# MODIFICATIONS IN TOTEM

## Update of the tool on 1/03/2019

**Modifications from the last version in production:** Version 1.1.20 Build a4274dc 2018-12-07 08:38:47

**(Data &Method, Back-end and front-end)**

| ***FRONT-END*** | |
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| **Description** | ***Remark*** |
| **Excel tables/reports to export** : adaptations to allow the user to make use of the values in formulas or graphs. | |
| **Versioning :**<br>• new message for the user when (s)he archives a project (if new version of data was implemented); the message proposes the user to update all the 'element types' of the project.<br>• if a user has already chosen the option to 'archive my project' the message won't appear anymore. | |
| **New element variant category is created: "**Wall in contact with unheated space" | |
| **General information on "existing projects":** the user can see details concerning existing projects: 'date of my last access' and 'last modified' | |
| **Compare elements :** correction of the bug using the '+' icon to select elements to compare. | |
| **Share a project/element :**<br>• a link to the homepage is added in the 'sharing' email invitation.<br>• a new possibility to share with a 'readonly' role is created.<br>• the user now has the possibility to share several elements at once. | |
| **"Help"** button/link is added in all pages. | |
| **Login :** the 'enter button' is active to confirm log in. | |
| **TOTEM library**<br>• two types of views for the visualization of the elements in the library are now available: with 'Label' and in 'Table' (new)<br>• Integration of the **element descriptions** in FR and NL for predefined elements. | |
| **Language in TOTEM:** the user can change the language (FR/NL or EN) from all sections of the application (and not only from the home page). See icons at the top right of the screen. | |

| ***DATA'S & METHOD*** | |
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| **Correction of the C1-module (deconstruction/demolition) calculations**: for the materials that are modelled by a data record with another unit than kg, the weight of this unit was not considered in the calculation of the C1 module. Due to this correction, the results of module C1 either increased or decreased for these materials, depending on the weight per unit. E.g. for a concrete dataset in unit $m^3$ with a density of 2190 $kg/m^3$, the impact increases accordingly (multiply with 2190), while the impact of a polyester fleece dataset in unit m2 weighting 0.2 $kg/m^2$ decreases accordingly (multiply with 0.2). B4 replacement impacts were also corrected with the correct amount for module C1. | |
| For all concrete products, the process 'Demolition of concrete, reinforced [BE]\| Alloc Rec, U' was selected for sorting. This was corrected and changed to the correct process '**Sorting of waste concrete, reinforced [BE]\|** Alloc Rec, U'. | |
| **Three new bitumen worksections,** including their maintenance processes, were added and applied as corrections in the existing roof covering products (WS), including corrections of the technical product life span. The name was also changed from SBS bitumen to polymer bitumen.<br>**The thickness of the EPDM** roof covering has been corrected too. | |
| **Correction of the C4-module** (waste disposal) calculations: the extra crushing of inert waste is included again. | |
| Making the names of **metal external wall finishing and roof coverings** clearer and correcting the technical **life span**:<br>- Steel, galvanized and/or coated: 30 years<br>- Steel, chromium: ≥ 60 years<br>- Aluminum, painted or anodized: 40 years<br>- Aluminum, enameled: ≥ 60 years<br>- Zinc: ≥ 60 years<br>- Copper: ≥ 60 years | *See document "life span in TOTEM"* |
| **The life span of the bitumen** bottom layer for flat roof applications is changed from 30 to 60 years. In the previous calculations, both the top and the bottom layer were added as replacements, which is usually not done in practice. With this update, only an additional top layer of bitumen will be added after its life span has passed. Only one bottom layer of bitumen is necessary over the building life time of 60 years. | *See document "life span in TOTEM"* |
| In the previous data update, corrections were done to implement the correct solution of paints and varnishes. However, the maintenance scenarios still included the previous **paints and varnishes** which were modelled incorrectly.<br>In this update, also paints and varnishes used during maintenance (B4) are updated to reflect the correct modelling and solution state. | |

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| **Adjustments to cleaning scenarios**: some cleaning scenarios over or underestimated the use of certain materials (e.g. soap). This has been updated with more realistic data:<br>- The dosage of all-purpose cleaner is adjusted to 0.009 liter per liter water (based as an average dosage of Mr Proper, 2 caps of 30 ml per 5 liter water, and of Albert Heijn eco all-purpose cleaner, 1 cap of 30 ml per 5 liter water).<br>- The water usage per cleaning lowered to 0.0833 liter per m² of wall or floor, based on assumption of a half a big bucket (i.e. 5 liter water) per 60 m².<br>- Specifically, regarding the cleaning of glued ceramic tiles on walls: this was changed from a yearly cleaning with ammonia to a bi-weekly cleaning with all-purpose cleaner. | *See document "cleaning and planned servicing in TOTEM"* |
| **Various corrections at worksection level :**<br>- thicknesses of the worksection "Internal wall - load-bearing - primary part - reinforced concrete, cast in situ" in 3 predefined elements.<br>- name of the Worksection "air cavity" (no horizontal/vertical characteristic but ventilated/non ventilated)<br>- name/description of the worksection "Flat roof - cavity covering board - plywood (thickness 1.8 cm; wall width 35 cm)" (was: 'Flat roof - cavity covering board - plywood (35 cm)').<br>- R value of 'openings' with the worksection "frame – wood, varnished Uf = 1.5W/m²K"<br>- lambda values for 2 worksections ('spray foam PUR' : 0.028 W/m.K and 'Screed cement based' : 0.85 W/m.<br>- amount of chromium steel nails in the three WS of Dutch trusses.<br>- french translation of the worksection "Outer wall - load-bearing - primary part - wooden skeleton (treated; 48 cm, c.t.c. 1.7 m) filled with straw insulation (48 cm, 100 kg/m³)<br>- dutch and French translation of loam plaster in the description of element FlatRoof22. | |
| **Harmonization of all the wood treatment processes** (i.e. with this update they are all modelled as follows: 6 kg of wood preservative per m³ wood and 9 liter of tap water per kg wood preservative). | |
| **Harmonization of the description/name of 16 pitched roof WS**, so they are formulated like the descriptions/names of other WS. | |
| Correction of the calculation of the amount of tonkm by a heavy-duty truck used for **calculating module A4** (transportation to construction site). | *This change influences all materials, except the following:*<br>*-finishing products: paints and varnishes*<br>*-Installations*<br>*-Impacts with no impact transport to construction site* |

| **Back-end** | |
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| Update in implementation related to defuturization of maintenance and energy processes. | *This possibly influences monetization output on all impact categories for the relevant LCA stages.* |
| Implementation updates for improved code quality as consequence of updated unit tests, substantial amount of code improvements but at the level of pure code quality | |
| Corrections in the algorithm for 'worksection replacement' evaluation. The 'element life span' has no impact on these replacements. | |