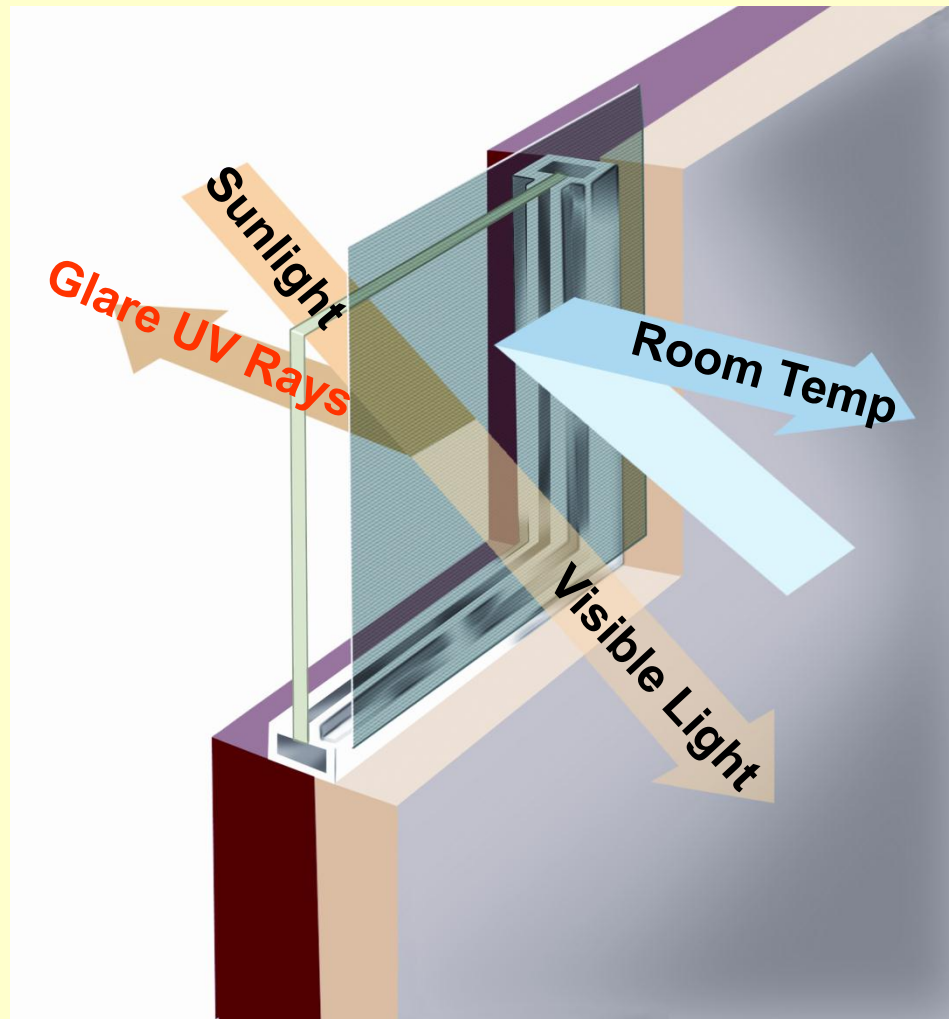


新生命教育協會平安福音中學  
NLSI PEACE EVANGELICAL SECONDARY  
SCHOOL

Solar Control Film – *Test Report*

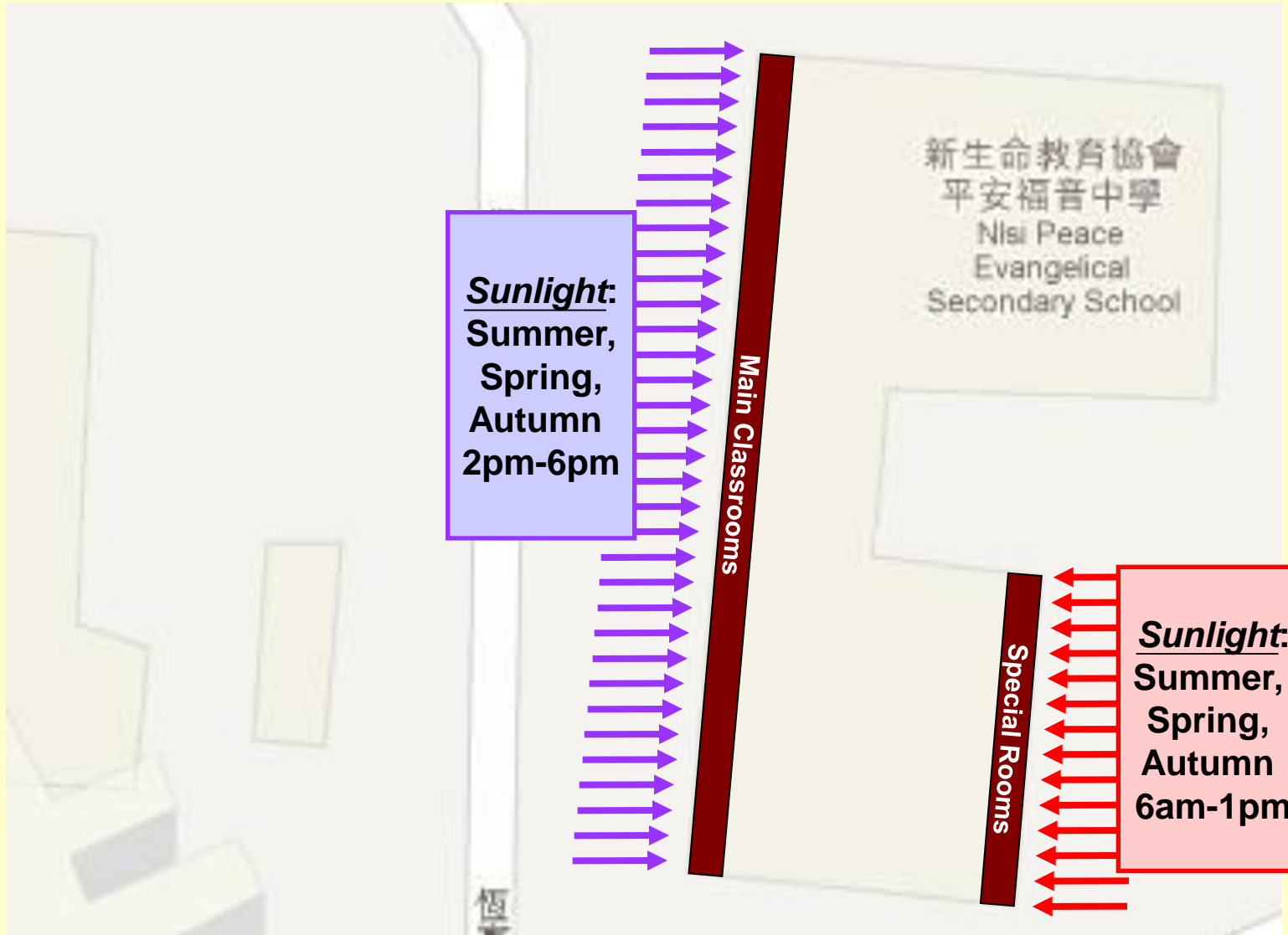
Prepared by Suntint Ltd, 2013  
Date: 22 Jan 2013

# Solar Control Film:



# Location of window / Time of daily sunlight

Window Locations = 



# 1. Location of window

(1-6/F – Special Rooms)



***Location***

***Width"***

***Height"***

***Unit***

***Area (Sq)***

***Direction***

1-6/F Special Rooms

125

60

42

2188

EAST



# 2. Location of window

(G-7/F – Main Classrooms)



<i>Location</i>	<i>Width"</i>	<i>Height"</i>	<i>Unit</i>	<i>Area (Sq)</i>	<i>Direction</i>
G-7/F Main Classrooms	125	60	106	5521	WEST

# Summary

<b>Direction</b>	<b>Window Area</b>
EAST	2,188 Sqft
WEST	5,521 Sqft
<b>Total Area</b>	<b>7,709 Sqft</b>



# On-site Test Location

(3/F Main Classrooms - WEST)



# Solar Heat Gain



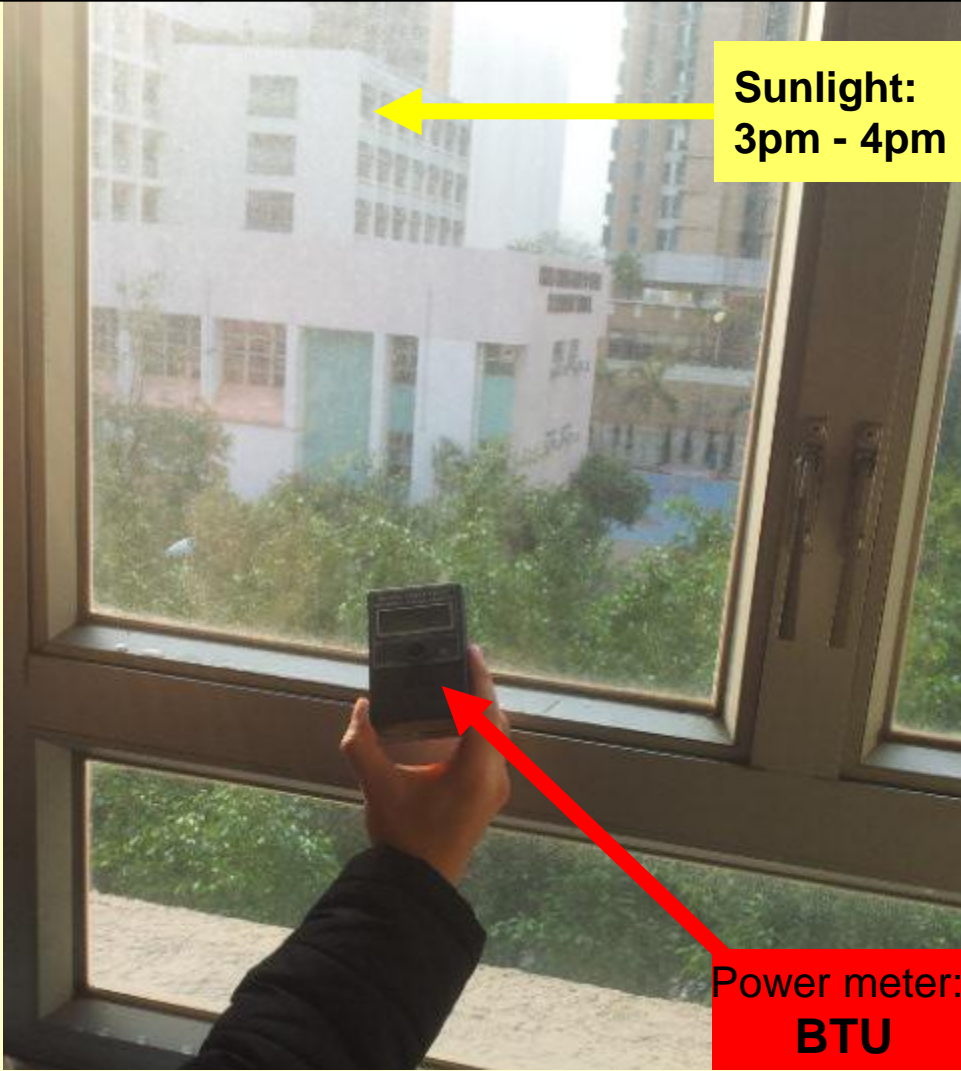


# Solar Heat Gain



# Solar Heat Test: *Before VS* After Solar Film install

Without Window Film



Sunlight:  
3pm - 4pm

Date: 3:30pm 24<sup>th</sup>Dec,2012  
Location: Classroom 3/F  
Film model: CXP80  
Total Solar Energy Rejected: 44%  
Visible Light Transmittance: 80%  
Direction: West



Power meter:  
**BTU**

# Solar Heat Test: *Before VS* After Solar Film install

Window Film Installed at the demo room

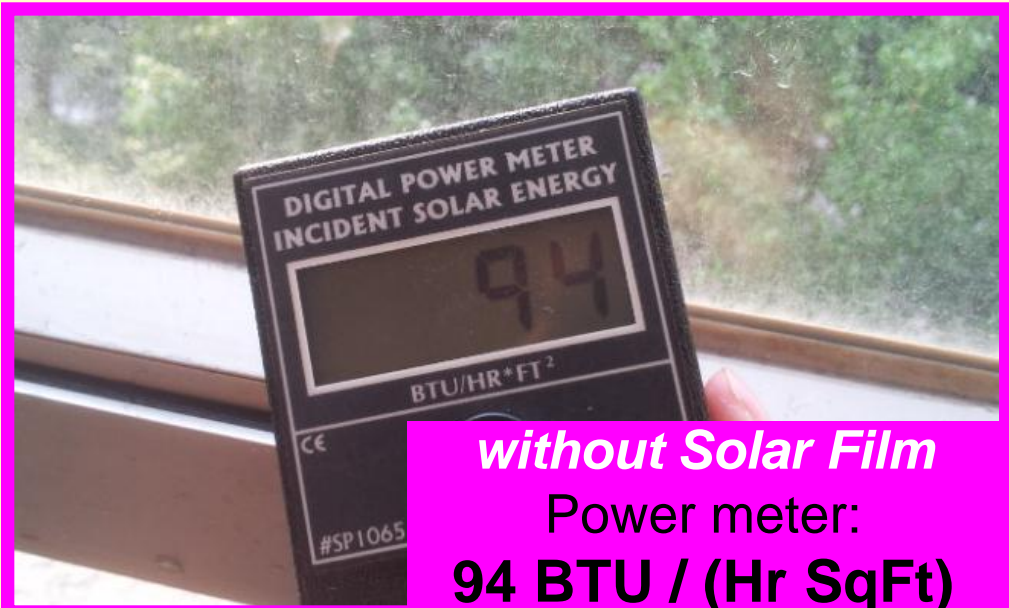
Solar Film (CXP80)

Power meter:  
**BTU**

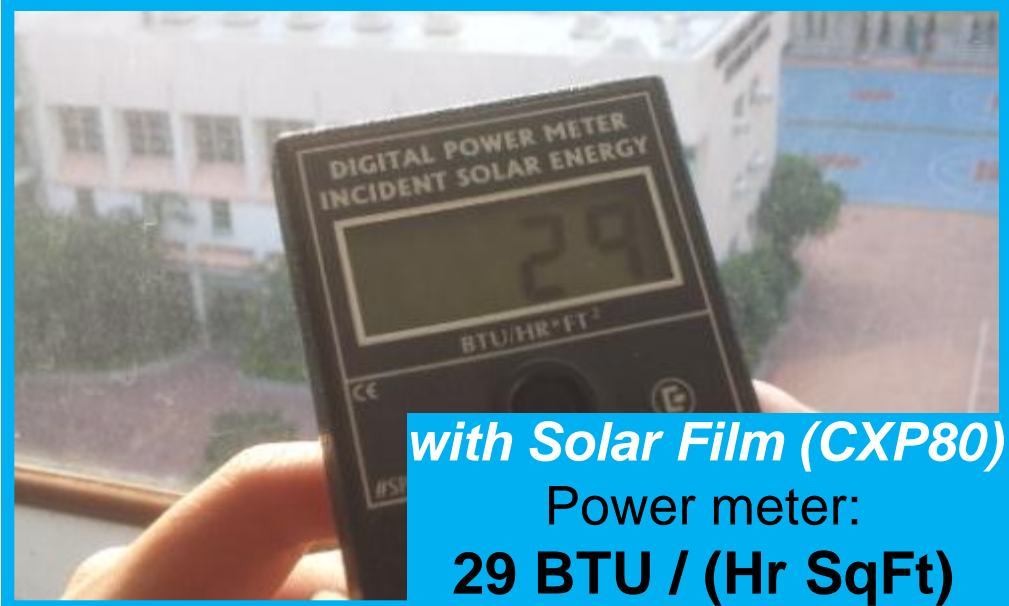




# Solar Heat Test: *Before VS* After Solar Film install



***without Solar Film***  
Power meter:  
**94 BTU / (Hr SqFt)**



***with Solar Film (CXP80)***  
Power meter:  
**29 BTU / (Hr SqFt)**

Total Energy Rejected:  
**69.1%**



# Energy Saving Analysis

**Customer: NLSI Peace Evangelical Secondary School**

**FILM Model**

**WINDOW FILM (Spec.)**

		CXP-80
<b>Performance Results</b>	(%)	
Solar Energy	Transmittance	
	Absorptance	
	Reflectance	
Visible Light	Transmittance	80
	Reflectance (Ex/Int)	7
UV Rejected		99
Shading Coefficient		
U-value		
Total Solar Energy Rejected		>44
Thickness		1.5Mil
Tensile Strength (kg/cmSq)		2000

**Solar Control Film – Test Report (continue...)**

**Calculation on the Energy saving**

**INPUT WITHOUT FILM**

Clear Glass - existing

REMARK

Area of Glass (in square feet)	玻璃窗面積 (平方公)	7,704	
Solar Load (Btu's/Hr/Sq. Ft)		94	Sunlight pass through window (See picture)
Heat Gain or Q (btu's /hour) =		724,176	
Total Daily Solar Load = (btu)		3,620,880	Daily 5hrs Solar heat gain
AC Tonnage Required, Daily =		302	a

**INPUT WITH FILM**

Glass installed with film

Area of Glass in square feet	玻璃窗面積 (平方公)	7,704	
Solar Load (Btu's/Hr/Sq. Ft)		29	Sunlight pass through window (See picture)
Heat Gain or Q (btu's /hour) =		223,416	
Total Daily Solar Load = (btu)		1,117,080	Daily 5hrs Solar heat gain
AC Tonnage Required, Daily =		93	b



**Solar Control Film – Test Report (continue...)**

**ENERGY SAVING**

Savings in AC Tonnage =	209	a-b
Full-Load Efficiency (kW/Ton), Small Unit	0.80	c

SAVINGS FOR LARGE UNIT (TONS)	167	(a-b)xc
<b>KWH CHARGE</b> 每度收費	HK\$ 1.2	
DAILY SAVINGS (\$), Small Unit	\$ 200	
<b>Number of Days in 1 month</b>	25	

**Total Monthly Savings with Film 每月節省電費 \$ 5,008**

**Annual Saving (8 months of year using air-con) 每年節省電費 (每年以 8 個月用冷氣計算) HK\$40,061**

<b>PRICE (Standard)</b>	per Sq Ft	HKD 68
Discounted Price		38.00
<b>Cost</b>		<b>292,752</b>

**Simple Payback Period (Yr) 回本期 (年) 7.3**

**Warranty (Yr) 保用 (年) 10**

由於上述結果只採用冬天實況數據綜合分析，因此，如按照春、夏、秋、冬的實際情況每月紀錄，「每年節省電費」的金額將會更高、「回本期」亦會更短。

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