forestay and 6 backstay cables were installed to create the main superstructure.

Meanwhile the civil and marine works started in Dublin. Part of these works required the casting of a reinforced concrete support pier in the river Liffey. A large sheet piled cofferdam was constructed in the river to enable the pier to be built. The main support pier and both abutments at the quay walls rest on piles, bored up to twenty metres deep, creating a firm footing in the limestone rock under the river bed.

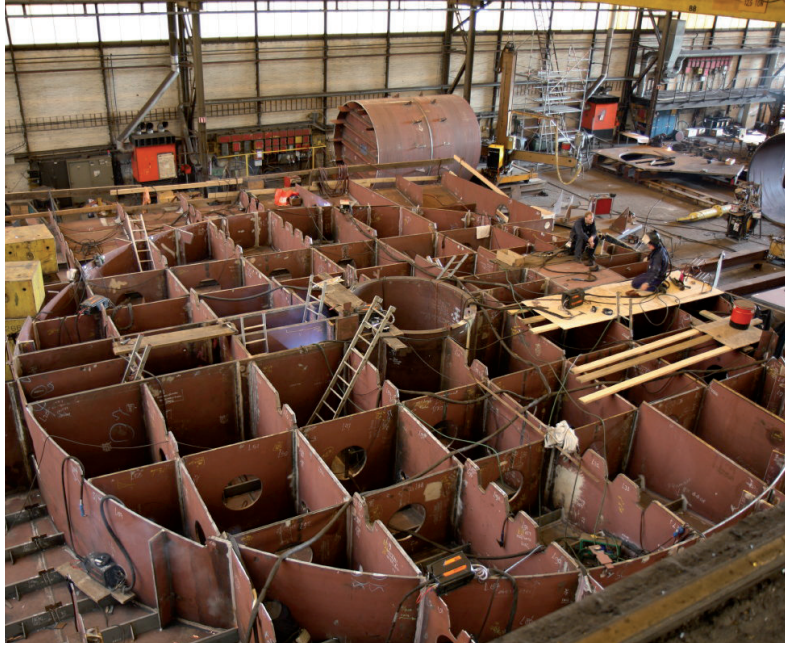
The superstructure, weighing approximately 2,500 tonnes, was transported to Dublin on a large barge in May 2009. The barge's journey, from Rotterdam to Dublin, was carefully monitored throughout its 628 mile journey, which took approximately 8 days, during which this remarkable shipment was forced to shelter from high winds.

## An Próiseas Tógála

Ba neamhghnách é an próiseas tógála mar go ndearnadh forstruchtúr cruach an droichid lasmuigh den tír agus tógadh anseo ar bháirse é agus é curtha le chéile cheana féin. Thosaigh an tógáil i Rotterdam san Ollainn i mBealtaine 2007, áit ar cuireadh le chéile 8 ngearradh cruach den droichead chun réise deice 123 méadar a chruthú. Rinneadh piolón cuartha 46 meadar ar ard agus ceanglaíodh leis an deic é, fad is a suiteáladh 25 cinn de cháblaí stagh tosaigh agus 6 cinn de cháblaí stagh deiridh chun an forstruchtúr a chruthú.

Idir an dá linn thosaigh na hoibreacha sibhialta agus muirí i mBaile Átha Cliath. Mar chuid de na hoibreacha seo, ba ghá piara tacaíochta déanta as coincreít threisithe a theilgean sa Life. Tógadh cógradhambá mór déanta le píllí leatháin san abhainn le go mbeifí in ann an droichead a thógáil. Luíonn an príomhphíara tacaíochta chomh maith leis an dá thaca ag ballaí na gcéanna ar phíllí tollta, síos go dtí doimhne 20 méadar, rud a chruthaíonn bonn láidir san aolchloch faoi leaba na habhann.

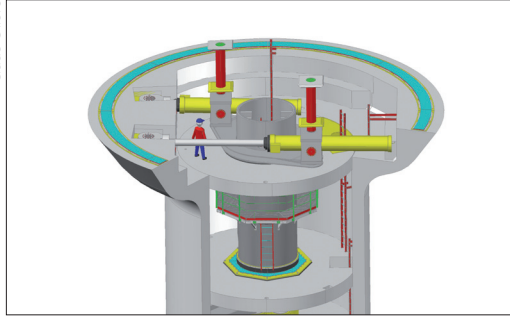
Ansin tugadh an forstruchtúr, a bhfuil meáchan thart ar 2,500 tonna aige, go dtí Baile Átha Cliath ar bháirse mór i mBealtaine 2009. Rinneadh monatóireacht chúramach ar aistear 628 míle an bháirse, a lean ar aghaidh ar feadh 8 lá nach mór, agus lena linn bhí an lastas neamhchoitianta seo dídean ó ghaoithe móra a lorg.



Guus Ollerook, Hollandia



Peter Barrow



Guus Ollerook, Hollandia



Guus Ollerook, Hollandia



Jim Colgan



Contractor – Graham Hollandia



Peter Barrow



Steve Desbrow Digital Post Production

Once on-site, counter ballast, in the form of heavy weight concrete, was added to sections of the backspan to evenly balance the superstructure before mounting it on the support pier. The superstructure was suspended above the main pier and engineers used the receding tide to lower it into position. The barge was then removed and the superstructure balanced with its centre of gravity over the support pier. Once in position the final 'tuning' ballast, in the form of steel blocks, was installed and the cablestays were tensioned so that the superstructure, now weighing 5,700 tonnes, was balanced precisely before it was rotated into its closed position.

A high specification, copper-roofed, control room building was constructed on Sir John Rogerson's Quay. This is linked, via ducts placed along the river bed, to the bridge's hydraulic rotational mechanism housed in the main support pier.

Nuair a shroich sé a láthair sa chathair, cuireadh frithbhallasta de choineáil throm le gearrtha den réise dheiridh chun an forstruchtúr a chothromú roimh é a ardú ar an bpiara tacaíochta. Crochadh an forstruchtúr os cionn an phríomhphíara agus bhain innealtóirí leas as an taoide aife chun é a ísliú go dtí go raibh sé sa suíomh ceart. Baineadh an báirse ansin agus chothromaigh an forstruchtúr lena mheáchanlár ar an bpiara tacaíochta. Agus é sa suíomh ceart suiteáladh bloic cruach, mar bhallasta 'tíúnála' deiridh, agus rinneadh na cáblaí stagh a theannadh le go ndéanfaí an forstruchtúr, a raibh 5,700 tonna anois aige, a chothromú go beacht sular rothlaíodh é go dtí go raibh sé sa suíomh dúnta.

Tógadh foirgneamh seomra rialaithe ardsonraíochta, a bhfuil díon copair air, ar Ché Sir John Rogerson. Ceanglaítear é seo, trí dhuchtanna a luíonn ar leaba na habhann, le meicníocht hidrálach rothlach an droichid sa phríomhphíara tacaíochta.

## Liffey Bridges

**B**ridges hold a special place in the heart of Dublin and Dubliners. Even our name Baile Átha Cliath, the town of the ford of the hurdles – is taken from an ancient crossing over the Liffey. Bridges encourage movement and communication.

The first recorded bridge over the Liffey was located in the vicinity of Father Mathew Bridge and went out of use c 1000. Currently there are 20 bridges, within the City, listed throughout the brochure, spanning the Liffey from Chapelizod to the sea. While some bridges are new others have been replaced or refurbished over the years.

## Droichid na Life

**T**aitníonn a chuid droichead go mór le Baile Átha Cliath agus a phobal. Tagann an t-ainm, Baile Átha Cliath, ó áth ársa a thrasnaigh an Life. Spreagann droichid gluaiseacht agus cumarsáid.

Bhí an chéad dhroichead a bhfuil taifead againn faoi áit éigin i ngaire Dhroichead an Athar Maitiú ach chuaigh sé as úsáid thart ar an mbliain 1000. I láthair na huaire tá 20 droichead le feiceáil sa chathair, a liostaítear sa bhróisiúr, thar an Life ó Shéipéal losóid siar go dtí an fharrage. Cé gur droichid nua cuid díobh, cuireadh cinn eile in áit sean droichead agus rinneadh roinnt droichead eile a athchóiriú thar na blianta.

“they come  
different and the same  
with each it is different and the same  
with each the absence of love is different  
with each the absence of love is the same”

*Liam Brockitt*



## Dublin City Council

City Manager	John Tierney
City Engineer	Michael Phillips
Engineer for the Works	Kieran O'Sullivan

## Project Team

Project Engineer & Engineer's Representative	Dr John W. Flanagan
Bridge Designer	Dr Santiago Calatrava
Designer's Chief Engineer	Mario Rando, Santiago Calatrava
Designer's Site Representative	Gaute Mo, Santiago Calatrava
Designer's Architect	Marcus Schwarzbach, Santiago Calatrava
Independent Design Checker	Dr Tony Dempsey, Roughan & O'Donovan
Construction Contract Advisor	Harry Meighan, Roughan & O'Donovan
Senior Resident Engineer ( <i>Steelworks</i> )	Jerry Cutter, Flint & Neill Ltd.
Senior Steelworks Inspector	Paul Sutherland, Flint & Neill Ltd.
Senior Resident Engineer ( <i>Civil &amp; Marine Works</i> )	Patsy Gorman
Resident Engineer ( <i>Civil &amp; Marine Works</i> )	Madeline McNamara
Assistant Resident Engineer ( <i>Civil &amp; Marine Works</i> )	Marie Madigan
Assistant Resident Engineer ( <i>Civil &amp; Marine Works</i> )	Alan Thomas
Project Administrator	Kevin Crotty
Contractor	Graham Hollandia Joint Venture
Contractor's Director	Alan Bill
Contractor's Director	Nico Noorlander
Contracts Director for the Contractor	P.J. McCaffery
Contractor's Project Manager	Paul Scott
Contractor's Project Manager	Guus Olierook
Beckett Advisor	Barry McGovern
Bridge Project Funding	Dublin City Council, Department of Transport, Dublin Docklands Authority