







00							THE 29TH ANNUAL STATE CONSTRUCTION CONFERENCE
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PORTFOLI Bile system	o visit ing	n and and improve county of	letney seem me	ette sotiakse			DECISION-MAKING TOOLS:
Welcome: Jonn Gi Sommerzed below are 1 year relations the way integly reasoning of the Lotting wolves to rela- tioning a solution to rela- tioning and the solution of the Lotting and the solution of the Assolution of the sol	brieg he besidersen n aders pas o ment en hele mener des die Son, cabert fi 2540 Lander	new accord. Despo and your Politikis Tan Charge table accord of Information above in Transmission to the Police Cacibian Line	und Views usy p representations p processor Production In Solume Incodes data Multiple Ma	namief bebær uninnerer, en s of haddine. K	sheb an an Maara Dargy Performent P	Notifie Jone on Mare orders Heap 77 Teaching Heap 78 Teaching H	FINANCIAL DECISION-MAKING INTEGRATED DESIGN CHECKLIST
CCOUP AT Facilities Headlo 1 - That TS Frankly Room E	Constant Selara Califo	Adjusted Percent Charge Roberts	Toose Electr Space Elec Pa	Vov San	Conset Eastern Million Conset Eastern Ported Coding Set	Construct for the check for any second secon	RATING TOOLS:
Wh Sect25		18	45.981	0 era > 120 dera dă	1091008	Not Blytelic Gancel powerlandwg (MT2/2017 own T2 Service Control of Se	
Abelent Reports School M2 Abereal Among 25	е 	42.95	9/E00	0 x 3 ~ 120 04:0 02 012.2 > 1.0 04:0 02	********	No Digible Roling worth 75 or \$200(207 Nove Coto: 20100461 Sum) All Highler Kalog word in Arts almore <u>Cattor 2010</u> (Malaka Sum)	GREEN GLOBES
	NOT FOR HER AREK APPLYING FOR THE DISCOVERANCE Statement of Drangy Performance FACULITY SUMMARY REPORT Sample FacUlty						GREENHOUSE GAS INVENTORY
	Partie de la composition de la	nin an product of a support district of the support of the support in the support 1000 Field	Dit a Puellou II assessing of the a mig that the united		in elgender doer s ett formas betrig om fort gear for i	hundel an interactive lay the overant on handpart with work to even and chemistericity on the 100°	DESIGN TOOLS:
	Facility S	Append the Burener	-	Catalog .	Second Second	These law	SCHEMATIC DESIGN TOOLS
	Energy F Group had Draip h	Performance Compo Annuk Innano King Innano King	2 10000 10000 1000 1000 1000 1000 1000	10 () 10 ()		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DAYLIGHTING DESIGN TOOLS ENERGY MODELING TOOLS
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BE	NC	CHM	AR	KIN	IG:		











































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0	JDAVISARCHITECTS						
		87.5 M	Water Efficie	ency Calcula	ations		
	Fixtu	re Code GPM	Actual GPM	# Fixtures	Code Demand	Actual Demand	
		From Table 604.4 (2006 NCPC)	Enter fixture gpm/gpf per mfg specs				
	Toilet - Va	lve 3.50	1.60	10	35	16	
	Toilet - Ta	nk 1.60	1.10	402	643	442	
	Urinal	1.00	0.50	2	2	1	
	Lavatory -	Public 0.50	0.50	6	3	3	
	Lavatory -	Private 2.20	1.00	402	884	402	
	Shower	2.50	1.50	402	1005	603	
	Kitchen Si	nk 2.20	2.20	298	656	656	
	Misc Fixtu	res -			0	0	
	a. h		-		0	0	
	ο΄ C				0	0	
	υ.	Tota	al Code Based Wate	r Consumption	3228		
			Actual Wate	r Consumption		2123	
		Borcon	t Water Concumpti	on Reduction	34 24%		
		Fercen	it water consumption	on Reduction	04.2470		
	Fixtures: Zurn Eco- Zurn Eco- Sloan 1.6 Sloan .5 g 1.0 gpm a	Vantage Shower/Tub V Vantage 1.1 gpf Toilets gpf flush valves pf urinal flush valves erator on all lavatory fa	'alves (1.5 gpm) ucets				
	Alternate Use full fic	: w (2.5 gpm) shower he	ad and install 1.0 gp	m aerator on a	Il Kitchen faucets (32.	87% reduction)	
PA	SSIVE SYSTEN	IS:					







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	DAVISARCHITECTS													
•														
	Electric Occurrentian													1
	(k)(by000)						8 9 10			11				
	Space Cool	552	395	334	395	357	395	334	302	334	357	395	357	
	Space Heat	377	317	269	317	343	317	269	292	269	343	317	317	
	Hot Water	472	472	472	472	472	401	472	472	401	472	401	401	
	Ventilation Fans	209	161	161	161	153	161	161	153	161	153	161	153	
	Ext. Lighting	110	110	110	110	110	110	110	110	110	110	110	110	
	Recep. & Appliance Loads	753	753	753	649	753	753	649	753	753	649	649	753	
	Residential Lighting	416	416	416	416	208	416	416	208	416	208	416	208	
	General Lighting	142	140	140	140	140	140	140	140	140	140	140	140	
	Parking Deck Lighting	278	181	181	181	181	181	181	181	181	181	181	181	
	Parking Deck Vent.	87	43	43	43	43	43	43	43	43	43	43	43	
	Total	3395	2988	2880	2884	2760	2917	2775	2654	2809	2656	2813	2663	
	% Energy Savings	0.0%	12.0%	15.2%	15.1%	18.7%	14.1%	18.3%	21.8%	17.3%	21.8%	17.1%	21.6%	
	\$ Energy Savings	\$0	\$35,829	\$43,723	\$43,444	\$51,617	\$41,060	\$50,672	\$57,962	\$48,503	\$57,832	\$48,240	\$57,433	
	LEED EA Credit 1 Points	0	1	2	2	3	2	3	4	2	4	2	4	
		1) Curr	ent Desig	n			6) Scena	rio 2 & 3		9) Scena	rio 3 & 4			
		2) 15 S	eer HVAC	Units			7) Scena	rio 2 & 4		10) Scen	ario 3 & 5	5		
		3) Ener	gy Star R	efria & Di	shwasher		8) Scena	rio 2 & 5		11) Scen	ario 4 & 5	5		
		4) CF L	ighting Pr	ogram			-,							
		5) Insta	ntaneous	Water He	aters									
	Scenario Descriptions													
	1)	Current	design a	s shown o	on permit	set of dra	wings							
	2)	The use units.	e of 15 SE	ER split :	system H	VAC units	, as oppo	sed to the	e use of n	nore stand	fard 13 S	EER split	system	
	3)	Installin require rating.	ng Energy a program	Star rate n be in pl	d refriger ace that v	ators and would ens	dishwash ure all futi	ers in all i ure replac	residentia ement ap	l units. Th pliances v	nis scenar would be	io would i of equal o	also or better	
	4)	The use	e of Comp	act Fluor	escent fix	tures in a	Il resident	ial units.	untial un *					
	 The use of electric type instantaneous water heaters in all residential units. 													
AC	TIVE SYSTEMS													
					_									































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<image/> Image: Anti-Anti-Anti-Anti-Anti-Anti-Anti-Anti-	Woodside Mill, Gre Building Energy Model	enville, South	Carolina		Results					
<image/> Space for the state of the sta					Electricity (kWhx1000)	Dev Std	cost	Integ Des	cost	1
<image/> Space transmission Savings are based on Source Energy and Envision Factors for transmission Savings are based on Source Energy and Envision Factors for transmission Savings are based on Source Energy and Envision Factors for transmission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Computer Source Computer Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Factors for Ecolismission Savings are based on Source Energy and Envision Saving are based on Source Energy and Envision Factors for Ecolismis a				-	Space Cool	739.4	\$ 74,458	549.5	\$ 55,335	1
<image/> Image: Control of Contr					Space Heat	191.6	\$ 19,294	82.5	\$ 8,308	1
<image/> Visit Provide				THE OWNER AND	HP supp.	87.4	\$ 8,801		\$.	
Pumps 1/19/1 1/19/1 </td <td></td> <td></td> <td></td> <td>AND A DECKET AND A DECKET AND A</td> <td>Vent Fans</td> <td>1413.8</td> <td>\$ 142,370</td> <td>921.3</td> <td>\$ 92,775</td> <td></td>				AND A DECKET AND A DECKET AND A	Vent Fans	1413.8	\$ 142,370	921.3	\$ 92,775	
Image: A state of the state			THE REAL PROPERTY OF	HE CHARTER	Pumps	7.7	\$ 775	168	\$ 16,918	
<section-header>Note: </section-header>	14		H I Harborn	CH LI I	Hot Water	149.7	\$ 15,075	34.93	\$ 3,517	
<section-header><section-header>Notice test1382<</section-header></section-header>		THE R. L.	AL STATE		Ext. Usage	34.7	\$ 3,494	34.7	\$ 3,494	
<section-header><section-header>Visit of the strain of the</section-header></section-header>	in the	HEALTH	11 11 11 11 11 11 11 11 11 11 11 11 11		Misc. Equip	1342.2	\$ 135,160	1342.2	\$ 135,160	
Team 4411 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	A POLITICE STATE	all the second	COLUMN TO A DE LA COLUMN		Lights	775	\$ 78,043	660.4	\$ 66,502	-
Numer Case of National Actional		TUTT			Total	4,741.5	\$ 477,469	3,793.5	\$ 382,008	- C
Space Heat 1995 \$ 2008 \$ 1 Minist Cost Annual Cost \$ <td>Contraction of the second</td> <td></td> <td></td> <td></td> <td>Natural Gas (Mbtu)</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Contraction of the second				Natural Gas (Mbtu)					
Test is 2.000 1 s 5.200 1 s 5.20					Space Heat	199.5	\$ 2,989		\$.	
Ammat Cent Uillie Excrite: 0.0718 SRWh Cast: 1,998 Sthern DEVELOPER STANDARD BUILDING Intend Loads Spect Castification of Lights, With Sequences, With Sequences, Stepses, Sequences, Stepses, Sequences, Sequences, Stepses, Sequences, Seque	SECTION 2	Intogrator	Doc v Do	alonar Std	Total	199.5	\$ 2,989	0.0	\$.	
Utilie Bestic: 0.0718 SRW: Carcia Swing: Carcia Swing	SECTION 2 -	integrated	Des V. Del	eloper Siu	Annual Cost	\$ 480,458		\$ 382,008		
Difference Control Lights With Status Space Classifier Status Space Classifier Space Classifier Space Classifier Space Classifier <td>Helliel</td> <td></td> <td></td> <td></td> <td>Cost Savings</td> <td></td> <td>20.5%</td> <td>\$ 98,449</td> <td></td> <td></td>	Helliel				Cost Savings		20.5%	\$ 98,449		
 Beetti suoria sukvita Gasci Janos Akvita Gasci Janos Akvita Gasci Janos Akvita Beetti Suoria gavita <l< td=""><td>Unines</td><td>A 44 4</td><td></td><td></td><td></td><td></td><td></td><td> Summer</td><td></td><td></td></l<>	Unines	A 44 4						Summer		
Out of the standard stand standard standard stand standard standard standard st	 Electric: 0.0718 S Gas: 1.408 S/them 	/KWN			Electric Savings (kWh)			947,970		
OPPORT STANDARD BUILDING Internal Loads Opeon Classification Lights. With The Equipment, With Opeon State	- Gas: 1.498 Syllicity				Gas Savings (MBTU)			199.5		
Development structures Space distantiant Lights, With Guigement, With Occupancy, afgers Space distantiant 1.3 0.33 100 Intersections 0.03 0.01 200 Intersections 0.03 0.01 200 Intersections 0.05 0.01 200 Intersections 0.01 200 200 Intersections 0.01 200 200 Intersections 0.01 200 200 Intersections 0.01 200 200 200 Intersections 0.01 200 200 200 Intersections 0.01 200 <	DEVELOPER S	TANDADD	DIMENT		GHG Savings (Ib CO2e)			972,109.5	2	
Internal Loads <u>Amaid Cost IV/2C only</u> 173,333 <u>Amaid Cost IV/2C only</u> 173,333 <u>Amaid Cost IV/2C only</u> 30.3% 173,333 <u>Amaid Cost IV/2C only</u> 30.3% 173,333 <u>Amaid Cost IV/2C only</u> 30.3% 173,333 <u>Cost IV/2C only</u> 30.3% 75,352 <u>Amaid Cost IV/2C only</u> 13 0,38 100,100 <u>Amaid Cost IV/2C only</u> 10,100 10,100 10,100 10,100 <u>Amaid Cost IV/2C only</u> 10,100 10,100 10,100 </td <td>DEVELOPER 3</td> <td>TANDARDI</td> <td>DILDING</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>i.</td> <td></td>	DEVELOPER 3	TANDARDI	DILDING						i.	
Space Classification Lighting in Vight Point	· · · · ·				Annual Cost HVAC	\$ 248,686		\$ 173,335	÷ .	
Byper Classification Lights, viv Equipment, vivi Occupany, steps Ciffice 0.1 0.0 <t< td=""><td>Internal Loads</td><td>11-h</td><td>Forder of the later</td><td>2</td><td>Savings HVAC only</td><td></td><td>30.3%</td><td>\$ 75,352</td><td>\leftarrow</td><td></td></t<>	Internal Loads	11-h	Forder of the later	2	Savings HVAC only		30.3%	\$ 75,352	\leftarrow	
Carida 1.1 0.3 0.00 Carida 0.1 0.00 0.00 Restroams 0.1 0.00 0.00 Pastroams 0.1 0.00 0.00 0.00 Pastroams 0.1 0.00 0.00 0.00 0.00 0.00 Automatic arciae 0.5 0.1 0.00 <	Space Classification	Lights, W/st	Equipment, W/st	Occupancy, stipers	an a ranara	20 82.040			0.0423-000-0	1 1221 -
College 1.3 0.38 100 Restrooms 0.9 0.15 000 Apartment 0.7 *see below 000 PitnessExercise 0.5 000 InterversUse in Buildings. Technical Report No. NRELTP-550-38617. M. Deru and P. FitnessExercise 0.5 000 InterversUse in Buildings. Technical Report No. NRELTP-550-38617. M. Deru and P. Factors based on Delivered Electricity for South Carolina and On-site Combustion of Nature 1.5 I-upiting equipment per estimated plas loads 0.1 2000 - Corpusp yer estimated plas loads 0.01 2000 - Occupant per estimated plas loads 0.02 Work (Provide Part Part Part Part Part Part Part Part	Corridor	0.5	0.5	1000	Greenhouse Gas Emi	ssions Savings a	re based on	Source Energy a	and Emissi	on Factors
Instrument 0.9 0.15 000 Apartment 0.7 *see below / 000 Proceeding	Lobby	1.3	0.38	100	for Energy Use in Bu	ildings. Technic	al Report No	o. NREL/TP-550)-38617. N	 Deru and P.
Apartment 0.7 "see below 300 Pitness Exercise 0.5 0.1 500 MonthDie Room 1.5 0.1 2000 1-Lighting end to ASHRAF 90.1-2004 maximum values 0.0 2000 1-Compared for the loads 0.5 2000 1-Compared for the loads 0.0 2000 1-Section 2 - Constrainting values 0.0 2000 1-Compared for the loads 0.0 2000 - Compared for the loads 0.0 2000 - Sterrior Lighting = 10 AW 2000 2000 - Daylighting for None External Shades – none External Shades – none WOODDSIDE MILLing COMPLEX CASE STUDY: External Shades – none	Restrooms	0.9	0.15	300	Torcellini. National F	Renewable Energ	gy Laborator	ry: Golden, CO.	June 2007	
Intense Sciencise 0.5 0.1 500 1- Lefining equals to ASIRAE V01-2004 maximum values 2000 2000 1.5 0.1 2000 1- Lefining equals to ASIRAE V01-2004 maximum values 2000	Apartment	0.7	"see below	300	Factors based on Del	ivered Electricity	y for South (Carolina and On	-site Comb	oustion of
Interview State 1.5 0.1 2000 1- Lighting requirem for extinuing the fluid. 1.2 2.0 Units are lbs of Carbon Dioxide Equivalent. 1- Lighting requirem for extinming the fluid. 1.2 2.00 Units are lbs of Carbon Dioxide Equivalent. 1- Apartment PHI Loads: 1.2 0.1 2000 Units are lbs of Carbon Dioxide Equivalent. 2- Apartment PHI Loads: 1.2 1.2 0.1 2000 1- Statemark States - 0.1 1.2 1.2 0.1 2000 2- Statemark States - none 1.2 1.2 1.2 1.2 WOODSIDE MILLing OMPLEX CASE STUDY:	Fitness/Exercise	0.5	0.1	50	Natural Gas in a furn	ace.				
1. Grain of pair of ASMR26 M31-264 maximum values 1. Support of the standard had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy per estimate had based on zone classification 1. Occupancy p	Mech/Elec Room	1.5	0.1	2000	Units are lbs of Carbo	on Dioxide Equi	valent.			
- Octopancy per estimated tota based on zone classification - Apartment Physical Loads: - Electric: Cooking – 0.48 W / sf: Refrigerator – 0.25 W/sf, Plug Loads – 0.5 W/sf - Gast Loadry – 816 k0h / year / apartment - Exterior Lighting – 10 kW - Daylighting: None - External Shades – none WOODSIDE MILLingOMPLEX CASE STUDY:	 Englishing equal to ASPERAL 9 Eautoment per estimated plus 	9.1-2004 maximum varia 9 loads	63							
- Apartment Plug Loads: - Blectric Cooking - 0.48 W / sf: Refrigerator - 0.25 W/sf, Plug Loads - 0.5 W/sf - Gas: Laundry - 816 kWh / year / apartment - Exterior Lighting - 10 kW - Daylighting: None - External Shades - none WOODSIDE MILLing OMPLEX CASE STUDY:	- Occupancy per estimated loa	d based on zone classifi	cation							
- Electric Cooking – 0.48 W / Sr. Refrigerator – 0.25 W/sf. Plug Loads – 0.5 W/sf - Gast Loadry – 816 kWN / sear / apartment - Exterior Lighting – 10 kW - Daylighting: Note - External Shades – note WOODSIDE MILLING MPLEX CASE STUDY:	- Apartment Plug Loads:									
- Gas Laudy - SlokWh / year / apartment - Exterior Lighting - 10 kW - Daylighting: None - External Shades - none WOODSIDE MILLing MPLEX CASE STUDY:	- Electric: Cooking	g – 0.48 W / sf; Refi	rigerator - 0.25 W/sf, I	Plug Loads – 0.5 W/sf						
External Shades - none WOODSIDE MILLing@MPLEX CASE STUDY:	- Gas: Laundry - 8	816 kWh / year / apa	irtment							
- Lavingting: Note - External Shudes - none WOODSIDE MILden@@MPLEX CASE STUDY:	 Exterior Lighting – 10 k 	W							/	
WOODSIDE MILLEN EN MPLEX CASE STUDY:	- Daylighting: None									
WOODSIDE MILLEN GOOMPLEX CASE STUDY:	- External Shades - none									215
		F MILdne	MOMPLE	X CASE S						
	100000101									

				THE 29TH ANN	IUAL STATE	E CONS	TRUCTION	CONFI	ERENCE
JDAVISARCHITE	CTS								
Woodside Mill, Gre Building Energy Model	enville, South	Carolina		Results					
				Electricity (kWhx1000)	Dev Std	cost	Integ Des	cost	
				Space Cool	739.4	\$ 74.458	549.5	\$ 55.335	
				Space Heat	191.6	\$ 19,294	82.5	\$ 8,308	
			COLUMN DE LA COLUMN	HP supp.	87.4	\$ 8,801	0410	\$ 0,000	
			ATTA A ALL STATISTICS.	Vent Fans	1413.8	\$ 142,370	921.3	\$ 92 775	
		1000000	A ALL ALL ALL ALL ALL ALL ALL ALL ALL A	Pumpe	77	\$ 775	168	\$ 16.010	
		AL DE GENERAL	and the second second	Hot Water	149.7	¢ 15.075	34.93	\$ 3517	
	all have	a olympic		Ext Usage	34.7	\$ 15,075	34.55	\$ 3,517	
New York	CONTRACTOR OF	11 110		Afree Equip	1040.0	\$ 3,494	1242.2	\$ 175,160	
She water	THE PARTY OF	D. and		Lights	1346.6	\$ 135,160	1042.2	\$ 135,160	
	CHILD I	and the second		Lights	115	\$ 78,043	000.4	\$ 00,502	
THAT THE THE	1 and 1			Total	4,741.5	\$ 477,469	3,793.5	\$ 382,008	
ALL ALL				Natural Gas (Mbtu)	100.0	-			
				Space Heat	199.5	\$ 2,989		\$ -	
SECTION 2 -	Integrator	d Doc v Do	volonor Std	Total	199.5	\$ 2,989	0.0	s .	
SECTION 2 -	integrated	u Des v. De	reioper Siu	Annual Cost	\$ 480,458		\$ 382,008		
				Cost Savinos		20.5%	\$ 98,449	-	
Utilities				Source and the second s					
 Electric: 0.0718 \$/ 	/kWh			Electric Savinos (kWh)			947,970		
 Gas: 1.498 S/them 	m			Gas Savings (MBTU)			199.5		
				GHG Savinos (lb CO2e)			972.109.5		
DEUELOBED C		DUITDING							
DEVELOPER S.	TANDARD I	BUILDING							
DEVELOPER S	TANDARD I	BUILDING		Annual Cost HVAC	\$ 248,686		\$ 173,335		
DEVELOPER S. Internal Loads	TANDARD I	BUILDING		Annual Cost HVAC	\$ 248,686	30.3%	\$ 173,335 \$ 75,352	4	_
Internal Loads Space Classification	Lights, W/st	Equipment, W/st	Occupancy, stipers	Annual Cost HVAC Savings HVAC only	\$ 248,686	30.3%	\$ 173,335 \$ 75,352	~	
Internal Loads Space Classification Office	Lights, W/st	Equipment, W/sf 0.5	Occupancy, slipers 200	Annual Cost HVAC Savings HVAC only	\$ 248,686	30.3%	\$ 173,335 \$ 75,352	and Emissia	n Factors
Internal Loads Space Classification Office Corridor	Lights, W/sf 1.1 0.5	Equipment, W/sf	Occupancy, stipers 200 1000	Annual Cost HVAC Savings HVAC only Greenhouse Gas Emit	\$ 248,686	30.3% re based on	\$ 173,335 \$ 75,352 Source Energy	and Emissio	n Factors
Internal Loads Space Classification Offlice Corridor Lobby	Lights, W/st 1.1 0.5 1.3	Equipment, W/sf 0.5 0 0.38	Occupancy, slipers 200 1000 100	Annual Cost HVAC Savings HVAC only Greenhouse Gas Emi for Energy Use in Bu Torreallini, National B	\$ 248,686 ssions Savings a <i>ildings</i> . Technica	30.3% re based on al Report N	\$ 173,335 \$ 75,352 Source Energy of NREL/TP-550	and Emissio 0-38617. M.	n Factors Deru and P
DEVELOPER S Internal Loads Space Classification Office Corridor Lobby Restrooms	Lights, W/st 1.1 0.5 1.3 0.9	Equipment, W/st 0.5 0 0.38 0.15	Occupancy, stipers 200 1000 100 300	Annual Cost HVAC Savings HVAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini. National R	\$ 248,686 ssions Savings a <i>ildings</i> . Technic: Renewable Energy	30.3% re based on al Report No 29 Laborato	\$ 173,335 \$ 75,352 Source Energy (0. NREL/TP-55) ry: Golden, CO. Caseling and On	and Emissio 0-38617. M. June 2007.	n Factors Deru and P
DEVELOPER S. Internal Loads Space Classification Office Corridor Lobby Restrooms Apartment	Lights, W/sf 1.1 0.5 1.3 0.9 0.7	Equipment, W/st 0.5 0.38 0.15 *see below	Occupancy, st/pers 200 1000 100 300 300	Annual Cost HVAC Savings HVAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini. National F Factors based on Deli	\$ 248,686 ssions Savings a <i>ildings</i> . Technica Renewable Energ ivered Electricity	30.3% re based on al Report No y Laborato y for South	\$ 173,335 \$ 75,352 Source Energy (o. NREL/TP-556 ry: Golden, CO. Carolina and On	and Emissio 0-38617. M. June 2007. -site Combu	n Factors Deru and Pustion of
Internal Loads Space Classification Office Corridor Lobby Restrooms Apartment Fitness/Exercise	Lights, W/sf 1.1 0.5 1.3 0.9 0.7 0.5	Equipment, W/st 0.5 0.38 0.38 0.15 *see below 0.1	Occupancy, stipers 200 1000 100 300 50	Annual Cost HVAC Savings HVAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini. National B Factors based on Deli Natural Gas in a furm	\$ 248,686 ssions Savings a <i>ildings.</i> Technic: Renewable Energ ivered Electricity ace.	30.3% re based on al Report N y Laborator y for South	\$ 173,335 \$ 75,352 Source Energy of o. NREL/TP-550 ry: Golden, CO. Carolina and On	and Emissio 0-38617. M. June 2007. -site Combu	n Factors Deru and P ustion of
Internal Loads Space Classification Office Corridor Lobby Restrooms Apartment Fitness/Exercise Mech/Elec Room	Lights, W/sl 1.1 0.5 1.3 0.9 0.7 0.5 1.5	Equipment, W/st 0.5 0 0.38 0.15 *see below 0.1	Occupancy, sfipers 200 1000 300 300 50 2000	Annual Cost HVAC Savings HVAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini. National F Factors based on Deli Natural Gas in a furm. Units are Ibs of Carbo	\$ 248,686 ssions Savings a <i>ildings.</i> Technic: kenewable Energ ivered Electricity ace. on Dioxide Equiv	30.3% re based on al Report No y Laborator y for South valent.	\$ 173,335 \$ 75,352 Source Energy of the one of the o	and Emissio 0-38617. M. June 2007. -site Combu	m Factors Deru and P ustion of
DEVELOPERS Internal Loads Space Classification Office Corridor Lobby Restrooms Apartment Fitness/Exercise Mech/Elec.Room Lighting equal to ASHRAF 90	Lights, W/st 1.1 0.5 1.3 0.9 0.7 0.7 0.5 1.5 1.5 1.2004 maximum value fourth	Equipment, Wist 0.5 0.3 0.15 *see below 0.1 0.1 0.1	Occupancy, slipers 200 1000 300 300 50	Annual Cost HVAC Savings HVAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini. National P Factors based on Deli Natural Gas in a furm Units are Ibs of Carbo	\$ 248,686 ssions Savings a <i>ildings.</i> Technic: Renewable Energy wered Electricity ace. on Dioxide Equiv	30.3% re based on al Report No ty Laborator y for South valent.	\$ 173,335 \$ 75,352 Source Energy of NREL/TP-550 ry: Golden, CO. Carolina and On	and Emissio 0-38617. M. June 2007. -site Combu	n Factors Deru and P astion of
DE VELOPER S. Internal Loads Space Classification Office Corridor Lobby Restrooms Apartment Fitness/Exercise Mech-Elec Room I-Lipting equation to ASHRAE & Cocquercy per estimated plag Occupacy per estimated plag	Lights, W/sl Lights, W/sl 1.1 0.5 1.3 0.9 0.7 0.5 1.3 0.9 0.7 0.5 1.3 0.9 0.7 0.5 1.3 0.9 0.7 0.5 1.3 0.9 0.7 0.5 1.3 0.7 0.5 1.3 0.7 0.5 1.3 0.7 0.7 0.5 1.3 0.7 0.7 0.5 0.7 0.7 0.5 0.7 0.7 0.7 0.5 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7	Equipment, W/sf 0.5 0.5 0.388 0.15 *see below 0.1 0.1 wf kution	Occupancy, slipers 200 1000 300 300 50 2000	Annual Cost HVAC Bavings HVAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini. National F Factors based on Deli Natural Gas in a furm Units are Ibs of Carbo	\$ 248,686 ssions Savings a <i>ildings.</i> Technic: Renewable Energ wered Electricity ace. on Dioxide Equiv	30.3% re based on al Report Ne sy Laborator y for South valent.	\$ 173,335 \$ 75,352 Source Energy 0. NREL/TP-55 ry: Golden, CO. Carolina and On	and Emissio 0-38617. M. June 2007. -site Combu	m Factors Deru and P ustion of
DEVELOPERS. Internal Loads Space Classification Office Corridor Lobby Restrooms Agartment Fitness Exercise Fitness Exercise Lighting equal to ASHRAE'8 Cocputing equal to ASHRAE'8 Agartment - Cocputing equal to ASHRAE'8 - Occupancy per estimated plage - O	Lights, W/st 1.1 0.5 1.3 0.9 0.7 0.5 1.5 0.1-2004 maximum value g loads d based on zone classifit	Equipment, Wast Equipment, Wast 0.5 0 0.38 0.15 'see below 0.1 esi kution	Occupancy, slipers 200 1000 300 300 50 2000	Annual Cost HVAC Bavinga HVAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini, National R Factors based on Deli Natural Gas in a furm Units are Ibs of Carbo 486 TONS	\$ 248,686 ssions Savings a <i>ildings.</i> Technica cenewable Energy ivered Electricity ace. on Dioxide Equiv S ANNUA	30.3% re based on al Report Ne sy Laborator y for South valent.	s 173,335 s 75,352 Source Energy of NREL/TP-55 ry: Golden, CO. Carolina and On	and Emissio 0-38617. M. June 2007. -site Combu	n Factors Deru and P ustion of
DEVELOPERS. Internal Loads Space Classification Ottoe Conidor Lobby Restrooms Apartment Fitness/Exercise Mech/Bice Room Cocquency per estimated bas - Apartment Per estimated bas - Apartment Per Journel and ASHARA 96 - Apartment 96 - Apa	Lights, W/st Lights, W/st 1.1 0.5 1.3 0.9 0.7 0.5 1.5 0.1-2004 maximum value g loads d based on conce classifi g b-0.48 W / sf; Refi	Equipment, W/sl 0.5 0.5 0.88 0.15 "see below 0.1 ver keation frigerator – 0.25 W/sf,	Occupancy, stipers 200 1000 300 300 2000	Annual Cost HYAC Bavings HYAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini. National R Factors based on Deli Natural Gas in a furm. Units are Ibs of Carbo 486 TONS	\$ 248,686 ssions Savings a <i>ildings.</i> Technicz tenewable Energ ivered Electricity ace. on Dioxide Equi	30.3% re based on al Report N y Laborator y for South valent.	\$ 173,335 \$ 75,352 Source Energy 0. NREL/TP-550 Carolina and On 02 SAVII	end Emissio 0-38617. M. June 2007. -site Combu	m Factors Deru and P ustion of
DEVELOPPERS Internal Loads Space Classification Office Corridor Lobby Restrooms Apartment FinnessExercise Mech.Bice.Room Activation of Mich. Corpuser per estimated bies - Occupancy per e	Lights, W/d Lights, W/d 1.1 0.5 1.3 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7	Equipment, Wast Equipment, Wast 0.5 0.0 0.38 0.0.15 *see below 0.1 ver ication rigerator - 0.25 W/sf, artment	Occupancy, slipers 200 1000 300 300 50 2000	Annual Cost HYAC Bavinga HYAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini, National R Factors bascion Del Natural Gas in a furn Units are Ibs of Carbo 486 TONS	\$ 248,686 ssions Savings a sidings. Technic Renewable Energy wered Electricity ace. on Dioxide Equiv SANNUA	30.3% re based on al Report N ty Laborator for South valent.	\$ 173,335 \$ 75,352 Source Energy of Netherly Source Energy of Netherly Provided in CO. Carolina and On	end Emissio 0-38617. M. June 2007. -site Combu	m Factors Deru and P astion of
Internal Loads Space Classification Office Corridor Lobby Restrooms Apartment Fitness/Exercise Mech/Bec Room - Lighting equal to ASHRAF.96 - Equipment per estimated has - Apartment Ping Loads: - Electric: Cookin - Gas: Laundry8 Exterior Lighting - 10 K	Lights, W/at 1.1 0.5 1.3 0.9 0.7 0.5 1.5 0.7-2004 miximum value g baals a baard on zone classifi g = 0.48 W / sf; Reff Sl 6 kW / sycar / ap; W	Equipment, Wist 0, 0 0, 38 0, 15 *see below 0, 11 0, 11 vr is is is is is is is is is is	Occupancy_stipers 200 1000 300 300 50 2000	Annual Cost HYAC Bavings HYAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini. National R Factors based on Deli Natural Gas in a furm Units are Ibs of Carbo 486 TONS	\$ 248,686 ssions Savings a <i>ildings</i> . Technic: tenewable Energ ivered Electricity ace. on Dioxide Equi	30.3% re based on al Report No ty Laboratory for South of valent.	\$ 173,335 \$ 75,352 Source Energy o. NREL/TP-55 V; Golden, CO. Carolina and On	and Emissio 0-38617. M. June 2007. -site Combu NGS	n Factors Deru and P astion of
Internal Loads Space Classification Office Corridor Corri	Lights, W/at 1.1 0.5 1.3 0.9 0.7 0.5 1.5 0.7 <	Equipment. W/sf Equipment. W/sf 0.0 0.38 0.15 'see below 0.1 0.1 ** ** kation rigerator - 0.25 W/sf, artment	Occupancy, slipera 200 1000 300 300 200	Annual Cost HYAC Bavinga HYAC only Greenhouse Gas Emi for Energy Use in Bu Torcellini, National P Natural Gas in a furm Units are lbs of Carbo 486 TONS	\$ 248,686 silons Savings a <i>ildings.</i> Technic Renewable Energ wered Electricity ace. on Dioxide Equi	30.3% re based on al Report Ne y Laborator y for South valent.	\$ 173,335 \$ 75,352 Source Energy. o. NREL/TP-55 Y: Golden, CO. Carolina and On	c- and Emissio 0-38617. M. June 2007. -site Combu	m Factors Deru and P istion of
Internal Loads Space Classification Office Corridor Corridor Rostrooms Agartment FinessExercise Mech-Bice Room Acchinent Pre estimated has Apartment Plug Loads: - Electric: Cooking – Oas: - Electric: Cooking – Oas: - Electric: Cooking – Oas: - Electrics: Cooking – Oas: - Electrics: Cooking – None - External Stabuses – none External Stabuses – none	Lights. W/d 1.1 0.5 0.7 0.7 0.7 0.7 0.7 0.5 0.7.2004 meximus role 0.1-2004 meximus role 0.1-2004 meximus role 0.1-2004 meximus role 0.1-3004 meximus role	Equipment, W/sf 0.5 0.5 0.6 0.3 0.7 5see below 0.1 see below 0.1 see below 0.1 frigerator - 0.25 W/sf, i	Occupancy, stipers 200 1000 300 300 300 2000 2000	Annual Cost HYAC Bavings HYAC only Greenhouse Gas Emi for Energy Use in Bur Torcellini, National R Factors based on Deli Natural Gas in a furm Units are Ibs of Carbo 486 TONS	\$ 248,686 ssions Savings a ssions Savings a lidings. Technica tenewable Energy wered Electricity ace. n Dioxide Equiv S ANNUA	30.3% re based on al Report N ty Laborator y for South valent.	\$ 173,335 \$ 75,352 Source Energy o. NREL/TP-55 yr: Golden, CO. Carolina and On	← and Emissio 0-38617. M. June 2007. -site Combu	n Factors Deru and P astion of

00				THE 29TH ANN	UAL STATI	E CONS	TRUCTION	I CONF	ERENCE
1 JDAVISARCHITE	ets								
Woodside Mill, Gre Building Energy Model	enville, South	Carolina		Results					
and g and g meets				Electricity (kWhy1000)	Dev Std	cost	Integ Des	cost	1
				Space Cool	739.4	\$ 74.458	549.5	\$ 55.335	1
				Space Heat	191.6	\$ 19,294	82.5	\$ 8,308	1
			ALC: NOT THE OWNER.	HP supp.	87.4	\$ 8,801	04.10	\$.	1
			ATTA DALL TO BE CONTRACT	Vent Fans	1413.8	\$ 142.370	921.3	\$ 92.775	1
		and the second	A DESCRIPTION OF THE OWNER OWNER OF THE OWNER OWNER OF THE OWNER OWNE	Pumps	7.7	\$ 775	168	\$ 16.918	1
			1 I I I I I I I I I I I I I I I I I I I	Hot Water	149.7	\$ 15.075	34.93	\$ 3.517	1
	and brid			Ext. Usage	34.7	\$ 3,494	34.7	\$ 3,494	1
	STREET, STREET			Misc. Equip	1342.2	\$ 135,160	1342.2	\$ 135,160	1
THURSDAY AND	THURH	STATE OF		Lights	775	\$ 78.043	660.4	\$ 66.502	1
ALL STREET, ST	the second second	Contraction of the second		Total	4.741.5	\$ 477,469	3,793.5	\$ 382,008	1
THE PERSON	1 A			Natural Gas (Mbtu)					1
				Space Heat	199.5	\$ 2.989		\$.	1
				Total	199.5	\$ 2,989	0.0	s .	
SECTION 2 -	Integrated	d Des v. Dei	veloper Std	Annual Cost	\$ 480 458		\$ 382 008	-	-
	-			Annual Cost	\$ 100,100	00 50	C 00 440	-	
Utilities				Cost Savings		20.3%	\$ 90,449		
 Electric: 0.0718 \$/ 	kWh			Plantic Project (1993)			047 070		
 Gas: 1.498 \$/them 	n			Electric Savings (kwn)			100 5		
CH 31-0-02200040-0202101				Gas Savings (MB10)	-	-	072 100 5		
DEVELOPER S	TANDARD H	BUILDING		Gina savings (in CO28)		-	372,103.3		
				Annual Cost HVAC	\$ 248,686		\$ 173,335		
Internal Loads				Series HVAC only		30.3%	\$ 75.352		
Space Classification	Lights, W/sf	Equipment, W/sf	Occupancy, stipers	countering of the only					
Office	1.1	0.5	200	Greenhouse Gas Emi	scions Savings a	re based on	Source Frieron	and Emissi	on Factors
Corridor	0.5	0	1000	for Energy Lise in Ru	ildinas. Technic	al Report N	o NREL/TP-55	0.38617 M	Dem and P
Lobby	1.3	0.38	100	Torcallini National F	anaughla Energ	a Report re	n: Golden CO	Juna 2007	. Deru and F.
Restrooms	0.9	0.15	300	Fostors based on Dal	ivarad Elastricity	y Laborato	Carolina and On	suite Comb	netion of
Apartment	0.7	"see below	300	Natural Gas in a furn	nered Electricity	y lot South	Caronna and On	-site Como	histion of
Mach/Elec Room	0.5	0.1	2000	Unite are lbe of Carbo	on Diovida Emi	valant			
Lighting caual to ASHRAE 90	0.1-2004 maximum valu	0.1	2000	Units are fos of Carbo	oli Dioxide Equi	valent.			
- Equipment per estimated plug	e loads								
 Occupancy per estimated load 	d based on zone classific	cation		486 TONS	SANNU)2 SAV/II	NGS	
- Apartment Plug Loads:					,		2 0/ 10/1	100	
- Electric: Cooking	g = 0.48 W / sI; Refr	rigerator - 0.25 W/sf, I	Plug Loads – 0.5 W/sf						
- Gas: Laundry - 8	s16 kWh / year / apa	rtment		20 20/ TO			CAV/IN		
- Except Lighting Figure - 10 kW									
 Daynghung: Ivone External Shades – none 									-0-
- LAternar States - Bolle									
WOODSID	= MII I_C	COMPLE	X CASE S						
100000101									

















