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**Sent:** Wednesday, September 12, 2018 5:43 PM

**To:** Jonlin, Duane <duane.jonlin@Seattle.gov>; Braaksma, Krista (DES) <krista.braaksma@des.wa.gov>; Vander May, Eric <ericv@rushingco.com>; CJ Brockway <cj@sparklabld.com>

**Cc:** Mike Kennedy <mikekennedy@energysims.com>

**Subject:** RE: Minority Report - LPA Tables

Duane, et al-

I reviewed the ASHRAE addendum bb and after some thinking it seems to me that it is mostly good for the space-by-space table. I think it solves most of my concerns about CJ's table.

With that introduction my review of the space by space table is that it actually delivers lighting power allowances that are about 15% *higher* than the whole building table. Apparently this has been true for most of the last three cycles. I did not have time to address all of the building types but I did adjust the Office, Retail, and School to reflect a requirement more consistent with the whole building table. The values I adjusted was the "Sales area" the "all other Classrooms" And the office categories "enclosed" and Open Office. These adjustments, by and large, were drawn from the Title 24 work.

The attached file includes a new column AZ that uses the ASHRAE 90.1 addendum bb and the modifications above. Using Mikes weighting scheme this results in a 10 to 11 percent reduction over the 2015 WSEC. While that is not as much as the original option passed by the TAG (without a quorum) in June (Column AQ) it is a substantial improvement over the ASHRAE proposal without adjustments. It also is a considerable improvement over the table passed by the TAG in the August 10<sup>th</sup> meeting.

It is my view that we have not developed amendments to the Commercial code that are likely to generate enough savings to keep us on target. This proposal would have more impact on our goals for this cycle in the commercial energy code.

Dave

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**Building Area Values**

Simple Average LPD	0.69	0.64	0.63	0.65	0.63	
Important Category Average LPD	0.62	0.56	0.56	0.58	0.58	0.58

	0.61	0.68
	0.55	0.60

	Integrated Draft WSEC 2015 +	Seattle 2018	Seattle 2018 + IECC 2018	189.1	189.1 + Integrated Draft	Title 24 proposal 2019
	LPD	LPD	LPD	LPD	LPD	LPD
Automotive facility	0.64	0.58	0.58	0.64	0.64	0.6
Convention center	0.76	0.73	0.73	0.51	0.51	0.65
Court house	0.81	0.73	0.73	0.74	0.74	0.7
Dining: Bar lounge/leisure	0.79	0.71	0.71	0.69	0.69	0.7
Dining: Cafeteria/fast food	0.72	0.65	0.65	0.66	0.66	0.7
Dining: Family	0.71	0.64	0.64	0.61	0.61	0.7
Dormitory	0.46	0.41	0.41	0.52	0.46	
Exercise center	0.65	0.6	0.6	0.61	0.61	0.65
Fire station	0.53	0.49	0.49	0.50	0.50	
Gymnasium	0.68	0.68	0.68	0.67	0.67	0.65
Health care clinic	0.70	0.7	0.7	0.68	0.68	0.7
Hospital	0.84	0.84	0.84	0.86	0.84	0.9
Hotel	0.70	0.63	0.63	0.70	0.70	
Library	0.78	0.85	0.78	0.72	0.72	0.7
Manufacturing facility	0.89	0.8	0.8	0.60	0.60	0.6
Motel	0.70	0.63	0.63	0.70	0.70	
Motion picture theater	0.61	0.55	0.55	0.62	0.61	0.6
Multifamily	0.41	0.37	0.37	0.49	0.41	
Museum	0.80	0.72	0.72	0.68	0.68	
Office	0.66	0.59	0.59	0.69	0.66	0.65
Parking garage	0.15	0.14	0.14	0.12	0.12	0.13
Penitentiary	0.65	0.59	0.59	0.67	0.65	
Performing arts theater	1.00	0.9	0.9	0.85	0.85	0.8
Police station	0.70	0.63	0.63	0.68	0.68	
Post office	0.67	0.63	0.63	0.62	0.62	
Religious building	0.80	0.72	0.72	0.70	0.70	0.7
Retail	1.01	0.91	0.91	0.91	0.91	0.9
School/university	0.70	0.63	0.63	0.67	0.67	0.65
Sports arena	0.624	0.56	0.56	0.76	0.62	0.75
Town hall	0.71	0.64	0.64	0.72	0.71	0.7
Transportation	0.56	0.5	0.5	0.51	0.51	
Warehouse	0.40	0.36	0.36	0.41	0.40	0.45
Workshop	0.90	0.9	0.9	0.83	0.83	

DB proposal	LPD	Reason	Important Category
	0.58	0.64	
	0.51	0.76	IECC Value is reasonable target
	0.73	0.81	
	0.69	0.79	Encourage good dining experience lighting. This is not a high target energy consumption area.
	0.65	0.66	
	0.61	0.71	Why penalize dining areas in communal locations?
	0.41	0.52	
	0.60	0.65	Give the exercise places a slight uptick to allow for more hospitality treatments. Exercise is good.
	0.49	0.50	
	0.67	0.67	
	0.68	0.68	
	0.84	0.86	
	0.63	0.70	
	0.72	0.78	Was .94, going to .72 is a big jump, libraries should be destinations
	0.60	0.89	This is too big of a change. The impact on manufacturing could be harmful.
	0.63	0.70	
	0.55	0.61	WSEC lower
	0.37	0.41	WSEC lower
	0.68	0.80	Analyze before dropping to much lower value - not many projects
	0.59	0.66	WSEC lower
	0.12	0.14	Big jump. Controls are having an impact already
	0.59	0.65	WSEC lower
	0.85	1.00	Analyze before dropping to much lower value - not many projects
	0.63	0.68	
	0.62	0.67	Fine print tasks
	0.70	0.80	
	0.91	0.91	
	0.63	0.67	Can we do this?
	0.56	0.75	WSEC lower
	0.64	0.71	
	0.50	0.51	
	0.36	0.40	WSEC lower
	0.83	0.90	Studios with fine print needs?

**GENERAL INDUSTRY COMMENTS:**

1  
1  
1  
1  
1

**Building Area Values**

<b>Simple Average LPD</b>	0.69	0.64	0.63	0.65	0.63	
<b>Important Category Average LPD</b>	0.62	0.56	0.56	0.58	0.58	0.58

	Integrated Draft WSEC 2015 +	Seattle 2018	Seattle 2018 + IECC 2018	189.1	189.1 + Integrated Draft	Title 24 proposal 2019
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	0.61	0.68
	0.55	0.60
DB proposal	CJ Proposal	

1. The wattages for food prep areas need to stay higher. IESNA recommends 50 fc for kitchens, and it's hard to achieve when you're dealing with a food court tenant with very little square footage to get the baseline wattage. Some kitchen spaces also have relatively high (10') ceilings and movable wire racks, so there's no place to mount undercabinet fixtures.

2. By limiting the classroom wattage, it will limit the classroom lighting design. I'm working on a college classroom (about 28 seats) that needs to be flexible for the different professors that use the same space. The client wants marker boards wallwashed on 3 of 4 walls, plus the ambient lighting. I'm barely meeting the code now using all LED.

3. I understand the LPD must be reduced, however, anything more than a 20% drop from the current 2012 WSEC LPD's (not the integrated draft LPD's) is too drastic of a cut with the current and projected technology.

4. From my point of view, the proposed numbers are quite low. Even when going with all LED product for offices, we are typically around 0.7w/sqft. That number may be higher in a small space. I can't say that I have a large batch of case studies to prove my point, but 33% reduction is steep any way you slice it. If we need to get to this range of LPD, we should be considering operating LPD and not connected load. With our daylight control requirements, we are typically using much less energy than the LPD would have folks believe.







Categories	Integrated Draft (Best of WSEC 2015 & IECC 2018)	California Title 24 2019 proposal	Jonlin Proposal (red font indicates value adjusted higher)	ASHRAE 90.1 Addendum bb	90.1 Addendum bb + Integrated Draft	Baylon Proposal	Brockway Proposal (TAG selection)	ASHRAE 90.1 Addendum bb
<b>COMMON SPACE-BY-SPACE TYPES<sup>a</sup></b>	LPD	LPD	LPD	LPD	LPD	LPD	LPD	LPD
< 50 SF	0.46	0.42	0.40	0.40	0.40	0.45	0.86	0.40
50SF-1000SF	0.46	0.42	0.38	0.38	0.38	0.43	0.46	0.38
All other Storage	0.46	0.42	0.38	0.38	0.38	0.43	0.46	0.38
Vehicular maintenance	0.54		0.54	0.60	0.54	0.49	0.54	0.60
Workshop	1.14	0.86	1.14	1.26	1.14	1.09	1.14	1.26
<b>BUILDING SPECIFIC SPACE-BY-SPACE TYPES<sup>a</sup></b>								
Automotive - (See Vehicular maintenance, above)	0.54	0.55	0.54	0.60	0.54	0.49	0.53	0.60
Convention center – exhibit space	0.88		0.50	0.50	0.50	0.69	0.88	0.50
Dormitory living quarters	0.30		0.46	0.84	0.30	0.27	0.84	0.84
Facility for the visually impaired <sup>b</sup>								
In a chapel (and not used primarily by the staff) <sup>b</sup>	1.06		0.70	0.70	0.70	0.89	1.77	0.70
In a recreation room (and not used primarily by the staff) <sup>b</sup>	1.80		1.77	1.77	1.77	1.53	1.93	1.77
Fire stations -- Sleeping quarters	0.18		0.18	0.20	0.18	0.18	0.18	0.20
Engine rooms	0.45	not have this category					0.45	
Gymnasium/fitness center		0.50						
In an exercise area	0.50	0.50	0.50	0.90	0.50	0.50	0.90	0.90
In a playing area	0.82	0.50	0.82	0.85	0.82	0.75	0.82	0.85
Health care facility								
deleted AFAIK								
In an exam/treatment room	1.33	1.15	1.33	1.40	1.33	1.16	1.33	1.40
In an imaging room	1.06	1.00	0.85	0.85	0.85	0.98	1.06	0.85
In a medical supply room	0.54	0.55	0.54	0.62	0.54	0.54	0.54	0.62

Categories	Integrated Draft (Best of WSEC 2015 & IECC 2018)	California Title 24 2019 proposal	Jonlin Proposal (red font indicates value adjusted higher)	ASHRAE 90.1 Addendum bb	90.1 Addendum bb + Integrated Draft	Baylon Proposal	Brockway Proposal (TAG selection)	ASHRAE 90.1 Addendum bb
<b>COMMON SPACE-BY-SPACE TYPES<sup>a</sup></b>	LPD	LPD	LPD	LPD	LPD	LPD	LPD	LPD
In a nursery	0.70	0.95	0.94	1.37	0.70	0.70	0.94	1.37
In a nurse's station	0.57	0.75	0.75	1.11	0.57	0.57	0.75	1.11
In an operating room	1.51	1.90	1.90	2.26	1.51	1.51	2.17	2.26
In a patient room	0.50	0.55	0.68	0.68	0.50	0.45	1.33	0.68
In a physical therapy room	0.73	0.85	0.85	0.91	0.73	0.73	0.73	0.91
In a recovery room	0.92	0.90	0.92	1.25	0.92	0.89	0.92	1.25
deleted AFAIK								
deleted AFAIK								
deleted sub-cat see guest rooms								
Library								
deleted AFAIK								
In a reading area	0.74	0.80	0.80	0.96	0.74	0.67	0.96	0.96
In the stacks	1.20	1.10	1.16	1.16	1.16	1.08	1.16	1.16
Manufacturing facility								
In a detailed manufacturing area	0.93	0.85	0.80	0.80	0.80	0.86	1.03	0.80
In an equipment room	0.59	0.65	0.65	0.76	0.59	0.53	0.76	0.76
In an extra high bay area (greater than 50-foot floor-to-ceiling height)	0.84	0.65	0.84	1.42	0.84	0.73	1.42	1.42
In a high bay area (25 - 50-foot floor-to-ceiling height)	0.75		0.75	1.24	0.75	0.58	1.24	1.24





Categories	Integrated Draft (Best of WSEC 2015 & IECC 2018)	California Title 24 2019 proposal	Jonlin Proposal (red font indicates value adjusted higher)	ASHRAE 90.1 Addendum bb	90.1 Addendum bb + Integrated Draft
<b>COMMON SPACE-BY-SPACE TYPES<sup>a</sup></b>	LPD	LPD	LPD	LPD	LPD
At a terminal ticket counter	0.62		0.51	0.51	0.51
Warehouse – storage area					
For medium to bulky palletized items	0.35	0.45	0.33	0.33	0.33
For smaller, hand-carried items	0.69	0.45	0.69	0.69	0.69

Baylon Proposal
LPD
0.48
0.27
0.65

Brockway Proposal (TAG selection)
LPD
0.62
0.35
0.69

ASHRAE 90.1 Addendum bb
LPD
0.51
0.33
0.69

	WSEC 2015	90.1-2016	Propose?
Area Allowance	500	1000	500
Retail 1	0.6	0.45	0.45
Retail 2	0.6	0.45	0.45
Retail 3	1.4	1.05	1.05
Retail 4	2.5	1.88	1.88

	WSEC 2006	WSEC 2015				ASHRAE 90.1-2016				Ratio 90.1 to wsec 2015			
		Zone 1	Zone 2	Zone 3	Zone 4	Zone 1	Zone 2	Zone 3	Zone 4	Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance		500	600	750	1300	350	400	500	900	0.70	0.67	0.67	0.69
Tradable													
Parking areas and drives	0.15	0.04	0.06	0.08	0.1	0.03	0.04	0.06	0.08	0.75	0.67	0.75	0.80
Walkways less than 10 feet wide	1.0	0.7	0.7	0.8	1	0.5	0.5	0.6	0.7	0.71	0.71	0.75	0.70
walkways > 10 feet wide, plazas	0.2	0.14	0.14	0.16	0.2	0.1	0.1	0.11	0.14	0.71	0.71	0.69	0.70
Stairways	1.0	0.75	1	1	1	0.6	0.7	0.7	0.7	0.80	0.70	0.70	0.70
Pedestrian Tunnels		0.15	0.15	0.2	0.3	0.12	0.12	0.14	0.21	0.80	0.80	0.70	0.70
Landscaping						0.03	0.04	0.04	0.04				
Main Entries	30	20	20	30	30	14	14	21	21	0.70	0.70	0.70	0.70
Other doors	20	20	20	20	20	14	14	21	21	0.70	0.70	1.05	1.05
Loading docks						0.35	0.35	0.35	0.35				
Entry canopies	1.25	0.25	0.25	0.4	0.4	0.2	0.25	0.4	0.4	0.80	1.00	1.00	1.00
Sales Canopy - free standing and attached		0.6	0.6	0.8	1	0.4	0.4	0.6	0.7	0.67	0.67	0.75	0.70
Outdoor sales - open areas	0.5	0.25	0.25	0.5	0.7	0.2	0.2	0.35	0.5	0.80	0.80	0.70	0.71
street frontage for vehicle sales lots	20	0	10	10	30	0	7	7	21	1.00	0.70	0.70	0.70
Nontradable													
Building facades per SF( WSEC is all, 90.1 is illuminated, 90.1-2016 is unchanged from previous 2013 values)	0.2	0	0.075	0.113	0.15	0	0.1	0.15	0.2	1.00	1.33	1.33	1.33
Building facades per LF	5.0					0	2.5	3.75	5				
Automated teller location	270	270	270	270	270	135	135	135	135	0.50	0.50	0.50	0.50
Automated teller per machine	90	90	90	90	90	45	45	45	45	0.50	0.50	0.50	0.50
Entrances and gate house inspection stations	1.25	0.75	0.75	0.75	0.75	0.5	0.5	0.5	0.5	0.67	0.67	0.67	0.67
Loading areas for public safety	0.5	0.5	0.5	0.5	0.5	0.35	0.35	0.35	0.35	0.70	0.70	0.70	0.70
Drive-up windows and doors	400	400	400	400	400	200	200	200	200	0.50	0.50	0.50	0.50
Parking near 24-hour retail entrance	800	800	800	800	800	400	400	400	400	0.50	0.50	0.50	0.50

Check to be sure these haven't moved

Category	WBC 2019	WBC 2020	WBC 2021	Integration of CIP												WBC 2021																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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				2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496

Religious building	Q	147	Religious building		
In a religious hall	Q	148	In a religious hall	148	
In a worship/prayer room	Q	149	In a worship/prayer room	149	
Retail facilities	Q	150	Retail facilities		
In a shopping mall	Q	151	In a shopping mall	151	
In a mall/concourse	Q	152	In a mall/concourse	152	
Sports arena - elevated area	Q	153	Sports arena - elevated area	153	
For a Class 1 facility	Q	154	For a Class 1 facility	154	
For a Class 2 facility	Q	155	For a Class 2 facility	155	

ICC 2018	0.784388717	0.84291	0.85726	0.95479	0.87207	0.77942	0.82549	0.80041	0.61611	0.63129	0.60118	0.71983	0.77553	0.75937	1.06719	0.54483	0.8026	0.70219	0.53881	0.82884	0.76344	0.17518	0.79787	0.77572	0.72089	1.05246	0.8465	0.798	0.67656	1.16549	0.71971	0.70642	0.65848	0.46031	0.88065	
ASHRAE 90.1 2010	0.79550533	0.83021	0.85726	0.95479	0.87207	0.77942	0.82549	0.80041	0.61611	0.63129	0.60118	0.71983	0.77553	0.75937	1.06719	0.54483	0.8026	0.70219	0.53881	0.82884	0.76344	0.17518	0.79787	0.77572	0.72089	1.05246	0.8465	0.798	0.67656	1.16549	0.71971	0.70642	0.65848	0.46031	0.88065	
International Green Building	0.78939389	0.85641	0.91612	0.83886	0.81101	0.70125	0.72716	0.70483	0.4461	0.52061	0.50892	0.60924	0.61115	0.51039	0.52924	0.78877	0.64779	0.46674	0.80814	0.70927	0.17427	0.7401	0.67818	0.67225	0.58816	0.84112	0.73027	0.58864	1.02049	0.60486	0.73177	0.59675	0.47476	0.87379		
Seattle 2018	0.75742814	0.80021	0.81116	0.78022	0.77189	0.64576	0.67168	0.65061	0.44101	0.48761	0.50425	0.71124	0.64698	0.47776	0.61479	0.52024	0.78877	0.46674	0.7511	0.64109	0.17427	0.68216	0.63683	0.57706	0.7811	0.72884	0.6889	1.02049	0.60486	0.73177	0.59675	0.47476	0.87379			
Seattle 2018 - IECC	0.663704213	0.59761	0.58428	0.78239	0.75887	0.6458	0.68111	0.64603	0.42609	0.48174	0.48886	0.63467	0.47001	0.67244	0.51024	0.78792	0.63827	0.45124	0.74224	0.66089	0.17244	0.64821	0.61028	0.64785	0.75765	0.71919	0.59212	0.92789	0.51511	0.64889	0.54908	0.44921	0.81644			
ASHRAE 90.1 2010	0.684428129	0.61841	0.70911	0.72017	0.71481	0.61621	0.68111	0.65211	0.42609	0.48174	0.48886	0.63467	0.47001	0.67244	0.51024	0.78792	0.63827	0.45124	0.74224	0.66089	0.17244	0.64821	0.61028	0.64785	0.75765	0.71919	0.59212	0.92789	0.51511	0.64889	0.54908	0.44921	0.81644			
ASHRAE 90.1 2015	0.640446274	0.6421	0.61721	0.67613	0.70642	0.75887	0.61711	0.61612	0.71227	0.67876	0.57308	0.7547	0.65451	0.67227	1.02112	0.50471	0.60915	0.44776	0.61111	0.51447	0.68553	0.18008	0.69546	0.6868	0.73679	0.73782	0.71541	0.67874	0.62474	0.86411	0.54245	0.67744	0.56445	0.41312	0.82195	
IECC 2009/2012	0.640000275	0.64212	0.70641	0.67119	0.70481	0.67709	0.61612	0.64417	0.62011	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611	0.61611
Basics Process	0.640306221	0.63971	0.70611	0.68426	0.68489	0.68301	0.62009	0.60625	0.4111	0.48074	0.48006	0.64635	0.46387	0.61822	0.63906	0.64085	0.61911	0.42819	0.64045	0.61911	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811	0.61811
Basics Process	0.746690463	0.61021	0.78116	0.64177	0.64649	0.74648	0.71944	0.71611	0.70719	0.71611	0.64611	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466	0.70466
Basics of CI and IBC	0.61038884	0.64111	0.59051	0.61291	0.62044	0.70071	0.72564	0.70346	0.64649	0.62116	0.50813	0.69716	0.66862	0.68899	0.66776	0.60324	0.6012	0.46671	0.68319	0.67987	0.67948	0.17385	0.72415	0.71498	0.68839	1.03519	0.81314	0.75585	0.52042	1.02011	0.59207	0.69113	0.59129	0.47117	0.87192	

