GENERAL DYNAMICS
Electric Boat

SC 60-11F Interchangeability Tutorial

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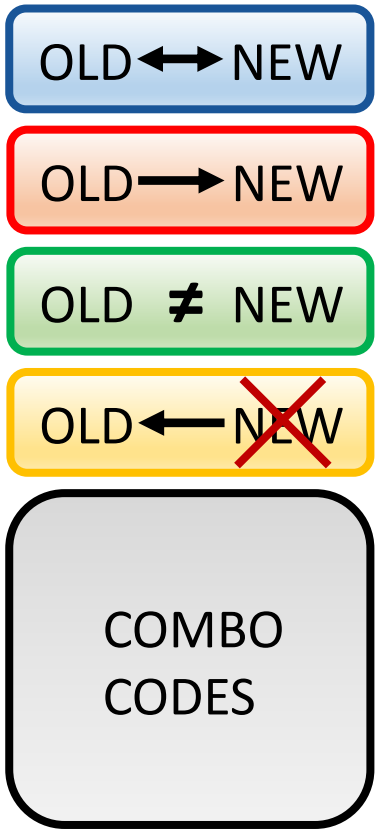
Interchangeability Codes

- **Interchangeability Codes** specify the degree of interchangeability between two documents: an "old" document/revision/amendment and a "new" document/revision/amendment
- Within the Specification Effectivity Index (SEI) report's Authorized Revisions Table, the Interchangeability Code is displayed in the row of the "new" document/revision/amendment

	Document	Revision	Interchangeability Code
Old	Doc X	-	
New	Doc X	A	1

Interchangeability Codes



- **Code 1**: New can be used in lieu of Old, and vice versa
- **Code 2**: New can be used in lieu of Old
- **Code 3**: New and Old are not interchangeable
- **Code 4**: New is prohibited; Old shall be used
- **Code 5**: Combination of Codes **1** & **2**
- **Code 6**: Combination of Codes **1** & **4**
- **Code 7**: Combination of Codes **2** & **4**

SEI Report

Authorized Revisions Table

- Displays interchangeability between **revisions of the same document**.

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Alternate Specifications Table

- Displays interchangeability between **two different specifications**.

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

Let's determine which revisions of Doc X are interchangeable with the invoked revision, revision B.

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

Code 2: Old → New

Revision B has **"code 2"** interchangeability with Revision A. **The new revision (B) can be used in lieu of the old revision (A), but not vice versa**.

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A **Old**	1
Doc X	B **New**	**2**
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

Code 2:
Old → New

Revision B has **"code 2"** interchangeability with Revision A. **The new revision (B) can be used in lieu of the old revision (A), but not vice versa**.

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A **Old**	1
Doc X	B **New**	**2**
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

Revs **-** and **A** are before the Code 2, and thus, are not allowed

Revision B has **"code 2"** interchangeability with Revision A. **The new revision (B) can be used in lieu of the old revision (A), but not vice versa**.

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

The code 2 makes Revision - and Revision A NOT interchangeable with Revision B.

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

Code 1:
Old ↔ New

Let's look at the code 1 between Revisions C and B.

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B **Old**	2
Doc X	C **New**	**1**
Doc X	D	3
Doc X	E	1

Invoked Revision

Code 1:
Old ↔ New

Code 1 indicates that the old is interchangeable with the new, and vice versa. This tells us that **Revisions B and C are interchangeable with each other.**

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

Code 1 indicates that the old is interchangeable with the new, and vice versa. This tells us that **Revisions B and C are interchangeable with each other.**

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

Code 3:
Old ≠ New

Now let's examine Revisions C and D. The code 3 indicates that neither the old or new revision can be used interchangeably.

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C **Old**	1
Doc X	D **New**	**3**
Doc X	E	1

Invoked Revision

Code 3:
Old ≠ New

Now let's examine Revisions C and D. The code 3 indicates that neither the old or new revision can be used interchangeably.

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C **Old**	1
Doc X	D **New**	**3**
Doc X	E	1

Invoked Revision

Revs **D** and **E** are after the Code 3, and thus, are not allowed

This code 3 effectively "breaks the string of interchangeability" between revisions. Thus, **Revisions D and E are not allowable replacements here.**

Example 1. Auth. Revs. Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

This code 3 effectively "breaks the string of interchangeability" between revisions. Thus, **Revisions D and E are not allowable replacements here.**

Example 1. Auth. Revs. Table

Authorized Revisions Table

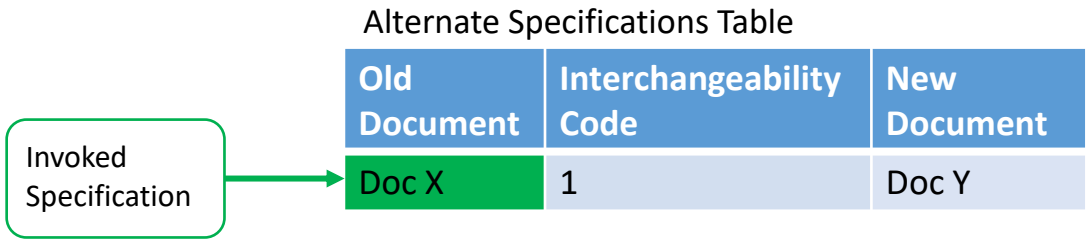
Document	Revision	Interchangeability Code
Doc X	-	
Doc X	A	1
Doc X	B	2
Doc X	C	1
Doc X	D	3
Doc X	E	1

Invoked Revision

Revs **B** and **C** are the only allowable revisions

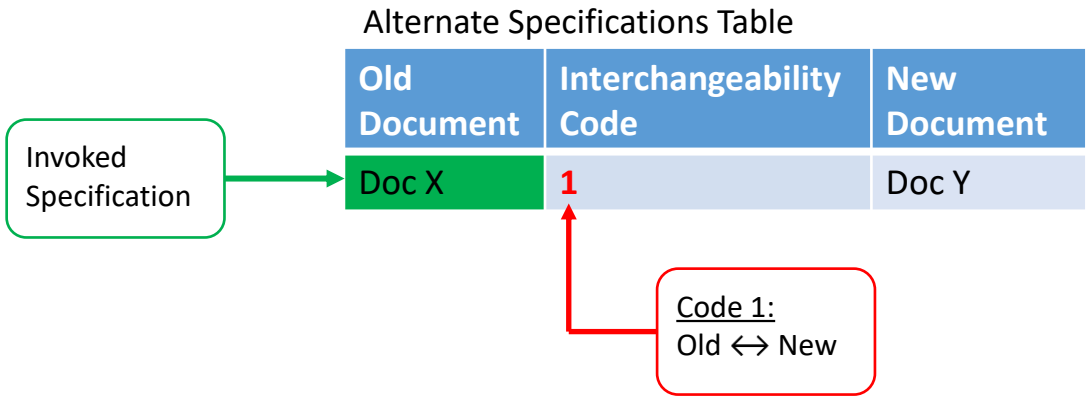
Thus, when Revision B is invoked, Revision C is the only other interchangeable revision.

Example 2. Both Tables



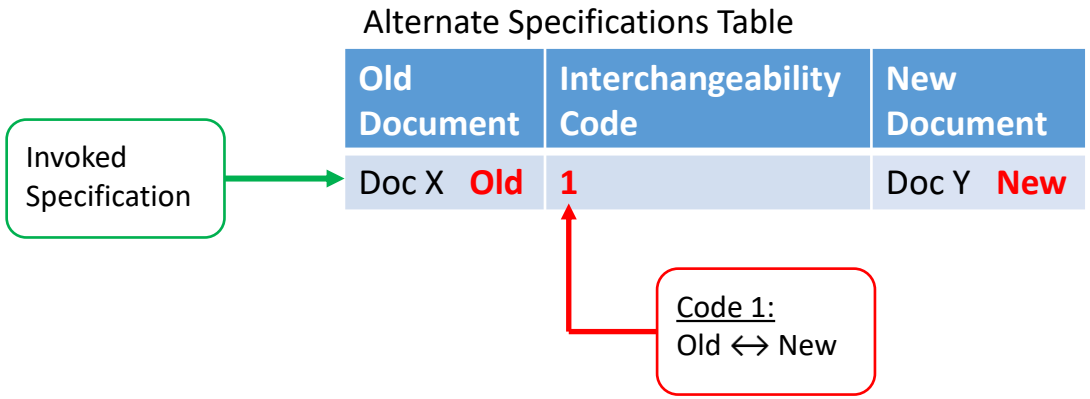
To find an acceptable replacement specification, begin by locating the invoked specification on the **Alternate Specifications Table**.

Example 2. Both Tables



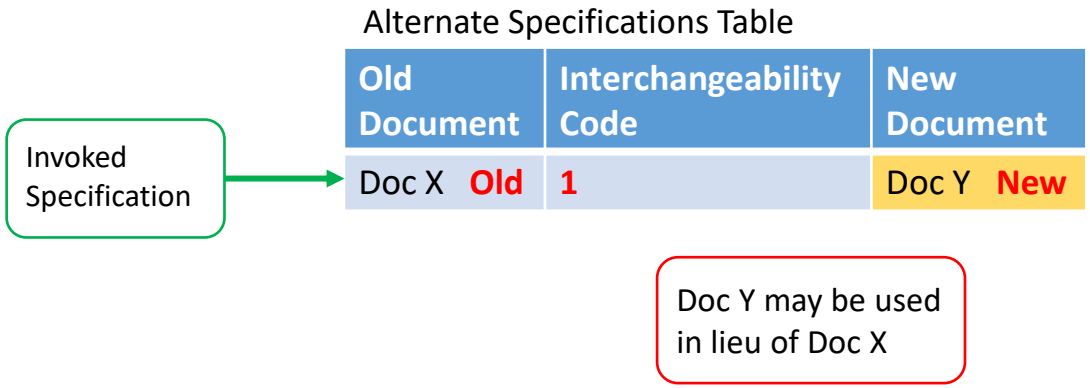
Doc Y has "code 1" interchangeability with Doc X. Code 1 denotes that the new document is fully interchangeable with the old document, and vice versa.

Example 2. Both Tables



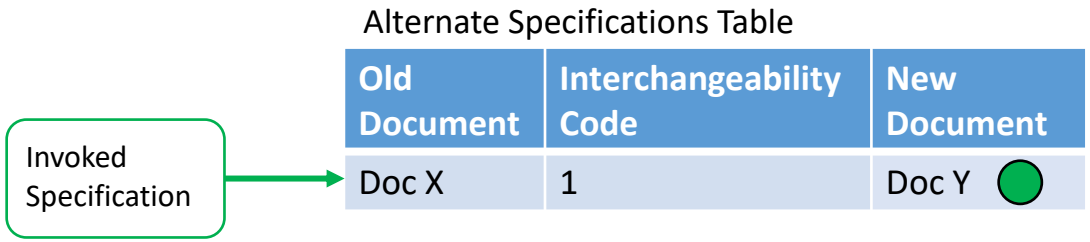
In this scenario, Doc X is the “old” document and Doc Y is the “new” document.

Example 2. Both Tables



Thus, Doc Y may be used in lieu of Doc X (and vice versa).

Example 2. Both Tables



Now that we've determined that Doc Y is an acceptable replacement for Doc X, **we need to find which revision of Doc Y is acceptable.**

Example 2. Both Tables

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Find the new document in the Authorized Revisions Table

Now that we've determined that Doc Y is an acceptable replacement for Doc X, **we need to find which revision of Doc Y is acceptable.**

Example 2. Both Tables

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C	1
Doc Y	D	2
Doc Y	E	1

Find the new document in the Authorized Revisions Table

Example 2. Both Tables

In this scenario, 6 separate revisions are shown for Doc Y in the Authorized Revisions Table.

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C	1
Doc Y	D	2
Doc Y	E	1

Find the new document in the Authorized Revisions Table

Example 2. Both Tables

Invoked Specification

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Find the new document in the Authorized Revisions Table

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C	1
Doc Y	D	2
Doc Y	E	1

In this scenario, 6 separate revisions are shown for Doc Y in the Authorized Revisions Table.

The rules indicate that we must use a revision within the latest allowable range. **Thus, we'll start from the bottom.**

Example 2. Both Tables

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C	1
Doc Y	D	2
Doc Y	E	1

Find the new document in the Authorized Revisions Table

In this scenario, 6 separate revisions are shown for Doc Y in the Authorized Revisions Table.

The rules indicate that we must use a revision within the latest allowable range. **Thus, we'll start from the bottom.**

From Example 1, we now understand how code 1s and 2s affect the revisions' interchangeability.

Example 2. Both Tables

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C	1
Doc Y	D **Old**	2
Doc Y	E **New**	**1**

Find the new document in the Authorized Revisions Table

In this scenario, 6 separate revisions are shown for Doc Y in the Authorized Revisions Table.

The rules indicate that we must use a revision within the latest allowable range. **Thus, we'll start from the bottom.**

From Example 1, we now understand how code 1s and 2s affect the revisions' interchangeability.

Example 2. Both Tables

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C	1
Doc Y	D	2
Doc Y	E	1

Find the new document in the Authorized Revisions Table

In this scenario, 6 separate revisions are shown for Doc Y in the Authorized Revisions Table.

The rules indicate that we must use a revision within the latest allowable range. **Thus, we'll start from the bottom.**

From Example 1, we now understand how code 1s and 2s affect the revisions' interchangeability.

Example 2. Both Tables

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C Old	1
Doc Y	D New	2
Doc Y	E	1

Find the new document in the Authorized Revisions Table

In this scenario, 6 separate revisions are shown for Doc Y in the Authorized Revisions Table.

The rules indicate that we must use a revision within the latest allowable range. **Thus, we'll start from the bottom.**

From Example 1, we now understand how code 1s and 2s affect the revisions' interchangeability.

Example 2. Both Tables

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C	1
Doc Y	D	2
Doc Y	E	1

Find the new document in the Authorized Revisions Table

In this scenario, 6 separate revisions are shown for Doc Y in the Authorized Revisions Table.

The rules indicate that we must use a revision within the latest allowable range. **Thus, we'll start from the bottom.**

From Example 1, we now understand how code 1s and 2s affect the revisions' interchangeability.

Example 2. Both Tables

Alternate Specifications Table

Old Document	Interchangeability Code	New Document
Doc X	1	Doc Y

Invoked Specification

Authorized Revisions Table

Document	Revision	Interchangeability Code
Doc Y	-	
Doc Y	A	1
Doc Y	B	2
Doc Y	C	1
Doc Y	D	2
Doc Y	E	1

Find the new document in the Authorized Revisions Table

Use any revision within the latest range of interchangeable revisions

Example 3. Combo Code – Code 5

Alternate Specifications Table

Old Document	Interchangeability Code	Comments	New Document
Doc Apple	5	Code 2: for Bananas Code 1: for Apples	Doc Apple Banana

Invoked Specification

In this scenario, Doc Apple is the specification invoked on our purchase order. Let's suppose the item we're supplying is an apple and **we want to supply our apple to Doc Apple Banana in lieu of Doc Apple.**

Example 3. Combo Code – Code 5

Alternate Specifications Table

Old Document	Interchangeability Code	Comments	New Document
Doc Apple	5	Code 2: for Bananas Code 1: for Apples	Doc Apple Banana

Invoked Specification

These two specifications have "code 5" interchangeability. From the definitions presented in the Interchangeability Codes slide, we know that this is a combination of codes 1 and 2. **Let's look at the comments column for further guidance.**

Example 3. Combo Code – Code 5

Alternate Specifications Table

Old Document	Interchangeability Code	Comments	New Document
Doc Apple	5	Code 2: for Bananas Code 1: for Apples	Doc Apple Banana

Invoked Specification

The comments indicate that with regard to bananas, these two specifications have “code 2” interchangeability. **We’re supplying an *apple*, so this does exception is not applicable to our scenario.**

Example 3. Combo Code – Code 5

Alternate Specifications Table

Invoked Specification →

Old Document	Interchangeability Code	Comments	New Document
Doc Apple	5	~~Code 2: for Bananas~~ Code 1: for Apples	Doc Apple Banana

The comment indicates that with regard to bananas, these two specifications have "code 2" interchangeability. **We're supplying an *apple*, so this does exception is not applicable to our scenario.**

With respect to *apples*, the comments state to **treat the two specifications as "code 1" interchangeable.**

Example 3. Combo Code – Code 5

Alternate Specifications Table

Old Document	Interchangeability Code	Comments	New Document
Doc Apple	~~5~~ 1	~~Code 2: for Bananas~~ **Code 1: for Apples**	Doc Apple Banana

Invoked Specification →

The comment indicates that with regard to bananas, these two specifications have "code 2" interchangeability. **We're supplying an *apple*, so this does exception is not applicable to our scenario.**

With respect to *apples*, the comments state to **treat the two specifications as "code 1" interchangeable.**

Example 3. Combo Code – Code 5

Alternate Specifications Table

Old Document	Interchangeability Code	Comments	New Document
Doc Apple	~~5~~ 1	~~Code 2: for Bananas~~ Code 1: for Apples	Doc Apple Banana

Invoked Specification

The code 1 indicates that new document is **fully interchangeably** with the old document (and vice versa).

Thus, we can supply our apple to Doc Apple Banana in lieu of Doc Apple.

Example 4. EB Specifications

EB Specifications Specifications Table

Document	Revision
Doc Y	-
Doc Y	A
Doc Y	B
Doc Y	C
Doc Y	D
Doc Y	E

The Electric Boat Specifications table allows one to use any subsequent revision (to the one invoked on a PO) of a listed EB specification without the need for a VIR. EB Specifications use A-Z numbering with – being the first publish revision. As such A follows -, B follows A, etc. for the purposes of defining “subsequent revisions”.

Example 4. EB Specifications

EB Specifications Specifications Table

Document	Revision
Doc Y	C
Doc Y	D
Doc Y	E

Invoked Specification is Rev A of Doc Y

In the case above the invoked Revision is not listed on the EB Specifications Table. The vendor would be allowed to use Revisions C-E without approval. Revision B would not be allowed as it is not listed in the EB specification table.