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Restoration of Historic Qibla Wall - The Holy
Prophet Mosque- AL-Madinah Al-Munawwarah-
Kingdom Saudi Arabia

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The Centre for Conservation and Restoration of Islamic Architecture Heritage was honoured to be entrusted from Al-Madinah Region Development Authority to prepare a restoration project for the Qibla Wall of the Holy Prophet Mosque with its historic marble and glazed tiles incrustation. The work began on 15th of Sept 2019 and was finished with great success on 23rd of March 2020.

Becca contracting company was chosen from the authority for the execution of this imported project.

Prof. Dr. Saleh Lamei, the centre president and project consultant visited the site regularly every month for 3-4 days and Arch. Sarwat Zahran was the permanent centre site architect.



First of all, we have to present our deep thanks and gratitude to HRH Prince Faisal bin Salman bin Abdelaziz, Prince of AL-Madinah Al-Munawwarah Region and President of AL-Madinah Region Development Authority, for His Highness great support to rediscover and restore the qibla wall of Holy Prophet Mosque with its unique incrustation according to the policy of the kingdom since the founder of the

kingdom, late king Abdelaziz Al-Saud until the era of the Custodian of The Two Holy Mosque His Majesty king Salman bin Abdelaziz.

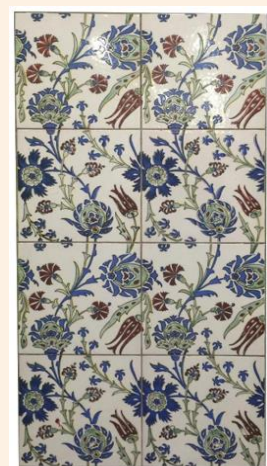
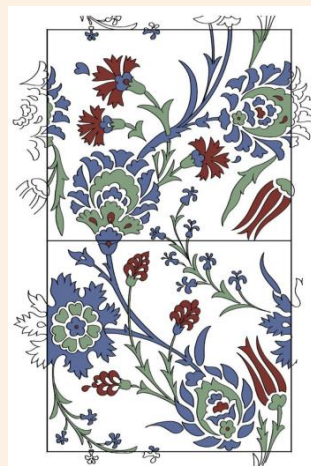
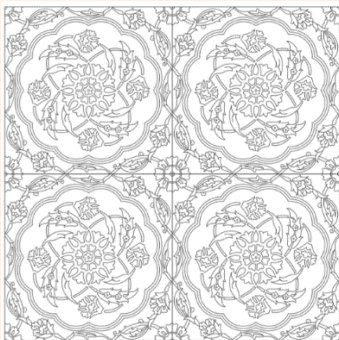
Many Thanks to all members, the Execution Department, at the Development Authority, for their strong support.

We like to thank also the restoration team of the contracting company for their excellent restoration works on the site respecting the historic and the authentic values of this honourable site.

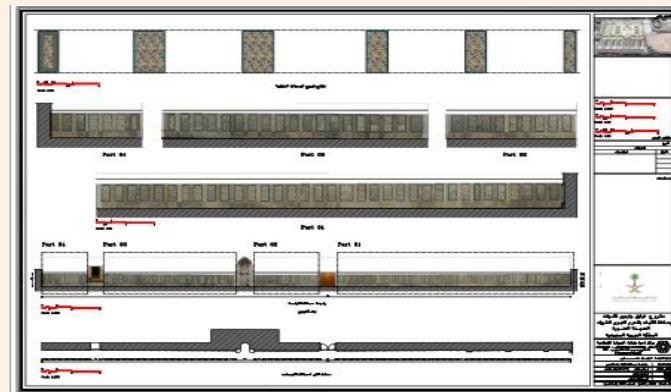
The work includes the qibla wall incrustation 77.55m long and 2.55m high; 2100 glazed tiles and 126 m² marble plates, the Osman bin Affan mihrab as well as the window of Umm Almu'mineen Hafsa, peace be upon Her.

Conservation and restoration strategy

Historical and artistic study on the ottoman glazed tiles



Architecture documentation of the Qibla wall



Site lab investigation

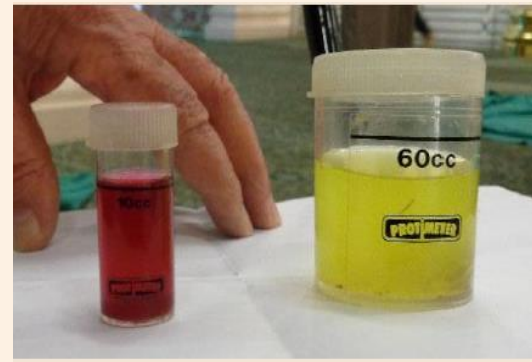
Glazed tiles surface study by portable microscope



Dampness in wall



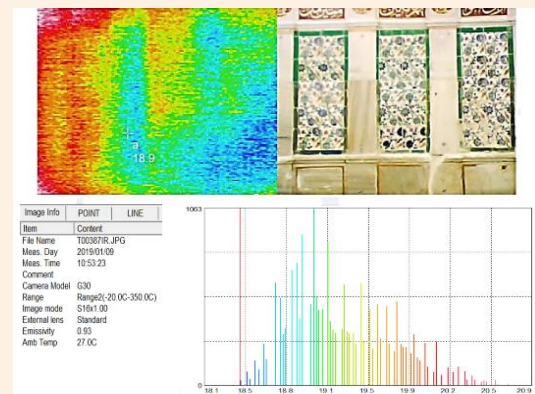
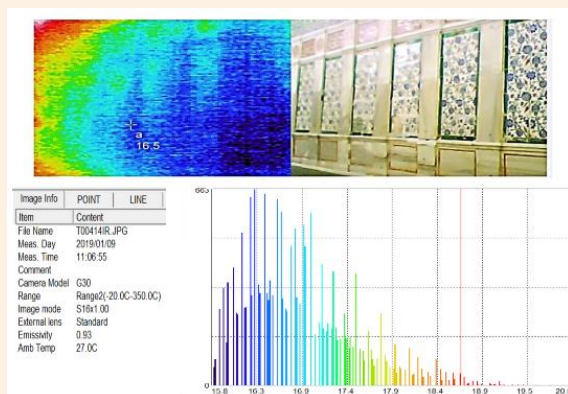
Hygroscopic salt study and analysis



pH Measurement



Thermography



GPR study on wall and floor: (GSC Geophysical Consulting Company)
checking dampness and its distribution





Definition of deteriorations and its causes.

Missing Part



Dampness



New Painting



Silicon Remains



Wrong completion

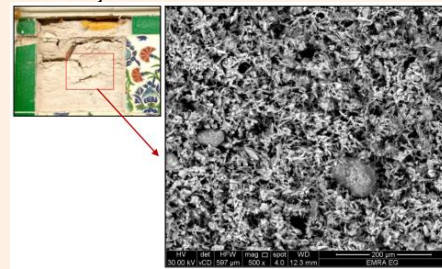
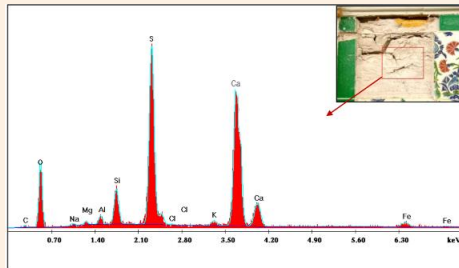


Surface dirt

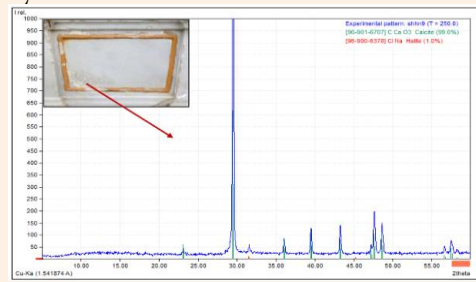
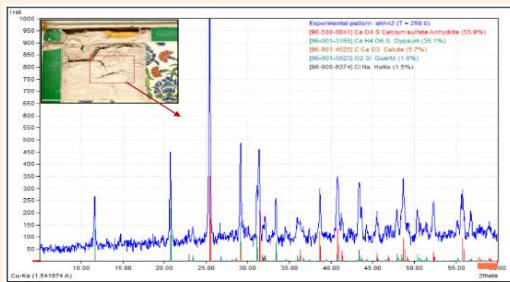


Study on deteriorated tiles by SEM, XRD, XRF, and Polarized microscope

SEM AND EDEX analysis



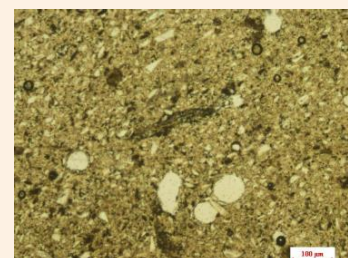
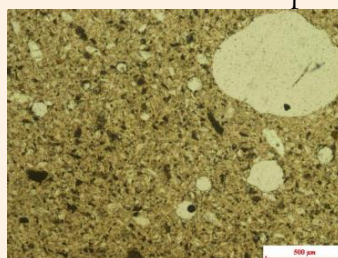
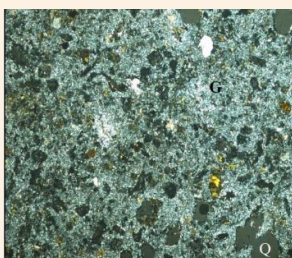
XRD analysis



XRF analysis

Main constituent	بنين المائدة الخزفية القياسية (WT%)	بنين مائدة الانظار القياسية (WT%)
SiO ₂	63.88	89.88
TiO ₂	0.44	0.045
Al ₂ O ₃	27.46	3.95
Fe ₂ O ₃	0.15	0.60
MgO	0.39	0.55
CaO	1.73	0.53
Na ₂ O	1.15	1.42
K ₂ O	1.15	0.06
F ₂ O ₃	0.03	0.63
SO ₂	0.33	0.34
Cl	1.15	0.30
LOI	1.96	0.86
MnO	0.009	0.019
NiO	0.007	0.006
CuO	0.006	0.012
ZnO	0.007	0.007
PbO	0.010	0.869
SrO	0.006	0.007
ZrO ₂	0.028	0.006
Rb ₂ O	0.008	0.004
CeO ₂	0.034	0.008
Cr ₂ O ₃	0.015	--
Y ₂ O ₃	0.004	--
Ga ₂ O ₃	0.005	--

Polarized microscope



Restoration and Conservation Methodology

Removing new paint



Desalination (removing salt on glazed tiles and marble plates surfaces)



Removing dirt from incrustation surfaces



Restore, consolidate and treatment of hair cracks



Treatment of voids on tiles



Complete marble missing parts



Injection behind tiles and marble



Dismantling deteriorated tiles and marble



Restore and complete tiles in site lab



Produce new marble plates according to original ones



Mounting new glazed tiles and marble plates



Completing and restoring and gilding (24 cerate) fillets



Conservation and restoration of Mihrab Osman





Before Restoration



After Restoration

Complete restoration of lady Hafsa window (stone, carpentary work, brass lattice, decorations and gilding)



Before Restoration



After Restoration



Part of Qibla wall before restoration



Part of Qibla wall after restoration



Qibla wall after restoration