Electronic Supporting Information

Application of broadband infrared reflector based on cholesteric liquid crystal polymer bilayer film to windows and its impact on reducing the energy consumption in buildings

Hitesh Khandelwal, a,b Roel C. G. M. Loonen, c Jan L. M. Hensen, c Albertus P. H. J. Schenning* a and Michael G. Debije* a

a Functional Organic Materials and Devices, Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, Den Dolech 2, 5600 MB Eindhoven, The Netherlands,

b Dutch Polymer Institute (DPI), P.O. Box 902, 5600 AX Eindhoven, The Netherlands

c Unit Building Physics and Services, Department of the Built Environment, Eindhoven University of Technology, Den Dolech 2, 5600 MB Eindhoven, The Netherlands

Fig. S1 Cell transmission spectra of right-(film 2) and left-(film 4) handed films upon varying the temperature from 20 °C to 100 °C.

Fig. S2 Schematic representation for the (a) preparation of right- (film 2) and left- (film 4) handed films superimposed on each other (approach 1). (b) Combination of halfwave plate inserted between two left-handed Ch-LC films (film 4).
Fig. S3 Angular dependent cell transmission spectra of (a) right-(film 2) and (b) left-(film 4) handed films.

Fig. S4 Simulated decrease in interior maximum temperature as a function of the day of the year for right- or left-handed cholesteric polymer films for an office room in (a) London, UK and (b) Chicago, USA (insets show the temperature decrease on a selected day of June 24th).