

Literate Programmer's Manual for h_g and h_c

Spencer Smith

October 21, 2014

First we define the overall structure of the library of functions.

1 \langle Header files 2 \rangle
 \langle Functions 3 \rangle
 Although not necessary for this simple example, we will include the math
 library, since future expansion will likely require it.

2 \langle Header files 2 $\rangle \equiv$
 `#include <math.h>`
 This code is used in chunk 1
 This library will consist of a set of functions.

3 \langle Functions 3 $\rangle \equiv$
 \langle Function to Calculate h_g 5 \rangle
 \langle Function to Calculate h_c 4 \rangle
 This code is used in chunk 1
 DD2 in the SRS gives the heat transfer coefficient (h_c) as:

$$h_c = \frac{2k_ch_b}{2k_c + \tau_ch_b}, \quad (1)$$

The corresponding C code is given by:

4 \langle Function to Calculate h_c 4 $\rangle \equiv$
 `double calc_hc(double k_c, double h_p, double tau_c)`
 `{`
 `return (2 * (k_c) * (h_p)) / ((2 * (k_c)) + (tau_c * (h_p)));`
 `}`

This code is used in chunk 3
DD1 in the SRS gives the gap conductance (h_g) as:

$$h_g = \frac{2k_ch_p}{2k_c + \tau_ch_p} \quad (2)$$

The corresponding C code is given by:

5 \langle Function to Calculate h_g 5 $\rangle \equiv$
 `double calc_hg(double k_c, double h_b, double tau_c)`
 `{`
 `return (2 * (k_c) * (h_b)) / ((2 * (k_c)) + (tau_c * (h_b)));`
 `}`

This code is used in chunk 3

Index

calc_hc: 4.
calc_hg: 5.
h_b: 5.
h_p: 4.
k_c: 4 5.
tau_c: 4 5.

List of Refinements

- ⟨Function to Calculate hc 4⟩ Used in chunk 3.
- ⟨Function to Calculate hg 5⟩ Used in chunk 3.
- ⟨Functions 3⟩ Used in chunk 1.
- ⟨Header files 2⟩ Used in chunk 1.