



SIGAR

Office of the Special Inspector General
for Afghanistan Reconstruction

John F. Sopko
Special Inspector General

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The Honorable John F. Kerry
Secretary of State

The Honorable James B. Cunningham
U.S. Ambassador to Afghanistan

I am writing to inform you of design and construction defects at a prison in Baghlan province built by a contractor hired by the Department of State, Bureau of International Narcotics and Law Enforcement (INL). In December 2013, we announced an inspection of the Baghlan prison. While we have been unable to conduct a physical inspection of the prison because of security concerns, our review of the contract files found serious structural damage. The structural damage resulted in at least one of the housing units being demolished. The designs indicate that this unit and other buildings at the site were built using unreinforced brick walls between concrete columns. Subsequent information provided by INL shows the facilities were built using some reinforcing steel. Although INL officials told us that any rebuilt structure(s) will use the same construction materials and methods that were previously used, we believe that INL should, for security and safety reasons, use steel reinforced masonry, such as concrete masonry units with rebar, instead.¹

The security concerns we identified pertain to the relative ease with which the strength of unreinforced brick walls can be compromised by removing the mortar between the bricks. Employee and prisoner safety is also jeopardized because the Baghlan prison is built in an area at risk of significant seismic events,² and, as a result, structures not built to withstand such events could put life and property at significant risk. Our review of the entire Baghlan prison construction project is on-going, but the serious nature of this defect warrants your immediate attention.

On September 28, 2010, the State Department, Regional Procurement Support Office awarded a contract on behalf of INL to Omran Holding Group (OHG), an Afghan firm, to build a prison that could house 495 inmates. The contract was valued at about \$8.8 million, but eventually rose to approximately \$11.3 million after a series of contract modifications. INL required OHG to build the prison based on drawings completed by Suraya Construction and Production Company (Suraya), another Afghan company, under a separate contract. Suraya's design for the Baghlan prison called for the use of unreinforced bricks walls, even though the International Building Code (which was incorporated by reference into OHG's contract), requires that reinforced masonry be used in structures built in areas at risk of significant seismic events.³

¹ Concrete masonry units (or CMU) are hollow concrete blocks, most typically a nominal 16"x8"x8." The majority of CMU construction uses steel reinforcing bars (rebar) to tie the block together for a structurally monolithic masonry wall.

² U.S. Geological Survey data shows that the Baghlan prison is located in the second highest earthquake hazard zone in Afghanistan. See USGA Preliminary Earthquake Hazard Map of Afghanistan, by Oliver S. Boyd, Charles S. Mueller, and Kenneth S. Rukstales, Open-File Report 2007-1137, USGS *Afghanistan Project Product No. 156*

³ The International Building Code is developed by the International Code Council to provide modern, up-to-date building code addressing the design and installation of building systems. The code establishes minimum standards for building systems using prescriptive and performance-related provisions. According to the International Code Council, "the International Building Code is founded on principles intended to establish provisions consistent with the scope of a building code that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of

The contract files show that after the prison was transferred to the Afghan government on November 11, 2012, soil settlement occurred, which led to serious structural damage including wide cracks to buildings 17 (detention section), 18 (male section), and 19 (maximum security housing). Photos 1 and 2—obtained from INL—show an aerial view of the prison and the damage to building 17, which was subsequently demolished due to safety concerns.

Photo 1 - Buildings 17, 18, and 19 (May 2012)



Source: Technical Project Evaluation Report, August 18, 2013, Bureau of International Narcotics and Law Enforcement.

Photo 2 - Interior View of Damage to Building 17



Source: Technical Project Evaluation Report, August 18, 2013, Bureau of International Narcotics and Law Enforcement.

construction.” See International Building Code, page iii and American Concrete Institute publication ACI 530-05, Building Code Requirements for Masonry Structures, section 1.14.2.1.

Because OHG's contract required that the firm provide a 1-year warranty that would allow INL to request additional work necessary to correct any defects to equipment, material, design, or workmanship following the transfer of the facility to the Afghan government, INL asked OHG to prepare corrective action plans addressing the buildings' structural damage. Both sides continue to discuss the question of liability, costs, and the extent to which repairs will be covered by the warranty. Additionally, INL officials stated they will soon contract with an independent third party to conduct a study to document the extent of damage at the facility and the underlying causes for building settlement.

Regardless of whether OHG is ultimately responsible for repairing or rebuilding the structures under the contract's warranty, INL's current plan is that any rebuilt structures will use the same construction materials and methods that were previously used to construct the facility.

During the course of our fieldwork, we met with INL officials on three occasions in February 2014 and held an additional meeting to discuss the findings of our inspection on March 12, 2014. During these meetings, we told INL about our concerns, particularly that unreinforced brick walls between concrete columns were used in construction. At no point during any of these meetings did INL representatives dispute our assertion that the contractor inappropriately used unreinforced brick walls to construct the facilities. Nevertheless, on March 31, 2014, after we sent a draft of this letter to the State Department, U.S. Embassy Kabul, and INL, among others, we received an e-mail from INL providing two photos. According to INL's e-mail, these photos show that, contrary to the findings in our draft letter, the housing unit being demolished had actually been built using reinforced brick. See photos 3 and 4 below.

Photo 3 - Building under Demolition



Source: INL, January 22, 2014.

Photo 4 - Building under Demolition



Source: INL, January 22, 2014.

Although the two photos provided by INL show that some reinforcing steel had been used during construction, the photos do not show that reinforced masonry walls between concrete columns were used in compliance with the International Building Code. The American Concrete Institute (ACI) Building Code Requirements for Masonry Structures (ACI 530-05), referenced by the International Building Code and incorporated by reference into OHG's contract, provide minimum reinforcement specifications for masonry walls. The remnants of the walls shown in photos 3 and 4 have small diameter plain wire horizontal reinforcing, spaced at approximately 28-inches on-center, and have no vertical steel. These two deficiencies alone indicate that these walls do not comply with ACI requirements for *Detailed plain (unreinforced) masonry shear walls* in ACI 530-05 section 1.14.2.2.2.

More alarmingly, the photos INL provided indicate that the reinforced concrete columns were improperly constructed and that the method of demolition was unsafe. Specifically, the heavy concrete roof was left in place, while portions of the brick walls that help support the roof were removed. INL also provided additional photographs on April 1, 2014. Those photographs raise additional concerns regarding the structural integrity of the columns and the risk of catastrophic failure. Photo 5 shows an example of a structurally deficient column. In particular, there is severe aggregate segregation⁴ throughout the column and a void in the concrete three and a half bricks high that exposes the reinforcing steel, seriously compromising the column's strength.

⁴ Concrete consists of sand, gravel, or crushed stone (or aggregates) combined with water and Portland cement. The aggregates make up 60 to 75 percent of the concrete mix and are critical to the strength of the concrete. Segregation of concrete is separation of ingredients of concrete from each other. In good concrete work, all concrete aggregates are evenly coated with the water, sand, and cement paste that forms a homogeneous mass. Dropping concrete from heights over 48-inches and excessively high water content are two common causes of segregation.

Photo 5 - Concrete Column with Voids and Exposed Reinforcing



Source: INL on April 1, 2014.

We are concerned that additional structural damage as a result of this type of demolition and new construction using similar materials and methods could threaten employee and prisoner safety and the security of the facility. Therefore, we suggest that INL reconsider its plan and direct that the structures be rebuilt using reinforced masonry between concrete columns, as called for in the International Building Code.

Should you have any questions or need additional information, please contact Elizabeth Field, Assistant Inspector General for Audits and Inspections, at [REDACTED] or [REDACTED], or Ryan Coles, Principal Deputy Assistant Inspector General for Audits and Inspections, at [REDACTED]. Thank you in advance for your attention to this matter.

Handwritten signature of John F. Sopko.

John F. Sopko
Special Inspector General
for Afghanistan Reconstruction