

TOYOTA CENTER, HOME OF THE HOUSTON ROCKETS



ARENA STATS

Location: Houston, Texas

Began Construction: July 21, 2001

Opened: October 6, 2003

Seating Capacity: 18,400

Owner: Harris County—Houston Sports Authority

Operator: Clutch City Sports and Entertainment

Venue Uses: NBA games, AHL games, concerts, family shows, and conventions

Construction Cost: \$255 million (in 2012 dollars)

LEED Certification: LEED Silver for Existing Buildings: Operations and Maintenance in January 2010

THE ROCKETS' GREENING STORY: MOTIVATIONS, CHALLENGES AND LESSONS FROM THE FIELD

The Toyota Center and Houston Rockets had environmental responsibility on their radar even before the arena opened in 2003. "We started before we got into the building. We have always been very environmentally conscious at the Toyota Center—it's always been a part of how we operate," says Sarah Joseph, director of community relations at the Rockets.

The push towards operational efficiency and eventually pursuing LEED certification stems from their green-minded owner, Leslie Alexander. "Environmental responsibility is extremely important to Mr. Alexander," says Scott Manley, director of event operations at Toyota Center.¹ The Toyota Center was the fourth NBA arena to receive LEED certification, earning LEED Silver for Existing Buildings: Operations and Maintenance in 2010. "Applying for LEED was done on a voluntary basis, so we looked at that as an opportunity to take a leadership role," says Manley.

"TOYOTA CENTER HAS A UNIQUE OPPORTUNITY TO SERVE AS AN INDUSTRY LEADER IN THE FUTURE OF SUSTAINABILITY. WE ARE OPERATING IN A MORE ENVIRONMENTALLY CONSCIOUS MANNER AND EDUCATING THE MILLIONS OF PATRONS THAT ATTEND TOYOTA CENTER EVENTS EACH YEAR REGARDING WAYS THEY CAN HELP," says Rockets chief executive officer Tad Brown.

WHY GO GREEN?

By being environmentally responsible in their building and team operations, the Houston Rockets view their green program as a way to lead by example in the community. "Through our efforts with Green Games, aggressive recycling, public outreach initiatives featuring Rockets players, environmental support efforts, and many other programs, we are providing a significant educational support mechanism to our community and fans alike," says Rockets CEO Tad Brown.²

By showcasing environmental initiatives at the venue and team community events, the Toyota Center and the Rockets strive to engage their fans and their community in environmentally responsible behavioral changes. This strong commitment to environmentalism is reinforced by the venue's achievement of LEED certification in 2010. "In keeping with [owner] Leslie Alexander's vision of environmental responsibility, we have dedicated many resources over the past few years to gain certification within the LEED program with regards to sustainability and operational efficiency," Brown explains. "This certification serves as validation that our aggressive approach to energy management, recycling and waste reduction programs have made a difference here at Toyota Center and in our community."³

The Toyota Center was the first professional sports facility in Texas to get LEED certification in 2010, and, according to Greg Poole, director of facility operations, was among only two or three other buildings in Houston that were LEED-certified at that time.⁴ As of 2012, there are now more than 100 LEED-certified buildings in the Houston area.⁵

WHERE TO START?

Though the Toyota Center has long been involved in environmental initiatives, “in 2008 we really made it more formal and started the LEED certification process,” explains Joseph. “We launched initiatives on two separate fronts to ensure that environmental awareness was at the center of daily operational activities for Rockets and Toyota Center. First, we began the application process for Toyota Center to become a LEED-certified facility. Secondly, we also established a Rockets Green Committee to develop platforms for guiding our green programs that would be inclusive of staff, fans, and others in the Greater Houston Community.”

“On the LEED certification side, Mr. Alexander, our CEO Tad Brown, our CFO Marcus Jolibois, our Assistant GM Scott Manley, and people on the facilities side were involved. Our Director of Facility Operations, Greg Poole, spearheaded our overall efforts to get the LEED certification,” says Joseph.

For the Rockets, LEED certification started with collecting baseline data at the building. “When beginning the LEED process, it was important to undergo a comprehensive building survey to establish a baseline from which to expand,” Joseph continues. “We partnered with a local engineering firm to assist with the LEED application process.” Poole and Manley, along with an eight-person staff, centered the LEED process around five key areas: energy, air quality, water use, reduced chemicals use, and educational outreach.

Aiming for EnergyStar recognition guided the Rockets’ energy efficiency initiatives. Poole and his team used EnergyStar Portfolio Manager to compare their building’s energy use to similar buildings, which was helpful in gauging their building’s energy intensity. “We were always really aggressive in trying to reduce our energy and our footprint,” Poole said. “We wanted some validation of what we were doing.”

However, this sort of energy comparison can be problematic, Poole notes, since as of yet EnergyStar does not include a sports venue category. “Currently EnergyStar does not have a specific rating or grouping for arenas and stadiums. Arenas attempting to get the points within LEED that are associated with EnergyStar have to submit any data they have, with regards to energy consumption, in hopes that EnergyStar qualifies us in some way.”

Another focus area was water use at the arena. The team decided to pursue landscaping efficiency points, reducing their landscaping water use by 50 percent by using native and drought-tolerant plants and installing a drip irrigation system that waters plants at the roots and reduces evaporation. The arena also installed low-flow faucets, toilets, and urinals with automatic sensors that reduce water use by 30 percent compared to conventional building code.

The operations team also addressed air quality at the arena, exceeding American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) requirements.

STANDOUT GREENING ACCOMPLISHMENTS

ENERGY

Through numerous energy efficiency improvements, the arena has reduced overall electricity use by more than 27 percent since 2003, earning EnergyStar recognition. Initiatives include:

- ★ Engaging local entities in retro-commissioning practices
- ★ Installing a Building Automation System
- ★ Installing compact fluorescent light bulbs (CFLs) throughout the venue, saving \$70,000 annually
- ★ Installing motion light sensors in offices
- ★ Purchasing renewable energy credits from energy provider

AIR QUALITY

- ★ Increasing indoor air quality exceeding ASHRAE standards, including entry mats that reduce particulates entering building, and MERV 14 air filters on air handlers that reduce energy use

WATER

- ★ Achieving a 50 percent reduction in landscaping water use by using native plants and installing a drip irrigation system
- ★ Installing low-flow faucets, toilets, and urinals, which reduce potable water consumption by 30 percent

REDUCED CHEMICALS USE

- ★ Reducing pesticide use by using Integrated Pest Management (IPM)
- ★ Introducing a high performance green cleaning program including Green Seal-certified products

ENVIRONMENTAL EDUCATION

Earned LEED Innovation points for education programs, including:

- ★ Green Committee projects
- ★ “Green” environmental awareness games
- ★ Community outreach efforts
- ★ Public outreach initiatives featuring the Rockets players
- ★ E-cycling events and tree planting events

ROCKETS GREEN COMMITTEE GOALS

- ★ Be a leader in the Houston community on environmental best practices.
- ★ Drive community activation on environmentally responsible behavior changes.
- ★ Increase community awareness of Rockets' environmental efforts.
- ★ Advance Toyota Center efforts towards LEED certification.

GREEN COMMITTEE ACCOMPLISHMENTS

- ★ Received the 2011 Mayor's Proud Partner Award for Green Initiatives
- ★ Changed behavior within office—lights off policy, recycling of paper and plastic items
- ★ Established the "Green Team of the Game Program"—for each game, youth from schools, non-profits, and sports teams volunteer to pick up recyclable items in the stands and throughout the arena; 400 youth participate each season
- ★ Receive ongoing coverage in local media for green initiatives



"We implemented an indoor air quality program that reduces particulates in the air by going above and beyond the recommended MERV 13 filters to MERV 14 filters used by our air handlers," says Poole. "This reduced particulates in the air as well as energy costs on the air handling units themselves by modifying the type of filter used." Entry mats that reduce particulates from people entering the building were also installed.

Another priority was reducing chemical use in the building. The arena achieved this by training staff in Integrated Pest Management techniques, which reduces the use of pesticides. The cleaning staff also began purchasing green cleaning products, including Green Seal-certified products.

The last focus area of the Toyota Center was creating an educational outreach program, which earned them Innovation points with LEED. This program meshed with the simultaneous efforts of the Rockets Green Committee, which was working to generate environmental awareness with fans, staff, and the local community.

"The Green Committee is made up of a cross section of folks from different departments from all levels of the organization—from coordinators to upper management," explains Ken Sheirr, senior director of marketing operations. "There were about ten people on that committee to help us establish the green policy and procedures that were eventually implemented,"

The Rockets Green Committee kicked off their program by engaging and educating their fans on environmental initiatives. "We were one of the first two NBA teams to have an environmental awareness game," says Sheirr. "We basically used that game as an opportunity to communicate our environmental views to our fans. We did things like having our mascot wear a green costume and including environmentally-friendly items such as recyclable cups and canvas bags as part of the night's giveaways. We brought in representatives who are involved in environmental issues throughout the community and let them use that as a platform to distribute their pamphlets or literature. We displayed environmental facts on the screen throughout the game. We've been doing all that for about four years. That was our first major initiative outside of the LEED process."

The next step was getting their staff involved in their program. The Rockets Green Committee instituted organization-wide initiatives to reduce environmental impacts around the facilities, starting with small changes. "We removed all paper cups from the coffee areas, encouraging everyone to use mugs," explains Sheirr.

"We installed automatic sensors that would turn off the lights in offices when people left the room. We sent out communications on the importance of electronics and powering down. We have big recycling stations with graphics set up throughout the administrative area where you can bring in your lightbulbs and batteries from home and we'll

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recycle them for you. We’ve done that over the last few years and come up with a few new things to do each year, just to get folks engaged.”

These initiatives have made a big difference at the arena, according to Poole. “We have increased our recycling tonnage from just a few tons each month to over 14 tons each month on average,” he says. “We implemented a no trash can policy for individual spaces like offices and cubicles... [I]nstead we provided centralized waste stations that separated recyclable material from general waste. This created an opportunity for each person to have to get up and walk to the station and at that point it made them think about what they were discarding and not just throw everything into the general waste stream.”

The Rockets also approached local organizations to assist in environmental educational outreach and green community events. “One of the main groups we’ve worked with is ‘Keep Houston Beautiful,’” says Hai Duong, senior community relations coordinator. “They’ve been a wonderful and major resource in helping us find projects and locations. They’ve helped us find other partners as well such as the Houston Housing Authority or the Houston Arboretum and many other organizations as well.”

This influence has not gone unnoticed; the Rockets won the 2011 Mayor’s Proud Partner Award for their green outreach initiatives and community events. Initiatives included a “The Green Team of the Game Program” where youth from schools and social organizations volunteered to help pick up recyclable items during Rockets home games; 5,000 reusable water bottles given out at games; community cleanup events and tree planting events; and an annual “Recyclefest” event collecting electronics, books, clothing, and shoes for recycling and donation. In 2011, the event’s organizers collected 14,242 pounds of electronics for responsible recycling; three blue crates, 150 bags, and 10 boxes of clothes and shoes, donated to the Salvation Army; and 12 boxes of books, also donated to the Salvation Army. The Rockets have collected nearly 100,000 pounds of electronics for recycling since launching the program.

CHALLENGES: THOSE OVERCOME AND ONGOING

Earning LEED’s Energy points was no small task for the Houston-based arena, whose 750,000 square-foot building is a challenge to keep cool in the summer months, where temperatures hover in the mid-90s an average of 99 days per year. “To cool down the building for an event takes serious amounts of power,” Poole says. The building hosted 150 events in 2009, so a high-efficiency cooling system was crucial in order to achieve the necessary energy reductions. When events are not scheduled at the arena, Poole’s team makes sure to shut down as many building components as possible.⁶

“We have reduced our overall consumption by 27 percent from when we first opened and our annual goals are to continue finding ways to reduce electrical consumption by 3 percent to 5 percent each year,” he says. “This was accomplished by lighting retrofits and equipment modifications, as well as creating the correct culture within our operations that designated energy management as one of the highest priorities in our daily business.”

While pursuing LEED gave the Toyota Center a road map to environmental initiatives at the arena, the application process itself was a challenge. “The more [building features] you submit, the harder it is,” Poole says. “We’re not a typical office building. The information we’re supplying is a little bit different from what they want to see. We have to make arguments back and forth for why we feel like we’re matching what they’re asking for.” The Rockets ended up bringing on a consultant from Riehl Engineering to provide day-to-day support for the complicated application process.

Despite these challenges, the Toyota Center is determined to build on its LEED Silver certification and strive for higher certification levels. “We intend to continue improving on our current list of programs and implementing new ones with the eventual goal of reaching the next level of certification,” says Joseph.

LESSONS FROM THE FIELD

ESTABLISH A GREEN COMMITTEE AND SET GOALS: The Rockets established a Green Team with representation across the organization. Goals and objectives were determined during initial Green Team meetings, which led to developing a comprehensive environmental program. According to their USGBC project profile, “Seemingly the most important item the project team identified for the success of this project is the necessary cultural shift which must occur with both event attendees and concessions to make LEED certification a reality.”⁷

ENGAGE YOUR COMMUNITY IN YOUR ENVIRONMENTAL EFFORTS: With more than 1.5 million fans visiting the arena annually, the Toyota Center has a considerable influence in the community. “Toyota Center has a unique opportunity to serve as an industry leader in the future of sustainability,” says Brown. “We are operating in a more environmentally conscious manner and educating the millions of patrons that attend Toyota Center events each year regarding ways they can help.” Events that address local environmental issues are a great way to engage the community and educate fans about the environment. “For us, one of the major initiatives from a community standpoint is tree planting, especially now in Houston coming out of a terrible drought over the last summer that led into January of 2011. There was so much damage done to the green space in Houston and the landscape. What we really want to do is figure out a way to get involved in that, whether it’s just going out organizing tree-plantings or figuring out a way to raise money,” says Joseph.

ENDNOTES

- 1 Kyle Stack, “Houston Goes LEED,” Slam Online, June 21, 2010, <http://www.slamonline.com/online/nba/2010/06/houston-goes-leed/> (accessed July 18, 2012).
- 2 Nelson Luis, “Toyota Center and Houston Rockets Earn LEED Silver Certification from USGBC,” NBA.com, June 2, 2010, http://www.nba.com/rockets/media/ToyotaCenter_LeedCertification.pdf (accessed July 18, 2012).
- 3 Nelson Luis, “Toyota Center and Houston Rockets Earn LEED Silver Certification from USGBC,” NBA.com, June 2, 2010, http://www.nba.com/rockets/media/ToyotaCenter_LeedCertification.pdf (accessed July 18, 2012).
- 4 Kyle Stack, “Houston Goes LEED,” Slam Online, June 21, 2010, <http://www.slamonline.com/online/nba/2010/06/houston-goes-leed/> (accessed July 18, 2012).
- 5 U.S. Green Building Council Texas Gulf Coast Chapter, “Houston Businesses are Building Green,” USGBC, 2012, <http://usgbctexasgulfcoast.org/content.asp?secnum=112> (accessed July 18, 2012).
- 6 Kyle Stack, “Houston Goes LEED,” Slam Online, June 21, 2010, <http://www.slamonline.com/online/nba/2010/06/houston-goes-leed/> (accessed July 18, 2012).
- 7 USGBC Texas Gulf Coast, “Toyota Center Project Profile,” USGBC.org, 2010, http://usgbctexasgulfcoast.org/files/1586_Toyota_Center.pdf (accessed July 19, 2012).