



Patrons dine below the Olympic rings at a coffee shop at Heathrow Airport on July 17, as London prepares for the 2012 Summer Olympic Games.

CHARLIE RIEDEL / AP

# OLYMPICS 2012: LONDON LIMBERS UP

FROM PAGE 1

If the records over the past 30 years are anything to go by, temperatures in July, August and September typically rise to the low 20s Celsius and rain is expected on 10 days of each month, with a typical August seeing almost 50 millimeters over the course of the month.

This year, however, has been particularly rain-swept. April was, for example, the wettest month in the UK for more than 100 years, according to figures from the Met Office, the country's national weather service.

Met Office experts said there is little chance of hot spells in the weeks running up to August 7, just five days before the end of the Games.

Amid fears of the wettest Olympics ever, the events most at risk of being affected include tennis at Wimbledon, BMX biking in Stratford, rowing at Eton Dorney, eventing at Greenwich Park, sailing at Weymouth and beach volleyball in Horse Guards Parade.

Around 40 percent of the seats in the Olympic Stadium are uncovered, including some very expensive spaces closest to the track. In light of this, the Games' organizers — the London Organising Committee of the Olympic and Paralympic Games, or LOCOG — have ordered 250,000 ponchos to sell to spectators.

## Music strikes a chord

Forget about the awful weather, great music may be what people most expect from London.

When Beatles' legend Paul McCartney asks the 60,000 spectators to sing *Hey Jude* along with him, the Games will really get under way.

But McCartney's performance, which will conclude the opening ceremony on Friday, will not be the only cultural highlight that London will showcase to its 5.3 million visitors this summer.

The three-hour opening ceremony, "Isles of Wonder," directed by the Oscar-winning filmmaker Danny Boyle of *Slumdog Millionaire* and *Trainspotting* fame, will showcase the "green and pleasant land" to celebrate Britain's rolling fields and rural heritage. The ceremony will also include a "History Parade" focusing on, among other things, the National Health Service, immigration and protest movements.

The green set will be transformed into a bleak industrial landscape as the performers recreate the Jarrow March of October 1936, when 200 men from the northeast of England walked to London to protest about the poverty and unemployment in the country's former industrial heartland.

The best of British music will be showcased by a program called "Rock the Games," which will include five songs written especially for the event, led by *Survival* by the British rock trio Muse.

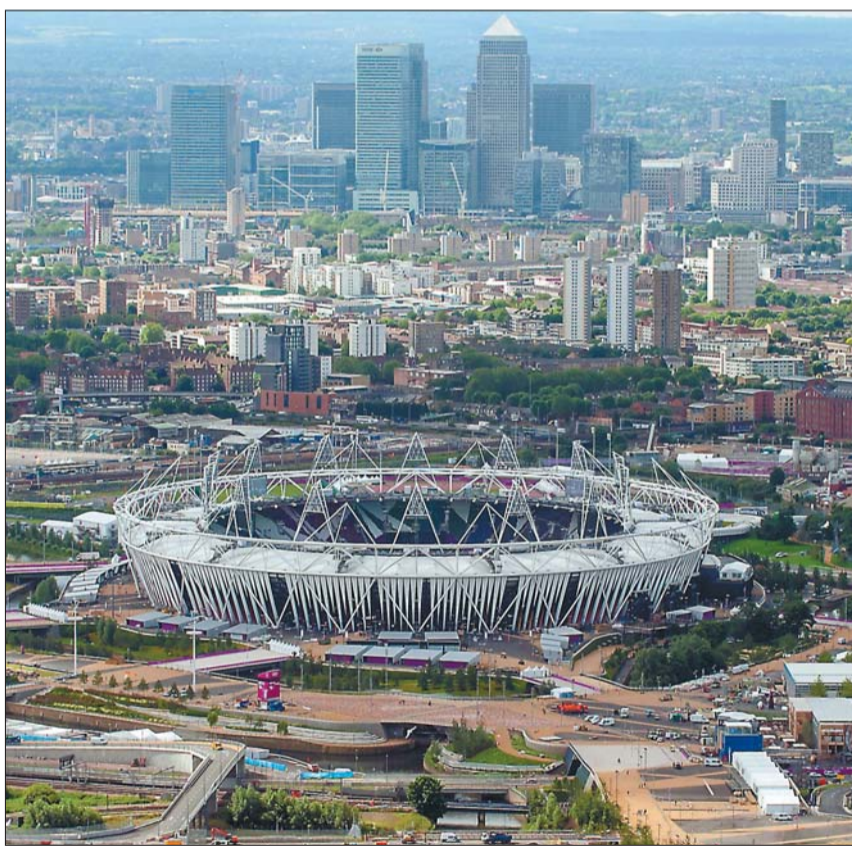
The song, almost five and a half minutes long, opens with a lengthy instrumental, followed by crunching guitars, booming drums and a wailing crescendo.

"It's a race/And I'm gonna win," intones Muse frontman Matt Bellamy as the song reaches its climax, before pledging to "reveal my strength to the whole



Left: A view of Tower Bridge, decorated with the Olympic rings, in central London. Right: An aerial view of the Olympic Park, in Stratford, east London, showing the Olympic Stadium and the surrounding area, including Canary Wharf.

MIGUEL MEDINA / AFP



DOMINIC LIPINSKI / AP

human race".

Bellamy said the song was written with the Olympics in mind and "expresses a sense of conviction and determination to win".

The four other official songs are by Elton John vs Pnau, Delphic, the Chemical Brothers and London rapper Dizzeze Rasca.

Elsewhere, Scissor Sisters and Rizzle Kicks are just two of the outfits set to play surprise gigs at Olympic venues. Although the public knows which bands will perform, they won't know which band will be at which venue — hence, the "surprise" element. In addition, there will be performances from military marching bands and dance troupes, including the English National Ballet, plus sports demonstrations.

Moreover, a music library of 2,012 songs built around five themes — energy, primetime, extreme, heritage and world stage — will be used as background music during the Games.

The closing ceremony on August 12, will involve the country's "most globally successful musicians", includ-

ing The Who, Take That and George Michael, as well as rising stars, according to artistic director Kim Gavin. "We want to celebrate where we are and who we are — and one of our strongest exports is music. We want to showcase British creativity and imagination," said Gavin.

## 'Greenest-ever' Olympics

Aside from presenting great music, the organizers believe they are on track to win a gold medal for delivering the "greenest-ever" Olympics too.

Recycled steel and gas pipes, timber walkways and lavatories flushed with water reclaimed from local sewers are just some of the features that have guided the ambition to deliver a "sustainable" Games.

"This was a dumping ground for waste, some of it highly contaminated," said John Armit, chairman of the Olympic Delivery Authority, referring to the site of the Olympic Park.

In the future, the Olympic area in Stratford, east London, will be a place where Londoners can go to "work and play".

"The venues that will be seen in billions of homes across the world this summer were completed on time and firmly within our overall budget. They were built with long-term use and sustainability in mind," said Armit.

In creating Europe's largest new urban park, the organizers claim to have set a bewildering number of records.

"They maintain that in creating a park the size of 357 football pitches, 98 percent of the materials used were reclaimed from the demolition of 200 largely derelict buildings.

Millions of metric tons of soil were removed from the previously largely contaminated industrial site, cleaned and (mostly) returned to the site. None of the waste has gone to landfills.

There are more than 130 venues, including competition, training venues, and uniform distribution and all of them have "some temporary elements", according to Steve Cardwell, project manager at WS Atkins PLC, the official provider of engineering design ser-

vices for the Games.

Cardwell said the Velodrome, the 6,000-capacity track cycling arena, is his personal favorite. The track is made from "sustainably sourced" Siberian pine, while external timber cladding will allow natural ventilation. Meanwhile, the "inside ceiling," covered with a lightweight cable-net roof, is "really fantastic," he enthused.

The Copper Box, the venue earmarked for handball and fencing, is wrapped in 3,000 square meters of copper with a high recycled content, plus energy-saving features, natural light and rainwater harvesting. After the Games, it will become a 7,500-capacity multi sports area for the community.

"When you look at what London has been doing, a lot of that has been focused on sustainability. That is a key part of why London won the 2012 Games. The very principle we are talking about here — that a large number of the venues are temporary — is a fundamental part of that," said Cardwell.

Many of the facilities at the venues were already

in the market before the Games, he said, noting, for example, that temporary seats and seating stands may have already been used at Grand Prix or golf tournaments. "So you are actually renting this equipment," according to Cardwell.

London's bus drivers had also threatened to strike because of the increased workload engendered by the Games, but the situation was resolved when the drivers accepted a bonus of 27.50 pounds (\$43) per shift for the duration of the event.

A day after that agreement was struck, Danny Boyle was told to shorten his 27-million-pound opening ceremony, as the organizers fretted about spectators being left without transport home if the event were to run too long.

During the years leading up to the Games, Transport for London has extended London Overground's East London Line and upgraded facilities on the Docklands Light Railway and the North London Line.

High-speed javelin trains have been added to carry passengers from St Pancras and Ebbw Vale to Stratford station, which is situated within the Olympic Park.

Cable cars have been added between the O2 Arena on the banks of the Thames and the ExCeL Exhibition Center in east London, linking two Olympic hot spots. Traveling 160 feet above the river, the cars are expected to carry 2,500 passengers an hour.

One pledge made in London's Olympic bid was that most of the competitors would be based within 20 minutes traveling time of their events. To fulfill that promise, some lanes on selected roads will be barred to all but athletes, officials and VIPs. Meanwhile, traffic lights on 13,000 streets have been reprogrammed to speed up the vehicle flow.

However, 200 taxis clogged Parliament Square in protest at the Olympic lanes last week, and angry motorists in Wandsworth in the southwest of the city, reported that the reprogramming of the lights has caused massive delays.

Even if no transport dramas occur, the Games will certainly bring a high level of inconvenience to London's commuters. In response, Transport for London has encouraged people to work from home and hold discussions by video conference instead of traveling to meetings.

LOCOG has also invested more than 10 million pounds to improve a network of eight pedestrian and cycling routes that link different parts of the capital with the Olympic Park.

Mayor Boris Johnson said at a news briefing on July 16 that the media headlines about traffic chaos have been greatly exaggerated and that London is ready for the Games.

"BoJo," as the mayor is known, has carefully cultivated a buffoonish persona and can always be relied upon to make light of difficult situations. However, he is clued up enough to realize that he and LOCOG must get it right to prevent the "Greenest Olympics" from leaving a lot of red faces.

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## The sustainable stadium set to wow the world

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With its red running tracks surrounded by black and white seats and floodlights stretching above the roof, London's elliptically shaped Olympic Stadium resembles many other sporting venues.

But the building's principal designer, Philip Johnson, believes it will lead a global movement towards sustainable architecture.

Mostly lightweight steel was used in the construction, the roof is made of PVC and the stadium boasts a fabric curtain, designed to minimize crosswinds. Moreover, the water collected from the roof is used to flush the toilets, while the earth embankments that surround the stadium protect the biodiversity of the site by encouraging plants to grow.

"We want to use as little material as possible," said Johnson, of the architectural consultancy, Populous, which is headquartered in the US city of Kansas, but has offices around the world, including one in the British capital.

## Reduce, reuse, recycle

Based on the principles of reduce, reuse and recycle, the stadium has a temporary upper tier of 55,000 seats. The tier will be dismantled after the Games, transforming the stadium into a 25,000-seat venue for other sporting events.

Johnson noted that the stadium used in the Sydney 2000 Olympic Games had two tiers of temporary seating, while Chicago's bid to host the 2016 Games proposed a totally temporary stadium. "So that's how London will contribute to the history of Olympic stadiums," he said.

Populous entered the bid to design the stadium in summer 2006, as part of a team that also included Sir Robert McAlpine Ltd as the main contractor and Buro Happold LLP as the engineer.

The team was awarded the Olympic contract in January 2007. That left a tight schedule, as the stadium had to be completed by summer 2011 for a test event. The work came in on time and within the budget of 500 million pounds (\$779 million).

To save time, Johnson split his team into two groups, with one designing the foundations, including drainage and the seating structure, while the other worked from the upper tier down.

"So we had people in the team working out exactly what seating structure it was, and drawing out things for construction before the stadium was even designed. It was fast-track, and pretty difficult to manage," he admitted.

## Brownfield site

Another challenge involved the process of laying foundations on the brownfield site without disturbing the contaminants left deep in the soil by industrial activity during the Victorian era.

"You can dig into the top bit, but you can't dig down further without exposing the contamination," explained Johnson. The volume of soil removed during the excavation process would fill the Royal Albert Hall nine times over.

The frame of the building is clothed in a fabric wrap made up of individual pieces 900 meters in length and 20 meters high. The design is intended to bring wind speeds down to 2 meters per second for the benefit of the competitors.

White on the outside and boasting shades of pink, blue, green and orange on the inside, the wrap is "lightweight, colorful and fun," said Johnson. "That was our way of creating a kind of festival architecture and unifying the parts of the building, without going to the expense of glazing and cladding systems," he added.

The seat colors have been arranged to depict the jagged shards that feature in the design of the London 2012 graphics and logo. Around the top of the roof, 14 lighting towers stretch 70 meters above the arena, supporting 532 individual lights.

Outside the stadium itself, public bars, food concessions and information points have been designed as individual pods but are grouped together. "The stadium itself will be on an 'island', surrounded by rivers and tributaries, including the Old River Lea, the Bow Back Rivers and St Thomas's Creek. The stadium will be accessed via six footbridges.

To Johnson's relief, the work finished on schedule and "nothing really went wrong", although he admitted that "it was lots of hours, lots of hard work, a big team, with lots to organize".

A team of 50 architects worked on the project from 2006 to 2011, alongside 200 engineers, 100 contractors and various subcontractors.

Friendships developed as the teams shared offices. "In fact, some people actually came to our project offices, and it was hard to tell who was an architect and who was an engineer," said Johnson.

One idea Johnson was forced to abandon was that of a "moving roof", which would partially cover the seating areas during the Games, but could be folded forward like the petals of a flower to cover the entire stadium once the temporary tier of seats had been removed.

"It probably would have been the most expensive stadium, but could have been pretty fun. If we'd had the ultimate budget, we would have done something like that. But, of course, it's sensible to have a more modest roof," he said.

Johnson was full of praise for Beijing's Olympic stadium, having visited the structure in May 2008 with a team of international engineers to help with technical assessments.

"I love it, but we didn't attempt to follow what happened in Beijing," he said, stressing that the concept of sustainability distinguishes the London stadium from others around the globe.

Johnson, who graduated from London's Bartlett School of Architecture in 1997, had already worked at two famous British venues, Ascot Racecourse and Horse Guards Parade, before becoming project leader for the Olympic stadium.

## 'Take a step back'

Experience has taught him to be practical in his work. "If I have a philosophy at all, it's to take a step back and think through the relationship between the aspirations and the technical issues," he said.

While millions of visitors will soon witness the stadium for the first time, Johnson is already drawing up plans to transform it into a permanent venue in the wake of the Games, with a reopening date penciled in for 2014.

Currently, the bidders to purchase the stadium are West Ham United Football Club, UCLF College of Football Business, Leyton Orient Football Club, and Intelligent Transport Services in association with Formula One.

"It's like a child that you've just released into the world, but now you've got to help them go to university or get a job," said Johnson enthusiastically. When asked how he was chosen to lead such an important project, he smiled modestly, "it was a combination of experience and hard work".



Philip Johnson, the Olympic Stadium's principal designer