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PILGRIMAGE'S
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Inside the Canadian plan to help
Saudi Arabia remake **the hajj**, the crowded
and occasionally dangerous heart of Islam
Rick Westhead, **WD 4-7**



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The hajj pilgrimage draws millions of Muslims each year, sometimes overwhelming host Saudi Arabia. Two small Canadian firms are helping make the holy journey better — a \$227-billion, 30-year project



Makeover for Mecca



FAYEZ NURELDINE/FAYEZ NURELDINE/AFP/GETTY IMAGES

An aerial view shows Muslim pilgrims walking past tents as they make their way to the area where they throw pebbles at pillars during the Jamarat ritual in Mina in 2013.



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Tunisian pilgrims pray on a rocky hill called the Mountain of Mercy.



FAYEZ NURELDINE/AFP/GETTY IMAGES

Pilgrims in a slim ribbon of shade at Mecca's Grand Mosque.

RICK WESTHEAD
FOREIGN AFFAIRS REPORTER

JEDDAH, SAUDI ARABIA—The pilgrims were jammed shoulder-to-shoulder in a crowd of thousands, heaving as one toward the *Jamarat*, the three concrete walls that symbolize Satan.

Many carried handfuls of pebbles to pelt the 26-metre walls, re-enacting the prophet Abraham's rejection of the devil. Some pilgrims nearing the end of the week-long hajj pilgrimage walked the narrow road outside Mecca carting sleeping bags, tents and suitcases, packed for the trip home.

At the foot of the Jamarat bridge, where the wave of those arriving to perform the rite collided with those preparing to leave, several pilgrims tripped over luggage and were trampled by the crush of those behind them. The crowd was seized with panic.

Ninety minutes later, at least 345 people lay dead or dying. In places, the dead lay seven deep; more than 1,000 others were injured.

The tragedy on Jan. 12, 2006, came eight days after 76 pilgrims were killed when their hostel collapsed and two years after 250 died during a similar stampede.

For the Saudi royal family, which has controlled Mecca since 1924, this was holy failure. Guardianship of Islam's sacred cities — Medina and Mecca — and the safeguarding of the hajj is a covenant made with Muslims around the world and with Allah.

Saudi Arabia is a spiritual home to the world's 1.6 billion Muslims and each year as many as 3 million people arrive to perform the hajj, the pilgrimage anointed by the prophet Muhammad.

"Islam is built upon five (pillars)," Muhammad told his followers, according to Abdullah ibn Umar, one of the prophet's companions. "To worship Allah and to disbelieve in what is worshipped besides him, to establish prayer, to give charity, to perform hajj pilgrimage to the House, and to fast the month of Ramadan."

In the 14 centuries since Muhammad died in 632, the hajj has become one of the world's largest annual pilgrimages. But until the 1950s, when commercial air travel brought Mecca within reach of Muslims everywhere, fewer than 100,000 pilgrims arrived each year to perform the hajj's six rites, which include praying

and sleeping in the desert and walking seven times around the Kaaba, the sacred black-curtained granite shrine Muslims around the world face during daily prayers.

The demand for pilgrim visas increases every year — the Jakarta Post newspaper reports that Indonesia's hajj waiting list is 12 years. By 2030, five million pilgrims are expected as the world's Muslim population increases to 2.2 billion, according to the Pew Research Center's Religion and Public Life Project.

Mecca, Medina and the Mashaer, the desert near Mina where pilgrims sleep and pray, can be overwhelmed. It is as if every resident of Montreal picks up for a month every year and moves to Ottawa.

For Saudi King Abdullah, whose title first and foremost is Custodian of the Two Holy Mosques, his legacy will be closely tied to the improvement and expansion of the pilgrimage sites. Catastrophes such as the stampede of 2006 cannot be tolerated.

Following that tragedy, the king's advisers recommended seeking radical changes to everything from public bus, road and rail systems to the design of new neighbourhoods.

"One day we will stand before Allah and have to answer about whether we did everything we could to improve the holy cities," said Farooq Mofti, an architect who consults for the Saudi government. "This is the most important thing."

King Abdullah will turn 90 this year and is in failing health. He instructed his staff to spare no expense and scour the world for answers.

They found some in Toronto.

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When the first fax inviting bids for contracts in a 30-year, \$227-billion master plan to remake the hajj arrived in November 2008, Hugh O'Donnell of the Toronto

engineering company MMM Group ignored it. He didn't recognize the sender.

But on Nov. 25, 2008, a package arrived at O'Donnell's office in Ottawa from Hosny Al Rahman, a Saudi Arabian government employee and friend whom O'Donnell had met in 1996 at a conference in Ottawa.

Rahman's cover letter laid out the stakes. The Saudi government "would like to invite extremely experienced international consulting firms to prepare the comprehensive plan for Mecca, Medina and Al Mashaer," Rahman wrote. The Saudis wanted a road map to direct "current massive development."

Rahman believed that O'Donnell, a former assistant deputy minister of Energy, Mines and Resources, could use his experience with geographic information systems, or GIS, in the Saudi project. The mapping software — first developed in Canada — overlays detailed digital maps with additional information, such as ground water deposits or the location of schools. GIS was already providing a better look at Canada's Far North, analyzing mineral, oil and gas deposits.

Rahman had coveted the Canadian technology because Saudi Arabia was trying to improve mapping of its oil deposits. Now he saw the benefits of being able to drop a virtual 30-storey apartment complex into a neighbourhood and immediately see the impact on transportation or water consumption.

MMM Group's bread and butter had been domestic municipal projects, such as designing the Golden Ears Bridge in Vancouver and a new terminal at Pearson International Airport. The chance to win such a prestigious contract was potentially transformative. But MMM Group had only two days to decide to submit a proposal.

O'Donnell, the company's president of in-

ternational operations, took the project to his boss.

"I wasn't keen at all," said MMM Group chairman Bruce Bodden. "When you pursue these things that are cold (call) proposals, often the successful company has already been selected. Saudi Arabia was not a focus of our efforts. We were not well connected. We were a wild card."

Bodden agreed to bid only if they partnered with Moriyma and Teshima, the Toronto architecture firm that had designed the Saudi national museum and restored (in 2004) the Wadi Hanifa, the river bed that runs through Riyadh.

"We brought that river back from the dead," said Jason Moriyma, the managing partner. "It was being filled with raw sewage and industrial waste. We added bacteria and algae, turning it into potable water at the end. It was cheaper than water purification and it looks beautiful."

To understand Islam, the MMM staff was sent to watch the IMAX film *Journey to Mecca* and the company hired adviser Nouman Ashraf, an Islamic studies scholar at the University of Toronto.

In early January 2009, the Canadians learned they had won a \$15-million contract to be split 70-30 between MMM Group and Moriyma.

MMM was charged with designing a framework that would take into account how much space, water and electricity the expanding city's occupants and visitors would need, down to the last drinking fountain. Moriyma's staff would draft detailed drawings.

"I tell the young bucks that they will never work on a project like this again," says O'Donnell. "It's once in a lifetime."

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How do you develop a vision for a place you aren't allowed to visit and for rites you

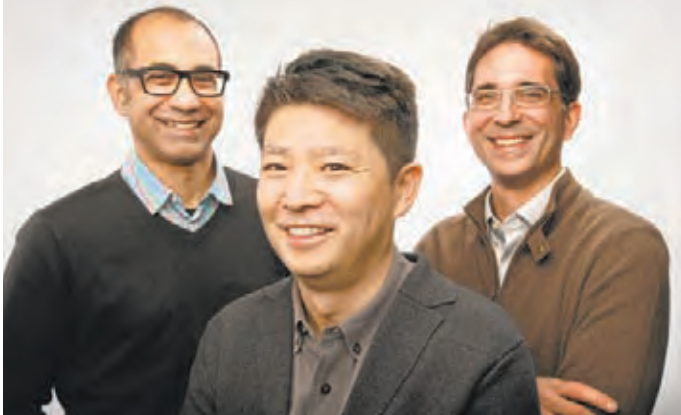
Rites of the hajj

Muslims are to perform the hajj pilgrimage once in their lives. Here are the steps.

- 1. ARRIVE AT THE GRAND MOSQUE**
Enter a state of purity by dressing in plain clothing and performing Umrah, seven counter-clockwise laps around the Kaaba, the square edifice of un-mortared stones built where the Prophet Abraham nearly offered the sacrifice of his son Ishmael. Men complete the stage by shaving their hair and women by clipping the dome of their hair.
- 2. SEARCH FOR WATER**
Make seven trips between the hills of Marwa and Safa to commemorate the search for water by Hagar, Abraham's wife, and to drink from the Zamzam, the sacred well to which she was directed by the Archangel Gabriel.
- 3. REST IN THE DESERT**
Travel to Mina and settle into the desert camp. Rest for three days.
- 4. PRAY ON THE MOUNTAIN**
Head to Arafat (also known as the Mountain of Mercy) to pray until sunset in the same place where the Prophet Muhammad delivered his final sermon in 632. At sunset, travel to Muzdalifah, sleeping outside under the stars, and pick up pebbles.
- 5. REJECT SATAN**
Return to Mina to pelt the Jamarat wall, a group of three white pillars that represent Satan. The rite symbolizes how Abraham rejected the temptations of the devil when God ordered him to offer the sacrifice of his son Ishmael. At the last moment, after Abraham had proven his willingness to obey God, God told him not to sacrifice his son.
- 6. FINAL CIRCLING OF KAABA**
Return to the Grand Mosque to sacrifice animals and perform Tawaf, seven final laps around the Kaaba.

"One day we will stand before Allah and have to answer about whether we did everything we could to improve the holy cities. This is the most important thing."

FAROOQ MOFTI
AN ARCHITECT WHO CONSULTS FOR THE SAUDI GOVERNMENT



TANNIS TOOHEY/TORONTO STAR

Shahid Mahmood, left, Jason Moriyma and Jason Philippe, from the Toronto architecture firm Moriyma and Teshima.

can't perform?

The question has dogged the non-Muslim Canadians who are now in the fifth year of what was supposed to be a two-year contract.

"When you're looking for other examples to learn from, there really aren't any that compare," said Stephen Willis, who manages the Holy Cities project for MMM Group. "There are the Olympics and the World Cup (of soccer). When Barack Obama was elected there were 1 million people in the (Washington) Mall. But those are all one-offs. The hajj is a massive, every-year thing."

The millions who arrive each year overwhelm Saudi Arabia's electrical grid and water and sewage systems. Choked roads become dangerous bottlenecks. Once, it took health workers more than three hours to move a pregnant woman in distress 150 metres to a medical station.

The Saudi government manages the crowds by issuing permits — last year, for instance, only 2 million were allowed into the holy cities because of construction in Mecca. Non-Muslims are banned both in Mecca and Medina. At a special airport terminal used only a few weeks a year exclusively for the hajj, 22,500 health work-

ers screen 100,000 daily arrivals for tuberculosis, meningitis and flu symptoms. Nurses give vaccine drops to people arriving from countries deemed high health risks.

To grasp this scale and appreciate the importance of the project, some of the 50 employees from both firms who worked on it sat with sheiks and princes, getting a glimpse of a culture usually closed to Westerners.

A half-dozen Muslim employees were dispatched to Mecca and Medina, where they recorded residents' tales of long-ago afternoons spent swimming in the wadis outside Mecca.

Those stories would inspire the Canadians to plan a nature preserve.

Moriyma architect Jason Philippe spent hours walking through Al Balad, Jeddah's historic quarter, where architecture and street plans are similar to old Mecca.

Al Balad is a maze of dogleg alleys and ancient lanes. Shops on the weathered stone courtyards sell sequined *abayas*, the flowing black robes worn by women, as street vendors hawk oranges, dates and ice cream.

The smell of strong coffee and incense hangs heavy in the early evening when

crowds flock to the streets as temperatures drop. During summer, it can reach 52 degrees in the shade.

"Hajj is the best time for us," said Ismail Salami, a hotel concierge who moonlights selling CDs and DVDs to tourists. "Everyone is happy when they come here. Sunni, Shia, whoever. And they want to spend money."

Phillipe's exploration of Al Balad helped him understand how streets in Saudi cities could be improved. Hajj pilgrims should be led through streets that run north to south so buildings can shade the noonday sun. Streets can't be too wide, or the shade is lost, and the buildings lining them can't be too tall, as the wind wouldn't circulate at street level.

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In the ancient country, urban planning is a new idea.

In 1932, when the Saudi kingdom was founded, the capital Riyadh was a walled city of 30,000. There were no paved roads and cars were rare. (Canada at the time had 1 million registered cars.) A trip to the coast from Riyadh took three days by camel.

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FAYEZ NURELDINE/AFP/GETTY IMAGES

The comand and control operation unit in Mina near Mecca.



RICHARD LAUTENS/TORONTO STAR

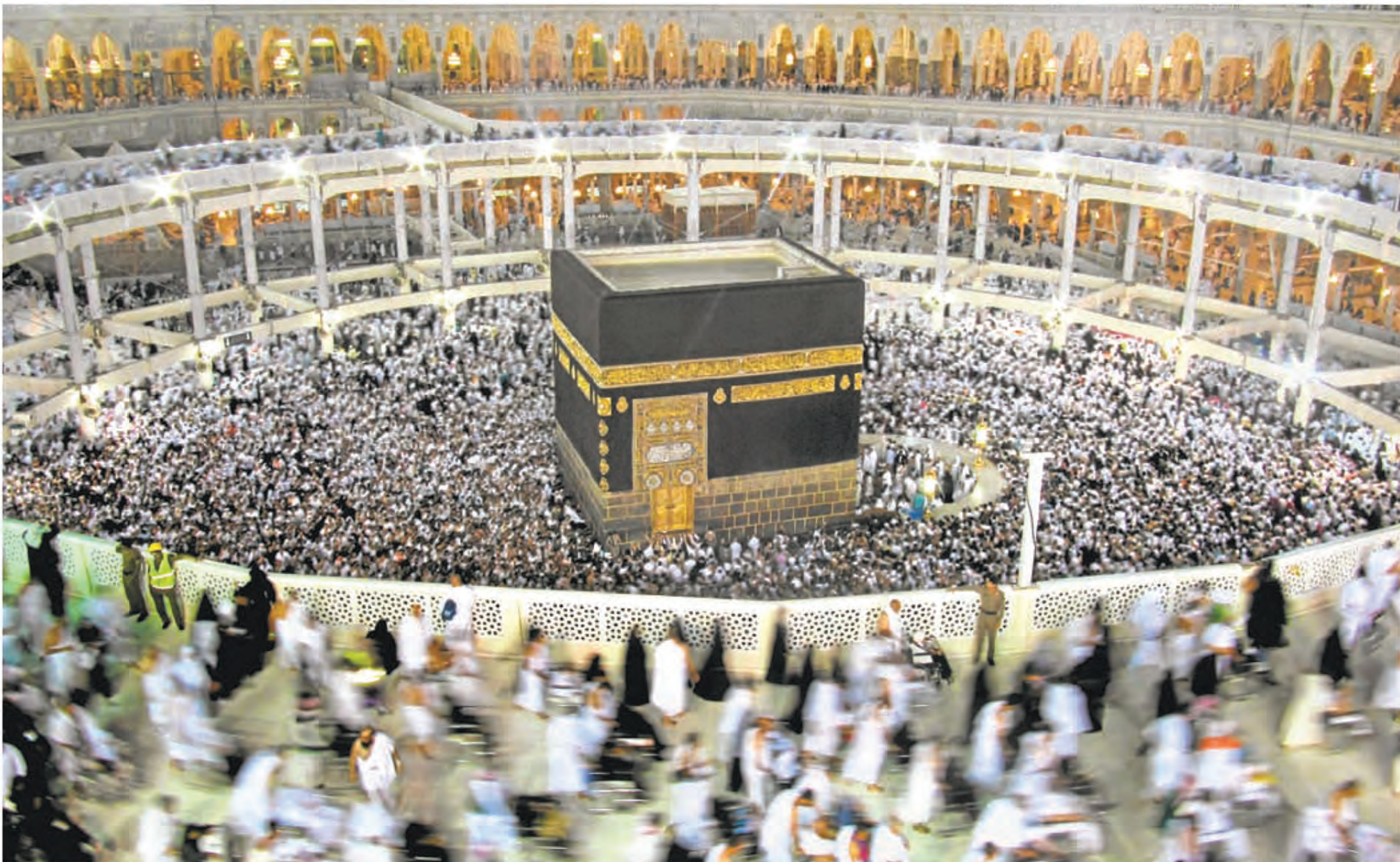
Hugh O'Donnell of the MMM Group.



CARLOS OSORIO/TORONTO STAR

Stephen Willis, manager of the hajj project for MMM Group.

PILGRIMAGE'S PROGRESS



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Pilgrims circle the Kaaba — the sacred black-curtained granite shrine Muslims around the world face during daily prayers — inside Mecca's Grand Mosque.

Saudi Arabia is transforming rapidly

Continued from previous page

The discovery of oil in 1938 brought riches, but not immediate change. When oil platforms began appearing in the Saudi desert after the Second World War, only 15 per cent of Saudis lived in cities, compared with 80 per cent today.

"When flights from Cairo were coming to Jeddah in the '50s, arriving at night, hours after their scheduled arrival time, I remember them having to take out rows of cars and line them up with their lights on along the edge of the runway," said Saudi architect Tarik Ali Reza. "It was a city where many homes still did not have running water or electricity."

Today, the skylines of most Saudi cities are marked by cranes. The kingdom is spending \$500 billion to build six new cities that will, by 2020, house five million residents and produce one million jobs. Drawings of the King Abdullah Economic City, to be built an hour's drive from Mecca, look like something out of the science-fiction movie *Minority Report*.

In Jeddah, particularly along the road to Mecca, piles of iron, steel and stone await workers. Lanes are blocked around construction projects, snarling traffic in a city that has four rush hours every day — two at the beginning and end of the workday, and two more during shopping mall time, from 5 p.m. until 11 p.m.

"Our malls are like our second homes," said Jamila, 21, a clerk at a grocery store in the Red Sea Mall. That she could speak to a foreigner was in itself a sign of change in the kingdom. Until three years ago, only men were permitted to work in shops.

Amid such transformation, the Canadians were told anything goes when they signed their contract. Developers, too, are rarely told that something is off limits.

The house of the prophet's wife Khadijah in Mecca has been razed, replaced with public bathrooms. Dar

al Arqam, where Muhammad spoke to his followers for 14 years, has been levelled and replaced with a Hilton. A citadel, built in 1781, was bulldozed in 2002 and replaced with a glass-and-concrete hotel where suites during the hajj can cost \$7,000 a night.

The Gulf Institute in Washington estimates 95 per cent of Mecca's 1,000-year-old buildings have been destroyed during the past 20 years.

"What is being done in Mecca is like tearing down the Colosseum in Rome to build a hotel," said Sadig Malki, a political science professor at King Abdulaziz University in Jeddah. "I cannot go to Mecca and show my children the grave of the prophet's wife or Dar Al Arqam. They've been paved over for commercial development. What's happening is as clear as looking at the sun in the sky."

Critics of the construction are ignored by the government. It embraces *Wahabism*, an arch-conservative interpretation of Islam that sees historical sites as encouraging *shirk*, the sin of idolatry.

"That was hard to get our heads around," Willis said. "You wouldn't go to Rome and say you were going to bring down part of St. Peter's. But in (the Wahabi interpretation of) Islam, we were told they are not attached to the buildings. There's a worry that those attachments lead to idol worship. They've added and taken away from the holy mosques in Mecca and Medina many times over the years."

"There are the Olympics and the World Cup (of soccer). ... But those are all one-offs. The hajj is a massive, every-year thing."

STEPHEN WILLIS
MANAGER OF THE HOLY CITIES PROJECT
FOR MMM GROUP

The Canadians used Google Earth to take virtual tours of Mecca, helpful after data promised by the Saudis was hard to decipher.

"They gave us a hard drive that had 90,000 files on it, 85,000 in Arabic," said Martin Cherry, an engineer with MMM Group who was based in Jeddah for five years. "How are you supposed to search through 85,000 files?"

Rahman dismisses the criticism. "You hire someone local who speaks Arabic," he said.

"I gave so much advice to them that they did not take. I told them to rent homes in Jeddah and have their families come here, have a team here. But they would not do that. They only came over by themselves and stayed in suites at the Sofitel Hotel. I told them to hire local staff. You cannot do something in a country without a local partner. And they did not do that either."

The Canadians were reluctant to move their families to a kingdom where censors go through magazines, pressing black tape over photos of women's ex-

posed arms and legs. A few had run-ins with the *mutawa*, the religious police, who, in one instance, believed a Canadian was taking photos of women.

In Jeddah, I snapped a photo of a Starbucks, which had separate seating areas for single men and families and a logo featuring only a crown on the waves since the chain's mermaid logo is banned because it is "morally inappropriate."

A member of the mutawa grabbed my arm. Five minutes later, the officer, who had a long beard and wore a white, ankle-length robe, was joined by a security officer who examined my passport and then deleted photos from my camera.

It was a similar story days later at the hajj airport terminal, a network of 200 massive Bedouin-inspired canopies held up by steel cables and columns. After I photographed the canopies, a red Saudi air force jeep roared up. A colonel questioned me for 30 minutes before deleting the pictures.

"We decide what is appropriate here, not you," he said.

For many westerners, the kingdom is impenetrable.

For Willis and his colleagues, the first hint that they might have taken on more than they could handle came in mid-2009, when an innocuous announcement from Abdullah's palace exposed the Canadians to Saudi palace intrigue.

Continued on next page

> CANADIAN PROPOSALS: PART 1

A ramp to the Kaaba and an oasis in the desert

MMM Group and Moriama presented 41 reports on the future of the holy cities, Mecca and Medina. The most prominent included:

The Haram

Upon arriving in Mecca at the Grand Mosque, pilgrims circumbulate the Kaaba seven times. Trouble is, pilgrims who have completed their seven circles are trying to leave as others are arriving.

"When you get caught up in that crowd, you feel like you've been hit by a car," Philippe said. "One of our guys (who is Muslim) was there and he's a big basketball player, 6-foot-4, 240-pounds, and he was knocked to the ground like he was nothing. And that was by a group of small, little women from Indonesia."

The architects suggested an underground ramp that rises from the basement and emerges near the Kaaba. From there, pilgrims would begin walking, moving farther away with every circle, exiting at the Sai, where the Prophet Abraham's wife Hagar rushed between two mountains searching for water for her son.

The ramp would increase capacity from 52,000 pilgrims per hour to 60,000.

Environment

A concept called the Hima, a protected greenbelt replacing windswept desert just outside of Mecca, is the centrepiece of the Canadian environmental vision.

Saudi Arabia has a critical water shortage. The country receives about 59 millimetres of rain per year, less than one-tenth what Canada receives. The Saudis use desalination plants to make water from the Red Sea potable.

But the plants damage the ecology since the salt is dumped back in the sea, making it even saltier. Moriama's Mahmood said the government will use plastic sheets to channel rain water and create an underground lake.

That water will feed greenery in the desert that will create a tree line outside Mecca, giving pilgrims a sense of arrival. The green space will also prevent Mecca's suburbs from sprawling into Jeddah, 50 kilometres to the west.



An artist's rendering of a revitalized green zone in the desert outside Mecca.

PILGRIMAGE'S PROGRESS



AMR NABIL/ASSOCIATED PRESS

Muslim pilgrims pray on a rocky hill called the Mountain of Mercy, on the Plain of Arafat near Mecca, in 2013.

Palace intrigue creates a 'mess'

Continued from previous page

King Abdullah was ill and named his son Naif as second-in-line to the throne. Prince Metib, Naif's older brother who was overseeing the Canadians' project, felt slighted and moved abroad; his son Prince Mansour became minister of urban and rural affairs.

But Mansour is younger than Prince Khalid, the governor of Mecca, who wrestled the Holy Cities project away from Riyadh and insisted the Canadians report to the two regional governments.

These governments changed the Canadians' visas, forcing them to leave the country after every 30 days.

They lost their office space in Jeddah and met in the lobby of the Sofitel Hotel in their pyjamas, rigging an intranet connection by stringing cable through the hotel's air ducts.

Rahman, a supporter of the Canadians, was replaced.

"It was a mess," said Bodden, who retired last June. "After the two governors in Mecca and Medina took over, we had to spend a year trying to justify our first year's work. And after the first 14 months when we were paid every month, we went more than a year without being paid a single time."

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After five years of work and 41 reports, Rahman said MMM and Moriama are still owed at least \$2 million, even though the reports were delivered a year ago.

"I know they are gentle, but maybe they need to be more aggressive," Rahman

"What is being done in Mecca is like tearing down the Colosseum in Rome to build a hotel."

SADIG MALKI
A POLITICAL SCIENCE PROFESSOR AT
KING ABDULAZIZ UNIVERSITY IN
JEDDAH

said. "When the governors stopped paying them, they should have pulled back and stopped working. I wish they were bolder, stiffer."

For the past year, MMM has been trying to appease the Saudis with translations of their reports, including an 11th-hour demand that the 41 volumes of their reports be rewritten in native Arabic.

"You wouldn't believe the extra work that has created," Bodden said.

Last May, Rahman, who still works for the Saudi government, offered the Canadians the chance to advise on a review of a planned expansion of the Prophet's Mosque. That review would make obsolete the Canadian proposal for erecting *rawaaqs*, praying spaces on pillars, around the mosque.

The changes to the ancient hajj, which this year falls in October, continue at an unpredictable pace. Some buildings being razed for new development in the holy cities are only two or three years old.

As Saudi crown prince Sultan Bin Abdel Aziz said in 2006, following the deadly stampede, Saudi Arabia "cannot stop what God has preordained. It is impossible."



AMR NABIL/ASSOCIATED PRESS

The hajj is an ancient pilgrimage, but with increasingly modern touches.

> CANADIAN PROPOSALS: PART 2

A rail line, ring roads and row housing

Transportation

In Mecca, one of the two ring roads built during the 1970s remains incomplete. MMM Group recommended connecting it with an underground road.

The Canadians also suggested three more ring roads for Mecca and two for Medina. They urged widening thoroughfares (imagine expanding Yonge Street to the width of University Avenue), as well as an above-ground rail system for Mecca with 50 stations snaking from the Grand Mosque to the outskirts of the mountain-circled city.

Many buildings around the Grand Mosque are 40 storeys or higher; the Canadians recommend limiting buildings to nine storeys and demolishing all tall buildings around the mosque and its plaza.

In exchange, developers could build taller buildings around metro stops.

"This isn't going to happen today," said Shahid Mahmood, a Moriama architect. "You wouldn't go into Toronto and say let's tear down the TD building. It's a long-term vision."

The architects also suggest turning the ground floors

of hotels and office buildings into public spaces during hajj and redeveloping the ancient six-kilometre Monhana Road from Mecca to Mina.

The Saudi government has already committed to building an above-ground rail line along that road. Repairing the road below would give pilgrims a shaded path. It would be like walking along Toronto's Lake Shore Blvd. under the Gardiner Expressway.

"You give some pilgrims the option to do it old school," said Philippe. "You would have shade, could have mist machines for cooling, and it would lead to more development of stores and restaurants along that road."

While the Grand Mosque is surrounded by space for prayer, the Canadians recommended that parts of roads closest to the mosque be converted to six open sahats, football-field-sized plazas like Toronto's

Dundas Square. They would offer a more defined boundary between the holy mosque and commerce.

Housing

There was little interest in improved housing until the street riots of the Arab Spring.

"All of a sudden, there was a shift in policy," Bodden said. "(The Saudis) became very interested in social housing."

In addition to introducing row housing, MMM and Moriama have urged the government to replace 25,000 housing units over the next decade with public open space. At least 100,000 low-income units plus 20,000 for migrant workers could be built on Mecca's outskirts.

The most novel recommendation for Medina was building rawaaqs — multi-tiered praying spaces on pillars — around the plaza of the Prophet's Mosque.



An artist's rendering of a new elevated rail route with shade below.