INTRODUCTION

The **Steward** *Grid~Based~Schema Lexicon* is compliant with ANSI/TIA/EIA-606-A specifications, adopted May 16, 2002 as The **Administrative Standard for Commercial Telecommunications Infrastructure.** Beginning in 2004, the **CSI MasterFormat Divisions 25, 27 & 28** now includes the Information Transport Systems (ITS) Industry.

The GBS~Lexicon has been a collaborative effort by The NBS~Group of Consultants, eVectory enterprises and many other experienced telecomm, facility and operations professionals.

The GBS~Lexicon is concise, human-readable, alpha-numeric text. It is succinct, easily understood and self-documenting, It may be used with or *without* a computerized database to name, locate, inventory and label the Information Transport System assets of any business.

GBS provides a common foundation for Architects, Interior Designers, General Contractors, Facility, Administrative, Operations, Finance, Accounting, Knowledge and Information Management.. It forms a basis of communications between all Vendors and Company employees in the areas of Telecommunications, Security, Electrical, Fire and Safety,

This *Quick Reference Guide* will explain, step by step, the basic dictionary of characters, formats, terms and syntax. It can be used immediately to achieve compliance with the 606-A Standard and the BICSI Electronic Safety & Security Design Reference Manual. Fortunately, for those *without a database or drawings,* GBS coordinates can be appended later.

Information Transport Systems include a wide range of assets and resources that comprise the central nervous system of every business. Adding to this mix are stricter requirements involving fire codes, fire-stops, abandoned cable and security. Documentation has become an absolute requirement to meeting Federal and State regulations.

Management on all levels must ensure that sound business terminology and processes are established and constantly reviewed.

Until recently, facility and infrastructure management systems were considered a low priority by most small businesses. This is no longer the case. Safety and security issues now demand attention to detail and accurate documentation. According to a study conducted by BICSI, 25% of a technician's time is spent *toning out* cable. This can be directly attributed to *meaningless labeling and no documentation*. A well designed and installed infrastructure can be a five to fifteen year investment. Unfortunately, most systems quickly become negative investments with a steadily rising cost of ownership.

The GBS Guide provides a methodology which can be used everyday in the *real* world of selling and installing ITS systems. It will improve the efficiency and accuracy of the work performed by support staff, technicians and database administrators; with quantum improvements in work-flow, labeling, and reporting functions too.

Remember, the primary goal is to create a physical database of one's ITS assets and resources; using *securely attached, mechanically printed labels that are never duplicated*. The exception to this rule? The labels on each end of the same cable are identical.

GBS provides a geo-spatial and architectural framework that will support the growth of your business. We encourage you to adopt and use it extensively. Your criticism, corrections and suggestions for improving this ***Open System*** will be sincerely appreciated.
Please help us make it better.
Thank you,

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A FEW OF THE ORIGINAL CONCEPTS USED DURING EARLY DEVELOPMENT

- Reference the **ANSI/TIA/EIA 606-A Standard**.
  Reference the **CSI MasterFormat Divisions 25, 27 & 28.**
- Create a **unique, mechanically printed label for every ITS asset.**
  The management of ITS Industry resources begins and ends with easily understood, human readable, uniquely labeled assets - ***not a computer file.***
- Create a list of ***customer approved abbreviations*** for lookup and validation.
- ***Begin with a floor plan*** overlaid with a 2-ft by 2-ft Grid to be used for precise location, space allocation and departmental bill back.
- Label each unique piece of equipment and cable with a unique label.
  No two assets should ever have the same label in a Class-4 system.
  Each physical asset should be assigned a ***sequential reference number.***
  An ***SRN*** is never re-assigned. It is used for quick reference and is used to create a ***Barcode-128*** which graphically encodes even digit numbers.
  (Eight digits can track 100-Million items. e.g. 00000001 through 99999999).
- A new termination block or patch panel (assets) create X-number of potential ports for connections.
- Avoid labeling equipment ports.
  e.g. labeling patch panel ports or block terminals is unnecessary and redundant.
- Use ***all Uppercase characters*** and only ***one fixed-length font*** (Courier New).
- ***Use leading zeros*** with all numbers. (e.g. 01-10, 001-100, 0001-1000)
- Use only characters that are permitted in computer ***folder and file names***.
- Descriptors are composed of one, two or more Designators.
- Designators are generic and require another Designator or Descriptor.
- A GBS cell is a Designator which becomes a Descriptor when prefixed by a Building-Floor Descriptor. e.g. NAT15V14H15
  Other examples are patch panel ports and block terminals.
- ***Consistency is paramount***.
  e.g. Same type Designators should contain the same number of characters.
- ***Floor Designators are always prefixed*** with a Building Designator.
- Cable assets are named by the originating Telecom-Space, the termination device and its GBS location within the TS or Equipment Room.
- Consider ***Open Systems*** at all times.
- Always simplify whenever possible and keep it terse.
- Link to a 606-A Summary provided by Tempo Pleasant Hill
  http://www.flexcomm.com/library/606aguide.pdf

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I. WHAT IS THE GRID~BASED~SCHEMA?

The **GBS~Lexicon** is concise, human-readable, alpha-numeric text. This *Quick Reference Guide* will explain, step by step, the basic dictionary of characters, formats, terms and syntax. It can be used immediately to achieve full compliance with the **ANSI/TIA/EIA-606-A Standard of 2002**.

GBS is succinct, easily understood and self-documenting, It may be used with or *without* a computerized database to name, locate, inventory and label the ITS assets and resources of any business. Fortunately, for those *without a database or drawings*, the GBS coordinates can be added later. Remember, the first step toward 606-A compliance is to create an in place database of one's ITS assets and resources using mechanically printed labels with no duplicates.

- After reviewing this Guide, the next step in creating a customized client version is to assist an authorized person with defining their unique Designators. Their Company preferences can then be used to format Descriptors for: Campus, Site, Buildings, Facilities, Floors, Annexes, Levels, Quadrants, Zones, Spaces, Equipment, Pathways, Routes, Fire Stops and Circuits.
- The smallest string of text is called a **DESIGNATOR**. It has predefined parameters that should be customized for each Company's preferences
- Two or more Designators form a concise **DESCRIPTOR**.
- Descriptors are the most complete form of the GBS. They are assembled by concatenating (joining) two or more Designators..
- The *Global Positioning Satellite* system provides extremely accurate longitude, latitude, elevation and time coordinates. These numeric coordinates may be used to precisely track the location of a Building's primary ***exterior corners*** – geographically defining the location of each Campus, Site, Building, Facility or Annex on a set of CAD drawings. Computer Assisted Design systems like Autodesk now offer to link GPS coordinates to internal locations. **GPS** is a valuable tool for precise navigation, mapping, surveys and construction.
- **GBS** provides a better human interface with resolution sufficient for managing facilities infrastructure and Information Transport Systems.
- If a database or spreadsheet is used, each asset would be assigned a unique, sequential, database record number (DBR#) never to be re-assigned.

Examples: Workspace DESCRIPTORS
#KOA^NAT018.**V15H15**
(#Coca-Cola Atlanta^North Avenue Tower 18th Floor .GBS)
#KOA^NAT~1B.123A;**V15H15**
(#Coca-Cola Atlanta^North Avenue Tower First Basement .Cubicle ;GBS

II. FONTS, SEPARATORS AND SYNTAX

- **COLOR** is not a requirement and is used in this guide for clarification only. *Please do not confuse textual colors with 606-A colors, or any of the industry standard cable color codes.*
- The number of characters used should be the same for each type of Designator. The use of a specific character count improves visual alignment of table views
- **UPPER-CASE** letters are used for all Designators and Descriptors
- The use of a non-proportional font like **Courier New** is recommended to improve visual alignment of *table views* in database and spreadsheets.
- Avoid substituting the letter "O" for the number Zero.
- A Numeric value should always have one or more prefix alpha characters.

Examples: V049H049
#CampusSite^BuildingLevel.Space;GBS
#KOA^NAT015.234C;V14H23

- **GBS avoids the use of certain characters to reduce confusion.**
Quotations "" Dashes - Pluses + Equals = Spaces
A Filename cannot contain any of the following characters:
*Virgules / \ Colons : Asterisks * Question marks ? Squares•*
Less than Greater than <> Vertical-bars |
- **SEPARATORS**
  - **.** **Period** is used to separate a Floor number and Workspace
  - **;** **Semicolon** appends explanatory information
  - **~** **Tilde** indicates a range of numeric values as in cable pairs

III. CAMPUS/SITE DESIGNATORS

- The *prefix* characters, pound # and explanation ! are not required, but are recommended to sort by default Companies and Carriers by group.
CAMPUS Designators may be *prefixed* with a **#** or **!** character.
  - # = Company
  - ! = **Non**-company such as Common Carriers
- The Caret **^***suffix* character is a required character and must be used. Campus/Site Designators are a combination of two, three or four characters.
SITES are always *suffixed* by a Caret **^**
  - **^** = Is used to separate Site^ and Building.

Examples:

Emory University in Decatur:	**#EUA^**	**#EUD^**		
Regulated Operating Company's:	**!BOC^**	**!MCI^**	**!ATT^**	**!SPT^**
Coca-Cola in Atlanta:& Brussels	**#KOA^**	**#KOB^**		

IV. BUILDING AND FACILITY DESIGNATORS

- Should be obvious and easily understood by all employees and technicians
- Meet all corporate approved legal requirements
- Reference a street or other recognizable name whenever possible
- Consist of two or three characters, and four or five with Annexes
- The First character *should* be alphabetic
- The Last character *must* be alphabetic

Examples:

North Avenue Tower:	**NAT**	or	**N1A**	not	**NA1**
Emory University Medical Center:	**EMC**	or	**001EU**	not	**EU001**
One Atlantic Centre:	**OAC**	or	**A1C**	not	**AC1**

V. LEVEL DESIGNATORS

Different types of Levels are separated by specific characters.
The Period **.** separates Floor levels from Workspaces.
A Tilde **^** separates Floor levels from Basement levels.
The Letter **B** separates Basement levels from Workspaces
and is used in place of the Period **.**

Examples: #GMA^NAT**01.**123A
#GMA^NAT**^1B**123A

- **FLOOR LEVELS**

Are represented by a Building Designator and a 2 or 3 digit number.
Using **01** for the primary entry level floor through **99**.for roof mechanical structures, sometimes referred to as Mechanical Penthouse.
Examples: #KOA^NAT**01** or #KOA^NAT**99**

➢ **QUADRANT AREAS**

Compass Points are used to reference each Floor Quadrant.
Examples: **N** or **NW, E** or **NE, S** or **SE and W** or **SW**.
NAT15.N001;FireControl
NAT15.N002;Mechanical

An alternate form using a Suffix Quadrant, Designator plus Sequential numbers to define Space-02 located in the Southeast Quadrant.
NAT15.SE02;IDF (Intermediate Distribution Frame)

➢ **ZONE AREAS**

Zone locations are Designated by **Z01~Z99** *prefixed* by an Area Designator.
They may be real or virtual areas as defined by ITS management.
e.g. users served by a high-speed connections – such as multi-mode fiber.
The order of associated information may be switched but should be consistent.
Examples: **NAT15.NEZ01;HelpDesk**
NAT15.SWZ02;Acct;V44H44
NAT15.SWZ02;V44H44;Acct

- **ENTRANCE LEVELS**

Building and Facility entrance levels can be designated as follows:
Examples:
Where a Building has two distinct *ground* level entrances -
the higher level entrance Descriptor would be **NAT01.**
the lower level entrance Descriptor would be **NAT00G**
first basement level Descriptor would be **NAT^1B**

- **BASEMENT LEVELS**

Are Designated by a Tilde**^** the Basement number **1~9** and a **B.**
Examples **^1B ^2B ^3B** etc. for both 2 and 3-digit Floor Levels
NAT^1B123 NAT^2B123 NAT^3BV13H25

- **MEZZANINE LEVELS**

Are Designated by the Letter **M** which uses the same Floor Level number immediately below the mezzanine and is used in place of the Period **.**
Examples:

Floors:	**NAT01.**	**NAT01M**	**NAT02.**
Workspaces:	**NAT02.123**	**NAT02M123**	**NAT03.123**

VI. ANNEXED OR ATTACHED FACILITIES

For referencing a standalone but extremely close or attached Facility, the letter "**X**" may be added to the parent Building Designator.

- **LEVELS**

A single Annex could be Designated by simply adding the Letter **X**.
Multiple attached Facilities can be Designated by adding an alpha-numeric character between a primary Building Designator and the letter **X**. Again this should be done consistently using either numbers or letters.

Examples Of three Annexed Facilities
Parking Deck, Cafeteria and a Group of Stores
NATX NAT1X NAT2X or **NAT3X**
NATAX NATBX NATCX or **NATDX**
Parking Deck Spaces
NATX02.001;Standard **NATX02.099;**Compact
FacilityAnneXLevel2.SpaceNumber1; Standard sized car

VII. GRID LOCATION DESIGNATORS

GBS~V&H Coordinates are defined by the use of the GRID ~BASED ~SCHEMA.

- A GBS Designator IS a two or three dimensional object equivalent to a small Workspace Column derived from a 2-ft. X 2-ft. Grid overlay - graphically created by a computer assisted design application like Autodesk.
- **Consideration** should be given to placing GBS~Grid coordinates on the ceiling tile support grid in each unique Space. The label should indicate which direction Vertical tiles are counted. The other would of course be the Horizontal.
- **The Master Level Grid** is created using the Floor with the greatest area as the *MLG* template. All other Floor grids are then synchronized with the *MLG*.
- Specific Coordinates like **V15H15** coincide with those directly above or below. ***GBS****~V&H Designators Are Never Repeated*, since they are differentiated by a prefix Building-Floor Designator within the Descriptor Chain.
- Each 2'x2' Grid Segment is assigned a Vertical and Horizontal Coordinate. This is similar to a spreadsheet, beginning with column-**V01** and row-**H01**.
  The first block would be located at the **N** or **NW** corner of the building.
  The last block **V99H99** would be located at the **S** or **SE** corner of the building.
  A larger building would use three or four digits.
- **IMPORTANT NOTES**
  A **2-Digit** Grid can accommodate 39,000 sq. ft.; **3-Digits** 3,900,000 sq. ft..
  Raised Access Floor and Overhead Ceiling tiles commonly found in today's office buildings will seldom be synchronized with the **MLG**. The layout design for these tiles is usually based on the center of the local space - creating non-standard tiles along the wall perimeters and around support columns.
  The GBS numbers assigned to Interior Spaces should be coordinated as closely as possible and aligned with the *MLG* blocks.

  Example: **NAT15.V01H08** **NAT15.V48H53**

  Asset and Resource Management
  The locations of Cables, Routes, Pathways, Fire Stops, Phone #'s, Employees, Cost Centers, Departments, Closets, Cubicles, Rooms, Suites and Equipment – are all positioned by their *GBS* Coordinates. If database management software is used, the GBS coordinates are stored in indexed fields.

III. SPACES, ROOMS, CUBICLES & ULA DESIGNATORS

Two (2) or preferably Three (3) digits can accommodate 001~999 Spaces on a unique Level. This Guide recommends segmenting Levels into Quadrant Areas.

Examples:
N/NW=001-249 N/NE=250-499 S/SW=500-749 S/SE=750-999
Initial location numbers would skip according to User Preference settings.
USA15.005, **USA15.010**, **USA15.015**, etc.
Interval skipping allows for future additions to be added in-between.
USA15.006, **USA15.011**, **USA15.017**, etc..

SUFFIX ALPHA-CHARACTERS
A~Z should only be used for sub-spaces inside a hard-wall enclosed Space.
Examples:
USA15.006 Hard Wall Office or Suite Designator
USA15.005A Individual sub-Space Designator
USA15.005A~Z Signage to a Large Space Area
USA14.V03H18 Fax, Printer or other Shared Equipment locations

UNIQUE LARGE AREA DESIGNATORS
ULA's may be defined using authorized Company Preferences.
Examples:
USA02.CAFÉ **USA^1B.DATACTR**
USA02.CAFÉ;V33H20 **USA^1B.DATACTR;V49H40**

TELECOMMUNICATIONS, MECHANICAL OR OTHER EQUIPMENT SPACES
GBS coordinates can be used to define, specifically locate and reduce confusion.
Example: **USA12.DATACTR;V49H49** **(**A door label at entrance)

DEPARTMENTAL AND ACCOUNTING CODES
Administrative, Operations, Information Systems and Facilities Management constantly use codes usually defined and administered by Accounting. GBS provides for the assignment of DAC's to physical and virtual resources by Square Area or cubic volume, Equipment, Cable, Circuits, Human Resources and more.

- The management requirements of each company can vary greatly.
- DAC'S may be numeric or alpha-numeric, have long and a short names.
- For bill-back of facility costs to Departments, the ability to track and allocate the use, purchase and sale of assets and resources requires a great deal of time and attention.
- GBS provides a reliable mechanism for allocation to Departmental Codes.
  Examples: Aviation: 0006
  Office of the President: 0010
  Payroll: 9944
  Sales of Software ~ Marketing 40100-12.
  Purchases of Software by Ops 50200-12
  Office Expenses ~ Marketing 71100-12

  Report:: **#KOA^NAT15.123A;DAC~71100-12**
  i.e. Costs of inventory items associated with this Workspace would be billed back to Marketing
  Report: **#KOA~NAT15.123A($PBX01.1-3-61-10);DAC~71100-12**
  i.e. Cost of a PBX System equipment port would be billed back to Marketing

IX. ROUTE: PATHWAY, FIRE STOP & VIRTUAL PATHS

A **Route** Designator consists of one or more Pathways, Fire Stops or Virtual Pathways which use Designators '**P**', '**F**' and '**V**' suffixed by two to sixteen digits with leading zeros. e.g. **01~99 or 0000000000000099.** This can accommodate the larger numbers needed to track Circuits.

- **Pathways** are logged into a spreadsheet or database table before being referenced in a Route Table.
- **Route List** of all {P~F~V} Components as installed are also logged into a relational data table; then linked to the Pathways table using the sequential record number in the table.
  (Note: see Page-2, Section-3 Non-Campus Designators for Virtual Circuits.)
- **Route** Descriptors with only one Pathway *must* begin with a default value of {**R00~P??}** and are always set-off with a pair of {curly brackets}. Route00 is ignored and only the single Pathway is selected to print or display.
- Pathways, Fire Stops and Virtual Pathways such as Circuits should be followed by 02, 04, 06 or 08-digits for Barcode-128C compatibility.
  Remember to be consistent with the digit quantity and use leading zeros.
- **Cable Labels** will probably accommodate three or fewer Designators.
  For consistency, the following Priority should be observed;
  First Pathway, First Fire Stop and First Virtual Pathway or Last Pathway.
- 'D' and 'Q' are ANSI-606-A elements for tracking details and qualifying information - written or abbreviated. This information
  Example: **{R01~P01~F01~P05}**
  * If a Virtual Circuit Pathway is involved, it becomes the third.
  Example: **{R01~P01~F01~V123}**

Pathway is the ANSI-606-A name given to a Multi-Cable support system. It is described as a continuous *mechanical vessel* installed between two or more Locations. Cables should preferably be installed and run at right angles to the nearest Pathway or exterior wall.
Fire Stops are unique *mechanical vessels* that connect two areas - separated by fire retardant walls, doors and other mechanisms. Fire Codes require scheduled inspections; and repairs must be properly performed, thoroughly documented by technicians and verified by management.
Virtual Pathways may be used to track and manage Circuits **external** to the direct control of the Campus Administration. A Virtual Pathway tracks detailed, information for Carrier, Carrier Circuit-ID, Contacts, Phone Numbers, Dates and more.
Vertical & Horizontal coordinates for the Originating and Terminating ends of each Pathway, Fire Stop or Virtual Circuit Pathway are tracked in separate database fields.
***Auto-Route* software functions** must have an accurate system of coordinates in order to automatically compute Routes and their cumulative distances.
If accurate height measurements are tracked for Ceiling, Plenum and Raised Floor heights for each GBS~V&H Grid; then very accurate cable lengths can be calculated and totaled.
Grounding Busbars (TMGB) This section will be addressed in next version.

Examples:
606-A **CLASS-4** PATHWAY DESCRIPTOR {**R**66~**P**01~**F**02~**V999**}
***GBS*~** DESCRIPTOR between Customer and Carrier sites.
#KOA^NAT^1B.V48H49 {R66~P01~F01~V999}
!BOA^BOP002.V45H46 {R123~V999}

BACKBONE CABLES AND HORIZONTAL LINKS

Backbone and horizontal cables may involve copper, fiber optic and coaxial cables, wave-guide and virtual circuits.

- Cable Label Descriptors may be enclosed by Parentheses where needed.
  ( ) = Cable Labels that follows another Descriptor
- Route Descriptors are always enclosed by Curly Brackets
  {} = ROUTE: Pathways; Fire Stops; Virtual Paths
- **CONNECTIONS TYPES:**
  & = Copper
  @ = Coaxial
  % = Fiber
  $ = EQ. or Hardware

Example:

#KOA^NAT15.123A**(IDF01%48M001P01~04){R00~P01~F01~V03}**

X. GALVANIC BACKBONE CABLE DESIGNATORS

A Galvanic connection consists of one or more metallic conductors including shields. Galvanic connections can pass Direct Current electricity.

Since 25-Pair Binder Groups can be split-out from a larger cable, each 25-pair group is tracked as a unique Cable of Five Sub-Binders, with five pairs each.
If an additional cable is installed to increase the pair-count, the existing cable is expanded to include the new pairs.
Both UTP and STP Types are counted and labeled to match standard binder color codes used for five (5) pair groups.

ROUTE:	**{R~P~F~V}**
CABLE-SIZE:	ID, Size, Color and Number of pairs or conductors.
PAIRS:	Color and Number are tracked for pairs 1-25.
BINDER G01:	**P01, 06, 11, 16, 21**
BINDER G02:	**P26, 31, 36, 41, 46**
CABLE TYPES:	**STP** and **UTP**= Shielded and Unshielded Twisted Pair;

Examples:
#KOA~NAT~1B.COMMCTR;V48H49&A001P26 {R~P~F~V}
#KOA~USA~1B.DataCtr;V45H46&A005P26

XI. GALVANIC HORIZONTAL CABLE DESIGNATORS

A Copper Cable consists of one or more conductors - which can pass Direct Current Voltage.

PATHWAY: **{R~P~F~V} D;Q D**=Detail **Q=**Information
CABLE-SIZE: ID, Size, Color and Number of pairs or conductors.
PAIRS: Four-Pairs and Conductor Colors and Numbers are tracked
Every 4th Terminal Labeled is used as part of the DESIGNATOR.
P01 05 09 13 17 21~24 and **P26 30 34 38 P42~45**
CONDUCTOR: T= Tip/Low Potential and R = Ring/ High Potential Conductor
CIRCUIT: Up to 25 Circuits are tracked in Primary Cable database.
Larger cables use a linked database for unlimited identifiers.

Examples:

#KOA~NAT015NW01&A001P01 {R~P~F~V}
#KOA~NAT015V48H49&A001P01 {R~P~F~V}

XII. FIBER OPTIC HORIZONTAL CABLE DESIGNATORS

A Fiber Cable may contain one to several hundred strands. Each strand might carry thousands of Virtual Circuits. Each strand is considered the equivalent of a primary cable of one-pair. Additional circuits are tracked in a linked database with unlimited virtual circuits.

PATHWAY: **{R~P~F~V}** Pathway, Fire Stop, Virtual
FIBER-DUCT: ID, Size, Color and Number of Strands
STRANDS: M=Fiber Multimode; S=Fiber Singlemode
TX/RX: Tx = Transmit and Rx = Receive. Fields are provided if needed
Circuit: Unlimited Number of Circuits may be added

Examples:

#KOA~NAT015NW01%96M01F01P01~02 {R~P~F~V}
#KOA~NAT015V48H49%96M01F01P01~02 {R~P~F~V}

XIII. COAXIAL CABLES AND WAVE-GUIDE DESIGNATORS

Coax Cables have wide bandwidth and are capable of carrying many circuits. Wave-guides are mechanical transmission lines with wide bandwidth capacity. Both are capable of carrying many circuits like a Fiber Cable Strand.

PATHWAY: **{R~P~F~V}**
WAVE-GUIDE: ID, Custom field description
OTHER:
TX/RX: Tx = Transmit and Rx = Receive. Fields are provided if needed.
CIRCUIT: Up to 25 Circuits can be tracked in the primary database

Cables with more than 25-Pairs or Circuits use a linked relational database for unlimited Circuits and Spans.

Examples:

#KOA~NAT015V45H46~ER@X03P01;24
#KOA~NAT015NW01@X03P01;24 {R~P~F~V}
#KOA~NAT015NW01~ER@X03P01;24 {R~P~F~V}

ORIGINATING AND TERMINATING DEVICES

XIV. BLOCK DESIGNATORS WITHIN A TELECOM SPACE

- Coordinate numbering of Backboard and Rack mounted termination devices.
- Block port-count shall repeat every 50 pairs, P01 ~ P50.
- Reference the Block ***Type*** and consecutively number them.
- Same Block Types shall be labeled with same letter and 001 through 999.

Examples:

Cable	**A001P01**
110-Type	**A001–A999**
66M150	**B001–B999**
Bix	**BX01-BX99**
Krone	**K001–K999**
Other ?	**M001-M999**

XV. PATCH PANEL DESIGNATORS

Patch Panels shall be consecutively numbered for each ***Panel Type*** within a Telecom-Space/Closet/Room; but without regard to the installed location.

Examples:
Three RJ45 patch panels with 48 jacks located in Rack #1, Rack #2 and a cabinet would be the same Designator but a different Descriptor.

- **PATCH PANELS:** **M** = **M**ultimode **S**= **S**inglemod **R**= Modula**R**
  I = IBM token-ring **X**= Coax **B**= BNC
- **CONNECTORS:** **P** = Port **J**= Jack (faceplates)

- When a new panel is installed, it shall use the *next higher number* for that panel type as tracked in the asset and cable management system.
- If a new panel of the same type is installed later, it shall be assigned a ***Retired*** number from the same Type if one is available.
- If a Panel or other Equipment is removed, its unique number shall be tagged as ***Retired*** in the database.

Examples:
Note: Each of the following Panels is number 04, but each is a different type.

&R04P21 &I04PC8 @B04P08
%96M01F04P01~02 %48S01F04P97~98

Examples:
RJ Type Panel #04

```
#KOA^NAT015.123
        (NAT015&R04P21;V48H50)[24]Ports {R00~P01}
```

IBM Token-Ring Panel #04
Both pairs of the cable are terminated on Vertical-C, Horizontal-5 or Port-C5

```
#KOA^NAT015.123
      (NAT015&I04PC5;V48H50)
            [64]Ports {R00~P01}
```

Fiber Optic Panel #04
Strands 01~02 of a 96-Strand Singlemode Cable are terminated on Ports 01~02

```
#KOA^NAT015.123
       (NAT015%96S01F04P01~02;V48H49)
          [144]Ports {R00~P01}
```

Fiber Optic Panel #01
Strands 01~02 of a 48-Strand Multimode Cable are terminated on Ports 97~98

```
#KOA^NAT015.123
       (NAT015%48M01F04P01~02;V48H49)
                [144]Ports {R00~P01}
```

XVI. EQUIPMENT HARDWARE DESIGNATORS

- **Hardware systems** shall be consecutively numbered for each Identical Type within a Telecom Space, but without regard to rack or other installed position.
  Note: The **TS** Location is designated earlier in the Descriptor.
- When new hardware such as a PBX shelf is installed, it shall use the ***next higher*** number for that System Type; suffixed with the manufacturer's standard nomenclature for compatibility and clarity of communication.

Examples:

```
Siemens' PBX System 01: Default-Shelf-Slot-Port
   #KOA^NAT015.123
            (NAT015$PBX01.1-3-61-10;V48H48)

BayAccelar Unit05: Slot 01; Port #01
   #KOA^NAT015.123
         (NAT015$XLR05.A105P01;V48H48)

Cisco Unit 01: Slot 01; Port #01
   #KOA^NAT015.123
         (NAT015$CIS01.A131P01;V48H48)
```

▪ Equipment Racks

Specifications are covered under EIA-310-D, E

A Rack is a unique equipment asset and should be prominently labeled and include the GBS coordinates for immediate identification.
It shall be sequentially numbered within the Telecom Space and include Building.Floor.Grid/Space coordinate suffix.

A Unit value (1.75") can suffixed to the Rack number to define a Rack's total size or a specific location within the rack.

Front row locations use odd-numbers.
Example:

```
NAT015V14H14$R01U01~50;
      V14H15$R03U01~50;
      V14H15$R05U01~50;
```

Back row locations use even-numbers.
Example:

```
NAT015V14H14$R02U01~50;
      V14H15$R04U01~50;
      V14H16$R06U01~50;
```

VII. A SPREADSHEET FORM

STEWARD Asset Matrix system: A Guide for Calculating Location and Quantity of 110-Blocks Mounted in EIA-310-D, E (50U) Racks

Front row locations use Odd-numbers and those on the backside use Even numbers.

RO1U50		R03U50		R05U50		R07U50		R09U50		R11U50		R13U50		R15U50	
432	864	1296	1728	2160	2592	3024	3456	3888	4320	4752	5184	5616	6048	6480	6912
4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables	4-Pair Cables
A001P01	A037P01	A073P01	A109P01	A145P01	A181P01	A217P01	A253P01	A289P01	A325P01	A361P01	A397P01	A433P01	A469P01	A505P01	A541P01
1	37	73	109	145	181	217	253	289	325	361	397	433	469	505	541
6	42	78	114	150	186	222	258	294	330	366	402	438	474	510	546
7	43	79	115	151	187	223	259	295	331	367	403	439	475	511	547
12	48	84	120	156	192	228	264	300	336	372	408	444	480	516	552
13	49	85	121	157	193	229	265	301	337	373	409	445	481	517	553
18	54	90	126	162	198	234	270	306	342	378	414	450	486	522	558
19	55	91	127	163	199	235	271	307	343	379	415	451	487	523	559
24	60	96	132	168	204	240	276	312	348	384	420	456	492	528	564
25	61	97	133	169	205	241	277	313	349	385	421	457	493	529	565
30	66	102	138	174	210	246	282	318	354	390	426	462	498	534	570
31	67	103	139	175	211	247	283	319	355	391	427	463	499	535	571
36	72	108	144	180	216	252	288	324	360	396	432	468	504	540	576
1800	3600	5400	7200	9000	10800	12600	14400	16200	18000	19800	21600	23400	25200	27000	28800
Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs	Terminal Pairs

Termination Blocks mounted on Backboards Reserve and Use a complete set of Block Numbers.

NEW Termination Blocks are Designated (#'d) based on their installed position.

When Equipment is installed in a Rack Position, the associated Block Numbers are not used, but Reserved for possible future use.

Galvanic Backbone Cables are usually divided in Five-Pair Groups.

Four-pair Cable Descriptor names use the Block Type, Block Number and the Port-Terminal Number where Pair-01 is terminated. The 25th and 50th Pairs are skipped.

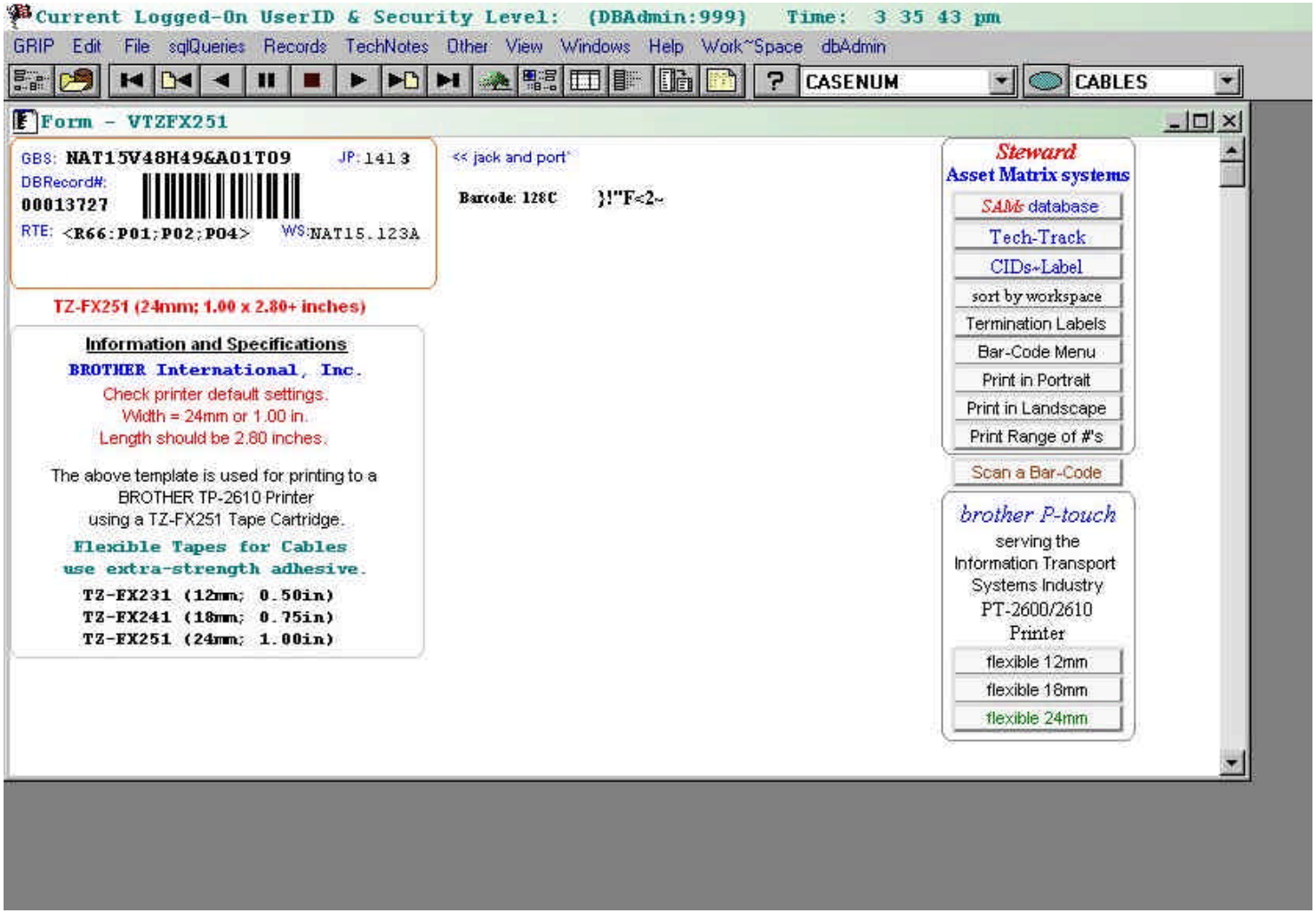
Example: Twelve 4-Pair Cables are named A001P01; A001P05; A001P09; A001P13; A001P17; A001P21; A001P26; A001P30; A001P34; A001P38; A001P42; A001P46;

Visit `http://www.flexcomm.com/library/606A~gbs.pdf` for the latest update of "A Quick Reference Guide to the GBS~Lexicon" for achieving ANSI 606-A Compliance.

(VIII. *STEWARD* Asset Matrix system…

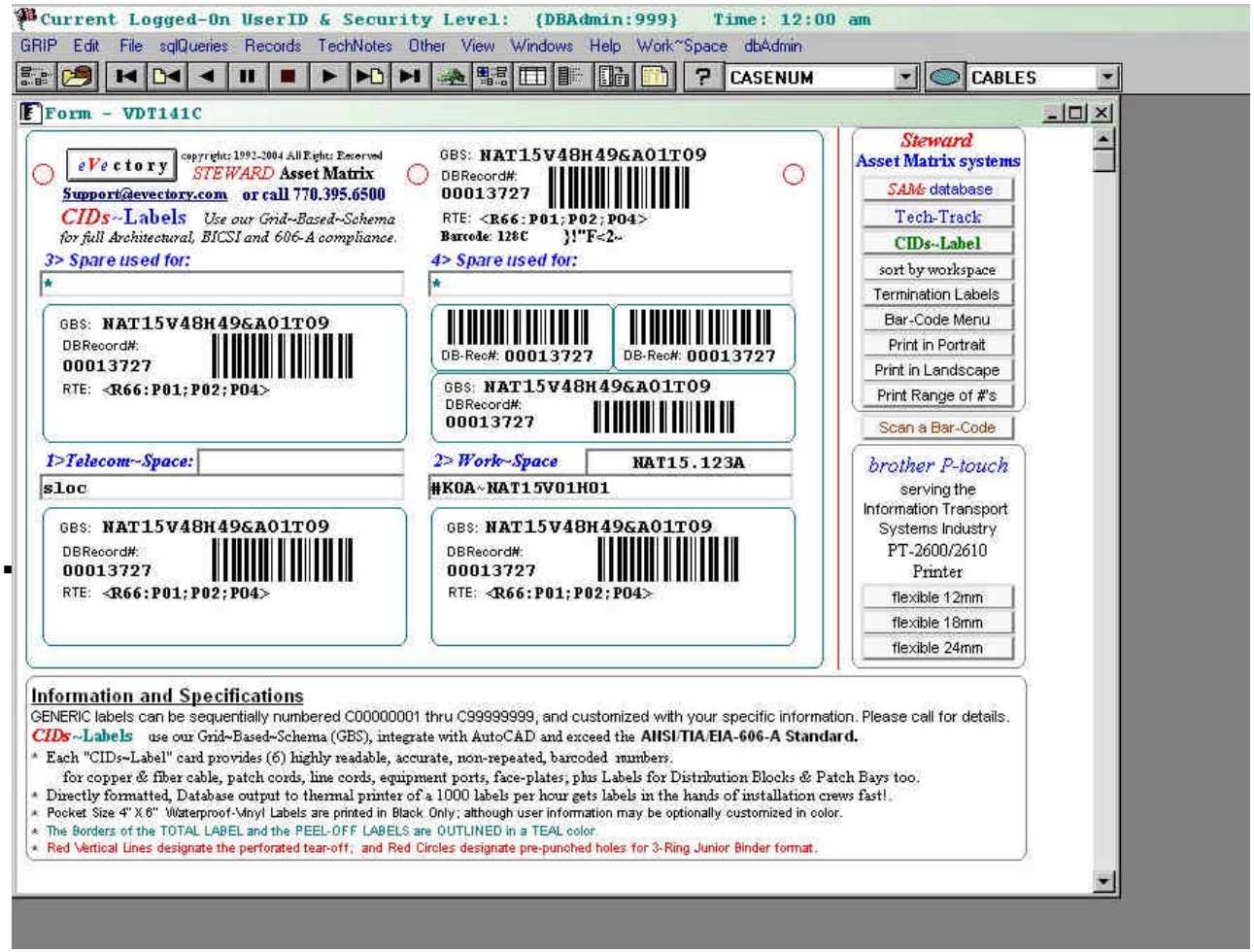
Can be customized to print Company information on labels using
brother's pTouch 2610 printer.

SAMs includes CIDS, a Connectivity, Inventory, Distribution Smart Labeling System.
Below is a Screen Capture displaying a database record ready to print one or more labels.
The label to be printed is located in the top-left corner - enclosed by a red outlined box.



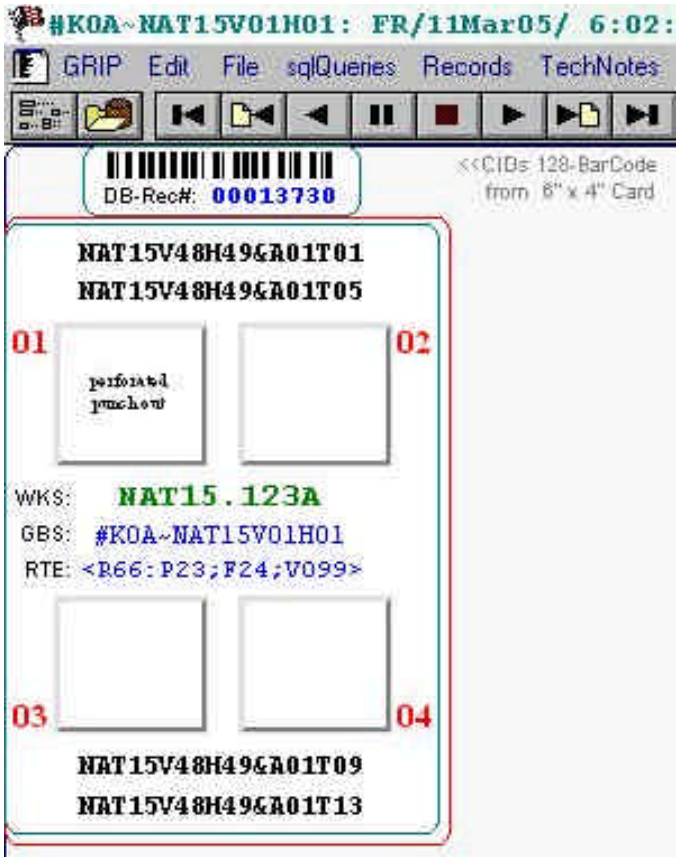
XIX. *STEWARD* Asset Matrix system uses GBS

SAMs includes a Connectivity, Inventory, Distribution Smart Labeling System. ***CIDS*~Labels**



xx. *STEWARD* Asset Matrix system includes

A Connectivity, Inventory, Distribution Smart Labeling System.



- Only the information within the lines is sent to the printer.
- The Quad-Jack box red and teal outlines do not print.
- Using a high-speed ***Zebra*** thermal printer, about 20 to 30 Quad labels can be printed per minute or around a 1,000 labels per hour.
- The small bar-coded label at the top is one of the six-labels printed on the 4” x 6” CIDS card.
- This label covers the entire faceplate.
- The area covering each jack location is perforated and can be easily punched out when adding a new jack.

XXI. HYPERLINKS

eVEnt SOFTWARE~SOLUTIONS

*e*ntrust *VECTORY* Enterprises
www.evectory.com

- **the noahs*ARK* project…**
  Where the enterprise begins with* K.O.R.E. *management

- ***CIDS* ~Labels**
  . . . are thermally printed, database generated, Bar Coded, flexible vinyl,
  water-resistant, 606-A and GBS compliant

- ***STEWARD* Asset Matrix system…**
  Powerful applications for Connectivity~Inventory~Distribution Systems & Equipment .
  Includes ***CIDS*~Labels** software.

  - SAMs 3.0 will feature an easy to use, but very powerful wizard that includes templates for a wide variety of reusable distribution and termination equipment templates, plus unlimited user-defined additions. These templates can be used to create hundreds or thousands of database records without programming experience.
  - Sophisticated combinations of sequential/non-sequential incremented descriptors are now possible, plus enhanced tracking of Routes, Pathways, Fire Stops, Virtual Circuits and Responsibility for Abandoned Cable!

flexComm SUPPORT~SOLUTIONS
http://www.flexcomm.com

and The NBS~GROUP of Consultants…
provide a variety of Flexible Support Options provided under

- ***eVerfied*Base with International Date/Time Line …**
  based on the ITZ Chron~Stamp and The ID/TL Rules Base

  The ***eVB*** Support Service Bureau provides 24/7 global information for Contact Centers

- **Download Reference Tools from**
  http://www.flexcomm.com/downloadtools.html

Tempo's 606A Quick Reference Guide
http://www.evectory.com/library/606aguide.pdf
Tempo, a Textron Company was recently acquired by Brady.

XII. CADD ~ COMPUTER AIDED DESIGN & DRAFTING

Accurate drawings are a necessity in the creation and maintenance of any well-designed structured connectivity and asset management system.
Accurate drawings with reference coordinates are even better.
Example: Autodesk software
http://usa.autodesk.com

Object Attributes in Autodesk

Autodesk objects may be linked using any of several software links, such as ODBC, DCOM, Corba and more. The Autodesk object attributes may be customized to the needs of each client; but we recommend the use of the Sequential Record/Reference Number (SRN) from the primary GBS database as the link designator key.
By using the SRN for relational linking, all information stored in the Asset Management System can be displayed quickly, or specific fields of information updated in either direction as required when work-orders or MAC's are completed.

XXIII. SUGGESTIONS FOR MANAGING A TELECOMMUNICATIONS PROJECT

- An Abbreviated but Critical Check List of Considerations and Requirements To Install or Expand Structured Telecommunications Systems Meeting the ANSI/TIA/EIA 606A Standard.
- Defining & Detailing the Need, Purpose & Goal.
  Gathering Site Information, Designing & Specifying the Requirements.
  Purchasing Materials of only the Highest Quality. Scheduling & Project Management of the Materials & Technical Labor -to Install, Terminate &Certify the Cabling System.
- Sign-Off on the Agreement, Begin Support, Rearrangements & Asset Management phase.

TELECOM STAFF, CONSULTANTS, TECHNICIANS AND ARCHITECTS MEETINGS

- Sign-Off on the Agreement, Begin Support, Rearrangements & Asset Management phase.
  Prepare Preliminary Notes, Drawings, etc. for initial project meeting.
  Detail a Schedule of Vendor Compliance procedures including meetings and email reports.
- Review Codes, Symbol Formats and Coordinate System to be used; such as Global Positioning System, *GPS* and architectural Grid-Based Schema, *GMS*.
- Define and locate items like Campus, Buildings, Facilities, Electrical, Floors, Cubicles, Rooms & Telecom-Spaces.
- Select a new Labeling System or examine the suitability of current one. (i.e. *CIDS*~Labels, Brother, etc.)
- Select a new Connectivity Management System application or examine suitability of that being used.
- Discuss & Define the composition and content of AutoCAD or Visio Drawings, including: Graphical Object Attributes to be used and the Linking of those objects to *CMS*.
- Audit or Re-audit telecommunications spaces and pathways involved; and label or re-label existing resources.
- Define Equipment, Configurations and Operational Requirements.
- Create initial build of Project – entering Dates, Times, Milestones, Sub-projects, Tasks and sub-Tasks.
- Client prepares Draft *Request for Proposal* to attract suggestions and receive proposals.
- Vendor delivers estimate and completes all discussions of *RFP* by cutoff date: _____
- Client analyzes vendor responses to *RFP*
- Client prepares a final *Request For Quotation* and sets a date for Awarding of Project on: _____
- Vendor delivers response to *RFQ* by cutoff date: _____
- Client analyzes vendor responses to *RFQ* and requests explanations or confirmations.
- Client determines the winning Vendor or Vendors and meets with them to sign required Agreements.
- Attorneys review documents if needed.

FINAL PREPARATIONS AND SIGNING OF PURCHASE AND SERVICE LEVEL AGREEMENTS

- Meet all License and Permit Requirements.
- Vendor shall purchase and have on hand all necessary equipment to meet each Milestone and Task. Availability of product should be determined ahead of time. A failure of the distribution channels will not be excused; and penalties will be charged per Agreement.
- Refine the Project Time Line of Events, Tasks and Milestones -- suggest using Primavera Project, Microsoft Project or an Excel Spreadsheet. Consider using Peachtree Complete Accounting with Time and Billing to Coordinate Track Inventory, Job Costs and Vendor Payments.
- Schedule periodic meetings with Vendors and Technical Staff to schedule Personnel and Resources as required.

PROJECT CONTINUES

- Selected Vendor responsible for Computer Floors shall complete as required.
- Install Pathway equipment systems, such as trays, troughs, racks, etc.
- Selected Vendor responsible for AutoCAD, CMS-databases and Labeling shall Pre-build and Populate databases and lookup tables as required in the *RFQ*. for Spaces, Locations, Pathways, Termination Devices, originate & terminate points. How and where each cable & pair is connected to which device and port.
- Labels shall be printed per spec. and make available for field Technicians in a timely manner.
- Install Copper Cables, Fiber Cables
- Terminate Cables and attach Labels per specification.

PROJECT COMPLETION

- Perform and Document the Certification of each Cable, Pair and Fiber and new Equipment - at all times reference the GPS & Grid-Based-Systems for Designation and Labeling.
- Provide in specified computer format, the Certification results for linking to the ***CMS***.
- Provide Summary & Detailed Performance Results at Vendors meeting to determine that all terms and conditions have been met.
- Schedule follow-up work and complete by final Project completion milestone.
- Final Vendors in Compliance Meeting before Project Completion Date.

FAST PROJECT AUDITS

- **Consider using a digital recording device like the Sony ICD-BP150**. Create or update floor plan drawings and include a Revision Date.
- Overlay a GBS 2' X 2' grid and label at necessary intervals.
- Provide copies to Technicians performing the audit.
- *If using paper to perform the audit, provide clear, concise forms for collecting the information.*
- A New Audio Dictation Folder is created for each Floor.
- A New Audio Dictation File is begun for each Work Space.
- The Technician can also mark the actual locations by referencing the GBS Vertical & Horizontal Coordinates on the drawings.
- A single Tech can quickly perform Work Space Audits by following a standard format while Recording the Assets found. i.e. Record the Drawing Name (Campus, Building, Floor)
- GBS-V&H, Work Space name, Pathway, Equipment Closet, Existing Label, Termination Block, Extension#, Directory Name.
- Next, simply plug the USB cable into a laptop or pc, and download the Audit information for the Floor.

Miscellaneous Notes:

Hiring trainees or workers with poor language skills increases a company's chances of accidents and poor documentation (reported or otherwise).

The installation quality can suffer and systems fail to certify; while often times the workman or technician in question has come and gone.

The work of an installation team with inexperienced members must have an on-site supervisor at all times.

Software tracking of the installation specifics on a component level is necessary to insure the moral of experienced professionals and the source of sub-standard work. Technicians and supervisors of major reputable corporations have been found guilty of falsifying certification results in order to meet deadlines or protect profit margins.

Without detailed documentation, there can be no legal certainty that all parties have successfully completed their areas of responsibility. The scope of a project and the number of tasks will determine which software applications are needed.

It may be as simple as a spreadsheet plus calendar software; or your project may require the use of multiple user application software available from InterSystems, UniPress, Peachtree, Primavera and Microsoft; or eVectory's' integrated ITS applications - the noahsARK project, Steward Asset Matrix, GBS~Lexicon and CIDS~Labels.

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Project Management Fundamentals

For Those Considering An Information Transport Systems Project

It has been said that the marketplace establishes price. Then why do so many customers rarely receive the value for which they bargained. There is an old cliché that still rings true, "You may have any two, but not all three of the following: cheap price, best quality and a fast job."

If a vendor or their client fails to appreciate, or chooses to ignore the basics, the result will most likely be failure to meet deadlines, delivery of sub-standard systems, or a reduction in profit margins. Either way their relationship was flawed from the start.

A successful project is one that meets the design criteria. Whether a project involves 10 or 10,000 components, it is important that all parties maintain a *grip* on the five basic elements of managing a technical project.

There are 'Five-Elements' that must be managed well to achieve a successful project.

Accurate ***Communication*** and critical coordination between all parties – so that precise ***Locations*** can be agreed upon; in order that all specified ***Resources*** must be provided on a tightly Monitored ***Schedule*** of dates and times to Insure the ***Mission*** is accomplished per the contract and to the clients' satisfaction.

When all specifications, requirements, terms and conditions are precisely met, the follow-up Support Level Agreements will maintain the high *Quality of Service*, which the original installation provided.

The following basic guidelines extend the *Grip* to every fundamental of the ITS Project.

1. Define the methods to be used for coordinating ***Communications*** between all parties - such as web based applications and traditional methods like voice mail and fax.

2. Always begin with a basic but accurate reference drawing - preferably **Autodesk** or **Visio** software.
   Include all ***Locations*** where ITS components will be installed, delivered or stored by first creating a 2-ft X 2-ft Grid~Based~Schema master level grid layer. Use of an easily understood *descriptor* system like GBS is recommended, and whose coordinates should be referenced and used by all parties. As the specifications are refined, so is the drawing at appropriate intervals. ***If an audit of existing systems or other interfaces is required, this is the place to begin.***

3. Maintain a list of ***Resources*** that includes, but is not limited to**:** audit forms, legal forms, permits, licenses, materials, equipment, serial #'s, employee skill sets, supervisors and project managers. If one person is responsible for multiple duties, this fact should be cross-referenced. Each ITS resource should be labeled using a company approved lexicon. One that meets the ANSI 606A-Standard.
   The quality and quantities specified in the Job Specifications must be met. Exceeding a specification may not be acceptable if it impedes, conflicts or prevents mission completion.
   All participants should be required to immediately inform the Senior Project Manager of any errors in design or installation, no matter whose area of responsibility the suspected problem area might be.
   Substitutions of any item or process must be approved in writing by the Client and the Project Manager.
   For example, availability of licensed, bonded, certified skill levels and test equipment.

4. A web-based ***Schedule*** tracking all dates & times must be maintained - showing all human, hardware, software, cabling, circuit and technical resources involved.

5. The ***Mission*** shall be considered a success and *accepted* only when all terms and conditions are met.

The remainder of this page is blank for Notes and Questions.