Building Intelligence in Electrical Design and Construction

Building Intelligence in Electrical Design and Construction

Roy Labourdette
Applied Software Technology, Inc.
Southwire

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How to Benefit From Using a Database With Your 3D Model

- Connect the knowledge of the engineer with the knowhow of the contractor
- Work in AutoCAD & Revit
- Change it once, reflect it everywhere
- Brings intelligence in design and constructability to the electrical industry
- Bridges the gap between engineered drawings and 3D model

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Why Should I Use Database?

In the office:

- Improve efficiency in design
- Changes reflected immediately throughout the entire project
- Automation in cable routing
- Accurate cable and raceway take-offs
- Collaboration with field team

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Why Should I Use Database?

In the field:

- Consistency
- Cable specifications
- Material ordered and delivered on time
- Inventory and status tracking
- Pull planning
- Change management
- Cost Savings!!!

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Why Should I Use Database?

Where's the payback?

- Efficiency in Design
- Pull and Installation Planning
- Accurate Material take-offs and ordering
- Change Management
- Worker Safety
- On Time – On Budget

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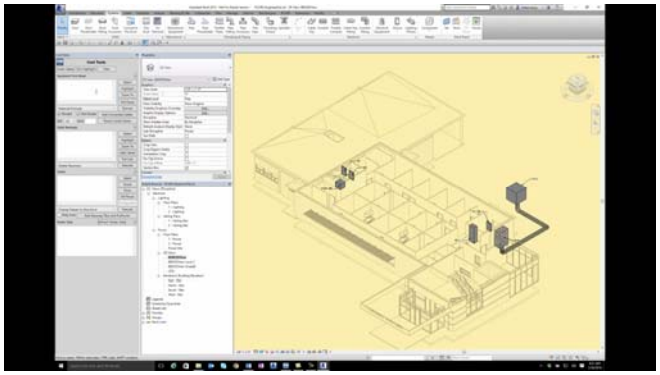
Automatically Route Raceways



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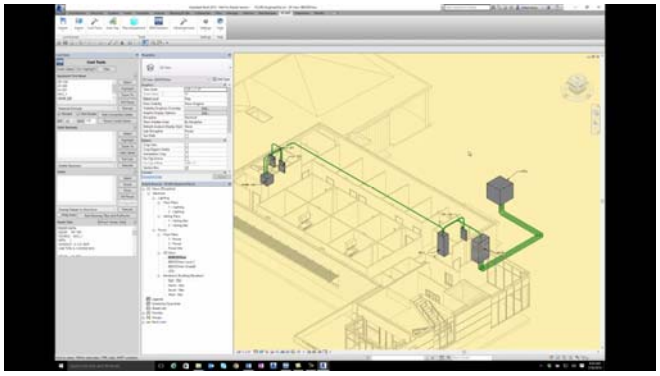
Automatically Route Wire & Cables



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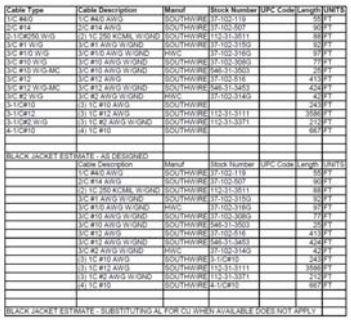
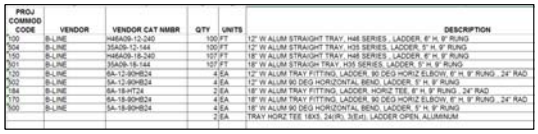
Bill of Materials

- Automatically generated
- Microsoft Excel™ or
  Microsoft Word™ reports



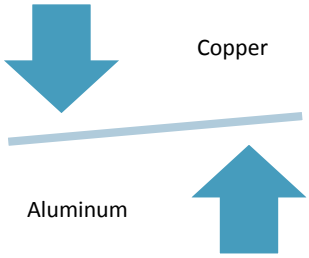
Cable Type	Cable Description	Manuf	Stock Number	UPC Code	Length	UNITS
1/C #4/0	1/C #4/0 AWG	SOUTHWIRE	37-102-119		55	FT
2/C #14	2/C #14 AWG	SOUTHWIRE	37-102-507		60	FT
3-1/C#250 W/G	(3) 1C 250 KCMIL W/GND	SOUTHWIRE	12-31-3511		88	FT
3/C #1 W/G	3/C #1 AWG W/GND	SOUTHWIRE	37-102-3150		52	FT
3/C #1/0 W/G	3/C #1/0 AWG W/GND	HVAC	37-102-3160		57	FT
3/C #10 W/G	3/C #10 AWG W/GND	SOUTHWIRE	37-102-3060		77	FT
3/C #10 W/G-MC	3/C #10 AWG W/GND	SOUTHWIRE	546-31-3503		23	FT
3/C #12	3/C #12 AWG	SOUTHWIRE	37-102-516		413	FT
3/C #12 W/G-MC	3/C #12 AWG W/GND	SOUTHWIRE	546-31-3453		424	FT
3/C #2 W/G	3/C #2 AWG W/GND	HVAC	37-102-3140		42	FT
3-1/C#10	(3) 1C #10 AWG	SOUTHWIRE			243	FT
3-1/C#12	(3) 1C #12 AWG	SOUTHWIRE	12-31-3111		3586	FT
3-1/C#2 W/G	(3) 1C #2 AWG W/GND	SOUTHWIRE	12-31-3371		212	FT
4-1/C#10	(4) 1C #10	SOUTHWIRE			667	FT
BLACK JACKET ESTIMATE - AS DESIGNED						
	Cable Description	Manuf	Stock Number	UPC Code	Length	UNITS
	1/C #4/0 AWG	SOUTHWIRE	37-102-119		55	FT
	2/C #14 AWG	SOUTHWIRE	37-102-507		60	FT
	(3) 1C 250 KCMIL W/GND	SOUTHWIRE	12-31-3511		88	FT
	3/C #1 AWG W/GND	SOUTHWIRE	37-102-3150		52	FT
	3/C #1/0 AWG W/GND	HVAC	37-102-3160		57	FT
	3/C #10 AWG W/GND	SOUTHWIRE	37-102-3060		77	FT
	3/C #10 AWG W/GND	SOUTHWIRE	546-31-3503		23	FT
	3/C #12 AWG	SOUTHWIRE	37-102-516		413	FT
	3/C #12 AWG W/GND	SOUTHWIRE	546-31-3453		424	FT
	3/C #2 AWG W/GND	HVAC	37-102-3140		42	FT
	(3) 1C #10 AWG	SOUTHWIRE	3-1C#10		243	FT
	(3) 1C #12 AWG	SOUTHWIRE	12-31-3111		3586	FT
	(3) 1C #2 AWG W/GND	SOUTHWIRE	12-31-3371		212	FT
	(4) 1C #10	SOUTHWIRE	4-1C#10		667	FT
BLACK JACKET ESTIMATE - SUBSTITUTING AL FOR CU WHEN AVAILABLE DOES NOT APPLY						



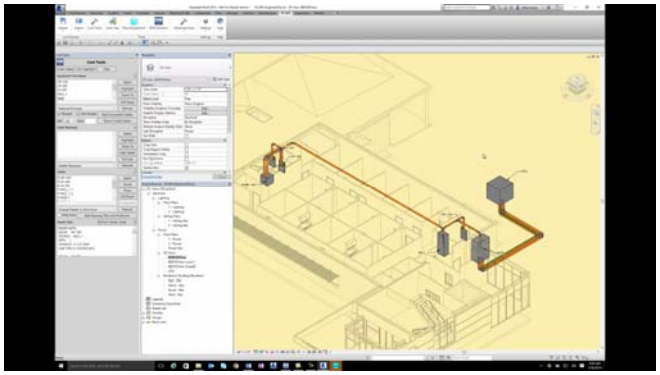
PROJ COMMOD CODE	VENDOR	VENDOR CAT NMBR	QTY	UNITS	DESCRIPTION
100	B-LINE	HA6A09-12-240	100	FT	12" W ALUM STRAIGHT TRAY, HA6 SERIES, LADDER, 6" H, 9" RUNG
504	B-LINE	35A09-12-144	100	FT	12" W ALUM STRAIGHT TRAY, H35 SERIES, LADDER, 5" H, 9" RUNG
150	B-LINE	HA6A09-18-240	107	FT	18" W ALUM STRAIGHT TRAY, HA6 SERIES, LADDER, 6" H, 9" RUNG
501	B-LINE	35A09-18-144	107	FT	18" W ALUM STRAIGH TRAY, H35 SERIES, LADDER, 5" H, 9" RUNG
120	B-LINE	6A-12-90HB24	4	EA	12" W ALUM TRAY FITTING, LADDER, 90 DEG HORIZ ELBOW, 6" H, 9" RUNG, 24" RAD
502	B-LINE	5A-12-90HB24	4	EA	12" W ALUM 90 DEG HORIZONTAL BEND, LADDER, 5" H, 9" RUNG
184	B-LINE	6A-18-HT24	2	EA	18" W ALUM TRAY FITTING, LADDER, HORIZ TEE, 6" H, 9" RUNG, 24" RAD
170	B-LINE	6A-18-90HB24	4	EA	18" W ALUM TRAY FITTING, LADDER, 90 DEG HORIZ ELBOW, 6" H, 9" RUNG, 24" RAD
500	B-LINE	5A-18-90HB24	4	EA	18" W ALUM 90 DEG HORIZONTAL BEND, LADDER, 5" H, 9" RUNG
			2	EA	TRAY HORZ TEE 18X5, 24(R), 3(Ext), LADDER OPEN, ALUMINUM

Value Engineering Options

- Change From Copper
  To Aluminum
- Resize Conduits
- Update BOM



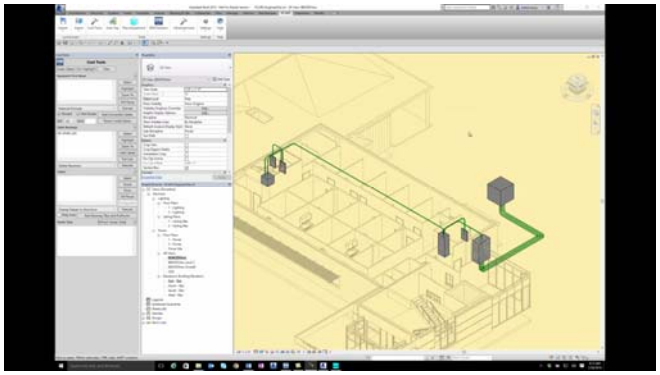
Cable Pull Calculations



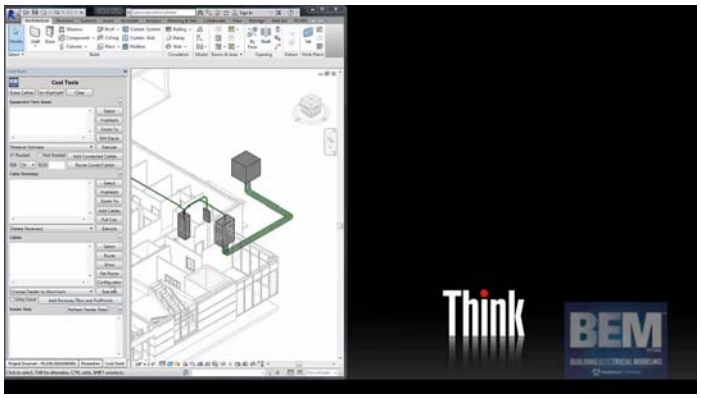
Evaluating Pull Scenarios

- Cable Contained
- Properties of Raceway
- Jam Probability
- Coefficient of Friction
- Side Wall Pressure
- Pulling Tension
- Voltage Drop

Automate Feeder Schedules



Build Wire Reels With Lengths Directly From Modela



Pull and Termination Tickets

$10-TG-DSW-4000A-K-01/P%

CQP - FORM B18.01A CABLE PULL TICKET

Page 1 of 1

CABLE NUMBER: 10-TG-DSW-4000A-K-01 REVISION: 01
CHECKSUM: 97167
CABLE TYPE: K3C2G ISSUE FOREMAN: A. MASON

CABLE OD: .96In MBR: 3.84In WEIGHT: 954.0Lbs/Ft LAY CABLE: RANDOM

CABLE TYPE DESCR: 3/C #2 AWG 600V POWER W/ GND EST CKT LEN: 501.8

FROM DEVICE: 10-EL-PNL-0002 TO DEVICE: 10-TG-DSW-4000-A
TURB BLDG - SWGR ROOM 1 - SMALL POWER & LIGHT Disc.Switch for Bolt Heater - Turbine A

FROM SECTION: CKT 1/3

EST. PULL TENSION: 106 LBS MAX PULL TENSION: 2424 LBS
VOLTAGE DROP: 2.50% AMPACITY EXCEEDED: NO

PLAN FROM DRAWING: 125711-10400-E-AGE-011-2 PLAN TO DRAWING: 125711-10400-E-AGE-032-1

DATE PRINTED: Jul. 14, 2015 START-UP SYS: 40-0.08
WRK PKG:

Route: 10CK2013-298:CR03 10TLK2013-009/K 10TLK2013-005/K 10TLK2013-016/K 10TLK2023-020/K
10TK2023-030 10TK2023-031 10TK2023-032 10TK2023-025 10TK2023-019 10TK2023-034
10TLK2023-003/K 10TLK2023-004/K 10TLK2022-001/K 10CK2031-016:CR03 10JBK2031-002
10CK2031-010:CR09

ROUTED THROUGH 10-TG-JB-4003 TO FIELD SIZED JB

$10-AH-MXR-7994A-K-03/F%

CABLE TERMINATION TICKET (FROM END)

Page 1 of 1

Wire Reel Management

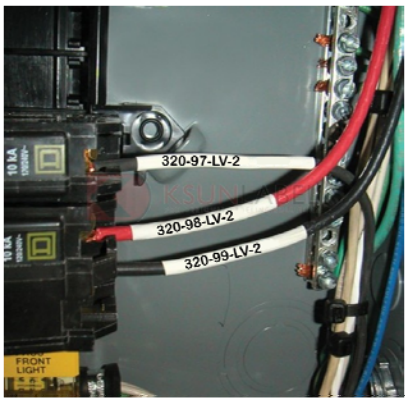
- Tracks
  - Date Delivered
  - Date Ordered
  - Cable Type
  - Reel ID
  - Related PO
  - Amount Of Cable Remaining

Reel Inventory Report

REEL NMBR	CAB TYPE CODE	DATE RECEIVED	ORIG LEN	DATE RETIRED	LEN REMAINING	PURCHASE ORDER	ORDERED DATE	SHIPPED DATE
10-AH-CMP-7000-X-01	XCAT5-VS	1/20/2012	80	6/7/2015	0	PO-379901	5/30/2011	11/3/2012
10-AH-CPR-7780-C-04	C9C14	6/5/2013	111	3/31/2015	0	PO-970998	1/28/2011	2/7/2012
10-AH-CPR-7780-C-05	C2C14	7/1/2012	115	2/9/2015	115	PO-17538	3/21/2011	7/16/2012
10-AH-CPR-7780-H-01A	H1C4/0	4/17/2012	456	3/25/2015	454	PO-206932	8/9/2011	8/25/2012
10-AH-CPR-7780-H-01B	H1C4/0	7/18/2012	454	1/10/2014	255	PO-841829	8/4/2011	9/13/2012
10-AH-CPR-7780-H-01C	H1C4/0	4/6/2012	450	5/16/2014	450	PO-449050	10/1/2011	12/5/2012
10-AH-CPR-7950-H-01A	H1C4/0	7/9/2013	920	2/2/2014	10	PO-451744	8/9/2011	5/2/2012
10-AH-CPR-7950-H-01B	H1C4/0	1/18/2012	920	6/26/2014	10	PO-396168	3/5/2011	3/3/2012
10-AH-CPR-7950-H-01C	H1C4/0	9/17/2012	920	12/4/2014	140	PO-916216	3/30/2011	1/19/2012
10-CA-CAB-0100A-K-01	K3C8G	8/7/2012	410	3/11/2015	0	PO-588503	7/27/2011	4/12/2012
10-CA-CAB-0100B-K-01	K3C8G	3/14/2013	420	9/2/2014	0	PO-615212	8/24/2011	3/2/2012
10-CA-CPR-0100A-H-01A	H1C4/0	12/29/2012	337	11/16/2014	0	PO-978383	6/8/2011	11/15/2012
10-CA-CPR-0100A-H-01B	H1C4/0	6/18/2012	385	7/7/2014	48	PO-972306	9/16/2011	2/23/2012
10-CA-CPR-0100A-H-01C	H1C4/0	10/19/2012	385	11/18/2014	48	PO-172624	8/30/2011	3/27/2012
10-CA-CPR-0100B-H-01A	H1C4/0	3/16/2012	395	5/4/2014	52	PO-877667	1/9/2011	2/23/2012
10-CA-CPR-0100B-H-01B	H1C4/0	11/9/2012	395	2/7/2014	52	PO-258769	11/6/2011	4/27/2012
10-CA-CPR-0100B-H-01C	H1C4/0	8/22/2012	395	1/24/2014	52	PO-778282	12/28/2011	10/10/2012
10-CA-CPR-0100B-H-01G	G2	10/7/2013	395	12/4/2014	165	PO-959740	7/17/2011	3/5/2012
10-CA-CPR-0100B-X-01	X1P18-VS	7/24/2012	95	3/22/2014	0	PO-879292	4/15/2011	9/5/2012
10-CA-CPR-0100C-H-01A	H1C4/0	6/2/2013	405	6/12/2014	28	PO-207840	9/25/2011	6/11/2012
10-CA-CPR-0100C-H-01B	H1C4/0	12/15/2012	405	10/8/2014	28	PO-37488	2/4/2011	5/18/2012
10-CA-CPR-0100C-H-01C	H1C4/0	2/10/2013	405	3/29/2015	28	PO-211247	8/6/2011	6/22/2012
10-CA-CPR-0100C-H-01G	G2	1/10/2013	405	9/20/2014	170	PO-805919	7/27/2011	7/14/2012
10-CA-CPR-0100C-X-01	X1P18-VS	2/23/2013	80	5/14/2014	0	PO-969342	5/3/2011	6/11/2012
10-CA-DSW-0100A-K-01	K3C2G	8/7/2012	490	3/8/2015	0	PO-65619	2/11/2011	8/10/2012
10-CA-DSW-0100B-K-01	K3C2G	4/21/2012	480	3/24/2015	0	PO-536023	5/2/2011	7/10/2012
10-CC-PMP-0120A-C-01	C9C14	3/8/2013	98.2	1/31/2015	0	PO-291799	3/10/2011	6/18/2012
10-CC-PMP-0120A-C-02	C2C14	7/31/2013	98.2	6/21/2014	98.2	PO-873914	3/30/2011	11/18/2012

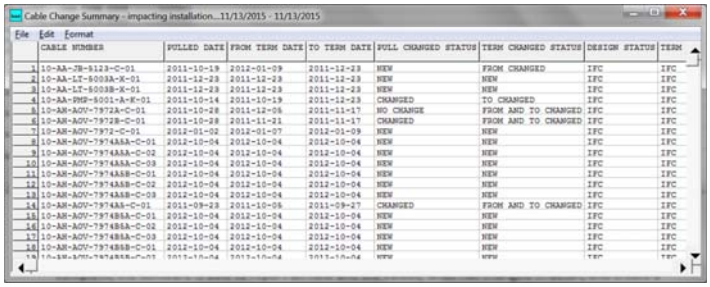
Cable / Wire Markers

- Create Cable And Wire Markers



Revision Control & Reporting

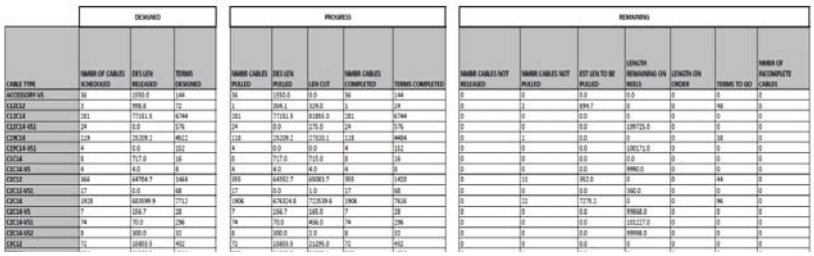
- Track revisions of:
  - Cable
  - Terminations
  - Raceway



	CABLE NUMBER	PULLED DATE	FROM TERM DATE	TO TERM DATE	PULL CHANGED STATUS	TERM CHANGED STATUS	DESIGN STATUS	TERM
1	10-AA-JB-5123-C-01	2011-10-19	2012-01-09	2011-12-23	NEW	FROM CHANGED	IFC	IFC
2	10-AA-LT-5003A-K-01	2011-12-23	2011-12-23	2011-12-23	NEW	NEW	IFC	IFC
3	10-AA-LT-5003B-K-01	2011-12-23	2011-12-23	2011-12-23	NEW	NEW	IFC	IFC
4	10-AA-PMS-5001-A-K-01	2011-10-14	2011-10-19	2011-12-23	CHANGED	TO CHANGED	IFC	IFC
5	10-AH-AOV-7972A-C-01	2011-10-28	2011-12-06	2011-11-17	NO CHANGE	FROM AND TO CHANGED	IFC	IFC
6	10-AH-AOV-7972B-C-01	2011-10-28	2011-11-21	2011-11-17	CHANGED	FROM AND TO CHANGED	IFC	IFC
7	10-AH-AOV-7972-C-01	2012-01-02	2012-01-07	2012-01-09	NEW	NEW	IFC	IFC
8	10-AH-AOV-7974AAA-C-01	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
9	10-AH-AOV-7974AAA-C-02	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
10	10-AH-AOV-7974AAA-C-03	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
11	10-AH-AOV-7974ABB-C-01	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
12	10-AH-AOV-7974ABB-C-02	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
13	10-AH-AOV-7974ABB-C-03	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
14	10-AH-AOV-7974AA-C-01	2011-09-23	2011-10-05	2011-09-27	CHANGED	FROM AND TO CHANGED	IFC	IFC
15	10-AH-AOV-7974BBA-C-01	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
16	10-AH-AOV-7974BBA-C-02	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
17	10-AH-AOV-7974BBA-C-03	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC
18	10-AH-AOV-7974BBB-C-01	2012-10-04	2012-10-04	2012-10-04	NEW	NEW	IFC	IFC

Progress Reports

- What's Been Designed
- What's Been Completed
- What's Remaining



	DESIGNED			PROGRESS					REMAINING						
CABLE TYPE	NMBR OF CABLES SCHEDULED	DES LEN RELEASED	TERMS DESIGNED	NMBR CABLES PULLED	DES LEN PULLED	LEN CUT	NMBR CABLES COMPLETED	TERMS COMPLETED	NMBR CABLES NOT RELEASED	NMBR CABLES NOT PULLED	EST LEN TO BE PULLED	LENGTH REMAINING ON REELS	LENGTH ON ORDER	TERMS TO GO	NMBR OF INCOMPLETE CABLES
ACCESSORY-VS	36	1050.0	144	36	1050.0	0.0	36	144	0	0	0.0	0.0	0	0	0
C12C12	3	998.8	72	3	304.1	624.0	3	24	0	3	694.7	0	0	48	0
C12C18	281	77161.9	6744	281	77161.9	81894.0	281	6744	0	0	0.0	0	0	0	0
C12C18-VS1	24	0.0	576	24	0.0	275.0	24	576	0	0	0.0	199725.0	0	0	0
C18C18	119	29209.2	4522	118	29209.2	27320.1	118	4484	0	1	0.0	0	0	38	0
C18C18-VS1	4	0.0	152	4	0.0	0.0	4	152	0	0	0.0	109171.0	0	0	0
C1C18	3	717.0	16	3	717.0	715.0	3	16	0	0	0.0	0.0	0	0	0
C1C18-VS	4	4.0	8	4	4.0	4.0	4	8	0	0	0.0	9990.0	0	0	0
C1C12	566	64704.7	1464	555	64082.7	49283.7	555	1420	0	11	953.0	0	0	44	0
C1C12-VS1	17	0.0	68	17	0.0	0.0	17	68	0	0	0.0	1900.0	0	0	0
C1C18	1928	683599.9	7712	1906	676324.8	712539.6	1906	7616	0	22	7276.2	0	0	96	0
C2C18-VS	7	156.7	28	7	156.7	685.0	7	28	0	0	0.0	99868.0	0	0	0
C2C14-VS1	74	70.0	296	74	70.0	456.0	74	296	0	0	0.0	101227.0	0	0	0
C2C14-VS2	8	300.0	32	8	300.0	0.0	8	32	0	0	0.0	99998.0	0	0	0
C2G12	72	10803.9	432	72	10803.9	21229.0	72	432	0	0	0.0	0	0	0	0

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Questions?

For more Information:

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