LCA Support Proposal Overview

This proposal is for a collaboration between Sensible Building Science and Zahra Teshnizi (the support team) to support Yamam Sazeh understanding, reviewing, and providing feedback on the whole building Life Cycle Assessment (LCA) conducted by WSP Inc. (WSP) for Iran Mall Tower, Tehran, Iran. The proposal outlines the data, work, services, and budget required to support the LCA review process. The timeline of the review support will be aligned WSP's LCA service.

1. The LCA support team

Lead: Zahra Teshnizi, MASA, BArch, Certified Passive House Designer (CPHD) (Linkedin)
[Contact: Zahra Teshnizi, zahra.teshnizi@gmail.com, +1 778 628 5405]

Advisor: Stefan Storey, Ph.D., P. Eng, Sensible Building Science (LinkedIn, website)

Client:
Yamam Sazeh
Contact: Reihaneh Hosseini-zadeh

2. Iran Mall Tower Project

The Iran Mall office tower consists of 8 Parking Levels + approximately 53 above-grade levels with total 150,000 m^2 (GCA) of total floor space with around 40 floors of commercial office space split into Low, Mid and High rise sections. These are interspersed with double height spaces containing a variety of uses including health club, café, restaurant and business center. These floors will also contain area for MEP usage and fire evacuation refuge areas.

3. Overall project goal

The goal of the proposal is to support Yamam Sazeh in understanding the content and quality of the LCA documents and reports that WSP will submit for achieving the credits available for measuring the life cycle environmental impacts of the building elements in "Mat 01 Life cycle impacts" issue in "Materials" environmental section, as specified in BREEAM International New Construction, 2016.

4. Scope of the LCA support

To achieve the goal specified in section 3, the LCA review team will review and provide suggestions on the following documents, as supplied by WSP. The review support will include a review of:

1. WSP's LCA initial proposal
2. The scope and boundary of the LCA study as per ISO 14040 and ISO 14044 guidelines
3. The methodology used to convert source data (e.g. BIM model) into a Bill of Material (BOM) for LCA computation.
4. Estimation method used by WSP to evaluate and classify material types and quantities (BOM)
5. The projected energy demand and fuel sources
6. The LCA model in the selected LCA software by WSP (if available).

7. The LCA report, that can potentially entail:
    7.1. The potential environmental impacts, normalized for the total and per gross floor area of the tower
    7.2. The potential environmental impacts for building elements, assemblies or components
    7.3. Major contributors to different environmental impact indicators
    7.4. Suggestions for reducing the major materials' environmental impacts
8. BREEAM International Mat 01 calculator which shows the LCA score

5. Data needs

It is important to note that the depth of the review strictly depends the documents that that are shared with the support team and access to the background data used to prepare these documents. The depth of the review is also affected by the scope, data availability and time availability. Please see section 4 for the proposed documents for review. In addition to the documents specified on section 4, the following models, data and documents will help us in providing a more rigorous review:

- The BIM model
- The architectural and structural drawings, if available
- The energy mix for Tehran (e.g. coal, natural gas, hydro, wind, solar PV, etc.)
- Building elements' lifetime expectancy in WSP's model

Yamam Sazeh is encouraged to let WSP know at the beginning of the project that the LCA support team will be reviewing their submittals to ensure that they are in terms with this support.The support team is amenable to signing a non-disclosure agreement with Yamam Sazeh and/or WSP to protect the privacy of all the accessed data.

6. Deliverables

The deliverables of this proposal are the following:

- Consulting service to Yamam Sazeh to better understand:
    - the overall LCA methodology and standards and BREEAM's requirements for the LCA credits
    - The documents that WSP will submit throughout their LCA study process
- Comments on the quality of the LCA and recommendations on how to improve the quality of the study and/or the submissions (can be delivered through review submissions and/or meetings through phone, screen share, and/or skype)
- If need be, attending Yamam Sazeh's meeting(s) with WSP on the LCA study and help the team have a more effective communication (through phone, screen share, and/or skype)

Although the support team can provide Yamam Sazeh with background education on the LCA methodology and an expert review of the LCA studies according to ISO guidelines, the support team cannot guarantee the accuracy of the WSP LCA results. It is because, as reviewers, exact replication of WSP methods is not possible, which means that accuracy assurance of WSP's analysis is out-of-scope

7. Budget

The time required to complete the service is based on the documents that will be reviewed, as specified in Section 4.
This proposal is valid until December 25, 2017.

* Costs are in the **US Dollar (USD)**.

Item	Description	Hours	Cost*	Payment
1	WSP's LCA initial proposal	3	$240	Invoiced at the end of item 6. Within 10 days net
2	The scope and boundary of the LCA study	4	$320	Invoiced at the end of item 6. Within 10 days net
3 (If shared)	The methodology used to convert source data (e.g. BIM model) into a Bill of Material for LCA computation	8	$640	Invoiced at the end of item 6. Within 10 days net
4 (If shared)	Estimation method used to evaluate and classify material types and quantities	8	$640	Invoiced at the end of item 6. Within 10 days net
5 (If shared)	The projected energy demand and fuel sources	4	$320	Invoiced at the end of item 6. Within 10 days net
6 (If shared)	The LCA model in the selected LCA software by WSP	8	$640	Invoiced at the end of item 6. Within 10 days net
7	The LCA report	30	$2,400	Invoiced at the end of item 8. Within 10 days net
8	BREEAM International Mat 01 calculator which shows the LCA score	5	$400	Invoiced at the end of item 8. Within 10 days net
9	LCA knowledge transfer through email communications, workshops, and meetings	15	$1200	Invoiced at the end of item 6 and 8. Within 10 days net
All Phases	10% Contingency (Risk of technical challenges, timeline overruns)	-	$680	Payout on project completion
Total		85	Total project cost: 7,480	

Appendix A: The LCA advisors

Stefan Storey, Ph.D., P.Eng., has an interdisciplinary engineering background and is a specialist in building design and operation including energy efficiency planning, life cycle analysis and the long term financial management of commercial buildings. His areas of expertise include data science, risk analysis, operations & maintenance, financial modelling, post occupancy evaluation, energy performance verification & measurement and whole-building environmental analysis. He is co-founder and CEO of Sensible Building Science (SBS), a sustainable technology company innovating solutions for green buildings.

Zahra Teshnizi, holds a Master in Advanced Studies in Architecture from the University of British Columbia (UBC) with the focus on a life cycle approach to sustainable use of construction materials. She has a diverse background in project management, applied research, and outreach in the field of sustainable building design and development. She is a Certified Passive House Designer. Zahra currently works as the Research Project Coordinator at UBC Sustainability Initiative. In her role, she manages multiple research and educational projects including a set of projects related to UBC Brock Commons, an 18-floor student residence which is currently the tallest hybrid mass timber structure in the world. These research projects include an in-depth comparative LCA and LCC analysis of Brock Commons.