

AMERICAN NATIONAL STANDARD

# ANSI/BICSI 001-2009

Information Transport Systems Design  
Standard for K-12 Educational Institutions



STANDARDS

Currently in preview, click buy full version

# American National Standard

## ANSI/BICSI 001-2009

### Information Transport Systems Design Standard for K-12 Educational Institutions

Committee Approval: October 2008  
First Published: March 2009



## BICSI Standards

BICSI standards contain information deemed to be of technical value to the industry and are published at the request of the originating committee. The BICSI Standards Committee has subjected this standard to a rigorous public review and resolution of comments, which is a procedural part of the development of a BICSI standard.

BICSI reviews standards within five years of its last approval date. At that time, standards are reaffirmed, rescinded, or revised according to submitted updates and assessment of need.

Suggestions for revision should be directed to the BICSI Standards Committee, care of BICSI.

## Copyright

This BICSI document is a standard and is copyright protected. Except as permitted under the applicable laws of the user's country, neither this BICSI standard nor any extract from it may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission from BICSI being secured.

Requests for permission to reproduce this document should be addressed to BICSI.

Reproduction may be subject to royalty payments or a licensing agreement.

Violators may be prosecuted.

### Published by:

BICSI  
8610 Hidden River Parkway  
Tampa, FL 33637-1000 USA

All rights reserved  
Printed in U.S.A.

## Notice Of Disclaimer And Limitation Of Liability

BICSI standards and publications are designed to serve the public interest by offering information transport systems (ITS) design guidelines. Existence of such standards and publications shall not in any respect preclude any member or nonmember of BICSI from manufacturing or selling products not conforming to such standards and publications, nor shall the existence of such standards and publications preclude their voluntary use by those other than BICSI members, whether the standard is to be used either domestically or internationally.

By publication of this standard, BICSI takes no position respecting the validity of any patent rights or copyrights asserted in connection with any item mentioned in this standard. Additionally, BICSI does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the standard or publication. Users of this standard are expressly advised that determination of any such patent rights or copyrights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard does not purport to address all safety issues or applicable regulatory requirements associated with its use. It is the responsibility of the user of this standard to review any existing codes and other regulations recognized by the national, regional, local and/or other recognized AHJ in conjunction with the use of this standard. Where differences occur, those items listed within the codes or regulations of the AHJ supersede any requirement or recommendation of this standard.

All warranties, express or implied, are disclaimed, including without limitation, any and all warranties concerning the accuracy of the contents, its fitness or appropriateness for a particular purpose or use, its merchantability and its non-infringement of any third party's intellectual property rights. BICSI expressly disclaims any and all responsibilities for the accuracy of the contents and makes no representations or warranties regarding the content's compliance with any applicable statute, rule or regulation.

BICSI shall not be liable for any and all damages, direct or indirect, arising from or relating to any use of the contents contained herein, including without limitation any and all indirect, special, incidental or consequential damages (including damages for loss of business, loss of profit, litigation, or the like), whether based upon breach of contract, breach of warranty, tort (including negligence), product liability or otherwise, even if advised of the possibility of such damages. The foregoing negation of damages is a fundamental element of the use of the contents hereof, and these contents would not be published by BICSI without such limitations.

## TABLE OF CONTENTS

<b>1 SCOPE</b> .....	<b>1</b>
1.1 APPLICABILITY .....	1
1.2 NORMATIVE REFERENCES .....	1
1.3 LEGEND FOR FIGURES 1–4.....	2
<b>2 DEFINITIONS, ABBREVIATIONS, ACRONYMS, UNITS OF MEASUREMENT</b> .....	<b>7</b>
2.1 GENERAL.....	7
2.2 DEFINITIONS .....	7
2.3 ABBREVIATIONS AND ACRONYMS.....	8
2.4 UNITS OF MEASUREMENT .....	9
<b>3 GENERIC INFRASTRUCTURE</b> .....	<b>9</b>
3.1 GENERAL.....	9
3.2 HORIZONTAL CABLING.....	9
3.2.1 Telecommunications outlet/connector .....	10
3.3 MULTIUSER TELECOMMUNICATIONS OUTLET ASSEMBLY (MUTOA).....	10
3.4 CONSOLIDATION POINT (CP).....	11
3.5 BACKBONE CABLING.....	11
3.5.1 General.....	11
3.6 TELECOMMUNICATIONS ENCLOSURE (TE).....	11
3.7 FIELD-TESTING REQUIREMENTS .....	12
3.7.1 General.....	12
3.7.2 100-ohm balanced twisted-pair cabling .....	12
3.7.3 Optical fiber cabling.....	12
3.8 LABELING.....	13
3.9 GROUNDING AND BONDING.....	13
3.10 FIRESTOP SYSTEM.....	13
3.10.1 Firestop product .....	13
3.10.2 Firestop system installation.....	13
3.11 SECURITY .....	13
3.11.1 Emergency phone/panic station.....	13
3.11.2 Video surveillance .....	14
3.12 WIRELESS.....	14
3.13 MASTER CLOCK SYSTEM .....	14
3.14 DISTANCE LEARNING .....	14
3.15 MULTIPLE BUILDING (COMPLEX) CONNECTIVITY.....	14
3.16 ENTRANCE FACILITY (EF).....	15
3.17 TELECOMMUNICATIONS ROOM (TR).....	15
3.18 EQUIPMENT ROOM (ER).....	15
3.19 COMMUNITY ANTENNA TELEVISION (CATV) SYSTEM.....	16
<b>4 CLASSROOM</b> .....	<b>16</b>
4.1 GENERAL.....	16
4.2 TELECOMMUNICATIONS OUTLET/CONNECTORS .....	16
4.2.1 Telephone .....	16
4.2.2 Network.....	16
4.2.3 Community antenna television (CATV) .....	16
4.2.4 Audio/video (A/V).....	16
4.2.5 Public address .....	16
4.2.6 Intercom.....	17
4.2.7 Pathway.....	17
4.2.8 Media.....	17

<b>5 ADMINISTRATION OFFICE</b> .....	<b>17</b>
<b>5.1 GENERAL</b> .....	<b>17</b>
5.1.1 <i>Principal's office</i> .....	17
5.1.2 <i>Attendance office</i> .....	17
5.1.3 <i>Guidance office</i> .....	17
<b>5.2 TELECOMMUNICATIONS OUTLET/CONNECTORS</b> .....	<b>18</b>
5.2.1 <i>Telephone</i> .....	18
5.2.2 <i>Network</i> .....	18
5.2.3 <i>Community antenna television (CATV)</i> .....	18
5.2.4 <i>Audio/video (A/V)</i> .....	18
5.2.5 <i>Public address</i> .....	18
5.2.6 <i>Intercom</i> .....	18
5.2.7 <i>Pathway</i> .....	18
5.2.8 <i>Media</i> .....	18
<b>6 ARTS</b> .....	<b>18</b>
<b>6.1 GENERAL</b> .....	<b>18</b>
6.1.1 <i>Fine arts</i> .....	19
6.1.2 <i>Industrial arts</i> .....	19
6.1.3 <i>Auditorium</i> .....	19
<b>6.2 TELECOMMUNICATIONS OUTLET/CONNECTORS</b> .....	<b>19</b>
6.2.1 <i>Telephone</i> .....	19
6.2.2 <i>Network</i> .....	19
6.2.3 <i>Community antenna television (CATV)</i> .....	19
6.2.4 <i>Audio/video (A/V)</i> .....	19
6.2.5 <i>Public address</i> .....	19
6.2.6 <i>Intercom</i> .....	20
6.2.7 <i>Pathway</i> .....	20
6.2.8 <i>Media</i> .....	20
<b>7 PHYSICAL EDUCATION</b> .....	<b>20</b>
<b>7.1 GENERAL</b> .....	<b>20</b>
<b>7.2 TELECOMMUNICATIONS OUTLET/CONNECTORS</b> .....	<b>20</b>
7.2.1 <i>Telephone</i> .....	20
7.2.2 <i>Network</i> .....	20
7.2.3 <i>Community antenna television (CATV)</i> .....	20
7.2.4 <i>Audio/video (A/V)</i> .....	21
7.2.5 <i>Public address</i> .....	21
7.2.6 <i>Intercom</i> .....	21
7.2.7 <i>Pathway</i> .....	21
7.2.8 <i>Media</i> .....	21
<b>8 BUILDING SERVICES</b> .....	<b>21</b>
<b>8.1 GENERAL</b> .....	<b>21</b>
8.1.1 <i>Cafeteria</i> .....	21
8.1.2 <i>Engineering</i> .....	22
8.1.3 <i>Loading dock</i> .....	22
8.1.4 <i>Mechanical room</i> .....	22
8.1.5 <i>Security office</i> .....	22
8.1.6 <i>Master's office</i> .....	22
<b>8.2 TELECOMMUNICATIONS OUTLET/CONNECTORS</b> .....	<b>22</b>
8.2.1 <i>Telephone</i> .....	22
8.2.2 <i>Network</i> .....	22
8.2.3 <i>Community antenna television (CATV)</i> .....	22
8.2.4 <i>Audio/video (A/V)</i> .....	22
8.2.5 <i>Public address</i> .....	23
8.2.6 <i>Intercom</i> .....	23
8.2.7 <i>Pathway</i> .....	23
8.2.8 <i>Media</i> .....	23
<b>ANNEX A: REFERENCED DOCUMENTS (INFORMATIVE)</b> .....	<b>24</b>

**INDEX OF FIGURES**

Figure 1: Example illustration of kindergarten grade classroom ..... 3  
Figure 2: Example illustration of primary grade classroom ..... 4  
Figure 3: Example illustration of middle/intermediate grade classroom ..... 5  
Figure 4: Example illustration of high school grade classroom..... 6

**INDEX OF TABLES**

Table 1: Maximum length of horizontal cables and work area cords ..... 11

Currently in preview, click buy full version