~~Nonresidential Appendix NA5~~

RESERVED

~~Appendix NA5 – Overall Envelope TDV Energy Approach (Envelope Tradeoff Procedure)~~

~~NA5.1Scope~~

~~This reference appendix describes the calculations that shall be used for making building envelope tradeoffs which are referenced in §143(b). The methodology in this reference appendix yields estimates of TDV energy for both the standard design and the proposed design building envelope. Compliance is achieved with §143(b) when the total TDV energy of the proposed design is no greater than the TDV energy of the standard design, as determined by the methods described in this appendix. In making the calculations, it shall be assumed that the orientation and area of each envelope component of the standard design are the same as in the proposed design. In most cases, the window area and skylight area of the standard design shall be the same as the proposed design, however, in some instances, the window and/or skylight area of the standard design may be reduced to limits established by the prescriptive standards. This is addressed in more detail below.~~

~~The requirements of §143(c) may not be traded off through this procedure.~~

~~NA5.2TDV Energy of the Standard Design~~

~~Equation NA5-1 shall be used to calculate the TDV energy of the standard design. Values for wall, floor, roof, door and glazing U-factors shall be taken from the prescriptive requirements for the relevant climate zone and occupancy from the Standards Table 143-A, Table 143-B or Table 143-C as appropriate. Values for window solar heat gain coefficients shall be taken from the prescriptive relative solar heat gain requirement from the Standards Table 143-A, Table 143-B or Table 143-C as appropriate. For roof replacements that trigger insulation upgrades and cool roof requirements, the criteria are specified in §149. The value for visible transmittance (VT) of each window component shall be 1.2 times the solar heat gain coefficient (SHGC) of the window.~~

~~Equation NA5-1~~

$$TDV_{std} = \sum_{i=1}^{nW} c_{Wu,i} \times \left(A_{W,i}^{Std} \times U_{W,i}^{Std}\right) + \sum_{i=1}^{nG} A_{G,i}^{Std} \times \left[\left(c_{Gu,i} \times U_{G,i}^{Std}\right) + \left(c_{Gs,i} \times SHGC_{G,i}^{Std}\right) + \left(c_{Gt,i} \times VT_{G,i}^{Std}\right)\right]$$

$$\cancel{+ \sum_{i=1}^{nR} c_{Ru,i} \times \left(A_{R,i}^{Std} \times U_{R,i}^{Std}\right) + \sum_{i=1}^{nS} A_{S,i}^{Std} \times \left[\left(c_{Su,i} \times U_{S,i}^{Std}\right) + \left(c_{Ss,i} \times SHGC_{S,i}^{Std}\right) + \left(c_{St,i} \times VT_{S,i}^{Std}\right)\right]}$$

$$+ \sum_{i=1}^{nF} c_{Fu,i} \times \left(A_{F,i} \times U_{F,i}^{Std}\right) + \sum_{i=1}^{nD} c_{Du,i} \times \left(A_{D,i} \times U_{D,i}^{Std}\right)$$

~~Where:~~

~~TDV_{std}~~	~~=~~	~~TDV energy of the standard design, for space cooling and heating only~~
~~W, F, R, G, S, D~~	~~=~~	~~Index for the building envelope component type (wall, floor, roof, glazing/window, skylight, and door, respectively)~~
~~i~~	~~=~~	~~Index representing each unique combination of occupancy type (nonresidential, 24-hour, and retail); orientation (applicable only for walls, doors and windows); and coefficient category. For roofs, the categories are attic, light (HC<7) and mass (HC>=7). For floors the categories are light and mass. For walls, the categories are light, medium mass (7≤HC<15) and heavy mass (HC≥15).~~
~~nW, nF, nR, nG, nS, nD~~	~~=~~	~~Number of components of the applicable envelope feature of the standard design (wall, floor, roof, glazing/window, skylight, door)~~
~~$A^{Std}_{W,i}, A_{F,i}, A^{Std}_{R,i}$ / $A^{Std}_{G,i}, A^{Std}_{S,i}, A_{D,i}$~~	~~=~~	~~Exterior surface area of each building envelope component (in ft²). The index "i" shall indicate each unique combination of construction class and orientation (when appropriate). The window and skylight areas in the standard design may be smaller than the proposed design when adjustments are necessary. When window and/or skylight area is reduced, the area of the parent wall/roof is increased so that the gross area of wall/roof for the standard design is the same as the proposed design.~~
~~$U^{Std}_{W,i}, U^{Std}_{F,i}, U^{Std}_{R,i}$ / $U^{Std}_{G,i}, U^{Std}_{S,i}, U^{Std}_{D,i}$~~	~~=~~	~~The standard design U-factor in Btu/hr- ft²-°F for the wall , floor, roof, window, skylight and door from the Standards TABLE 143-A, TABLE 143-B or TABLE 143-C as appropriate. When the prescriptive requirements varies with class of construction or orientation, the class of construction or orientation used to determine the criteria shall be the same as the proposed design.~~
~~$SHGC^{Std}_{G,i}, SHGC^{Std}_{S,i}$~~	~~=~~	~~The relative solar heat gain coefficient for windows and skylights from the Standards TABLE 143-A, TABLE 143-B or TABLE 143-C, as applicable.~~
~~$VT^{Std}_{G,i}, VT^{Std}_{S,i}$~~	~~=~~	~~The visible transmittance for the corresponding A_G and A_S. The VT for the standard design shall be calculated as 1.2 times the standard design SHGC.~~
~~$c_{Wu,i}, c_{Fu,i}, c_{Ru,i}, c_{Gu,i}, c_{Su,i}$~~	~~=~~	~~U-factor coefficients for the wall, floor, roof, windows, skylights and doors, respectively. The index "i" represents a unique combination of occupancy, orientation, and coefficient type. The coefficient type is determined based on Table NA5-1.~~
~~$c_{Gs,i}, c_{Ss,i}$~~	~~=~~	~~Solar heat gain coefficients for the windows and skylights, respectively. The coefficient "i" is a unique combination of occupancy type and orientation.~~
~~$c_{Gt,i}, c_{St,i}$~~	~~=~~	~~Visible transmission coefficients for the windows and skylights, respectively. The coefficient "i" is a unique combination of occupancy type and orientation.~~

~~*Table NA5-1 – Coefficient Categories to Use with Construction Types*~~

~~Table from Reference Joint Appendix JA4 where Proposed Design is Selected~~	~~Coefficient Category~~
~~Table 4.2.1 – U-factors of Wood Framed Attic Roofs~~	~~Roof, Attic~~
~~Table 4.2.2 – U-factors of Wood Framed Rafter Roofs~~	~~Roof, Light~~
~~Table 4.2.3 – U-factors of Structurally Insulated Panels (SIPS) Roof/Ceilings~~	~~Roof, Light~~
~~Table 4.2.4 – U-factors of Metal Framed Attic Roofs~~	~~Roof, Attic~~
~~Table 4.2.5 – U-factors of Metal Framed Rafter Roofs~~	~~Roof, Light~~
~~Table 4.2.6 – U-factors for Span Deck and Concrete Roofs~~	~~Roof, Mass~~
~~Table 4.2.7 – U-factors for Metal Building Roofs~~	~~Roof, Light~~
~~Table 4.2.8 – U-factors for Insulated Ceiling with Removable Panels~~	~~Roof, Light~~
~~Table 4.2.9 – U-factors for Insulated Metal Panel Roofs and Ceilings (Metal SIPS)~~	~~Roof, Light~~
~~Table 4.3.1 – U-factors of Wood Framed Walls~~	~~Wall, Light~~
~~Table 4.3.2 – U-factors of Structurally Insulated Wall Panels (SIPS)~~	~~Wall, Light~~
~~Table 4.3.3 – U-factors of Metal Framed Walls for Nonresidential Construction~~	~~Wall, Light~~
~~Table 4.3.4 – U-factors for Metal Framed Walls for Low – Rise Residential Construction~~	~~Wall, Light~~
~~Table 4.3.5 – Properties of Hollow Unit Masonry Walls~~	~~Either wall, light; medium; or heavy depending on HC of selected assembly~~
~~Table 4.3.6 – Properties of Solid Unit Masonry and Solid Concrete Walls~~	
~~Table 4.3.7 – Properties of Concrete Sandwich Panels~~	
~~Table 4.3.11 – Thermal Properties of Log Home Walls~~	
~~Table 4.3.8 – U-factors for Spandrel Panels and Glass Curtain Walls~~	~~Wall, Light~~
~~Table 4.3. 9 – U-factors for Metal Building Walls~~	~~Wall, Light~~
~~Table 4.3.10 – U-factors for Insulated Metal Panel Walls (Metal SIPS)~~	~~Wall, Light~~
~~Table 4.3.12 – Thermal and Mass Properties of Straw Bale Walls~~	~~Wall, Light~~
~~Table 4.4.1 – Standard U-factors for Wood-Framed Floors with a Crawl Space~~	~~Floor, Light~~
~~Table 4.4.2 – Standard U-factors for Wood Framed Floors without a Crawl Space~~	~~Floor, Mass~~
~~Table 4.4.3 – Standard U-factors for Wood Foam Panel (SIP) Floors~~	~~Floor, Light~~
~~Table 4.4.4 – Standard U-factors for Metal Framed Floors with a Crawl Space~~	~~Floor, Light~~
~~Table 4.4.5 – Standard U-factors for Metal Framed Floors without a Crawl Space~~	~~Floor, Light~~
~~Table 4.4.6 – Standard U-factors for Concrete Raised Floors~~	~~Floor, Mass~~
~~Table 4.5.1 – Opaque Doors~~	~~Wall, Light~~

~~NA5.2.1Window Area Limits for the Standard Design~~

~~The gross wall area of the standard design is the same as the corresponding component of the proposed design. However, it may be necessary to reduce the window area of the standard design and increase the opaque wall area of the standard design when the window-wall-ratio of the proposed design (WWR_{prop}) is more than the prescriptive limit. This is accomplished by the following procedures:~~

~~*NA5.2.1.1Adjust Total Window Area*~~

~~Step 1 Calculate the maximum allowed total window area ($A_{WndwTotal,sd}$) for the standard design. This is the greater of 6 ft times the display perimeter or 40 percent of the gross wall area.~~

~~Step 2 Calculate the maximum allowed window-wall ratio ($WWR_{Total,sd}$) for the standard design by dividing the maximum allowed window area ($A_{WndwTotal,sd}$) determined in the previous step by the gross wall exterior area.~~

~~Step 3 Calculate the proposed window-wall ratio ($WWR_{Total,pd}$) by dividing the proposed total window area by the gross exterior wall area.~~

~~Step 4 If $WWR_{Total,pd}$ is less than or equal to $WWR_{Total,sd}$, then set the window area of the standard design equal to the window area of the proposed design. If $WWR_{Total,pd}$ is greater than $WWR_{Total,sd}$, then the area of each window in the standard design shall be reduced from the proposed design by multiplying each window area by the ratio of $WWR_{Total,sd}$ / $WWR_{Total,pd}$.~~

~~NA5.2.1.2Adjust West Window Area~~

~~After adjusting the total window area (if necessary), a separate test shall be made for the west facing windows.~~

~~Step 1 Calculate the maximum allowed window area ($A_{WndwWest,sd}$) for the standard design on the west facades. This is the greater of 6 ft times the display perimeter of the west facades or 40 percent of the west-facing gross wall area.~~

~~Step 2 Calculate the maximum allowed window-wall-ratio ($WWR_{West,sd}$) for the standard design on the west façade by dividing the maximum allowed window area ($A_{West,sd}$) determined in the previous step by the west facing gross exterior wall area.~~

~~Step 3 Calculate the proposed adjusted window-wall-ratio ($WWR_{West,pd}$) by dividing the standard design west facing window area determined in the total window area adjustments by the west-facing gross exterior wall area.~~

~~Step 4 If $WWR_{West,pd}$ is less than or equal to $WWR_{West,sd}$, then no additional adjustments are made to west facing windows. If $WWR_{West,pd}$ is greater than $WWR_{West,sd}$, then the area of each west facing window in the standard design shall be further reduced by multiplying each west facing adjusted window area by the ratio of $WWR_{West,sd}$ / $WWR_{West,pd}$.~~

~~NA5.2.2Skylight Area Limits for the Standard Design~~

~~The gross roof area of the standard design is the same as the proposed design. However, it may be necessary to reduce the skylight area of the standard design and increase the opaque roof area of the standard design when the skylight-roof ratio of the proposed design (SRR_{prop}) is more than the prescriptive maximum allowed. This is accomplished by the following procedure:~~

~~Step 1 Calculate the maximum allowed skylight area ($A_{Skyl,sd}$) for the standard design. This is the sum of 10 percent of the roof area over atria and 5 percent of other roof areas.~~

~~Step 2 Calculate the maximum allowed skylight-roof-ratio (SRR_{sd}) for the standard design by dividing the maximum allowed skylight area ($A_{Skyl,sd}$) determined in the previous step by the gross exterior roof area.~~

~~Step 3 Calculate the proposed skylight-roof-ratio (SRR_{pd}) by dividing the proposed design skylight area by the gross exterior roof area.~~

~~Step 4 If SSR_{pd} is less than or equal to SSR_{sd}, then no adjustments are made to skylight area of the standard design. If SSR_{pd} is greater than SSR_{sd}, then the area of each skylight in the standard design shall be reduced by multiplying the area of each skylight by ratio of SRR_{sd} / SRR_{pd}.~~

~~NA5.3TDV Energy of the Proposed Design~~

~~Equation NA5-2 shall be used to calculate the TDV energy of the proposed design. The proposed design equation includes two multipliers for cool roofs and overhangs that are explained in subsequent sections.~~

~~**Equation NA5-2**~~

$$TDV_{prop} = \sum_{i=1}^{nW} c_{Wu,i} \times \left(A_{W,i} \times U_{W,i}^{Prop}\right) + \sum_{i=1}^{nG} A_{G,i} \times \left[\left(c_{Gu,i} \times U_{G,i}^{Prop}\right) + \left(c_{Gs,i} \times SHGC_{G,i}^{Prop} \times M_{OH,i}\right) + \left(c_{Gt,i} \times VT_{G,i}^{Prop}\right)\right]$$

$$+ \sum_{i=1}^{nR} c_{Ru,i} \times \left(A_{R,i} \times U_{W,i}^{Prop} \times M_{CR,i}\right) + \sum_{i=1}^{nS} A_{S,i} \times \left[\left(c_{Su,i} \times U_{S,i}^{Prop}\right) + \left(c_{Ss},i \times SHGC_{S,i}^{Prop}\right) + \left(c_{St},i \times VT_{S,i}^{Prop}\right)\right]$$

$$+ \sum_{i=1}^{nF} c_{Fu,i} \times \left(A_{F,i} \times U_{W,i}^{Prop}\right) + \sum_{i=1}^{nD} c_{W} \times \left(A_{D,i} \times U_{D,i}^{Prop}\right)$$

~~Where:~~

~~TDVprop~~	~~=~~	~~TDV energy of the proposed design, for space cooling and heating only.~~
~~W,F,R,G,S,D~~	~~=~~	~~Index for the building envelope component type (wall, floor, roof, window, skylight, door)~~
~~i~~	~~=~~	~~Index for each unique occupancy type, orientation, and coefficient category.~~
~~nW, nF, nR, nG, nS, nD~~	~~=~~	~~Number of components of the applicable envelope feature of the proposed design (wall, floor, roof, window, skylight, door).~~
$A_{W,i}, A_{F,i}, A_{R,i}$ ~~$A_{G,i}, A_{S,i}, A_{D,i}$~~	~~=~~	~~Exterior surface area of each building envelope component (in ft²) of the proposed building. The index "i" shall indicate each unique combination of construction class and orientation (when appropriate).~~
$U_{W,i}^{Prop}, U_{F,i}^{Prop}, U_{R,i}^{Prop}$ ~~$U_{G,i}^{Prop}, U_{S,i}^{Prop}, U_{D,i}^{Prop}$~~	~~=~~	~~The proposed design U-factor in Btu/h- ft² -°F for the wall , floor, roof, window, skylight and door component indicated by index i.~~
~~$SHGC_{G,i}^{Prop}, SHGC_{S,i}^{Prop}$~~	~~=~~	~~The solar heat gain coefficient of windows and skylights based on NFRC certified ratings or CEC defaults.~~
~~$VT_{G,i}^{Prop}, VT_{S,i}^{Prop}$~~	~~=~~	~~The window visible transmittance of windows and skylights from NFRC optic data or 1.2 times CEC defaults for SHGC.~~
~~$SHGC_{G,i}^{Prop}$~~	~~=~~	~~The solar heat gain coefficient for the window of the proposed building corresponding to index i. Note that overhangs are treated by the overhang multiplier, $M_{OH,i}$.~~
~~$SHGC_{S,i}^{Prop}$~~	~~=~~	~~The skylight SHGC for the corresponding AS.~~
~~$VT_{G,i}^{Prop}$~~	~~=~~	~~The window visible transmittance for the corresponding A_G. The VT for the standard design shall be calculated as 1.2 x $SHGC_{G,std}$.~~
~~$VT_{S,i}^{Prop}$~~	~~=~~	~~The skylight visible transmittance for the corresponding AS. The VT for the standard design shall be calculated as 1.2 x $SHGC_{S,std}$.~~
~~$c_{Wu,i}$, $c_{Fu,i}$, $c_{Ru,i}$, $c_{Gu,i}$, $c_{Su,i}$~~	~~=~~	~~U-factor coefficient for the wall, floor, roof, windows, skylights and doors, respectively. Coefficients match those used in the standard design.~~
~~$c_{Gs,i}$, $c_{Ss,i}$~~	~~=~~	~~Solar heat gain weighting coefficients for the windows and skylights, respectively.~~
~~$c_{Gt,i}$, $c_{St,i}$~~	~~=~~	~~Visible transmittance coefficients for the windows and skylights, respectively.~~
~~$M_{CR,i}$~~	~~=~~	~~Cool roof multiplier, as defined below.~~
~~$M_{OH,i}$~~	~~=~~	~~Overhang multiplier as defined below.~~

~~NA5.3.1Cool Roof Multiplier (MCR)~~

~~The cool roof multiplier is an adjustment to the roof component of TDV energy. It is calculated from the following equation:~~

~~Equation NA5-3~~

$$M_{CR,i} = 1 + c_{Ref} \times \left(\rho_{aged,prop} - \rho_{aged,std}\right) + c_{Emit} \times \left(\varepsilon_{prop} - \varepsilon_{std}\right)$$

~~Where:~~

$M_{CR,i}$	=	~~A multiplier that accounts for differences between the prescriptive cool roof requirement and the reflectance and emittance of the proposed design.~~
C_{Ref}	=	~~Coefficient for the reflectance of the roof. This depends on occupancy type and climate zone. The coefficients are listed in Tables NA5-3, NA5-4, and NA5-5.~~
C_{Emit}	=	~~Coefficient for the emittance of the roof. This depends on occupancy type and climate zone. The coefficients are listed in Tables NA5-3, NA5-4, and NA5-5.~~
$\rho_{aged,prop}$	=	~~Proposed aged design reflectance of the roof outside surface. This data is from the three-year aged reflectance from CRRC. If aged reflectance is not available from CRRC, then an estimate of the aged reflectance shall be used based on the CRRC initial reflectance. Use the following equation to estimate the aged reflectance:~~ $\rho_{aged,prop} = 0.7 \times (\rho_{init,prop} + 0.06)$ ~~If neither initial nor aged reflectance data is available from CRRC for the proposed roof, then a default aged reflectance of 0.1 shall be used.~~
$\rho_{aged,std}$	=	~~Standard design aged solar reflectance, as required by the prescriptive requirements of §143(a) and summarized in Table NA5-2.~~
ε_{prop}	=	~~Proposed design thermal emittance of the roof outside surface from CRRC data. If CRRC data is not available, then a default value of 0.75 shall be used.~~
ε_{std}	=	~~Thermal emittance of the roof outside surface of the standard design, as defined in Table NA5-2~~

~~*Table NA5-2 – Standard design values for solar reflectance and thermal emittance*~~

	~~Aged Solar Reflectance~~	~~Thermal Emittance~~
~~Low-Rise, Low-Sloped, CZ2 through CZ15~~	~~0.55~~	~~0.75~~
~~Low-Rise, Low-Sloped, CZ1 and CZ16~~	~~0.1~~	~~0.75~~
~~High-Rise, Low-Sloped, CZ10 through CZ15~~	~~0.55~~	~~0.75~~
~~High-Rise, Low-Sloped, CZ1-9 and CZ16~~	~~0.1~~	~~0.75~~
~~Steep-sloped, CZ2 through CZ15~~	~~0.25~~	~~0.75~~
~~Steep-sloped, all other~~	~~0.1~~	~~0.75~~

~~NA5.3.2Overhang Multiplier (M_{OH})~~

~~The solar gains component of window TDV energy is adjusted when overhangs provide shading. The size and configuration of the overhang is approximated by a projection factor (PF), which is defined below.~~

~~**Equation NA5-4**~~

$$\cancel{M_{OH,i} = 1 + a_i \times PF_i + b_i \times PF_i^2}$$

~~Where~~

~~a_i~~	~~=~~	~~First coefficient for the projection factor. Varies by orientation and climate~~
~~b_i~~	~~=~~	~~Second coefficient for the projection factor. Varies by orientation and climate.~~
~~PF_i~~	~~=~~	~~Projection Factor. $PF = \frac{H}{V}$.~~
~~H~~	~~=~~	~~Horizontal projection of the overhang from the surface of the window in feet, but no greater than V~~
~~V~~	~~=~~	~~Vertical distance from the window sill to the bottom of the overhang, in feet.~~

~~NA5.4Coefficients~~

~~Table NA5-3 – Nonresidential Coefficients~~

~~Coefficient/CLZ~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~
~~c_F (light)~~	~~271.87~~	~~242.47~~	~~195.46~~	~~175.15~~	~~192.00~~	~~111.38~~	~~90.07~~	~~111.94~~	~~124.22~~	~~153.72~~	~~225.65~~	~~212.82~~	~~195.34~~	~~247.84~~	~~193.39~~	~~346.76~~
~~c_F (mass)~~	~~265.55~~	~~190.18~~	~~176.41~~	~~130.67~~	~~161.91~~	~~94.94~~	~~72.35~~	~~77.35~~	~~77.35~~	~~109.94~~	~~183.94~~	~~161.28~~	~~157.65~~	~~203.10~~	~~131.40~~	~~296.44~~
~~a (east)~~	~~-0.90~~	~~-0.45~~	~~-2.33~~	~~-0.62~~	~~-0.61~~	~~-1.26~~	~~-0.73~~	~~-0.74~~	~~-0.68~~	~~-0.68~~	~~-0.51~~	~~-0.54~~	~~-0.59~~	~~-0.61~~	~~-0.67~~	~~0.33~~
~~b (east)~~	~~0.25~~	~~0.36~~	~~0.77~~	~~0.39~~	~~1.58~~	~~0.85~~	~~0.39~~	~~0.35~~	~~0.29~~	~~0.29~~	~~0.21~~	~~0.26~~	~~0.22~~	~~0.26~~	~~0.27~~	~~0.12~~
~~a (north)~~	~~-1.55~~	~~-0.06~~	~~1.61~~	~~-0.15~~	~~0.52~~	~~-0.17~~	~~-0.34~~	~~-0.31~~	~~-0.31~~	~~-0.31~~	~~-0.13~~	~~-0.14~~	~~-0.17~~	~~-0.19~~	~~-0.28~~	~~0.11~~
~~b (north)~~	~~0.70~~	~~0.04~~	~~-0.72~~	~~0.08~~	~~-0.18~~	~~0.09~~	~~0.17~~	~~0.15~~	~~0.15~~	~~0.15~~	~~0.07~~	~~0.08~~	~~0.09~~	~~0.10~~	~~0.13~~	~~-0.03~~
~~a (south)~~	~~-0.96~~	~~-1.14~~	~~-2.18~~	~~-1.31~~	~~-1.49~~	~~-0.84~~	~~6.68~~	~~-0.74~~	~~-0.94~~	~~-1.07~~	~~-1.04~~	~~-0.92~~	~~-1.07~~	~~-0.96~~	~~-0.77~~	~~-1.51~~
~~b (south)~~	~~0.20~~	~~0.91~~	~~7.87~~	~~0.95~~	~~1.49~~	~~0.71~~	~~-4.08~~	~~0.25~~	~~0.54~~	~~0.57~~	~~0.65~~	~~0.62~~	~~0.64~~	~~0.61~~	~~0.33~~	~~1.66~~
~~a (west)~~	~~-0.88~~	~~-0.70~~	~~-0.73~~	~~-0.91~~	~~0.12~~	~~-0.43~~	~~-0.80~~	~~-0.46~~	~~-0.72~~	~~-0.59~~	~~-0.70~~	~~-0.65~~	~~-0.65~~	~~-0.63~~	~~-0.44~~	~~-0.51~~
~~b (west)~~	~~0.15~~	~~0.48~~	~~1.51~~	~~0.54~~	~~1.91~~	~~0.22~~	~~0.35~~	~~0.12~~	~~0.27~~	~~0.20~~	~~0.22~~	~~0.21~~	~~0.24~~	~~0.24~~	~~0.03~~	~~0.31~~
~~c_R (attic)~~	~~218.71~~	~~267.29~~	~~191.99~~	~~215.08~~	~~181.95~~	~~140.70~~	~~132.27~~	~~163.28~~	~~175.64~~	~~217.56~~	~~270.93~~	~~258.22~~	~~246.21~~	~~300.35~~	~~256.90~~	~~345.32~~
~~c_R (light)~~	~~241.17~~	~~315.45~~	~~218.07~~	~~257.77~~	~~222.35~~	~~181.96~~	~~171.95~~	~~199.83~~	~~213.39~~	~~263.87~~	~~288.29~~	~~286.43~~	~~268.75~~	~~324.85~~	~~282.17~~	~~371.78~~
~~c_R (mass)~~	~~213.10~~	~~190.51~~	~~167.97~~	~~153.94~~	~~148.23~~	~~113.99~~	~~96.47~~	~~109.89~~	~~107.07~~	~~134.27~~	~~205.92~~	~~186.46~~	~~184.10~~	~~229.38~~	~~175.33~~	~~287.74~~
~~c_{Emit}~~	~~0.52~~	~~0.15~~	~~0.29~~	~~0.01~~	~~0.27~~	~~0.15~~	~~-0.10~~	~~-0.20~~	~~-0.27~~	~~-0.26~~	~~-0.11~~	~~-0.04~~	~~-0.17~~	~~-0.05~~	~~-0.61~~	~~0.10~~
~~c_{Ref}~~	~~0.95~~	~~-0.12~~	~~0.28~~	~~-0.54~~	~~0.20~~	~~-0.50~~	~~-1.24~~	~~-1.15~~	~~-1.13~~	~~-1.04~~	~~-0.67~~	~~-0.56~~	~~-0.84~~	~~-0.56~~	~~-1.38~~	~~-0.07~~
~~c_{Ss}~~	~~-511.67~~	~~289.49~~	~~32.51~~	~~562.51~~	~~91.92~~	~~-5.02~~	~~555.73~~	~~818.12~~	~~800.55~~	~~761.50~~	~~734.20~~	~~687.40~~	~~801.77~~	~~771.69~~	~~819.20~~	~~252.00~~
~~c_{St}~~	~~-51.54~~	~~-29.37~~	~~-39.75~~	~~12.83~~	~~-60.27~~	~~162.57~~	~~7.51~~	~~-40.07~~	~~11.11~~	~~-4.27~~	~~7.76~~	~~-2.23~~	~~-8.10~~	~~-10.96~~	~~214.91~~	~~-47.41~~
~~c_{Su}~~	~~166.28~~	~~117.60~~	~~105.42~~	~~64.12~~	~~92.03~~	~~117.35~~	~~31.65~~	~~21.47~~	~~42.05~~	~~67.76~~	~~122.26~~	~~110.92~~	~~86.08~~	~~115.49~~	~~111.68~~	~~207.95~~
~~c_W (heavy mass)~~	~~144.37~~	~~85.71~~	~~89.78~~	~~66.34~~	~~60.49~~	~~40.67~~	~~42.95~~	~~32.17~~	~~37.51~~	~~58.24~~	~~138.33~~	~~102.57~~	~~118.12~~	~~131.67~~	~~137.53~~	~~196.09~~
~~c_W (light)~~	~~170.52~~	~~215.98~~	~~160.68~~	~~182.30~~	~~162.30~~	~~125.38~~	~~122.18~~	~~155.91~~	~~171.92~~	~~217.44~~	~~253.22~~	~~227.71~~	~~232.08~~	~~269.21~~	~~284.47~~	~~300.86~~
~~c_W (medium mass)~~	~~158.57~~	~~111.64~~	~~108.56~~	~~89.88~~	~~79.05~~	~~55.77~~	~~44.86~~	~~54.81~~	~~63.88~~	~~90.76~~	~~164.42~~	~~133.55~~	~~146.34~~	~~165.76~~	~~163.64~~	~~220.44~~

~~Table NA5-3 – Nonresidential Coefficients (Con't)~~

~~Coefficient/CLZ~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~
~~c_{Gs} (east)~~	~~50.79~~	~~256.16~~	~~170.33~~	~~293.91~~	~~238.39~~	~~297.25~~	~~279.82~~	~~367.47~~	~~376.81~~	~~411.91~~	~~378.11~~	~~356.38~~	~~418.51~~	~~431.91~~	~~666.01~~	~~220.11~~
~~c_{Gt} (east)~~	~~-5.10~~	~~-18.76~~	~~2.55~~	~~-11.89~~	~~-1.11~~	~~7.68~~	~~5.40~~	~~-7.11~~	~~-6.51~~	~~-24.04~~	~~-10.30~~	~~-9.85~~	~~-16.06~~	~~-21.54~~	~~-28.86~~	~~-18.99~~
~~c_{Gu} (east)~~	~~27.93~~	~~30.86~~	~~16.35~~	~~15.65~~	~~12.73~~	~~0.00~~	~~1.81~~	~~5.25~~	~~11.32~~	~~20.26~~	~~43.74~~	~~31.60~~	~~30.33~~	~~48.65~~	~~40.08~~	~~69.96~~
~~c_{Gs} (north)~~	~~60.86~~	~~131.95~~	~~94.93~~	~~147.24~~	~~115.89~~	~~138.86~~	~~151.32~~	~~173.12~~	~~183.41~~	~~207.77~~	~~188.48~~	~~172.21~~	~~194.08~~	~~206.89~~	~~303.70~~	~~137.30~~
~~c_{Gt} (north)~~	~~-8.69~~	~~-12.18~~	~~-3.30~~	~~-6.61~~	~~-6.33~~	~~4.05~~	~~0.67~~	~~-2.47~~	~~-6.51~~	~~-22.40~~	~~-16.83~~	~~-14.82~~	~~-15.45~~	~~-14.30~~	~~-20.19~~	~~-28.12~~
~~c_{Gu} (north)~~	~~30.51~~	~~47.12~~	~~20.83~~	~~18.33~~	~~16.50~~	~~0.00~~	~~4.97~~	~~9.87~~	~~19.34~~	~~20.02~~	~~53.06~~	~~43.82~~	~~42.90~~	~~62.07~~	~~54.49~~	~~81.90~~
~~c_{Gs} (south)~~	~~69.67~~	~~312.07~~	~~203.98~~	~~313.44~~	~~319.53~~	~~319.30~~	~~-20.69~~	~~367.01~~	~~493.59~~	~~520.67~~	~~406.32~~	~~356.94~~	~~403.75~~	~~395.22~~	~~586.58~~	~~247.63~~
~~c_{Gt} (south)~~	~~-5.14~~	~~-23.27~~	~~6.31~~	~~-6.32~~	~~3.85~~	~~12.57~~	~~127.19~~	~~4.61~~	~~-8.79~~	~~-30.06~~	~~-12.54~~	~~-8.10~~	~~-19.63~~	~~-26.04~~	~~-33.07~~	~~-21.99~~
~~c_{Gu} (south)~~	~~32.54~~	~~44.30~~	~~26.07~~	~~28.81~~	~~23.64~~	~~1.72~~	~~60.43~~	~~32.56~~	~~18.35~~	~~24.03~~	~~57.44~~	~~48.62~~	~~45.22~~	~~56.49~~	~~32.84~~	~~81.45~~
~~c_{Gs} (west)~~	~~85.68~~	~~340.91~~	~~206.01~~	~~364.57~~	~~239.59~~	~~340.91~~	~~348.89~~	~~483.20~~	~~468.46~~	~~492.09~~	~~555.65~~	~~473.69~~	~~544.08~~	~~560.24~~	~~713.09~~	~~292.21~~
~~c_{Gt} (west)~~	~~-7.74~~	~~-18.68~~	~~8.34~~	~~-3.20~~	~~-3.62~~	~~9.81~~	~~1.89~~	~~-10.69~~	~~-11.13~~	~~-30.03~~	~~-57.41~~	~~-17.47~~	~~-27.51~~	~~-32.01~~	~~-30.12~~	~~-33.80~~
~~c_{Gu} (west)~~	~~29.06~~	~~41.19~~	~~20.45~~	~~20.48~~	~~13.65~~	~~0.00~~	~~2.92~~	~~4.01~~	~~16.78~~	~~19.85~~	~~50.45~~	~~40.90~~	~~39.45~~	~~59.06~~	~~51.41~~	~~81.01~~

~~*Table NA5-4 – 24-Hour Coefficients*~~

~~Coefficient/CLZ~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~
~~c_E (light)~~	~~271.87~~	~~242.47~~	~~195.46~~	~~175.15~~	~~192.00~~	~~111.38~~	~~90.07~~	~~111.94~~	~~124.22~~	~~153.72~~	~~225.65~~	~~212.82~~	~~195.34~~	~~247.84~~	~~193.39~~	~~346.76~~
~~c_E (mass)~~	~~265.55~~	~~190.18~~	~~176.41~~	~~130.67~~	~~161.91~~	~~94.94~~	~~72.35~~	~~77.35~~	~~77.35~~	~~109.94~~	~~183.94~~	~~161.28~~	~~157.65~~	~~203.10~~	~~131.40~~	~~296.44~~
~~a (east)~~	~~-0.90~~	~~-0.45~~	~~-2.33~~	~~-0.62~~	~~-0.61~~	~~-1.26~~	~~-0.73~~	~~-0.74~~	~~-0.68~~	~~-0.68~~	~~-0.51~~	~~-0.54~~	~~-0.59~~	~~-0.61~~	~~-0.67~~	~~0.33~~
~~b (east)~~	~~0.25~~	~~0.36~~	~~0.77~~	~~0.39~~	~~1.58~~	~~0.85~~	~~0.39~~	~~0.35~~	~~0.29~~	~~0.29~~	~~0.21~~	~~0.26~~	~~0.22~~	~~0.26~~	~~0.27~~	~~0.12~~
~~a (north)~~	~~-1.55~~	~~-0.06~~	~~1.61~~	~~-0.15~~	~~0.52~~	~~-0.17~~	~~-0.34~~	~~-0.31~~	~~-0.31~~	~~-0.31~~	~~-0.13~~	~~-0.14~~	~~-0.17~~	~~-0.19~~	~~-0.28~~	~~0.11~~
~~b (north)~~	~~0.70~~	~~0.04~~	~~-0.72~~	~~0.08~~	~~-0.18~~	~~0.09~~	~~0.17~~	~~0.15~~	~~0.15~~	~~0.15~~	~~0.07~~	~~0.08~~	~~0.09~~	~~0.10~~	~~0.13~~	~~-0.03~~
~~a (south)~~	~~-0.96~~	~~-1.14~~	~~-2.18~~	~~-1.31~~	~~-1.49~~	~~-0.84~~	~~6.68~~	~~-0.74~~	~~-0.94~~	~~-1.07~~	~~-1.04~~	~~-0.92~~	~~-1.07~~	~~-0.96~~	~~-0.77~~	~~-1.51~~
~~b (south)~~	~~0.20~~	~~0.91~~	~~7.87~~	~~0.95~~	~~1.49~~	~~0.71~~	~~-4.08~~	~~0.25~~	~~0.54~~	~~0.57~~	~~0.65~~	~~0.62~~	~~0.64~~	~~0.61~~	~~0.33~~	~~1.66~~
~~a (west)~~	~~-0.88~~	~~-0.70~~	~~-0.73~~	~~-0.91~~	~~0.12~~	~~-0.43~~	~~-0.80~~	~~-0.46~~	~~-0.72~~	~~-0.59~~	~~-0.70~~	~~-0.65~~	~~-0.65~~	~~-0.63~~	~~-0.44~~	~~-0.51~~
~~b (west)~~	~~0.15~~	~~0.48~~	~~1.51~~	~~0.54~~	~~1.91~~	~~0.22~~	~~0.35~~	~~0.12~~	~~0.27~~	~~0.20~~	~~0.22~~	~~0.21~~	~~0.24~~	~~0.24~~	~~0.03~~	~~0.31~~
~~c_R (attic)~~	~~218.71~~	~~267.29~~	~~191.99~~	~~215.08~~	~~181.95~~	~~140.70~~	~~132.27~~	~~163.28~~	~~175.64~~	~~217.56~~	~~270.93~~	~~258.22~~	~~246.21~~	~~300.35~~	~~256.90~~	~~345.32~~
~~c_R (light)~~	~~241.17~~	~~315.45~~	~~218.07~~	~~257.77~~	~~222.35~~	~~181.96~~	~~171.95~~	~~199.83~~	~~213.39~~	~~263.87~~	~~288.29~~	~~286.43~~	~~268.75~~	~~324.85~~	~~282.17~~	~~371.78~~
~~c_R (mass)~~	~~213.10~~	~~190.51~~	~~167.97~~	~~153.94~~	~~148.23~~	~~113.99~~	~~96.47~~	~~109.89~~	~~107.07~~	~~134.27~~	~~205.92~~	~~186.46~~	~~184.10~~	~~229.38~~	~~175.33~~	~~287.74~~
~~c_{Emit}~~	~~0.52~~	~~0.15~~	~~0.29~~	~~0.01~~	~~0.27~~	~~0.15~~	~~-0.10~~	~~-0.20~~	~~-0.27~~	~~-0.26~~	~~-0.11~~	~~-0.04~~	~~-0.17~~	~~-0.05~~	~~-0.61~~	~~0.10~~
~~c_{Ref}~~	~~0.95~~	~~-0.12~~	~~0.28~~	~~-0.54~~	~~0.20~~	~~-0.50~~	~~-1.24~~	~~-1.15~~	~~-1.13~~	~~-1.04~~	~~-0.67~~	~~-0.56~~	~~-0.84~~	~~-0.56~~	~~-1.38~~	~~-0.07~~
~~c_{Ss}~~	~~-511.67~~	~~289.49~~	~~32.51~~	~~562.51~~	~~91.92~~	~~-5.02~~	~~555.73~~	~~818.12~~	~~800.55~~	~~761.50~~	~~734.20~~	~~687.40~~	~~801.77~~	~~771.69~~	~~819.20~~	~~252.00~~
~~c_{St}~~	~~-51.54~~	~~-29.37~~	~~-39.75~~	~~12.83~~	~~-60.27~~	~~162.57~~	~~7.51~~	~~-40.07~~	~~11.11~~	~~-4.27~~	~~7.76~~	~~-2.23~~	~~-8.10~~	~~-10.96~~	~~214.91~~	~~-47.41~~
~~c_{Su}~~	~~166.28~~	~~117.60~~	~~105.42~~	~~64.12~~	~~92.03~~	~~117.35~~	~~31.65~~	~~21.47~~	~~42.05~~	~~67.76~~	~~122.26~~	~~110.92~~	~~86.08~~	~~115.49~~	~~111.68~~	~~207.95~~
~~c_W (heavy mass)~~	~~144.37~~	~~85.71~~	~~89.78~~	~~66.34~~	~~60.49~~	~~40.67~~	~~42.95~~	~~32.17~~	~~37.51~~	~~58.24~~	~~138.33~~	~~102.57~~	~~118.12~~	~~131.67~~	~~137.53~~	~~196.09~~
~~c_W (light)~~	~~170.52~~	~~215.98~~	~~160.68~~	~~182.30~~	~~162.30~~	~~125.38~~	~~122.18~~	~~155.91~~	~~171.92~~	~~217.44~~	~~253.22~~	~~227.71~~	~~232.08~~	~~269.21~~	~~284.47~~	~~300.86~~
~~c_W (medium mass)~~	~~158.57~~	~~111.64~~	~~108.56~~	~~89.88~~	~~79.05~~	~~55.77~~	~~44.86~~	~~54.81~~	~~63.88~~	~~90.76~~	~~164.42~~	~~133.55~~	~~146.34~~	~~165.76~~	~~163.64~~	~~220.44~~

~~Table NA5-4 – 24-Hour Coefficients (Con't)~~

~~Coefficient~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~
~~c_{Gs} (east)~~	~~-220.04~~	~~106.38~~	~~-44.31~~	~~146.32~~	~~26.74~~	~~145.21~~	~~181.28~~	~~267.11~~	~~312.11~~	~~371.67~~	~~287.84~~	~~232.53~~	~~357.10~~	~~349.93~~	~~752.41~~	~~62.81~~
~~c_{Gt} (east)~~	~~-33.13~~	~~-23.20~~	~~-25.04~~	~~-17.18~~	~~-24.28~~	~~-9.63~~	~~-8.40~~	~~-17.30~~	~~-13.55~~	~~-32.71~~	~~-23.27~~	~~-21.58~~	~~-27.25~~	~~-34.44~~	~~-41.35~~	~~-38.95~~
~~c_{Gu} (east)~~	~~123.09~~	~~94.63~~	~~88.88~~	~~75.43~~	~~79.35~~	~~50.86~~	~~38.34~~	~~47.45~~	~~49.60~~	~~61.28~~	~~107.09~~	~~97.42~~	~~83.16~~	~~103.58~~	~~76.27~~	~~167.89~~
~~c_{Gs} (north)~~	~~-58.35~~	~~97.29~~	~~20.14~~	~~108.58~~	~~22.48~~	~~65.25~~	~~106.49~~	~~140.11~~	~~167.07~~	~~193.30~~	~~180.33~~	~~149.43~~	~~188.07~~	~~194.13~~	~~335.65~~	~~116.98~~
~~c_{Gt} (north)~~	~~-42.93~~	~~-38.97~~	~~-34.72~~	~~-26.94~~	~~-33.55~~	~~-17.04~~	~~-13.36~~	~~-19.23~~	~~-19.71~~	~~-26.90~~	~~-33.99~~	~~-32.02~~	~~-30.64~~	~~-38.94~~	~~-37.50~~	~~-52.47~~
~~c_{Gu} (north)~~	~~115.96~~	~~96.83~~	~~93.03~~	~~76.91~~	~~85.01~~	~~54.01~~	~~42.62~~	~~51.95~~	~~57.11~~	~~70.12~~	~~112.00~~	~~101.93~~	~~93.13~~	~~116.61~~	~~89.97~~	~~169.17~~
~~c_{Gs} (south)~~	~~-224.68~~	~~171.07~~	~~10.18~~	~~207.71~~	~~88.05~~	~~162.72~~	~~-21.62~~	~~264.42~~	~~526.65~~	~~436.65~~	~~351.29~~	~~323.50~~	~~362.71~~	~~381.46~~	~~871.10~~	~~94.34~~
~~c_{Gt} (south)~~	~~-26.79~~	~~-26.68~~	~~-31.56~~	~~-15.73~~	~~-34.75~~	~~-7.91~~	~~69.33~~	~~-7.61~~	~~-56.84~~	~~-34.25~~	~~-24.43~~	~~-47.00~~	~~1.76~~	~~-39.62~~	~~-62.58~~	~~-47.18~~
~~c_{Gu} (south)~~	~~116.16~~	~~98.97~~	~~84.66~~	~~74.36~~	~~72.95~~	~~43.88~~	~~60.50~~	~~70.26~~	~~33.01~~	~~57.95~~	~~115.89~~	~~102.94~~	~~110.86~~	~~105.67~~	~~72.92~~	~~169.10~~
~~c_{Gs} (west)~~	~~-218.97~~	~~201.76~~	~~23.54~~	~~242.73~~	~~9.66~~	~~165.34~~	~~258.32~~	~~359.99~~	~~424.09~~	~~461.66~~	~~403.63~~	~~379.28~~	~~514.35~~	~~541.92~~	~~1259.14~~	~~146.50~~
~~c_{Gt} (west)~~	~~-30.33~~	~~-39.35~~	~~-36.99~~	~~-22.89~~	~~-35.94~~	~~-30.52~~	~~-13.15~~	~~-20.92~~	~~-24.36~~	~~-43.40~~	~~-27.87~~	~~-34.29~~	~~-38.40~~	~~-48.38~~	~~-213.11~~	~~-57.34~~
~~c_{Gu} (west)~~	~~120.45~~	~~87.80~~	~~81.97~~	~~63.44~~	~~79.44~~	~~36.04~~	~~34.27~~	~~42.83~~	~~51.84~~	~~57.71~~	~~115.34~~	~~95.23~~	~~86.55~~	~~105.27~~	~~29.63~~	~~166.61~~

~~Table NA5-5 – Retail Coefficients~~

~~Coefficient~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~
~~c_E (light)~~	~~11.80~~	~~59.12~~	~~0.00~~	~~10.77~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~5.02~~	~~31.07~~	~~84.21~~	~~63.89~~	~~70.65~~	~~111.25~~	~~110.58~~	~~141.89~~
~~c_E (mass)~~	~~0.00~~	~~13.55~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~23.95~~	~~11.69~~	~~13.62~~	~~43.83~~	~~51.70~~	~~86.00~~
~~a (east)~~	~~0.26~~	~~-2.16~~	~~-1.45~~	~~-2.11~~	~~-1.93~~	~~-1.74~~	~~-2.05~~	~~-2.09~~	~~-2.04~~	~~-2.07~~	~~-1.85~~	~~-2.10~~	~~-2.08~~	~~-2.21~~	~~-1.92~~	~~-1.96~~
~~b (east)~~	~~-0.25~~	~~1.05~~	~~0.71~~	~~0.99~~	~~0.89~~	~~0.74~~	~~1.05~~	~~1.00~~	~~0.99~~	~~1.00~~	~~0.83~~	~~1.00~~	~~0.96~~	~~1.00~~	~~0.91~~	~~0.87~~
~~a (north)~~	~~-1.19~~	~~-0.80~~	~~-1.01~~	~~-0.85~~	~~-1.06~~	~~-1.18~~	~~-1.05~~	~~-0.99~~	~~-0.94~~	~~-0.80~~	~~-0.63~~	~~-0.71~~	~~-0.68~~	~~-0.61~~	~~-0.72~~	~~-0.55~~
~~b (north)~~	~~0.61~~	~~0.42~~	~~0.53~~	~~0.45~~	~~0.55~~	~~0.62~~	~~0.56~~	~~0.52~~	~~0.49~~	~~0.42~~	~~0.33~~	~~0.38~~	~~0.36~~	~~0.33~~	~~0.38~~	~~0.29~~
~~a (south)~~	~~-5.20~~	~~-2.36~~	~~-2.97~~	~~-2.89~~	~~-3.01~~	~~-6.24~~	~~-2.58~~	~~-3.41~~	~~-2.31~~	~~-2.29~~	~~-2.66~~	~~-2.82~~	~~-2.80~~	~~-2.68~~	~~-2.13~~	~~-2.93~~
~~b (south)~~	~~4.45~~	~~1.25~~	~~1.88~~	~~1.75~~	~~1.74~~	~~3.93~~	~~1.49~~	~~1.37~~	~~1.22~~	~~1.13~~	~~1.56~~	~~1.64~~	~~1.61~~	~~1.57~~	~~1.04~~	~~1.79~~
~~a (west)~~	~~-2.44~~	~~-1.99~~	~~-2.03~~	~~-2.43~~	~~-2.02~~	~~-2.08~~	~~-2.10~~	~~-2.04~~	~~-1.92~~	~~-1.83~~	~~-1.94~~	~~-1.92~~	~~-2.23~~	~~-1.84~~	~~-1.85~~	~~-1.92~~
~~b (west)~~	~~1.36~~	~~0.84~~	~~0.78~~	~~1.03~~	~~0.91~~	~~4.24~~	~~0.94~~	~~0.90~~	~~0.82~~	~~0.82~~	~~0.74~~	~~0.76~~	~~1.23~~	~~0.68~~	~~0.75~~	~~0.77~~
~~c_R (attic)~~	~~107.40~~	~~194.26~~	~~108.65~~	~~145.19~~	~~100.00~~	~~70.90~~	~~87.23~~	~~116.13~~	~~137.90~~	~~167.33~~	~~201.41~~	~~186.53~~	~~192.12~~	~~235.28~~	~~219.81~~	~~250.01~~
~~c_R (light)~~	~~97.08~~	~~183.93~~	~~95.29~~	~~136.06~~	~~97.49~~	~~68.50~~	~~85.56~~	~~105.29~~	~~128.79~~	~~163.37~~	~~186.48~~	~~174.28~~	~~184.93~~	~~220.37~~	~~222.20~~	~~232.47~~
~~c_R (mass)~~	~~79.98~~	~~88.20~~	~~51.61~~	~~55.17~~	~~34.46~~	~~22.46~~	~~25.96~~	~~34.02~~	~~34.53~~	~~62.04~~	~~118.96~~	~~100.45~~	~~108.40~~	~~135.66~~	~~114.01~~	~~179.76~~
~~c_{Emit}~~	~~-0.20~~	~~-0.57~~	~~-0.55~~	~~-0.74~~	~~-0.81~~	~~-1.59~~	~~-1.05~~	~~-1.33~~	~~-1.12~~	~~-1.02~~	~~-0.64~~	~~-0.61~~	~~-0.81~~	~~-0.72~~	~~-1.00~~	~~-0.30~~
~~c_{Ref}~~	~~-0.80~~	~~-1.68~~	~~-2.08~~	~~-2.38~~	~~-2.32~~	~~-4.76~~	~~-4.05~~	~~-4.05~~	~~-3.07~~	~~-2.77~~	~~-1.93~~	~~-1.96~~	~~-2.33~~	~~-2.01~~	~~-2.48~~	~~-1.12~~
~~c_{Ss}~~	~~213.31~~	~~800.49~~	~~636.93~~	~~918.22~~	~~614.03~~	~~742.37~~	~~833.45~~	~~946.54~~	~~1011.98~~	~~1091.94~~	~~1073.16~~	~~1030.57~~	~~1207.88~~	~~1220.95~~	~~1570.86~~	~~731.66~~
~~c_{St}~~	~~11.13~~	~~13.34~~	~~6.66~~	~~50.68~~	~~34.66~~	~~57.09~~	~~50.78~~	~~118.53~~	~~46.93~~	~~20.76~~	~~41.11~~	~~39.97~~	~~-6.88~~	~~20.47~~	~~35.88~~	~~3.72~~
~~c_{Su}~~	~~-2.74~~	~~-8.65~~	~~-45.50~~	~~-39.87~~	~~-43.21~~	~~-61.17~~	~~-53.11~~	~~-30.92~~	~~-48.37~~	~~-36.13~~	~~-6.87~~	~~-19.28~~	~~-14.98~~	~~3.50~~	~~-27.31~~	~~45.99~~
~~c_W (heavy mass)~~	~~52.21~~	~~58.17~~	~~24.77~~	~~32.82~~	~~7.66~~	~~5.65~~	~~5.26~~	~~20.84~~	~~28.92~~	~~49.67~~	~~105.90~~	~~78.83~~	~~93.48~~	~~107.52~~	~~137.00~~	~~145.05~~
~~c_W (light)~~	~~73.60~~	~~159.34~~	~~76.79~~	~~117.60~~	~~90.20~~	~~60.81~~	~~60.42~~	~~112.38~~	~~136.11~~	~~172.29~~	~~192.53~~	~~166.40~~	~~189.65~~	~~213.97~~	~~253.96~~	~~202.87~~
~~c_W (medium mass)~~	~~59.37~~	~~86.25~~	~~39.15~~	~~54.95~~	~~22.71~~	~~16.45~~	~~21.76~~	~~45.19~~	~~56.46~~	~~81.75~~	~~131.91~~	~~104.67~~	~~122.30~~	~~144.65~~	~~167.49~~	~~167.59~~
~~c_{Gs} (east)~~	~~7.14~~	~~112.23~~	~~52.93~~	~~114.81~~	~~87.55~~	~~91.43~~	~~100.54~~	~~133.72~~	~~150.73~~	~~172.34~~	~~169.07~~	~~149.60~~	~~176.99~~	~~183.08~~	~~270.91~~	~~96.01~~
~~c_{Gt} (east)~~	~~3.22~~	~~-0.19~~	~~7.84~~	~~3.51~~	~~6.03~~	~~8.54~~	~~5.94~~	~~4.58~~	~~2.69~~	~~-2.66~~	~~0.19~~	~~1.73~~	~~-0.96~~	~~-4.94~~	~~-2.97~~	~~-1.17~~
~~c_{Gu} (east)~~	~~-1.16~~	~~7.49~~	~~-2.34~~	~~0.54~~	~~-2.30~~	~~-9.12~~	~~-5.98~~	~~-3.18~~	~~-1.14~~	~~4.92~~	~~12.23~~	~~7.69~~	~~9.73~~	~~14.15~~	~~18.73~~	~~19.62~~

~~*Table NA5-5 – Retail Coefficients (Con't)*~~

~~Coefficient~~	~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~	~~13~~	~~14~~	~~15~~	~~16~~
~~c_{Gs} (north)~~	~~18.27~~	~~56.92~~	~~32.76~~	~~56.77~~	~~38.01~~	~~48.14~~	~~53.60~~	~~64.88~~	~~70.31~~	~~93.08~~	~~74.60~~	~~68.90~~	~~78.51~~	~~83.72~~	~~123.50~~	~~55.37~~
~~c_{Gt} (north)~~	~~2.87~~	~~-1.81~~	~~3.72~~	~~2.86~~	~~4.00~~	~~5.95~~	~~4.58~~	~~3.11~~	~~2.09~~	~~-5.58~~	~~-1.79~~	~~-1.19~~	~~-2.06~~	~~-3.98~~	~~-5.01~~	~~-5.02~~
~~c_{Gu} (north)~~	~~-0.40~~	~~7.05~~	~~-3.92~~	~~0.20~~	~~-4.08~~	~~-10.79~~	~~-7.25~~	~~-4.60~~	~~-0.69~~	~~4.12~~	~~13.70~~	~~9.42~~	~~11.30~~	~~16.60~~	~~17.76~~	~~22.70~~
~~c_{Gs} (south)~~	~~19.93~~	~~140.61~~	~~79.21~~	~~131.38~~	~~107.71~~	~~47.15~~	~~122.23~~	~~-105.32~~	~~197.44~~	~~219.92~~	~~186.54~~	~~163.26~~	~~182.41~~	~~183.11~~	~~311.65~~	~~115.11~~
~~c_{Gt} (south)~~	~~6.09~~	~~-1.66~~	~~8.42~~	~~4.80~~	~~6.56~~	~~40.94~~	~~7.58~~	~~102.93~~	~~4.77~~	~~-0.88~~	~~2.85~~	~~3.10~~	~~-1.13~~	~~-2.91~~	~~-7.90~~	~~-2.02~~
~~c_{Gu} (south)~~	~~1.91~~	~~10.61~~	~~-0.13~~	~~4.97~~	~~0.23~~	~~0.98~~	~~-3.24~~	~~42.55~~	~~2.83~~	~~7.53~~	~~18.99~~	~~13.23~~	~~14.80~~	~~20.02~~	~~17.55~~	~~24.93~~
~~c_{Gs} (west)~~	~~32.06~~	~~152.29~~	~~96.82~~	~~126.76~~	~~94.79~~	~~108.39~~	~~139.66~~	~~179.00~~	~~195.99~~	~~210.12~~	~~220.24~~	~~201.58~~	~~196.28~~	~~251.91~~	~~297.46~~	~~132.57~~
~~c_{Gt} (west)~~	~~4.20~~	~~-4.54~~	~~-0.42~~	~~15.93~~	~~2.83~~	~~-16.53~~	~~6.50~~	~~8.35~~	~~0.01~~	~~-1.33~~	~~-6.87~~	~~-1.22~~	~~-2.66~~	~~-7.14~~	~~-6.94~~	~~-7.95~~
~~c_{Gu} (west)~~	~~0.39~~	~~8.29~~	~~0.20~~	~~5.88~~	~~-4.68~~	~~-1.62~~	~~-5.85~~	~~-1.20~~	~~1.04~~	~~6.05~~	~~15.01~~	~~10.88~~	~~20.55~~	~~18.90~~	~~21.34~~	~~23.88~~