

Advanced Daylighting Design

Draft Code Language

Last Updated: March 30th 2017

1. INTRODUCTION

The California Statewide Utility Codes and Standards Team actively supports the California Energy Commission in developing revisions to the 2019 California Building Energy Efficiency Standards (Title 24, Part 6). Our joint intent is to achieve significant energy savings through the development of reasonable, responsible, and cost-effective code change proposals for the 2019 Title 24 code change cycle.

The Statewide Utility Team is proposing code change for Power Adjustment Factors (PAF) for indoor lighting that is controlled by daylighting controls when certain technologies are installed on vertical fenestration on the proposed building; Minimum Visible Transmittance (Min VT) requirements (under Section 140.3), for Tubular Daylighting Devices (TDDs); and daylit zone definitions for uses cases involving atriums and large exterior overhangs

The Statewide Utility Team is requesting feedback on the draft code language presented in this document. Input we receive will inform the code change proposal that the Statewide Utility Team will be proposing to the California Energy Commission in April 2017.

To provide feedback, please email us at info@title24stakeholders.com or contact the measure leads at:

Mudit Saxena, MSaxena@vistar-energy.com, Sections 130.1 and 140.3

Eric Shadd, eric@Determinant-LL.Com, Section 140.6

For more information about the California Statewide Utility Codes and Standards Team's 2019 Title 24, Part 6 advocacy efforts, and the latest information on this code change proposal please visit: www.title24stakeholders.com.

2. DRAFT CODE LANGUAGE

The proposed changes to the Standards, Reference Appendices, and the ACM Reference Manuals are provided below. Changes to the 2016 documents are marked with underlining (new language) and ~~strikethroughs~~ (deletions).

2.1 Standards

10-102 – DEFINITIONS

CUTOFF ANGLE is the solar elevation angle at which a horizontal projection occludes direct sunlight.

ORIENTATION, AZIMUTH is oriented clockwise at an angle relative from north when viewed from above.

SPATIAL WINDOW WALL RATIO is the ratio of exterior window area to exterior wall area bounded vertically by the floor of the space to the floor of the space above and bounded horizontally by the primary sidelit daylight zone.

SUSPENDED CUTOFF ANGLE is the angle of inclination subtended between the horizontal plane of the inside window sill and the front edge of the lowermost slat.

UPPER WINDOW a window located above another window.

VIEW WINDOW a window located below an upper window.

SECTION 130.1 – MANDATORY INDOOR LIGHTING CONTROLS

(d) Automatic Daylighting Controls.

1. Daylit Zones shall be defined as follows:

- A. **SKYLIT DAYLIT ZONE** is the rough area in plan view under each skylight, plus 0.7 times the average ceiling height in each direction from the edge of the rough opening of the skylight, minus any area on a plan beyond a permanent obstruction that is taller than ~~the following: A permanent obstruction that is taller than~~ one-half the distance from the floor to the bottom of the skylight. The bottom of the skylight is measured from the bottom of the skylight well for skylights having wells, or the bottom of the skylight if no skylight well exists.

For the purpose of determining the skylit daylight zone, the geometric shape of the skylit daylight zone shall be identical to the plan view geometric shape of the rough opening of the skylight; for example, for a rectangular skylight the skylit daylight zone plan area shall be rectangular, and for a circular skylight the skylit daylight zone plan area shall be circular.

For skylight(s) located in an atrium, the skylit daylight zone shall include the floor area directly under the atrium, and the top floor that is directly under the skylight, plus 0.7 times the average ceiling height for that floor, in each direction from the edge of the rough opening of the skylight, minus any area on a plan beyond a permanent obstruction that is taller than one-half the distance from the top floor to the bottom of the skylight.

EXCEPTION 1 to 130.1(d)1A: Areas under skylights where it is documented that existing adjacent structures or natural objects block direct sunlight for more than 1,500 daytime hours per year between 8 a.m. and 4 p.m.

- B. **PRIMARY SIDELIT DAYLIT ZONE** is the area in plan view ~~and is~~ directly adjacent to each view window in an exterior wall, one window head height deep into the area, and window width plus 0.5 times window head height wide on each side of the rough opening of the window, minus any area on a plan beyond a permanent vertical obstruction that is 6 feet or taller as measured from the floor.
- C. **SECONDARY SIDELIT DAYLIT ZONE** is the area in plan view ~~and is~~ directly adjacent to the each vertical glazing, two window head heights deep into the area, and is the window width plus 0.5 times window head height wide on each side of the rough opening of the window, minus any area on a plan beyond a permanent vertical obstruction that is 6 feet or taller as measured from the floor.
- D. **TERTIARY SIDELIT DAYLIT ZONE** is the area in plan view ~~and is~~ directly adjacent to the each vertical glazing, three window head heights deep into the area, and is the window width plus 0.5 times window head height wide on each side of the rough opening of the window, minus any area on a plan beyond a permanent vertical obstruction that is 6 feet or taller as measured from the floor.

Note: Modular furniture walls shall not be considered a permanent obstruction.

EXCEPTION 1 to 130.1(d)1B&C&D: Areas adjacent to windows with opaque overhangs and no clerestory above the overhang, where the ratio of the Overhang Projection to the Window Head Height is greater than 1.0.

EXCEPTION 2 to 130.1(d)1B&C&D: Upper windows installed to qualify for a PAF according to the requirements of Section 140.6(a)2L.

SECTION 140.3 – PRESCRIPTIVE REQUIREMENTS FOR BUILDING ENVELOPES

CONTINUED: TABLE 140.3-B – PRESCRIPTIVE ENVELOPE CRITERIA FOR NONRESIDENTIAL BUILDINGS (INCLUDING RELOCATABLE PUBLIC SCHOOL BUILDINGS WHERE MANUFACTURER CERTIFIES USE ONLY IN SPECIFIC CLIMATE ZONE; NOT INCLUDING HIGH-RISE RESIDENTIAL BUILDINGS AND GUEST ROOMS OF HOTEL/MOTEL BUILDINGS)

Envelope	Fenestration		All Climate Zones				
				Fixed Window	Operable Window	Curtainwall or Storefront	Glazed Doors ²
Vertical	Area-Weighted Performance Rating	Max U-factor		0.36	0.46	0.41	0.45
		Max RSHGC		0.25	0.22	0.26	0.23
	Area-Weighted Performance Rating	Min VT		0.42	0.32	0.46	0.17
	Maximum WWR%		40%				
Skylights	Area-Weighted Performance Rating	Max U-factor	Glass, Curb Mounted	0.58	0.46	0.88	0.88
		Max SHGC		0.25	0.25	NR	NR
	Area-Weighted Performance Rating	Min VT / Min VT_{annual}	0.49	0.49	0.64	0.38	
	Maximum SRR%		5%				
			Glass, Deck Mounted		Plastic, Curb Mounted	Tubular Daylighting Devices	

SECTION 140.6 – PRESCRIPTIVE REQUIREMENTS FOR INDOOR LIGHTING

(a) Calculation of Actual Indoor Lighting Power.

2. Reduction of wattage through controls

L. Daylit zones complying with the following requirements shall qualify for a PAF in Table 140.6-A.

i. [Horizontal slats on view windows](#)

- a. [The slat assembly, angles and spacing shall be permanently fixed and not normally removable by occupants or building personnel.](#)
- b. [Slats shall extend the width of the window and past both jambs as wide as their depth.](#)
- c. [Slats shall be opaque and free of openings. The area between the slats and the window shall be visually unobstructed. The thickness of the front edge of the slat shall be less than or equal to 0.25 times the slat spacing](#)
- d. [The slat width to spacing ratio \(WSR\) shall be calculated by dividing the slat width by the slat spacing. Slat angle shall be calculated by EQUATION 140.6-A. The WSR shall be greater than or equal to those provided in Table 140-A.](#)
- e. [For slats which are suspended from a horizontal overhang the overhang shall not cover the vertical fenestration and the front edge of the slat assembly shall vertically align](#)

with the front edge of the horizontal overhang. The suspended cutoff angle shall not be greater than the corresponding slat cutoff angle in Table 140.6-A.

- ii. Daylight redirecting devices on upper windows
 - a. Shall be approved by the CEC for use in meeting this requirement.
 - b. The clerestory window onto which the device is mounted shall meet the requirements of section 140.6(a)2.L.v.
- iii. Material which contacts metal exterior devices and exterior walls of conditioned or indirectly conditioned spaces shall have a minimum conductivity of **TBD**. The total area of such material in contact with the exterior wall shall not exceed **TBD**.
- iv. Upper windows
 - a. Shall be a minimum of one foot high, shall be as wide as the view window, shall have a head height at most eight inches below the finished ceiling and shall have a sill height no more than two feet nor less than one foot above the head height of the view window.
 - b. The finished ceiling where upper windows are installed shall be no higher than twice the head height of the view window.
- v. Selection and calculation
 - a. Fenestration shall be orientated within the azimuth (Az) range indicated, lower bound exclusive.
 - b. Stepped controls shall have the minimum power lighting power level reductions per the daylighting controls indicated and per the following levels:
 - i. Multi-level: 40%, 70%, 85%
 - ii. Bi-level: 70%
 - c. The setpoint selected shall be the highest setpoint that is not greater than the installed daylighting setpoint.
 - d. The number of zones selected shall correspond to the primary, secondary and tertiary sidelit daylit zones as 1, 2 and 3, respectively. All zones shall have equivalent daylighting controls.
 - e. The PAF for fixed slats shall be the average of the PAFs between which the calculated WSR falls. A WSR greater than the maximum WSR for the selected CO in Table 140.6-A shall use the maximum WSR's PAF.
 - f. For slats which are suspended from a horizontal overhang, the PAF shall be adjusted by EQUATION 140.6-B

EQUATION 140.6-B SLAT ANGLE

$$\theta = \arccos \left[\frac{SR + \sqrt{EWR^2(SR^2 + 1) - 1}}{EWR(SR^2 + 1)} \right] - \arctan \left(\frac{t}{W} \right)$$

WHERE:

θ is the slat declination angle in radians

t is the thickness of the front edge of the slat

SR is the spacing ratio = arctangent of the cutoff angle in radians

EWR is the effective width ratio = $\sqrt{W^2 + t^2}/S$; where W and S are the width and spacing of the slat, respectively

EQUATION 140.6-B OFFSET SLAT PAF ADJUSTMENT

$$PAF = 1 - (1 - PAF_{Table\ 140.6-A}) * \left[\frac{D - O}{D} \right]^2$$

WHERE:

PAF is the Power Adjustment Factor

D is the depth of the deepest zone of the selected $PAF_{Table\ 140.6-A}$.

O is the offset distance of the rear edge of the slats to the inside edge of the primary sidelit daylit zone

TABLE 140.6-A LIGHTING POWER ADJUSTMENT FACTORS (PAF) CONT'D

Az	SWWR	CO	Control	Multi-level/Dimming												
			Setpoint	100			300			500			1000			
			Zone(s)	1	2	3	1	2	3	1	2	3	1	2	3	
90 - 160	10%	10	1.750 WSR	0.25	0.20	0.15	0.10	-	-	-	-	-	-	-	-	-
			2.000 WSR	0.25	0.20	0.15	0.10	-	-	-	-	-	-	-	-	-
			2.500 WSR	0.25	0.20	0.15	0.05	-	-	-	-	-	-	-	-	-
			3.500 WSR	0.20	0.10	0.05	-	-	-	-	-	-	-	-	-	-
		20	1.375 WSR	0.20	0.15	0.10	0.10	0.05	-	-	-	-	-	-	-	-
			1.500 WSR	0.20	0.15	0.10	0.10	0.05	-	-	-	-	-	-	-	-
			1.750 WSR	0.15	0.15	0.10	0.10	-	-	-	-	-	-	-	-	-
			2.125 WSR	0.15	0.15	0.10	0.10	-	-	-	-	-	-	-	-	-
		N/A	CL	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
			DRD	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
		20%	10	1.750 WSR	0.25	0.25	0.20	0.20	0.10	0.05	0.05	-	-	-	-	-
				2.000 WSR	0.25	0.25	0.20	0.15	0.05	0.05	0.05	-	-	-	-	-
	2.500 WSR			0.25	0.25	0.20	0.10	0.05	-	-	-	-	-	-	-	
	3.500 WSR			0.25	0.20	0.15	0.05	-	-	-	-	-	-	-	-	
	20		1.375 WSR	0.20	0.20	0.15	0.15	0.10	0.05	0.10	-	-	-	-	-	
			1.500 WSR	0.20	0.20	0.20	0.15	0.10	0.05	0.10	0.05	-	-	-	-	
			1.750 WSR	0.20	0.20	0.15	0.15	0.10	0.05	0.10	0.05	-	-	-	-	
			2.125 WSR	0.20	0.15	0.15	0.15	0.10	0.05	0.05	-	-	-	-	-	
	N/A		CL	0.10	0.10	0.10	0.10	0.10	0.15	0.10	0.15	0.15	0.15	0.15	0.15	
			DRD	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
	30%		10	1.750 WSR	0.25	0.25	0.25	0.20	0.10	0.05	0.10	-	-	-	-	-
				2.000 WSR	0.25	0.25	0.25	0.20	0.10	0.05	0.10	-	-	-	-	-
		2.500 WSR		0.25	0.25	0.25	0.15	0.10	0.05	0.05	-	-	-	-	-	
		3.500 WSR		0.25	0.20	0.20	0.10	-	-	-	-	-	-	-	-	
		20	1.375 WSR	0.15	0.15	0.15	0.15	0.10	0.05	0.10	-	-	-	-	-	
			1.500 WSR	0.15	0.15	0.15	0.15	0.10	0.05	0.10	-	-	-	-	-	
			1.750 WSR	0.10	0.10	0.10	0.05	0.05	-	-	-	-	-	-	-	
			2.125 WSR	0.10	0.10	0.10	0.10	0.05	0.05	0.05	-	-	-	-	-	
		N/A	CL	0.10	0.10	0.10	0.10	0.10	0.15	0.10	0.15	0.15	0.10	0.15	0.15	
			DRD	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
		40%	10	1.750 WSR	0.05	0.05	0.05	0.05	0.05	-	0.05	-	-	-	-	-
				2.000 WSR	0.10	0.10	0.10	0.05	0.05	0.05	0.05	-	-	-	-	-
	2.500 WSR			0.20	0.20	0.20	0.15	0.15	0.15	0.10	0.10	0.05	-	-	-	
	3.500 WSR			0.25	0.25	0.25	0.20	0.15	0.15	0.10	0.05	0.05	-	-	-	
	20		1.375 WSR	-	-	-	-	-	-	-	-	-	-	-	-	
			1.500 WSR	-	-	-	-	-	-	-	-	-	-	-	-	
1.750 WSR			-	-	-	-	-	-	-	-	-	-	-	-		
2.125 WSR			-	-	-	-	-	-	-	-	-	-	-	-		
N/A	CL		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.15	0.15		
	DRD		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		

TABLE 140.6-A LIGHTING POWER ADJUSTMENT FACTORS (PAF) CONT'D

Az	SWWR	CO	Control	Multi-level/Dimming													
			Setpoint	100			300			500			1000				
			Zone(s)	1	2	3	1	2	3	1	2	3	1	2	3		
160 - 200	10%	30	1.125 WSR	0.15	0.05	-	-	-	-	-	-	-	-	-	-	-	
			1.250 WSR	0.15	0.10	0.05	-	-	-	-	-	-	-	-	-	-	
			1.375 WSR	0.10	0.05	-	-	-	-	-	-	-	-	-	-	-	
			1.500 WSR	0.10	0.05	-	-	-	-	-	-	-	-	-	-	-	
		40	1.000 WSR	0.10	0.05	-	-	-	-	-	-	-	-	-	-	-	
			1.050 WSR	0.10	0.05	-	-	-	-	-	-	-	-	-	-	-	
			1.125 WSR	0.10	0.05	-	-	-	-	-	-	-	-	-	-	-	
			1.250 WSR	0.05	0.05	-	-	-	-	-	-	-	-	-	-	-	
		N/A	CL	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
			DRD	0.15	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
		20%	30	1.125 WSR	0.15	0.10	0.05	0.05	-	-	-	-	-	-	-	-	-
				1.250 WSR	0.10	0.10	0.05	-	-	-	-	-	-	-	-	-	-
	1.375 WSR			0.10	0.10	0.05	-	-	-	-	-	-	-	-	-	-	
	1.500 WSR			0.10	0.10	0.05	-	-	-	-	-	-	-	-	-	-	
	40		1.000 WSR	0.15	0.10	0.05	0.05	-	-	-	-	-	-	-	-	-	
			1.050 WSR	0.10	0.10	0.05	-	-	-	-	-	-	-	-	-	-	
			1.125 WSR	0.05	0.05	0.05	-	-	-	-	-	-	-	-	-	-	
			1.250 WSR	0.05	0.05	0.05	-	-	-	-	-	-	-	-	-	-	
	N/A		CL	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.15	0.15		
			DRD	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		
	30%		30	1.125 WSR	0.20	0.15	0.15	0.10	-	-	-	-	-	-	-	-	
				1.250 WSR	0.15	0.15	0.10	0.10	-	-	-	-	-	-	-	-	
		1.375 WSR		0.15	0.15	0.10	0.05	-	-	-	-	-	-	-	-		
		1.500 WSR		0.15	0.15	0.10	0.05	-	-	-	-	-	-	-	-		
		40	1.000 WSR	0.15	0.15	0.10	0.05	-	-	-	-	-	-	-	-		
			1.050 WSR	0.15	0.15	0.10	0.10	-	-	-	-	-	-	-	-		
			1.125 WSR	0.10	0.10	0.10	0.05	-	-	-	-	-	-	-	-		
			1.250 WSR	0.10	0.10	0.10	0.10	-	-	-	-	-	-	-	-		
		N/A	CL	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		
			DRD	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		
		40%	30	1.125 WSR	0.20	0.20	0.20	0.15	0.15	0.10	0.10	0.05	-	-	-	-	
				1.250 WSR	0.20	0.20	0.20	0.15	0.15	0.10	0.10	0.10	0.05	-	-	-	
	1.375 WSR			0.20	0.20	0.20	0.15	0.15	0.10	0.10	0.10	0.05	-	-	-		
	1.500 WSR			0.15	0.15	0.15	0.10	0.10	0.05	0.05	0.05	-	-	-	-		
	40		1.000 WSR	0.15	0.15	0.15	0.15	0.10	0.10	0.10	0.10	0.05	-	-	-		
			1.050 WSR	0.15	0.15	0.15	0.15	0.10	0.10	0.10	0.05	-	-	-	-		
			1.125 WSR	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	-	-	-	-		
			1.250 WSR	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	-	-	-	-		
	N/A		CL	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		
			DRD	0.15	0.15	0.15	0.15	0.10	0.10	0.15	0.10	0.10	0.10	0.10	0.10		

TABLE 140.6-A LIGHTING POWER ADJUSTMENT FACTORS (PAF) CONT'D

Az	SWWR	CO	Control	Multi-level/Dimming												
			Setpoint	100			300			500			1000			
			Zone(s)	1	2	3	1	2	3	1	2	3	1	2	3	
200 - 270	10%	10	1.750 WSR	0.20	0.20	0.10	0.10	-	-	-	-	-	-	-	-	-
			2.000 WSR	0.20	0.20	0.10	0.10	-	-	-	-	-	-	-	-	-
			2.500 WSR	0.20	0.15	0.10	0.05	-	-	-	-	-	-	-	-	-
			3.500 WSR	0.20	0.10	0.05	-	-	-	-	-	-	-	-	-	-
		20	1.375 WSR	0.20	0.20	0.15	0.15	0.05	0.05	0.05	-	-	-	-	-	-
			1.500 WSR	0.25	0.20	0.15	0.15	0.05	0.05	0.05	-	-	-	-	-	-
			1.750 WSR	0.25	0.20	0.20	0.15	0.10	0.05	0.05	0.05	-	-	-	-	-
			2.125 WSR	0.20	0.15	0.15	0.15	0.05	0.05	-	-	-	-	-	-	-
		N/A	CL	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
			DRD	0.15	0.15	0.15	0.15	0.10	0.10	0.15	0.10	0.10	0.15	0.10	0.10	
		20%	10	1.750 WSR	0.25	0.25	0.20	0.20	0.10	0.05	0.10	-	-	-	-	-
				2.000 WSR	0.25	0.25	0.20	0.20	0.10	0.05	0.05	-	-	-	-	-
	2.500 WSR			0.25	0.25	0.20	0.15	0.05	-	-	-	-	-	-	-	
	3.500 WSR			0.25	0.20	0.20	0.05	-	-	-	-	-	-	-	-	
	20		1.375 WSR	0.25	0.25	0.20	0.20	0.15	0.10	0.15	0.10	0.05	-	-	-	
			1.500 WSR	0.25	0.25	0.25	0.20	0.20	0.10	0.15	0.10	0.05	-	-	-	
			1.750 WSR	0.25	0.20	0.20	0.20	0.15	0.10	0.15	0.10	0.05	-	-	-	
			2.125 WSR	0.20	0.20	0.15	0.15	0.10	0.10	0.10	0.05	-	-	-	-	
	N/A		CL	0.10	0.10	0.10	0.10	0.10	0.15	0.10	0.10	0.15	0.10	0.15	0.15	
			DRD	0.15	0.15	0.15	0.15	0.15	0.10	0.15	0.10	0.10	0.15	0.10	0.10	
	30%		10	1.750 WSR	0.30	0.30	0.25	0.25	0.20	0.15	0.20	0.10	0.05	-	-	-
				2.000 WSR	0.30	0.25	0.25	0.25	0.15	0.10	0.15	0.05	-	-	-	-
		2.500 WSR		0.25	0.25	0.25	0.20	0.15	0.10	0.10	0.05	-	-	-	-	
		3.500 WSR		0.30	0.25	0.25	0.15	0.10	0.05	-	-	-	-	-	-	
		20	1.375 WSR	0.20	0.20	0.20	0.20	0.15	0.15	0.15	0.10	0.05	0.05	-	-	
			1.500 WSR	0.25	0.25	0.25	0.20	0.20	0.15	0.20	0.10	0.10	0.05	-	-	
			1.750 WSR	0.25	0.25	0.25	0.20	0.20	0.15	0.15	0.10	0.10	0.05	-	-	
			2.125 WSR	0.25	0.25	0.25	0.25	0.20	0.20	0.20	0.15	0.10	0.05	-	-	
		N/A	CL	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.15	
			DRD	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
		40%	10	1.750 WSR	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	-	-
				2.000 WSR	0.15	0.15	0.15	0.15	0.10	0.10	0.10	0.10	0.10	0.05	-	-
	2.500 WSR			0.30	0.30	0.30	0.25	0.25	0.25	0.25	0.20	0.20	0.20	0.15	0.10	
	3.500 WSR			0.30	0.30	0.30	0.25	0.25	0.25	0.20	0.20	0.20	0.15	0.05	-	
	20		1.375 WSR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	
			1.500 WSR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	
			1.750 WSR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	
			2.125 WSR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	
	N/A		CL	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
			DRD	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	

2.2 Reference Appendices

There are no proposed changes to the Reference Appendices.