SADS V24 Wind Load Input

SADS 21.0.2.4 has implemented major improvements in the input of Lateral Wind Codes 2004 and 2019.

Lateral Load Marks

You can input Lateral Load Marks to Master Data as previous SADS version. The user can add, change and delete Lateral Load Marks as needed:

Master Data —	×
General Stresses Slab(1) Slab(2) Beam(1) Beam(2) Column Wall Lintel Joint PNAP 173 Load Save	
Available Diameters Active Lateral Load Options No Diameter Lateral Load Mark WIND 2004 Designation of high tensile bar Y 1 6 Lateral Load Direct WIND 2019 Density of reinforced concrete 24.0 2 8 3 10 VIND 2019 Density of reinforced concrete 24.0 4 12 OPTION 1 OPTION 2 OPTION 3 Automatic print description 5 16 3 X X Print core program information 7 25 5 6 Print BD reference number 8 32 9 40 Y Y 10 V 8 V V Enforce PNAP 173 7 8 V V Enforce Fire Limit State checking	
Concrete Cover MS Database Engine Shear Value Measured to Main Bar Microsoft Jet. 0LEDB.4.0 Calculated by M/L Formula Marking Beam Section Moresoft ACE. 0LEDB.12.0 Taken from Analysis Output Marking Beam Section Position of Lateral Moment Wind Case Label Block Region for Inclined Members Width x Depth Center of Support Combination From 120.0 to 300.0 Image: Close Image: Close	
TESTDATA CP2013	

When using the Wind Code 2004, the user should select "Direction" for the Wind Case Label and input as many labels/directions as necessary. This is the same as the earlier versions of SADS.

When using the Wind Code 2019, the user should select "Combination" for the Wind Case Label. The user needs to input 24 Labels to represent these combinations. If the "Bi-direction of wind load" check box is selected, the wind load combinations 1 to 12 are symmetric to wind load combinations 13 to 24. As the result, only 12 labels (instead of 24) are necessary and SADS will compute combinations 13 to 24 accordingly.

Table 2-1	Load combination factors for buildings that may be
	treated as rectangular

	Case	$W_{z,x1} = Max(W_{z,+x1}, W_{z,-x1})$	$W_{z,x^2} = Max(W_{z,+x^2}, W_{z,-x^2})$	ΔT_z	
<u> </u>	<u> Com</u>	bination			
	1	±1.00	±0.55	±0.55	
	2	±0.55	±1.00	±0.55	
	3	±0.55	±0.55	±1.00	

Option_1, Option_2, and Option_3 are for the input of user-customized wind load for study or research purposes

The user can then import the results from ETABS associated with these Wind Case Labels for design.

Import Lateral Loads

If users would like to import lateral loads based on Wind Codes 2004 or 2019, say calculated using Excel, into SADS for subsequent processing, it can be done using the Input Lateral Load (TAB delimited text file) module:

A SADS v21.0: This is an Example Project	-		x
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finport Laterel Load	-		x
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TESTDATA CP2013			

Use the Browse button to locate the text file.

									-	
Source Files										
WIND2004	W	U	1	UR/F	133.871	-79.462	5.89	1.2	1.2	
WIND2004	W	U	1	RF/F	303.632	-183.207	11.478	7.286	7.365	
WIND2004	W	U	1	13/F	328.082	199.469	10.827	12	12	
WIND2004	W	U	1	12/F	312.333	-189.869	10.307	12	12	=
WIND2004	W	U	1	11/F	296.596	-180.297	9.788	12	12	
WIND2004	W	U	1	10/F	280.867	-170.73	9.269	12	12	
WIND2004	W	U	1	09/F	265.14	-161.164	8.75	12	12	
WIND2004	W	U	1	08/F	249.403	-151.592	8.23	12	12	
WIND2004	W	U	1	07/F	233.638	-142.004	7.71	12	12	
WIND2004	W	U	1	06/F	217.818	-132.382	7.188	12	12	
WIND2004	W	U	1	05/F	201.901	-122.702	6.663	12	12	
WIND2004	W	U	1	04/F	185.816	-112.92	6.132	12	12	
WIND2004	W	U	1	03/F	169.492	-102.961	5.593	12	12	
WIND2004		U	1	02/F	152.763	-92.688	5.041	12	12	
WIND2004	W.	U	1	01/F	130.344	-78.901	4.301	12	12	
WIND2004		U	1	GR/F	92.942	-55.641	3.067	12	12	
WIND 2004		U.	1	BS/F	48.317	-23.227	1.594	12	12	
WIND2004	W.		1	UR/F	133.8/1	-/9.462	-5.89	1.2	1.2	
WIND2004	W		1	HE/E	303.632	-183.207	-11.4/8	7.286	7.365	
WIND 2004			1	13/F	328.082	199.469	-10.827	12	12	
WIND 2004				12/F	312.333	-189.869	-10.307	12	12	
WIND2004				10/5	296.596	-180.297	-9.788	12	12	
WIND2004	w	V		TU/F	280.867	-170.73	-9.269	12	12	× 1

Click the View button to see the format and content of the text file.

If it is correct, click the Import button to import the text file to generate lateral load data for SADS.

Active Lateral Load Image: Constraint of the second se	
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Load Mark Type Direct. Diaph. ^ WIND2004 S X 1 Floor Px Py Mt X	-
WIND2004 S X I Floor Px Py Mt X	
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▶ WIND2004 W U 1 UR/F 21.000 -21.000 -404.000 0.000 (.000
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WIND2004 W X 1 13/F -88.000 88.000 1619.000 0.000 0	.000
WIND2004 W Y 1 12/F -147.000 147.000 2642.000 0.000 0	.000
WIND 2004 Y II 1 11/F -147.000 147.000 2642.000 0.000 0	.000
WIND 2004 Y V 1 10/F -147.000 147.000 2642.000 0.000 0	.000
WIND 2004 Y X 1 09/F -147.000 147.000 2642.000 0.000 0	.000
WIND 2004 Y Y 1 08/F -147.000 147.000 2642.000 0.000 0	.000
07/F -136.000 136.000 2440.000 0.000 0	.000
06/F -135.000 135.000 2437.000 0.000 0	.000
05/F -135.000 135.000 2437.000 0.000 0	.000
04/F -129.000 129.000 2313.000 0.000 0	.000
03/F -127.000 127.000 2293.000 0.000 0	.000

Run the Lateral Load Sub-command to see the generated lateral loads:

Calculate Wind Loads Based on Wind Codes 2004 and 2019

As in the previous version, SADS can calculate wind loads using the Wind Load 2004 module:

SADS v21.0: This is an Example Project	
File Module Help	
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Wind Load CoP2004	
Wind Factor Wind Load	
- r	Building Parameters
	Wind Direction U-U 💌
	Building Height 46.750 M
	Building Breath 25.452 M
	Building Depth 33.936 M
	Site Ground Level 1.850 M
	Top Floor Code UR/F 💌
	🔲 Consider Dynamic Effect
	Force Coefficient of Building
	Calculated 0.992 Use 0.992
	Dynamic Magnification Factor
	Calculated 1.841 Use 1.841
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Or the Wind Load 2019 module:

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	wind Fiess	uie Dala	X+ 2	X- Y+	Y-			X+	X-	Y+	Υ-
	Height of re	duction Hd	2.500 2	2.500 2.8	50 2.000	Wind dire	ction factor S	e 0.850	0.850	0.850	0.850
	Gr	ound level	1 250 1	150 1.6	50 1 750	Topogr	anhic factor 9	a 1 000	1.000	1.000	1 000
						торода Т	aprilo racior o		1.000	1.000	1.000
	Main roof flo	por, excluding	the irregular	roof features	BE/F						
[-Wind Press	ures									
	Floor	Level	Ze,x+	Qe,x+	Ze,x-	Qe,x-	Ze,y+	Qe,y+	Ze,y-	Qe,y-	~
	UR/F	55.900	52.150	2.191	52.250	2.191	51.400	2.185	52.150	2.*	191
	RF/F	52.700	48.950	2.168	49.050	2.169	48.200	2.163	48,950	2.	168
	10.05									<u> </u>	
	13/F	49.500	45.750	2.145	45.850	2.146	45.000	2.139	45.750	2.*	145
	13/F 12/F	49.500 46.300	45.750 42.550	2.145 2.120	45.850 42.650	2.146 2.121	45.000 41.800	2.139 2.114	45.750 42.550	2." 2." 2."	145 120
	13/F 12/F 11/F	49.500 46.300 43.100	45.750 42.550 39.350	2.145 2.120 2.094	45.850 42.650 39.450	2.146 2.121 2.095	45.000 41.800 38.600	2.139 2.114 2.088	45.750 42.550 39.350	2. 2. 2. 2.(145 120 094
	13/F 12/F 11/F 10/F	49.500 46.300 43.100 39.900	45.750 42.550 39.350 36.150	2.145 2.120 2.094 2.066	45.850 42.650 39.450 36.250	2.146 2.121 2.095 2.067	45.000 41.800 38.600 35.400	2.139 2.114 2.088 2.059	45.750 42.550 39.350 36.150	2. 2. 2. 2.(2.(145 120 094 066
	13/F 12/F 11/F 10/F 09/F	49.500 46.300 43.100 39.900 36.700	45.750 42.550 39.350 36.150 32.950	2.145 2.120 2.094 2.066 2.035	45.850 42.650 39.450 36.250 33.050	2.146 2.121 2.095 2.067 2.036	45.000 41.800 38.600 35.400 32.200	2.139 2.114 2.088 2.059 2.028	45.750 42.550 39.350 36.150 32.950	2.1 2.1 2.0 2.0 2.0 2.0	145 120 094 066 035
	13/F 12/F 11/F 10/F 09/F 08/F	49.500 46.300 43.100 39.900 36.700 33.500	45.750 42.550 39.350 36.150 32.950 29.750	2.145 2.120 2.094 2.066 2.035 2.002	45.850 42.650 39.450 36.250 33.050 29.850	2.146 2.121 2.095 2.067 2.036 2.003	45.000 41.800 38.600 35.400 32.200 29.000	2.139 2.114 2.088 2.059 2.028 1.994	45.750 42.550 39.350 36.150 32.950 29.750	2. 2. 2. 2. 2. 2. 2. 2.	145 120 094 066 035
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	13/F 12/F 11/F 10/F 09/F 08/F 08/F 06/F 05/F	49.500 46.300 39.900 36.700 33.500 30.300 27.100 23.900	45.750 42.550 39.350 36.150 29.750 26.550 23.350 20.150	2.145 2.120 2.094 2.066 2.035 2.002 1.966 1.926 1.881	45.850 42.650 39.450 36.250 23.850 26.650 23.450 20.250	2.146 2.121 2.095 2.067 2.036 2.003 1.967 1.928 1.883	45.000 41.800 38.600 35.400 29.000 25.800 22.600 19.400	2.139 2.114 2.088 2.059 2.028 1.994 1.957 1.916 1.870	45.750 42.550 39.350 36.150 32.950 29.750 26.550 23.350 20.150	2.7 2.7 2.0 2.0 2.0 2.0 2.0 1.9 1.9 1.9 1.9	145 120 094 035 002 966 926 381
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